

Search history

Search 1: SFT=(glass and end-fire and furnace) and PD<20150602 (Results 9)
Search 2: sonic and inyector (Results 293)
Search 3: sonic and inyector* and furnace* and donwstream (Results 0)
Search 4: sonic and injection* and furnace* and donwstream (Results 0)
Search 5: (2) AND IPC=(C07 OR F23 OR F01 OR F27) (Results 98)
Search 6: sonic and inyector and nox and emission* (Results 19)
Search 7: (6) AND IPC=(F27 OR C03) (Results 2)
Search 8: sonic and inyector and nox and glass* (Results 9)
Search 9: sonic and inyector and nox and glass and furnace* (Results 2)
Search 10: (sonic and inyector and nox and glass*) and PD<20150602 (Results 8)
Search 11: SFT=(Nox and furnace* and sonic* and injector*) and PD<20150602 (Results 97)
Search 12: (11) AND IPC=(B01 OR F23 OR F27 OR C03) (Results 48)
Search 13: SFT=(Nox and furnace* and sonic* and injector* and glass) and PD<20150602 (Results 54)

1) Family number: 57414072 (US2016030856A)

© PatBase

Title:	DISTILLATION REACTOR MODULE																																																																																													
Priority:	US20130800209P 20130315	US20130801170P 20130315	US20130801491P 20130315																																																																																											
	US20140776734 20140318	US20140776736 20140318	WO2014US31118 20140318																																																																																											
	WO2014US31116 20140318	US20140776732 20140515	WO2014US38290 20140515																																																																																											
Family:	<table><tr><th></th><th>Publication number</th><th>Publication date</th><th>Application number</th><th>Application date</th></tr><tr><td>CA</td><td>2907677 A2</td><td>20150921</td><td>CA20142907677</td><td>20140318</td></tr><tr><td>EP</td><td>2969180 A2</td><td>20160120</td><td>EP20140762668</td><td>20140318</td></tr><tr><td>EP</td><td>2969180 A4</td><td>20161005</td><td>EP20140762668</td><td>20140318</td></tr><tr><td>IL</td><td>242590 A0</td><td>20160131</td><td>IL20140242590</td><td>20140318</td></tr><tr><td>JP</td><td>2016512165 T2</td><td>20160425</td><td>JP20160502609T</td><td>20140318</td></tr><tr><td>US</td><td>2016030856 AA</td><td>20160204</td><td>US20140776734</td><td>20140318</td></tr><tr><td>US</td><td>2016032904 AA</td><td>20160204</td><td>US20140776736</td><td>20140318</td></tr><tr><td>US</td><td>2016045841 AA</td><td>20160218</td><td>US20140776732</td><td>20140515</td></tr><tr><td>WO</td><td>14146129 A2</td><td>20140918</td><td>WO2014US31118</td><td>20140318</td></tr><tr><td>WO</td><td>14146129 A3</td><td>20150129</td><td>WO2014US31118</td><td>20140318</td></tr><tr><td>WO</td><td>14153570 A2</td><td>20140925</td><td>WO2014US38290</td><td>20140515</td></tr><tr><td>WO</td><td>14153570 A3</td><td>20150219</td><td>WO2014US38290</td><td>20140515</td></tr><tr><td>WO</td><td>14153570 A9</td><td>20150806</td><td>WO2014US38290</td><td>20140515</td></tr><tr><td>WO</td><td>14200605 A2</td><td>20141218</td><td>WO2014US31116</td><td>20140318</td></tr><tr><td>WO</td><td>14200605 A3</td><td>20150326</td><td>WO2014US31116</td><td>20140318</td></tr><tr><td>WO</td><td>14200605 A4</td><td>20150430</td><td>WO2014US31116</td><td>20140318</td></tr><tr><td>WO</td><td>14200605 A9</td><td>20150205</td><td>WO2014US31116</td><td>20140318</td></tr></table>					Publication number	Publication date	Application number	Application date	CA	2907677 A2	20150921	CA20142907677	20140318	EP	2969180 A2	20160120	EP20140762668	20140318	EP	2969180 A4	20161005	EP20140762668	20140318	IL	242590 A0	20160131	IL20140242590	20140318	JP	2016512165 T2	20160425	JP20160502609T	20140318	US	2016030856 AA	20160204	US20140776734	20140318	US	2016032904 AA	20160204	US20140776736	20140318	US	2016045841 AA	20160218	US20140776732	20140515	WO	14146129 A2	20140918	WO2014US31118	20140318	WO	14146129 A3	20150129	WO2014US31118	20140318	WO	14153570 A2	20140925	WO2014US38290	20140515	WO	14153570 A3	20150219	WO2014US38290	20140515	WO	14153570 A9	20150806	WO2014US38290	20140515	WO	14200605 A2	20141218	WO2014US31116	20140318	WO	14200605 A3	20150326	WO2014US31116	20140318	WO	14200605 A4	20150430	WO2014US31116	20140318	WO	14200605 A9	20150205	WO2014US31116	20140318
	Publication number	Publication date	Application number	Application date																																																																																										
CA	2907677 A2	20150921	CA20142907677	20140318																																																																																										
EP	2969180 A2	20160120	EP20140762668	20140318																																																																																										
EP	2969180 A4	20161005	EP20140762668	20140318																																																																																										
IL	242590 A0	20160131	IL20140242590	20140318																																																																																										
JP	2016512165 T2	20160425	JP20160502609T	20140318																																																																																										
US	2016030856 AA	20160204	US20140776734	20140318																																																																																										
US	2016032904 AA	20160204	US20140776736	20140318																																																																																										
US	2016045841 AA	20160218	US20140776732	20140515																																																																																										
WO	14146129 A2	20140918	WO2014US31118	20140318																																																																																										
WO	14146129 A3	20150129	WO2014US31118	20140318																																																																																										
WO	14153570 A2	20140925	WO2014US38290	20140515																																																																																										
WO	14153570 A3	20150219	WO2014US38290	20140515																																																																																										
WO	14153570 A9	20150806	WO2014US38290	20140515																																																																																										
WO	14200605 A2	20141218	WO2014US31116	20140318																																																																																										
WO	14200605 A3	20150326	WO2014US31116	20140318																																																																																										
WO	14200605 A4	20150430	WO2014US31116	20140318																																																																																										
WO	14200605 A9	20150205	WO2014US31116	20140318																																																																																										
Probable Assignee:	TRANSTAR GROUP LLC																																																																																													
Assignee(s):(std):	BRADLEY RANDALL ; KALPAN ALLEN ; KAPLAN ALLEN ; TRANSTAR GROUP LTD																																																																																													
Assignee(s):	TRANSTAR GROUP LLC																																																																																													
Inventor(s):(std):	BRADLEY RANDALL ; KALPAN ALLEN ; KAPLAN ALLEN																																																																																													
Agent(s):	ADE AND CO INC; NELLIGAN OBRIEN PAYNE LLP; PERRONACE ANDREA; HERSHKOVITZ ABRAHAM ET AL; HERSHKOTIZ ABRAHAM ET AL																																																																																													
Designated states:	AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW																																																																																													
International class (IPC 8-9):	B01D3/00 B01D3/06 B01D3/10 B01D3/26 B01D3/32 B01D39/20 B01D53/48 B01D53/62 B01D59/04 B01J B01J19/24 B01J19/26 B01J2/00 B01J6/00 B01J8/24 B02C23/00 B03C1/00 B22F3/10 B22F9/00 B29B17/00 C01B17/027 C01B17/74 C02F1/00 C10B49/12 C10G1/00 C10G11/18 C10G33/00 C10G45/00 C10G57/00 C10G7/00 C10G7/06 C10G9/04 C10J3/72 C10L9/10 C22B13/00 C22B15/00 C22B21/00 C22B7/00 C22B9/00 F03G7/00 F27B17/00 G21C1/02 G21D5/00 H01M10/54 H01M8/00 H02K55/02 H02K7/09 (Advanced/Invention)																																																																																													
CPC:	Y02E30/40 G21D1/00 B01J19/0093 B01J2219/00864 B01J2219/00867 B01J2219/00871 C01G21/02 C01B3/32 C01B13/02 C01B17/02 C01B2203/0205 C01B2203/0283 C01B2203/043 C01B2203/0445 C01B2203/0475 C10G1/02 C10G1/10 C10G31/08 C10G75/04 Y02P20/129 B09B5/00 Y02P30/446 Y02E30/30 B01D3/10 B01D3/006 B01D3/06 B01D39/2027 F03G7/00 B01D3/009 C10G7/06 G21C1/00 G21D5/00 C10G7/00 C10G57/00 C10G7/003 C10L9/10 C10J3/72 C10G1/00 C01B17/027 C01B17/74 B01J6/008 B01J2/00 B01J19/24 B01D53/48 B01D53/62 C22B9/00 F27B17/00 C02F1/00 C22B7/00 B29B17/00 B22F3/10 B22F9/00 C22B21/00 C22B15/00 C22B13/00 H01M8/00 H01M10/54 H02K55/02 H02K7/09 B02C23/00 B03C1/00 C10L2290/544 C10J2300/093 C10J2300/0946 B22F2009/001 C01B17/48 C10G11/18 C10G33/00 C10G45/00 Y02E20/16 Y02E20/18 Y02W10/33 Y02W10/37 Y02W30/84 C01B32/05 C01B32/20 C01B32/50 Y02P10/143																																																																																													
US class:	196/46 202/232 209/213 210/251 241/301 241/65 266/160 310/90.5 422/129 422/170 422/187 422/198																																																																																													

Cited documents:

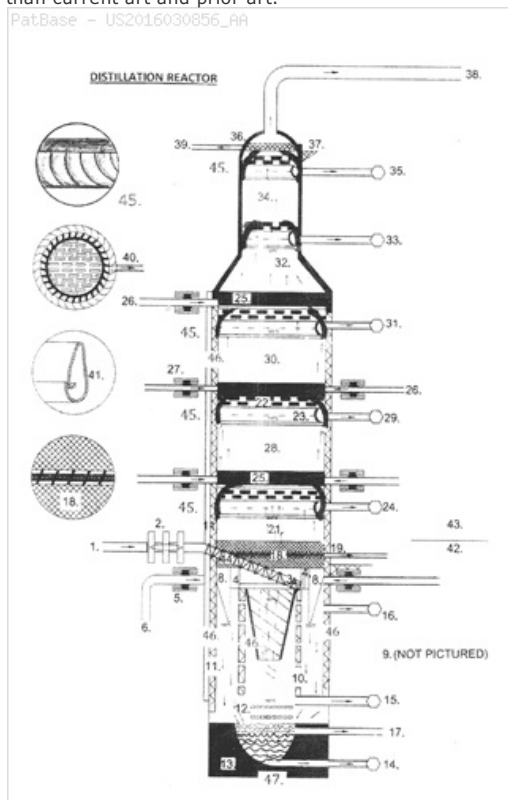
WO12100247 A2, WO12085880 A2, WO10077141 A1, WO0003807 A1, US7452515 BA, US7220365 BB, US6325840 BA, US6193194 BA, US5251976 A, US5247548 A, US5139764 A, US5020411 A, US4904347 A, US4018567 A, US3931503 A, US3870507 A, US3850620 A, US3836339 A, US3168807 A, US3052535 A, US2013256113 AA, US2013055699 AA, US2012220509 AA, US2012027156 AA, US2011308158 AA, US2011168541 AA, US2010192980 AA, US2009120842 AA, US2009011291 AA, US2008093302 AA, US2007044659 AA, US2006211899 AA, US2006002829 AA, US2005167333 AA, JP2012229959 A2, EP2510994 A1, EP1249485 A1, CN101376068 A,

Forward Citations:

WO18231047, WO18125471, WO18097757, WO18097756, WO18049153, WO18035152, WO18013599, WO17212342, WO17210046, WO17195173, WO17044178, WO17034980, WO16094264, WO16057636, WO15200478, WO15143574, US9964962, US9915477, US9909496, US9901932, US9891004, US9879918, US9869209, US9859477, US9851153, US9845996, US9845995, US9843062, US9840413, US9828885, US9816759, US9816755, US9816401, US9803930, US9803513, US9803511, US9803509, US9803508, US9803507, US9803506, US9803505, US9803145, US9796852, US9790574, US9757667, US9751778, US9745871, US9745867, US9725652, US9719933, US9658044, US9640370, US9636633, US9614743, US9598653, US9588229, US9561463, US9505999, US9487908, US9458597, US9410414, US2017341015, US2017333581, US2017274387, US2017209829, US2017207372, US2017175564, US2017075362, US2017066663, US2017058723, US2017058721, US2017058703, US2017030264, US2017002731, US2016339535, US2016333831, US2016333286, US2016326040, US2016320056, US2016313058, US2016284445, US2016258730, US2016102260, US2016057039, US2015353388, US2015107822, US2015104357, US2015008156, US2014277754, US2014174658, US2013335079, US2012133464, US10233833, US10233787, US10227899, US10221775, US10174640, US10170960, US10156517, US10138378, US10126067, US10125640, US10125639, US10124695, US10119764, US10118124, US10113805, US10113448, US10100200, US10094219, US10093873, US10082104, US10082045, US10058873, US10016719, US10012448, RU2676675, RU2655161, RU2632837, RU2632293, KR101759327, GB2542051, CN107718877, CN107207976, CN105523598,

Abstract:

The distillation reactor consists of a reactor apparatus with corresponding method of upstream distilling and purification of carbon based liquid or liquidized streams for use as fuels, lubricating oils and or gaseous energy and electricity production. The distillation reactor consolidates the atmospheric and vacuum distillation processes along with desalting, defueling, deasphalting, fractionation, thin/wiped film evaporation and Hydro finishing into an advanced high velocity, high volume single reactor system. Carbon based feed streams include either a single stream or preferably, a combined stream of liquefied coal slurries, crude oils, spent oils, Pyrolytic oils and or peat or other plant carbon derived liquids, vapors, mists or gases. The method further consists of controlling the mix ratio, flow velocity, sequential fractionation and filtration technology and processing atmospheres of the carbon feeds with the reactor apparatus. The combined apparatus and method allows for a refinery to consistently produce a finished barrel of oil well below traditional costs and at a higher efficiency than current art and prior art.

**2) Family number: 57600115 (US2014305640A)**

© PatBase

Title:	IN SITU THERMAL PROCESSING OF AN OIL SHALE FORMATION USING CONDUCTIVE HEATING			
Priority:	US20010286062P 20010424	US20010337249P 20011024	US20020131286 20020424	US20020131286 20020424
	US20060343913 20060131	US20070809889 20070601	US20100767572 20100426	US20100767572 20100426
	US20130104605 20131212			
Family:	Publication number	Publication date	Application number	Application date
	US2014305640 AA	20141016	US20130104605	20131212
Probable Assignee:	SHELL OIL CO A DELAWARE CORP			
Assignee(s):(std):	BERCHENKO ILYA E ; DE ROUFFIGNAC ERIC ; FOWLER THOMAS D ; KARANIKAS JOHN M ; VINEGAR HAROLD J ; RYAN ROBERT C ; ZHANG ETUAN ; SHELL OIL CO ; WELLINGTON SCOTT L ; STEGEMEIER GEORGE L ; SHAHIN JR GORDON T			
Assignee(s):	SHELL OIL CO A DELAWARE CORP			

Inventor(s):(std): ZHANG ETUAN ; WELLINGTON SCOTT L ; VINEGAR HAROLD J ; STEGEMEIER GEORGE L ; SHAHIN JR GORDON T ; RYAN ROBERT C ; KARANIKAS JOHN M ; FOWLER THOMAS D ; DE ROUFFIGNAC ERIC ; BERCHENKO ILYA E

International class (IPC 8-9): E21B43/24 E21B43/243 E21B43/247 E21B43/30 E21C41/24 (Advanced/Invention)

CPC: E21B43/24 E21B43/2401 E21B43/243 E21B43/247 E21B43/30

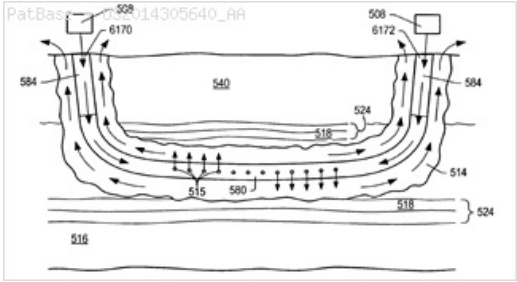
US class: 166/272.1 166/302

[Classification Explorer](#)

Cited documents: US7225866 BB, US7051811 BB, US6991032 BB, US6915850 BB, US6016867 A, US4886118 A, US2734579 A,

Forward Citations: WO17221113, WO17091688, US9605524, US2016312599, US10161228, US10047594, US10030484,

Abstract:
Methods and systems of treating an oil shale formation using an in situ thermal process are described herein. A method of treating an oil shale formation in situ includes providing heat from one or more heat sources to at least a portion of the formation; allowing the heat to transfer from at least the portion to a selected section of the formation substantially by conduction of heat; pyrolyzing at least some hydrocarbons within the selected section of the formation; and producing a mixture from the formation.



3) Family number: 11886184 (US5993203A) © PatBase

Title: HEAT TRANSFER ENHANCEMENTS FOR INCREASING FUEL EFFICIENCY IN HIGH TEMPERATURE FURNACES

Priority: US19950551580 19951101 US19970944706 19971006

Family:

Publication number	Publication date	Application number	Application date
US5993203 A	19991130	US19970944706	19971006

Probable Assignee: GAS TECHNOLOGY INST

Assignee(s):(std): GAS RES INST

Assignee(s): GAS RESEARCH INST ; GAS RESEARCH INSTITUTE ; GAS TECHNOLOGY INST

Inventor(s):(std): KOPPANG RICHARD

International class (IPC 8-9): C03B5/235 C03B5/237 F27B3/26 F27D1/04 (Advanced/Invention); C03B5/00 F27B3/10 F27D1/04 (Core/Invention)

International class (IPC 1-7): F27D17/00

CPC: C03B5/235 C03B5/237 F27B3/263 F27D1/042 Y02P40/535

European class: C03B5/235 C03B5/237 F27B3/26B F27D1/04A

US class: 432/179 432/180 432/181

[Classification Explorer](#)

Cited documents: US5795364 A, US5387100 A, US5308239 A, US5242295 A, US5238396 A, US5215455 A, US5203859 A, US5139755 A, US5062789 A, US5057010 A, US5052921 A, US5052919 A, US4761132 A, US4599100 A, US4506726 A, US4375235 A, US4372770 A, US4347072 A, US4328020 A, US4144017 A, US3885919 A, GB599548 A, GB599547 A,

Forward Citations: WO12005901, USRE46896, USRE46462, US9982884, US9957184, US9926219, US9840430, US9815726, US9777922, US9776903, US9776901, US9751792, US9731990, US9676652, US9676644, US9650277, US9643870, US9580344, US9573831, US9533906, US9533905, US9505646, US9492831, US9481593, US9481592, US9096452, US9021838, US8997525, US8991215, US8973405, US8973400, US8875544, US8769992, US8740612, US8690566, US8650914, US8454354, US6705117, US6592833, US2016370005, US2014141382, US2012021367, US2010159409, US2010081103, US2009280444, US2007281264, US10233105, US10196294, US10184659, US10183884, US10144666, US10138151, US10131563, US10081565, US10081563, US10041666, ITTO20130673, EP3339255, EP1326049, EP1326049,

Abstract:
Techniques for increasing the thermal efficiency of high temperature combustion sources such as glass and other process furnaces are disclosed. These techniques include one or more of the steps of co-firing of a carbonaceous solid fuel or heavy fuel oil with the primary fuel in the primary combustion zone such that the co-fired fuel is cracked and thereby generates a high number density of carbonaceous particles sufficient to improve soot radiation; providing enhanced mixing of first burnout air with the flue gas in a first burnout zone; and promoting instability of boundary layer gases adjacent refractory packings.



Family:

Publication number	Publication date	Application number	Application date
CA2691392 A2	20070215	CA20062691392	20060703
CA2717880 A2	20071018	CA20062717880	20061012
CN101663787 A	20100303	CN200680056619	20061012
EP2186156 A2	20100519	EP20060849844	20061012
IN00938MN2009 A	20090522	IN2009MN00938	20090512
IN02777MN2008 A	20090717	IN2008MN02777	20081229
US2010163226 A2	20100701	US20090307585	20090105
US2011290483 A2	20111201	US20110115108	20110524
US7946346 B2	20110524	US20060307585	20060703
WO06014548 A2	20060209	WO2005US24107	20050705
WO06014548 A3	20060810	WO2005US24107	20050705
WO07018844 A2	20070215	WO2006US26184	20060703
WO07018844 A3	20070628	WO2006US26184	20060703
WO07018844 C1	20080821	WO2006US26184	20060703
WO07117274 A2	20071018	WO2006US40399	20061012
WO07117274 A3	20080731	WO2006US40399	20061012
WO08076147 A2	20080626	WO2007US14470	20070619
WO08076147 A3	20080925	WO2007US14470	20070619
WO08076147 B1	20081106	WO2007US14470	20070619
WO09017468 A1	20090205	WO2007US15468	20070703

PatBase PDF Export - Page: 4 24/03/2019

US2015322363 AA	20151112	US20150801885	20150717
US6858048 BA	20050222	US20020124665	20020417
US7559961 BB	20090714	US20050060169	20050217
US8277522 BB	20121002	US20090498850	20090707
US9085741 BB	20150721	US20120621408	20120917
WO06088462 A1	20060824	WO2005US05326	20050218

Probable Assignee: STANDARD ALCOHOL CO OF AMERICA INC

Assignee(s):(std): GIARDINO GERADETTE ; GIARDINO RADOSEVICH GERADELTE ; JIMESON ROBERT M ; RADOSEVICH MARK C ; STANDARD ALCOHOL CO OF AM ; STANDARD ALCOHOL CO OF AMERICA ; STANDARD ALCOHOL CO OF AMERICA INC ; STEVENS REX R ; STANDARD ALCOHOL COMPANY OF AM ; STANDARD ALCOHOL COMPANY OF AMERICA INC ; TLJM PETER J

Assignee(s): STANDARD ALCOHOL OF AMERICA INC

Inventor(s):(std): TLJM PETER J ; STEVENS REX R ; STANDARD ALCOHOL COMPANY OF AMERICA INC ; RADOSEVICH MARK C ; JIMESON ROBERT M ; GIARDINO RADOSEVICH GERADELTE ; GIARDINO GERADETTE

Inventor(s): STEVENS REX ; RADOSEVICH MARK ; JIMESON ROBERT ; MARK C RADOSEVICH ; REX R STEVENS ; ROBERT M JIMESON

Agent(s): MADDERNS PTY LTD; MADDERNS PATENT AND TRADE MARK ATTORNEYS; BARLOW CHARLES BRIAN; GOWAN INTELLECTUAL PROPERTY; RIDOUT AND MAYBEE LLP; SHANGHAI PATENT AND TRADEMARK OFFICE; DECKER JONES MCMACKIN MCCLANE HALL AND BATES PC; GEOFFREY A; BRIAN K

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LI LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NA NE NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SM SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

International class (IPC 8-9): B65B1/04 B65G53/30 C10J3/72 C10L C10L1/00 C10L1/02 C10L1/04 C10L1/06 C10L1/08 C10L1/10 C10L1/18 C10L1/182 C10L1/32 C10L10/00 C10L10/02 C10L8/00 C10L9/10 (Advanced/Invention); C10L1/00 C10L1/10 C10L10/00 (Core/Invention); C10L (Subclass/Invention)

International class (IPC 1-7): C10L1/18 C10L1/32

CPC: C10L1/18 C10L1/19 C10L10/10 C10J3/72 C10L1/00 C10L1/32 C10J2300/093 C10J2300/0943 C10L10/02 C10L1/02 C10L1/1824 C10L1/023 C10L1/026 C10L1/1822 C10L1/322 C10L9/10 C10L10/00 C10L2230/14 C10L2230/22 C10L2270/023 C10L2270/026 C10L2270/04

European class: C10L1/02 C10L1/02B C10L1/02D C10L1/18 C10L1/182B C10L1/182B2 C10L1/32A C10L10/02 C10L9/10 M10L1/182B2 M10L1/19

US class: 1/1 252/373 406/191 44/266 44/280 44/302 44/302P 44/452 44/452P 53/473

[Classification Explorer](#)

Cited documents: USRE33562 E, US8641788 BB, US8277522 BB, US7559961 BB, US6858048 BA, US6039772 A, US6030521 A, US5837126 A, US5720784 A, US5663455 A, US5653866 A, US5559275 A, US5288393 A, US5045087 A, US4953479 A, US4895662 A, US4882360 A, US4871397 A, US4831060 A, US4825013 A, US4762858 A, US4752623 A, US4752622 A, US4705532 A, US4675344 A, US4561861 A, US4533508 A, US4479807 A, US4391701 A, US4384872 A, US4366032 A, US4357146 A, US4298354 A, US4255158 A, US4218516 A, US4192651 A, US4154580 A, US4146366 A, US4097217 A, US4089657 A, US4045092 A, US4030893 A, US4018293 A, US3968999 A, US3822119 A, US2128910 A, US2010024288 AA, US1774180 A, CN1089299 A,

Forward Citations: WO16144942, WO14102150, WO13032321, WO12131545, WO12016250, WO11139277, WO11139277, WO10107777, WO10017099, WO09117875, WO08156651, US9963401, US9914672, US9873845, US9790896, US9777697, US9382490, US9315754, US9297301, US9228144, US9227895, US9133080, US9098955, US9085741, US9061951, US8921431, US8790423, US8776734, US8712669, US8628594, US8603201, US8352166, US8324437, US8277522, US8250931, US8187347, US8165788, US8153027, US8148579, US8142530, US8070838, US7932297, US7892418, US7785378, US7341112, US7244771, US2018023531, US2015322363, US2015176558, US2014142835, US2013253803, US2011308142, US2011308140, US2011197498, US2011023354, US2010294236, US2010275509, US2010178231, US2010137647, US2010077656, US2010024288, US2009288982, US2009260454, US2009255144, US2009205246, US2009199464, US2009172997, US2009093555, US2009056204, US2009018372, US2009018371, US2009018222, US2009018221, US2009014689, US2008216393, US2008202561, US2008196298, US2008168708, US2008021713, US2007220804, US2006177804, US2006162243, US2005126514, US2004098906, US10054101, JP2014189641, JP2012532241, JP2011509326, JP2010133682, GB2464024, GB2464024, GB2445901, EP2891698, EP1881052, CN106916607, CN106867599, CN106318486, CN104974801, CN104974801, CN102399603, CN102399603, CN101538489, AU2011226816,

Abstract:

Mixed alcohol formulas can be used as a fuel additive in gasoline, diesel, jet fuel, aviation gasoline, heating oil, bunker oil, coal, petroleum coke or as a neat fuel in and of itself. The mixed alcohols formulations can contain C₁-C₅ alcohols, or in the alternative, C₁-C₈ alcohols or higher C₁-C₁₀ alcohols in order to boost energy content. The C₁-C₅ mixed alcohols contain more ethanol than methanol with declining amounts of propanol, butanol and pentanol. C₁-C₈ mixed alcohols contain the same, with declining amounts of hexanol, heptanol and octanol. C₁-C₁₀ mixed alcohols contain the same, with declining amounts of nananol and decanol. Synthetically produced mixed alcohol formulas feature higher octane and energy densities than either MTBE or fermented grain ethanol; more stable Reid Vapor Pressure blending characteristics; and increased solubilizing effects on condensate water. The primary benefits of mixed alcohols are increased combustion efficiencies, reduced emissions profiles and low production costs.

6) Family number: 9676240 (US5486336A)

© PatBase

Title: NOX SENSOR ASSEMBLY

Priority: US19900536888 19900612 WO1991US04177 19910612 CN19911009615 19911009
US19930080679 19930622

Family:	Publication number	Publication date	Application number	Application date
	AT134446 E	19960315	AT19910911705T	19910612
	AU199180085 A1	19920107	AU19910080085	19910612
	BRPI9106548 A	19930601	BR1991PI06548	19910612
	CN1030798 C	19960124	CN19911009615	19911009
	CN1071508 A	19930428	CN19911009615	19911009

DE69117289 D1	19960328	DE19916017289	19910612
DE69117289 T2	19960905	DE19916017289T	19910612
EP0529000 A1	19930303	EP19910911705	19910612
EP0529000 A4	19940907	EP19910911705	19910612
EP0529000 B1	19960221	EP19910911705	19910612
ES2084170 T3	19960501	ES19910911705T	19910612
JP6501544 T2	19940217	JP19910511506T	19910612
TW241337 B	19950221	TW19910109877	19911217
US5486336 A	19960123	US19930080679	19930622
WO9119975 A1	19911226	WO1991US04177	19910612

Probable Assignee: TELEDYNE MONITOR LABS INC

Assignee(s):(std): CATALYTICA INC ; WHEELLOCK E THOMAS

Assignee(s): TELEDYNE MONITOR LABS INC ; MONITOR LABS ENVIRONMENTAL SENSORS INC ; MONITOR LABS INC ; WHEELLOCK E ; CATALYTICA INC MOUNTAIN VIEW CALIF US ; CATALYTICA INCUS ; MONITOR L S E ABNV ; MONITOR L S INC AB

Inventor(s):(std): DALLA BETTA RALPH ; DALLA BETTA RALPH A ; REED DANIEL ; REED DANIEL L ; SCHUBERT PRISCILLA ; DALLA BETTA RALPH D ; BETTA RALPH D DALLA

Inventor(s): REED DANIEL L VALLEJO CA 94591 US ; RALPH D DALLA BETTA ; PRISCILLA SCHUBERT ; DANIEL L REED ; DALLA BETTA RALPH D MOUNTAIN VIEW CA 94040 US ; SCHUBERT PRISCILLA PACIFICA CA 94044 US

Designated states: AT AU BE BR CH DE DK ES FR GB GR IT JP KR LI LU NL SE

International class (IPC 8-9): C09K19/36 F02B1/04 G01N25/30 G01N25/44 G01N27/14 G01N33/00 (Advanced/Invention); F02B1/04 G01N27/14 (Advanced/Non-invention); C09K19/36 G01N25/20 G01N27/14 G01N33/00 (Core/Invention); F02B1/00 G01N25/40 G01N25/44 (Core/Non-invention)

International class (IPC 1-7): B01J19/0 B01J19/00 F28D7/0 F28D7/00 G01N21/0 G01N21/00 G01N25/20 G01N25/22 G01N25/30 G01N25/40 G01N25/44 G01N27/0 G01N27/00 G01N27/14 G01N27/16 G01N33/0 G01N33/00

CPC: Y02A50/245 G01N33/0037 F02B1/04 G01N25/30

European class: G01N25/30 G01N33/00D2D4A R02B1/04

US class: 422/90 422/95 422/98 60/276

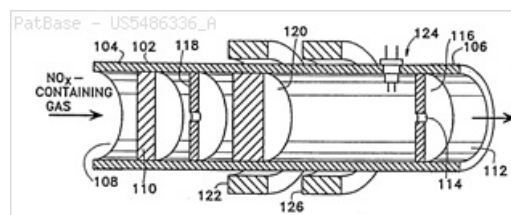
[Classification Explorer](#)

Cited documents: WO8805911 A1, US5171558 A, US4957705 A, US4886650 A, US4861567 A, US4840913 A, US4836012 A, US4822564 A, US4778764 A, US4731231 A, US4731226 A, US4731221 A, US4647777 A, US4532492 A, US4473536 A, US4355056 A, US4343768 A, US4325912 A, US4315753 A, US4305724 A, US4298574 A, US4257777 A, US4236895 A, US4188190 A, US4170455 A, US4169126 A, US4129848 A, US4115067 A, US4063898 A, US4029472 A, US4005001 A, US4001756 A, US3967933 A, US3906721 A, US3791936 A, US3607084 A, US3599427 A, US3586486 A, US3547587 A, US3540851 A, US3537823 A, US3522010 A, US3488155 A, US3476517 A, US3460909 A, US3167947 A, US2751281 A, JP58719785 A2, GB2066963 A1, EP0257842 A2, DE3728331 A1,

Forward Citations: WO9957558, WO9925965, WO9923372, WO16076830, WO14113567, WO05015191, WO04003537, WO04003537, US9732660, US8739604, US8359832, US8201992, US7611612, US7527717, US7329389, US7155331, US7117718, US6921196, US6616820, US6389803, US6360159, US6344173, US6301881, US6242263, US6143165, US6071476, US6044689, US6037183, US6026639, US5965802, US5956945, US5863803, US5730942, US5705129, US5540047, US2017152786, US2011146254, US2009159445, US2008101434, US2008017510, US2007231466, US2007012566, US2003046978, US2003039299, GB2546936, GB2334105, EP0874236, EP0874236, EP0653237, CN106812571,

Abstract:

This invention is a self-contained NOx sensor assembly. It may be used to detect NOx levels in a flowing gas stream such as might be found in an exhaust gas from a combustion process and to produce a measurable electrical output related to the content of NOx measured. The NOx sensor assembly is of a configuration that may be detached from a mounting and replaced. The sensor assembly comprises two sensor elements one of which is made up of a catalyst on a temperature measuring device. The other is a gas stream ambient temperature measuring device. The catalyst is selected and configured so that it selectively reduces NOx and the resulting heat of the reaction raises the temperature of the allied temperature measuring device. The sensor assembly also contains a NOx reductant source. The sensor assembly may be placed in a moving vehicle for measuring NOx levels in its exhaust gas.



7) Family number: 42755244 (US2008314593A)

© PatBase

Title: IN SITU THERMAL PROCESSING OF AN OIL SHALE FORMATION USING A PATTERN OF HEAT SOURCES

Priority: US20010286062P 20010424 US20010337249P 20011024 US20020131286 20020424
US20060343913 20060131 US20070809889 20070601

Family:	Publication number	Publication date	Application number	Application date
	US2008314593 AA	20081225	US20070809889	20070601
	US7735935 BB	20100615	US20070809889	20070601

Probable Assignee: SHELL OIL CO

Assignee(s):(std): SHELL OIL CO

Assignee(s): SHELL OIL COMPANY

Inventor(s):(std): DE ROUFFIGNAC ERIC PIERRE ; MAHER KEVIN ALBERT ; SCHOELING LANNY GENE ; VINEGAR HAROLD J ; WELLINGTON SCOTT LEE

Agent(s): SHELL OIL COMPANY; SHELL OIL CO

International class E21B36/00 E21B43/24 E21B43/243 E21B43/247 E21B43/28 E21B43/30 E21C41/24 (Advanced/Invention)

(IPC 8-9):

CPC: E21B43/24 E21B43/2401 E21B43/243 E21B43/247 E21B43/30

European class: E21B43/243 E21B43/247 E21B43/30

US class: 166/272.1 166/302 299/4 299/5

[Classification Explorer](#)

Cited documents:

WO9901640, WO9850179, WO9701017, WO9533122, WO9512746, WO9512745, WO9512744, WO9512743, WO9512742, WO9506093, WO0181723 A1, WO0181505 A1, USRE35696 E, USRE30738 E, USRE30019 E, USRE27309 E, US94813 A, US760304 A, US7581589 BB, US7575053 BB, US7575052 BB, US7562707 BB, US7562706 BB, US7559368 BB, US7559367 BB, US7556096 BB, US7556095 BB, US7549470 BB, US7540324 BB, US7533719 BB, US7527094 BB, US7510000 BB, US7500528 BB, US7481274 BB, US7461691 BB, US7435037 BB, US7431076 BB, US7424915 BB, US7383877 BB, US7370704 BB, US7360588 BB, US7357180 BB, US7353872 BB, US7320364 BB, US7259688 BB, US7225866 BB, US7219734 BB, US7170424 BB, US7165615 BB, US7156176 BB, US7153373 BB, US7114880 BB, US7100994 BB, US7090013 BB, US7077199 BB, US7077198 BB, US7073578 BB, US7066257 BB, US7066254 BB, US7063145 BB, US7055600 BB, US7051811 BB, US7051807 BB, US7040400 BB, US7040399 BB, US7040398 BB, US7040397 BB, US7036583 BB, US7032809 BA, US7032660 BB, US7011154 BB, US7004251 BB, US7004247 BB, US6997518 BB, US6997255 BB, US6994169 BB, US6994168 BB, US6994160 BB, US6991045 BB, US6991036 BB, US6991033 BB, US6991032 BB, US6981553 BB, US6981548 BB, US6969123 BB, US6966374 BB, US6966372 BB, US6964300 BB, US6959761 BB, US6953087 BB, US6951250 BB, US6951247 BB, US6948563 BB, US6948562 BB, US6929067 BB, US6923258 BB, US6923257 BB, US6918444 BB, US6918443 BB, US6918442 BB, US6915850 BB, US6913078 BB, US6910537 BB, US6910536 BB, US6902004 BB, US6902003 BB, US6896053 BB, US6889769 BB, US6880635 BB, US6877555 BB, US6877554 BB, US6871707 BB, US6866097 BB, US6854929 BB, US6820688 BB, US6805195 BB, US6789625 BB, US6782947 BB, US6769485 BB, US6769483 BB, US6763886 BB, US6761216 BB, US6758268 BB, US6752210 BB, US6749021 BB, US6745837 BB, US6745831 BB, US6742593 BB, US6742589 BB, US6742588 BB, US6742587 BB, US6739394 BB, US6739393 BB, US6736215 BB, US6732796 BB, US6732794 BB, US6729401 BB, US6729397 BB, US6729396 BB, US6729395 BB, US6725928 BB, US6725921 BB, US6725920 BB, US6722431 BB, US6722430 BB, US6722429 BB, US6719047 BB, US6715549 BB, US6715548 BB, US6715547 BB, US6715546 BB, US6712137 BB, US6712136 BB, US6712135 BB, US6708758 BB, US6702016 BB, US6698515 BB, US6688387 BA, US6684948 BA, US66609761 BA, US6609570 BB, US6607033 BB, US6591907 BB, US6591906 BB, US6588504 BB, US6588503 BB, US6581684 BB, US6516891 BA, US6499536 BA, US6485232 BA, US6467543 BA, US6439308 BA, US6422318 BA, US6417268 BA, US6412559 BA, US6389814 BB, US6357526 BA, US6353706 BA, US6313431 BA, US6257334 BA, US6244338 BA, US6187465 BA, US6173775 BA, US6173775 B1, US6172124 B1, US6155117 A, US6152987 A, US6112808 A, US6110358 A, US6102622 A, US6102137 A, US6102122 A, US6099208 A, US6094048 A, US6085512 A, US6079499 A, US6056057 A, US6035949 A, US6023554 A, US6019172 A, US6016868 A, US6016867 A, US6015015 A, US5997214 A, US5985138 A, US5984582 A, US5984578 A, US5984010 A, US5968349 A, US5955039 A, US5935421 A, US5899269 A, US5891829 A, US5879110 A, US5868202 A, US5862858 A, US5854472 A, US5826655 A, US5826653 A, US5823256 A, US5802870 A, US5782301 A, US5777229 A, US5767584 A, US5760307 A, US5751895 A, US5676212 A, US5656239 A, US5654261 A, US5652389 A, US5626191 A, US5624188 A, US5621844 A, US5571403 A, US5566756 A, US5566755 A, US5554453 A, US5553189 A, US5539853 A, US5525322 A, US5517593 A, US5503226 A, US5498960 A, US5497087 A, US5491969 A, US5458774 A, US5456315 A, US5454666 A, US5439054 A, US5437506 A, US5435666 A, US5433271 A, US5431224 A, US5415231 A, US5411089 A, US5411086 A, US5409071 A, US5404952 A, US5402847 A, US5400430 A, US5392854 A, US5391291 A, US5388645 A, US5388643 A, US5388642 A, US5388641 A, US5388640 A, US5377756 A, US5349859 A, US5340467 A, US5339904 A, US5339897 A, US5331816 A, US5306640 A, US5305829 A, US5297626 A, US5295763 A, US5284878 A, US5284206 A, US5282957 A, US5275726 A, US5255742 A, US5255740 A, US5247994 A, US5236039 A, US5229583 A, US5226961 A, US5217075 A, US5211230 A, US5207273 A, US5201219 A, US5199490 A, US5190405 A, US5189283 A, US5182792 A, US5173213 A, US5168927 A, US5150118 A, US5145003 A, US5109928 A, US5102551 A, US5099918 A, US5097903 A, US5093002 A, US5085276 A, US5084637 A, US5066852 A, US5065818 A, US5060726 A, US5060287 A, US5059303 A, US5055180 A, US5054551 A, US5050386 A, US5046559 A, US5042579 A, US5032042 A, US5014788 A, US5008085 A, US4994093 A, US4988389 A, US4987368 A, US4984594 A, US4983319 A, US4982786 A, US4974425 A, US4940095 A, US4931171 A, US4927857 A, US4926941 A, US4913065 A, US4912971 A, US48994 A, US4895206 A, US4893504 A, US4886118 A, US4885080 A, US4884455 A, US4883582 A, US4866983 A, US4860544 A, US4856587 A, US4856341 A, US4852648 A, US4848924 A, US4842448 A, US4840720 A, US4828031 A, US4827761 A, US4823890 A, US4821798 A, US4815790 A, US4793656 A, US4778586 A, US4776638 A, US4769606 A, US4769602 A, US4766958 A, US4762425 A, US4756367 A, US4743854 A, US4737267 A, US4734115 A, US4730162 A, US4728892 A, US4728412 A, US4719423 A, US4716960 A, US4706751 A, US4702758 A, US4698149 A, US4696345 A, US4694907 A, US4686029 A, US4683947 A, US4682652 A, US4671102 A, US4669542 A, US4663711 A, US4658215 A, US4644283 A, US4640353 A, US4640352 A, US4639712 A, US4635197 A, US4626665 A, US4623444 A, US4616705 A, US4613754 A, US4605680 A, US4605489 A, US4598772 A, US4598770 A, US4597444 A, US4597441 A, US4594468 A, US4585066 A, US4583242 A, US4583046 A, US4577691 A, US4572299 A, US4572229 A, US4571491 A, US4570715 A, US4552214 A, US4551226 A, US4542648 A, US4540882 A, US4538682 A, US4537252 A, US4530401 A, US4526615 A, US4524827 A, US4524113 A, US4518548 A, US4513816 A, US4508170 A, US4501445 A, US4501326 A, US4500651 A, US4499209 A, US4498535 A, US4489782 A, US4485868 A, US4483398 A, US4479541 A, US4474236 A, US4463807 A, US4460044 A, US4458757 A, US4457374 A, US4456065 A, US4446917 A, US4445574 A, US4444258 A, US4444255 A, US4442896 A, US4440871 A, US4440224 A, US4437519 A, US4429745 A, US4428700 A, US4423311 A, US4418752 A, US4415034 A, US4412585 A, US4410042 A, US4409090 A, US4407973 A, US4401163 A, US4401162 A, US4399866 A, US4398151 A, US4397732 A, US4396062 A, US4390067 A, US4385661 A, US4384948 A, US4384614 A, US4384613 A, US4382469 A, US4381641 A, US4378048 A, US4375302 A, US4368114 A, US4366668 A, US4363361 A, US4359687 A, US4353418 A, US4344483 A, US4327805 A, US4324292 A, US4319635 A, US4311340 A, US4310440 A, US4306621 A, US4305463 A, US4303126 A, US4299285 A, US4299086 A, US4290650 A, US4289354 A, US4287957 A, US4280046 A, US4277416 A, US4274487 A, US4273188 A, US4265307 A, US4260018 A, US4258955 A, US4254297 A, US4252191 A, US4250962 A, US4250230 A, US4243101 A, US4232902 A, US4228854 A, US4199025 A, US4199024 A, US4193451 A, US4186801 A, US4183405 A, US4160479 A, US4148359 A, US4144935 A, US4140181 A, US4140180 A, US4138442 A, US4133825 A, US4130575 A, US4125159 A, US4114688 A, US4099567 A, US4096163 A, US4093026 A, US4093025 A, US4091869 A, US4089374 A, US4089372 A, US4087130 A, US4085803 A, US4084637 A, US4076842 A, US4076761 A, US4069868 A, US4067390 A, US4064943 A, US4059308 A, US4057293 A, US4049053 A, US4048637 A, US4043393 A, US4042026 A, US4037655 A, US4031956 A, US4026357 A, US4019575 A, US4018280 A, US4016245 A, US4016239 A, US4010800 A, US4008762 A, US4006778 A, US4005752 A, US3999607 A, US3994341 A, US3994340 A, US3993132 A, US3992148 A, US3989108 A, US3987851 A, US3986557 A, US3986556 A, US3986349 A, US3982592 A, US3982591 A, US3973628 A, US3972372 A, US3954140 A, US3952802 A, US3948758 A, US3948755 A, US3948319 A, US3947683 A, US3947656 A, US3907045 A, US3894769 A, US3892270 A, US3882941 A, US3870063 A, US3832449 A, US3812913 A, US3809159 A, US3804172 A, US3804169 A, US3794113 A, US3779602 A, US3775185 A, US3774701 A, US3770614 A, US3770398 A, US3766982 A, US3759574 A, US3759328 A, US3709979 A, US3702886 A, US3700280 A, US3691291 A, US3680633 A, US3675715 A, US3661423 A, US3629551 A, US3622071 A, US3618663 A, US3617471 A, US3614387 A, US3605890 A, US3599714 A, US3595082 A, US3593790 A, US3572838 A, US3562401 A, US3554285 A, US3547193 A, US3529682 A, US3528501 A, US3526095 A, US3502372 A, US3501201 A, US3497000 A, US3492463 A, US3480082 A, US3455586 A, US3455383 A, US3454365 A, US3438439 A, US3434541 A, US3424254 A, US3389975 A, US3386508 A, US3379248 A, US3352355 A, US3346044 A, US3342267 A,

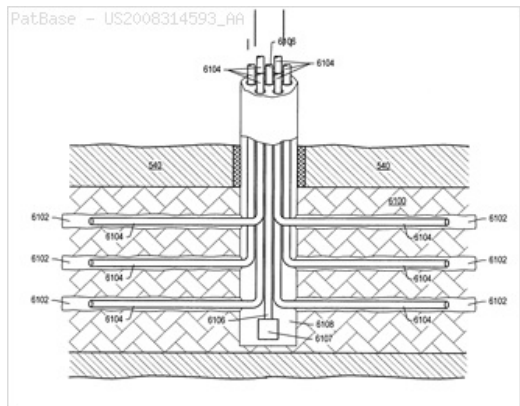
US3342258 A, US3338306 A, US3310109 A, US3303883 A, US3302707 A, US3294167 A, US3288648 A, US3285335 A, US3284281 A, US3278234 A, US3275076 A, US3273640 A, US3267680 A, US326439 A, US3262741 A, US3250327 A, US3246695 A, US3244231 A, US3241611 A, US3237689 A, US3233668 A, US3223166 A, US3221811 A, US3209825 A, US3208531 A, US3207220 A, US3205946 A, US3205944 A, US3205942 A, US3191679 A, US3183675 A, US3182721 A, US3170842 A, US3165154 A, US3164207 A, US3163745 A, US3150715 A, US3149672 A, US3142336 A, US3139928 A, US3137347 A, US3132692 A, US3131763 A, US3127936 A, US3127935 A, US3120264 A, US3116792 A, US3114417 A, US3113623 A, US3113620 A, US3113619 A, US3110345 A, US3106244 A, US3105545 A, US3097690 A, US3095031 A, US3084919 A, US3079085 A, US3062282 A, US3061009 A, US3058730 A, US3057404 A, US3051235 A, US3048221 A, US3044545 A, US3036632 A, US3032102 A, US3026940 A, US3017168 A, US3016053 A, US3010516 A, US3010513 A, US3007521 A, US3004603 A, US3004601 A, US3004596 A, US2998457 A, US2997105 A, US2994376 A, US2974937 A, US2970826 A, US2969226 A, US2958519 A, US2954826 A, US2952449 A, US2942223 A, US2939689 A, US2932352 A, US2923535 A, US2914309 A, US2906340 A, US2906337 A, US2902270 A, US2890755 A, US2890754 A, US2862558 A, US2857002 A, US2841375 A, US2825408 A, US2819761 A, US2804149 A, US2801089 A, US2799341 A, US2793696 A, US2789805 A, US2786660 A, US2783971 A, US2780450 A, US2780449 A, US2777679 A, US2771954 A, US2757739 A, US2743906 A, US2734579 A, US2732195 A, US2714930 A, US2703621 A, US2695163 A, US2685930 A, US2670802 A, US2642943 A, US2634961 A, US2630307 A, US2630306 A, US2623596 A, US2595979 A, US2593477 A, US2584605 A, US2548360 A, US2497868 A, US2484063 A, US2472445 A, US2466945 A, US2444755 A, US2423674 A, US2390770 A, US2365591 A, US2244256 A, US2244255 A, US2009200854 AA, US2009200290 AA, US2009200031 AA, US2009200025 AA, US2009200023 AA, US2009200022 AA, US2009194524 AA, US2009194333 AA, US2009194329 AA, US2009194287 AA, US2009194286 AA, US2009194282 AA, US2009194269 AA, US2009189617 AA, US2009126929 AA, US2009120646 AA, US2009101346 AA, US2009095480 AA, US2009095479 AA, US2009095478 AA, US2009095477 AA, US2009095476 AA, US2009090509 AA, US2009090158 AA, US2009084547 AA, US2009078461 AA, US2009071652 AA, US2008283246 AA, US2008236831 AA, US2008217321 AA, US2008217016 AA, US2008217015 AA, US2008217004 AA, US2008217003 AA, US2008185147 AA, US2008174115 AA, US2008173449 AA, US2008173444 AA, US2008173442 AA, US2008142217 AA, US2008142216 AA, US2008135254 AA, US2008135244 AA, US2008128134 AA, US2008107577 AA, US2008038144 AA, US2008035705 AA, US2008035348 AA, US2008035347 AA, US2008035346 AA, US2008017380 AA, US2008017370 AA, US2007289733 AA, US2007284108 AA, US2007221377 AA, US2007131427 AA, US2007131415 AA, US2007127897 AA, US2007119098 AA, US2007045267 AA, US2007045266 AA, US2007045265 AA, US2006289536 AA, US2006191820 AA, US2006178546 AA, US2005269093 AA, US2005269091 AA, US2005269089 AA, US2005231022 AA, US2005051327 AA, US2005006097 AA, US2004177966 AA, US2004145969 AA, US2004144541 AA, US2004144540 AA, US2004140096 AA, US2004140095 AA, US2004040715 AA, US2004033370 AA, US2004020642 AA, US2003205378 AA, US2003201098 AA, US2003196810 AA, US2003196789 AA, US2003196788 AA, US2003192693 AA, US2003192691 AA, US2003183390 AA, US2003173082 AA, US2003173081 AA, US2003155111 AA, US2003146002 AA, US2003100451 AA, US2003018390 AA, US2002112987 AA, US2002112890 AA, US2002076212 AA, US2002053431 AA, US2002049360 AA, US2002040781 AA, US2002040780 AA, US2002040779 AA, US2002004533 AA, US1913395 A, US1681523 A, US1666488 A, US1646599 A, US1634236 A, US1510655 A, US1457479 A, US1342741 A, US1269747 A, SE126674, SE123137, SE123136, SE121737, RU1836876, GB697189, GB674082, GB2086416, GB1588693, GB156396, GB1501310, GB1454324, GB1010023, EP0940558 A1, EP0570228 B1, EP0357314, EP0294809, CA983704, CA2015460, CA1288043, CA1253555, CA1196594, CA1168283, CA1165361,

Forward Citations:

WO15128497, WO12106028, WO11100581, WO10118315, US9758881, US9755415, US9739122, US9683297, US9644466, US9631437, US9605524, US9528322, US9512699, US9506400, US9466896, US9451792, US9417357, US9399905, US9394772, US9347302, US9337550, US9309755, US9226341, US9181780, US9181467, US9133398, US9129728, US9127538, US9127523, US9080917, US9080441, US9080409, US9061333, US9051829, US9048653, US9033042, US9033033, US9022118, US9022109, US9016370, US8997869, US8992771, US8967259, US8943686, US8939207, US8936089, US8881806, US8875789, US8863839, US8859942, US8857506, US8857051, US8851177, US8851170, US8839860, US8833453, US8820406, US8816203, US8791396, US8789586, US8770284, US8752904, US8739874, US8732946, US8701788, US8701769, US8701768, US8662175, US8636323, US8631866, US8627887, US8615660, US8615082, US8586867, US8586866, US8579031, US8562078, US8555971, US8536497, US8502120, US8485847, US8485256, US8485252, US8463550, US8463549, US8459359, US8450540, US8448707, US8434555, US8381815, US8381806, US8366350, US8356935, US8355623, US8353347, US8327932, US8327681, US8296968, US8281861, US8276661, US8272455, US8272216, US8267185, US8267170, US8261832, US8257112, US8256512, US8240774, US8233782, US8230927, US8225866, US8224165, US8220539, US8210773, US8196658, US8192682, US8191630, US8177305, US8172335, US8162405, US8162059, US8151907, US8151482, US8146669, US8146661, US8113272, US8083813, US8042610, US8028438, US8006407, US7986869, US7975398, US7950453, US7942203, US7942197, US7931086, US7912358, US7898903, US7849922, US7845411, US7802377, US7748137, US7735554, US2011198071, US2011139441, US2011014108, US2010276139, US2010200418, US2010126037, US2010101794, US2009245018, US2009211541, US2009207302, US2009194287, US2008236817, US2007294914, US2007133961, US2005000109, US10132130, US10107087, US10047594, US10006271, AU2015222053,

Abstract:

A oil shale formation may be treated using an in situ thermal process. A mixture of hydrocarbons, H₂, and/or other formation fluids may be produced from the formation. Heat may be applied to the formation to raise a temperature of a portion of the formation to a pyrolysis temperature. Heat sources may be used to heat the formation. The heat sources may be positioned within the formation in a selected pattern.



Title:

IN SITU THERMAL PROCESSING OF A HYDROCARBON CONTAINING FORMATION

Priority:

US20010334568P 20011024 US20010337136P 20011024 US20020374970P 20020424
US20020374995P 20020424 WO2002US34023 20021024

Family:

Publication number	Publication date	Application number	Application date
AU2002349904 AA	20030519	AU20020349904	20021024
AU2002349904 AH	20090730	AU20020349904	20021024
WO03040513 A2	20030515	WO2002US34023	20021024
WO03040513 A3	20090611	WO2002US34023	20021024

Probable Assignee:

SHELL OIL CO

Assignee(s):(std):

SHELL CANADA LTD ; SHELL OIL CO

Inventor(s):(std):

AYMOND DANNIE ANTOINE JR ; BAI TAIXU ; BASS RONALD MARSHALL ; BAXLEY PHILLIP TEMMONS ; BERCHENKO ILYA EMIL ; BIELAMOWICZ LAWRENCE JAMES ; CARL JR FREDRICK GORDON ; COLE ANTHONY THOMAS ; COLES JOHN MATTHEW ; CRANE STEVEN DEXTER ; DE ROUFFIGNAC ERIC PIERRE ; DEMARTINI DAVID CHARLES ; FOWLER THOMAS DAVID ; HARRIS CHRISTOPHER KELVIN ; HUNSUCKER BRUCE GERARD ; GINESTRA JEAN CHARLES ; GLANDT CARLOS ALBERTO ; HANSEN KIRK SAMUEL ; HARDEVELD ROBERT MARTIJN VAN ; KARANIKAS JOHN MICHAEL ; KEEDY CHARLES ROBERT ; LEPPER GORDON BRUCE ; MADGAVKAR AJAY MADHAV ; MAHER KEVIN ALBERT ; MENOTTI JAMES LOUIS ; MESSIER MARGARET ANN ; MIKUS THOMAS ; PALFREYMAN BRUCE DONALD ; PRATT CHRISTOPHER ARNOLD ; MCKINZIE BILLY JOHN II ; ROBERTS BRUCE EDMUNDS ; ROUFFIGNAC ERIC PIERRE DE ; RYAN ROBERT CHARLES ; SANDBERG CHESTER L ; SCHOELING LANNY GENE ; SHAHIN JR GORDON THOMAS ; SON JAIME S ; STEGEMEIER GEORGE LEO ; VAN HARDEVELD ROBERT MARTIJN ; VEENSTRA PETER ; VINEGAR HAROLD J ; WAGNER RANDOLPH R ; WARD JOHN MICHAEL ; WATKINS RONNIE WADE ; WELLINGTON SCOTT LEE ; ZHANG ETUAN ; STONE FRANCIS M JR ; SUMNU DINDORUK MELIHA DENIZ

Inventor(s):

TAIXU BAI ; THOMAS DAVID FOWLER ; THOMAS MIKUS ; STEVEN DEXTER CRANE ; STONE FRANCIS M ; SCOTT LEE WELLINGTON ; RONALD MARSHALL BASS ; RONNIE WADE WATKINS ; MELIHA DENIZ SUMNU DINDORUK ; RANDOLPH R WAGNER ; ROBERT CHARLES RYAN ; ROBERT MARTIJN VAN HARDEVELD ; PETER VEENSTRA ; PHILLIP TEMMONS BAXLEY ; MARGARET ANN MESSIER ; KEVIN ALBERT MAHER ; KIRK SAMUEL HANSEN ; LANNY GENE SCHOELING ; LAWRENCE JAMES BIELAMOWICZ ; HAROLD J VINEGAR ; GORDON BRUCE LEPPER ; ILYA EMIL BERCHENKO ; JAIME S SON ; JAMES LOUIS MENOTTI ; JEAN CHARLES GINESTRA ; JOHN MATTHEW COLES ; JOHN MICHAEL KARANIKAS ; JOHN MICHAEL WARD ; JR FREDRICK GORDON CARL ; JR GORDON THOMAS SHAHIN ; FRANCIS M JR STONE ; GEORGE LEO STEGEMEIER ; AJAY MADHAV MADGAVKAR ; ANTHONY THOMAS COLE ; ERIC PIERRE DE ROUFFIGNAC ; ETUAN ZHANG ; DANNIE ANTOINE JR AYMOND ; DAVID CHARLES DEMARTINI ; CARLOS ALBERTO GLANDT ; CHARLES ROBERT KEEDY ; CHESTER L SANDBERG ; CHRISTOPHER ARNOLD PRATT ; CHRISTOPHER KELVIN HARRIS ; BILLY JOHN II MCKINZIE ; BRUCE DONALD PALFREYMAN ; BRUCE EDMUNDS ROBERTS ; BRUCE GERARD HUNSUCKER

Designated states:

AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NE NL NO NZ OM PH PL PT RO RU SD SE SG SI SK SL SN SZ TD TG TJ TM TN TR TT TZ UA UG UZ VN YU ZA ZM ZW

International class (IPC 8-9):

B09C1/02 B09C1/06 C01B3/24 C10G45/00 C10G47/22 C10G49/00 C10G9/24 E21B17/02 E21B36/00 E21B43/16 E21B43/24 E21B43/243 E21B43/295 E21B43/30 E21B43/34 E21B44/00 E21B47/022 G01V3/26 (Advanced/Invention)

CPC:

E21B43/2401 B09C1/02 B09C1/06 B09C2101/00 C10G9/24 C10G45/00 E21B17/028 E21B43/168 E21B43/24 E21B43/243 E21B43/305 E21B47/02208 G01V3/26 Y02P30/30 Y02P30/44 Y10S210/901 Y10T137/0391

Classification Explorer

Cited documents:

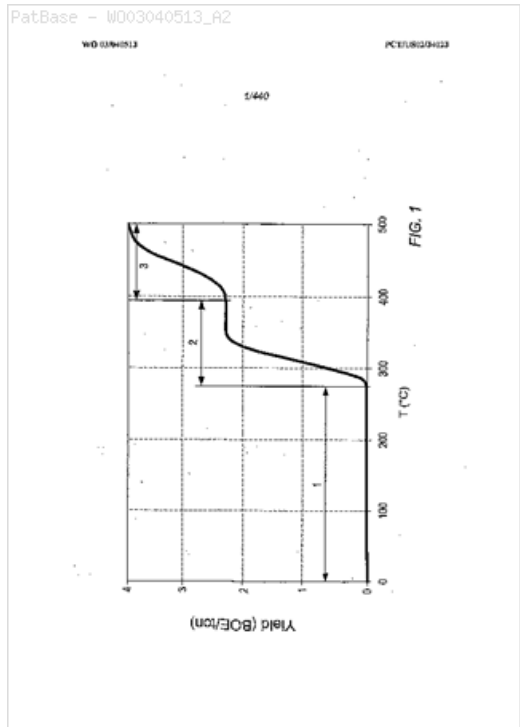
US5404952 A, US4886118 A, US4485869 A, US4384613 A, US4353418 A, US3766982 A, US3380913 A, US2923535 A, US2914309 A, US2685930 A, US1269747 A,

Forward Citations:

WO05106196, WO05106195, WO05106194, WO05106193, WO05103445, US9441471, US7832482, US7809538, US7770643, US7640987, US7537061, RU2606053, JP4806398, JP2007535100, EP1738057, EP1738055, EP1738054, EA11007, EA10678, EA011007, EA010678, AU2005238948, AU2005238944, AU2005238942, AU2005238941, AU2005236490,

Abstract:

An in situ process for treating a hydrocarbon containing formation is provided. The process may include providing heat from one or more heaters to at least a portion of the formation. The heat may be allowed to transfer from the one or more heaters to a part of the formation such that heat from the one or more heat sources pyrolyzes at least some hydrocarbons within the part. Hydrocarbons may be produced from the formation.



9) Family number: 66393249 (US2003173072A)

© PatBase

Title: FORMING OPENINGS IN A HYDROCARBON CONTAINING FORMATION USING MAGNETIC TRACKING

Priority: US20010334568P 20011024 US20010337136P 20011024 US20020374970P 20020424
US20020374995P 20020424 US20020279289 20021024

Family:	Publication number	Publication date	Application number	Application date
	US2003173072 AA	20030918	US20020279289	20021024
	US6991045 BB	20060131	US20020279289	20021024

Probable Assignee: SHELL OIL CO

Assignee(s):(std): SHELL OIL CO

Assignee(s): HARRIS CHRISTOPHER KELVIN ; HARTMANN ROBIN ADRIANUS ; LEPPER GORDON BRUCE ; PRATT CHRISTOPHER ARNOLD ; VINEGAR HAROLD J ; WAGNER RANDOLPH ROGERS

Inventor(s):(std): HARRIS CHRISTOPHER KELVIN ; HARTMANN ROBIN ADRIANUS ; LEPPER GORDON BRUCE ; PRATT CHRISTOPHER ARNOLD ; VINEGAR HAROLD J ; WAGNER RANDOLPH ROGERS

International class (IPC 8-9): B09C1/02 B09C1/06 C10G45/00 C10G9/24 E21B17/02 E21B36/00 E21B43/16 E21B43/24 E21B43/243 E21B43/30 E21B44/00 E21B47/022 E21B7/04 G01V3/26 (Advanced/Invention)

International class (IPC 1-7): E21B43/24

CPC: E21B43/2401 B09C1/02 B09C1/06 B09C2101/00 C10G9/24 C10G45/00 E21B17/028 E21B43/168 E21B43/24 E21B43/243 E21B43/305 E21B47/02208 G01V3/26 Y02P30/30 Y02P30/44 Y10S210/901 Y10T137/0391

US class: 166/66.5 175/45 175/61 175/62 324/346

[Classification Explorer](#)

Cited documents: WO9901640, WO9850179, WO9701017, WO9533122, WO9512746, WO9512745, WO9512744, WO9512743, WO9512742, WO9506093, WO0181723 A1, WO0181505 A1, USRE36569 E, USRE35696 E, USRE30738 E, USRE30019 E, USRE27309 E, US94813 A, US760304 A, US6871707 BB, US6866097 BB, US6820688 BB, US6805195 BB, US6789625 BB, US6782947 BB, US6769485 BB, US6769483 BB, US6763886 BB, US6761216 BB, US6758268 BB, US6752210 BB, US6749021 BB, US6745837 BB, US6745832 BB, US6745831 BB, US6742593 BB, US6742589 BB, US6742588 BB, US6742587 BB, US6739394 BB, US6739393 BB, US6736215 BB, US6732796 BB, US6732795 BB, US6732794 BB, US6729401 BB, US6729397 BB, US6729396 BB, US6729395 BB, US6725928 BB, US6725921 BB, US6725920 BB, US6722431 BB, US6722430 BB, US6722429 BB, US6719047 BB, US6715549 BB, US6715548 BB, US6715547 BB, US6715546 BB, US6712137 BB, US6712136 BB, US6712135 BB, US6708758 BB, US6702016 BB, US6698515 BB, US6688387 BA, US6684948 BA, US6679332 BB, US6609570 BB, US6607033 BB, US6591907 BB, US6591906 BB, US6588504 BB, US6588503 BB, US6584406 BA, US6581684 BB, US6499536 BA, US6485232 BA, US6467543 BA, US6466020 BB, US6429784 BA, US6422318 BA, US6412559 BA, US6389814 BB, US6357526 BA, US6354373 BA, US6353706 BA, US6328104 BA, US6244338 BA, US6234259 BA, US6209640 BA, US6192748 BA, US6187465 BA, US6173775 BA, US6173775 B1, US6172124 BA, US6172124 B1, US6155117 A, US6152987 A, US6112808 A, US6110358 A, US6102622 A, US6102137 A, US6102122 A, US6094048 A, US6085512 A, US6079499 A, US6065538 A, US6056057 A, US6049508 A, US6035701 A, US6026914 A, US6023554 A, US6019172 A, US6016868 A, US6016867 A, US6015015 A, US5997214 A, US5985138 A, US5984582 A, US5984010 A, US5968349 A, US5955039 A, US5935421 A, US5923170 A, US5899269 A, US5891829 A, US5868202 A, US5862858 A, US5861137 A, US5826655 A, US5777229 A, US5769569 A, US5767584 A, US5760307 A, US5751895 A, US5747750 A, US5725059 A, US5713415 A, US5676212 A, US5657826 A, US5656239 A, US5652389 A, US5632336 A, US5626191 A, US5624188 A, US5621844 A, US5589775 A, US5571403 A, US5566756 A, US5566755 A, US5554453 A, US5553189 A, US5545803 A, US5541517 A, US5539853 A, US5525322 A, US5517593 A, US5515931 A, US5513710 A, US5512830 A, US5498960 A, US5497087 A, US5491969 A, US5485089 A, US5456315 A, US5454666 A, US5439054 A, US5437506 A, US5435666 A, US5433271 A, US5431224 A, US5415231 A, US5411104 A, US5411089 A, US5411086 A, US5409071 A, US5404952 A, US5402847 A, US5400430 A, US5392854 A, US5391291 A, US5388645 A, US5388643 A, US5388642 A, US5388641 A, US5388640 A, US5377756 A, US5366012 A, US5363094 A, US5360067 A, US5349859 A, US5343152 A, US5340467 A, US5339904 A, US5339897 A,

US5325918 A, US5318116 A, US5316664 A, US5306640 A, US5305829 A, US5305239 A, US5305212 A, US5297626 A, US5295763 A, US5289882 A, US5285846 A, US5284878 A, US5261490 A, US5258755 A, US5255742 A, US5236039 A, US5229583 A, US5229102 A, US5226961 A, US5218301 A, US5217076 A, US5211230 A, US5207273 A, US5201219 A, US5190405 A, US5189283 A, US5182792 A, US5168927 A, US5145003 A, US5126037 A, US5109928 A, US5103920 A, US5099918 A, US5097903 A, US5085276 A, US5082055 A, US5082054 A, US5074365 A, US5065818 A, US5064006 A, US5060726 A, US5060287 A, US5059303 A, US5055180 A, US5054551 A, US5050386 A, US5046559 A, US5041210 A, US5027896 A, US5020596 A, US5014788 A, US5011329 A, US5008085 A, US4994093 A, US4988389 A, US4987368 A, US4984594 A, US4983319 A, US4982786 A, US4974425 A, US4933640 A, US4931171 A, US4928765 A, US4927857 A, US4926941 A, US4913065 A, US4912971 A, US48994 A, US4895206 A, US4893504 A, US4886118 A, US4885080 A, US4884455 A, US4883582 A, US4866983 A, US4860544 A, US4856587 A, US4856341 A, US4848924 A, US4848460 A, US4845434 A, US4831600 A, US4828031 A, US4827761 A, US4818370 A, US4817711 A, US4815790 A, US4808925 A, US4793656 A, US4791373 A, US4787452 A, US4778586 A, US4776638 A, US4772634 A, US4769606 A, US4769602 A, US4766958 A, US4762425 A, US4756367 A, US4744245 A, US4743854 A, US4737267 A, US4734115 A, US4730162 A, US4728892 A, US4728412 A, US4719423 A, US4716960 A, US4706751 A, US4704514 A, US4702758 A, US4700142 A, US4698149 A, US4696345 A, US4694907 A, US4691771 A, US4683947 A, US4682652 A, US4671102 A, US4669542 A, US4663711 A, US4662443 A, US4662439 A, US4662438 A, US4658215 A, US4651825 A, US4644283 A, US4640353 A, US4640352 A, US4637464 A, US4635197 A, US4626665 A, US4623444 A, US4616705 A, US4613754 A, US4608818 A, US4605680 A, US4605489 A, US4598772 A, US4598770 A, US4598392 A, US4597444 A, US4597441 A, US4594468 A, US4592423 A, US4585066 A, US4583242 A, US4583046 A, US4577690 A, US4577503 A, US4576231 A, US4573530 A, US4572299 A, US4571491 A, US4570715 A, US4552214 A, US4549396 A, US4544478 A, US4542648 A, US4540882 A, US4537252 A, US4530401 A, US4529939 A, US4524827 A, US4524826 A, US4524113 A, US4518548 A, US4513816 A, US4508170 A, US4502010 A, US4501445 A, US4501326 A, US4499209 A, US4498535 A, US4491179 A, US4489782 A, US4485869 A, US4483398 A, US4479541 A, US4476927 A, US4474238 A, US4463807 A, US4460044 A, US4458767 A, US4458757 A, US4457374 A, US4457365 A, US4456065 A, US4455215 A, US4452491 A, US4448252 A, US4448251 A, US4445574 A, US4444258 A, US4444255 A, US4443762 A, US4442896 A, US4440224 A, US4439307 A, US4437519 A, US4429745 A, US4428700 A, US4425967 A, US4423311 A, US4418752 A, US4415034 A, US4412585 A, US4412124 A, US4410042 A, US4409090 A, US4407973 A, US4401163 A, US4399866 A, US4398151 A, US4397732 A, US4396062 A, US4390973 A, US4390067 A, US4384948 A, US4384614 A, US4384613 A, US4381641 A, US4380930 A, US4378048 A, US4375302 A, US4372398 A, US4366668 A, US4363361 A, US4359687 A, US4353418 A, US4344483 A, US4342492 A, US4323848 A, US4319635 A, US4306621 A, US4305463 A, US4303126 A, US4299285 A, US4299086 A, US4285547 A, US4282587 A, US4277416 A, US4274487 A, US4273188 A, US4265307 A, US4260192 A, US4260018 A, US4252191 A, US4250962 A, US4250230 A, US4243511 A, US4243101 A, US4234230 A, US4228854 A, US4197911 A, US4193451 A, US4186801 A, US4185692 A, US4184548 A, US4183405 A, US4167213 A, US4160479 A, US4158467 A, US4151877 A, US4148359 A, US4144935 A, US4140181 A, US4140180 A, US4138442 A, US4133825 A, US4130575 A, US4125159 A, US4114688 A, US4099567 A, US4096163 A, US4093026 A, US4093025 A, US4091869 A, US4089374 A, US4089372 A, US4087130 A, US4084637 A, US4076761 A, US4069868 A, US4067390 A, US4065183 A, US4057293 A, US4049053 A, US4048637 A, US4043393 A, US4042026 A, US4031956 A, US4026357 A, US4019575 A, US4018280 A, US4016239 A, US4010800 A, US4008762 A, US4006778 A, US4005752 A, US3999607 A, US3994341 A, US3994340 A, US3993132 A, US3992148 A, US3987851 A, US3986557 A, US3986556 A, US3986349 A, US3982592 A, US3982591 A, US3973628 A, US3954140 A, US3952802 A, US3948755 A, US3948319 A, US3947683 A, US3947656 A, US3941421 A, US3924680 A, US3922148 A, US3907045 A, US3892270 A, US3882941 A, US3881551 A, US3874733 A, US3870063 A, US3853185 A, US3809159 A, US3804172 A, US3804169 A, US3794116 A, US3779602 A, US3775185 A, US3770398 A, US3766982 A, US3759574 A, US3759328 A, US3700280 A, US3691291 A, US3680633 A, US3675715 A, US3661423 A, US3622071 A, US3618663 A, US3617471 A, US3605890 A, US3599714 A, US3595082 A, US3593790 A, US3580987 A, US3562401 A, US3547193 A, US3529682 A, US3528501 A, US3513913 A, US3502372 A, US3501201 A, US3497000 A, US3477058 A, US345586 A, US3455383 A, US3454365 A, US3434541 A, US3389975 A, US3386508 A, US3380913 A, US3379248 A, US3352355 A, US3349845 A, US3342267 A, US3342258 A, US3338306 A, US3316962 A, US3310109 A, US3302707 A, US3294167 A, US3288648 A, US3285335 A, US3284281 A, US3275076 A, US3273640 A, US3267680 A, US326439 A, US3250327 A, US3246695 A, US3244231 A, US3241611 A, US3237689 A, US3233668 A, US3223166 A, US3221811 A, US3209825 A, US3208531 A, US3207220 A, US3205946 A, US3205944 A, US3205942 A, US3191679 A, US3183675 A, US3182721 A, US3181613 A, US3170842 A, US3165154 A, US3164207 A, US3163745 A, US3149672 A, US3149670 A, US3142336 A, US3139928 A, US3137347 A, US3132692 A, US3131763 A, US3127936 A, US3127935 A, US3120264 A, US3116792 A, US3114417 A, US3113623 A, US3113620 A, US3113619 A, US3110345 A, US3106244 A, US3105545 A, US3095031 A, US3084919 A, US3079085 A, US3062282 A, US3061009 A, US3050123 A, US3048221 A, US3044545 A, US3036632 A, US3032102 A, US3026940 A, US3017168 A, US3016053 A, US3010516 A, US3010513 A, US3007521 A, US3004603 A, US3004601 A, US3004596 A, US2998457 A, US2994376 A, US2974937 A, US2970826 A, US2969226 A, US2958519 A, US2954826 A, US2939689 A, US2932352 A, US2923535 A, US2914309 A, US2906340 A, US2906337 A, US2902270 A, US2890755 A, US2890754 A, US2857002 A, US2841375 A, US2825408 A, US2819761 A, US2804149 A, US2803305 A, US2801089 A, US2793696 A, US2789805 A, US2786660 A, US2780450 A, US2780449 A, US2777679 A, US2771954 A, US2743906 A, US2734579 A, US2732195 A, US2714930 A, US2703621 A, US2695163 A, US2685930 A, US2670802 A, US2642943 A, US2634961 A, US2630307 A, US2630306 A, US2623596 A, US2595979 A, US2593477 A, US2584605 A, US2548360 A, US2497868 A, US2484063 A, US2472445 A, US2466945 A, US2444755 A, US2423674 A, US2375689 A, US2244256 A, US2244255 A, US2004108111 AA, US2004069486 AA, US2004040715 AA, US2004035582 AA, US2004020642 AA, US2004015023 AA, US2003213594 AA, US2003209348 AA, US2003205378 AA, US2003201098 AA, US2003196810 AA, US2003196801 AA, US2003196793 AA, US2003196789 AA, US2003196788 AA, US2003192691 AA, US2003183390 AA, US2003178191 AA, US2003173081 AA, US2003173080 AA, US2003173078 AA, US2003164239 AA, US2003164238 AA, US2003164234 AA, US2003155111 AA, US2003148894 AA, US2003146002 AA, US2003142964 AA, US2003141068 AA, US2003141067 AA, US2003141066 AA, US2003131996 AA, US2003131995 AA, US2003131994 AA, US2003131993 AA, US2003116315 AA, US2003111223 AA, US2003102130 AA, US2003102126 AA, US2003102125 AA, US2003102124 AA, US2003100451 AA, US2003098605 AA, US2003098149 AA, US2003085034 AA, US2003080604 AA, US2003079877 AA, US2003075318 AA, US2003070807 AA, US2003066644 AA, US2003066642 AA, US2003062164 AA, US2003062154 AA, US2003051872 AA, US2003029617 AA, US2003024699 AA, US2003019626 AA, US2003006039 AA, US2002191969 AA, US2002191968 AA, US2002170708 AA, US2002132862 AA, US2002117303 AA, US2002112987 AA, US2002112890 AA, US2002108753 AA, US2002104654 AA, US2002096320 AA, US2002084074 AA, US2002077515 AA, US2002076212 AA, US2002074117 AA, US2002066565 AA, US2002062961 AA, US2002062959 AA, US2002062052 AA, US2002062051 AA, US2002057905 AA, US2002056552 AA, US2002056551 AA, US2002053436 AA, US2002053435 AA, US2002053432 AA, US2002053431 AA, US2002053429 AA, US2002052297 AA, US2002050357 AA, US2002050356 AA, US2002050353 AA, US2002050352 AA, US2002049360 AA, US2002049358 AA, US2002046883 AA, US2002046839 AA, US2002046838 AA, US2002046837 AA, US2002046832 AA, US2002045553 AA, US2002043405 AA, US2002043367 AA, US2002043366 AA, US2002043365 AA, US2002040781 AA, US2002040780 AA, US2002040779 AA, US2002040778 AA, US2002040177 AA, US2002040173 AA, US2002039486 AA, US2002038712 AA, US2002038711 AA, US2002038710 AA, US2002038709 AA, US2002038708 AA, US2002038706 AA, US2002038705 AA, US2002038069 AA, US2002036103 AA, US2002036089 AA, US2002036084 AA, US2002036083 AA, US2002035307 AA, US2002034380 AA, US2002033280 AA, US2002033257 AA, US2002033256 AA, US2002033255 AA, US2002033254 AA, US2002033253 AA, US2002029885 AA, US2002029884 AA, US2002029882 AA, US2002029881 AA, US2002027001 AA, US2002018697 AA, US2002004533 AA, US2001049342 AA, US1913395 A, US1681523 A, US1666488 A, US1646599 A, US1634236 A, US1510655 A, US1457479 A, US1342741 A, US1269747 A, SU1836876,

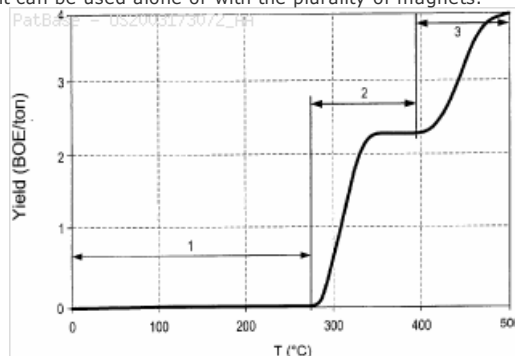
SE126674, SE123138, SE123137, SE123136, SE121737, GB697189, GB674082, GB2086416, GB1588693, GB156396, GB1501310, GB1454324, GB1010023, EP0940558 A1, EP0570228 B1, EP0357314, EP0294809, CA983704, CA2015460, CA1288043, CA1253555, CA1196594, CA1168283, CA1165361,

Forward Citations:

WO18174987, WO16054059, WO13101587, WO11112391, WO09052054, WO09017481, WO08030268, WO07145859, WO07124412, WO07124412, USD682399, US9939421, US9776794, US9755415, US9678241, US9661690, US9606038, US9605524, US9574429, US9528322, US9517885, US9466896, US9417353, US9399905, US9356410, US9337550, US9309755, US9309050, US9242800, US9238959, US9226341, US9181780, US9181467, US9133398, US9129728, US9127538, US9127523, US9116016, US9091141, US9080917, US9080409, US9051829, US9048653, US9033042, US9033033, US9022118, US9022109, US9016370, US9008884, US8997869, US8992771, US8967259, US8954188, US8943686, US8939207, US8936089, US8881806, US8859942, US8857506, US8857051, US8851177, US8851170, US8849582, US8839860, US8833453, US8820406, US8816203, US8791396, US8789586, US8767507, US8752904, US8739874, US8732946, US8701788, US8701769, US8701768, US8662175, US8636323, US8631866, US8627887, US8608249, US8606091, US8586867, US8586866, US8579031, US8573297, US8562078, US8555971, US8536497, US8502120, US8485847, US8485256, US8485252, US8459359, US8448707, US8434555, US8381815, US8356935, US8355623, US8353347, US8327932, US8327681, US8296968, US8281861, US8276661, US8272455, US8267185, US8267170, US8261832, US8257147, US8257112, US8256512, US8240774, US8238730, US8233782, US8230927, US8225866, US8224165, US8224164, US8224163, US8220539, US8205674, US8200072, US8196658, US8192682, US8191630, US8177305, US8172335, US8162405, US8162059, US8151907, US8151880, US8151482, US8146669, US8146661, US8113272, US8096064, US8083813, US8079750, US8078403, US8071037, US8070840, US8042610, US8028438, US8027571, US8026722, US8011451, US8010290, US8006407, US7987074, US7986869, US7985022, US7975398, US7954254, US7950453, US7942203, US7942197, US7931400, US7931086, US7912358, US7866388, US7866386, US7866385, US7860377, US7849922, US7845411, US7841425, US7841408, US7841401, US7832484, US7832482, US7831134, US7831133, US7816923, US7816922, US7809538, US7802377, US7802376, US7798221, US7798220, US7793722, US7785427, US7770643, US7762714, US7748137, US7735935, US7730947, US7730946, US7730945, US7717171, US7712519, US7703548, US7703513, US7683296, US7681647, US7679481, US7679480, US7677314, US7677310, US7673786, US7673681, US7656161, US7644765, US7640987, US7640980, US7635025, US7635024, US7635023, US7631690, US7631689, US7617049, US7610962, US7604052, US7597147, US7591310, US7584789, US7581589, US7575052, US7568532, US7562707, US7562706, US7559368, US7559367, US7556096, US7556095, US7549470, US7540324, US7538650, US7537375, US7533719, US7510000, US7490665, US7484561, US7481274, US7431076, US7424915, US7392166, US7383877, US7370704, US7360588, US7357180, US7353872, US7325967, US7320364, US7298287, US7219734, US7165615, US7156176, US7128153, US7121342, US7121341, US7114566, US7104319, US7096942, US7090013, US7073578, US7055600, US7051811, US7051807, US7040400, US7040399, US7040398, US7032660, US7013972, US7011154, US7004251, US7004247, US6997518, US6994169, US6991036, US6991033, US6991032, US6981548, US6966374, US6964300, US6951247, US6948562, US6929067, US6923257, US6918443, US6918442, US6918550, US6880633, US6877555, US6782947, US2016305865, US2016258276, US2016160641, US2016069857, US2015363524, US2015310141, US2015276969, US2015136390, US2015102822, US2014251608, US2014251596, US2014224483, US2014052378, US2013234860, US2013024174, US2013002255, US2012158315, US2012139543, US2012139530, US2012110845, US2011247814, US20110332175, US2010241410, US2010220548, US2010194395, US2010181066, US2010165790, US2010165789, US2010126037, US2010108379, US2010071903, US2009324453, US2009272536, US2009272526, US2009260825, US2009260812, US2009260811, US2009260810, US2009227185, US2009201026, US2009201025, US2009200290, US2009200022, US2009195340, US2009195339, US2009194286, US2009193822, US2009151190, US2009126475, US2009090158, US2009071647, US2009013596, US2009006053, US2008275648, US2008257552, US2008236831, US2008217016, US2008212646, US2008212644, US2008178490, US2008177475, US2008174115, US2008173450, US2008110043, US2008107577, US2008041626, US2008017380, US2008017370, US2008012672, US2007294914, US2007284108, US2007278008, US2007193744, US2007159918, US2007133960, US2007133959, US2007108201, US2007056726, US2007045268, US2006216332, US2006174702, US2006149520, US2006112589, US2006010713, US2005051327, US2005024988, US2005000109, US10221014, US10119366, US10118129, US10094850, US10053286, US10047594, US10041345, US10031153, US10001006, GB2465911, GB2465120, GB2465120, EP2745365, EP2695242, EP2545249, EP2486380, CN103282601, CN102465692, CN101796431, AU2015202092, AU2011338656, AU2011338656,

Abstract:

A method for forming one or more openings in a hydrocarbon containing formation is described. The method may include forming or providing a first opening in the formation. A plurality of magnets may be provided into the first opening. The plurality of magnets may be positioned along a portion of the first opening. The plurality of magnets may produce a series of magnetic fields along the portion of the first opening. A second opening in the formation may be formed using magnetic tracking of the series of magnetic fields. The second opening may be spaced a desired distance from the first opening. Alternate embodiments include use of an energized conduit to create a magnetic field. Such energized conduit can be used alone or with the plurality of magnets.



10) Family number: 66393252 (US2003183390A)

© PatBase

Title: METHODS AND SYSTEMS FOR HEATING A HYDROCARBON CONTAINING FORMATION IN SITU WITH AN OPENING CONTACTING THE EARTH'S SURFACE AT TWO LOCATIONS

Priority: US20010334568P 20011024 US20010337136P 20011024 US20020374970P 20020424
US20020374995P 20020424 US20020279292 20021024

Family:

Publication number	Publication date	Application number	Application date
US2003183390 AA	20031002	US20020279292	20021024
US7063145 BB	20060620	US20020279292	20021024

Probable Assignee: SHELL OIL CO

Assignee(s):(std): SHELL OIL CO

Assignee(s): VEENSTRA PETER ; WELLINGTON SCOTT LEE ; VINEGAR HAROLD J ; DE ROUFFIGNAC ERIC PIERREUS ; KARANIKAS JOHN MICHAEL

Inventor(s):(std): DE ROUFFIGNAC ERIC PIERRE ; DE ROUFFIGNAC ERIC PIERREUS ; KARANIKAS JOHN MICHAEL ; VEENSTRA PETER ; VINEGAR HAROLD J ; WELLINGTON SCOTT LEE

International class (IPC 8-9): B09C1/02 B09C1/06 C10G45/00 C10G9/24 E21B17/02 E21B36/00 E21B36/02 E21B43/16 E21B43/24 E21B43/243 E21B43/30 E21B44/00 E21B47/022 E21B7/04 G01V3/26 (Advanced/Invention)

International class (IPC 1-7): E21B36/00

CPC: E21B43/2401 B09C1/02 B09C1/06 B09C2101/00 C10G9/24 C10G45/00 E21B17/028 E21B43/168 E21B43/24 E21B43/243 E21B43/305 E21B47/02208 G01V3/26 Y02P30/30 Y02P30/44 Y10S210/901 Y10T137/0391

US class: 166/250.01 166/272.7 166/302 166/313 166/384 166/50 166/59 175/45 175/53 175/61 175/62 405/154.1 405/184 405/184.1

[Classification Explorer](#)

Cited documents: WO9901640, WO9850179, WO9701018, WO9533122, WO9512746, WO9512745, WO9512744, WO9512743, WO9512742, WO9506093, WO0181723 A1, WO0181505 A1, USRE36569 E, USRE35696 E, USRE30738 E, USRE30019 E, USRE27309 E, US94813 A, US760304 A, US6820688 BA, US6805195 BA, US6789625 BA, US6782947 BA, US6769485 BA, US6769483 BA, US6763886 BA, US6761216 BA, US6758268 BA, US6752210 BA, US6749021 BA, US6745837 BA, US6745832 BA, US6745831 BA, US6742593 BA, US6742589 BA, US6742588 BA, US6742587 BA, US6739394 BA, US6739393 BA, US6736215 BA, US6732796 BA, US6732795 BA, US6732794 BA, US6729401 BA, US6729397 BA, US6729396 BA, US6729395 BA, US6725928 BA, US6725921 BA, US6725920 BA, US6722431 BA, US6722430 BA, US6722429 BA, US6719047 BA, US6715549 BA, US6715548 BA, US6715547 BA, US6715546 BA, US6712137 BA, US6712136 BA, US6712135 BA, US6708758 BA, US6702016 BA, US6698515 BA, US6688387 BA, US6684948 BA, US6679332 BA, US6609570 BA, US6607033 BA, US6591907 BB, US6591907 BA, US6591906 BB, US6591906 BA, US6588504 BB, US6588504 BA, US6588503 BB, US6588503 BA, US6584406 BA, US6581684 BB, US6581684 BA, US6499536 BA, US6485232 BA, US6467543 BA, US6466020 BA, US6429784 BA, US6422318 BA, US6412559 BA, US6389814 BA, US6357526 BA, US6354373 BA, US6353706 BA, US6328104 BA, US6244338 BA, US6234259 BA, US6209640 BA, US6192748 BA, US6187465 BA, US6173775 B1, US6172124 B1, US6155117 A, US6152987 A, US6112808 A, US6110358 A, US6102622 A, US6102137 A, US6102122 A, US6094048 A, US6085512 A, US6079499 A, US6065538 A, US6056057 A, US6049508 A, US6035701 A, US6026914 A, US6023554 A, US6019172 A, US6016868 A, US6016867 A, US6015015 A, US5997214 A, US5985138 A, US5984582 A, US5984010 A, US5968349 A, US5955039 A, US5935421 A, US5923170 A, US5899269 A, US5891829 A, US5868202 A, US5862858 A, US5861137 A, US5826655 A, US5777229 A, US5769569 A, US5767584 A, US5760307 A, US5751895 A, US5747750 A, US5725059 A, US5713415 A, US5676212 A, US5657826 A, US5656239 A, US5652389 A, US5632336 A, US5626191 A, US5624188 A, US5621844 A, US5589775 A, US5571403 A, US5566756 A, US5566755 A, US5554453 A, US5553189 A, US5545803 A, US5541517 A, US5539853 A, US5525322 A, US5517593 A, US5515931 A, US5513710 A, US5512830 A, US5498960 A, US5497087 A, US5491969 A, US5485089 A, US5456315 A, US5454666 A, US5439054 A, US5437506 A, US5435666 A, US5433271 A, US5431224 A, US5415231 A, US5411104 A, US5411089 A, US5411086 A, US5409071 A, US5404952 A, US5402847 A, US5392854 A, US5391291 A, US5388645 A, US5388643 A, US5388642 A, US5388641 A, US5388640 A, US5377756 A, US5366012 A, US5363094 A, US5360067 A, US5349859 A, US5343152 A, US5340467 A, US5339904 A, US5339897 A, US5325918 A, US5318116 A, US5316664 A, US5306640 A, US5305829 A, US5305239 A, US5305212 A, US5297626 A, US5295763 A, US5289882 A, US5285846 A, US5284878 A, US5261490 A, US5258755 A, US5255742 A, US5236039 A, US5229583 A, US5229102 A, US5226961 A, US5218301 A, US5217076 A, US5211230 A, US5207273 A, US5201219 A, US5190405 A, US5189283 A, US5182792 A, US5168927 A, US5145003 A, US5126037 A, US5109928 A, US5103920 A, US5099918 A, US5097903 A, US5085276 A, US5082055 A, US5082054 A, US5074365 A, US5065818 A, US5064006 A, US5060726 A, US5060287 A, US5059303 A, US5055180 A, US5054551 A, US5050386 A, US5046559 A, US5041210 A, US5027896 A, US5020596 A, US5014788 A, US5011329 A, US5008085 A, US4994093 A, US4988389 A, US4987368 A, US4984594 A, US4983319 A, US4982786 A, US4974425 A, US4933640 A, US4931171 A, US4928765 A, US4927857 A, US4926941 A, US4913065 A, US4912971 A, US48994 A, US4895206 A, US4893504 A, US4886118 A, US4885080 A, US4884455 A, US4883582 A, US4866983 A, US4860544 A, US4856587 A, US4856341 A, US4848924 A, US4848460 A, US4845434 A, US4831600 A, US4828031 A, US4827761 A, US4818370 A, US4817711 A, US4815790 A, US4808925 A, US4793656 A, US4791373 A, US4787452 A, US4778586 A, US4776638 A, US4772634 A, US4769606 A, US4769602 A, US4766958 A, US4762425 A, US4756367 A, US4744245 A, US4743854 A, US4737267 A, US4734115 A, US4730162 A, US4728892 A, US4728412 A, US4719423 A, US4716960 A, US4706751 A, US4704514 A, US4702758 A, US4700142 A, US4698149 A, US4696345 A, US4694907 A, US4691771 A, US4683947 A, US4682652 A, US4671102 A, US4669542 A, US4663711 A, US4662443 A, US4662439 A, US4662438 A, US4658215 A, US4651825 A, US4644283 A, US4640353 A, US4640352 A, US4637464 A, US4635197 A, US4626665 A, US4623444 A, US4616705 A, US4613754 A, US4608818 A, US4605680 A, US4605489 A, US4598772 A, US4598770 A, US4598392 A, US4597444 A, US4597441 A, US4594468 A, US4592423 A, US4585066 A, US4583242 A, US4583046 A, US4577690 A, US4577503 A, US4576231 A, US4573530 A, US4572299 A, US4571491 A, US4570715 A, US4552214 A, US4549396 A, US4544478 A, US4542648 A, US4540882 A, US4537252 A, US4530401 A, US4529939 A, US4524827 A, US4524826 A, US4524113 A, US4518548 A, US4513816 A, US4508170 A, US4502010 A, US4501445 A, US4501326 A, US4499209 A, US4498535 A, US4491179 A, US4489782 A, US4485869 A, US4483398 A, US4479541 A, US4476927 A, US4474238 A, US4463807 A, US4460044 A, US4458767 A, US4458757 A, US4457374 A, US4457365 A, US4456065 A, US4455215 A, US4452491 A, US4448252 A, US4448251 A, US4445574 A, US4444258 A, US4444255 A, US4443762 A, US4442896 A, US4440224 A, US4439307 A, US4437519 A, US4429745 A, US4428700 A, US4425967 A, US4423311 A, US4418752 A, US4415034 A, US4412585 A, US4412124 A, US4410042 A, US4409090 A, US4407973 A, US4401163 A, US4399866 A, US4398151 A, US4397732 A, US4396062 A, US4390973 A, US4390067 A, US4384948 A, US4384614 A, US4384613 A, US4381641 A, US4380930 A, US4378048 A, US4375302 A, US4372398 A, US4366668 A, US4363361 A, US4359687 A, US4353418 A, US4344483 A, US4324292 A, US4323848 A, US4319635 A, US4306621 A, US4305463 A, US4303126 A, US4299285 A, US4299086 A, US4285547 A, US4282587 A, US4277416 A, US4274487 A, US4273188 A, US4265307 A, US4260192 A, US4260018 A, US4252191 A, US4250962 A, US4250230 A, US4243511 A, US4243101 A, US4234230 A, US4228854 A, US4197911 A, US4193451 A, US4186801 A, US4185692 A, US4184548 A, US4183405 A, US4167213 A, US4160479 A, US4158467 A, US4151877 A, US4148359 A, US4144935 A, US4140181 A, US4140180 A, US4138442 A, US4133825 A, US4130575 A, US4125159 A, US4114688 A, US4110180 A, US4099567 A, US4096163 A, US4093026 A, US4093025 A, US4091869 A, US4089374 A, US4089372 A, US4087130 A, US4084637 A, US4076761 A, US4069868 A, US4067390 A, US4065183 A, US4057293 A, US4049053 A, US4048637 A, US4043393 A, US4042026 A, US4031956 A, US4026357 A, US4019575 A, US4018280 A, US4016239 A, US4010800 A, US4008762 A, US4006778 A, US4005752 A, US3999607 A, US3994341 A, US3994340 A, US3993132 A, US3987851 A, US3986557 A, US3986556 A, US3986349 A, US3982592 A, US3982591 A, US3973628 A, US3954140 A, US3952802 A, US3948755 A, US3948319 A, US3947683 A, US3947656 A, US3941421 A, US3924680 A, US3922148 A, US3907045 A, US3892270 A, US3882941 A, US3881551 A, US3874733 A, US3870063 A, US3853185 A, US3809159 A, US3804172 A, US3804169 A, US3794116 A, US3779602 A, US3775185 A, US3770398 A, US3766982 A, US3759574 A, US3759328 A, US3700280 A, US3691291 A, US3680633 A, US3675715 A, US3661423 A, US3622071 A, US3618663 A, US3617471 A, US3605890 A, US3599714 A, US3595082 A, US3593790 A,

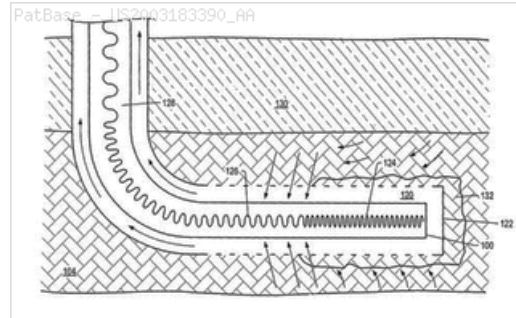
US3580987 A, US3562401 A, US3547193 A, US3529682 A, US3528501 A, US3513913 A, US3502372 A, US3501201 A, US3497000 A, US3477058 A, US345586 A, US3455383 A, US3454365 A, US3434541 A, US3389975 A, US3386508 A, US3380913 A, US3379248 A, US3352355 A, US3349845 A, US3342267 A, US3342258 A, US3338306 A, US3316962 A, US3310109 A, US3302707 A, US3294167 A, US3288648 A, US3285335 A, US3284281 A, US3275076 A, US3273640 A, US3267680 A, US326439 A, US3250327 A, US3246695 A, US3244231 A, US3241611 A, US3237689 A, US3233668 A, US3223166 A, US3221811 A, US3209825 A, US3208531 A, US3207220 A, US3205946 A, US3205944 A, US3205942 A, US3191679 A, US3183675 A, US3182721 A, US3181613 A, US3170842 A, US3165154 A, US3164207 A, US3163745 A, US3149672 A, US3149670 A, US3142336 A, US3139928 A, US3137347 A, US3132692 A, US3131763 A, US3127936 A, US3127935 A, US3120264 A, US3116792 A, US3114417 A, US3113623 A, US3113620 A, US3113619 A, US3110345 A, US3106244 A, US3105545 A, US3095031 A, US3084919 A, US3079085 A, US3062282 A, US3061009 A, US3050123 A, US3048221 A, US3044545 A, US3036632 A, US3032102 A, US3026940 A, US3017168 A, US3016053 A, US3010516 A, US3010513 A, US3007521 A, US3004603 A, US3004601 A, US3004596 A, US2998457 A, US2994376 A, US2974937 A, US2970826 A, US2969226 A, US2958519 A, US2954826 A, US2939689 A, US2932352 A, US2923535 A, US2914309 A, US2906340 A, US2906337 A, US2902270 A, US2890755 A, US2890754 A, US2857002 A, US2841375 A, US2825408 A, US2819761 A, US2804149 A, US2803305 A, US2801089 A, US2793696 A, US2789805 A, US2786660 A, US2780450 A, US2780449 A, US2777679 A, US2771954 A, US2743906 A, US2734579 A, US2732195 A, US2714930 A, US2703621 A, US2695163 A, US2685930 A, US2670802 A, US2642943 A, US2634961 A, US2630307 A, US2630306 A, US2623596 A, US2595979 A, US2593477 A, US2584605 A, US2548360 A, US2497868 A, US2484063 A, US2472445 A, US2466945 A, US2444755 A, US2423674 A, US2375689 A, US2244256 A, US2244255 A, US2004108111 AA, US2004069486 AA, US2004040715 AA, US2004035582 AA, US2004020642 AA, US2004015023 AA, US2003213594 AA, US2003209348 AA, US2003205378 AA, US2003201098 AA, US2003196810 AA, US2003196801 AA, US2003196793 AA, US2003196789 AA, US2003196788 AA, US2003192691 AA, US2003183390 AA, US2003178191 AA, US2003173081 AA, US2003173080 AA, US2003173078 AA, US2003164239 AA, US2003164238 AA, US2003164234 AA, US2003155111 AA, US2003148894 AA, US2003146002 AA, US2003142964 AA, US2003141068 AA, US2003141067 AA, US2003141066 AA, US2003131996 AA, US2003131995 AA, US2003131994 AA, US2003131993 AA, US2003121996 AA, US2003116315 AA, US2003111223 AA, US2003102130 AA, US2003102126 AA, US2003102125 AA, US2003102124 AA, US2003100451 AA, US2003098605 AA, US2003098149 AA, US2003085034 AA, US2003080604 AA, US2003079877 AA, US2003075318 AA, US2003070807 AA, US2003066644 AA, US2003066642 AA, US2003062164 AA, US2003062154 AA, US2003051872 AA, US2003029617 AA, US2003024699 AA, US2003019626 AA, US2003006039 AA, US2002191969 AA, US2002191968 AA, US2002170708 AA, US2002132862 AA, US2002117303 AA, US2002112987 AA, US2002112890 AA, US2002108753 AA, US2002104654 AA, US2002096320 AA, US2002084074 AA, US2002077515 AA, US2002076212 AA, US2002074117 AA, US2002066565 AA, US2002062961 AA, US2002062959 AA, US2002062052 AA, US2002062051 AA, US2002057905 AA, US2002056552 AA, US2002056551 AA, US2002053436 AA, US2002053435 AA, US2002053432 AA, US2002053431 AA, US2002053429 AA, US2002052297 AA, US2002050357 AA, US2002050356 AA, US2002050353 AA, US2002050352 AA, US2002049360 AA, US2002049358 AA, US2002046883 AA, US2002046839 AA, US2002046838 AA, US2002046837 AA, US2002046832 AA, US2002045553 AA, US2002043405 AA, US2002043367 AA, US2002043366 AA, US2002043365 AA, US2002040781 AA, US2002040780 AA, US2002040779 AA, US2002040778 AA, US2002040177 AA, US2002040173 AA, US2002039486 AA, US2002038712 AA, US2002038711 AA, US2002038710 AA, US2002038709 AA, US2002038708 AA, US2002038706 AA, US2002038705 AA, US2002038069 AA, US2002036103 AA, US2002036089 AA, US2002036084 AA, US2002036083 AA, US2002035307 AA, US2002034380 AA, US2002033280 AA, US2002033257 AA, US2002033256 AA, US2002033255 AA, US2002033254 AA, US2002033253 AA, US2002029885 AA, US2002029884 AA, US2002029882 AA, US2002029881 AA, US2002027001 AA, US2002018697 AA, US2002004533 AA, US2001049342 AA, US1913395 A, US1681523 A, US1666488 A, US1646599 A, US1634236 A, US1510655 A, US1457479 A, US1342741 A, US1269747 A, SU1836876, SE126674, SE123138, SE123137, SE123136, SE121737, GB697189, GB674082, GB2086416, GB1588693, GB156396, GB1501310, GB1454324, GB1010023, EP0940558 A1, EP0570228 B1, EP0357314, EP0294809, CA983704, CA2015460, CA1288043, CA1253555, CA1196594, CA1168283, CA1165361,

Forward Citations:

WO12021293, WO10045115, WO10045115, WO09108940, WO09108940, WO08153697, WO08073765, WO08073765, US9776794, US9755415, US9739122, US9726157, US9644466, US9605524, US9556719, US9528322, US9517885, US9512699, US9466896, US9399905, US9394772, US9347302, US9337550, US9309755, US9309050, US9242800, US9226341, US9181780, US9181467, US9133697, US9133398, US9129728, US9127538, US9127523, US9080917, US9080441, US9080409, US9051829, US9048653, US9033042, US9033033, US9028171, US9026418, US9022118, US9022109, US9016370, US9008884, US8997869, US8992771, US8967259, US8954188, US8943686, US8939207, US8936089, US8881806, US8875789, US8863839, US8859942, US8857506, US8857051, US8851177, US8851170, US8849582, US8839860, US8833453, US8820406, US8816203, US8791396, US8789586, US8776901, US8770284, US8752904, US8739874, US8732946, US8701788, US8701769, US8701768, US8662175, US8641150, US8636323, US8631866, US8627887, US8622133, US8622127, US8616280, US8616279, US8608249, US8606091, US8596355, US8586867, US8586866, US8579031, US8562078, US8555971, US8540020, US8536497, US8502120, US8485847, US8485256, US8485252, US8459359, US8448707, US8434555, US8381815, US8356935, US8355623, US8353347, US8353340, US8327932, US8327681, US8296968, US8281861, US8277145, US8276661, US8272455, US8267185, US8267170, US8261832, US8257112, US8256992, US8256991, US8256512, US8240774, US8238730, US8233782, US8230929, US8230927, US8225866, US8224165, US8224164, US8224163, US8220539, US8205674, US8200072, US8196658, US8192682, US8191630, US8177305, US8172335, US8162405, US8162059, US8151907, US8151884, US8151880, US8151877, US8151482, US8146669, US8146664, US8146661, US8122955, US8113272, US8104537, US8096064, US8087460, US8083813, US8082995, US8070840, US8042610, US8028438, US8027571, US8025445, US8016589, US8011451, US8006407, US7986869, US7975398, US7954254, US7950453, US7942203, US7942197, US7931086, US7922643, US7912358, US7866388, US7866386, US7866385, US7860377, US7854276, US7849922, US7845411, US7841425, US7841406, US7841401, US7832484, US7832482, US7831134, US7831133, US7809538, US7802377, US7802376, US7798221, US7798220, US7793722, US7785427, US7770643, US7748137, US7735935, US7730947, US7730946, US7730945, US7717171, US7704070, US7703513, US7683296, US7681647, US7677314, US7677310, US7673786, US7673681, US7651331, US7644765, US7640987, US7640980, US7637316, US7635025, US7635024, US7635023, US7631706, US7631690, US7631689, US7610962, US7604052, US7597147, US7591310, US7584789, US7581589, US7575053, US7575052, US7562707, US7562706, US7559368, US7559367, US7556096, US7556095, US7549470, US7546873, US7540324, US7533719, US7527094, US7510000, US7500528, US7490665, US7481274, US7461691, US7435037, US7431076, US7424915, US7383877, US7370704, US7360588, US7357180, US7353872, US7320364, US7225866, US7219734, US7165615, US7156176, US7128153, US7121342, US7121341, US7114566, US7104319, US7100994, US7096942, US7090013, US7086465, US7077199, US7077198, US7073578, US7066257, US7066254, US7063145, US7055600, US7051811, US7051808, US7051807, US7040400, US7040399, US7040398, US7032660, US7013972, US7011154, US7004251, US7004247, US6997518, US6994169, US6991045, US6991036, US6991033, US6991032, US6981548, US6969123, US6966374, US6964300, US6951247, US6948562, US6932155, US6929067, US6923257, US6918443, US6918442, US6915850, US6880633, US6877555, US6782947, US2016258276, US2015300327, US2015117956, US2012158315, US2011315233, US2011170843, US2011011582, US2010303427, US2010270027, US2010126037, US2010101789, US2010098492, US2009321417, US2009272526, US2009242196, US2009220303, US2010971647, US2009062593, US2009056696, US2009053660, US2009020335, US2008290719, US2008283245, US2008135254, US2007294914, US2007209799, US2007131411, US2006222578, US2006210936, US2006210468, US2006175061, US2005000109, US10221014, US10053286, US10047594, US10001006, GB2430218, GB2430218, EA015025, CN107246251,

Abstract:

In an embodiment, a method for heating a hydrocarbon containing formation may include providing heat from one or more heaters to an opening in the formation. A first end of the opening may contact the earth's surface at a first location and a second end of the opening may contact the earth's surface at a second location. The heat may be allowed to transfer from the opening to at least a part of the formation. The transferred heat may pyrolyze at least some hydrocarbons in the formation. In certain embodiments, providing the heat to the opening may include providing heat, heated materials, and/or oxidation products from at least one heater to the opening.

**11) Family number: 66393257 (US2003192691A)**

© PatBase

Title: IN SITU RECOVERY FROM A HYDROCARBON CONTAINING FORMATION USING BARRIERS

Priority: US20010334568P 20011024 US20010337136P 20011024 US20020374970P 20020424
US20020374995P 20020424 US20020279291 20021024

Family:

Publication number	Publication date	Application number	Application date
US2003192691 AA	20031016	US20020279291	20021024
US7077198 BB	20060718	US20020279291	20021024

Probable Assignee: SHELL OIL CO

Assignee(s):(std): SHELL OIL CO

Assignee(s): AYMOND DANNIE ANTOINE ; MAHER KEVIN ALBERT ; MCKINZIE BILLY J ; PALFREYMAN BRUCE DONALD ; VINEGAR HAROLD J ; WELLINGTON SCOTT LEE ; WATKINS RONNIE WADE ; STEGEMEIER GEORGE LEO ; WARD JOHN MICHAEL

Inventor(s):(std): AYMOND DANNIE ANTOINE ; AYMOND JR DANNIE ANTOINE ; MAHER KEVIN ALBERT ; MCKINZIE BILLY J ; MCKINZIE II BILLY JOHN ; PALFREYMAN BRUCE DONALD ; STEGEMEIER GEORGE LEO ; VINEGAR HAROLD J ; WARD JOHN MICHAEL ; WATKINS RONNIE WADE ; WELLINGTON SCOTT LEE

International class (IPC 8-9): B09C1/02 B09C1/06 C10G45/00 C10G9/24 E21B17/02 E21B36/00 E21B43/16 E21B43/24 E21B43/243 E21B43/30 E21B44/00 E21B47/022 G01V3/26 (Advanced/Invention)

International class (IPC 1-7): E21B47/10

CPC: E21B43/2401 B09C1/02 B09C1/06 B09C2101/00 C10G9/24 C10G45/00 E21B17/028 E21B43/168 E21B43/24 E21B43/243 E21B43/305 E21B47/02208 G01V3/26 Y02P30/30 Y02P30/44 Y10S210/901 Y10T137/0391

US class: 166/245 166/250.01 166/250.12 166/254.1 166/272.1 166/302 166/52 299/6 405/130 405/131 405/270 405/52

[Classification Explorer](#)**Cited documents:**

WO9901640, WO9850179, WO9701017, WO9533122, WO9512746, WO9512745, WO9512744, WO9512743, WO9512742, WO9506093, WO0181723 A1, WO0181505 A1, USRE36569 E, USRE35696 E, USRE30738 E, USRE30019 E, USRE27309 E, US94813 A, US760304 A, US6820688 BA, US6805195 BA, US6789625 BA, US6782947 BA, US6769485 BA, US6769483 BA, US6763886 BA, US6761216 BA, US6758268 BA, US6752210 BA, US6749021 BA, US6745837 BA, US6745832 BA, US6745831 BA, US6742593 BA, US6742589 BA, US6742588 BA, US6742587 BA, US6739394 BA, US6739393 BA, US6736215 BA, US6732796 BA, US6732795 BA, US6732794 BA, US6729401 BA, US6729397 BA, US6729396 BA, US6729395 BA, US6725928 BA, US6725921 BA, US6725920 BA, US6722431 BA, US6722430 BA, US6722429 BA, US6719047 BA, US6715549 BA, US6715548 BA, US6715547 BA, US6715546 BA, US6712137 BA, US6712136 BA, US6712135 BA, US6708758 BA, US6702016 BA, US6698515 BA, US6688387 BA, US6684948 BA, US6679332 BA, US6609570 BA, US6607033 BA, US6591907 BA, US6591906 BA, US6588504 BA, US6588503 BA, US6584406 BA, US6581684 BA, US6499536 BA, US6485232 BA, US6467543 BA, US6466020 BA, US6429784 BA, US6412559 BA, US6389814 BA, US6357526 BA, US6354373 BA, US6353706 BA, US6328104 BA, US6244338 BA, US6234259 BA, US6209640 BA, US6192748 BA, US6187465 BA, US6173775 BA, US6173775 B1, US6172124 B1, US6155117 A, US6152987 A, US6112808 A, US6110358 A, US6102622 A, US6102122 A, US6094048 A, US6085512 A, US6079499 A, US6065538 A, US6056057 A, US6049508 A, US6035701 A, US6026914 A, US6023554 A, US6019172 A, US6016868 A, US6016867 A, US6015015 A, US5997214 A, US5985138 A, US5984010 A, US5968349 A, US5955039 A, US5935421 A, US5923170 A, US5899269 A, US5891829 A, US5868202 A, US5862858 A, US5861137 A, US5826655 A, US5802870 A, US5777229 A, US5769569 A, US5767584 A, US5760307 A, US5751895 A, US5747750 A, US5725059 A, US5713415 A, US5676212 A, US5657826 A, US5656239 A, US5652389 A, US5632336 A, US5626191 A, US5624188 A, US5621844 A, US5589775 A, US5571403 A, US5566756 A, US5566755 A, US5554453 A, US5553189 A, US5545803 A, US5541517 A, US5539853 A, US5525322 A, US5517593 A, US5515931 A, US5513710 A, US5512830 A, US5498960 A, US5497087 A, US5491969 A, US5485089 A, US5456315 A, US5454666 A, US5439054 A, US5437506 A, US5435666 A, US5433271 A, US5431224 A, US5415231 A, US5411104 A, US5411089 A, US5411086 A, US5409071 A, US5404952 A, US5402847 A, US5392854 A, US5391291 A, US5388645 A, US5388643 A, US5388642 A, US5388641 A, US5388640 A, US5377756 A, US5366012 A, US5363094 A, US5360067 A, US5349859 A, US5343152 A, US5340467 A, US5339904 A, US5339897 A, US5325918 A, US5318116 A, US5316664 A, US5306640 A, US5305829 A, US5305239 A, US5305212 A, US5297626 A, US5295763 A, US5289882 A, US5285846 A, US5284878 A, US5261490 A, US5258755 A, US5255742 A, US5236039 A, US5229583 A, US5229102 A, US5226961 A, US5218301 A, US5217076 A, US5211230 A, US5207273 A, US5201219 A, US5190405 A, US5189283 A, US5182792 A, US5168927 A, US5145003 A, US5126037 A, US5109928 A, US5103920 A, US5099918 A, US5097903 A, US5085276 A, US5082055 A, US5082054 A, US5074365 A, US5065818 A, US5064006 A, US5060726 A, US5060287 A, US5059303 A, US5055180 A, US5054551 A, US5050386 A, US5046559 A, US5041210 A, US5027896 A, US5020596 A, US5014788 A, US5011329 A, US5008085 A, US4994093 A, US4988389 A, US4987368 A, US4984594 A, US4983319 A, US4982786 A, US4974425 A, US4933640 A, US4931171 A, US4928765 A, US4927857 A, US4926941 A, US4913065 A, US4912971 A, US48994 A, US4895206 A, US4893504 A,

US4886118 A, US4885080 A, US4884455 A, US4883582 A, US4866983 A, US4860544 A, US4856587 A, US4856341 A, US4848924 A, US4848460 A, US4845434 A, US4831600 A, US4828031 A, US4827761 A, US4818370 A, US4817711 A, US4815790 A, US4808925 A, US4793656 A, US4791373 A, US4787452 A, US4778586 A, US4776638 A, US4772634 A, US4769606 A, US4769602 A, US4766958 A, US4762425 A, US4756367 A, US4744245 A, US4743854 A, US4737267 A, US4734115 A, US4730162 A, US4728892 A, US4728412 A, US4719423 A, US4716960 A, US4706751 A, US4704514 A, US4702758 A, US4700142 A, US4698149 A, US4696345 A, US4694907 A, US4691771 A, US4683947 A, US4682652 A, US4671102 A, US4669542 A, US4663711 A, US4662443 A, US4662439 A, US4662438 A, US4658215 A, US4651825 A, US4644283 A, US4640353 A, US4640352 A, US4637464 A, US4635197 A, US4626665 A, US4623444 A, US4616705 A, US4613754 A, US4608818 A, US4605680 A, US4605489 A, US4598772 A, US4598770 A, US4598392 A, US4597444 A, US4597441 A, US4594468 A, US4592423 A, US4585066 A, US4583242 A, US4583046 A, US4577690 A, US4577503 A, US4576231 A, US4573530 A, US4572299 A, US4571491 A, US4570715 A, US4552214 A, US4549396 A, US4544478 A, US4542648 A, US4540882 A, US4537252 A, US4530401 A, US4529939 A, US4524827 A, US4524826 A, US4524113 A, US4518548 A, US4513816 A, US4508170 A, US4502010 A, US4501445 A, US4501326 A, US4499209 A, US4498535 A, US4491179 A, US4489782 A, US4485869 A, US4483398 A, US4479541 A, US4476927 A, US4474238 A, US4463807 A, US4460044 A, US4458767 A, US4458757 A, US4457374 A, US4457365 A, US4456065 A, US4455215 A, US4452491 A, US4448252 A, US4448251 A, US4444258 A, US4444255 A, US4443762 A, US44439307 A, US4437519 A, US4429745 A, US4428700 A, US4425967 A, US4423311 A, US4418752 A, US4415034 A, US4412585 A, US4412124 A, US4410042 A, US4409090 A, US4407973 A, US4401163 A, US4399866 A, US4398151 A, US4397732 A, US4396062 A, US4390973 A, US4390067 A, US4384948 A, US4384614 A, US4384613 A, US4381641 A, US4380930 A, US4378048 A, US4375302 A, US4372398 A, US4366668 A, US4363361 A, US4359687 A, US4353418 A, US4344483 A, US4324292 A, US4323848 A, US4319635 A, US4306621 A, US4305463 A, US4303126 A, US4299285 A, US4299086 A, US4285547 A, US4282587 A, US4277416 A, US4274487 A, US4273188 A, US4265307 A, US4260192 A, US4260018 A, US4252191 A, US4250962 A, US4250230 A, US4243511 A, US4243101 A, US4234230 A, US4228854 A, US4197911 A, US4193451 A, US4186801 A, US4185692 A, US4184548 A, US4183405 A, US4167213 A, US4160479 A, US4158467 A, US4151877 A, US4148359 A, US4144935 A, US4140181 A, US4140180 A, US4138442 A, US4133825 A, US4130575 A, US4125159 A, US4114688 A, US4099567 A, US4096163 A, US4093026 A, US4093025 A, US4091869 A, US4089374 A, US4089372 A, US4087130 A, US4084637 A, US4076761 A, US4069868 A, US4067390 A, US4065183 A, US4057293 A, US4049053 A, US4048637 A, US4043393 A, US4042026 A, US4031956 A, US4026357 A, US4019575 A, US4018280 A, US4016239 A, US4010800 A, US4008762 A, US4006778 A, US4005752 A, US3999607 A, US3994341 A, US3994340 A, US3993132 A, US3992148 A, US3987851 A, US3986556 A, US3986349 A, US3982592 A, US3982591 A, US3973628 A, US3954140 A, US3952802 A, US3948755 A, US3948319 A, US3947683 A, US3947656 A, US3941421 A, US3924680 A, US3922148 A, US3892270 A, US3882941 A, US3881551 A, US3874733 A, US3870063 A, US3853185 A, US3809159 A, US3804172 A, US3804169 A, US3794116 A, US3779602 A, US3775185 A, US3770398 A, US3766982 A, US3759574 A, US3759328 A, US3700280 A, US3691291 A, US3680633 A, US3675715 A, US3661423 A, US3622071 A, US3618663 A, US3617471 A, US3605890 A, US3599714 A, US3595082 A, US3593790 A, US3580987 A, US3562401 A, US3547193 A, US3528501 A, US3513913 A, US3502372 A, US3501201 A, US3497000 A, US3477058 A, US345586 A, US3455383 A, US3454365 A, US3434541 A, US3389975 A, US3386508 A, US3380913 A, US3379248 A, US3352355 A, US3349845 A, US3342267 A, US3342258 A, US3338306 A, US3316962 A, US3310109 A, US3302707 A, US3294167 A, US3288648 A, US3285335 A, US3284281 A, US3275076 A, US3273640 A, US3267680 A, US326439 A, US3250327 A, US3246695 A, US3244231 A, US3241611 A, US3237689 A, US3233668 A, US3223166 A, US3221811 A, US3209825 A, US3208531 A, US3207220 A, US3205946 A, US3205944 A, US3205942 A, US3191679 A, US3183675 A, US3182721 A, US3181613 A, US3170842 A, US3165154 A, US3164207 A, US3163745 A, US3149672 A, US3149670 A, US3142336 A, US3139928 A, US3137347 A, US3132692 A, US3131763 A, US3127936 A, US3127935 A, US3120264 A, US3116792 A, US3114417 A, US3113623 A, US3113620 A, US3113619 A, US3110345 A, US3106244 A, US3105545 A, US3095031 A, US3084919 A, US3079085 A, US3062282 A, US3061009 A, US3050123 A, US3048221 A, US3044545 A, US3036632 A, US3032102 A, US3026940 A, US3017168 A, US3016053 A, US3010516 A, US3010513 A, US3007521 A, US3004603 A, US3004601 A, US3004596 A, US2998457 A, US2994376 A, US2974937 A, US2969226 A, US2958519 A, US2954826 A, US2939689 A, US2932352 A, US2923535 A, US2914309 A, US2906340 A, US2906337 A, US2902270 A, US2890755 A, US2890754 A, US2857002 A, US2841375 A, US2825408 A, US2819761 A, US2804149 A, US2803305 A, US2801089 A, US2793696 A, US2789805 A, US2786660 A, US2780450 A, US2780449 A, US2777679 A, US2771954 A, US2734579 A, US2732195 A, US2714930 A, US2703621 A, US2695163 A, US2685930 A, US2670802 A, US2642943 A, US2634961 A, US2630307 A, US2630306 A, US2623596 A, US2595979 A, US2593477 A, US2584605 A, US2548360 A, US2497868 A, US2484063 A, US2472445 A, US2466945 A, US2444755 A, US2423674 A, US2375689 A, US2244256 A, US2244255 A, US2004108111 AA, US2004069486 AA, US2004040715 AA, US2004020642 AA, US2004015023 AA, US2003213594 AA, US2003209348 AA, US2003205378 AA, US2003201098 AA, US2003196810 AA, US2003196801 AA, US2003196793 AA, US2003196789 AA, US2003196788 AA, US2003192691 AA, US2003183390 AA, US2003178191 AA, US2003173081 AA, US2003173080 AA, US2003173078 AA, US2003164239 AA, US2003164238 AA, US2003164234 AA, US2003155111 AA, US2003148894 AA, US2003146002 AA, US2003142964 AA, US2003141068 AA, US2003141067 AA, US2003141066 AA, US2003131996 AA, US2003131995 AA, US2003131994 AA, US2003131993 AA, US2003116315 AA, US2003111223 AA, US2003102130 AA, US2003102126 AA, US2003102125 AA, US2003102124 AA, US2003100451 AA, US2003098605 AA, US2003098149 AA, US2003085034 AA, US2003080604 AA, US2003079877 AA, US2003075318 AA, US2003070807 AA, US2003066644 AA, US2003066642 AA, US2003062164 AA, US2003062154 AA, US2003051872 AA, US2003029617 AA, US2003023469 AA, US2003019626 AA, US2003006039 AA, US2002191969 AA, US2002191968 AA, US2002170708 AA, US2002132862 AA, US2002117303 AA, US2002108753 AA, US2002104654 AA, US2002096320 AA, US2002084074 AA, US2002077515 AA, US2002076212 AA, US2002074117 AA, US2002066565 AA, US2002062961 AA, US2002062959 AA, US2002062052 AA, US2002062051 AA, US2002057905 AA, US2002056552 AA, US2002056551 AA, US2002053436 AA, US2002053435 AA, US2002053432 AA, US2002053431 AA, US2002053429 AA, US2002052297 AA, US2002050357 AA, US2002050356 AA, US2002050353 AA, US2002050352 AA, US2002049360 AA, US2002049358 AA, US2002046883 AA, US2002046839 AA, US2002046838 AA, US2002046837 AA, US2002046832 AA, US2002045553 AA, US2002043405 AA, US2002043367 AA, US2002043366 AA, US2002043365 AA, US2002040781 AA, US2002040780 AA, US2002040779 AA, US2002040778 AA, US2002040177 AA, US2002040173 AA, US2002039486 AA, US2002038712 AA, US2002038711 AA, US2002038710 AA, US2002038709 AA, US2002038708 AA, US2002038706 AA, US2002038705 AA, US2002038069 AA, US2002036103 AA, US2002036089 AA, US2002036084 AA, US2002036083 AA, US2002035307 AA, US2002034380 AA, US2002033280 AA, US2002033257 AA, US2002033256 AA, US2002033255 AA, US2002033254 AA, US2002033253 AA, US2002029885 AA, US2002029884 AA, US2002029882 AA, US2002029881 AA, US2002027001 AA, US2002018697 AA, US2002004533 AA, US2001049342 AA, US1913395 A, US1681523 A, US1666488 A, US1646599 A, US1634236 A, US1510655 A, US1457479 A, US1342741 A, US1269747 A, SU1836876, SE126674, SE123138, SE123137, SE123136, SE121737, GB697189, GB674082, GB2086416, GB1588693, GB156396, GB1501310, GB1454324, GB1010023, EP0940558 A1, EP0570228 B1, EP0357314, EP0294809, CA983704, CA2015460, CA1288043, CA1253555, CA1196594, CA1168283, CA1165361,

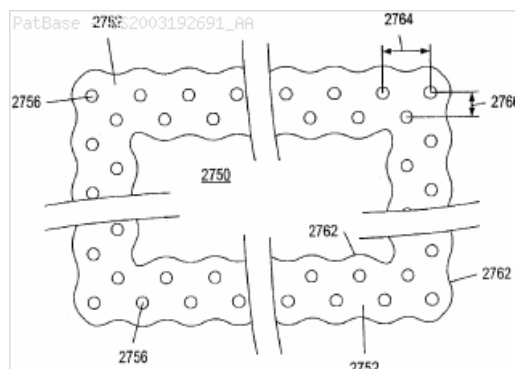
Forward Citations:

WO14158651, WO08048454, US9784082, US9776794, US9755415, US9739122, US9644466, US9605524, US9528322, US9517885, US9512699, US9482467, US9466896, US9399905, US9394772, US9347302, US9337550, US9309755, US9309050, US9242800, US9242190, US9226341, US9189576, US9181780, US9181467, US9133398, US9129728, US9127538, US9127523, US9115575, US9080917, US9080441, US9080409, US9051829, US9048653, US9033042, US9033033, US9022118, US9022109, US9016370, US9008884, US8997869, US8992771, US8985231, US8967259, US8961652, US8954188, US8943686, US8939207, US8936089, US8881806, US8875789, US8875371, US8863839, US8859942, US8857506, US8857051, US8851177, US8851170, US8849582, US8839860, US8833453, US8820406,

US8816203, US8791396, US8789586, US8776518, US8770284, US8752904, US8739874, US8732946, US8701788, US8701769, US8701768, US8662175, US8646520, US8641150, US8636323, US8631866, US8627887, US8622133, US8622127, US8616280, US8616279, US8608249, US8607628, US8606091, US8596355, US8586867, US8586866, US8579031, US8562078, US8555971, US8540020, US8536497, US8502120, US8490703, US8485847, US8485256, US8485252, US8459359, US8448707, US8434555, US8381815, US8381813, US8366918, US8366917, US8365478, US8356935, US8355623, US8353347, US8349171, US8327932, US8327681, US8323481, US8296968, US8291668, US8281861, US8276661, US8272455, US8267481, US8267185, US8267170, US8261832, US8257112, US8256512, US8240774, US8240381, US8238730, US8233782, US8230929, US8230927, US8225866, US8224165, US8224164, US8224163, US8220539, US8205674, US8200072, US8196658, US8192682, US8191630, US8177305, US8172335, US8162405, US8162059, US8151907, US8151884, US8151880, US8151877, US8151482, US8146669, US8146664, US8146661, US8122955, US8113272, US8109047, US8104537, US8096064, US8087460, US8083813, US8082995, US8070840, US8042610, US8028438, US8027571, US8020313, US8011451, US8006407, US8003844, US7986869, US7975398, US7967974, US7954254, US7950453, US7949238, US7942203, US7942197, US7934549, US7931086, US7912358, US7906014, US7900418, US7866388, US7866386, US7866385, US7862706, US7862705, US7860377, US7849922, US7845411, US7841425, US7841408, US7841401, US7836650, US7832484, US7832482, US7831134, US7831133, US7809538, US7802377, US7802376, US7798221, US7798220, US7785427, US7770643, US7748137, US7735935, US7730947, US7730946, US7730945, US7717171, US7703513, US7683296, US7681647, US7677314, US7677310, US7673786, US7673681, US7669657, US7647972, US7647971, US7644765, US7640987, US7640980, US7635025, US7635024, US7635023, US7631691, US7631690, US7631689, US7610962, US7604052, US7597147, US7591310, US7584789, US7584581, US7581589, US7575053, US7575052, US7562707, US7562706, US7559368, US7559367, US7556096, US7556095, US7549470, US7546873, US7540324, US7534926, US7533719, US7527094, US7516787, US7516785, US7510000, US7500528, US7490665, US7481274, US7461691, US7435037, US7431076, US7424915, US7383877, US7370704, US7360588, US7357180, US7353872, US7320364, US7243721, US7225866, US7219734, US7165615, US7156176, US7128153, US7121342, US7121341, US7114566, US7104319, US7100994, US7096942, US7090013, US7086465, US7077199, US7077198, US7073578, US7066257, US7066254, US7063145, US7055600, US7051811, US7051808, US7051807, US7040400, US7040399, US7040398, US7032660, US7013972, US7011154, US7004678, US7004251, US7004247, US6997518, US6994169, US6991045, US6991036, US6991033, US6991032, US6969123, US6966374, US6964300, US6962466, US6951436, US6948562, US6932155, US6923257, US6918443, US6918442, US6915850, US6881009, US6880633, US6854929, US6782947, US2013206405, US2013062065, US2013025861, US2012234533, US2012205127, US2012205096, US2012158315, US2012048545, US2011170843, US2011154895, US2011138649, US2011094952, US2010206709, US2010206555, US2010206518, US2010206410, US2010200468, US2010200467, US2010200466, US2010200465, US2010200464, US2010108317, US2010108310, US2009274518, US2009250380, US2009126291, US2009107679, US2009101348, US2008217003, US2008190818, US2008190816, US2008190815, US2008190813, US2008185147, US2008175572, US2008087426, US2008087421, US2008087420, US2007144732, US2007137857, US2007137856, US2007108200, US2006191224, US2006037747, US2004228690, US2004228689, US2004228688, US2004126190, US2004120772, US2004120771, US2002003988, US10221014, US10053286, US10047594, CN106150487, AU2011296522, AU2011201030, AU2007313394, AU2006240175, AU2006240043,

Abstract:

A method is described for inhibiting migration of fluids into and/or out of a treatment area undergoing an in situ conversion process. Barriers in the formation proximate a treatment area may be used to inhibit migration of fluids. Inhibition of migration of fluids may occur before, during, and/or after an in situ treatment process. For example, migration of fluids may be inhibited while heat is provided from heaters to at least a portion of the treatment area. Barriers may include naturally occurring portions (e.g., overburden, and/or underburden) and/or installed portions.



12) Family number: 66393261 (US2003192693A)

© PatBase

Title: IN SITU THERMAL PROCESSING OF A HYDROCARBON CONTAINING FORMATION TO PRODUCE HEATED FLUIDS

Priority: US20010334568P 20011024 US20010337136P 20011024 US20020374970P 20020424
US20020374995P 20020424 US20020279290 20021024

Family:	Publication number	Publication date	Application number	Application date
	US2003192693 AA	20031016	US20020279290	20021024
	US7090013 BB	20060815	US20020279290	20021024

Probable Assignee: SHELL OIL CO

Assignee(s):(std): SHELL OIL CO

Assignee(s): SHELL OIL COMPANY ; WELLINGTON SCOTT LEE

Inventor(s):(std): WELLINGTON SCOTT LEE

International class (IPC 8-9): E21B43/24 E21B43/34 (Advanced/Invention);
E21B43/34 (Core/Invention)

International class (IPC 1-7): E21B43/34

CPC: E21B41/0064 Y02C10/14

US class: 166/267 166/302 208/213 585/648 585/652

Classification Explorer

Cited documents:

WO9901640, WO9701017, WO9550179, WO9533122, WO9512746, WO9512745, WO9512744, WO9512743, WO9512742, WO9506093, WO0181723 A1, WO0181505 A1, USRE36569 E, USRE35696 E, USRE30738 E, USRE30019 E, USRE27309 E, US94813 A, US760304 A, US6915850 BA, US6913078 BA, US6910536 BA, US6902004 BA, US6902003 BA, US6896053 BA, US6889769 BA, US6880635 BA, US6880633 BA, US6877555 BA, US6877554 BA, US6871707 BA, US6866097 BA, US6820688 BA, US6805195 BA, US6789625 BA, US6782947 BA, US6769485 BA, US6769483 BA, US6763886 BA, US6761216 BA, US6758268 BA, US6752210 BA, US6749021 BA, US6745837 BA, US6745832 BA, US6745831 BA, US6742593 BA, US6742589 BA, US6742588 BA, US6742587 BA, US6739394 BA, US6739393 BA, US6736215 BA, US6732796 BA, US6732795 BA, US6732794 BA, US6729401 BA, US6729397 BA, US6729396 BA, US6729395 BA, US6725928 BA, US6725921 BA, US6725920 BA, US6722431 BA, US6722430 BA, US6722429 BA, US6719047 BA, US6715549 BA, US6715548 BA, US6715547 BA, US6715546 BA, US6712137 BA, US6712136 BA, US6712135 BA, US6708758 BA, US6702016 BA, US6698515 BA, US6688387 BA, US6684948 BA, US6679332 BA, US6609570 BA, US6607033 BA, US6591907 BA, US6591906 BA, US6588504 BA, US6588503 BA, US6584406 BA, US6581684 BA, US6499536 BA, US6485232 BA, US6467543 BA, US6466020 BA, US6429784 BA, US6422318 BA, US6412559 BA, US6389814 BA, US6357526 BA, US6354373 BA, US6353706 BA, US6328104 BA, US6244338 BA, US6234259 BA, US6209640 BA, US6192748 BA, US6187465 BA, US6173775 BA, US6173775 B1, US6172124 BA, US6172124 B1, US6155117 A, US6152987 A, US6112808 A, US6110358 A, US6109358 A, US6102622 A, US6102137 A, US6102122 A, US6094048 A, US6085512 A, US6079499 A, US6065538 A, US6056057 A, US6049508 A, US6035701 A, US6026914 A, US6023554 A, US6019172 A, US6016868 A, US6016867 A, US6015015 A, US5997214 A, US5985138 A, US5984582 A, US5984010 A, US5968349 A, US5955039 A, US5935421 A, US5923170 A, US5899269 A, US5891829 A, US5868202 A, US5862858 A, US5861137 A, US5826655 A, US5777229 A, US5769569 A, US5767584 A, US5760307 A, US5751895 A, US5747750 A, US5725059 A, US5713415 A, US5676212 A, US5657826 A, US5656239 A, US5652389 A, US5632336 A, US5626191 A, US5624188 A, US5621844 A, US5589775 A, US5571403 A, US5566756 A, US5566755 A, US5554453 A, US5553189 A, US5545803 A, US5541517 A, US5539853 A, US5525322 A, US5517593 A, US5515931 A, US5513710 A, US5512830 A, US5498960 A, US5497087 A, US5491969 A, US5485089 A, US5456315 A, US5454666 A, US5439054 A, US5437506 A, US5435666 A, US5433271 A, US5431224 A, US5415231 A, US5411104 A, US5411089 A, US5411086 A, US5409071 A, US5404952 A, US5402847 A, US5400430 A, US5392854 A, US5391291 A, US5388645 A, US5388643 A, US5388642 A, US5388641 A, US5388640 A, US5377756 A, US5366012 A, US5363094 A, US5360067 A, US5349859 A, US5343152 A, US5340467 A, US5339904 A, US5339897 A, US5325918 A, US5318116 A, US5316664 A, US5306640 A, US5305829 A, US5305239 A, US5305212 A, US5297626 A, US5295763 A, US5289882 A, US5285846 A, US5284878 A, US5261490 A, US5258755 A, US5255742 A, US5236039 A, US5229583 A, US5229102 A, US5226961 A, US5218301 A, US5217076 A, US5211230 A, US5207273 A, US5201219 A, US5190405 A, US5189283 A, US5182792 A, US5168927 A, US5145003 A, US5126037 A, US5109928 A, US5103920 A, US5099918 A, US5097903 A, US5085276 A, US5082055 A, US5082054 A, US5074365 A, US5065818 A, US5064006 A, US5060726 A, US5060287 A, US5059303 A, US5055180 A, US5054551 A, US5050386 A, US5046559 A, US5041210 A, US5027896 A, US5020596 A, US5014788 A, US5011329 A, US5008085 A, US4994093 A, US4988389 A, US4987368 A, US4984594 A, US4983319 A, US4982786 A, US4974425 A, US4933640 A, US4931171 A, US4928765 A, US4927857 A, US4926941 A, US4913065 A, US4912971 A, US48994 A, US4895206 A, US4893504 A, US4886118 A, US4885080 A, US4884455 A, US4883582 A, US4866983 A, US4860544 A, US4856587 A, US4856341 A, US4849360 A, US4848924 A, US4848460 A, US4845434 A, US4831600 A, US4828031 A, US4827761 A, US4823890 A, US4818370 A, US4817711 A, US4815791 A, US4815790 A, US4808925 A, US4793656 A, US4791373 A, US4787452 A, US4778586 A, US4776638 A, US4772634 A, US4769606 A, US4769602 A, US4766958 A, US4762425 A, US4756367 A, US4744245 A, US4743854 A, US4737267 A, US4734115 A, US4730162 A, US4728892 A, US4728412 A, US4719423 A, US4716960 A, US4706751 A, US4704514 A, US4702758 A, US4700142 A, US4698149 A, US4696345 A, US4694907 A, US4691771 A, US4683947 A, US4682652 A, US4671102 A, US4669542 A, US4663711 A, US4662443 A, US4662439 A, US4662438 A, US4658215 A, US4651825 A, US4644283 A, US4640353 A, US4640352 A, US4637464 A, US4635197 A, US4634187 A, US4626665 A, US4623444 A, US4616705 A, US4613754 A, US4608818 A, US4605680 A, US4605489 A, US4598772 A, US4598770 A, US4598392 A, US4597444 A, US4597441 A, US4594468 A, US4592423 A, US4585066 A, US4583242 A, US4583046 A, US4577690 A, US4577503 A, US4576231 A, US4573530 A, US4572299 A, US4571491 A, US4570715 A, US4552214 A, US4549396 A, US4544478 A, US4542648 A, US4540882 A, US4537252 A, US4530401 A, US4529939 A, US4524827 A, US4524826 A, US4524113 A, US4518548 A, US4513816 A, US4508170 A, US4502010 A, US4501445 A, US4501326 A, US4499209 A, US4498535 A, US4491179 A, US4489782 A, US4485869 A, US4483398 A, US4479541 A, US4476927 A, US4474238 A, US4463807 A, US4460044 A, US4458767 A, US4458757 A, US4457374 A, US4457365 A, US4456065 A, US4455215 A, US4452491 A, US4448252 A, US4448251 A, US4445574 A, US4444258 A, US4444255 A, US4443762 A, US4442896 A, US4440224 A, US4439307 A, US4437519 A, US4429745 A, US4428700 A, US4425967 A, US4423311 A, US4418752 A, US4415034 A, US4412585 A, US4412124 A, US4410042 A, US4409090 A, US4407973 A, US4401163 A, US4399866 A, US4398151 A, US4397732 A, US4396062 A, US4390973 A, US4390067 A, US4384948 A, US4384614 A, US4384613 A, US4381641 A, US4380930 A, US4378048 A, US4375302 A, US4372398 A, US4366668 A, US4363361 A, US4359687 A, US4353418 A, US4344483 A, US4324292 A, US4323848 A, US4319635 A, US4306621 A, US4305463 A, US4303126 A, US4299285 A, US4299086 A, US4285547 A, US4282587 A, US4277416 A, US4274487 A, US4273188 A, US4265307 A, US4260192 A, US4260018 A, US4252191 A, US4250962 A, US4250230 A, US4243511 A, US4243101 A, US4234230 A, US4228854 A, US4197911 A, US4193451 A, US4186801 A, US4185692 A, US4184548 A, US4183405 A, US4167213 A, US4162707 A, US4160479 A, US4158467 A, US4151877 A, US4148359 A, US4144935 A, US4140181 A, US4140180 A, US4138442 A, US4133825 A, US4130575 A, US4125159 A, US4114688 A, US4099567 A, US4096163 A, US4093026 A, US4093025 A, US4091869 A, US4089374 A, US4089372 A, US4087130 A, US4084637 A, US4076761 A, US4069868 A, US4067390 A, US4065183 A, US4057293 A, US4049053 A, US4048637 A, US4043393 A, US4042026 A, US4031956 A, US4026357 A, US4019575 A, US4018280 A, US4016239 A, US4014575 A, US4010800 A, US4008762 A, US4006778 A, US4005752 A, US3999607 A, US3994341 A, US3994340 A, US3993132 A, US3992148 A, US3987851 A, US3986557 A, US3986556 A, US3986349 A, US3982592 A, US3982591 A, US3973628 A, US3954140 A, US3952802 A, US3948755 A, US3948319 A, US3947683 A, US3947656 A, US3941421 A, US3924680 A, US3922148 A, US3907045 A, US3892270 A, US3882941 A, US3881551 A, US3874733 A, US3870063 A, US3853185 A, US3809159 A, US3804172 A, US3804169 A, US3794116 A, US3779602 A, US3775185 A, US3770398 A, US3766982 A, US3759574 A, US3759328 A, US3700280 A, US3691291 A, US3680633 A, US3675715 A, US3661423 A, US3622071 A, US3618663 A, US3617471 A, US3605890 A, US3599714 A, US3595082 A, US3593790 A, US3580987 A, US3562401 A, US3547193 A, US3529682 A, US3528501 A, US3513913 A, US3502372 A, US3501201 A, US3497000 A, US3477058 A, US3455586 A, US3455383 A, US3454365 A, US3434541 A, US3389975 A, US3386508 A, US3380913 A, US3379248 A, US3352355 A, US3349845 A, US3342267 A, US3342258 A, US3338306 A, US3316962 A, US3310109 A, US3302707 A, US3294167 A, US3288648 A, US3285335 A, US3284281 A, US3275076 A, US3273640 A, US3267680 A, US326439 A, US3250327 A, US3246695 A, US3244231 A, US3241611 A, US3237689 A, US3233668 A, US3223166 A, US3221811 A, US3209825 A, US3208531 A, US3207220 A, US3205946 A, US3205944 A, US3205942 A, US3191679 A, US3183675 A, US3182721 A, US3181613 A, US3170842 A, US3165154 A, US3164207 A, US3163745 A, US3149672 A, US3149670 A, US3142336 A, US3139928 A, US3137347 A, US3132692 A, US3131763 A, US3127936 A, US3127935 A, US3120264 A, US3116792 A, US3114417 A, US3113623 A, US3113620 A, US3113619 A, US3110345 A, US3106244 A, US3105545 A, US3095031 A, US3084919 A, US3079085 A, US3062282 A, US3061009 A, US3050123 A, US3048221 A, US3044545 A, US3036632 A, US3032102 A, US3026940 A, US3017168 A, US3016053 A, US3010516 A, US3010513 A, US3007521 A, US3004603 A, US3004601 A, US3004596 A, US2998457 A, US2994376 A, US2974937 A, US2970826 A, US2969226 A, US2958519 A, US2954826 A, US2939689 A, US2932352 A, US2923535 A, US2914309 A, US2906340 A, US2906337 A, US2902270 A, US2890755 A, US2890754 A, US2857002 A, US2841375 A, US2825408 A, US2819761 A, US2804149 A, US2803305 A, US2801089 A, US2793696 A, US2789805 A, US2786660 A, US2780450 A,

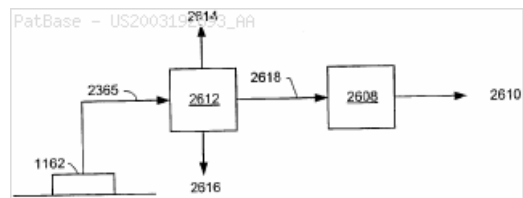
US2780449 A, US2777679 A, US2771954 A, US2743906 A, US2734579 A, US2732195 A, US2714930 A, US2703621 A, US2695163 A, US2685930 A, US2670802 A, US2642943 A, US2634961 A, US2630307 A, US2630306 A, US2623596 A, US2595979 A, US2593477 A, US2584605 A, US2548360 A, US2497868 A, US2484063 A, US2472445 A, US2466945 A, US2444755 A, US2423674 A, US2375689 A, US2244256 A, US2244255 A, US2005051327 AA, US2005006097 AA, US2004177966 AA, US2004146288 AA, US2004145969 AA, US2004144541 AA, US2004144540 AA, US2004140096 AA, US20041095 AA, US2004108111 AA, US2004069486 AA, US2004040715 AA, US2004035582 AA, US2004020642 AA, US2004015023 AA, US2003213594 AA, US2003209348 AA, US2003205378 AA, US2003201098 AA, US2003196810 AA, US2003196801 AA, US2003196793 AA, US2003196789 AA, US2003196788 AA, US2003192691 AA, US2003183390 AA, US2003178191 AA, US2003173085 AA, US2003173081 AA, US2003173080 AA, US2003173078 AA, US2003173072 AA, US2003164239 AA, US2003164238 AA, US2003164234 AA, US2003155111 AA, US2003148894 AA, US2003146002 AA, US2003142964 AA, US2003141068 AA, US2003141067 AA, US2003141066 AA, US2003136559 AA, US2003131996 AA, US2003131995 AA, US2003131994 AA, US2003131993 AA, US2003116315 AA, US2003111223 AA, US2003102130 AA, US2003102126 AA, US2003102125 AA, US2003102124 AA, US2003100451 AA, US2003098605 AA, US2003098149 AA, US2003085034 AA, US2003080604 AA, US2003079877 AA, US2003075318 AA, US2003070807 AA, US2003066644 AA, US2003066642 AA, US2003062164 AA, US2003062154 AA, US2003051872 AA, US2003029617 AA, US2003024699 AA, US2003019626 AA, US2003006039 AA, US2002191969 AA, US2002191968 AA, US2002170708 AA, US2002132862 AA, US2002117303 AA, US2002112987 AA, US2002112890 AA, US2002108753 AA, US2002104654 AA, US2002096320 AA, US2002084074 AA, US2002077515 AA, US2002076212 AA, US2002074117 AA, US2002066565 AA, US2002062961 AA, US2002062959 AA, US2002062052 AA, US2002062051 AA, US2002057905 AA, US2002056552 AA, US2002056551 AA, US2002053436 AA, US2002053435 AA, US2002053432 AA, US2002053431 AA, US2002053429 AA, US2002052297 AA, US2002050357 AA, US2002050356 AA, US2002050353 AA, US2002050352 AA, US2002049360 AA, US2002049358 AA, US2002046883 AA, US2002046839 AA, US2002046838 AA, US2002046837 AA, US2002046832 AA, US2002045553 AA, US2002043405 AA, US2002043367 AA, US2002043366 AA, US2002043365 AA, US2002040781 AA, US2002040780 AA, US2002040779 AA, US2002040778 AA, US2002040177 AA, US2002040173 AA, US2002039486 AA, US2002038712 AA, US2002038711 AA, US2002038710 AA, US2002038709 AA, US2002038708 AA, US2002038706 AA, US2002038705 AA, US2002038069 AA, US2002036103 AA, US2002036089 AA, US2002036084 AA, US2002036083 AA, US2002035307 AA, US2002034380 AA, US2002033280 AA, US2002033257 AA, US2002033256 AA, US2002033255 AA, US2002033254 AA, US2002033253 AA, US2002029885 AA, US2002029884 AA, US2002029882 AA, US2002029881 AA, US2002027001 AA, US2002018697 AA, US2002004533 AA, US2001049342 AA, US1913395 A, US1681523 A, US1666488 A, US1646599 A, US1634236 A, US1510655 A, US1457479 A, US1342741 A, US1269747 A, SU1836876, SE126674, SE123138, SE123137, SE123136, SE121737, GB697189, GB674082, GB2086416, GB1588693, GB156396, GB1501310, GB1454324, GB1010023, EP0940558 A1, EP0570228 B1, EP0357314, EP0294809, CA983704, CA2015460, CA1288043, CA1253555, CA1196594, CA1168283, CA1165361,

Forward Citations:

WO14066575, US9938782, US9915399, US9897260, US9897259, US9890908, US9822592, US9802820, US9776863, US9776794, US9755415, US9739122, US9644466, US9617840, US9605524, US9562204, US9528359, US9528322, US9517885, US9512699, US9482467, US9466896, US9422797, US9416640, US9399905, US9394772, US9347302, US9341034, US9337550, US9309755, US9309050, US9242800, US9242190, US9226341, US9181780, US9181467, US9175558, US9133398, US9129728, US9127538, US9127523, US9127227, US9091160, US9080917, US9080441, US9080409, US9051829, US9048653, US9033042, US9033033, US9022118, US9022109, US9016370, US9008884, US8997869, US8992771, US8967259, US8961652, US8954188, US8943686, US8939207, US8936089, US8881806, US8875789, US8875371, US8863839, US8859942, US8857506, US8857051, US8851177, US8851170, US8839860, US8833453, US8820406, US8816203, US8791396, US8789586, US8776901, US8770284, US8752904, US8739874, US8732946, US8701788, US8701769, US8701768, US8662175, US8636323, US8631866, US8627887, US8613316, US8608249, US8606091, US8586867, US8586866, US8579031, US8573292, US8562078, US8555971, US8536497, US8502120, US8490703, US8485847, US8485256, US8485252, US8459359, US8448707, US8434555, US8387692, US8381815, US8366918, US8366917, US8365478, US8356935, US8355623, US8353347, US8349171, US8327932, US8327681, US8323481, US8296968, US8296913, US8286698, US8281861, US8276661, US8272455, US8267481, US8267185, US8267170, US8261832, US8257112, US8256512, US8240774, US8238730, US8233782, US8230927, US8225866, US8224165, US8224164, US8224163, US8220539, US8205674, US8200072, US8196658, US8192682, US8191630, US8177305, US8172335, US8162405, US8162059, US8151907, US8151880, US8151482, US8146669, US8146661, US8113272, US8109047, US8096064, US8091625, US8083813, US8070840, US8042610, US8028438, US8027571, US8020313, US8011451, US8006407, US8003844, US7994375, US7986869, US7975398, US7967974, US7957841, US7954254, US7950453, US7942203, US7942197, US7931086, US7918271, US7912358, US7906014, US7866388, US7866386, US7866385, US7862706, US7862705, US7860377, US7849922, US7845411, US7841425, US7841408, US7841407, US7841401, US7832484, US7832482, US7831134, US7831133, US7809538, US7802377, US7802376, US7798221, US7798220, US7793722, US7785427, US7770643, US7748137, US7735935, US7730947, US7730946, US7730945, US7717171, US7703513, US7683296, US7681647, US7677314, US7677310, US7673786, US7673681, US7669484, US7644765, US7640987, US7640980, US7635025, US7635024, US7635023, US7631690, US7631689, US7610962, US7604052, US7597147, US7591310, US7584789, US7581589, US7575053, US7575052, US7562707, US7562706, US7559368, US7559367, US7556096, US7556095, US7549470, US7546873, US7540324, US7533719, US7527094, US7510000, US7500528, US7490665, US7481274, US7461691, US7435037, US7431076, US7424915, US7392166, US7383877, US7370704, US7360588, US7357180, US7353372, US7320364, US7225866, US7096942, US7055600, US7051811, US7051807, US7040400, US7040399, US7040398, US7032660, US7013972, US7004251, US7004247, US6997518, US6994169, US6991036, US6991033, US6991032, US6981548, US6969123, US6966374, US6964300, US6951247, US6948562, US6929067, US6923257, US6918443, US6918442, US6915850, US6880633, US6877555, US682947, US2015331007, US2015310141, US2015260173, US2014277605, US2014105814, US2014102700, US2013000349, US2012325751, US2012312079, US2012063264, US2011170843, US2011168394, US2011138649, US2011127036, US2011094952, US2010244343, US2010206709, US2010206518, US2010206410, US2010200468, US2010200467, US2010200466, US2010200465, US2010200464, US2009301724, US2009260833, US2009260825, US2009260812, US2009260811, US2009260810, US2009260809, US2009260808, US2009250380, US2009200025, US2009071647, US2009022635, US2008300727, US2008289435, US2008190818, US2008190816, US2008190815, US2008190813, US2007193748, US2007137857, US2007131419, US2007131411, US2007125533, US2006149520, US2005269095, US10221014, US10132823, US10118129, US10053286, US10047594, US10036373, US10031490, US10024122, EP2912150,

Abstract:

A process for utilizing the heat from fluids produced from a hydrocarbon containing formation, which has been treated in situ. The in situ treatment process may include providing heat from one or more heaters to at least a portion of the formation. The heat may be allowed to transfer from one or more heaters to a part of the formation such that heat from the one or more heaters pyrolyzes at least some hydrocarbons within the part of the formation. Hydrocarbons may be produced from the formation. In an embodiment, heat from the produced fluids may be used for other processes. Examples of other processes may include, but are not limited to, hydrotreating, separations, steam cracking, olefin production, etc.



13) Family number: 66393268 (US2003196788A)

© PatBase

Title: PRODUCING HYDROCARBONS AND NON-HYDROCARBON CONTAINING MATERIALS WHEN TREATING A HYDROCARBON CONTAINING FORMATION

Priority: US20010334568P 20011024 US20010337136P 20011024 US20020374970P 20020424
US20020374995P 20020424 US20020279229 20021024

Family:

Publication number	Publication date	Application number	Application date
US2003196788 AA	20031023	US20020279229	20021024
US7100994 BB	20060905	US20020279229	20021024

Probable Assignee: SHELL OIL CO

Assignee(s):(std): SHELL OIL CO

Assignee(s): WELLINGTON SCOTT LEE ; VINEGAR HAROLD J ; MAHER KEVIN ALBERT ; ROUFFIGNAC ERIC PIERRE DE ; SCHOELING LANNY GENE

Inventor(s):(std): DE ROUFFIGNAC ERIC PIERRE ; MAHER KEVIN ALBERT ; ROUFFIGNAC ERIC PIERRE DE ; SCHOELING LANNY GENE ; VINEGAR HAROLD J ; WELLINGTON SCOTT LEE

International class (IPC 8-9): B09C1/02 B09C1/06 C10G45/00 C10G9/24 E21B17/02 E21B36/00 E21B41/00 E21B43/16 E21B43/24 E21B43/241 E21B43/243 E21B43/28 E21B43/30 E21B43/40 E21B44/00 E21B47/022 G01V3/26 (Advanced/Invention)

International class (IPC 1-7): E21B36/00

CPC: E21B43/2401 B09C1/02 B09C1/06 B09C2101/00 C10G9/24 C10G45/00 E21B17/028 E21B43/168 E21B43/24 E21B43/243 E21B43/305 E21B47/02208 G01V3/26 Y02P30/30 Y02P30/44 Y10S210/901 Y10T137/0391

US class: 166/245 166/267 166/272.1 166/272.3 166/302 166/303 166/308 166/57 299/14 299/3 299/5 299/7 423/131 423/208 423/658.5

[Classification Explorer](#)

Cited documents: WO9901640, WO9850179, WO9701017, WO9533122, WO9512746, WO9512745, WO9512744, WO9512743, WO9512742, WO9506093, WO0181723 A1, WO0181505 A1, USRE36569 E, USRE35696 E, USRE30738 E, USRE30019 E, USRE27309 E, US94813 A, US760304 A, US6871707 BA, US6866097 BA, US6820688 BA, US6805195 BA, US6789625 BA, US6782947 BA, US6769485 BA, US6769483 BA, US6763886 BA, US6761216 BA, US6758268 BA, US6752210 BA, US6749021 BA, US6745837 BA, US6745832 BA, US6745831 BA, US6742593 BA, US6742589 BA, US6742588 BA, US6742587 BA, US6739394 BA, US6739393 BA, US6736215 BA, US6732796 BA, US6732795 BA, US6732794 BA, US6708758 BA, US6729397 BA, US6729396 BA, US6729395 BA, US6725928 BA, US6725921 BA, US6725920 BA, US6722431 BA, US6722430 BA, US6722429 BA, US6719047 BA, US6715549 BA, US6715548 BA, US6715547 BA, US6715546 BA, US6712137 BA, US6712136 BA, US6712135 BA, US6708758 BA, US6702016 BA, US6698515 BA, US6688387 BA, US6684948 BA, US6679332 BA, US6609570 BA, US6607033 BA, US6591907 BA, US6591906 BA, US6588504 BA, US6588503 BA, US6584406 BA, US6581684 BA, US6499536 BA, US6485232 BA, US6467543 BA, US6466020 BA, US6429784 BA, US6422318 BA, US6412559 BA, US6389814 BA, US6357526 BA, US6354373 BA, US6353706 BA, US6328104 BA, US6244338 BA, US6234259 BA, US6209640 BA, US6192748 BA, US6187465 BA, US6173775 BA, US6173775 B1, US6172124 BA, US6172124 B1, US6155117 A, US6152987 A, US6112808 A, US6110358 A, US6102622 A, US6102137 A, US6102122 A, US6094048 A, US6085512 A, US6079499 A, US6065538 A, US6056057 A, US6049508 A, US6035701 A, US6026914 A, US6023554 A, US6019172 A, US6016868 A, US6016867 A, US6015015 A, US5997214 A, US5985138 A, US5984582 A, US5984010 A, US5968349 A, US5955039 A, US5935421 A, US5923170 A, US5899269 A, US5891829 A, US5868202 A, US5862858 A, US5861137 A, US5826655 A, US5777229 A, US5769569 A, US5767584 A, US5760307 A, US5751895 A, US5747750 A, US5725059 A, US5713415 A, US5676212 A, US5657826 A, US5656239 A, US5652389 A, US5632336 A, US5626191 A, US5624188 A, US5621844 A, US5589775 A, US5571403 A, US5566756 A, US5566755 A, US5554453 A, US5553189 A, US5545803 A, US5541517 A, US5539853 A, US5525322 A, US5517593 A, US5515931 A, US5513710 A, US5512830 A, US5498960 A, US5497087 A, US5491969 A, US5485089 A, US5456315 A, US5454666 A, US5439054 A, US5437506 A, US5435666 A, US5433271 A, US5431224 A, US5415231 A, US5411104 A, US5411089 A, US5411086 A, US5409071 A, US5404952 A, US5402847 A, US5400430 A, US5392854 A, US5391291 A, US5388645 A, US5388643 A, US5388642 A, US5388641 A, US5388640 A, US5377756 A, US5366012 A, US5363094 A, US5360067 A, US5349859 A, US5343152 A, US5340467 A, US5339904 A, US5339897 A, US5325918 A, US5318116 A, US5316664 A, US5306640 A, US5305829 A, US5305239 A, US5305212 A, US5297626 A, US5295763 A, US5289882 A, US5285846 A, US5284878 A, US5261490 A, US5258755 A, US5255742 A, US5236039 A, US5229583 A, US5229102 A, US5226961 A, US5218301 A, US5217076 A, US5211230 A, US5207273 A, US5201219 A, US5190405 A, US5189283 A, US5182792 A, US5168927 A, US5145003 A, US5126037 A, US5109928 A, US5103920 A, US5099918 A, US5097903 A, US5085276 A, US5082055 A, US5082054 A, US5074365 A, US5065818 A, US5064006 A, US5060726 A, US5060287 A, US5059303 A, US5055180 A, US5054551 A, US5050386 A, US5046559 A, US5041210 A, US5027896 A, US5020596 A, US5014788 A, US5011329 A, US5008085 A, US4994093 A, US4988389 A, US4987368 A, US4984594 A, US4983319 A, US4982786 A, US4974425 A, US4933640 A, US4931171 A, US4928765 A, US4927857 A, US4926941 A, US4913065 A, US4912971 A, US48994 A, US4895206 A, US4893504 A, US4886118 A, US4885080 A, US4884455 A, US4883582 A, US4866983 A, US4860544 A, US4856587 A, US4856341 A, US4848924 A, US4848460 A, US4845434 A, US4831600 A, US4828031 A, US4827761 A, US4818370 A, US4817711 A, US4815790 A, US4808925 A, US4793656 A, US4791373 A, US4787452 A, US4778586 A, US4776638 A, US4772634 A, US4769606 A, US4769602 A, US4766958 A, US4762425 A, US4756367 A, US4744245 A, US4743854 A, US4737267 A, US4734115 A, US4730162 A, US4728892 A, US4728412 A, US4719423 A, US4716960 A, US4706751 A, US4704514 A, US4702758 A, US4700142 A, US4698149 A, US4696345 A, US4694907 A, US4691771 A, US4683947 A, US4682652 A, US4671102 A, US4669542 A, US4663711 A, US4662443 A, US4662439 A, US4662438 A, US4658215 A, US4651825 A, US4644283 A, US4640353 A, US4640352 A, US4637464 A, US4635197 A, US4626665 A, US4623444 A, US4616705 A, US4613754 A, US4608818 A, US4605680 A, US4605489 A, US4598772 A, US4598770 A, US4598392 A, US4597444 A, US4597441 A, US4594468 A, US4592423 A, US4585066 A, US4583242 A,

US4583046 A, US4577690 A, US4577503 A, US4576231 A, US4573530 A, US4572299 A, US4571491 A, US4570715 A, US4552214 A, US4549396 A, US4544478 A, US4542648 A, US4540882 A, US4537252 A, US4530401 A, US4529939 A, US4524827 A, US4524826 A, US4524113 A, US4518548 A, US4513816 A, US4508170 A, US4502010 A, US4501445 A, US4501326 A, US4499209 A, US4498535 A, US4491179 A, US4489782 A, US4485869 A, US4483398 A, US4479541 A, US4476927 A, US4474238 A, US4463807 A, US4460044 A, US4458767 A, US4458757 A, US4457374 A, US4457365 A, US4456065 A, US4455215 A, US4452491 A, US4448252 A, US4448251 A, US4445574 A, US4444258 A, US4444255 A, US4443762 A, US4442896 A, US4440224 A, US4439307 A, US4437519 A, US4429745 A, US4428700 A, US4425967 A, US4423311 A, US4418752 A, US4415034 A, US4412585 A, US4412124 A, US4410042 A, US4409090 A, US4407973 A, US4401163 A, US4399866 A, US4398151 A, US4397732 A, US4396062 A, US4390973 A, US4390067 A, US4384948 A, US4384614 A, US4384613 A, US4381641 A, US4380930 A, US4378048 A, US4375302 A, US4372398 A, US4366668 A, US4363361 A, US4359687 A, US4353418 A, US4344483 A, US4324292 A, US4323848 A, US4319635 A, US4306621 A, US4305463 A, US4303126 A, US4299285 A, US4299086 A, US4285547 A, US4282587 A, US4277416 A, US4274487 A, US4273188 A, US4265307 A, US4260192 A, US4260018 A, US4252191 A, US4250962 A, US4250230 A, US4243511 A, US4243101 A, US4234230 A, US4228854 A, US4197911 A, US4193451 A, US4186801 A, US4185692 A, US4184548 A, US4183405 A, US4167213 A, US4160479 A, US4158467 A, US4151877 A, US4148359 A, US4144935 A, US4140181 A, US4140180 A, US4138442 A, US4133825 A, US4130575 A, US4125159 A, US4114688 A, US4099567 A, US4096163 A, US4093026 A, US4093025 A, US4091869 A, US4089374 A, US4089372 A, US4087130 A, US4084637 A, US4076761 A, US4069868 A, US4067390 A, US4065183 A, US4057293 A, US4049053 A, US4048637 A, US4043393 A, US4042026 A, US4031956 A, US4026357 A, US4019575 A, US4018280 A, US4016239 A, US4010800 A, US4008762 A, US4006778 A, US4005752 A, US3999607 A, US3994341 A, US3994340 A, US3993132 A, US3987851 A, US3986557 A, US3986556 A, US3986349 A, US3982592 A, US3982591 A, US3973628 A, US3954140 A, US3952802 A, US3948755 A, US3948319 A, US3947683 A, US3947656 A, US3941421 A, US3924680 A, US3922148 A, US3907045 A, US3892270 A, US3882941 A, US3881551 A, US3874733 A, US3870063 A, US3853185 A, US3809159 A, US3804172 A, US3804169 A, US3794116 A, US3779602 A, US3775185 A, US3770398 A, US3766982 A, US3759574 A, US3759328 A, US3700280 A, US3691291 A, US3680633 A, US3675715 A, US3661423 A, US3622071 A, US3618663 A, US3617471 A, US3605890 A, US3599714 A, US3595082 A, US3593790 A, US3580987 A, US3562401 A, US3547193 A, US3529682 A, US3528501 A, US3513913 A, US3502372 A, US3501201 A, US3497000 A, US3477058 A, US345586 A, US3455383 A, US3454365 A, US3434541 A, US3389975 A, US3386508 A, US3380913 A, US3379248 A, US3352355 A, US3349845 A, US3342267 A, US3342258 A, US3338306 A, US3316962 A, US3310109 A, US3302707 A, US3294167 A, US3288648 A, US3285335 A, US3284281 A, US3275076 A, US3273640 A, US3267680 A, US326439 A, US3250327 A, US3246695 A, US3244231 A, US3241611 A, US3237689 A, US3233668 A, US3223166 A, US3221811 A, US3209825 A, US3208531 A, US3207220 A, US3205946 A, US3205944 A, US3205942 A, US3191679 A, US3183675 A, US3182721 A, US3181613 A, US3170842 A, US3165154 A, US3164207 A, US3163745 A, US3149672 A, US3149670 A, US3142336 A, US3139928 A, US3137347 A, US3132692 A, US3131763 A, US3127936 A, US3127935 A, US3120264 A, US3116792 A, US3114417 A, US3113623 A, US3113620 A, US3113619 A, US3110345 A, US3106244 A, US3105545 A, US3095031 A, US3084919 A, US3079085 A, US3062282 A, US3061009 A, US3050123 A, US3048221 A, US3044545 A, US3036632 A, US3032102 A, US3026940 A, US3017168 A, US3016053 A, US3010516 A, US3010513 A, US3007521 A, US3004603 A, US3004601 A, US3004596 A, US2998457 A, US2994376 A, US2974937 A, US2970826 A, US2969226 A, US2958519 A, US2954826 A, US2939689 A, US2932352 A, US2923535 A, US2914309 A, US2906340 A, US2906337 A, US2902270 A, US2890755 A, US2890754 A, US2857002 A, US2841375 A, US2825408 A, US2819761 A, US2804149 A, US2803305 A, US2801089 A, US2793696 A, US2789805 A, US2786660 A, US2780450 A, US2780449 A, US2777679 A, US2771954 A, US2743906 A, US2734579 A, US2732195 A, US2714930 A, US2703621 A, US2695163 A, US2685930 A, US2670802 A, US2642943 A, US2634961 A, US2630307 A, US2630306 A, US2623596 A, US2595979 A, US2593477 A, US2584605 A, US2548360 A, US2497868 A, US2484063 A, US2472445 A, US2466945 A, US2444755 A, US2423674 A, US2375689 A, US2244256 A, US2244255 A, US2004108111 AA, US2004069486 AA, US2004040715 AA, US2004035582 AA, US2004020642 AA, US2004015023 AA, US2003213594 AA, US2003209348 AA, US2003205378 AA, US2003201098 AA, US2003196810 AA, US2003196801 AA, US2003196793 AA, US2003196789 AA, US2003196788 AA, US2003192691 AA, US2003183390 AA, US2003178191 AA, US2003173081 AA, US2003173080 AA, US2003173078 AA, US2003164239 AA, US2003164238 AA, US2003164234 AA, US2003155111 AA, US2003148894 AA, US2003146002 AA, US2003142964 AA, US2003141068 AA, US2003141067 AA, US2003141066 AA, US2003131996 AA, US2003131995 AA, US2003131994 AA, US2003131993 AA, US2003116315 AA, US2003111223 AA, US2003102130 AA, US2003102126 AA, US2003102125 AA, US2003102124 AA, US2003100451 AA, US2003098605 AA, US2003098149 AA, US2003085034 AA, US2003080604 AA, US2003079877 AA, US2003075318 AA, US2003070807 AA, US2003066644 AA, US2003066642 AA, US2003062164 AA, US2003062154 AA, US2003051872 AA, US2003029617 AA, US2003024699 AA, US2003019626 AA, US2003006039 AA, US2002191969 AA, US2002191968 AA, US2002170708 AA, US2002132862 AA, US2002117303 AA, US2002112987 AA, US2002112890 AA, US2002108753 AA, US2002104654 AA, US2002096320 AA, US2002084074 AA, US2002077515 AA, US2002076212 AA, US2002074117 AA, US2002066565 AA, US2002062961 AA, US2002062959 AA, US2002062052 AA, US2002062051 AA, US2002057905 AA, US2002056552 AA, US2002056551 AA, US2002053436 AA, US2002053435 AA, US2002053432 AA, US2002053431 AA, US2002053429 AA, US2002052297 AA, US2002050357 AA, US2002050356 AA, US2002050353 AA, US2002050352 AA, US2002049360 AA, US2002049358 AA, US2002046883 AA, US2002046839 AA, US2002046838 AA, US2002046837 AA, US2002046832 AA, US2002045553 AA, US2002043405 AA, US2002043367 AA, US2002043366 AA, US2002043365 AA, US2002040781 AA, US2002040780 AA, US2002040779 AA, US2002040778 AA, US2002040177 AA, US2002040173 AA, US2002039486 AA, US2002038712 AA, US2002038711 AA, US2002038710 AA, US2002038709 AA, US2002038708 AA, US2002038706 AA, US2002038705 AA, US2002038069 AA, US2002036103 AA, US2002036089 AA, US2002036084 AA, US2002036083 AA, US2002035307 AA, US2002034380 AA, US2002033280 AA, US2002033257 AA, US2002033256 AA, US2002033255 AA, US2002033254 AA, US2002033253 AA, US2002029885 AA, US2002029884 AA, US2002029882 AA, US2002029881 AA, US2002027001 AA, US2002018697 AA, US2002004533 AA, US2001049342 AA, US1913395 A, US1681523 A, US1666488 A, US1646599 A, US1634236 A, US1510655 A, US1457479 A, US1342741 A, US1269747 A, US1836876, SE126674, SE123138, SE123137, SE123136, SE121737, GB697189, GB674082, GB2086416, GB1588693, GB156396, GB1501310, GB1454324, GB1010023, EP0940558 A1, EP0570228 B1, EP0357314, EP0294809, CA983704, CA2015460, CA1288043, CA1253555, CA1196594, CA1168283, CA1165361,

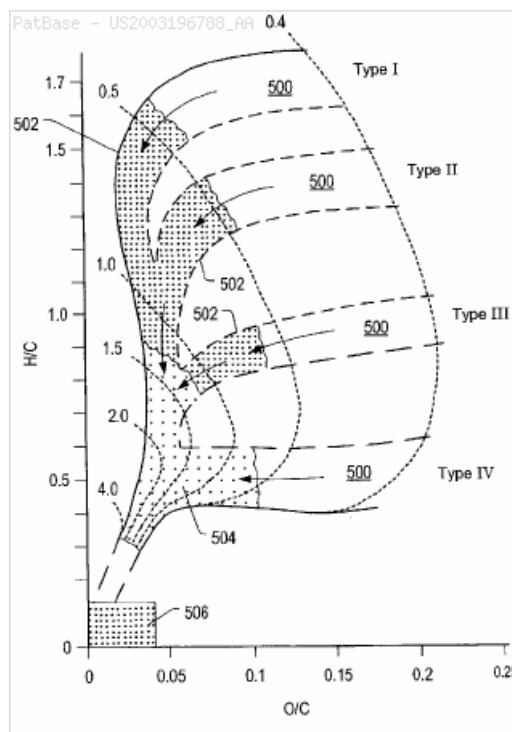
Forward Citations:

WO12082216, WO11156121, WO11002557, WO07126676, US9776794, US9755415, US9739122, US9644466, US9605524, US9528322, US9517885, US9512699, US9466896, US9441474, US9399905, US9394772, US9347302, US9337550, US9309755, US9309050, US9242800, US9226341, US9181780, US9181467, US9133398, US9129728, US9127538, US9127523, US9102547, US9080917, US9080441, US9080409, US9051829, US9048653, US9033042, US9033033, US9022118, US9022109, US9016370, US9008884, US8997869, US8992771, US8967260, US8967259, US8954188, US8943686, US8939207, US8936089, US8881806, US8875789, US8863839, US8859942, US8857506, US8857051, US8851177, US8851170, US8839860, US8833453, US8820406, US8816203, US8791396, US8789586, US8770284, US8752904, US8739874, US8732946, US8701788, US8701769, US8701768, US8666717, US8662175, US8641150, US8636323, US8631866, US8627887, US8622133, US8622127, US8616280, US8616279, US8608249, US8606091, US8603427, US8596355, US8586867, US8586866, US8579031, US8562078, US8555971, US8540020, US8536497, US8502120, US8485847, US8485256, US8485252, US8459359, US8448707, US8434555, US8381815, US8356935, US8355623, US8353347, US8327932, US8327681, US8296968, US8281861, US8276661, US8272455, US8267185, US8267170, US8261832, US8257112, US8256512, US8240774, US8238730, US8233782, US8230927, US8225866, US8224165, US8224164, US8224163, US8220539, US8205674, US8200072, US8196658, US8192682, US8191630, US8177305, US8172335, US8162405, US8162059, US8151907, US8151884, US8151880, US8151877,

US8151482, US8146669, US8146664, US8146661, US8122955, US8113272, US8104537, US8096064, US8087460, US8083813, US8082995, US8070840, US8042610, US8028438, US8027571, US8020313, US8011451, US8006407, US7986869, US7975398, US7954254, US7950453, US7942203, US7942197, US7931086, US7912358, US7866388, US7866386, US7866385, US7860377, US7849922, US7845411, US7841425, US7841408, US7841401, US7832484, US7832482, US7831134, US7831133, US7809538, US7802377, US7802376, US7798221, US7798220, US7785427, US7770643, US7748137, US7735935, US7730947, US7730946, US7730945, US7717171, US7703513, US7683296, US7682072, US7681647, US7677314, US7677310, US7673786, US7673681, US7644993, US7644765, US7640987, US7640980, US7635025, US7635024, US7635023, US7631690, US7631689, US7610962, US7604052, US7597147, US7591310, US7584789, US7581589, US7575053, US7575052, US7562707, US7562706, US7559368, US7559367, US7556096, US7556095, US7549470, US7547799, US7546873, US7540324, US7533719, US7527094, US7510000, US7500528, US7490665, US7481274, US7461691, US7435037, US7431076, US7424915, US7383877, US7370704, US7360588, US7357180, US7353872, US7320364, US7225866, US7219734, US7165615, US7156176, US7128153, US7121342, US7121341, US7114566, US7104319, US7100994, US7096942, US7090013, US7086465, US7077199, US7077198, US7073578, US7066257, US7066254, US7063145, US7055600, US7051811, US7051808, US7051807, US7040400, US7040399, US7040398, US7032660, US7013972, US7011154, US7004251, US7004247, US6997518, US6994169, US6991045, US6991036, US6991033, US6991032, US6981548, US6978210, US6969123, US6966374, US6964300, US6951247, US6948562, US6932155, US6929067, US6923257, US6918443, US6918442, US6915850, US6880633, US6877555, US68782947, US2011213602, US2011097257, US2009218876, US2009095480, US2007265778, US2007221377, US2007131415, US2007131411, US2006289536, US2005105584, US10221014, US10053286, US10047594, GB2430219, GB2430219, GB2430217, AU2006306414,

Abstract:

A method for treating a hydrocarbon containing formation is provided. In one embodiment, heat from one or more heaters may be provided to at least a portion of the formation. Heat may be allowed to transfer from the one or more heaters to at least a part of the formation. In certain embodiments, the heat from the one or more heaters may pyrolyze at least some hydrocarbons within the formation. In an embodiment, a first fluid may be introduced into at least a portion of the formation. The portion may have previously undergone an in situ conversion process. A mixture of the first fluid and a second fluid (or a second compound) may be produced from the formation. In some embodiments, a first fluid may be provided to the formation prior to pyrolyzing hydrocarbons in the formation, and a second fluid (or a second compound) may be produced prior to pyrolyzing hydrocarbons in the formation. In some embodiments the second fluid or second compound include minerals, metals, salts, or other compounds that may be recovered.



14) Family number: 66393274 (US2003196801A)

© PatBase

Title:	IN SITU THERMAL PROCESSING OF A HYDROCARBON CONTAINING FORMATION VIA BACKPRODUCING THROUGH A HEATER WELL																			
Priority:	US20010334568P 20011024 US20020374995P 20020424		US20010337136P 20011024 US20020279221 20021024		US20020374970P 20020424															
Family:	<table><tr><th>Publication number</th><th>Publication date</th><th>Application number</th><th>Application date</th><th></th></tr><tr><td>US2003196801 AA</td><td>20031023</td><td>US20020279221</td><td>20021024</td><td></td></tr><tr><td>US6932155 BB</td><td>20050823</td><td>US20020279221</td><td>20021024</td><td></td></tr></table>					Publication number	Publication date	Application number	Application date		US2003196801 AA	20031023	US20020279221	20021024		US6932155 BB	20050823	US20020279221	20021024	
	Publication number	Publication date	Application number	Application date																
	US2003196801 AA	20031023	US20020279221	20021024																
US6932155 BB	20050823	US20020279221	20021024																	
Probable Assignee:	SHELL OIL CO																			
Assignee(s):(std):	SHELL OIL CO																			
Assignee(s):	VINEGAR HAROLD J ; WELLINGTON SCOTT LEE ; KARANIKAS JOHN MICHAEL ; ROUFFIGNAC ERIC PIERRE DE																			
Inventor(s):(std):	DE ROUFFIGNAC ERIC PIERRE ; KARANIKAS JOHN MICHAEL ; ROUFFIGNAC ERIC PIERRE DE ; VINEGAR HAROLD J ; WELLINGTON SCOTT LEE																			
International class (IPC 8-9):	B09C1/02 B09C1/06 C10G45/00 C10G9/24 E21B17/02 E21B36/00 E21B43/16 E21B43/24 E21B43/243 E21B43/30 E21B44/00 E21B47/022 G01V3/26 (Advanced/Invention)																			
International class (IPC 1-7):	E21B43/24 E21B43/30																			
CPC:	E21B43/2401 B09C1/02 B09C1/06 B09C2101/00 C10G9/24 C10G45/00 E21B17/028 E21B43/168																			

US class:

166/245 166/263 166/272.1 166/272.7 166/302 166/303

[Classification Explorer](#)

Cited documents:

WO9901640, WO9850179, WO9701017, WO9533122, WO9512746, WO9512745, WO9512744, WO9512743, WO9512742, WO9506093, WO0181723 A1, WO0181505 A1, USRE36569 E, USRE35696 E, USRE30738 E, USRE30019 E, USRE27309 E, US94813 A, US760304 A, US6789625 BB, US6782947 BB, US6769485 BB, US6769483 BB, US6763886 BB, US6761216 BB, US6758268 BB, US6752210 BB, US6749021 BB, US6745837 BB, US6745831 BB, US6742593 BB, US6742589 BB, US6742588 BB, US6742587 BB, US6739394 BB, US6739393 BB, US6736215 BB, US6732796 BB, US6732795 BB, US6732794 BB, US6729401 BB, US6729397 BB, US6729395 BB, US6725928 BB, US6725921 BB, US6725920 BB, US6722431 BB, US6722430 BB, US6722429 BB, US6719047 BB, US6715549 BB, US6715548 BB, US6715547 BB, US6715546 BB, US6712137 BB, US6712136 BB, US6712135 BB, US6708758 BB, US6702016 BB, US6698515 BB, US6688387 BA, US6684948 BA, US6609570 BB, US6607033 BB, US6591907 BB, US6591906 BB, US6588504 BB, US6588503 BB, US6581684 BB, US6499536 BA, US6485232 BA, US6467543 BA, US6466020 BB, US6412559 BA, US6389814 BB, US6357526 BA, US6354373 BA, US6353706 BA, US6328104 BA, US6244338 BA, US6234259 BA, US6192748 BA, US6187465 BA, US6173775 B1, US6172124 B1, US6155117 A, US6152987 A, US6112808 A, US6110358 A, US6102622 A, US6102122 A, US6094048 A, US6085512 A, US6079499 A, US6056057 A, US6035701 A, US6026914 A, US6023554 A, US6019172 A, US6016868 A, US6016867 A, US6015015 A, US5997214 A, US5985138 A, US5984010 A, US5968349 A, US5955039 A, US5935421 A, US5923170 A, US5899269 A, US5868202 A, US5862858 A, US5861137 A, US5826655 A, US5802870 A, US5777229 A, US5769569 A, US5767584 A, US5760307 A, US5751895 A, US5725059 A, US5713415 A, US5676212 A, US5657826 A, US5656239 A, US5652389 A, US5632336 A, US5626191 A, US5624188 A, US5621844 A, US5589775 A, US5571403 A, US5566756 A, US5566755 A, US5554453 A, US5553189 A, US5545803 A, US5541517 A, US5539853 A, US5525322 A, US5517593 A, US5515931 A, US5513710 A, US5512830 A, US5498960 A, US5497087 A, US5491969 A, US5456315 A, US5454666 A, US5439054 A, US5437506 A, US5435666 A, US5433271 A, US5431224 A, US5415231 A, US5411104 A, US5411089 A, US5409071 A, US5404952 A, US5402847 A, US5392854 A, US5391291 A, US5388645 A, US5388643 A, US5388642 A, US5388641 A, US5388640 A, US5366012 A, US5360067 A, US5349859 A, US5343152 A, US5340467 A, US5339904 A, US5339897 A, US5318116 A, US5316664 A, US5306640 A, US5305239 A, US5305212 A, US5297626 A, US5295763 A, US5289882 A, US5285846 A, US5284878 A, US5261490 A, US5258755 A, US5255742 A, US5236039 A, US5229583 A, US5229102 A, US5226961 A, US5218301 A, US5217076 A, US5211230 A, US5207273 A, US5201219 A, US5190405 A, US5189283 A, US5182792 A, US5168927 A, US5145003 A, US5126037 A, US5109928 A, US5099918 A, US5097903 A, US5082055 A, US5082054 A, US5074365 A, US5065818 A, US5064006 A, US5060726 A, US5060287 A, US5059303 A, US5055180 A, US5054551 A, US5050386 A, US5046559 A, US5020596 A, US5014788 A, US5011329 A, US5008085 A, US4994093 A, US4988389 A, US4987368 A, US4984594 A, US4983319 A, US4982786 A, US49774425 A, US4933640 A, US4931171 A, US4928765 A, US4927857 A, US4926941 A, US4913065 A, US4912971 A, US48994 A, US4895206 A, US4893504 A, US4886118 A, US4885080 A, US4884455 A, US4866983 A, US4860544 A, US4856587 A, US4856341 A, US4848924 A, US4848460 A, US4845434 A, US4827761 A, US4818370 A, US4817711 A, US4815790 A, US4793656 A, US4791373 A, US4787452 A, US4778586 A, US4776638 A, US4772634 A, US4769606 A, US4769602 A, US4762425 A, US4756367 A, US4744245 A, US4743854 A, US4737267 A, US4734115 A, US4730162 A, US4728892 A, US4728412 A, US4719423 A, US4716960 A, US4706751 A, US4704514 A, US4702758 A, US4700142 A, US4698149 A, US4696345 A, US4694907 A, US4691771 A, US4683947 A, US4682652 A, US4671102 A, US4669542 A, US46663711 A, US4662443 A, US4662439 A, US4662438 A, US4658215 A, US4651825 A, US4644283 A, US4640353 A, US4640352 A, US4637464 A, US4635197 A, US4626665 A, US4623444 A, US4616705 A, US4613754 A, US4608818 A, US4605680 A, US4605489 A, US4598772 A, US4598770 A, US4598392 A, US4597444 A, US4597441 A, US4594468 A, US4592423 A, US4585066 A, US4583242 A, US4583046 A, US4577690 A, US4577503 A, US4576231 A, US4573530 A, US4572299 A, US4571491 A, US4570715 A, US4552214 A, US4549396 A, US4542648 A, US4540882 A, US4537252 A, US4530401 A, US4529939 A, US4524827 A, US4524826 A, US4524113 A, US4518548 A, US4513816 A, US4508170 A, US4502010 A, US4501445 A, US4501326 A, US4499209 A, US4498535 A, US4491179 A, US4489782 A, US4485869 A, US4483398 A, US4479541 A, US4476927 A, US4474238 A, US4463807 A, US4460044 A, US4458767 A, US4458757 A, US4457374 A, US4457365 A, US4456065 A, US4455215 A, US4452491 A, US4448252 A, US4448251 A, US4444258 A, US4444255 A, US4443762 A, US44437519 A, US4429745 A, US4428700 A, US4425967 A, US4423311 A, US4412585 A, US4412124 A, US4410042 A, US4409090 A, US4407973 A, US4401163 A, US4399866 A, US4398151 A, US4397732 A, US4396062 A, US4390973 A, US4390067 A, US4384948 A, US4384614 A, US4384613 A, US4381641 A, US4380930 A, US4378048 A, US4375302 A, US4372398 A, US4366668 A, US4363361 A, US4359687 A, US4353418 A, US4344483 A, US4324292 A, US4323848 A, US4306621 A, US4305463 A, US4299285 A, US4299086 A, US4282587 A, US4277416 A, US4274487 A, US4273188 A, US4265307 A, US4260018 A, US4252191 A, US4250962 A, US4250230 A, US4243101 A, US4228854 A, US4197911 A, US4193451 A, US4186801 A, US4185692 A, US4184548 A, US4183405 A, US4160479 A, US4158467 A, US4148359 A, US4144935 A, US4140181 A, US4140180 A, US4138442 A, US4133825 A, US4130575 A, US4125159 A, US4114688 A, US4099567 A, US4096163 A, US4093026 A, US4093025 A, US4091869 A, US4089374 A, US4089372 A, US4087130 A, US4084637 A, US4076761 A, US4069868 A, US4067390 A, US4057293 A, US4049053 A, US4048637 A, US4043393 A, US4042026 A, US4031956 A, US4026357 A, US4019575 A, US4018280 A, US4016239 A, US4010800 A, US4008762 A, US4006778 A, US4005752 A, US3999607 A, US3994341 A, US3994340 A, US3993132 A, US3992148 A, US3987851 A, US3986556 A, US3986349 A, US3982592 A, US3982591 A, US3973628 A, US3954140 A, US3952802 A, US3948755 A, US3948319 A, US3947683 A, US3947656 A, US3941421 A, US3924680 A, US3922148 A, US3892270 A, US3882941 A, US3881551 A, US3874733 A, US3870063 A, US3853185 A, US3809159 A, US3794116 A, US3775185 A, US3770398 A, US3766982 A, US3759574 A, US3691291 A, US3680633 A, US3675715 A, US3661423 A, US3622071 A, US3618663 A, US3617471 A, US3605890 A, US3599714 A, US3595082 A, US3593790 A, US3580987 A, US3562401 A, US3547193 A, US3528501 A, US3513913 A, US3502372 A, US3501201 A, US3497000 A, US3477058 A, US345586 A, US3455383 A, US3454365 A, US3434541 A, US3389975 A, US3380913 A, US3379248 A, US3352355 A, US3349845 A, US3342267 A, US3342258 A, US3338306 A, US3316962 A, US3310109 A, US3302707 A, US3294167 A, US3288648 A, US3285335 A, US3284281 A, US3275076 A, US3273640 A, US3267680 A, US326439 A, US3250327 A, US3246695 A, US3244231 A, US3241611 A, US3237689 A, US3233668 A, US3223166 A, US3221811 A, US3209825 A, US3208531 A, US3207220 A, US3205946 A, US3205944 A, US3205942 A, US3191679 A, US3183675 A, US3182721 A, US3181613 A, US3170842 A, US3165154 A, US3164207 A, US3163745 A, US3149672 A, US3149670 A, US3142336 A, US3139928 A, US3137347 A, US3132692 A, US3131763 A, US3127936 A, US3127935 A, US3120264 A, US3116792 A, US3114417 A, US3113623 A, US3113620 A, US3113619 A, US3110345 A, US3106244 A, US3105545 A, US3095031 A, US3084919 A, US3079085 A, US3062282 A, US3061009 A, US3050123 A, US3048221 A, US3044545 A, US3036632 A, US3032102 A, US3026940 A, US3017168 A, US3016053 A, US3010516 A, US3010513 A, US3007521 A, US3004603 A, US3004601 A, US3004596 A, US2998457 A, US2994376 A, US2974937 A, US2969226 A, US2958519 A, US2954826 A, US2939689 A, US2932352 A, US2923535 A, US2914309 A, US2906340 A, US2906337 A, US2902270 A, US2890755 A, US2890754 A, US2857002 A, US2841375 A, US2825408 A, US2819761 A, US2804149 A, US2803305 A, US2801089 A, US2793696 A, US2789805 A, US2786660 A, US2780450 A, US2780449 A, US2777679 A, US2771954 A, US2734579 A, US2732195 A, US2714930 A, US2703621 A, US2695163 A, US2685930 A, US2670802 A, US2642943 A, US2634961 A, US2630307 A, US2630306 A, US2623596 A, US2595979 A, US2593477 A, US2584605 A, US2548360 A, US2497868 A, US2484063 A, US2472445 A, US2466945 A, US2444755 A, US2423674 A, US2390770 A, US2375689 A, US2244256 A, US2244255 A, US2004108111 AA, US2004069486 AA, US2004040715 AA, US2004020642 AA, US2004015023 AA, US2003213594 AA, US2003209348 AA, US2003205378 AA, US2003201098 AA, US2003196810 AA, US2003196801 AA, US2003196793 AA, US2003196789 AA,

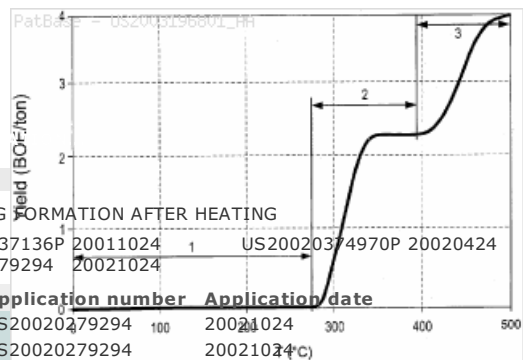
US2003196788 AA, US2003192691 AA, US2003183390 AA, US2003178191 AA, US2003173081 AA, US2003173080 AA, US2003173078 AA, US2003164239 AA, US2003164238 AA, US2003164234 AA, US2003155111 AA, US2003148894 AA, US2003146002 AA, US2003142964 AA, US2003141068 AA, US2003141067 AA, US2003141066 AA, US2003131996 AA, US2003131995 AA, US2003131994 AA, US2003131993 AA, US2003116315 AA, US2003111223 AA, US2003102130 AA, US2003102126 AA, US2003102125 AA, US2003102124 AA, US2003100451 AA, US2003098605 AA, US2003098149 AA, US2003085034 AA, US2003080604 AA, US2003079877 AA, US2003075318 AA, US2003070807 AA, US2003066644 AA, US2003066642 AA, US2003062164 AA, US2003062154 AA, US2003051872 AA, US2003024699 AA, US2003019626 AA, US2003006039 AA, US2002191969 AA, US2002191968 AA, US2002170708 AA, US2002132862 AA, US2002117303 AA, US2002108753 AA, US2002104654 AA, US2002096320 AA, US2002084074 AA, US2002077515 AA, US2002076212 AA, US2002074117 AA, US2002066565 AA, US2002062961 AA, US2002062959 AA, US2002062052 AA, US2002062051 AA, US2002057905 AA, US2002056552 AA, US2002056551 AA, US2002053436 AA, US2002053435 AA, US2002053432 AA, US2002053431 AA, US2002053429 AA, US2002052297 AA, US2002050357 AA, US2002050356 AA, US2002050353 AA, US2002050352 AA, US2002049360 AA, US2002049358 AA, US2002046883 AA, US2002046839 AA, US2002046838 AA, US2002046837 AA, US2002046832 AA, US2002045553 AA, US2002043405 AA, US2002043367 AA, US2002043366 AA, US2002043365 AA, US2002040781 AA, US2002040780 AA, US2002040779 AA, US2002040778 AA, US2002040177 AA, US2002040173 AA, US2002039486 AA, US2002038712 AA, US2002038711 AA, US2002038710 AA, US2002038709 AA, US2002038708 AA, US2002038706 AA, US2002038705 AA, US2002038069 AA, US2002036103 AA, US2002036089 AA, US2002036084 AA, US2002036083 AA, US2002035307 AA, US2002034380 AA, US2002033280 AA, US2002033257 AA, US2002033256 AA, US2002033255 AA, US2002033254 AA, US2002033253 AA, US2002029885 AA, US2002029884 AA, US2002029882 AA, US2002029881 AA, US2002027001 AA, US2002018697 AA, US2002004533 AA, US2001049342 AA, US1913395 A, US1681523 A, US1666488 A, US1646599 A, US1634236 A, US1510655 A, US1457479 A, US1342741 A, US1269747 A, SU1836876, SE126674, SE123138, SE123137, SE123136, SE121737, GB697189, GB674082, GB2086416, GB1588693, GB156396, GB1501310, GB1454324, GB1010023, EP0940558 A1, EP0570228 B1, EP0357314, EP0294809, CA983704, CA2015460, CA1288043, CA1253555, CA1196594, CA1168283, CA1165361,

Forward Citations:

WO16149353, WO07124405, WO07124405, US9939421, US9872343, US9857500, US9776794, US9755415, US9739126, US9739122, US9644466, US9605524, US9528322, US9517885, US9512699, US9466896, US9399905, US9394772, US9375700, US9347302, US9337550, US9328243, US9322257, US9309755, US9309050, US9273251, US9242800, US9226341, US9181780, US9181467, US9133398, US9129728, US9127538, US9127523, US9080917, US9080441, US9080409, US9051829, US9048653, US9034176, US9033042, US9033033, US9022118, US9022109, US9016370, US9008884, US8997869, US8992771, US8980802, US8967259, US8954188, US8943686, US8939207, US8936089, US8887810, US8881806, US8877041, US8875789, US8863839, US8859942, US8857051, US8851177, US8851170, US8839860, US8833453, US8820406, US8816203, US8791396, US8789599, US8789586, US8783347, US8776877, US8772683, US8770284, US8763692, US8763691, US8752904, US8739874, US8732946, US8729440, US8701788, US8701769, US8701768, US8695702, US8692170, US8691731, US8674274, US8662175, US8648760, US8646527, US8641150, US8636323, US8631866, US8627887, US8622133, US8622127, US8616280, US8616279, US8616273, US8608249, US8596355, US8586867, US8586866, US8579031, US8562078, US8555971, US8548785, US8545580, US8540020, US8536497, US8511378, US8502120, US8494775, US8485847, US8485256, US8485252, US8459359, US8453739, US8450664, US8448707, US8443887, US8434555, US8381815, US8373516, US8356935, US8355623, US8353347, US8337769, US8327932, US8327681, US8296968, US8281861, US8276661, US8272455, US8267185, US8267170, US8261832, US8257112, US8256512, US8240774, US8238730, US8233782, US8230929, US8230927, US8225866, US8224165, US8224164, US8224163, US8220539, US8205674, US8200072, US8196658, US8192682, US8191630, US8177305, US8172335, US8162405, US8162059, US8151907, US8151884, US8151877, US8151482, US8146669, US8146664, US8146661, US8133384, US8128786, US8122955, US8120369, US8113272, US8104537, US8101068, US8096064, US8087460, US8083813, US8082995, US8042610, US8028438, US8027571, US8020313, US8011451, US8006407, US7986869, US7975398, US7954254, US7950453, US7942203, US7931086, US7912358, US7866388, US7866386, US7866385, US7860377, US7857056, US7849922, US7845411, US7841425, US7841408, US7841401, US7832484, US7832482, US7831134, US7831133, US7809538, US7802377, US7802376, US7798221, US7798220, US7793722, US7785427, US7770643, US7748137, US7730947, US7730946, US7730945, US7717171, US7703513, US7683296, US7681647, US7677314, US7677310, US7673786, US7673681, US7669657, US7647972, US7647971, US7644993, US7644765, US7640987, US7640980, US7635024, US7635023, US7631691, US7631690, US7631689, US7610962, US7604052, US7597147, US7575053, US7562707, US7546873, US7540324, US7537061, US7533719, US7527094, US7516787, US7516785, US7510000, US7500528, US7490665, US7481274, US7461691, US7441603, US7431076, US7424915, US7383877, US7370704, US7360588, US7357180, US7353872, US7331385, US7320364, US7219734, US7165615, US7156176, US7152675, US7128153, US7121342, US7121341, US7114566, US7104319, US7100994, US7096942, US7090013, US7086465, US7077199, US7077198, US7073578, US7066257, US7066254, US7063145, US7055600, US7051811, US7051808, US7051807, US7040400, US7040399, US7040398, US7032660, US7013972, US7011154, US7004251, US7004247, US6997518, US6994169, US6991045, US6991036, US6991033, US6991032, US6981548, US6969123, US6966674, US6964300, US6951247, US6948562, US6932155, US6929067, US6923257, US6918443, US6918442, US6915850, US6880633, US6877555, US6782947, US2016069857, US2014365193, US2013304617, US2011114323, US2010299126, US2010223011, US2010219108, US2010206709, US2009107679, US2009101348, US2009097358, US2009071647, US2008290719, US2008207970, US2008087426, US2008087420, US2007284356, US2007284116, US2007133960, US2007133959, US2007131411, US2007108201, US2007045268, US2007045267, US2005269077, US2005191956, US2005109504, US2004140096, US10221014, US10201042, US10083256, US10082009, US10053286, US10047594, AU2007240346,

Abstract:

A process for producing hydrocarbons through a heater wellbore positioned in a hydrocarbon containing formation. The in situ treatment process may include providing heat from one or more heaters to at least a portion of the formation. The heat may be allowed, in some embodiments, to transfer from one or more heaters to a selected section of the formation. Heat that is allowed to transfer to the selected section may pyrolyze at least some of the hydrocarbons within the selected section. The process may include, in some embodiments, selectively limiting a temperature proximate a selected portion of a heater wellbore to inhibit coke formation at or near the selected portion. In some embodiments fluids may be produced at certain locations of a heater wellbore such that coke formation is inhibited.



15) Family number: 66393277 (US2003196810A)

Title: TREATMENT OF A HYDROCARBON CONTAINING FORMATION AFTER HEATING

Priority: US20010334568P 20011024 US20010337136P 20011024 US20020374995P 20020424 US20020279294 20021024 US20020374970P 20020424

Family:

Publication number	Publication date	Application number	Application date
US2003196810 AA	20031023	US20020279294	20021024
US7128153 BB	20061031	US20020279294	20021024

Probable Assignee: SHELL OIL CO

Assignee(s):(std): SHELL OIL CO

Assignee(s): MADGAVKAR AJAY MADHAV ; MAHER KEVIN ALBERT ; MCKINZIE BILLY JOHN ; PALFREYMAN BRUCE DONALD ; VINEGAR HAROLD J ; WELLINGTON SCOTT LEE ; STEGEMEIER GEORGE LEO ; ROUFFIGNAC ERIC PIERRE DE ; RYAN ROBERT CHARLES ; WARD JOHN MICHAEL

Inventor(s):(std): DE ROUFFIGNAC ERIC PIERRE ; MADGAVKAR AJAY MADHAV ; MAHER KEVIN ALBERT ; MCKINZIE BILLY JOHN ; MCKINZIE II BILLY JOHN ; PALFREYMAN BRUCE DONALD ; ROUFFIGNAC ERIC PIERRE DE ; RYAN ROBERT CHARLES ; STEGEMEIER GEORGE LEO ; VINEGAR HAROLD J ; WARD JOHN MICHAEL ; WELLINGTON SCOTT LEE

International class (IPC 8-9): B01C1/08 B09C1/02 B09C1/06 C10G45/00 C10G9/24 E21B17/02 E21B36/00 E21B43/16 E21B43/24 E21B43/243 E21B43/30 E21B44/00 E21B47/02 G01V3/26 (Advanced/Invention)

International class (IPC 1-7): E21B43/24

CPC: E21B43/2401 B09C1/02 B09C1/06 B09C2101/00 C10G9/24 C10G45/00 E21B17/028 E21B43/168 E21B43/24 E21B43/243 E21B43/305 E21B47/02208 G01V3/26 Y02P30/30 Y02P30/44 Y10S210/901 Y10T137/0391

US class: 166/245 166/285 166/300 166/302 166/305.1 210/901 405/128.48 405/128.5

[Classification Explorer](#)

Cited documents: WO9901640, WO9850179, WO9701017, WO9560930, WO9533122, WO9512746, WO9512745, WO9512744, WO9512743, WO9512742, WO0181723 A1, WO0181505 A1, USRE36569 E, USRE35696 E, USRE30738 E, USRE30019 E, USRE27309 E, US94813 A, US760304 A, US6915850 BA, US6913078 BA, US6910536 BA, US6902004 BA, US6902003 BA, US6896053 BA, US6889769 BA, US6880635 BA, US6880633 BA, US6877555 BA, US6877554 BA, US6871707 BA, US6866097 BA, US6820688 BA, US6805195 BA, US6789625 BA, US6782947 BA, US6769485 BA, US6769483 BA, US6763886 BA, US6761216 BA, US6758268 BA, US6752210 BA, US6749021 BA, US6745837 BA, US6745832 BA, US6745831 BA, US6742593 BA, US6742589 BA, US6742588 BA, US6742587 BA, US6739394 BA, US6739393 BA, US6736215 BA, US6732796 BA, US6732795 BA, US6732794 BA, US6729401 BA, US6729397 BA, US6729396 BA, US6729395 BA, US6725928 BA, US6725921 BA, US6725920 BA, US6722431 BA, US6722430 BA, US6722429 BA, US6719047 BA, US6715549 BA, US6715548 BA, US6715547 BA, US6715546 BA, US6712137 BA, US6712136 BA, US6712135 BA, US6708758 BA, US6702016 BA, US6698515 BA, US6688387 BA, US6684948 BA, US6679332 BA, US6609570 BA, US6607033 BA, US6591907 BA, US6591906 BA, US6588504 BA, US6588503 BA, US6584406 BA, US6581684 BA, US6499536 BA, US6485232 BA, US6467543 BA, US6466020 BA, US6429784 BA, US6422318 BA, US6412559 BA, US6389814 BA, US6357526 BA, US6354373 BA, US6353706 BA, US6328104 BA, US6244338 BA, US6234259 BA, US6209640 BA, US6192748 BA, US6187465 BA, US6173775 B1, US6172124 B1, US6155117 A, US6152987 A, US6112808 A, US6110358 A, US6109358 A, US6102622 A, US6102137 A, US6102122 A, US6094048 A, US6085512 A, US6079499 A, US6065538 A, US6056057 A, US6049508 A, US6035701 A, US6026914 A, US6023554 A, US6019172 A, US6016868 A, US6016867 A, US6015015 A, US5997214 A, US5985138 A, US5984582 A, US5984010 A, US5968349 A, US5955039 A, US5935421 A, US5923170 A, US5899269 A, US5891829 A, US5868202 A, US5862858 A, US5861137 A, US5836718 A, US5826655 A, US5777229 A, US5769569 A, US5767584 A, US5760307 A, US5751895 A, US5747750 A, US5725059 A, US5713415 A, US5676212 A, US5657826 A, US5656239 A, US5652389 A, US5632336 A, US5626191 A, US5624188 A, US5621844 A, US5589775 A, US5571403 A, US5566756 A, US5566755 A, US5554453 A, US5553189 A, US5545803 A, US5541517 A, US5539853 A, US5525322 A, US5517593 A, US5515931 A, US5513710 A, US5512830 A, US5498960 A, US5497087 A, US5491969 A, US5485089 A, US5456315 A, US5454666 A, US5439054 A, US5437506 A, US5435666 A, US5433271 A, US5431224 A, US5415231 A, US5411104 A, US5411089 A, US5411086 A, US5409071 A, US5404952 A, US5402847 A, US5400430 A, US5392854 A, US5391291 A, US5388645 A, US5388643 A, US5388642 A, US5388641 A, US5388640 A, US5377756 A, US5366012 A, US5363094 A, US5360067 A, US5349859 A, US5343152 A, US5340467 A, US5339904 A, US5339897 A, US5325918 A, US5325795 A, US5318116 A, US5316664 A, US5306640 A, US5305829 A, US5305239 A, US5305212 A, US5297626 A, US5295763 A, US5289882 A, US5285846 A, US5284878 A, US5261490 A, US5258755 A, US5255742 A, US5249368 A, US5236039 A, US5229583 A, US5229102 A, US5226961 A, US5218301 A, US5217076 A, US5211230 A, US5207273 A, US5201219 A, US5190405 A, US5189283 A, US5182792 A, US5168927 A, US5145003 A, US5126037 A, US5109928 A, US5103920 A, US5099918 A, US5097903 A, US5085276 A, US5082055 A, US5082054 A, US5074365 A, US5065818 A, US5064006 A, US5060726 A, US5060287 A, US5059303 A, US5055180 A, US5054551 A, US5050386 A, US5046559 A, US5041210 A, US5027896 A, US5020596 A, US5014788 A, US5011329 A, US5008085 A, US4994093 A, US4988389 A, US4987368 A, US4984594 A, US4983319 A, US4982786 A, US4974425 A, US4933640 A, US4931171 A, US4928765 A, US4927857 A, US4926941 A, US4913065 A, US4912971 A, US48994 A, US4895206 A, US4893504 A, US4886118 A, US4885080 A, US4884455 A, US4883582 A, US4866983 A, US4860544 A, US4856587 A, US4856341 A, US4849360 A, US4848924 A, US4848460 A, US4845434 A, US4831600 A, US4828031 A, US4827761 A, US4823890 A, US4818370 A, US4817711 A, US4815791 A, US4815790 A, US4808925 A, US4793656 A, US4791373 A, US4787452 A, US4778586 A, US4776638 A, US4772634 A, US4769606 A, US4769602 A, US4766958 A, US4762425 A, US4756367 A, US4744245 A, US4743854 A, US4737267 A, US4734115 A, US4730162 A, US4728892 A, US4728412 A, US4719423 A, US4716960 A, US4706751 A, US4704514 A, US4702758 A, US4700142 A, US4698149 A, US4696345 A, US4694907 A, US4691771 A, US4683947 A, US4682652 A, US4671102 A, US4669542 A, US4663711 A, US4662443 A, US4662439 A, US4662438 A, US4658215 A, US4651825 A, US4644283 A, US4640353 A, US4640352 A, US4637464 A, US4635197 A, US4634187 A, US4626665 A, US4623444 A, US4616705 A, US4613754 A, US4608818 A, US4605680 A, US4605489 A, US4598772 A, US4598770 A, US4598392 A, US4597444 A, US4597441 A, US4594468 A, US4592423 A, US4585066 A, US4583242 A, US4583046 A, US4577690 A, US4577503 A, US4576231 A, US4573530 A, US4572299 A, US4571491 A, US4570715 A, US4552214 A, US4549396 A, US4544478 A, US4542648 A, US4540882 A, US4537252 A, US4530401 A, US4529939 A, US4524827 A, US4524826 A, US4524113 A, US4518548 A, US4513816 A, US4508170 A, US4502010 A, US4501445 A, US4501326 A, US4499209 A, US4498535 A, US4491179 A, US4489782 A, US4485869 A, US4483398 A, US4479541 A, US4476927 A, US4474238 A, US4463807 A, US4460044 A, US4458767 A, US4458757 A, US4457374 A, US4457365 A, US4456065 A, US4455215 A, US4452491 A, US4448252 A, US4448251 A, US4445574 A, US4444258 A, US4444255 A, US4443762 A, US4442896 A, US4440224 A, US4439307 A,

US4437519 A, US4429745 A, US4428700 A, US4425967 A, US4423311 A, US4418752 A, US4415034 A, US4412585 A, US4412124 A, US4410042 A, US4409090 A, US4407973 A, US4401163 A, US4399866 A, US4398151 A, US4397732 A, US4396062 A, US4390973 A, US4390067 A, US4384948 A, US4384614 A, US4384613 A, US4381641 A, US4380930 A, US4378048 A, US4375302 A, US4372398 A, US4366668 A, US4363361 A, US4359687 A, US4353418 A, US4344483 A, US4324292 A, US4323848 A, US4319635 A, US4306621 A, US4305463 A, US4303126 A, US4299285 A, US4299086 A, US4285547 A, US4282587 A, US4277416 A, US4274487 A, US4273188 A, US4265307 A, US4260192 A, US4260018 A, US4252191 A, US4250962 A, US4250230 A, US4243511 A, US4243101 A, US4234230 A, US4228854 A, US4197911 A, US4193451 A, US4186801 A, US4185692 A, US4184548 A, US4183405 A, US4167213 A, US4162707 A, US4160479 A, US4158467 A, US4151877 A, US4148359 A, US4144935 A, US4140181 A, US4140180 A, US4138442 A, US4133825 A, US4130575 A, US4125159 A, US4114688 A, US4099567 A, US4096163 A, US4093026 A, US4093025 A, US4091869 A, US4089374 A, US4089372 A, US4087130 A, US4084637 A, US4076761 A, US4069868 A, US4067390 A, US4065183 A, US4057293 A, US4049053 A, US4048637 A, US4043393 A, US4042026 A, US4031956 A, US4026357 A, US4019575 A, US4018280 A, US4016239 A, US4014575 A, US4010800 A, US4008762 A, US4006778 A, US4005752 A, US3999607 A, US3994341 A, US3994340 A, US3993132 A, US3987851 A, US3986557 A, US3986556 A, US3986349 A, US3982592 A, US3982591 A, US3973628 A, US3954140 A, US3952802 A, US3948755 A, US3948319 A, US3947683 A, US3947656 A, US3941421 A, US3924680 A, US3922148 A, US3907045 A, US3892270 A, US3882941 A, US3881551 A, US3874733 A, US3870063 A, US3853185 A, US3809159 A, US3804172 A, US3804169 A, US3794116 A, US3779602 A, US3775185 A, US3770398 A, US3766982 A, US3759574 A, US3759328 A, US3700280 A, US3691291 A, US3680633 A, US3675715 A, US3661423 A, US3622071 A, US3618663 A, US3617471 A, US3605890 A, US3599714 A, US3595082 A, US3593790 A, US3580987 A, US3562401 A, US3547193 A, US3529682 A, US3528501 A, US3513913 A, US3502372 A, US3501201 A, US3497000 A, US3477058 A, US345586 A, US3455383 A, US3454365 A, US3434541 A, US3389975 A, US3386508 A, US3380913 A, US3379248 A, US3352355 A, US3349845 A, US3342267 A, US3342258 A, US3338306 A, US3316962 A, US3310109 A, US3302707 A, US3294167 A, US3288648 A, US3285335 A, US3284281 A, US3275076 A, US3273640 A, US3267680 A, US326439 A, US3250327 A, US3246695 A, US3244231 A, US3241611 A, US3237689 A, US3233668 A, US3223166 A, US3221811 A, US3209825 A, US3208531 A, US3207220 A, US3205946 A, US3205944 A, US3205942 A, US3191679 A, US3183675 A, US3182721 A, US3181613 A, US3170842 A, US3165154 A, US3164207 A, US3163745 A, US3149672 A, US3149670 A, US3142336 A, US3139928 A, US3137347 A, US3132692 A, US3131763 A, US3127936 A, US3127935 A, US3120264 A, US3116792 A, US3114417 A, US3113623 A, US3113620 A, US3113619 A, US3110345 A, US3106244 A, US3105545 A, US3095031 A, US3084919 A, US3079085 A, US3062282 A, US3061009 A, US3050123 A, US3048221 A, US3044545 A, US3036632 A, US3032102 A, US3026940 A, US3017168 A, US3016053 A, US3010516 A, US3010513 A, US3007521 A, US3004603 A, US3004601 A, US3004596 A, US2998457 A, US2994376 A, US2974937 A, US2970826 A, US2969226 A, US2958519 A, US2954826 A, US2939689 A, US2932352 A, US2923535 A, US2914309 A, US2906340 A, US2906337 A, US2902270 A, US2890755 A, US2890754 A, US2857002 A, US2841375 A, US2825408 A, US2819761 A, US2804149 A, US2803305 A, US2801089 A, US2793696 A, US2789805 A, US2786660 A, US2780450 A, US2780449 A, US2777679 A, US2771954 A, US2743906 A, US2734579 A, US2732195 A, US2714930 A, US2703621 A, US2695163 A, US2685930 A, US2670802 A, US2642943 A, US2634961 A, US2630307 A, US2630306 A, US2623596 A, US2595979 A, US2593477 A, US2584605 A, US2548360 A, US2497868 A, US2484063 A, US2472445 A, US2466945 A, US2444755 A, US2423674 A, US2375689 A, US2244256 A, US2244255 A, US2005051327 AA, US2005006097 AA, US2004177966 AA, US2004146288 AA, US2004145969 AA, US2004144541 AA, US2004144540 AA, US2004140096 AA, US2004140095 AA, US2004108111 AA, US2004069486 AA, US2004040715 AA, US2004035582 AA, US2004020642 AA, US2004015023 AA, US2003213594 AA, US2003209348 AA, US2003205378 AA, US2003201098 AA, US2003196810 AA, US2003196801 AA, US2003196793 AA, US2003196789 AA, US2003196788 AA, US2003192691 AA, US2003183390 AA, US2003178191 AA, US2003173085 AA, US2003173081 AA, US2003173080 AA, US2003173078 AA, US2003173072 AA, US2003164239 AA, US2003164238 AA, US2003164234 AA, US2003155111 AA, US2003148894 AA, US2003146002 AA, US2003142964 AA, US2003141068 AA, US2003141067 AA, US2003141066 AA, US2003136559 AA, US2003131996 AA, US2003131995 AA, US2003131994 AA, US2003131993 AA, US2003116315 AA, US2003111223 AA, US2003102130 AA, US2003102126 AA, US2003102125 AA, US2003102124 AA, US2003100451 AA, US2003098605 AA, US2003098149 AA, US2003085034 AA, US2003080604 AA, US2003079877 AA, US2003075318 AA, US2003070807 AA, US2003066644 AA, US2003066642 AA, US2003062164 AA, US2003062154 AA, US2003051872 AA, US2003029617 AA, US2003024699 AA, US2003019626 AA, US2003006039 AA, US2002191969 AA, US2002191968 AA, US2002170708 AA, US2002132862 AA, US2002117303 AA, US2002112987 AA, US2002112890 AA, US2002108753 AA, US2002104654 AA, US2002096320 AA, US2002084074 AA, US2002077515 AA, US2002076212 AA, US2002074117 AA, US2002066565 AA, US2002062961 AA, US2002062959 AA, US2002062052 AA, US2002062051 AA, US2002057905 AA, US2002056552 AA, US2002056551 AA, US2002053436 AA, US2002053435 AA, US2002053432 AA, US2002053431 AA, US2002053429 AA, US2002052297 AA, US2002050357 AA, US2002050356 AA, US2002050353 AA, US2002050352 AA, US2002049360 AA, US2002049358 AA, US2002046883 AA, US2002046839 AA, US2002046838 AA, US2002046837 AA, US2002046832 AA, US2002045553 AA, US2002043405 AA, US2002043367 AA, US2002043366 AA, US2002043365 AA, US2002040781 AA, US2002040780 AA, US2002040779 AA, US2002040778 AA, US2002040177 AA, US2002040173 AA, US2002039486 AA, US2002038712 AA, US2002038711 AA, US2002038710 AA, US2002038709 AA, US2002038708 AA, US2002038706 AA, US2002038705 AA, US2002038069 AA, US2002036103 AA, US2002036089 AA, US2002036084 AA, US2002036083 AA, US2002035307 AA, US2002034380 AA, US2002033280 AA, US2002033257 AA, US2002033256 AA, US2002033255 AA, US2002033254 AA, US2002033253 AA, US2002029885 AA, US2002029884 AA, US2002029882 AA, US2002029881 AA, US2002027001 AA, US2002018697 AA, US2002004533 AA, US2001049342 AA, US1913395 A, US1681523 A, US1666488 A, US1646599 A, US1634236 A, US1510655 A, US1457479 A, US1342741 A, US1269747 A, SU1836876, SE126674, SE123138, SE123137, SE123136, SE121737, GB697189, GB674082, GB2086416, GB1588693, GB156396, GB1501310, GB1454324, GB1010023, EP0940558 A1, EP0570228 B1, EP0357314, EP0294809, CA983704, CA2015460, CA1288043, CA1253555, CA1196594, CA1168283, CA1165361,

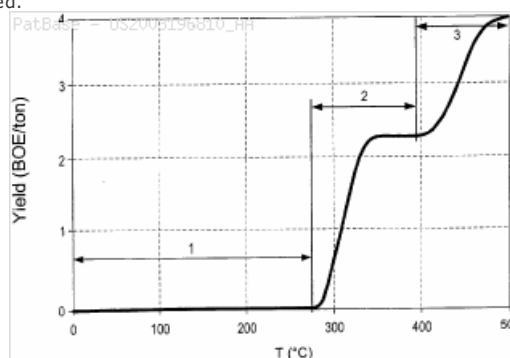
Forward Citations:

WO12103479, WO12103479, WO09014586, US9845669, US9776794, US9771701, US9755415, US9605524, US9540578, US9528322, US9517885, US9466896, US9399905, US9337550, US9309755, US9309050, US9242800, US9226341, US9187979, US9181780, US9181467, US9174185, US9133398, US9133011, US9129728, US9127538, US9127523, US9080917, US9080409, US9051829, US9048653, US9033042, US9033033, US9022118, US9022109, US9016370, US9008884, US8997869, US8992771, US8967259, US8954188, US8943686, US8939207, US8936089, US8881806, US8881587, US8859942, US8857506, US8857243, US8857051, US8851177, US8851170, US8840692, US8839860, US8833453, US8820406, US8816203, US8814962, US8791396, US8789586, US8784661, US8752904, US8739874, US8732946, US8701788, US8701769, US8701768, US8662175, US8636323, US8631866, US8627887, US8623925, US8617260, US8608249, US8606091, US8586867, US8586866, US8579031, US8562078, US8555971, US8536497, US8506677, US8502120, US8485847, US8485256, US8485254, US8485252, US8459359, US8448707, US8434555, US8381815, US8356935, US8355623, US8353347, US8327932, US8327681, US8296968, US8281861, US8276661, US8272455, US8267185, US8267170, US8261832, US8257112, US8256512, US8256511, US8240774, US8238730, US8233782, US8230927, US8225866, US8224165, US8224164, US8224163, US8220539, US8205674, US8200072, US8196658, US8192682, US8191630, US8177305, US8172335, US8162405, US8162059, US8151907, US8151880, US8151482, US8146669, US8146661, US8113272, US8096064, US8083813, US8070840, US8042610, US8028438, US8027571, US8025445, US8020313, US8011451, US8006407, US7986869, US7975398, US7954254, US7950453, US7942203, US7942197, US7941285, US7931086, US7912358, US7875120, US7866388, US7866386, US7866385, US7860377, US7849922, US7845411, US7841425, US7841408, US7841401, US7832484, US7832482, US7831134, US7831133, US7809538, US7802377, US7802376, US7798221, US7798220, US7793722, US7785427, US7770643, US7748137, US7735935, US7730947, US7730946,

US7730945, US7717171, US7703513, US7683296, US7681647, US7677314, US7677310, US7677306, US7673786, US7673681, US7669349, US7644765, US7640987, US7640980, US7635025, US7635024, US7635023, US7631690, US7631689, US7610962, US7604052, US7603265, US7597147, US7591310, US7584789, US7581589, US7575053, US7575052, US7562707, US7562706, US7559368, US7559367, US7556096, US7556095, US7549470, US7546873, US7540324, US7533719, US7527094, US7510000, US7502695, US7500528, US7490665, US7481274, US7461693, US7461691, US7438501, US7435037, US7431076, US7424915, US7383877, US7370704, US7360588, US7357180, US7353872, US7320364, US7225866, US7219734, US7171316, US7165615, US7156176, US7128153, US7121342, US7121341, US7114566, US7104319, US7100994, US7096942, US7090013, US7086465, US7077199, US7077198, US7073578, US7066257, US7066254, US7063145, US7055600, US7051811, US7051808, US7051807, US7040400, US7040399, US7040398, US7032660, US7013972, US7011154, US7004251, US7004247, US6997518, US6994169, US6991045, US6991036, US6991033, US6991032, US6981548, US6969123, US6966374, US6964300, US6951247, US6948562, US6932155, US6929067, US6923257, US6918443, US6918442, US6915850, US6880633, US6877555, US6878297, US2016186401, US2012193092, US2012149786, US2012014852, US2012014749, US2011205079, US2011108273, US2010303427, US2010252249, US2010155062, US2009240446, US2009114384, US2009071647, US2008185147, US2008163895, US2007267190, US2007235181, US2007137858, US2007131411, US2007118303, US2006289536, US2005234690, US2005139138, US10221014, US10053286, US10047594, RU2567296, GB2430219, GB2430219, CN103339488, CN103339488, AU2012211109,

Abstract:

A method for treating a hydrocarbon containing formation is provided. In one embodiment, heat from one or more heaters may be provided to at least a portion of the formation. Heat may be allowed to transfer from the one or more heaters to at least a part of the formation. In certain embodiments, the heat from the one or more heaters may pyrolyze at least some hydrocarbons in the formation. In an embodiment, a first fluid may be introduced into at least a portion of the formation. The portion may have previously undergone an in situ conversion process. A mixture of the first fluid and a second fluid may be produced from the formation. Such mixture may, in some embodiments, be treated or burned.



16) Family number: 46869286 (US2010236242A)

© PatBase

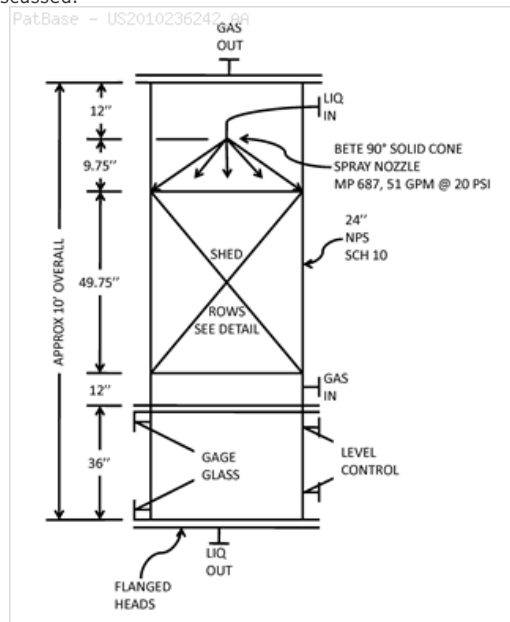
Title:	SYSTEMS AND METHODS FOR PROCESSING CO ₂															
Priority:	US20090158992P 20090310 US20090178360P 20090514 US20090223657P 20090707 US20090239429P 20090902 US20100311275P 20100305	US20090168166P 20090409 US20090221457P 20090629 US20090228210P 20090724 US20090289657P 20091223 US20100721542 20100310	US20090178475P 20090514 US20090221631P 20090630 US20090230042P 20090730 US20100306412P 20100219													
Family:	<table><tr><th>Publication number</th><th>Publication date</th><th>Application number</th><th>Application date</th></tr><tr><td> US2010236242 AA</td><td>20100923</td><td>US20100721542</td><td>20100310</td></tr><tr><td> US2011247336 A9</td><td>20111013</td><td>US20100721542</td><td>20100310</td></tr></table>				Publication number	Publication date	Application number	Application date	 US2010236242 AA	20100923	US20100721542	20100310	 US2011247336 A9	20111013	US20100721542	20100310
Publication number	Publication date	Application number	Application date													
 US2010236242 AA	20100923	US20100721542	20100310													
 US2011247336 A9	20111013	US20100721542	20100310													
Probable Assignee:	CALERA CORP															
Assignee(s):(std):	O CONNOR RICHARD P ; WALL JUSTIN ; SELF KYLE ; SEEKER WILLIAM RANDALL ; ELLIOTT ROBERT W ; FARSAD KASRA															
Assignee(s):	MOSS LANDING CEMENT CO LLC ; CALERA CORP															
Inventor(s):(std):	WALL JUSTIN ; SELF KYLE ; SEEKER WILLIAM RANDALL ; O CONNOR RICHARD P ; FARSAD KASRA ; ELLIOTT ROBERT W															
Inventor(s):	O'CONNOR RICHARD P															
Agent(s):	CALERA ERIC WITT CORP															
International class (IPC 8-9):	C01B32/60 F01N3/00 (Advanced/Invention); F01N3/00 (Core/Invention)															
CPC:	B01D53/1456 B01D53/18 B01D53/60 B01D53/62 B01D53/64 B01D53/78 B01D2257/302 B01D2257/404 B01D2257/504 B01D2257/602 Y02C10/04															
European class:	B01D53/14H B01D53/18 B01D53/60 B01D53/62 B01D53/64 B01D53/78 L01D257/302 L01D257/404 L01D257/504 L01D257/602 Y02C10/04															
US class:	60/685 60/685P															
Classification Explorer																
Cited documents:	US7674443 BA, US7347896 BB, US7198722 BB, US7040400 BB, US7037434 BB, US6890497 BB, US6890419 BB, US6841512 BA, US6712946 BB, US6537456 BB, US6518217 BB, US6517631 BB, US6387212 BA, US6375825 BA, US6352576 BA, US6251356 BA, US6235186 BA, US6217728 BA, US6200543 BA, US6200381 BA, US6190428 BA, US6180012 BA, US6080297 A, US6071336 A, US6059974 A, US6024848 A, US5897704 A, US5855759 A, US5766339 A, US5766338 A, US5624493 A, US5614078 A, US5595641 A, US5520898 A, US5282935 A, US5100633 A, US4931264 A, US4915914 A, US4899544 A, US4838941 A, US4818367 A, US4804449 A, US4588443 A, US4450009 A, US4383674 A, US4376101 A, US4370307 A, US4335788 A, US4264367 A, US4246075 A, US4188291 A, US4147599 A, US4140510 A, US4080270 A, US4026716 A, US3963592 A, US3953568 A, US3864236 A, US3725267 A, US3574530 A, US3558769 A, US3511712 A, US3511595 A, US3420775 A, US3374164 A, US3179579 A, US2967807 A, US2934419 A, US2458039 A, US2010077922 AA, US2010077691 AA, US2010063902 AA, US2010024686 AA, US2009090277 AA, US2009081096 AA, US2009081093 AA, US2009020044 AA, US2009010827 AA, US2009001020 AA, US2008112868 AA, US2008031801 AA, US2007092427 AA, US2007056487 AA, US2006105082 AA, US2006060532 AA, US2006051274 AA, US2006048517 AA, US2005087496 AA, US2005036932 AA, US2005031522 AA, US2005011770 AA, US2005002847 AA, US2004052865 AA, US2004040715 AA, US2004040671 AA, US2004014845 AA, US2003017088 AA,															

Forward Citations:

WO19004910, WO17205688, WO12149173, WO12149173, WO12078821, WO12078821, USRE46829, USRE46682, US9957623, US9957621, US9950316, US9902652, US9880124, US9868084, US9828313, US9739481, US9737878, US9719727, US9687811, US9599405, US9597662, US9592492, US9586179, US9567678, US9566568, US9533299, US9533289, US9522388, US9517448, US9511352, US9498751, US9446985, US9433938, US9429046, US9427732, US9416966, US9394803, US9332636, US9308524, US9302260, US9302219, US9267211, US9260314, US9216406, US9216398, US9200375, US9187835, US9187834, US9186663, US9180423, US9163562, US9156025, US9151224, US9149797, US9139472, US9133581, US9132404, US9126191, US9101868, US9089840, US9061940, US9056790, US9023754, US8999057, US8999041, US8992820, US8969237, US8956574, US8936773, US8932514, US8932400, US8932388, US8906498, US8906316, US8906156, US8894830, US8893651, US8883104, US8877357, US8869477, US8865611, US8859035, US8857118, US8845797, US8834688, US8828328, US8821786, US8803025, US8759248, US8691175, US8679433, US8669202, US8668803, US8663571, US8657919, US8652992, US8652234, US8604398, US8603424, US8575059, US8574408, US8557727, US8545652, US8524631, US8507402, US8507401, US8491858, US8481449, US8470275, US8470112, US8431100, US8357270, US8333944, US8177909, US8151482, US8137455, US8137444, US8114214, US8062418, US8020313, US8006446, US7993500, US7987613, US7984566, US7895769, US7891114, US2015375165, US2014199218, US2013239584, US2013239583, US2013239582, US2013089482, US2013087511, US2013038055, US2012269690, US2012240764, US2012168698, US2012000361, US2011239543, US2011143041, US2011116129, US2011071309, US2011054084, US2010223804, US2009186767, US2009186761, US2008134540, US10236526, US10161050, US10086356, US10082030, CN103635428, CN103597172,

Abstract:

Systems and methods for lowering levels of carbon dioxide and other atmospheric pollutants are provided. Economically viable systems and processes capable of removing vast quantities of carbon dioxide and other atmospheric pollutants from gaseous waste streams and sequestering them in storage-stable forms are also discussed.

**17) Family number: 66393288** (US2003205378A)

© PatBase

Title: IN SITU RECOVERY FROM LEAN AND RICH ZONES IN A HYDROCARBON CONTAINING FORMATION
Priority: US20010334568P 20011024 US20010337136P 20011024 US20020374970P 20020424
 US20020374995P 20020424 US20020279222 20021024

Family:	Publication number	Publication date	Application number	Application date
	US2003205378 AA	20031106	US20020279222	20021024
	US7066257 BB	20060627	US20020279222	20021024

Probable Assignee: SHELL OIL CO
Assignee(s):(std): SHELL OIL CO
Assignee(s): VINEGAR HAROLD J ; WELLINGTON SCOTT LEE ; ROUFFIGNAC ERIC PIERRE DE
Inventor(s):(std): DE ROUFFIGNAC ERIC PIERRE ; ROUFFIGNAC ERIC PIERRE DE ; VINEGAR HAROLD J ; WELLINGTON SCOTT LEE
International class (IPC 8-9): B09C1/02 B09C1/06 C10G45/00 C10G9/24 E21B17/02 E21B36/00 E21B43/16 E21B43/24 E21B43/243 E21B43/26 E21B43/30 E21B44/00 E21B47/022 G01V3/26 (Advanced/Invention)
International class (IPC 1-7): E21B43/24
CPC: E21B43/2401 B09C1/02 B09C1/06 B09C2101/00 C10G9/24 C10G45/00 E21B17/028 E21B43/168 E21B43/24 E21B43/243 E21B43/305 E21B47/02208 G01V3/26 Y02P30/30 Y02P30/44 Y10S210/901 Y10T137/0391
US class: 166/271 166/272.1 166/272.2 166/302 166/308 166/60

[Classification Explorer](#)

Cited documents: WO9901640, WO9850179, WO9701017, WO9533122, WO9512746, WO9512745, WO9512744, WO9512743, WO9512742, WO9506093, WO0181723 A1, WO0181505 A1, USRE36569 E, USRE35696 E, USRE30738 E, USRE30019 E, USRE27309 E, US94813 A, US760304 A, US6866097 BA, US6820688 BA, US6805195 BA, US6789625 BA, US6782947 BA, US6769485 BA, US6769483 BA, US6763886 BA, US6761216 BA, US6758268 BA, US6752210 BA, US6749021 BA, US6745837 BA, US6745832 BA, US6745831 BA, US6742593 BA, US6742589 BA, US6742588 BA, US6742587 BA, US6739394 BA, US6739393 BA, US6736215 BA, US6732796 BA, US6732795 BA, US6732794 BA, US6729401 BA, US6729397 BA, US6729396 BA, US6729395 BA, US6725928 BA, US6725921 BA, US6725920 BA, US6722431 BA, US6722430 BA, US6722429 BA, US6719047 BA, US6715549 BA, US6715548 BA,

US6715547 BA, US6715546 BA, US6712137 BA, US6712136 BA, US6712135 BA, US6708758 BA, US6702016 BA, US6698515 BA, US6688387 BA, US6684948 BA, US6679332 BA, US6609570 BA, US6607033 BA, US6591907 BA, US6591906 BA, US6588504 BA, US6588503 BA, US6584406 BA, US6581684 BA, US6499536 BA, US6485232 BA, US6466754 BA, US6466020 BA, US6429784 BA, US6422318 BA, US6412559 BA, US6389814 BA, US6357526 BA, US6354373 BA, US6353706 BA, US6328104 BA, US6244338 BA, US6234259 BA, US6209640 BA, US6192748 BA, US6187465 BA, US6173775 B1, US6172124 B1, US6155117 A, US6152987 A, US6112808 A, US6110358 A, US6102622 A, US6102137 A, US6102122 A, US6094048 A, US6085512 A, US6079499 A, US6065538 A, US6056057 A, US6049508 A, US6035701 A, US6026914 A, US6023554 A, US6019172 A, US6016868 A, US6016867 A, US6015015 A, US5997214 A, US5985138 A, US5984582 A, US5984010 A, US5968349 A, US5955039 A, US5935421 A, US5923170 A, US5899269 A, US5891829 A, US5868202 A, US5862858 A, US5861137 A, US5826655 A, US5777229 A, US5769569 A, US5767584 A, US5760307 A, US5751895 A, US5747750 A, US5725059 A, US5713415 A, US5676212 A, US5657826 A, US5656239 A, US5652389 A, US5632336 A, US5626191 A, US5624188 A, US5621844 A, US5589775 A, US5571403 A, US5566756 A, US5566755 A, US5554453 A, US5553189 A, US5545803 A, US5541517 A, US5539853 A, US5525322 A, US5517593 A, US5515931 A, US5513710 A, US5512830 A, US5498960 A, US5497087 A, US5491969 A, US5456315 A, US5454666 A, US5439054 A, US5437506 A, US5435666 A, US5433271 A, US5431224 A, US5415231 A, US5411104 A, US5411089 A, US5411086 A, US5409071 A, US5404952 A, US5402847 A, US5400430 A, US5392854 A, US5391291 A, US5388645 A, US5388643 A, US5388642 A, US5388641 A, US5388640 A, US5377756 A, US5366012 A, US5363094 A, US5360067 A, US5349859 A, US5343152 A, US5340467 A, US5339904 A, US5339897 A, US5325918 A, US5318116 A, US5316664 A, US5306640 A, US5305829 A, US5305239 A, US5305212 A, US5297626 A, US5295763 A, US5289882 A, US5285846 A, US5284878 A, US5261490 A, US5258755 A, US5255742 A, US5236039 A, US5229583 A, US5229102 A, US5226961 A, US5218301 A, US5217076 A, US5211230 A, US5207273 A, US5201219 A, US5190405 A, US5189283 A, US5182792 A, US5168927 A, US5145003 A, US5126037 A, US5109928 A, US5099918 A, US5097903 A, US5085276 A, US5082055 A, US5082054 A, US5074365 A, US5065818 A, US5064006 A, US5060726 A, US5060287 A, US5059303 A, US5055180 A, US5054551 A, US5050386 A, US5046559 A, US5041210 A, US5027896 A, US5020596 A, US5014788 A, US5011329 A, US5008085 A, US4994093 A, US4988389 A, US4987368 A, US4984594 A, US4983319 A, US4982786 A, US4974425 A, US4933640 A, US4931171 A, US4928765 A, US4927857 A, US4926941 A, US4913065 A, US4912971 A, US48994 A, US4895206 A, US4893504 A, US4886118 A, US4885080 A, US4884455 A, US4883582 A, US4866983 A, US4860544 A, US4856587 A, US4856341 A, US4848924 A, US4848460 A, US4845434 A, US4831600 A, US4828031 A, US4827761 A, US4818370 A, US4817711 A, US4815790 A, US4793656 A, US4791373 A, US4787452 A, US4778586 A, US4776638 A, US4772634 A, US4769606 A, US4769602 A, US4766958 A, US4762425 A, US4756367 A, US4744245 A, US4743854 A, US4737267 A, US4734115 A, US4730162 A, US4728892 A, US4728412 A, US4719423 A, US4716960 A, US4706751 A, US4704514 A, US4702758 A, US4700142 A, US4698149 A, US4696345 A, US4694907 A, US4691771 A, US4683947 A, US4682652 A, US4671102 A, US4669542 A, US4663711 A, US4662443 A, US4662439 A, US4662438 A, US4658215 A, US4651825 A, US4644283 A, US4640353 A, US4640352 A, US4637464 A, US4635197 A, US4626665 A, US4623444 A, US4616705 A, US4613754 A, US4608818 A, US4605680 A, US4605489 A, US4598772 A, US4598770 A, US4598392 A, US4597444 A, US4597441 A, US4594468 A, US4592423 A, US4585066 A, US4583242 A, US4583046 A, US4577690 A, US4577503 A, US4576231 A, US4573530 A, US4572299 A, US4571491 A, US4570715 A, US4552214 A, US4549396 A, US4544478 A, US4542648 A, US4540882 A, US4537252 A, US4530401 A, US4529939 A, US4524827 A, US4524826 A, US4524113 A, US4518548 A, US4513816 A, US4508170 A, US4502010 A, US4501445 A, US4501326 A, US4499209 A, US4498535 A, US4491179 A, US4489782 A, US4485869 A, US4483398 A, US4479541 A, US4476927 A, US4474238 A, US4463807 A, US4460044 A, US4458767 A, US4458757 A, US4457374 A, US4457365 A, US4456065 A, US4455215 A, US4452491 A, US4448252 A, US4448251 A, US4445574 A, US4444258 A, US4444255 A, US4443762 A, US4442896 A, US4440224 A, US4439307 A, US4437519 A, US4429745 A, US4428700 A, US4425967 A, US4423311 A, US4418752 A, US4415034 A, US4412585 A, US4412124 A, US4410042 A, US4409090 A, US4407973 A, US4401163 A, US4399866 A, US4398151 A, US4397732 A, US4396062 A, US4390973 A, US4390067 A, US4384948 A, US4384614 A, US4384613 A, US4380930 A, US4378048 A, US4375302 A, US4372398 A, US4366668 A, US4363361 A, US4359687 A, US4353418 A, US4344483 A, US4324292 A, US4323848 A, US4319635 A, US4306621 A, US4305463 A, US4303126 A, US4299285 A, US4299086 A, US4285547 A, US4282587 A, US4277416 A, US4274487 A, US4273188 A, US4265307 A, US4260192 A, US4260018 A, US4252191 A, US4250962 A, US4250230 A, US4243511 A, US4243101 A, US4234230 A, US4228854 A, US4197911 A, US4193451 A, US4186801 A, US4185692 A, US4184548 A, US4183405 A, US4167213 A, US4160479 A, US4158467 A, US4151877 A, US4148359 A, US4144935 A, US4140181 A, US4140180 A, US4138442 A, US4133825 A, US4130575 A, US4125159 A, US4114688 A, US4099567 A, US4096163 A, US4093026 A, US4093025 A, US4091869 A, US4089374 A, US4089372 A, US4087130 A, US4084637 A, US4076761 A, US4069868 A, US4067390 A, US4065183 A, US4057293 A, US4049053 A, US4048637 A, US4043393 A, US4042026 A, US4031956 A, US4026357 A, US4019575 A, US4018280 A, US4016239 A, US4010800 A, US4008762 A, US4006778 A, US4005752 A, US3999607 A, US3994341 A, US3994340 A, US3993132 A, US3992148 A, US3987851 A, US3986557 A, US3986556 A, US3986349 A, US3982592 A, US3982591 A, US3973628 A, US3954140 A, US3952802 A, US3948755 A, US3948319 A, US3947683 A, US3947656 A, US3941421 A, US3924680 A, US3922148 A, US3907045 A, US3892270 A, US3882941 A, US3881551 A, US3874733 A, US3870063 A, US3853185 A, US3809159 A, US3804172 A, US3804169 A, US3794116 A, US3779602 A, US3775185 A, US3770398 A, US3766982 A, US3759574 A, US3759328 A, US3700280 A, US3691291 A, US3680633 A, US3675715 A, US3661423 A, US3662071 A, US3618663 A, US3617471 A, US3605890 A, US3599714 A, US3595082 A, US3593790 A, US3580987 A, US3562401 A, US3547193 A, US3529682 A, US3528501 A, US3513913 A, US3502372 A, US3501201 A, US3497000 A, US3477058 A, US345586 A, US3455383 A, US3454365 A, US3434541 A, US3389975 A, US3386508 A, US3380913 A, US3379248 A, US3352355 A, US3349845 A, US3342267 A, US3342258 A, US3338306 A, US3316962 A, US3310109 A, US3302707 A, US3294167 A, US3288648 A, US3285335 A, US3284281 A, US3275076 A, US3273640 A, US3267680 A, US326439 A, US3250327 A, US3246695 A, US3244231 A, US3241611 A, US3237689 A, US3233668 A, US3223166 A, US3221811 A, US3209825 A, US3208531 A, US3207220 A, US3205946 A, US3205944 A, US3205942 A, US3191679 A, US3183675 A, US3182721 A, US3181613 A, US3170842 A, US3165154 A, US3164207 A, US3163745 A, US3149672 A, US3149670 A, US3142336 A, US3139928 A, US3137347 A, US3132692 A, US3131763 A, US3127936 A, US3127935 A, US3120264 A, US3116792 A, US3114417 A, US3113623 A, US3113620 A, US3113619 A, US3110345 A, US3106244 A, US3105545 A, US3095031 A, US3084919 A, US3079085 A, US3062282 A, US3061009 A, US3050123 A, US3048221 A, US3044545 A, US3036632 A, US3032102 A, US3026940 A, US3017168 A, US3016053 A, US3010516 A, US3010513 A, US3007521 A, US3004603 A, US3004601 A, US3004596 A, US2998457 A, US2994376 A, US2974937 A, US2970826 A, US2969226 A, US2958519 A, US2954826 A, US2939689 A, US2932352 A, US2923535 A, US2914309 A, US2906340 A, US2906337 A, US2902270 A, US2890755 A, US2890754 A, US2857002 A, US2841375 A, US2825408 A, US2819761 A, US2804149 A, US2803305 A, US2801089 A, US2793696 A, US2789805 A, US2786660 A, US2780450 A, US2780449 A, US2776779 A, US2771954 A, US2743906 A, US2734579 A, US2732195 A, US2714930 A, US2703621 A, US2695163 A, US2685930 A, US2670802 A, US2642943 A, US2634961 A, US2630307 A, US2630306 A, US2623596 A, US2595979 A, US2593477 A, US2584605 A, US2548360 A, US2497868 A, US2484063 A, US2472445 A, US2466945 A, US2444755 A, US2423674 A, US2375689 A, US2244256 A, US2244255 A, US2004108111 AA, US2004069486 AA, US2004040715 AA, US2004020642 AA, US2004015023 AA, US2003213594 AA, US2003209348 AA, US2003205378 AA, US2003201098 AA, US2003196810 AA, US2003196801 AA, US2003196793 AA, US2003196789 AA, US2003196788 AA, US2003192691 AA, US2003183390 AA, US2003178191 AA, US2003173081 AA, US2003173080 AA, US2003173078 AA, US2003164239 AA, US2003164238 AA, US2003164234 AA, US2003155111 AA, US2003148894 AA, US2003146002 AA, US2003142964 AA, US2003141068 AA, US2003141067 AA, US2003141066 AA, US2003131996 AA, US2003131995 AA, US2003131994 AA, US2003131993 AA, US2003116315 AA, US2003111223 AA, US2003102130 AA, US2003102126 AA, US2003102125 AA, US2003102124 AA, US2003100451 AA, US2003098605 AA, US2003098149 AA, US2003085034 AA,

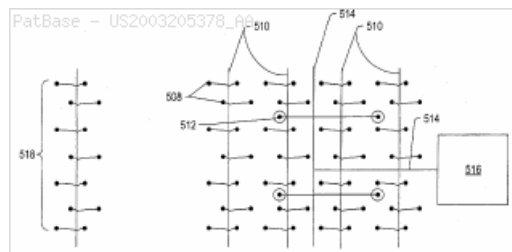
US2003080604 AA, US2003079877 AA, US2003075318 AA, US2003070807 AA, US2003066644 AA, US2003066642 AA, US2003062164 AA, US2003062154 AA, US2003051872 AA, US2003029617 AA, US2003024699 AA, US2003019626 AA, US2003006039 AA, US2002191969 AA, US2002191968 AA, US2002170708 AA, US2002132862 AA, US2002117303 AA, US2002112987 AA, US2002112890 AA, US2002108753 AA, US2002104654 AA, US2002096320 AA, US2002084074 AA, US2002077515 AA, US2002076212 AA, US2002074117 AA, US2002066565 AA, US2002062961 AA, US2002062959 AA, US2002062052 AA, US2002062051 AA, US2002057905 AA, US2002056552 AA, US2002056551 AA, US2002053436 AA, US2002053435 AA, US2002053432 AA, US2002053431 AA, US2002053429 AA, US2002052297 AA, US2002050357 AA, US2002050356 AA, US2002050353 AA, US2002050352 AA, US2002049360 AA, US2002049358 AA, US2002046883 AA, US2002046839 AA, US2002046838 AA, US2002046837 AA, US2002046832 AA, US2002045553 AA, US2002043405 AA, US2002043367 AA, US2002043366 AA, US2002043365 AA, US2002040781 AA, US2002040780 AA, US2002040779 AA, US2002040778 AA, US2002040177 AA, US2002040173 AA, US2002039486 AA, US2002038712 AA, US2002038711 AA, US2002038710 AA, US2002038709 AA, US2002038708 AA, US2002038706 AA, US2002038705 AA, US2002036103 AA, US2002036089 AA, US2002036088 AA, US2002036083 AA, US2002035307 AA, US2002034380 AA, US2002033280 AA, US2002033257 AA, US2002033256 AA, US2002033255 AA, US2002033254 AA, US2002033253 AA, US2002029885 AA, US2002029884 AA, US2002029882 AA, US2002029881 AA, US2002027001 AA, US2002018697 AA, US2002004533 AA, US2001049342 AA, US1913395 A, US1681523 A, US1666488 A, US1646599 A, US1634236 A, US1510655 A, US1457479 A, US1342741 A, US1269747 A, SU1836876, SE126674, SE123138, SE123137, SE123136, SE121737, GB697189, GB674082, GB2086416, GB1588693, GB156396, GB1501310, GB1454324, GB1010023, EP0940558 A1, EP0570228 B1, EP0357314, EP0294809, CA983704, CA2015460, CA1288043, CA1253555, CA1196594, CA1168283, CA1165361, EP014074944, WO14074939, WO13043976, WO07056278, US9932800, US9915132, US9903190, US9776794, US9755415, US9631469, US9605524, US9604889, US9528322, US9518430, US9517885, US9466896, US9440895, US9399905, US9337550, US9309755, US9309050, US9255469, US9242800, US9226341, US9222345, US9181780, US9181467, US9133398, US9129728, US9127538, US9127523, US9080917, US9080409, US9068450, US9051829, US9048653, US9033042, US9033033, US9022118, US9022109, US9016370, US9008884, US8997869, US8992771, US8978763, US8967259, US8954188, US8943686, US8939207, US8936089, US8881806, US8859942, US8857506, US8857051, US8851177, US8851170, US8849582, US8839867, US8839860, US8833453, US8820406, US8816203, US8791396, US8789586, US8752904, US8739874, US8732946, US8712747, US8701788, US8701769, US8701768, US8662175, US8636323, US8631866, US8627887, US8608249, US8606091, US8586867, US8586866, US8579031, US8562078, US8555971, US8536497, US8502120, US8485847, US8485256, US8485252, US8459359, US8458000, US8448707, US8434555, US8381815, US8356935, US8355623, US8353347, US8327932, US8327681, US8296968, US8281861, US8276661, US8272455, US8267185, US8267170, US8261832, US8257112, US8256512, US8240774, US8238730, US8233782, US8230927, US8225866, US8224165, US8224164, US8224163, US8220539, US8209202, US8205674, US8200072, US8196658, US8192682, US8191630, US8177305, US8172335, US8162405, US8162059, US8151907, US8151880, US8151482, US8146669, US8146661, US8113272, US8096064, US8083813, US8070840, US8042610, US8041510, US8028438, US8027571, US8011451, US8006407, US7986869, US7975398, US7954254, US7950453, US7942203, US7942197, US7913086, US7912358, US7866388, US7866386, US7866385, US7860377, US7849922, US7845411, US7841425, US7841408, US7841407, US7841401, US7835893, US7832484, US7832482, US7831134, US7831133, US7809538, US7802377, US7802376, US7798221, US7798220, US7793722, US7785427, US7770643, US7748137, US7735935, US7730947, US7730946, US7730945, US7717171, US7703513, US7683296, US7681647, US7677314, US7677310, US7673786, US7673681, US7644765, US7640987, US7640980, US7635025, US7635024, US7635023, US7631690, US7631689, US7610962, US7604052, US7597147, US7591310, US7584789, US7581589, US7575053, US7575052, US7562707, US7562706, US7559368, US7559367, US7556096, US7556095, US7549470, US7546873, US7540324, US7533719, US7527094, US7510000, US7500528, US7490665, US7481274, US7461691, US7435037, US7431076, US7424915, US7383877, US7370704, US7360588, US7357180, US7353872, US7320364, US7225866, US7219734, US7165615, US7156176, US7128153, US7121342, US7121341, US7114566, US7104319, US7100994, US7096942, US7090013, US7086465, US7077199, US7077198, US7073578, US7066257, US7066254, US7063145, US7055600, US7051811, US7051808, US7051807, US7040400, US7040399, US7040398, US7032660, US7013972, US7011154, US7004251, US7004247, US6997518, US6994169, US6991045, US6991036, US6991033, US6991032, US6981548, US6969123, US6966374, US6964300, US6951247, US6948562, US6932155, US6929067, US6923257, US6918443, US6918442, US6915850, US6880633, US6877555, US6782947, US2012158315, US2011170843, US2011060573, US2010126037, US2009299637, US2009272526, US2009260825, US2009260812, US2009260811, US2009260810, US2009260809, US2009260808, US2009071647, US2008135244, US2008120148, US2007294914, US2007209799, US2007131411, US2005269088, US2005000109, US2004220790, US10221014, US10132146, US10094195, US10053286, US10047594, EP2916927, EP2916926, EP2758622, EP1946129, CN104902979, CN104902979,

Forward Citations:

WO14074944, WO14074939, WO13043976, WO07056278, US9932800, US9915132, US9903190, US9776794, US9755415, US9631469, US9605524, US9604889, US9528322, US9518430, US9517885, US9466896, US9440895, US9399905, US9337550, US9309755, US9309050, US9255469, US9242800, US9226341, US9222345, US9181780, US9181467, US9133398, US9129728, US9127538, US9127523, US9080917, US9080409, US9068450, US9051829, US9048653, US9033042, US9033033, US9022118, US9022109, US9016370, US9008884, US8997869, US8992771, US8978763, US8967259, US8954188, US8943686, US8939207, US8936089, US8881806, US8859942, US8857506, US8857051, US8851177, US8851170, US8849582, US8839867, US8839860, US8833453, US8820406, US8816203, US8791396, US8789586, US8752904, US8739874, US8732946, US8712747, US8701788, US8701769, US8701768, US8662175, US8636323, US8631866, US8627887, US8608249, US8606091, US8586867, US8586866, US8579031, US8562078, US8555971, US8536497, US8502120, US8485847, US8485256, US8485252, US8459359, US8458000, US8448707, US8434555, US8381815, US8356935, US8355623, US8353347, US8327932, US8327681, US8296968, US8281861, US8276661, US8272455, US8267185, US8267170, US8261832, US8257112, US8256512, US8240774, US8238730, US8233782, US8230927, US8225866, US8224165, US8224164, US8224163, US8220539, US8209202, US8205674, US8200072, US8196658, US8192682, US8191630, US8177305, US8172335, US8162405, US8162059, US8151907, US8151880, US8151482, US8146669, US8146661, US8113272, US8096064, US8083813, US8070840, US8042610, US8041510, US8028438, US8027571, US8011451, US8006407, US7986869, US7975398, US7954254, US7950453, US7942203, US7942197, US7913086, US7912358, US7866388, US7866386, US7866385, US7860377, US7849922, US7845411, US7841425, US7841408, US7841407, US7841401, US7835893, US7832484, US7832482, US7831134, US7831133, US7809538, US7802377, US7802376, US7798221, US7798220, US7793722, US7785427, US7770643, US7748137, US7735935, US7730947, US7730946, US7730945, US7717171, US7703513, US7683296, US7681647, US7677314, US7677310, US7673786, US7673681, US7644765, US7640987, US7640980, US7635025, US7635024, US7635023, US7631690, US7631689, US7610962, US7604052, US7597147, US7591310, US7584789, US7581589, US7575053, US7575052, US7562707, US7562706, US7559368, US7559367, US7556096, US7556095, US7549470, US7546873, US7540324, US7533719, US7527094, US7510000, US7500528, US7490665, US7481274, US7461691, US7435037, US7431076, US7424915, US7383877, US7370704, US7360588, US7357180, US7353872, US7320364, US7225866, US7219734, US7165615, US7156176, US7128153, US7121342, US7121341, US7114566, US7104319, US7100994, US7096942, US7090013, US7086465, US7077199, US7077198, US7073578, US7066257, US7066254, US7063145, US7055600, US7051811, US7051808, US7051807, US7040400, US7040399, US7040398, US7032660, US7013972, US7011154, US7004251, US7004247, US6997518, US6994169, US6991045, US6991036, US6991033, US6991032, US6981548, US6969123, US6966374, US6964300, US6951247, US6948562, US6932155, US6929067, US6923257, US6918443, US6918442, US6915850, US6880633, US6877555, US6782947, US2012158315, US2011170843, US2011060573, US2010126037, US2009299637, US2009272526, US2009260825, US2009260812, US2009260811, US2009260810, US2009260809, US2009260808, US2009071647, US2008135244, US2008120148, US2007294914, US2007209799, US2007131411, US2005269088, US2005000109, US2004220790, US10221014, US10132146, US10094195, US10053286, US10047594, EP2916927, EP2916926, EP2758622, EP1946129, CN104902979, CN104902979,

Abstract:

A method for treating lean and rich zones of a hydrocarbon containing formation is provided. In one embodiment, heat from one or more heaters may be provided to at least a portion of the formation. Heat may be allowed to transfer from the one or more heaters to a first part of the formation. In certain embodiments, the heat from the one or more heaters may pyrolyze at least some hydrocarbons within the first part of the formation. The method may include producing a mixture through a second part of the formation. In some embodiments, the produced mixture may include at least some pyrolyzed hydrocarbons from the first part of the formation. In an embodiment, the second part of the formation may have a higher permeability than the first part of the formation.



18) Family number: 66393301 (US2004020642A)

© PatBase

Title:	IN SITU RECOVERY FROM A HYDROCARBON CONTAINING FORMATION USING CONDUCTOR-IN-CONDUIT HEAT SOURCES WITH AN ELECTRICALLY CONDUCTIVE MATERIAL IN THE OVERBURDEN			
Priority:	US20010334568P 20011024	US20010337136P 20011024	US20020374970P 20020424	US20020374995P 20020424
Family:	Publication number	Publication date	Application number	Application date
	US2004020642 AA	20040205	US20020279288	20021024

US7165615 BB	20070123	US20020279288	20021024
--------------	----------	---------------	----------

Probable Assignee: SHELL OIL CO
Assignee(s):(std): SHELL OIL CO
Assignee(s): SHELL OIL COMPANY ; VINEGAR HAROLD J ; BASS RONALD MARSHALL
Inventor(s):(std): BASS RONALD MARSHALL ; VINEGAR HAROLD J
International class (IPC 8-9): B09C1/02 B09C1/06 E21B17/02 E21B43/00 E21B47/02 G01V3/26 (Advanced/Invention)
International class (IPC 1-7): E21B43/30
CPC: B09C1/02 B09C1/06 B09C2101/00 E21B17/028 E21B47/02208 G01V3/26
US class: 166/245 166/302 392/301

[Classification Explorer](#)

Cited documents: WO9901640, WO9850179, WO9533122, WO9512746, WO9512745, WO9512744, WO9512743, WO9512742, WO9506093, WO0181723 A1, WO0181505 A1, USRE36569 E, USRE35696 E, USRE30738 E, USRE30019 E, USRE27309 E, US94813 A, US760304 A, US6929067 BB, US6929067 BA, US6915850 BA, US6913078 BA, US6910536 BA, US6902004 BA, US6902003 BA, US6896053 BA, US6889769 BA, US6880635 BA, US6880633 BA, US6877555 BA, US6877554 BA, US6871707 BA, US6866097 BA, US6789625 BA, US6782947 BA, US6769485 BA, US6769483 BA, US6763886 BA, US6761216 BA, US6758268 BA, US6752210 BA, US6749021 BA, US6745837 BA, US6745832 BA, US6745831 BA, US6742593 BA, US6742589 BA, US6742588 BA, US6742587 BA, US6739394 BA, US6739393 BA, US6736215 BA, US6732796 BA, US6732795 BA, US6732794 BA, US6729401 BA, US6729397 BA, US6729396 BA, US6729395 BA, US6725928 BA, US6725921 BA, US6725920 BA, US6722431 BA, US6722430 BA, US6722429 BA, US6719047 BA, US6715549 BA, US6715548 BA, US6715547 BA, US6715546 BA, US6712137 BA, US6712136 BA, US6712135 BA, US6708758 BA, US6702016 BA, US6698515 BA, US6688387 BA, US6679332 BA, US66609570 BA, US66607033 BA, US6591907 BA, US6591906 BA, US6588504 BA, US6588503 BA, US6584406 BA, US6581684 BA, US6499536 BA, US6485232 BA, US6467543 BA, US6466020 BA, US6429784 BA, US6422318 BA, US6412559 BA, US6389814 BA, US6357526 BA, US6354373 BA, US6353706 BA, US6328104 BA, US6244338 BA, US6234259 BA, US6209640 BA, US6192748 BA, US6187465 BA, US6173775 BA, US6173775 B1, US6172124 BA, US6172124 B1, US6155117 A, US6152987 A, US6112808 A, US6110358 A, US6109358 A, US6102622 A, US6102137 A, US6102122 A, US6094048 A, US6085512 A, US6079499 A, US6065538 A, US6056057 A, US6049508 A, US6035701 A, US6026914 A, US6023554 A, US6019172 A, US6016868 A, US6016867 A, US6015015 A, US5997214 A, US5985138 A, US5984582 A, US5984010 A, US5968349 A, US5955039 A, US5935421 A, US5923170 A, US5899269 A, US5891829 A, US5868202 A, US5862858 A, US5861137 A, US5826655 A, US5777229 A, US5769569 A, US5767584 A, US5760307 A, US5751895 A, US5747750 A, US5725059 A, US5713415 A, US5676212 A, US5657826 A, US5656239 A, US5652389 A, US5632336 A, US5626191 A, US5624188 A, US5621844 A, US5589775 A, US5571403 A, US5566756 A, US5566755 A, US5554453 A, US5553189 A, US5545803 A, US5541517 A, US5539853 A, US5525322 A, US5517593 A, US5515931 A, US5513710 A, US5512830 A, US5498960 A, US5497087 A, US5491969 A, US5456315 A, US5454666 A, US5439054 A, US5437506 A, US5435666 A, US5433271 A, US5431224 A, US5415231 A, US5411104 A, US5411089 A, US5411086 A, US5409071 A, US5404952 A, US5402847 A, US5400430 A, US5392854 A, US5391291 A, US5388645 A, US5388643 A, US5388642 A, US5388641 A, US5388640 A, US5377756 A, US5366012 A, US5363094 A, US5360067 A, US5349859 A, US5343152 A, US5340467 A, US5339904 A, US5339897 A, US5325918 A, US5318116 A, US5316664 A, US5306640 A, US5305829 A, US5305239 A, US5305212 A, US5297626 A, US5295763 A, US5289882 A, US5285846 A, US5284878 A, US5261490 A, US5258755 A, US5255742 A, US5236039 A, US5229583 A, US5229102 A, US5226961 A, US5218301 A, US5217076 A, US5211230 A, US5207273 A, US5201219 A, US5190405 A, US5189283 A, US5182792 A, US5168927 A, US5145003 A, US5126037 A, US5109928 A, US5099918 A, US5097903 A, US5085276 A, US5082055 A, US5082054 A, US5074365 A, US5065818 A, US5064006 A, US5060726 A, US5060287 A, US5059303 A, US5055180 A, US5054551 A, US5050386 A, US5046559 A, US5027896 A, US5020596 A, US5014788 A, US5011329 A, US5008085 A, US4994093 A, US4988389 A, US4987368 A, US4984594 A, US4983319 A, US4982786 A, US4974425 A, US4933640 A, US4931171 A, US4928765 A, US4927857 A, US4926941 A, US4913065 A, US4912971 A, US48994 A, US4895206 A, US4893504 A, US4886118 A, US4885080 A, US4884455 A, US4883582 A, US4866983 A, US4860544 A, US4856587 A, US4856341 A, US4849360 A, US4848924 A, US4848460 A, US4845434 A, US4831600 A, US4828031 A, US4827761 A, US4823890 A, US4818370 A, US4817711 A, US4815791 A, US4815790 A, US4793656 A, US4791373 A, US4787452 A, US4778586 A, US4776638 A, US4772634 A, US4769606 A, US4769602 A, US4766958 A, US4762425 A, US4756367 A, US4744245 A, US4743854 A, US4737267 A, US4734115 A, US4730162 A, US4728892 A, US4728412 A, US4719423 A, US4716960 A, US4706751 A, US4704514 A, US4702758 A, US4700142 A, US4698149 A, US4696345 A, US4694907 A, US4691771 A, US4683947 A, US4682652 A, US4671102 A, US4669542 A, US4663711 A, US4662443 A, US4662439 A, US4662438 A, US4658215 A, US4651825 A, US4644283 A, US4640353 A, US4640352 A, US4637464 A, US4635197 A, US4634187 A, US4626665 A, US4623444 A, US4616705 A, US4613754 A, US4608818 A, US4605680 A, US4605489 A, US4598772 A, US4598770 A, US4598392 A, US4597444 A, US4597441 A, US4594468 A, US4592423 A, US4585066 A, US4583242 A, US4583046 A, US4577690 A, US4577503 A, US4576231 A, US4573530 A, US4572299 A, US4571491 A, US4570715 A, US4552214 A, US4549396 A, US4542648 A, US4540882 A, US4537252 A, US4530401 A, US4529939 A, US4524827 A, US4524826 A, US4524113 A, US4518548 A, US4513816 A, US4508170 A, US4502010 A, US4501445 A, US4501326 A, US4492209 A, US4498535 A, US4491179 A, US4489782 A, US4485869 A, US4483398 A, US4479541 A, US4476927 A, US4474238 A, US4463807 A, US4460044 A, US4458767 A, US4458757 A, US4457374 A, US4457365 A, US4456065 A, US4455215 A, US4452491 A, US4448252 A, US4448251 A, US4445574 A, US4444258 A, US4444255 A, US4443762 A, US4442896 A, US4440224 A, US4437519 A, US4429745 A, US4428700 A, US4425967 A, US4423311 A, US4418752 A, US4412585 A, US4412124 A, US4410042 A, US4409090 A, US4407973 A, US4401163 A, US4399866 A, US4398151 A, US4397732 A, US4396062 A, US4390973 A, US4390067 A, US4384948 A, US4384614 A, US4384613 A, US4381641 A, US4380930 A, US4378048 A, US4375302 A, US4372398 A, US4366668 A, US4363361 A, US4359687 A, US4353418 A, US4344483 A, US4324292 A, US4323848 A, US4319635 A, US4306621 A, US4305463 A, US4299285 A, US4299086 A, US4285547 A, US4282587 A, US4277416 A, US4274487 A, US4273188 A, US4265307 A, US4260192 A, US4260018 A, US4252191 A, US4250962 A, US4250230 A, US4243101 A, US4234230 A, US4228854 A, US4197911 A, US4193451 A, US4186801 A, US4185692 A, US4184548 A, US4183405 A, US4167213 A, US4162707 A, US4160479 A, US4158467 A, US4148359 A, US4144935 A, US4140181 A, US4140180 A, US4138442 A, US4133825 A, US4130575 A, US4125159 A, US4114688 A, US4099567 A, US4096163 A, US4093026 A, US4093025 A, US4091869 A, US4089374 A, US4089372 A, US4087130 A, US4084637 A, US4076761 A, US4069868 A, US4067390 A, US4065183 A, US4057293 A, US4049053 A, US4048637 A, US4043393 A, US4042026 A, US4031956 A, US4026357 A, US4019575 A, US4018280 A, US4016239 A, US4014575 A, US4010800 A, US4008762 A, US4006778 A, US4005752 A, US3999607 A, US3994341 A, US3994340 A, US3993132 A, US3987851 A, US3986557 A, US3986556 A, US3986349 A, US3982592 A, US3982591 A, US3973628 A, US3954140 A, US3952802 A, US3948755 A, US3948319 A, US3947683 A, US3947656 A, US3941421 A, US3924680 A, US3922148 A, US3907045 A, US3892270 A, US3882941 A, US3881551 A, US3874733 A, US3870063 A, US3853185 A, US3809159 A, US3804169 A, US3794116 A, US3779602 A, US3775185 A, US3770398 A, US3766982 A, US3759574 A, US3759328 A, US3700280 A, US3691291 A, US3680633 A, US3675715 A, US3661423 A, US3622071 A, US3618663 A, US3617471 A, US3605890 A, US3599714 A, US3595082 A, US3593790 A, US3580987 A, US3562401 A, US3547193 A, US3529682 A, US3528501 A, US3513913 A, US3502372 A, US3501201 A, US3497000 A, US3477058 A, US345586 A, US3455383 A, US3454365 A, US3434541 A, US3389975 A, US3380913 A,

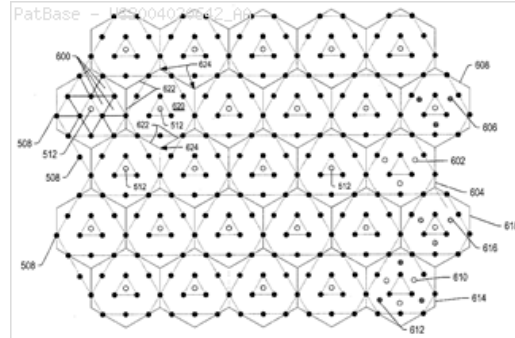
US3379248 A, US3352355 A, US3349845 A, US3342267 A, US3342258 A, US3338306 A, US3316962 A, US3310109 A, US3302707 A, US3294167 A, US3285335 A, US3284281 A, US3275076 A, US3273640 A, US3267680 A, US326439 A, US3250327 A, US3246695 A, US3244231 A, US3241611 A, US3237689 A, US3233668 A, US3223166 A, US3221811 A, US3209825 A, US3208531 A, US3207220 A, US3205946 A, US3205944 A, US3205942 A, US3191679 A, US3183675 A, US3182721 A, US3181613 A, US3170842 A, US3165154 A, US3164207 A, US3163745 A, US3149672 A, US3149670 A, US3142336 A, US3139928 A, US3137347 A, US3132692 A, US3131763 A, US3127936 A, US3127935 A, US3120264 A, US3116792 A, US3114417 A, US3113623 A, US3113620 A, US3113619 A, US3110345 A, US3106244 A, US3105545 A, US3095031 A, US3084919 A, US3079085 A, US3062282 A, US3061009 A, US3050123 A, US30488221 A, US3044545 A, US3036632 A, US3032102 A, US3026940 A, US3017168 A, US3016053 A, US3010516 A, US3010513 A, US3007521 A, US3004603 A, US3004601 A, US3004596 A, US2998457 A, US2994376 A, US2974937 A, US2970826 A, US2969226 A, US2958519 A, US2954826 A, US2939689 A, US2932352 A, US2923535 A, US2914309 A, US2906340 A, US2906337 A, US2902270 A, US2890755 A, US2890754 A, US2857002 A, US2841375 A, US2825408 A, US2819761 A, US2804149 A, US2803305 A, US2801089 A, US2793696 A, US2789805 A, US2786660 A, US2780450 A, US2780449 A, US2777679 A, US2771954 A, US2743906 A, US2734579 A, US2732195 A, US2714930 A, US2703621 A, US2695163 A, US2685930 A, US2670802 A, US2642943 A, US2634961 A, US2630307 A, US2630306 A, US2623596 A, US2595979 A, US2593477 A, US2584605 A, US2548360 A, US2497868 A, US2484063 A, US2472445 A, US2466945 A, US2444755 A, US2423674 A, US2375689 A, US2244256 A, US2244255 A, US2005051327 AA, US2005006097 AA, US2004177966 AA, US2004146288 AA, US2004145969 AA, US2004144541 AA, US2004144540 AA, US2004140096 AA, US2004140095 AA, US2004108111 AA, US2004069486 AA, US2004040715 AA, US2004035582 AA, US2004020642 AA, US2004015023 AA, US2003213594 AA, US2003209348 AA, US2003205378 AA, US2003201098 AA, US2003196810 AA, US2003196801 AA, US2003196793 AA, US2003196789 AA, US2003196788 AA, US2003192691 AA, US2003183390 AA, US2003178191 AA, US2003173085 AA, US2003173081 AA, US2003173080 AA, US2003173078 AA, US2003173072 AA, US2003164239 AA, US2003164238 AA, US2003164234 AA, US2003155111 AA, US2003148894 AA, US2003146002 AA, US2003142964 AA, US2003141068 AA, US2003141067 AA, US2003141066 AA, US2003136559 AA, US2003131996 AA, US2003131995 AA, US2003131994 AA, US2003131993 AA, US2003116315 AA, US2003111223 AA, US2003102130 AA, US2003102126 AA, US2003102125 AA, US2003102124 AA, US2003100451 AA, US2003098605 AA, US2003098149 AA, US2003085034 AA, US2003080604 AA, US2003079877 AA, US2003075318 AA, US2003070807 AA, US2003066644 AA, US2003066642 AA, US2003062164 AA, US2003062154 AA, US2003051872 AA, US2003029617 AA, US2003024699 AA, US2003019626 AA, US2003006039 AA, US2002191969 AA, US2002191968 AA, US2002170708 AA, US2002132862 AA, US2002117303 AA, US2002112987 AA, US2002112890 AA, US2002108753 AA, US2002104654 AA, US2002096320 AA, US2002084074 AA, US2002077515 AA, US2002076212 AA, US2002074117 AA, US2002066565 AA, US2002062961 AA, US2002062959 AA, US2002062052 AA, US2002062051 AA, US2002057905 AA, US2002056552 AA, US2002056551 AA, US2002053436 AA, US2002053435 AA, US2002053432 AA, US2002053431 AA, US2002053429 AA, US2002052297 AA, US2002050357 AA, US2002050356 AA, US2002050353 AA, US2002050352 AA, US2002049360 AA, US2002049358 AA, US2002046883 AA, US2002046839 AA, US2002046838 AA, US2002046837 AA, US2002046832 AA, US2002045553 AA, US2002043405 AA, US2002043367 AA, US2002043366 AA, US2002043365 AA, US2002040781 AA, US2002040780 AA, US2002040779 AA, US2002040778 AA, US2002040177 AA, US2002040173 AA, US2002039486 AA, US2002038712 AA, US2002038711 AA, US2002038710 AA, US2002038709 AA, US2002038708 AA, US2002038706 AA, US2002038705 AA, US2002038069 AA, US2002036103 AA, US2002036089 AA, US2002036084 AA, US2002036083 AA, US2002035307 AA, US2002034380 AA, US2002033280 AA, US2002033257 AA, US2002033256 AA, US2002033255 AA, US2002033254 AA, US2002033253 AA, US2002029885 AA, US2002029884 AA, US2002029882 AA, US2002029881 AA, US2002027001 AA, US2002018697 AA, US2002004533 AA, US2001049342 AA, US1913395 A, US1681523 A, US1666488 A, US1646599 A, US1634236 A, US1510655 A, US1457479 A, US1342741 A, US1269747 A, SU1836876, SE126674, SE123138, SE123137, SE123136, SE121737, GB697189, GB674082, GB2086416, GB1588693, GB156396, GB150130, GB1454324, GB1010023, EP0940558 A1, EP0570228 B1, EP0357314, EP0294809, CA983704, CA2015460, CA1288043, CA1253555, CA1196594, CA1168283, CA1165361, WO16195511, WO15038961, WO13090828, WO11159355, WO10021706, WO09114211, WO09040442, WO08153697, WO08131351, WO07117787, WO07050450, WO07050450, WO07050449, WO07050449, US9840958, US9837494, US9776794, US9755415, US9739122, US9733388, US9725963, US9677714, US9644466, US9605789, US9605524, US9534489, US9534174, US9528780, US9528322, US9517885, US9512699, US9466896, US9399905, US9394772, US9347302, US9337550, US9309755, US9309050, US9242800, US9226341, US9209021, US9181780, US9181467, US9133398, US9129728, US9127538, US9127523, US9080917, US9080441, US9080409, US9051829, US9048653, US9033042, US9033033, US9026418, US9022118, US9022109, US9016370, US9010132, US9008884, US8997869, US8992771, US8967259, US8954188, US8943686, US8939207, US8936089, US8881806, US8875789, US8863839, US8859942, US8857506, US8857051, US8851177, US8851170, US8839860, US8833453, US8820406, US8816203, US87791396, US8789586, US8783347, US8776901, US8770284, US8763411, US8752904, US8739874, US8732946, US8712747, US8701788, US8701769, US8701768, US8662175, US8641150, US8636323, US8631866, US8627887, US8622133, US8622127, US8616280, US8616279, US8608249, US8606091, US8596355, US8586867, US8586866, US8579031, US8562078, US8555971, US8540020, US8536497, US8502120, US8485847, US8485256, US8459359, US8458000, US8448707, US8434555, US8408294, US8382886, US8381815, US8380437, US8370122, US8365831, US8356935, US8355623, US8353347, US8327932, US8327681, US8296968, US8281861, US8281590, US8278928, US8276661, US8272455, US8267185, US8267170, US8261832, US8257112, US8256512, US8256219, US8240774, US8238730, US8233782, US8230929, US8230927, US8225866, US8224165, US8224164, US8224163, US8220539, US8210256, US8209202, US8205674, US8200072, US8196658, US8192682, US8191630, US8177305, US8172335, US8169101, US8162405, US8162059, US8151907, US8151884, US8151880, US8151877, US8151482, US8146669, US8146664, US8146661, US8122955, US8113272, US8104537, US8096064, US8087460, US8083813, US8082995, US8070840, US8042610, US8028438, US8027571, US8025445, US8011451, US8006407, US7986869, US7975398, US7954254, US7950453, US7942203, US7942197, US7931086, US7912358, US7866388, US7866386, US7866385, US7860377, US7849922, US7845411, US7841425, US7841408, US7841401, US7835893, US7832484, US7832482, US7831134, US7831133, US7809538, US7802377, US7802376, US7798221, US7798220, US7793722, US7785427, US7770643, US7748137, US7735935, US7730947, US7730946, US7730945, US7717171, US7703513, US7683296, US7681647, US7677314, US7677310, US7673786, US7673681, US7644765, US7640987, US7640980, US7635025, US7635024, US7635023, US7631690, US7631689, US7610962, US7604052, US7597147, US7591310, US7584789, US7581589, US7575053, US7575052, US7562707, US7562706, US7559368, US7559367, US7556096, US7556095, US7549470, US7546873, US7540324, US7538318, US7533719, US7527094, US7520768, US7510000, US7500528, US7490665, US7484561, US7481274, US7461691, US7435037, US7431076, US7424915, US7383877, US7370704, US7360588, US7357180, US7353872, US7320364, US7225866, US7219734, US7165615, US7156176, US7128153, US7121342, US7121341, US7114566, US7104319, US7100994, US7096953, US7096942, US7090013, US7086468, US7086465, US7077199, US7077198, US7073578, US7066257, US7066254, US7063145, US7055600, US7051811, US7051808, US7051807, US7040400, US7040399, US7040398, US7040397, US7032660, US7017661, US7013972, US7011154, US7004251, US6997518, US6997255, US6994160, US6991045, US6991036, US6991033, US6991032, US6981548, US6973967, US69666372, US6964300, US6959761, US6953087, US6951247, US6948562, US6932155, US6929067, US6923258, US6923257, US6918443, US6918442, US6913078, US6896053, US6880633, US6877555, US2016341652, US2016258276, US2015081265, US2014291015, US2014251601, US2014069638, US2013256743, US2012325481, US2012321525, US2011247817, US2011203792, US2011170843, US2011168394, US2011146982, US2011132600, US2011060573, US2011022320, US2010303427, US2010270027, US2010252270, US2010218946, US2010181066, US2010155070, US2010126037, US2010089585,

Forward Citations:

US2010089575, US2010071903, US2010045042, US2010045034, US2010044035, US2010043640, US2010043435, US2010043433, US2009321071, US2009308608, US2009301724, US2009272536, US2009272526, US2009200290, US2009200022, US2009194286, US2009193822, US2009151190, US2009145598, US2009090158, US2009071647, US2009050319, US2009013596, US2008314593, US2008289819, US2008283241, US2008257552, US2008236831, US2008227341, US2008217523, US2008178490, US2008120148, US2008110043, US2008087427, US2008083534, US2008017380, US2007294914, US2007284108, US2007209799, US2007193744, US2007187089, US2007137857, US2007131419, US2007131411, US2007095537, US2007056726, US2007045265, US2007039736, US2006289536, US2006213657, US2006112589, US2006112588, US2006010713, US2005000109, US2004220790, US2004177966, US2004145969, US2004144541, US2004140096, US10221014, US10118129, US10083258, US10053286, US10047594, US10001006, KR101348117, JP2009512775, JP2009512773, JP2009512550, FR2907838, EA016412, EA015618, CN101680293, CN101163780, CN101163780, AU2009223731, AU2008262537, AU2006306476, AU2006306475,

Abstract:

In an embodiment, a system may be used to heat a hydrocarbon containing formation. The system may include a conduit placed within an opening in the formation. A conductor may be placed within the conduit. The conductor may provide heat to a portion of the formation. In some embodiments, an electrically conductive material may be coupled to a portion of the conductor in the overburden. The electrically conductive material may lower the electrical resistance of the portion of the conductor in the overburden. Lowering the electrical resistance of the portion of the conductor in the overburden may reduce the heat output of the portion in the overburden. The system may allow heat to transfer from the conductor to a section of the formation.



19) Family number: 66393302 (US2004040715A)

© PatBase

Title:	IN SITU PRODUCTION OF A BLENDING AGENT FROM A HYDROCARBON CONTAINING FORMATION																											
Priority:	US20010334568P 20011024			US20010337136P 20011024			US20020374970P 20020424																					
	US20020374995P 20020424			US20020279227 20021024																								
Family:	<table><tr><th></th><th>Publication number</th><th>Publication date</th><th>Application number</th><th>Application date</th><th></th></tr><tr><td></td><td>US2004040715 AA</td><td>20040304</td><td>US20020279227</td><td>20021024</td><td></td></tr><tr><td></td><td>US7086465 BB</td><td>20060808</td><td>US20020279227</td><td>20021024</td><td></td></tr></table>											Publication number	Publication date	Application number	Application date			US2004040715 AA	20040304	US20020279227	20021024			US7086465 BB	20060808	US20020279227	20021024	
	Publication number	Publication date	Application number	Application date																								
	US2004040715 AA	20040304	US20020279227	20021024																								
	US7086465 BB	20060808	US20020279227	20021024																								
Probable Assignee:	SHELL OIL CO																											
Assignee(s):(std):	SHELL OIL CO																											
Assignee(s):	SUMNU DINDORUK MELIHA DENIZ ; WELLINGTON SCOTT LEE ; VINEGAR HAROLD J ; KARANIKAS JOHN MICHAEL ; MAHER KEVIN ALBERT																											
Inventor(s):(std):	KARANIKAS JOHN MICHAEL ; MAHER KEVIN ALBERT ; SUMNU DINDORUK MELIHA DENIZ ; VINEGAR HAROLD J ; WELLINGTON SCOTT LEE																											
International class (IPC 8-9):	B09C1/02 B09C1/06 C10G45/00 C10G9/24 E21B17/02 E21B36/00 E21B43/16 E21B43/24 E21B43/243 E21B43/30 E21B44/00 E21B47/022 G01V3/26 (Advanced/Invention)																											
International class (IPC 1-7):	E21B43/24																											
CPC:	E21B43/2401 B09C1/02 B09C1/06 B09C2101/00 C10G9/24 C10G45/00 E21B17/028 E21B43/168 E21B43/24 E21B43/243 E21B43/305 E21B47/02208 G01V3/26 Y02P30/30 Y02P30/44 Y10S210/901 Y10T137/0391																											
US class:	137/13 166/272.1 166/279 166/302 166/303 166/310 166/75.12 208/370																											

[Classification Explorer](#)

Cited documents: WO9901640, WO9850179, WO9533122, WO9512746, WO9512745, WO9512744, WO9512743, WO9512742, WO9506093, WO0181723 A1, WO0181505 A1, USRE36589 E, USRE36569 E, USRE36596 E, USRE30738 E, USRE30019 E, USRE27309 E, US94813 A, US760304 A, US6871707 BA, US6866097 BA, US6820688 BA, US6805195 BA, US6789625 BA, US6782947 BA, US6769485 BA, US6769483 BA, US6763886 BA, US6761216 BA, US6758268 BA, US6752210 BA, US6749021 BA, US6745837 BA, US6745832 BA, US6745831 BA, US6742593 BA, US6742589 BA, US6742588 BA, US6742587 BA, US6739394 BA, US6739393 BA, US6736215 BA, US6732796 BA, US6732795 BA, US6732794 BA, US6729401 BA, US6729397 BA, US6729396 BA, US6729395 BA, US6725928 BA, US6725921 BA, US6725920 BA, US6722431 BA, US6722430 BA, US6722429 BA, US6719047 BA, US6715549 BA, US6715548 BA, US6715547 BA, US6715546 BA, US6712137 BA, US6712136 BA, US6712135 BA, US6708758 BA, US6702016 BA, US6698515 BA, US6688387 BA, US6684948 BA, US6679332 BA, US6660957 BA, US6607033 BA, US6591907 BA, US6591906 BA, US6588504 BA, US6588503 BA, US6584406 BA, US6581684 BA, US6499536 BA, US6485232 BA, US6467543 BA, US6466020 BA, US6429784 BA, US6422318 BA, US6412559 BA, US6389814 BA, US6357526 BA, US6354373 BA, US6353706 BA, US6328104 BA, US6244338 BA, US6234259 BA, US6209640 BA, US6192748 BA, US6187465 BA, US6173775 B1, US6172124 B1, US6155117 A, US6152987 A, US6112808 A, US6110358 A, US6102622 A, US6102137 A, US6102122 A, US6094048 A, US6085512 A, US6079499 A, US6065538 A, US6056057 A, US6049508 A, US6035701 A, US6026914 A, US6023554 A, US6019172 A, US6016868 A, US6016867 A, US6016866 A, US6015015 A, US5997214 A, US5985138 A, US5984582 A, US5984010 A, US5968349 A, US5955039 A, US5935421 A, US5923170 A, US5899269 A, US5891829 A, US5868202 A, US5862858 A, US5861137 A, US5826655 A, US5777229 A, US5769569 A, US5767584 A, US5760307 A, US5751895 A, US5747750 A, US5725059 A, US5713415 A, US5676212 A, US5657826 A, US5656239 A, US5652389 A, US5632336 A, US5626191 A, US5624188 A, US5621844 A, US5589775 A, US5571403 A, US5566756 A, US5566755 A, US5554453 A, US5553189 A, US5545803 A, US5541517 A, US5539853 A, US5525322 A, US5517593 A, US5515931 A, US5513710 A, US5512830 A, US5498960 A, US5497087 A, US5491969 A, US5485089 A, US5456315 A, US5454666 A, US5439054 A, US5437506 A, US5435666 A, US5433271 A, US5431224 A, US5415231 A, US5411104 A, US5411089 A, US5411086 A, US5409071 A, US5404952 A, US5402847 A, US5400430 A, US5392854 A, US5391291 A, US5388645 A, US5388643 A, US5388642

A, US5388641 A, US5388640 A, US5377756 A, US5366012 A, US5363094 A, US5360067 A, US5349859 A, US5343152 A, US5340467 A, US5339904 A, US5339897 A, US5325918 A, US5318116 A, US5316664 A, US5306640 A, US5305829 A, US5305239 A, US5305212 A, US5297626 A, US5295763 A, US5289882 A, US5285846 A, US5284878 A, US5261490 A, US5258755 A, US5255742 A, US5236039 A, US5229583 A, US5229102 A, US5226961 A, US5218301 A, US5217076 A, US5211230 A, US5207273 A, US5201219 A, US5190405 A, US5189283 A, US5182792 A, US5168927 A, US5145003 A, US5126037 A, US5109928 A, US5103920 A, US5099918 A, US5097903 A, US5085276 A, US5082055 A, US5082054 A, US5074365 A, US5065818 A, US5064006 A, US5060726 A, US5060287 A, US5059303 A, US5055180 A, US5054551 A, US5050386 A, US5046559 A, US5041210 A, US5027896 A, US5020596 A, US5014788 A, US5011329 A, US5008085 A, US4994093 A, US4988389 A, US4987368 A, US4984594 A, US4983319 A, US4982786 A, US4974425 A, US4933640 A, US4931171 A, US4928765 A, US4927857 A, US4926941 A, US4913065 A, US4912971 A, US48994 A, US4895206 A, US4893504 A, US4886118 A, US4885080 A, US4884455 A, US4883582 A, US4866983 A, US4860544 A, US4856587 A, US4856341 A, US4848924 A, US4848460 A, US4845434 A, US4831600 A, US4828031 A, US4827761 A, US4818370 A, US4817711 A, US4815790 A, US4808925 A, US4793656 A, US4791373 A, US4787452 A, US4778586 A, US4776638 A, US4772634 A, US4769606 A, US4769602 A, US4766958 A, US4762425 A, US4756367 A, US4744245 A, US4743854 A, US4737267 A, US4734115 A, US4730162 A, US4728892 A, US4728412 A, US4719423 A, US4716960 A, US4706751 A, US4704514 A, US4702758 A, US4700142 A, US4698149 A, US4696345 A, US4694907 A, US4691771 A, US4683947 A, US4682652 A, US4671102 A, US4669542 A, US4663711 A, US4662443 A, US4662439 A, US4662438 A, US4658215 A, US4651825 A, US4644283 A, US4640353 A, US4640352 A, US4637464 A, US4635197 A, US4626665 A, US4623444 A, US4616705 A, US4613754 A, US4608818 A, US4605680 A, US4605489 A, US4598772 A, US4598770 A, US4598392 A, US4597444 A, US4597441 A, US4594468 A, US4592423 A, US4585066 A, US4583242 A, US4583046 A, US4577690 A, US4577503 A, US4576231 A, US4573530 A, US4572299 A, US4571491 A, US4570715 A, US4552214 A, US4549396 A, US4544478 A, US4542648 A, US4540882 A, US4537252 A, US4530401 A, US4529939 A, US4524827 A, US4524826 A, US4524113 A, US4518548 A, US4513816 A, US4508170 A, US4502010 A, US4501445 A, US4501326 A, US4499209 A, US4498535 A, US4491179 A, US4489782 A, US4485869 A, US4483398 A, US4479541 A, US4476927 A, US4474238 A, US4463807 A, US4460044 A, US4458767 A, US4458757 A, US4457374 A, US4457365 A, US4456065 A, US4455215 A, US4452491 A, US4448252 A, US4448251 A, US4445574 A, US4444258 A, US4444255 A, US4443762 A, US4442896 A, US4440224 A, US4439307 A, US4437519 A, US4429745 A, US4428700 A, US4425967 A, US4423311 A, US4418752 A, US4415034 A, US4412585 A, US4412124 A, US44110042 A, US4409090 A, US4407973 A, US4401163 A, US4399866 A, US4398151 A, US4397732 A, US4396062 A, US4390973 A, US4390067 A, US4384948 A, US4384614 A, US4384613 A, US4381641 A, US4380930 A, US4378048 A, US4375302 A, US4372398 A, US4366668 A, US4363361 A, US4359687 A, US4353418 A, US4344483 A, US4324292 A, US4323848 A, US4319635 A, US4306621 A, US4305463 A, US4303126 A, US4299285 A, US4299086 A, US4285547 A, US4282587 A, US4277416 A, US4274487 A, US4273188 A, US4265307 A, US4260192 A, US4260018 A, US4252191 A, US4250962 A, US4250230 A, US4243511 A, US4243101 A, US4234230 A, US4228854 A, US4197911 A, US4193451 A, US4186801 A, US4185692 A, US4184548 A, US4183405 A, US4167213 A, US4160479 A, US4158467 A, US4151877 A, US4148359 A, US4144935 A, US4140181 A, US4140180 A, US4138442 A, US4133825 A, US4130575 A, US4125159 A, US4114688 A, US4099567 A, US4096163 A, US4093026 A, US4093025 A, US4091869 A, US4089374 A, US4089372 A, US4087130 A, US4084637 A, US4076761 A, US4069868 A, US4067390 A, US4065183 A, US4057293 A, US4049053 A, US4048637 A, US4043393 A, US4042026 A, US4031956 A, US4026357 A, US4019575 A, US4018280 A, US4016239 A, US4010800 A, US4008762 A, US4006778 A, US4005752 A, US3999607 A, US3994341 A, US3994340 A, US3993132 A, US3992148 A, US3987851 A, US3986557 A, US3986556 A, US3986349 A, US3982592 A, US3982591 A, US3973628 A, US3954140 A, US3952802 A, US3948755 A, US3948319 A, US3947683 A, US3947656 A, US3941421 A, US3924680 A, US3922148 A, US3907045 A, US3892270 A, US3882941 A, US3881551 A, US3874733 A, US3870063 A, US3853185 A, US3809159 A, US3804172 A, US3804169 A, US3794116 A, US3779602 A, US3775185 A, US3770398 A, US3766982 A, US3759574 A, US3759328 A, US3700280 A, US3691291 A, US3680633 A, US3675715 A, US3661423 A, US3622071 A, US3618663 A, US3617471 A, US3605890 A, US3599714 A, US3595082 A, US3593790 A, US3580987 A, US3562401 A, US3547193 A, US3529682 A, US3528501 A, US3513913 A, US3502372 A, US3501201 A, US3497000 A, US3477058 A, US3455586 A, US3455383 A, US3454365 A, US3434541 A, US3389975 A, US3386508 A, US3380913 A, US3379248 A, US3352355 A, US3349845 A, US3342267 A, US3342258 A, US3338306 A, US3316962 A, US3310109 A, US3302707 A, US3294167 A, US3288648 A, US3285335 A, US3284281 A, US3275076 A, US3273640 A, US3267680 A, US326439 A, US3250327 A, US3246695 A, US3244231 A, US3241611 A, US3237689 A, US3233668 A, US3223166 A, US3221811 A, US3209825 A, US3208531 A, US3207220 A, US3205946 A, US3205944 A, US3205942 A, US3191679 A, US3183675 A, US3182721 A, US3181613 A, US3170842 A, US3165154 A, US3164207 A, US3163745 A, US3149672 A, US3149670 A, US3142336 A, US3139928 A, US3137347 A, US3132692 A, US3131763 A, US3127936 A, US3127935 A, US3120264 A, US3116792 A, US3114417 A, US3113623 A, US3113620 A, US3113619 A, US3110345 A, US3106244 A, US3105545 A, US3095031 A, US3084919 A, US3079085 A, US3062282 A, US3061009 A, US3050123 A, US3048221 A, US3044545 A, US3036632 A, US3032102 A, US3026940 A, US3017168 A, US3016053 A, US3010516 A, US3010513 A, US3007521 A, US3004603 A, US3004601 A, US3004596 A, US2998457 A, US2994376 A, US2974937 A, US2970826 A, US2969226 A, US2958519 A, US2954826 A, US2939689 A, US2932352 A, US2923535 A, US2914309 A, US2906340 A, US2906337 A, US2902270 A, US2890755 A, US2890754 A, US2857002 A, US2841375 A, US2825408 A, US2819761 A, US2804149 A, US2803305 A, US2801089 A, US2793696 A, US2789805 A, US2786660 A, US2780450 A, US2780449 A, US2777679 A, US2771954 A, US2743906 A, US2734579 A, US2732195 A, US2714930 A, US2703621 A, US2695163 A, US2685930 A, US2670802 A, US2642943 A, US2634961 A, US2630307 A, US2630306 A, US2623596 A, US2595979 A, US2593477 A, US2584605 A, US2548360 A, US2497868 A, US2484063 A, US2472445 A, US2466945 A, US2444755 A, US2423674 A, US2375689 A, US2244256 A, US2244255 A, US200410811 AA, US2004069486 AA, US2004040715 AA, US2004035582 AA, US2004020642 AA, US2004015023 AA, US2003213594 AA, US2003209348 AA, US2003205378 AA, US2003201098 AA, US2003196810 AA, US2003196801 AA, US2003196793 AA, US2003196789 AA, US2003196788 AA, US2003192691 AA, US2003183390 AA, US2003178191 AA, US2003173081 AA, US2003173080 AA, US2003173078 AA, US2003164239 AA, US2003164238 AA, US2003164234 AA, US2003155111 AA, US2003148894 AA, US2003146002 AA, US2003142964 AA, US2003141068 AA, US2003141067 AA, US2003141066 AA, US2003131996 AA, US2003131995 AA, US2003131994 AA, US2003131993 AA, US2003116315 AA, US2003111223 AA, US2003102130 AA, US2003102126 AA, US2003102125 AA, US2003102124 AA, US2003100451 AA, US2003098605 AA, US2003098149 AA, US2003085034 AA, US2003080604 AA, US2003079877 AA, US2003075318 AA, US2003070807 AA, US2003066644 AA, US2003066642 AA, US2003062164 AA, US2003062154 AA, US2003051872 AA, US2003029617 AA, US2003024699 AA, US2003019626 AA, US2003006039 AA, US2002191969 AA, US2002191968 AA, US2002170708 AA, US2002132862 AA, US2002117303 AA, US2002112987 AA, US2002112890 AA, US2002108753 AA, US2002104654 AA, US2002096320 AA, US2002084074 AA, US2002077515 AA, US2002076212 AA, US2002074117 AA, US2002066565 AA, US2002062961 AA, US2002062959 AA, US2002062052 AA, US2002062051 AA, US2002057905 AA, US2002056552 AA, US2002056551 AA, US2002053436 AA, US2002053435 AA, US2002053432 AA, US2002053431 AA, US2002053429 AA, US2002052297 AA, US2002050357 AA, US2002050356 AA, US2002050353 AA, US2002050352 AA, US2002049360 AA, US2002049358 AA, US2002046883 AA, US2002046839 AA, US2002046838 AA, US2002046837 AA, US2002046832 AA, US2002045553 AA, US2002043405 AA, US2002043367 AA, US2002043366 AA, US2002043365 AA, US2002040781 AA, US2002040780 AA, US2002040779 AA, US2002040778 AA, US2002040177 AA, US2002040173 AA, US2002039486 AA, US2002038712 AA, US2002038711 AA, US2002038710 AA, US2002038709 AA, US2002038708 AA, US2002038706 AA, US2002038705 AA, US2002038069 AA, US2002036103 AA, US2002036089 AA, US2002036084 AA, US2002036083 AA, US2002035307 AA, US2002034380 AA, US2002033280 AA, US2002033257 AA, US2002033256 AA, US2002033255 AA, US2002033254 AA, US2002033253 AA, US2002029885 AA, US2002029884 AA, US2002029882 AA, US2002029881 AA, US2002027001 AA, US2002018697 AA, US2002004533 AA,

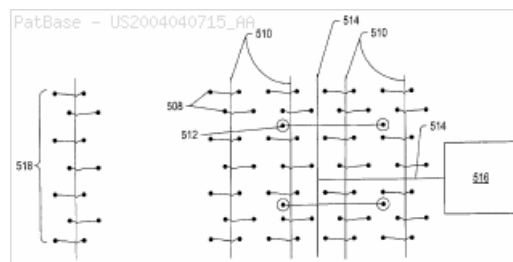
US2001049342 AA, US1913395 A, US1681523 A, US1666488 A, US1646599 A, US1634236 A, US1510655 A, US1457479 A, US1342741 A, US1269747 A, SU1836876, SE126674, SE123138, SE123137, SE123136, SE121737, GB697189, GB674082, GB2086416, GB1588693, GB156396, GB1501310, GB1454324, GB1010023, EP0940558 A1, EP0570228 B1, EP0357314, EP0294809, CA983704, CA2015460, CA1288043, CA1253555, CA1196594, CA1168283, CA1165361,

Forward Citations:

WO09146436, WO08051299, WO06116133, WO06116130, WO06116096, WO06116087, US9776794, US9755415, US9739122, US9647286, US9644466, US9605524, US9528322, US9517885, US9512699, US9466896, US9399905, US9394772, US9347302, US9337550, US9309755, US9309050, US9267211, US9260314, US9242800, US9226341, US9181780, US9181467, US9133581, US9133398, US9129728, US9127538, US9127523, US9080917, US9080441, US9080409, US9051829, US9048653, US9033042, US9033033, US9022118, US9022109, US9016370, US9008884, US8997869, US8992771, US8967259, US8954188, US8943686, US8939207, US8936089, US8894830, US8883104, US8881806, US8875789, US8869477, US8863839, US8859942, US8857506, US8857051, US8851177, US8851170, US8849582, US8839860, US8834688, US8833453, US8820406, US8816203, US8791396, US8789586, US8783347, US8770284, US8752904, US8739874, US8732946, US8701788, US8701769, US8701768, US8662175, US8636323, US8631866, US8627887, US8608249, US8606091, US8603424, US8586867, US8586866, US8579031, US8562078, US8555971, US8536497, US8502120, US8491858, US8485847, US8485256, US8485252, US8470275, US8459359, US8448707, US8434555, US8431100, US8381815, US8357270, US8356935, US8355623, US8353347, US8333944, US8327932, US8327681, US8296968, US8281861, US8276661, US8272455, US8267185, US8267170, US8261832, US8257112, US8256512, US8240774, US8238730, US8233782, US8230927, US8225866, US8224165, US8224164, US8224163, US8220539, US8205674, US8200072, US8196658, US8192682, US8191630, US8177305, US8172335, US8162405, US8162059, US8151907, US8151880, US8151482, US8146669, US8146661, US8137444, US8113272, US8096064, US8083813, US8070840, US8042610, US8028438, US8027571, US8020313, US8011451, US8006446, US8006407, US7993511, US7993500, US7986869, US7975398, US7966250, US7954254, US7950453, US7942203, US7942197, US7939336, US7931809, US7931086, US7914685, US7912358, US7887694, US7875163, US7866388, US7866386, US7866385, US7860377, US7849922, US7845411, US7841425, US7841408, US7841401, US7832484, US7832482, US7831134, US7831133, US7829053, US7815880, US7809538, US7802377, US7802376, US7798221, US7798220, US7790012, US7785427, US7771684, US7770643, US7754169, US7753618, US7749476, US7748137, US7744761, US7735935, US7730947, US7730946, US7730945, US7717171, US7703513, US7683296, US7681647, US7677314, US7677310, US7673786, US7673681, US7644765, US7640987, US7640980, US7635025, US7635024, US7635023, US7631690, US7631689, US7610962, US7604052, US7597147, US7591310, US7584789, US7581589, US7575053, US7575052, US7562707, US7562706, US7559368, US7559367, US7556096, US7556095, US7549470, US7547799, US7546873, US7540324, US7533719, US7527094, US7510000, US7500528, US7490665, US7481274, US7461691, US7435037, US7431076, US7424915, US7383877, US7370704, US7360588, US7357180, US7353872, US7320364, US7225866, US7219734, US7165615, US7156176, US7128153, US7121342, US7121341, US7114566, US7104319, US7100994, US7096953, US7096942, US7090013, US7086468, US7086465, US7077199, US7077198, US7073578, US7066257, US7066254, US7063145, US7055600, US7051811, US7051808, US7051807, US7040400, US7040399, US7040398, US7040397, US7032660, US7017661, US7013972, US7012852, US7011154, US7004251, US6997518, US6997255, US6994160, US6991045, US6991036, US6991033, US6991032, US6981548, US6973967, US6966374, US6966372, US6964300, US6959761, US6953087, US6951247, US6948562, US6932155, US6929067, US6923258, US6923257, US6918443, US6918442, US6915850, US6913078, US6896053, US6880633, US6877555, US2014069638, US2012158315, US2011170843, US2011147227, US2011091366, US2011079515, US2011059000, US2010258035, US2010247410, US2010239487, US2010239467, US2010236242, US2010230830, US2010230293, US2010229725, US2010224503, US2010206709, US2010181066, US2010150802, US2010144521, US2010135882, US2010132556, US2010126037, US2010111810, US2010084280, US2010077922, US2010077691, US2010063902, US2010024686, US2010000444, US2009301352, US2009159288, US2009078414, US2009071647, US2009013596, US2008257552, US2008178490, US2007131411, US2007119098, US2007072949, US2007056726, US2006112588, US2006010713, US2004177966, US2004144541, US2004140096, US2004113627, US10221014, US10053286, US10047594, US10014541, EP1871987, EA12171, EA11905, EA014760, EA013555, EA012171, EA011905, AU2006240043, AU2006239999, AU2006239996, AU2006239962, AU2006239962,

Abstract:

An in situ process for treating a hydrocarbon containing formation is provided. The process may include providing heat from one or more heaters to at least a portion of the formation. The heat may be allowed to transfer from the reaction zone to a part of the formation such that heat from one or more heaters pyrolyzes at least some hydrocarbons within the part of the formation. A blending agent may be produced from the part of the formation, wherein a mixture produced with the blending agent has at least one selected property.



20) Family number: 66393303 (US2004211569A)

© PatBase

Title: INSTALLATION AND USE OF REMOVABLE HEATERS IN A HYDROCARBON CONTAINING FORMATION
Priority: US20010334568P 20011024 US20010337136P 20011024 US20020374970P 20020424
US20020374995P 20020424 US20020279223 20021024

Family:	Publication number	Publication date	Application number	Application date
	US2004211569 AA	20041028	US20020279223	20021024
	US156176 BB	20070102	US20020279223	20021024

Probable Assignee: SHELL OIL CO

Assignee(s):(std): SHELL OIL CO

Assignee(s): COLES JOHN MATTHEW ; HUNSUCKER BRUCE GERARD ; MENOTTI JAMES LOUIS ; PRATT CHRISTOPHER AMOLD ; VINEGAR HAROLD J ; WELLINGTON SCOTT LEE ; ROUFFIGNAC ERIC PIERRE DE

Inventor(s):(std): COLES JOHN MATTHEW ; DE ROUFFIGNAC ERIC PIERRE ; HUNSUCKER BRUCE GERARD ; MENOTTI JAMES LOUIS ; PRATT CHRISTOPHER AMOLD ; PRATT CHRISTOPHER ARNOLD ; ROUFFIGNAC ERIC PIERRE DE ; VINEGAR HAROLD J ; WELLINGTON SCOTT LEE

International class
(IPC 8-9):

B09C1/02 B09C1/06 C10G45/00 C10G9/24 E21B17/02 E21B36/00 E21B36/04 E21B43/16 E21B43/24
E21B43/243 E21B43/30 E21B44/00 E21B47/022 G01V3/26 (Advanced/Invention)

International class
(IPC 1-7):

E21B19/22

CPC:

E21B43/2401 B09C1/02 B09C1/06 B09C2101/00 C10G9/24 C10G45/00 E21B17/028 E21B43/168
E21B43/24 E21B43/243 E21B43/305 E21B47/02208 G01V3/26 Y02P30/30 Y02P30/44 Y10S210/901
Y10T137/0391

US class:

166/302 166/380 166/381 166/385

[Classification Explorer](#)

Cited documents:

WO9901640, WO9850179, WO9701017, WO9533122, WO9512746, WO9512745, WO9512744,
WO9512743, WO9512742, WO9506093, WO0181723 A1, WO0181505 A1, USRE36569 E, USRE35696 E,
USRE30738 E, USRE30019 E, USRE27309 E, US94813 A, US760304 A, US6981548 BA, US6973967 BA,
US6969123 BA, US6966374 BA, US6966372 BA, US6964300 BA, US6959761 BA, US6953087 BA,
US6951247 BA, US6948563 BA, US6948562 BA, US6932155 BA, US6929067 BA, US6923258 BA,
US6923257 BA, US6918443 BA, US6918442 BA, US6915850 BA, US6913078 BA, US6910536 BA,
US6902004 BA, US6902003 BA, US6896053 BA, US6889769 BA, US6880635 BA, US6880633 BA,
US6877555 BA, US6877554 BA, US6871707 BA, US6866097 BA, US6820688 BA, US6805195 BA,
US6805194 BA, US6789625 BA, US6782947 BA, US6769485 BA, US6769483 BA, US6763886 BA,
US6761216 BA, US6758268 BA, US6752210 BA, US6749021 BA, US6745837 BA, US6745832 BA,
US6745831 BA, US6742593 BA, US6742589 BA, US6742588 BA, US6742587 BA, US6739394 BA,
US6739393 BA, US6736215 BA, US6732796 BA, US6732795 BA, US6732794 BA, US6729401 BA,
US6729397 BA, US6729396 BA, US6729395 BA, US6725928 BA, US6725921 BA, US6725920 BA,
US6722431 BA, US6722430 BA, US6722429 BA, US6719047 BA, US6715549 BA, US6715548 BA,
US6715547 BA, US6715546 BA, US6712137 BA, US6712136 BA, US6712135 BA, US6708758 BA,
US6702016 BA, US6698515 BA, US6688387 BA, US6684948 BA, US6679332 BA, US6609570 BA,
US6607033 BA, US6591907 BA, US6591906 BA, US6588504 BA, US6588503 BA, US6584406 BA,
US6581684 BA, US6499536 BA, US6485232 BA, US6467543 BA, US6466020 BA, US6429784 BA,
US6422318 BA, US6412559 BA, US6389814 BA, US6357526 BA, US6354373 BA, US6353706 BA,
US6328104 BA, US6244338 BA, US6234259 BA, US6209640 BA, US6192748 BA, US6187465 BA,
US6173775 BA, US6173775 B1, US6172124 BA, US6172124 B1, US6155117 A, US6152987 A,
US6112808 A, US6110358 A, US6109358 A, US6102622 A, US6102137 A, US6102122 A, US6094048 A,
US6085512 A, US6079499 A, US6065538 A, US6056057 A, US6049508 A, US6035701 A, US6026914 A,
US6023554 A, US6019172 A, US6016868 A, US6016867 A, US6015015 A, US5997214 A, US5985138 A,
US5984582 A, US5984010 A, US5968349 A, US5955039 A, US5935421 A, US5923170 A, US5899269 A,
US5891829 A, US5868202 A, US5862858 A, US5861137 A, US5826655 A, US5777229 A, US5769569 A,
US5767584 A, US5760307 A, US5751895 A, US5747750 A, US5725059 A, US5713415 A, US5676212 A,
US5657826 A, US5656239 A, US5652389 A, US5632336 A, US5626191 A, US5624188 A, US5621844 A,
US5589775 A, US5571403 A, US5566756 A, US5566755 A, US5554453 A, US5553189 A, US5545803 A,
US5541517 A, US5539853 A, US5525322 A, US5517593 A, US5515931 A, US5513710 A, US5512830 A,
US5498960 A, US5497087 A, US5491969 A, US5485089 A, US5456315 A, US5454666 A, US5439054 A,
US5437506 A, US5435666 A, US5433271 A, US5431224 A, US5415231 A, US5411104 A, US5411089 A,
US5411086 A, US5409071 A, US5404952 A, US5402847 A, US5400430 A, US5392854 A, US5391291 A,
US5388645 A, US5388643 A, US5388642 A, US5388641 A, US5388640 A, US5377756 A, US5366012 A,
US5363094 A, US5360067 A, US5349859 A, US5343152 A, US5340467 A, US5339904 A, US5339897 A,
US5325918 A, US5318116 A, US5316664 A, US5306640 A, US5305829 A, US5305239 A, US5305212 A,
US5297626 A, US5295763 A, US5289882 A, US5285846 A, US5284878 A, US5261490 A, US5258755 A,
US5255742 A, US5236039 A, US5229583 A, US5229102 A, US5226961 A, US5218301 A, US5217076 A,
US5211230 A, US5207273 A, US5201219 A, US5190405 A, US5189283 A, US5182792 A, US5168927 A,
US5145003 A, US5126037 A, US5109928 A, US5103920 A, US5099918 A, US5097903 A, US5085276 A,
US5082055 A, US5082054 A, US5074365 A, US5065818 A, US5064006 A, US5060726 A, US5060287 A,
US5059303 A, US5055180 A, US5054551 A, US5050386 A, US5046559 A, US5041210 A, US5027896 A,
US5020596 A, US5014788 A, US5011329 A, US5008085 A, US4994093 A, US4988389 A, US4987368 A,
US4984594 A, US4983319 A, US4982786 A, US4974425 A, US4933640 A, US4931171 A, US4928765 A,
US4927857 A, US4926941 A, US4913065 A, US4912971 A, US48994 A, US4895206 A, US4893504 A,
US4886118 A, US4885080 A, US4884455 A, US4883582 A, US4866983 A, US4860544 A, US4856587 A,
US4856341 A, US4849360 A, US4848924 A, US4848460 A, US4845434 A, US4831600 A, US4828031 A,
US4827761 A, US4823890 A, US4818370 A, US4817711 A, US4815791 A, US4815790 A, US4808925 A,
US4793656 A, US4791373 A, US4787452 A, US4778586 A, US4776638 A, US4772634 A, US4769606 A,
US4769602 A, US4766958 A, US4762425 A, US4756367 A, US4744245 A, US4743854 A, US4737267 A,
US4734115 A, US4730162 A, US4728892 A, US4728412 A, US4719423 A, US4716960 A, US4706751 A,
US4704514 A, US4702758 A, US4700142 A, US4698149 A, US4696345 A, US4694907 A, US4691771 A,
US4683947 A, US4682652 A, US4671102 A, US4669542 A, US4663711 A, US4662443 A, US4662439 A,
US4662438 A, US4658215 A, US4651825 A, US4644283 A, US4640353 A, US4640352 A, US4637464 A,
US4635197 A, US4634187 A, US4626665 A, US4623444 A, US4616705 A, US4613754 A, US4608818 A,
US4605680 A, US4605489 A, US4598772 A, US4598770 A, US4598392 A, US4597444 A, US4597441 A,
US4594468 A, US4592423 A, US4585066 A, US4583242 A, US4583046 A, US4577690 A, US4576231 A,
US4573530 A, US4572299 A, US4571491 A, US4570715 A, US4552214 A, US4549396 A, US4544478 A,
US4542648 A, US4540882 A, US4537252 A, US4530401 A, US4529939 A, US4524827 A, US4524826 A,
US4524113 A, US4518548 A, US4513816 A, US4508170 A, US4502010 A, US4501445 A, US4501326 A,
US4499209 A, US4498535 A, US4491179 A, US4489782 A, US4485869 A, US4483398 A, US4479541 A,
US4476927 A, US4474238 A, US44663807 A, US44660044 A, US4458767 A, US4458757 A, US4457374 A,
US4457365 A, US4456065 A, US4455215 A, US4452491 A, US4448252 A, US4448251 A, US4445574 A,
US4444258 A, US4444255 A, US4443762 A, US4442896 A, US4440224 A, US4439307 A, US4437519 A,
US4429745 A, US4428700 A, US4425967 A, US4423311 A, US4418752 A, US4415034 A, US4412585 A,
US4412124 A, US4410042 A, US4409090 A, US4407973 A, US4401163 A, US4399866 A, US4398151 A,
US4397732 A, US4396062 A, US4390973 A, US4390067 A, US4384948 A, US4384614 A, US4384613 A,
US4381641 A, US4380930 A, US4378048 A, US4375302 A, US4372398 A, US4366668 A, US4363361 A,
US4359687 A, US4353418 A, US4344483 A, US4324292 A, US4323848 A, US4319635 A, US4306621 A,
US4305463 A, US4303126 A, US4299285 A, US4299086 A, US4285547 A, US4282587 A, US4277416 A,
US4274487 A, US4273188 A, US4265307 A, US4260192 A, US4260018 A, US4252191 A, US4250962 A,
US4250230 A, US4243511 A, US4243101 A, US4234230 A, US4228854 A, US4197911 A, US4193451 A,
US4186801 A, US4185692 A, US4184548 A, US4183405 A, US4167213 A, US4162707 A, US4160479 A,
US4158467 A, US4151877 A, US4148359 A, US4144935 A, US4140181 A, US4140180 A, US4138442 A,
US4133825 A, US4130575 A, US4125159 A, US4114688 A, US4099567 A, US4096163 A, US4093026 A,
US4093025 A, US4091869 A, US4089374 A, US4089372 A, US4087130 A, US4084637 A, US4076761 A,
US4069868 A, US4067390 A, US4065183 A, US4057293 A, US4049053 A, US4048637 A, US4043393 A,
US4042026 A, US4031956 A, US4026357 A, US4019575 A, US4018280 A, US4016239 A, US4014575 A,
US4010800 A, US4008762 A, US4006778 A, US4005752 A, US3999607 A, US3994341 A, US3994340 A,
US3993132 A, US3987851 A, US3986557 A, US3986556 A, US3986349 A, US3982592 A, US3982591 A,
US3973628 A, US3954140 A, US3952802 A, US3950029 A, US3948755 A, US3948319 A, US3947683 A,
US3947656 A, US3941421 A, US3924680 A, US3922148 A, US3907045 A, US3892270 A, US3882941 A,
US3881551 A, US3874733 A, US3870063 A, US3853185 A, US3809159 A, US3804172 A, US3804169 A,
US3794116 A, US3779602 A, US3775185 A, US3770398 A, US3766982 A, US3759574 A, US3759328 A,
US3700280 A, US3691291 A, US3680633 A, US3675715 A, US3661423 A, US3622071 A, US3618663 A,
US3617471 A, US3605890 A, US3599714 A, US3595082 A, US3593790 A, US3580987 A, US3562401 A,
US3547193 A, US3529682 A, US3528501 A, US3513913 A, US3502372 A, US3501201 A, US3497000 A,
US3477058 A, US345586 A, US3455383 A, US3454365 A, US3434541 A, US3389975 A, US3386508 A,
US3380913 A, US3379248 A, US3362751 A, US3352355 A, US3349845 A, US3342267 A, US3342258 A,

US3338306 A, US3332480 A, US3316962 A, US3310109 A, US3302707 A, US3294167 A, US3288648 A, US3285335 A, US3284281 A, US3275076 A, US3273640 A, US3267680 A, US326439 A, US3250327 A, US3246695 A, US3244231 A, US3241611 A, US3237689 A, US3233668 A, US3223166 A, US3221811 A, US3209825 A, US3208531 A, US3207220 A, US3205946 A, US3205944 A, US3205942 A, US3191679 A, US3183675 A, US3182721 A, US3181613 A, US3170842 A, US3165154 A, US3164207 A, US3163745 A, US3149672 A, US3149670 A, US3142336 A, US3139928 A, US3137347 A, US3132692 A, US3131763 A, US3127936 A, US3127935 A, US3120264 A, US3116792 A, US3114417 A, US3113623 A, US3113620 A, US3113619 A, US3110345 A, US3106244 A, US3105545 A, US3095031 A, US3084919 A, US3079085 A, US3062282 A, US3061009 A, US3050123 A, US3048221 A, US3044545 A, US3036632 A, US3032102 A, US3026940 A, US3017168 A, US3016053 A, US3010516 A, US3010513 A, US3007521 A, US3004603 A, US3004601 A, US3004596 A, US2998457 A, US2994376 A, US2974937 A, US2970826 A, US2969226 A, US2958519 A, US2954826 A, US2939689 A, US2932352 A, US2923535 A, US2914309 A, US2906340 A, US2906337 A, US2902270 A, US2890755 A, US2890754 A, US2857002 A, US2841375 A, US2825408 A, US2819761 A, US2804149 A, US2803305 A, US2801089 A, US2793696 A, US2789805 A, US2786660 A, US2780450 A, US2780449 A, US2777679 A, US2771954 A, US2743906 A, US2734579 A, US2732195 A, US2714930 A, US2703621 A, US2695163 A, US2685930 A, US2670802 A, US2642943 A, US2634961 A, US2630307 A, US2630306 A, US2623596 A, US2595979 A, US2593477 A, US2584605 A, US2548360 A, US2497868 A, US2484063 A, US2481051 A, US2472445 A, US2466945 A, US2444755 A, US2423674 A, US2375689 A, US2244256 A, US2244255 A, US2005269313 AA, US2005269094 AA, US2005269093 AA, US2005269092 AA, US2005269090 AA, US2005269089 AA, US2005269077 AA, US2005051327 AA, US2005006097 AA, US2004177966 AA, US2004146288 AA, US2004145969 AA, US2004144541 AA, US2004144540 AA, US2004140096 AA, US2004140095 AA, US2004108111 AA, US2004069486 AA, US2004040715 AA, US2004035582 AA, US2004020642 AA, US2004015023 AA, US2003213594 AA, US2003209348 AA, US2003205378 AA, US2003201098 AA, US2003196810 AA, US2003196801 AA, US2003196793 AA, US2003196789 AA, US2003196788 AA, US2003192691 AA, US2003183390 AA, US2003178191 AA, US2003173085 AA, US2003173081 AA, US2003173080 AA, US2003173078 AA, US2003173072 AA, US2003164239 AA, US2003164238 AA, US2003164234 AA, US2003155111 AA, US2003148894 AA, US2003146002 AA, US2003142964 AA, US2003141068 AA, US2003141067 AA, US2003141066 AA, US2003136559 AA, US2003131996 AA, US2003131995 AA, US2003131994 AA, US2003131993 AA, US2003131989 AA, US2003116315 AA, US2003111223 AA, US2003102130 AA, US2003102126 AA, US2003102125 AA, US2003102124 AA, US2003100451 AA, US2003098605 AA, US2003098149 AA, US2003085034 AA, US2003080604 AA, US2003079877 AA, US2003075318 AA, US2003070807 AA, US2003066644 AA, US2003066642 AA, US2003062164 AA, US2003062154 AA, US2003051872 AA, US2003029617 AA, US2003024699 AA, US2003019626 AA, US2003006039 AA, US2002191969 AA, US2002191968 AA, US2002170708 AA, US2002132862 AA, US2002117303 AA, US2002112987 AA, US2002112890 AA, US2002108753 AA, US2002104654 AA, US2002096320 AA, US2002084074 AA, US2002077515 AA, US2002076212 AA, US2002074117 AA, US2002066655 AA, US2002062961 AA, US2002062959 AA, US2002062052 AA, US2002062051 AA, US2002057905 AA, US2002056552 AA, US2002056551 AA, US2002053436 AA, US2002053435 AA, US2002053432 AA, US2002053431 AA, US2002053429 AA, US2002052297 AA, US2002050357 AA, US2002050356 AA, US2002050353 AA, US2002050352 AA, US2002049360 AA, US2002049358 AA, US2002046883 AA, US2002046839 AA, US2002046838 AA, US2002046837 AA, US2002046832 AA, US2002045553 AA, US2002043405 AA, US2002043367 AA, US2002043366 AA, US2002043365 AA, US2002040781 AA, US2002040780 AA, US2002040779 AA, US2002040778 AA, US2002040177 AA, US2002040173 AA, US2002039486 AA, US2002038712 AA, US2002038711 AA, US2002038710 AA, US2002038709 AA, US2002038708 AA, US2002038706 AA, US2002038705 AA, US2002038069 AA, US2002036103 AA, US2002036089 AA, US2002036084 AA, US2002036083 AA, US2002035307 AA, US2002034380 AA, US2002033280 AA, US2002033257 AA, US2002033256 AA, US2002033255 AA, US2002033254 AA, US2002033253 AA, US2002029885 AA, US2002029884 AA, US2002029882 AA, US2002029881 AA, US2002027001 AA, US2002018697 AA, US2002004533 AA, US2001049342 AA, US1913395 A, US1681523 A, US1666488 A, US1646599 A, US1634236 A, US1510655 A, US1457479 A, US1342741 A, US1269747 A, US1253555 A, US123138 A, US123137 A, US123136 A, US1168283 A, SU1836876, SE126674, SE123138, SE123137, SE123136, SE121737, GB697189, GB674082, GB2086416, GB1588693, GB156396, GB1501310, GB1454324, GB1010023, EP0940558 A1, EP0570228 B1, EP0357314, EP0294809, CA983704, CA2015460, CA1288043, CA1253555, CA1196594, CA1168283, CA1165361,

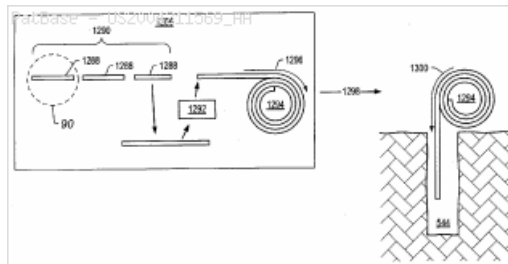
Forward Citations:

WO10134977, WO08131173, WO08098177, WO08010965, WO07111642, WO06116097, US9938782, US9937072, US9822592, US9755415, US9605524, US9528322, US9482467, US9466896, US9417357, US9399905, US9341034, US9337550, US9309755, US9242190, US9226341, US9181780, US9133697, US9129728, US9127538, US9127523, US9080917, US9080409, US9051829, US9048653, US9033042, US9029684, US9022118, US9022109, US9016370, US8967259, US8961652, US8943686, US8939207, US8915303, US8902700, US8881806, US8875371, US8859942, US8857506, US8857051, US8851170, US8833453, US8820406, US8816203, US8791396, US8789586, US8752904, US8739874, US8739808, US8732966, US8702775, US8701769, US8701768, US8662175, US8651126, US8636323, US8631866, US8627887, US8608249, US8606091, US8586867, US8586866, US8579953, US8579031, US8562078, US8555971, US8536497, US8502120, US8490703, US8485847, US8485256, US8485252, US8459359, US8448707, US8434555, US8408294, US8381815, US8366918, US8366917, US8365478, US8358560, US8356935, US8353347, US8349171, US8327932, US8327681, US8323481, US8296968, US8281861, US8276661, US8272455, US8267481, US8267185, US8267170, US8261832, US8257112, US8256512, US8240774, US8238730, US8233782, US8230927, US8225866, US8224165, US8224164, US8224163, US8220539, US8210256, US8205674, US8200072, US8196658, US8192682, US8191630, US8177305, US8172335, US8162405, US8162059, US8156662, US8151907, US8151880, US8151482, US8146669, US8146661, US8113272, US8109047, US8096064, US8083813, US8070840, US8042610, US8029914, US8028438, US8027571, US8025445, US8011451, US8006407, US8003844, US7986869, US7975398, US7967974, US7966741, US7954254, US7950453, US7942203, US7942197, US7931086, US7918271, US7912358, US7906014, US7882646, US7866388, US7866386, US7866385, US7862706, US7862705, US7860377, US7849922, US7845411, US7841425, US7841408, US7841401, US7832484, US7832482, US7831134, US7831133, US7809538, US7802377, US7802376, US7798221, US7798220, US7793722, US7785427, US7770643, US7748137, US7735935, US7730947, US7730946, US7730945, US7717171, US7703513, US7694523, US7685737, US7683296, US7681647, US7677673, US7677314, US7677310, US7673786, US7673681, US7644765, US7640987, US7640980, US7635025, US7635024, US7635023, US7631690, US7631689, US7617617, US7610962, US7610692, US7604052, US7597147, US7591310, US7584789, US7581589, US7575053, US7575052, US7562707, US7562706, US7559368, US7559367, US7556096, US7556095, US7549470, US7546873, US7540324, US7533719, US7527094, US7510000, US7500528, US7490665, US7484561, US7481274, US7461691, US7435037, US7431076, US7424915, US7383877, US7370704, US7360588, US7357180, US7353872, US7320364, US7234627, US201104952, US2010303427, US2010294377, US2010206518, US2010200468, US2010200466, US2010200465, US2010200464, US2010163227, US2010126037, US2010089584, US2010071903, US2009321417, US2009321071, US2009272536, US2009260833, US2009250380, US2009200290, US2009200022, US2009199907, US2009194286, US2009193822, US2009159288, US2009151190, US2009090158, US2009078414, US2009071647, US2009013596, US2008316860, US2008291779, US2008236831, US2008190818, US2008190816, US2008190815, US2008190813, US2008178490, US2008166276, US2008110043, US2008073079, US2008020216, US2008017380, US2007294914, US2007284108, US2007193744, US2007187089, US2007131411, US2007095537, US2006289536, US2006254079, US2006112589, US2006010713, US2005000109, US2004056076, US10188547, US10094616, US10087728, US10047594, US10024122, US10006271, EP2201819, EP2201819, EA014258, AU2010250111, AU2008242801, AU2006239963,

Abstract:

In an embodiment, a system may be used to heat a hydrocarbon containing formation. The system may include a heater placed

in an opening in the formation. The system may allow heat to transfer from the heater to a part of the formation. The transferred heat may pyrolyze at least some hydrocarbons in the formation. The heater may be removable from the opening in the formation and redeployable in at least one alternative opening in the formation.



21) Family number: 66393304 (US2005092483A)

© PatBase

Title: IN SITU THERMAL PROCESSING OF A HYDROCARBON CONTAINING FORMATION USING A NATURAL DISTRIBUTED COMBUSTOR

Priority: US20010334568P 20011024 US20010337136P 20011024 US20020374970P 20020424
US20020374995P 20020424 US20020279220 20021024

Family:

Publication number	Publication date	Application number	Application date
US2005092483 AA	20050505	US20020279220	20021024
US7114566 BB	20061003	US20020279220	20021024

Probable Assignee: SHELL OIL CO

Assignee(s):(std): SHELL OIL CO

Assignee(s): VAN HARDEVELD ROBERT M ; VINEGAR HAROLD J ; WELLINGTON SCOTT L ; ROUFFIGNAC ERIC PD

Inventor(s):(std): WELLINGTON SCOTT LEE ; WELLINGTON SCOTT L ; VINEGAR HAROLD J ; VAN HARDEVELD ROBERT MARTIJN ; VAN HARDEVELD ROBERT M ; ROUFFIGNAC ERIC P D ; DE ROUFFIGNAC ERIC PIERRE

Inventor(s): ROUFFIGNAC ERIC PD ; ROUFFIGNAC ERIC ; VAN HARDEVELD ROBERT ; VINEGAR HAROLD ; WELLINGTON SCOTT

Agent(s): DELCHRISTENSEN, SHELL OIL COMPANY; DELCHRISTENSEN SHELL OIL CO

International class (IPC 8-9): B09C1/02 B09C1/06 C10G45/00 C10G9/24 E21B17/02 E21B36/00 E21B43/00 E21B43/16 E21B43/24 E21B43/243 E21B43/30 E21B44/00 E21B47/022 G01V3/26 (Advanced/Invention)

International class (IPC 1-7): E21B36/04

US class: 166/256 166/257 166/60

[Classification Explorer](#)

Cited documents: WO9901640, WO9850179, WO9701017, WO9533122, WO9512746, WO9512745, WO9512744, WO9512743, WO9512742, WO9506093, WO0181723 A1, WO0181505 A1, USRE36569 E, USRE35696 E, USRE30738 E, USRE30019 E, USRE27309 E, US94813 A, US760304 A, US6880635 BA, US6880633 BA, US6877555 BA, US6877554 BA, US6871707 BA, US6866097 BA, US6820688 BA, US6805195 BA, US6789625 BA, US6782947 BA, US6769485 BA, US6769483 BA, US6763886 BA, US6761216 BA, US6758268 BA, US6752210 BA, US6749021 BA, US6745837 BA, US6745832 BA, US6745831 BA, US6742593 BA, US6742589 BA, US6742588 BA, US6742587 BA, US6739394 BA, US6739393 BA, US6736215 BA, US6732796 BA, US6732795 BA, US6732794 BA, US6729401 BA, US6729397 BA, US6729396 BA, US6729395 BA, US6725928 BA, US6725921 BA, US6725920 BA, US6722431 BA, US6722430 BA, US6722429 BA, US6719047 BA, US6715549 BA, US6715548 BA, US6715547 BA, US6715546 BA, US6712137 BA, US6712136 BA, US6712135 BA, US6708758 BA, US6702016 BA, US6698515 BA, US6688387 BA, US6684948 BA, US6679332 BA, US6609570 BA, US6607033 BA, US6591907 BA, US6591906 BA, US6588504 BA, US6588503 BA, US6584406 BA, US6581684 BA, US6499536 BA, US6485232 BA, US6467543 BA, US6466020 BA, US6429784 BA, US6422318 BA, US6412559 BA, US6389814 BA, US6357526 BA, US6354373 BA, US6353706 BA, US6328104 BA, US6244338 BA, US6234259 BA, US6209640 BA, US6192748 BA, US6187465 BA, US6173775 B1, US6172124 B1, US6152987 A, US6112808 A, US6110358 A, US6109358 A, US6102622 A, US6102137 A, US6102122 A, US6094048 A, US6085512 A, US6079499 A, US6065538 A, US6056057 A, US6049508 A, US6035701 A, US6026914 A, US6023554 A, US6019172 A, US6016868 A, US6016867 A, US6015015 A, US5997214 A, US5985138 A, US5984582 A, US5984010 A, US5968349 A, US5955039 A, US5935421 A, US5923170 A, US5899269 A, US5891829 A, US5868202 A, US5862858 A, US5861137 A, US5769569 A, US5767584 A, US5751895 A, US5747750 A, US5725059 A, US5713415 A, US5676212 A, US5657826 A, US5656239 A, US5632336 A, US5626191 A, US5624188 A, US5621844 A, US5589775 A, US5566756 A, US5554453 A, US5553189 A, US5545803 A, US5541517 A, US5539853 A, US5525322 A, US5517593 A, US5515931 A, US5513710 A, US5512830 A, US5498960 A, US5497087 A, US5491969 A, US5485089 A, US5456315 A, US5454666 A, US5439054 A, US5437506 A, US5433271 A, US5431224 A, US5415231 A, US5411104 A, US5411089 A, US5411086 A, US5409071 A, US5404952 A, US5402847 A, US5400430 A, US5392854 A, US5391291 A, US5388645 A, US5388643 A, US5388642 A, US5388641 A, US5388640 A, US5377756 A, US5366012 A, US5363094 A, US5360067 A, US5349859 A, US5343152 A, US5340467 A, US5339904 A, US5339897 A, US5325918 A, US5318116 A, US5316664 A, US5306640 A, US5305829 A, US5305239 A, US5305212 A, US5297626 A, US5295763 A, US5289882 A, US5285846 A, US5284878 A, US5261490 A, US5258755 A, US5255742 A, US5236039 A, US5229583 A, US5229102 A, US5226961 A, US5218301 A, US5217076 A, US5211230 A, US5207273 A, US5201219 A, US5190405 A, US5189283 A, US5182792 A, US5168927 A, US5126037 A, US5109928 A, US5103920 A, US5099918 A, US5097903 A, US5085276 A, US5082055 A, US5082054 A, US5074365 A, US5065818 A, US5064006 A, US5060726 A, US5060287 A, US5059303 A, US5055180 A, US5050386 A, US5046559 A, US5041210 A, US5027896 A, US5020596 A, US5014788 A, US5011329 A, US5008085 A, US4994093 A, US4987368 A, US4984594 A, US4983319 A, US4982786 A, US4974425 A, US4933640 A, US4931171 A, US4928765 A, US4927857 A, US4926941 A, US4912971 A, US489994 A, US4895206 A, US4886118 A, US4885080 A, US4884455 A, US4883582 A, US4866983 A, US4860544 A, US4856587 A, US4856341 A, US4849360 A, US4848924 A, US4848460 A, US4845434 A, US4831600 A, US4828031 A, US4827761 A, US4823890 A, US4818370 A, US4817711 A, US4815791 A, US4815790 A, US4808925 A, US4793656 A, US4791373 A, US4787452 A, US4778586 A, US4776638 A, US4772634 A, US4769606 A, US4769602 A, US4766958 A, US4762425 A, US4744245 A, US4743854 A, US4737267 A, US4734115 A, US4730162 A, US4728892 A, US4728412 A, US4719423 A, US4716960 A, US4706751 A, US4704514 A, US4702758 A, US4700142 A, US4698149 A, US4696345 A, US4694907 A, US4691771 A, US4683947 A, US4671102 A, US4663711 A, US4662443 A, US4662439 A, US4662438 A, US4658215 A, US4651825 A, US4644283 A, US4640353 A, US4640352 A, US4637464 A, US4635197 A, US4634187 A, US4626665 A, US4623444 A, US4616705 A, US4613754 A,

US4608818 A, US4605680 A, US4605489 A, US4598772 A, US4598392 A, US4597441 A, US4594468 A, US4592423 A, US4585066 A, US4583242 A, US4583046 A, US4577690 A, US4577503 A, US4576231 A, US4573530 A, US4572299 A, US4571491 A, US4570715 A, US4552214 A, US4549396 A, US4544478 A, US4542648 A, US4540882 A, US4537252 A, US4530401 A, US4529939 A, US4524827 A, US4524826 A, US4524113 A, US4513816 A, US4508170 A, US4502010 A, US4501445 A, US4501326 A, US4491179 A, US4489782 A, US4485869 A, US4483398 A, US4476927 A, US4474238 A, US4463807 A, US4460044 A, US4458767 A, US4458757 A, US4457365 A, US4455215 A, US4452491 A, US4448252 A, US4448251 A, US4445574 A, US4444258 A, US4444255 A, US4443762 A, US4442896 A, US4440224 A, US4439307 A, US4437519 A, US4429745 A, US4425967 A, US4423311 A, US4418752 A, US4415034 A, US4412585 A, US4412124 A, US4409090 A, US4407973 A, US4401163 A, US4399866 A, US4398151 A, US4397732 A, US4396062 A, US4390973 A, US4384948 A, US4384614 A, US4384613 A, US4381641 A, US4380930 A, US4378048 A, US4375302 A, US4372398 A, US4366668 A, US4363361 A, US4359687 A, US4353418 A, US4344483 A, US4324292 A, US4323848 A, US4319635 A, US4306621 A, US4305463 A, US4303126 A, US4299285 A, US4299086 A, US4285547 A, US4282587 A, US4277416 A, US4274487 A, US4273188 A, US4260192 A, US4260018 A, US4252191 A, US4250962 A, US4250230 A, US4243511 A, US4243101 A, US4234230 A, US4228854 A, US4197911 A, US4186801 A, US4185692 A, US4184548 A, US4183405 A, US4167213 A, US4162707 A, US4160479 A, US4158467 A, US4151877 A, US4144935 A, US4140180 A, US4138442 A, US4133825 A, US4130575 A, US4125159 A, US4114688 A, US4099567 A, US4096163 A, US4093026 A, US4093025 A, US4091869 A, US4089374 A, US4089372 A, US4087130 A, US4084637 A, US4076761 A, US4069868 A, US4067390 A, US4065183 A, US4057293 A, US4049053 A, US4048637 A, US4043393 A, US4042026 A, US4031956 A, US4026357 A, US4019575 A, US4018280 A, US4016239 A, US4014575 A, US4010800 A, US4008762 A, US4006778 A, US4005752 A, US3999607 A, US3994341 A, US3994340 A, US3993132 A, US3987851 A, US3986557 A, US3986556 A, US3986349 A, US3982592 A, US3982591 A, US3973628 A, US3954140 A, US3952802 A, US3948755 A, US3948319 A, US3947683 A, US3947656 A, US3941421 A, US3924680 A, US3922148 A, US3907045 A, US3892270 A, US3882941 A, US3881551 A, US3874733 A, US3870063 A, US3853185 A, US3809159 A, US3804172 A, US3804169 A, US3794116 A, US3779602 A, US3775185 A, US3770398 A, US3766982 A, US3759574 A, US3759328 A, US3700280 A, US3691291 A, US3680633 A, US3675715 A, US3661423 A, US3622071 A, US3618663 A, US3617471 A, US3605890 A, US3599714 A, US3595082 A, US3593790 A, US3580987 A, US3562401 A, US3547193 A, US3529682 A, US3528501 A, US3513913 A, US3502372 A, US3501201 A, US3497000 A, US3477058 A, US345586 A, US3455383 A, US3454365 A, US3434541 A, US3386508 A, US3380913 A, US3379248 A, US3352355 A, US3349845 A, US3342258 A, US3338306 A, US3316962 A, US3310109 A, US3302707 A, US3294167 A, US3288648 A, US3285335 A, US3284281 A, US3275076 A, US3273640 A, US3267680 A, US326439 A, US3250327 A, US3244231 A, US3241611 A, US3237689 A, US3233668 A, US3223166 A, US3221811 A, US3209825 A, US3208531 A, US3207220 A, US3205946 A, US3205944 A, US3205942 A, US3191679 A, US3183675 A, US3182721 A, US3181613 A, US3170842 A, US3165154 A, US3164207 A, US3163745 A, US3149672 A, US3149670 A, US3142336 A, US3139928 A, US3132692 A, US3131763 A, US3127936 A, US3127935 A, US3120264 A, US3116792 A, US3114417 A, US3113623 A, US3113620 A, US3113619 A, US3110345 A, US3106244 A, US3105545 A, US3095031 A, US3084919 A, US3079085 A, US3062282 A, US3061009 A, US3050123 A, US3048221 A, US3044545 A, US3036632 A, US3032102 A, US3026940 A, US3017168 A, US3016053 A, US3010516 A, US3010513 A, US3007521 A, US3004603 A, US3004601 A, US3004596 A, US2998457 A, US2994376 A, US2974937 A, US2970826 A, US2969226 A, US2958519 A, US2954826 A, US2939689 A, US2932352 A, US2923535 A, US2914309 A, US2906340 A, US2906337 A, US2902270 A, US2890755 A, US2890754 A, US2857002 A, US2841375 A, US2825408 A, US2819761 A, US2804149 A, US2803305 A, US2801089 A, US2793696 A, US2789805 A, US2786660 A, US2780450 A, US2780449 A, US2777679 A, US2771954 A, US2743906 A, US2734579 A, US2732195 A, US2714930 A, US2703621 A, US2695163 A, US2685930 A, US2670802 A, US2642943 A, US2634961 A, US2630307 A, US2630306 A, US2623596 A, US2595979 A, US2593477 A, US2584605 A, US2548360 A, US2497868 A, US2484063 A, US2472445 A, US2466945 A, US2444755 A, US2423674 A, US2375689 A, US2244256 A, US2244255 A, US2005051327 AA, US2005006097 AA, US2004177966 AA, US2004146288 AA, US2004145969 AA, US2004144541 AA, US2004144540 AA, US2004140096 AA, US2004140095 AA, US2004108111 AA, US2004069486 AA, US2004040715 AA, US2004035582 AA, US2004020642 AA, US2004015023 AA, US2003213594 AA, US2003209348 AA, US2003205378 AA, US2003201098 AA, US2003196810 AA, US2003196801 AA, US2003196793 AA, US2003196789 AA, US2003196788 AA, US2003192691 AA, US2003183390 AA, US2003178191 AA, US2003173085 AA, US2003173081 AA, US2003173080 AA, US2003173078 AA, US2003173072 AA, US2003164239 AA, US2003164238 AA, US2003164234 AA, US2003155111 AA, US2003148894 AA, US2003146002 AA, US2003142964 AA, US2003141068 AA, US2003141067 AA, US2003141066 AA, US2003136559 AA, US2003131996 AA, US2003131995 AA, US2003131994 AA, US2003131993 AA, US2003116315 AA, US2003111223 AA, US2003102130 AA, US2003102126 AA, US2003102125 AA, US2003102124 AA, US2003100451 AA, US2003098605 AA, US2003098149 AA, US2003085034 AA, US2003080604 AA, US2003079877 AA, US2003075318 AA, US2003070807 AA, US2003066644 AA, US2003066642 AA, US2003062164 AA, US2003062154 AA, US2003051872 AA, US2003029617 AA, US2003019626 AA, US2003006039 AA, US2002191969 AA, US2002191968 AA, US2002170708 AA, US2002132862 AA, US2002117303 AA, US2002112987 AA, US2002112890 AA, US2002108753 AA, US2002104654 AA, US2002096320 AA, US2002084074 AA, US2002077515 AA, US2002076212 AA, US2002074117 AA, US2002066565 AA, US2002062961 AA, US2002062959 AA, US2002062052 AA, US2002062051 AA, US2002057905 AA, US2002056552 AA, US2002056551 AA, US2002053436 AA, US2002053435 AA, US2002053432 AA, US2002053431 AA, US2002053429 AA, US2002052297 AA, US2002050357 AA, US2002050356 AA, US2002050353 AA, US2002050352 AA, US2002049360 AA, US2002049358 AA, US2002046883 AA, US2002046839 AA, US2002046838 AA, US2002046837 AA, US2002046832 AA, US2002045553 AA, US2002043405 AA, US2002043367 AA, US2002043366 AA, US2002043365 AA, US2002040781 AA, US2002040780 AA, US2002040779 AA, US2002040778 AA, US2002040177 AA, US2002040173 AA, US2002039486 AA, US2002038712 AA, US2002038711 AA, US2002038710 AA, US2002038709 AA, US2002038708 AA, US2002038706 AA, US2002038705 AA, US2002038069 AA, US2002036103 AA, US2002036089 AA, US2002036084 AA, US2002036083 AA, US2002035307 AA, US2002034380 AA, US2002033280 AA, US2002033257 AA, US2002033256 AA, US2002033255 AA, US2002033254 AA, US2002033253 AA, US2002029885 AA, US2002029884 AA, US2002029882 AA, US2002029881 AA, US2002027001 AA, US2002018697 AA, US2002004533 AA, US2001049342 AA, US1913395 A, US1681523 A, US1666488 A, US1646599 A, US1634236 A, US1510655 A, US1457479 A, US1342741 A, US1269747 A, SU1836876, SE126674, SE123138, SE123137, SE123136, SE121737, GB697189, GB674082, GB2086416, GB1588693, GB156396, GB1501310, GB1454324, GB1010023, EP0940558 A1, EP0570228 B1, EP0357314, EP0294809, CA983704, CA2015460, CA1288043, CA1253555, CA1196594, CA1168283, CA1165361,

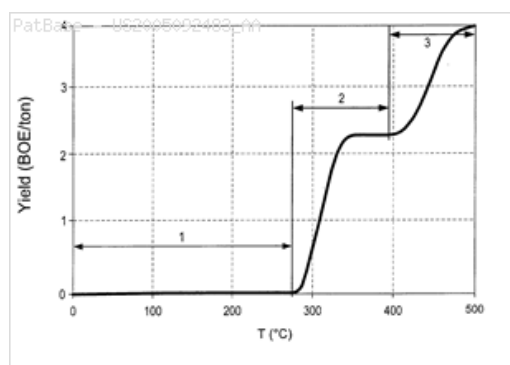
Forward Citations:

WO15038961, WO14184146, WO13090828, WO11159355, WO08157336, WO08057587, WO08057587, WO07076363, WO07076363, US9755415, US9677714, US9617840, US9605789, US9605524, US9528780, US9528359, US9528322, US9482467, US9466896, US9422797, US9399905, US9337550, US9316083, US9309755, US9242190, US9226341, US9187979, US9181780, US9181467, US9133398, US9129728, US9127538, US9127523, US9080917, US9080409, US9051829, US9048653, US9033042, US9033033, US9026418, US9022118, US9022109, US9016370, US9010132, US8997869, US8992771, US8967259, US8961652, US8943686, US8939207, US8936089, US8925627, US8881806, US8875371, US8859942, US8857506, US8857051, US8851177, US8851170, US8839860, US8833453, US8820420, US8820406, US8816203, US8791396, US8789586, US8776518, US8763411, US8752904, US8739874, US8732946, US8701788, US8701769, US8701768, US8662175, US8636323, US8631866, US8627887, US8613316, US8608249, US8606091, US8586867, US8586866, US8584752, US8579031, US8562078, US8555971, US8536497, US8522881, US8502120, US8490703, US8485847, US8485256, US8485252, US8459359, US8448707, US8434555, US8408294, US8387692, US8381815, US8366918, US8366917, US8365478, US8356935, US8355623, US8353347, US8349171, US8336623, US8327932, US8327681, US8323481, US8281861, US8276661, US8272455, US8267481, US8267185, US8267170, US8261832, US8257112, US8256512, US8246814, US8240774, US8238730, US8233782, US8230927, US8225866,

US8224165, US8224164, US8224163, US8220539, US8210256, US8205674, US8200072, US8196658, US8192682, US8191630, US8177305, US8172335, US8162405, US8162059, US8151907, US8151880, US8151482, US8146669, US8146661, US8146368, US8113272, US8109047, US8096064, US8091636, US8083813, US8070840, US8042610, US8028438, US8027571, US8025445, US8020313, US8011451, US8006407, US8003844, US7986869, US7975398, US7967974, US7954254, US7950453, US7942203, US7942197, US7931086, US7913557, US7912358, US7906014, US7892597, US7875120, US7867381, US7866388, US7866386, US7866385, US7862706, US7862705, US7860377, US7849922, US7845411, US7841425, US7841408, US7841401, US7832484, US7831134, US7831133, US7802377, US7802376, US7798221, US7798220, US7785427, US7770646, US7763163, US7748137, US7730947, US7730946, US7730945, US7717171, US7712528, US7703513, US7683296, US7681647, US7677314, US7677310, US7673786, US7673681, US7644765, US7644587, US7640980, US7635025, US7635024, US7635023, US7631690, US7631689, US7614294, US7610962, US7604052, US7597147, US7591310, US7584789, US7581589, US7575053, US7575052, US7562707, US7562706, US7561998, US7559368, US7559367, US7556096, US7556095, US7549470, US7546873, US7540324, US7533719, US7527094, US7510000, US7500528, US7490665, US7490028, US7484561, US7481274, US7464012, US7461693, US7461691, US7435037, US7431076, US7424915, US7383877, US7370704, US7360588, US7357180, US7353872, US7320364, US2011139450, US2011127036, US2011094952, US2010303427, US2010270027, US2010252483, US2010206709, US2010206518, US2010200468, US2010200466, US2010200464, US2010200232, US2010163223, US2010126037, US2010109338, US2010024540, US2009272532, US2009250380, US2009159288, US2009114384, US2009078414, US2008223046, US2008217008, US2008190818, US2008190816, US2008190815, US2008190813, US2008178490, US2008173449, US2008163895, US2008105595, US2008066537, US2007199709, US2007193744, US2007187089, US2007181306, US2007137858, US2007131411, US2006289536, US2006217947, US2006184346, US2006129372, US2004244972, US2003229476, US10047594, RU2606053, EP2568111, EP2087071, EA015210,

Abstract:

An in situ process for treating a hydrocarbon containing formation is provided. The process may include providing heat from one or more heat sources to at least a portion of the formation. Heat sources may include a natural distributed combustor. The natural distributed combustor may include an oxidizing fluid source to provide oxidizing fluids to a reaction zone in the formation to generate heat within the reaction zone. The heat may be allowed, in some embodiments, to transfer from the reaction zone to a selected section of the formation such that heat from one or more heat sources pyrolyzes at least some hydrocarbons within the selected section. Hydrocarbons may be produced from the formation.



22) Family number: 66393305 (US2007209799A)

© PatBase

Title: IN SITU RECOVERY FROM A HYDROCARBON CONTAINING FORMATION
Priority: US20010334568P 20011024 US20010337136P 20011024 US20020374970P 20020424
US20020374995P 20020424 US20020279288 20021024 US20070657442 20070123

Family:	Publication number	Publication date	Application number	Application date
	US2007209799 AA	20070913	US20070657442	20070123
	US7461691 BB	20081209	US20070657442	20070123

Probable Assignee: SHELL OIL CO

Assignee(s):(std): SHELL OIL CO

Inventor(s):(std): VINEGAR HAROLD J ; BASS RONALD MARSHALL ; BASS RONALD M

Inventor(s): BASS RONALD ; VINEGAR HAROLD

Agent(s): SHELL OIL COMPANY; SHELL OIL CO

International class (IPC 8-9): B09C1/02 B09C1/06 C10G45/00 C10G9/24 E21B17/02 E21B36/00 E21B36/04 E21B43/16 E21B43/24 E21B43/243 E21B43/30 E21B44/00 E21B47/022 G01V3/26 (Advanced/Invention)

US class: 166/302 166/60

[Classification Explorer](#)

Cited documents: WO9901640, WO9850179, WO9701017, WO9533122, WO9512746, WO9512745, WO9512744, WO9512743, WO9512742, WO9506093, WO0181723 A1, WO0181505 A1, USRE30738 E, US94813 A, US760304 A, US7225866 BB, US7219734 BB, US7204327 BB, US7170424 BB, US7165615 BB, US7156176 BB, US7147059 BB, US7128153 BB, US7121342 BB, US7121341 BB, US7114566 BB, US7104319 BB, US7100994 BB, US7096953 BB, US7096942 BA, US7096941 BB, US7090013 BB, US7086468 BB, US7086465 BB, US7077199 BB, US7077198 BB, US7073578 BB, US7066257 BB, US7066254 BB, US7063145 BB, US7055600 BB, US7040400 BB, US7040399 BB, US7040398 BB, US7040397 BB, US7036583 BB, US7032660 BB, US7011154 BB, US7004251 BB, US7004247 BB, US6997518 BB, US6997255 BB, US6994169 BB, US6994168 BB, US6994160 BB, US6991032 BB, US6981553 BB, US6981548 BB, US6973967 BB, US6969123 BB, US6966374 BB, US6966372 BB, US6964300 BB, US6959761 BB, US6958704 BB, US6953087 BB, US6951247 BB, US6948563 BB, US6948562 BB, US6932155 BB, US6929067 BB, US6923258 BB, US6923257 BB, US6918443 BB, US6918442 BB, US6915850 BB, US6913079 BB, US6913078 BB, US6910536 BB, US6902004 BB, US6902003 BB, US6896053 BB, US6889769 BB, US6880635 BB, US6880633 BB, US6877555 BB, US6877554 BB, US6871707 BB, US6866097 BB, US6854534 BB, US6820688 BB, US6805195 BB, US6805194 BB, US6789625 BB, US6782947 BB, US6769485 BB, US6769483 BB, US6763886 BB, US6761216 BB, US6758268 BB, US6752210 BB, US6749021 BB, US6745837 BB, US6745832 BB, US6745831 BB, US6742593 BB, US6742589 BB, US6742588 BB, US6742587 BB, US6739394 BB, US6739393 BB, US6736215 BB, US6732796 BB, US6732795 BB, US6732794 BB, US6729401 BB, US6729397 BB, US6729396 BB, US6729395 BB, US6725928 BB, US6725921 BB, US6725920 BB, US6722431 BB, US6722430 BB, US6722429 BB, US6719047 BB, US6715550 BB, US6715549 BB,

US6715548 BB, US6715547 BB, US6715546 BB, US6712137 BB, US6712136 BB, US6712135 BB, US6708758 BB, US6702016 BB, US6698515 BB, US6688387 BA, US6684948 BA, US6679332 BB, US6609570 BB, US6607033 BB, US6591907 BB, US6591906 BB, US6588504 BB, US6588503 BB, US6588266 BB, US6585046 BB, US6584406 BA, US6581684 BB, US6540018 BA, US6499536 BA, US6485232 BA, US6467543 BA, US6427124 BA, US6422318 BA, US6412559 BA, US6388947 BA, US6357526 BA, US6354373 BA, US6353706 BA, US6328104 BA, US6288372 BA, US6269310 BA, US6196350 BA, US6193010 BA, US6192748 BA, US6173775 B1, US6172124 B1, US6155117 A, US6152987 A, US6112808 A, US6110358 A, US6102622 A, US6102137 A, US6102122 A, US6094048 A, US6088294 A, US6085512 A, US6084826 A, US6079499 A, US6078868 A, US6056057 A, US6039121 A, US6035701 A, US6026914 A, US6023554 A, US6019172 A, US6016868 A, US6016867 A, US6015015 A, US5997214 A, US5985138 A, US5984582 A, US5984010 A, US5968349 A, US5935421 A, US5926437 A, US5911898 A, US5899958 A, US5899269 A, US5868202 A, US5862858 A, US5861137 A, US5828797 A, US5826655 A, US5782301 A, US5777229 A, US5769569 A, US5760307 A, US5759022 A, US5751895 A, US5713415 A, US5656239 A, US5652389 A, US5632336 A, US5624188 A, US5621845 A, US5621844 A, US5579575 A, US5571403 A, US5566755 A, US5554453 A, US5553189 A, US5545803 A, US5541517 A, US5525322 A, US5517593 A, US5512732 A, US5498960 A, US5497087 A, US5456315 A, US5454666 A, US5439054 A, US5437506 A, US5435666 A, US5433271 A, US5431224 A, US5415231 A, US5411104 A, US5411089 A, US5411086 A, US5409071 A, US5404952 A, US5392854 A, US5391291 A, US5388645 A, US5388643 A, US5388642 A, US5388641 A, US5388640 A, US5377756 A, US5366012 A, US5363094 A, US5360067 A, US5349859 A, US5340467 A, US5339904 A, US5339897 A, US5332036 A, US5318116 A, US5316664 A, US5306640 A, US5305829 A, US5305239 A, US5297626 A, US5295763 A, US5289882 A, US5285846 A, US5261490 A, US5255742 A, US5247994 A, US5236039 A, US5229583 A, US5226961 A, US5217076 A, US5211230 A, US5209987 A, US5207273 A, US5201219 A, US5190405 A, US5189283 A, US5182792 A, US5182427 A, US5168927 A, US5145003 A, US5126037 A, US5103920 A, US5099918 A, US5097703 A, US5085276 A, US5082055 A, US5082054 A, US5073625 A, US5066852 A, US5065818 A, US5065501 A, US5064006 A, US5060726 A, US5060287 A, US5059303 A, US5054551 A, US5050386 A, US5046559 A, US5027896 A, US5020596 A, US5011329 A, US5008085 A, US4994093 A, US4987368 A, US4985313 A, US4984594 A, US4983319 A, US4982786 A, US4974425 A, US4928765 A, US4927857 A, US4926941 A, US4913065 A, US4912971 A, US48994 A, US4895206 A, US4893504 A, US4886118 A, US4885080 A, US4884455 A, US4866983 A, US4860544 A, US4856587 A, US4856341 A, US4849611 A, US4848924 A, US4848460 A, US4828031 A, US4827761 A, US4823890 A, US4821798 A, US4818370 A, US4817711 A, US4814587 A, US4808925 A, US4794226 A, US4787452 A, US4785163 A, US4776638 A, US4772634 A, US4769606 A, US4769602 A, US4766958 A, US4762425 A, US4756367 A, US4752673 A, US4744245 A, US4743854 A, US4734115 A, US4733057 A, US4730162 A, US4728892 A, US4719423 A, US4717814 A, US4716960 A, US4706751 A, US4704514 A, US4701587 A, US4698583 A, US4698149 A, US4695713 A, US4694907 A, US4691771 A, US4682652 A, US4671102 A, US4669542 A, US4663711 A, US4662443 A, US4662439 A, US4662438 A, US4662437 A, US4658215 A, US4651825 A, US4645906 A, US46444283 A, US4640353 A, US4640352 A, US4637464 A, US4635197 A, US4626665 A, US4623444 A, US4623401 A, US4616705 A, US4613754 A, US4609041 A, US4608818 A, US4605680 A, US4605489 A, US4598772 A, US4598770 A, US4598392 A, US4597444 A, US4597441 A, US4592423 A, US4585066 A, US4583242 A, US4583046 A, US4577690 A, US4577503 A, US4576231 A, US4573530 A, US4572299 A, US4572229 A, US4571491 A, US4570715 A, US4552214 A, US4549396 A, US4545435 A, US4542648 A, US4540882 A, US4538682 A, US4537252 A, US4530401 A, US4524827 A, US4524826 A, US4518548 A, US4513816 A, US4501445 A, US4501326 A, US4499209 A, US4498535 A, US4498531 A, US4491179 A, US4489782 A, US4485869 A, US4479541 A, US4474238 A, US4458767 A, US4458757 A, US4457374 A, US4457365 A, US4456065 A, US4455215 A, US4452491 A, US4446917 A, US4445574 A, US4444258 A, US4444255 A, US4442896 A, US4440224 A, US4437519 A, US4429745 A, US4428700 A, US4425967 A, US4423311 A, US4418752 A, US4417782 A, US4412585 A, US4412124 A, US4410042 A, US4409090 A, US4407973 A, US4401163 A, US4401099 A, US4399866 A, US4398151 A, US4397732 A, US4396062 A, US4390973 A, US4390067 A, US4385661 A, US4384614 A, US4384613 A, US4381641 A, US4380930 A, US4378048 A, US4366668 A, US4363361 A, US4359687 A, US4353418 A, US4344483 A, US4324292 A, US4306621 A, US4305463 A, US4303126 A, US4299285 A, US4299086 A, US4282587 A, US4277416 A, US4274487 A, US4273188 A, US4265307 A, US4256945 A, US4252191 A, US4250962 A, US4250230 A, US4248306 A, US4243101 A, US4228854 A, US4228853 A, US4199024 A, US4197911 A, US4193451 A, US4186801 A, US4185692 A, US4184548 A, US4183405 A, US4158467 A, US4148359 A, US4144935 A, US4140181 A, US4140180 A, US4138442 A, US4133825 A, US4130575 A, US4125159 A, US4119349 A, US4114688 A, US4099567 A, US4096163 A, US4093026 A, US4093025 A, US4091869 A, US4089374 A, US4089372 A, US4087130 A, US4084637 A, US4083604 A, US4076761 A, US4067390 A, US4057293 A, US4049053 A, US4048637 A, US4043393 A, US4042026 A, US4031956 A, US4029360 A, US4026357 A, US4019575 A, US4018280 A, US4016239 A, US4010800 A, US4008762 A, US4006778 A, US4005752 A, US3999607 A, US3994341 A, US3994340 A, US3993132 A, US3992474 A, US3987851 A, US3986557 A, US3986556 A, US3986349 A, US3973628 A, US3954140 A, US3952802 A, US3950029 A, US3948755 A, US3948319 A, US3947683 A, US3941421 A, US3924680 A, US3922148 A, US3907045 A, US3893918 A, US3882941 A, US3881551 A, US3853185 A, US3809159 A, US3804172 A, US3804169 A, US3794116 A, US3779602 A, US3770398 A, US3766982 A, US3759574 A, US3759328 A, US3757860 A, US3700280 A, US3680633 A, US3679812 A, US3675715 A, US3661423 A, US3629551 A, US3618663 A, US3614986 A, US3605890 A, US3599714 A, US3595082 A, US3593789 A, US3580987 A, US3578080 A, US3565171 A, US3562401 A, US3547193 A, US3547192 A, US3542131 A, US3537528 A, US3529682 A, US3528501 A, US3515837 A, US3513913 A, US3502372 A, US3501201 A, US3485300 A, US3477058 A, US3465819 A, US345586 A, US3455383 A, US3434541 A, US3412011 A, US3410977 A, US3399623 A, US3389975 A, US3386508 A, US3380913 A, US3379248 A, US3372754 A, US3362751 A, US3358756 A, US3352355 A, US3349845 A, US3342267 A, US3342258 A, US3338306 A, US3332480 A, US3316962 A, US3316344 A, US3302707 A, US3294167 A, US3288648 A, US3285335 A, US3284281 A, US3275076 A, US3273640 A, US3267680 A, US326439 A, US3250327 A, US3246695 A, US3241611 A, US3237689 A, US3233668 A, US3221811 A, US3209825 A, US3208531 A, US3207220 A, US3205946 A, US3205944 A, US3205942 A, US3191679 A, US3183675 A, US3182721 A, US3181613 A, US3170842 A, US3165154 A, US3164207 A, US3163745 A, US3149672 A, US3149670 A, US3142336 A, US3139928 A, US3137347 A, US3132692 A, US3131763 A, US3127936 A, US3127935 A, US3120264 A, US3116792 A, US3114417 A, US3113623 A, US3113620 A, US3113619 A, US3110345 A, US3106244 A, US3105545 A, US3095031 A, US3062282 A, US3061009 A, US3051235 A, US3050123 A, US3048221 A, US3044545 A, US3036632 A, US3032102 A, US3026940 A, US3017168 A, US3016053 A, US3010516 A, US3010513 A, US3007521 A, US3004603 A, US3004601 A, US2998457 A, US2997105 A, US2994376 A, US2991046 A, US2974937 A, US2970826 A, US2969226 A, US2958519 A, US2954826 A, US2942223 A, US2939689 A, US2932352 A, US2925353 A, US2914309 A, US2906340 A, US2906337 A, US2902270 A, US2890755 A, US2890754 A, US2889882 A, US2857002 A, US2841375 A, US2825408 A, US2819761 A, US2804149 A, US2803305 A, US2801089 A, US2794504 A, US2793696 A, US2789805 A, US2786660 A, US2780450 A, US2780449 A, US2777679 A, US2771954 A, US2757739 A, US2743906 A, US2734579 A, US2732195 A, US2714930 A, US2703621 A, US2695163 A, US2685930 A, US2670802 A, US2642943 A, US2634961 A, US2630307 A, US2630306 A, US2595979 A, US2593477 A, US2548360 A, US2497868 A, US2484063 A, US2481051 A, US2472445 A, US2466945 A, US2444755 A, US2423674 A, US2390770 A, US2381256 A, US2319702 A, US2244256 A, US2244255 A, US2007133960 AA, US2007133959 AA, US2007131428 AA, US2007131420 AA, US2007131419 AA, US2007131415 AA, US2007131411 AA, US2007127897 AA, US2007125533 AA, US2007119098 AA, US2007108201 AA, US2007108200 AA, US2007095537 AA, US2007095536 AA, US2007045268 AA, US2007045267 AA, US2007045266 AA, US2007045265 AA, US2006289536 AA, US2006213657 AA, US2006005968 AA, US2005269313 AA, US2005269095 AA, US2005269094 AA, US2005269093 AA, US2005269092 AA, US2005269091 AA, US2005269090 AA, US2005269089 AA, US2005269088 AA, US2005269077 AA, US2005006097 AA, US2004146288 AA, US2004145969 AA, US2004144540 AA, US2004140096 AA, US2004035582 AA, US2003201098 AA, US2003196810 AA, US2003196789 AA, US2003157380 AA, US2003146002 AA, US2003131989 AA, US2003085034 AA, US2003079877 AA, US2003075318 AA, US2003038734 AA, US2003029617 AA,

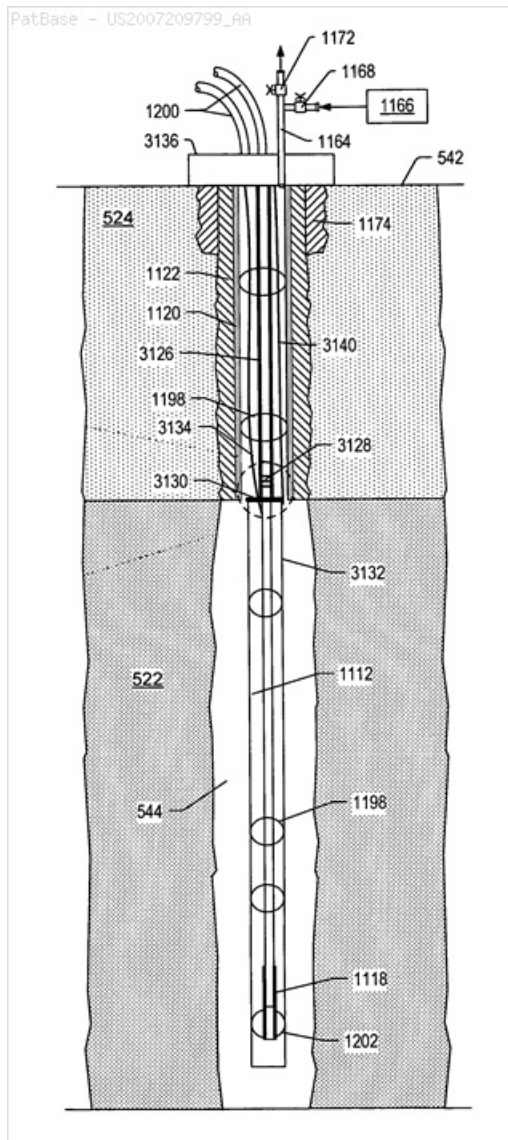
US2002153141 AA, US2002112987 AA, US2002112890 AA, US2002076212 AA, US2002053431 AA, US2002049360 AA, US2002040781 AA, US2002040780 AA, US2002040779 AA, US2002038709 AA, US2002038069 AA, US2002036089 AA, US2002036085 AA, US2002035307 AA, US2002033253 AA, US2002028070 AA, US2002027001 AA, US2001049342 AA, US1913395 A, US1681523 A, US1666488 A, US1646599 A, US1634236 A, US1510655 A, US1342741 A, US1269747 A, US, SE126674, SE123138, SE123137, SE123136, SE121737, RU1836876, GB697189, GB674082, GB2086416, GB1588693, GB156396, GB1501310, GB1454324, GB1010023, EP0940558 A1, EP0570228 B1, EP0357314, EP0294809, CA983704, CA2015460, CA1288043, CA1253555, CA1196594, CA1168283, CA1165361,

Forward Citations:

WO15038961, WO15021242, WO13090828, WO11159355, WO10107777, WO09076006, US9896380, US9755415, US9739122, US9677714, US9644466, US9605789, US9605524, US9528780, US9528322, US9512699, US9466896, US9399905, US9394772, US9376907, US9347302, US9337550, US9309755, US9226341, US9181780, US9181467, US9164194, US9133398, US9129728, US9127538, US9127523, US9085953, US9080917, US9080441, US9080409, US9062240, US9057249, US9051829, US9048653, US9033042, US9033033, US9031820, US9022118, US9022109, US9016370, US9010132, US8997869, US8997864, US8992771, US8984857, US8967259, US8967248, US8943686, US8939207, US8937279, US8936089, US8881806, US8875789, US8863839, US8859942, US8857506, US8857051, US8851177, US8851170, US8849582, US8839860, US8833453, US8820406, US8816203, US8803077, US8791396, US8789586, US8770284, US8768672, US8763411, US8752904, US8739874, US8732946, US8701788, US8701769, US8701768, US8664586, US8662175, US8641150, US8636323, US8631866, US8622133, US8622127, US8616280, US8616279, US8606091, US8596355, US8586867, US8586866, US8579031, US8562078, US8555971, US8555958, US8548782, US8540020, US8536497, US8502120, US8485847, US8485256, US8485252, US8459359, US8448707, US8434555, US8381815, US8381806, US8380437, US8356935, US8353347, US8327932, US8327681, US8322423, US8296968, US8281861, US8276661, US8272455, US8267185, US8267170, US8261832, US8257112, US8256512, US8240774, US8233782, US8230929, US8230927, US8225866, US8224165, US8220539, US8196658, US8192682, US8191630, US8177305, US8172335, US8171999, US8162405, US8162059, US8159226, US8151907, US8151884, US8151881, US8151880, US8151877, US8151875, US8151482, US8146669, US8146664, US8146661, US8140310, US8132624, US8122955, US8113292, US8113272, US8104537, US8096064, US8087460, US8083813, US8082995, US8070840, US8069919, US8056627, US8042610, US8028438, US8027571, US8025445, US8020313, US8011451, US8006407, US7987074, US7986869, US7975398, US7954254, US7950453, US7942203, US7942197, US7931086, US7913755, US7912358, US7874271, US7866388, US7866386, US7866385, US7860377, US7849922, US7845411, US7841425, US7841408, US7841401, US7832484, US7831134, US7831133, US7819188, US7802377, US7802376, US7798220, US7793722, US7748137, US7735935, US7730947, US7730946, US7730945, US7717171, US7703513, US7683296, US7681647, US7677314, US7677310, US7673786, US7673681, US7669657, US7657407, US7644765, US7640980, US7635025, US7635024, US7631691, US7631690, US7631689, US7610962, US7604052, US7591310, US7584789, US7581589, US7562706, US7559367, US7556096, US7556095, US7549470, US7540324, US2013180327, US2013146756, US2012158315, US2011146982, US2011145577, US2011098931, US2011088904, US2011022320, US2011000221, US2010303427, US2010300674, US2010236987, US2010133143, US2010077973, US2009321075, US2009159272, US2009119082, US2009006053, US2008217321, US2008173449, US2008126050, US2007131428, US2007131427, US2007131415, US2007127897, US10047594, RU2529537, EP3058171, EP3058171, EP2839320, EP2839320, CN102656337, AU2014334535, AU2010245127, AU2008335573,

Abstract:

An in situ process for treating a hydrocarbon containing formation is provided. The process may include providing heat from one or more heaters to at least a portion of the formation. The heat may be allowed to transfer from the one or more heaters to a part of the formation such that heat from the one or more heat sources pyrolyzes at least some hydrocarbons within the part. Hydrocarbons may be produced from the formation.

**23) Family number: 66393306** (US2010126727A)

© PatBase

Title: IN SITU RECOVERY FROM A HYDROCARBON CONTAINING FORMATION

Priority: US20010334568P 20011024 US20010337136P 20011024 US20020374970P 20020424
US20020374995P 20020424 US20020279288 20021024 US20070657442 20070123
US20080329942 20081208

Family:

Publication number	Publication date	Application number	Application date
US2010126727 AA	20100527	US20080329942	20081208
US8627887 BB	20140114	US20080329942	20081208

Probable Assignee: SHELL OIL CO

Assignee(s):(std): CRANE STEVEN DEXTER ; DE ROUFFIGNAC ERIC PIERRE ; KARANIKAS JOHN MICHAEL ; MAHER KEVIN ALBERT ; SHELL OIL CO ; VINEGAR HAROLD J ; WELLINGTON SCOTT LEE ; SUMNU DINDORUK MELIHA DENIZ ; MESSIER MARGARET ANN ; ROBERTS BRUCE EDMUNDS

Inventor(s):(std): CRANE STEVEN DEXTER ; DE ROUFFIGNAC ERIC PIERRE ; KARANIKAS JOHN MICHAEL ; MAHER KEVIN ALBERT ; MESSIER MARGARET ANN ; ROBERTS BRUCE EDMUNDS ; SUMNU DINDORUK MELIHA DENIZ ; SUMNU DINDORUK MELIHA DENIZ ; VINEGAR HAROLD J ; WELLINGTON SCOTT LEE

Agent(s): SHELL OIL COMPANY; SHELL OIL CO

International class (IPC 8-9): B09C1/02 B09C1/06 C10G45/00 C10G9/24 E21B17/02 E21B36/00 E21B43/02 E21B43/16 E21B43/24 E21B43/243 E21B43/30 E21B44/00 E21B47/022 G01V3/26 (Advanced/Invention)

US class: 166/272.1 166/302

[Classification Explorer](#)

Cited documents: WO9901640, WO9506093, WO08150531, WO08033536, WO0181505, USRE39244 E, USRE39077 E, USRE35696 E, USRE30738 E, USRE30019 E, US94813 A, US8434555 BB, US8381815 BB, US8261832 BB, US8240774 BB, US8225866 BB, US8196658 BB, US8191630 BB, US8151880 BB, US8083813 BB, US8070840 BB, US8042610 BB, US8027571 BB, US7950453 BB, US7942203 BB, US7942197 BB, US7931086 BB, US7912358 BB, US7866388 BB, US7866386 BB, US7866385 BB, US7860377 BB, US7849922 BB, US7845411 BB, US7841425 BB, US7841408 BB, US7841401 BB, US7832484 BB, US7831134 BB, US7831133 BB, US7798221 BB, US7798220 BB, US7793722 BB, US7785427 BB, US7735935 BB, US7730947 BB, US7730946 BB, US7730945 BB, US7717171 BB, US7703513 BB, US7683296 BB, US7681647 BB, US7677314 BB, US7677310 BB, US7673681 BB, US7644765 BB, US7640980 BB, US7635025 BB, US7635024 BB, US7635023 BB, US7631690 BB, US7631689 BB, US7610962 BB, US7604052 BB, US760304 A, US7597147 BB, US7591310 BB, US7584789 BB,

US7581589 BB, US7575053 BB, US7575052 BB, US7562707 BB, US7562706 BB, US7559368 BB, US7559367 BB, US7556096 BB, US7556095 BB, US7549470 BB, US7546873 BB, US7540324 BB, US7533719 BB, US7527094 BB, US7510000 BB, US7500528 BB, US7490665 BB, US7481274 BB, US7441597 BB, US7424915 BB, US7383877 BB, US7360588 BB, US7357180 BB, US7353872 BB, US7320364 BB, US7259688 BB, US7258752 BB, US7225866 BB, US7219734 BB, US7204327 BB, US7170424 BB, US7165615 BB, US7156176 BB, US7153373 BB, US7147059 BB, US7147057 BB, US7128153 BB, US7128150 BB, US7124584 BA, US7121342 BB, US7121341 BB, US7114880 BB, US7114566 BB, US7104319 BB, US7100994 BB, US7096953 BB, US7096942 BA, US7096941 BB, US7090013 BB, US7086468 BB, US7086465 BB, US7077199 BB, US7077198 BB, US7073578 BB, US7066257 BB, US7066254 BB, US7063145 BB, US7055602 BB, US7055600 BB, US7051811 BB, US7051808 BA, US7051807 BB, US7040400 BB, US7040399 BB, US7040398 BB, US7040397 BB, US7036583 BB, US7032809 BA, US7032660 BB, US7013972 BB, US7011154 BB, US7004251 BB, US7004247 BB, US6997518 BB, US6997255 BB, US6994169 BB, US6994168 BB, US6994160 BB, US6991045 BB, US6991036 BB, US6991033 BB, US6991032 BB, US6981553 BB, US6981548 BB, US6973967 BB, US6969123 BB, US6966374 BB, US6966372 BB, US6964300 BB, US6959761 BB, US6958704 BB, US6953087 BB, US6951250 BB, US6951247 BB, US6948563 BB, US6948562 BB, US6942037 BA, US6942032 BB, US6932155 BB, US6929067 BB, US6923258 BB, US6923257 BB, US6918444 BB, US6918443 BB, US6918442 BB, US6915850 BB, US6913079 BB, US6913078 BB, US6910537 BB, US6910536 BB, US6902004 BB, US6902003 BB, US6896053 BB, US6889769 BB, US6880635 BB, US6880633 BB, US6877555 BB, US6877554 BB, US6871707 BB, US6866097 BB, US6854929 BB, US6854534 BB, US6821501 BB, US6820688 BB, US6805195 BB, US6805194 BB, US6789625 BB, US6782947 BB, US6769485 BB, US6769483 BB, US6763886 BB, US6761216 BB, US6759364 BB, US6758268 BB, US6755251 BB, US6752210 BB, US6749021 BB, US6745837 BB, US6745832 BB, US6745831 BB, US6742593 BB, US6742589 BB, US6742588 BB, US6742587 BB, US6739394 BB, US6739393 BB, US6736215 BB, US6732796 BB, US6732795 BB, US6732794 BB, US6729401 BB, US6729397 BB, US6729396 BB, US6729395 BB, US6725928 BB, US6725920 BB, US6722431 BB, US6722430 BB, US6722429 BB, US6719047 BB, US6715553 BB, US6715550 BB, US6715548 BB, US6715547 BB, US6715546 BB, US6712137 BB, US6712136 BB, US6712135 BB, US6708758 BB, US6702016 BB, US6698515 BB, US6688387 BA, US6684948 BA, US6679332 BB, US6609761 BA, US6609570 BB, US6607033 BB, US6605566 BB, US6591907 BB, US6591906 BB, US6588504 BB, US6588503 BB, US6588266 BB, US6585046 BB, US6584406 BA, US6581684 BB, US6540018 BA, US6516891 BA, US6499536 BA, US6485232 BA, US6467543 BA, US6439308 BA, US6427124 BA, US6422318 BA, US6417268 BA, US6412559 BA, US6412557 BA, US6388947 BA, US6357526 BA, US6354373 BA, US6353706 BA, US6328104 BA, US6290841 BA, US6288372 BA, US6283230 BA, US6269881 BA, US6269310 BA, US6257334 BA, US6218333 BA, US6209640 BA, US6196350 BA, US6193010 BA, US6192748 BA, US6173775 B1, US6172124 B1, US6155117 A, US6152987 A, US6112808 A, US6110358 A, US6102622 A, US6102137 A, US6102122 A, US6099208 A, US6094048 A, US6088294 A, US6085512 A, US6084826 A, US6079499 A, US6078868 A, US6065538 A, US6056057 A, US6049508 A, US6039121 A, US6035701 A, US6026914 A, US6023554 A, US6022834 A, US6019172 A, US6016868 A, US6016867 A, US6015015 A, US5997214 A, US5992522 A, US5985138 A, US5984582 A, US5984578 A, US5984010 A, US5968349 A, US5958365 A, US5935421 A, US5926437 A, US5923170 A, US5911898 A, US5899958 A, US5899269 A, US5879110 A, US5868202 A, US5862858 A, US5861137 A, US5828797 A, US5826655 A, US5826653 A, US5823256 A, US5802870 A, US5782301 A, US5777229 A, US5769569 A, US5760307 A, US5759022 A, US5751895 A, US5744025 A, US5723423 A, US5713415 A, US5688736 A, US5685362 A, US5656239 A, US5654261 A, US5652389 A, US5648305 A, US5632336 A, US5624188 A, US5621845 A, US5621844 A, US5589775 A, US5579575 A, US5571403 A, US5566756 A, US5566755 A, US5554453 A, US5553189 A, US5545803 A, US5541517 A, US5525322 A, US5517593 A, US5512732 A, US5503226 A, US5498960 A, US5497087 A, US5491969 A, US5468372 A, US5458774 A, US5456315 A, US5454666 A, US5439054 A, US5437506 A, US5435666 A, US5433271 A, US5431224 A, US5415231 A, US5411104 A, US5411089 A, US5411086 A, US5409071 A, US5404952 A, US5400430 A, US5392854 A, US5391291 A, US5388645 A, US5388643 A, US5388642 A, US5388641 A, US5388640 A, US5377756 A, US5366012 A, US5363094 A, US5360067 A, US5358045 A, US5349859 A, US5340467 A, US5339904 A, US5339897 A, US5332036 A, US5325918 A, US5318709 A, US5318116 A, US5316664 A, US5306640 A, US5305829 A, US5305239 A, US5297626 A, US5295763 A, US5289882 A, US5285846 A, US5284206 A, US5282957 A, US5275726 A, US5261490 A, US5255742 A, US5255740 A, US5246273 A, US5246071 A, US5236039 A, US5229583 A, US5226961 A, US5217076 A, US5217075 A, US5211230 A, US5209987 A, US5207273 A, US5201219 A, US5199490 A, US5193618 A, US5190405 A, US5189283 A, US5182792 A, US5182427 A, US5173213 A, US5168927 A, US5152341 A, US5150118 A, US5145003 A, US5126037 A, US5109928 A, US5103920 A, US5103909 A, US5102551 A, US5099918 A, US5097903 A, US5093002 A, US5085276 A, US5082055 A, US5082054 A, US5073625 A, US5070533 A, US5066852 A, US5065818 A, US5065501 A, US5064006 A, US5060726 A, US5060287 A, US5059303 A, US5054551 A, US5050386 A, US5046560 A, US5046559 A, US5042579 A, US5041210 A, US5032042 A, US5027896 A, US5020596 A, US5011329 A, US5008085 A, US4994093 A, US4987368 A, US4985313 A, US4984594 A, US4983319 A, US4982786 A, US4974425 A, US4940095 A, US4928765 A, US4927857 A, US4926941 A, US4913065 A, US4912971 A, US48994 A, US4895206 A, US4893504 A, US4886118 A, US4885080 A, US4884635 A, US4884455 A, US4883582 A, US4866983 A, US4860544 A, US4856587 A, US4856341 A, US4852648 A, US4849611 A, US4848924 A, US4848460 A, US4842448 A, US4840720 A, US4828031 A, US4827761 A, US4823890 A, US4821798 A, US4818370 A, US4817711 A, US4815791 A, US4814587 A, US4808925 A, US4794226 A, US4793409 A, US4787452 A, US4785163 A, US4778586 A, US4776638 A, US4772634 A, US4769606 A, US4769602 A, US4766958 A, US4762425 A, US4756367 A, US4752673 A, US4744245 A, US4743854 A, US4734115 A, US4733057 A, US4730162 A, US4728892 A, US4719423 A, US4717814 A, US4716960 A, US4706751 A, US4704514 A, US4701587 A, US4698583 A, US4698149 A, US4696345 A, US4695713 A, US4694907 A, US4691771 A, US4686029 A, US4682652 A, US4671102 A, US4669542 A, US4663711 A, US4662443 A, US4662439 A, US4662438 A, US4662437 A, US4658215 A, US4651825 A, US4645906 A, US4644283 A, US4643256 A, US4640353 A, US4640352 A, US4637464 A, US4635197 A, US4634187 A, US4626665 A, US4623444 A, US4623401 A, US4616705 A, US4613754 A, US4609041 A, US4608818 A, US4605680 A, US4605489 A, US4598772 A, US4598770 A, US4598392 A, US4597444 A, US4597441 A, US4592423 A, US4585066 A, US4583242 A, US4583046 A, US4577691 A, US4577690 A, US4577503 A, US4576231 A, US4573530 A, US4572299 A, US4571491 A, US4570715 A, US4552214 A, US4551226 A, US4549396 A, US4545435 A, US4544478 A, US4542648 A, US4540882 A, US4538682 A, US4537252 A, US4530401 A, US4524827 A, US4524826 A, US4518548 A, US4513816 A, US4508170 A, US4501445 A, US4501326 A, US4500651 A, US4499209 A, US4498535 A, US4498531 A, US4491179 A, US4489782 A, US4485869 A, US4485868 A, US4479541 A, US4474238 A, US4474236 A, US4460044 A, US4458767 A, US4458757 A, US4457374 A, US4457365 A, US4456065 A, US4455215 A, US4452491 A, US4448251 A, US4446917 A, US4445574 A, US4444258 A, US4444255 A, US4442896 A, US4440871 A, US4440224 A, US4439307 A, US4437519 A, US4429745 A, US4428700 A, US4425967 A, US4423311 A, US4418752 A, US4417782 A, US4415034 A, US4412585 A, US4412124 A, US4410042 A, US4409090 A, US4407973 A, US4407366 A, US4401163 A, US4401162 A, US4401099 A, US4399866 A, US4398151 A, US4397732 A, US4396062 A, US4390973 A, US4390067 A, US4385661 A, US4384614 A, US4384613 A, US4381641 A, US4380930 A, US4378048 A, US4368920 A, US4368114 A, US4366864 A, US4366668 A, US4363361 A, US4359687 A, US4353418 A, US4344483 A, US4327805 A, US4324292 A, US4319635 A, US4311340 A, US4310440 A, US4306621 A, US4305463 A, US4303126 A, US4299285 A, US4299086 A, US4290650 A, US4289354 A, US4285547 A, US4282587 A, US4277416 A, US4274487 A, US4273188 A, US4265307 A, US4260192 A, US4258955 A, US4256945 A, US4254297 A, US4252191 A, US4250962 A, US4250230 A, US4248306 A, US4243511 A, US4243101 A, US4241953 A, US4234230 A, US4232902 A, US4228854 A, US4228853 A, US4216079 A, US4199025 A, US4199024 A, US4197911 A, US4193451 A, US4186801 A, US4185692 A, US4184548 A, US4183405 A, US4162707 A, US4158467 A, US4151877 A, US4151068 A, US4148359 A, US4144935 A, US4140184 A, US4140181 A, US4140180 A, US4138442 A, US4137720 A, US4133825 A, US4130575 A, US4125159 A, US4119349 A, US4114688 A, US4099567 A, US4096163 A, US4093026 A, US4093025 A, US4091869 A, US4089374 A,

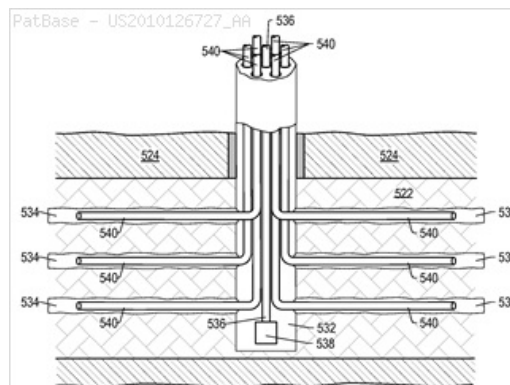
US4089372 A, US4087130 A, US4084637 A, US4083604 A, US4078608 A, US4077471 A, US4076842 A, US4076761 A, US4069868 A, US4067390 A, US4065183 A, US4064943 A, US4059308 A, US4057293 A, US4049053 A, US4048637 A, US4043393 A, US4042026 A, US4037655 A, US4031956 A, US4029360 A, US4026357 A, US4019575 A, US4018280 A, US4016245 A, US4016239 A, US4014575 A, US4010800 A, US4008762 A, US4006778 A, US4005752 A, US3999607 A, US3994341 A, US3994340 A, US3993132 A, US3992474 A, US3987851 A, US3986557 A, US3986556 A, US3986349 A, US3973628 A, US3972372 A, US3958636 A, US3954140 A, US3952802 A, US3950029 A, US3948758 A, US3948755 A, US3948319 A, US3947683 A, US3946812 A, US3943160 A, US3941421 A, US3924680 A, US3922148 A, US3907045 A, US3894769 A, US3893918 A, US3892270 A, US3882941 A, US3881551 A, US3858397 A, US3853185 A, US3832449 A, US3812913 A, US3809159 A, US3804172 A, US3804169 A, US3794116 A, US3794113 A, US3779602 A, US3770614 A, US3770398 A, US3766982 A, US3765477 A, US3759574 A, US3759328 A, US3757860 A, US3709979 A, US3702886 A, US3700280 A, US3680633 A, US3679812 A, US3679264 A, US3676078 A, US3675715 A, US3661424 A, US3661423 A, US3629551 A, US3618663 A, US3617471 A, US3614986 A, US3605890 A, US3599714 A, US3595082 A, US3593789 A, US3580987 A, US3578080 A, US3565171 A, US3562401 A, US3554285 A, US3547193 A, US3547192 A, US3542131 A, US3537528 A, US3529682 A, US3528501 A, US3526095 A, US3515837 A, US3513913 A, US3502372 A, US3501201 A, US3492463 A, US3485300 A, US3480082 A, US3477058 A, US3474863 A, US3465819 A, US345586 A, US3455383 A, US3438439 A, US3434541 A, US3412011 A, US3410977 A, US3399623 A, US3389975 A, US3386508 A, US3380913 A, US3379248 A, US3372754 A, US3362751 A, US3358756 A, US3352355 A, US3349845 A, US3346044 A, US3342267 A, US3342258 A, US3338306 A, US3332480 A, US3316962 A, US3316344 A, US3310109 A, US3303883 A, US3302707 A, US3294167 A, US3288648 A, US3285335 A, US3284281 A, US3278234 A, US3275076 A, US3273640 A, US3267680 A, US326439 A, US3262741 A, US3258069 A, US3250327 A, US3246695 A, US3241611 A, US3237689 A, US3233668 A, US3221811 A, US3221505 A, US3209825 A, US3208531 A, US3207220 A, US3205946 A, US3205944 A, US3205942 A, US3191679 A, US3183675 A, US3182721 A, US3181613 A, US3170842 A, US3165154 A, US3164207 A, US3163745 A, US3150715 A, US3149672 A, US3149670 A, US3142336 A, US3139928 A, US3138203 A, US3137347 A, US3132692 A, US3131763 A, US3127936 A, US3127935 A, US3120264 A, US3116792 A, US3114417 A, US3113623 A, US3113620 A, US3113619 A, US3110345 A, US3106244 A, US3105545 A, US3097690 A, US3095031 A, US3062282 A, US3061009 A, US3058730 A, US3057404 A, US3051235 A, US3050123 A, US3048221 A, US3044545 A, US3036632 A, US3032102 A, US3026940 A, US3017168 A, US3016053 A, US3010516 A, US3010513 A, US3007521 A, US3004603 A, US3004601 A, US2998457 A, US2997105 A, US2994376 A, US2991046 A, US2974937 A, US2970826 A, US2969226 A, US2958519 A, US2954826 A, US2952449 A, US2950240 A, US2942223 A, US2939689 A, US2932352 A, US2923535 A, US2914309 A, US2906340 A, US2906337 A, US2902270 A, US2890755 A, US2890754 A, US2889882 A, US2862558 A, US2857002 A, US2841375 A, US2825408 A, US2819761 A, US2804149 A, US2803305 A, US2801089 A, US2799341 A, US2794504 A, US2793696 A, US2789805 A, US2786660 A, US2780450 A, US2780449 A, US2777679 A, US2771954 A, US2761663 A, US2757739 A, US2743906 A, US2734579 A, US2732195 A, US2714930 A, US2703621 A, US2695163 A, US2685930 A, US2670802 A, US2642943 A, US2634961 A, US2630307 A, US2630306 A, US2623596 A, US2595979 A, US2593477 A, US2548360 A, US2497868 A, US2484063 A, US2481051 A, US2472445 A, US2466945 A, US2444755 A, US2423674 A, US2390770 A, US2381256 A, US2365591 A, US2319702 A, US2288857 A, US2244256 A, US2244255 A, US2011259591 AA, US2011132600 AA, US2010258309 AA, US2010258265 AA, US2010155070 AA, US2010101794 AA, US2009200854 AA, US2009200290 AA, US2009200031 AA, US2009200025 AA, US2009200023 AA, US2009200022 AA, US2009194524 AA, US2009194333 AA, US2009194329 AA, US2009194287 AA, US2009194286 AA, US2009194282 AA, US2009194269 AA, US2009189617 AA, US2009126929 AA, US2009120646 AA, US2009101346 AA, US2009095480 AA, US2009095479 AA, US2009095478 AA, US2009095477 AA, US2009095476 AA, US2009090509 AA, US2009090158 AA, US2009084547 AA, US2009078461 AA, US2009071652 AA, US2009038795 AA, US2008236831 AA, US2008217321 AA, US2008217016 AA, US2008217015 AA, US2008217004 AA, US2008217003 AA, US2008142217 AA, US2008142216 AA, US2008135254 AA, US2008135253 AA, US2008135244 AA, US2008128134 AA, US2008107577 AA, US2008078552 AA, US2008038144 AA, US2008035705 AA, US2008035348 AA, US2008035347 AA, US2008035346 AA, US2008017416 AA, US2008017380 AA, US2008017370 AA, US2007289733 AA, US2007284108 AA, US2007221377 AA, US2007144732 AA, US2007137857 AA, US2007137856 AA, US2007133960 AA, US2007133959 AA, US2007131428 AA, US2007131427 AA, US2007131420 AA, US2007131419 AA, US2007131415 AA, US2007131411 AA, US2007127897 AA, US2007125533 AA, US2007119098 AA, US2007108201 AA, US2007108200 AA, US2007095537 AA, US2007095536 AA, US2007045268 AA, US2007045267 AA, US2007045266 AA, US2007045265 AA, US2007044957 AA, US2007000810 AA, US2006289536 AA, US2006289340 AA, US2006231465 AA, US2006191820 AA, US2006178546 AA, US2005269313 AA, US2005269093 AA, US2005269091 AA, US2005269090 AA, US2005269089 AA, US2005133414 AA, US2005133405 AA, US2005006097 AA, US2004146288 AA, US2004144540 AA, US2004140096 AA, US2004035582 AA, US2003201098 AA, US2003196789 AA, US2003157380 AA, US2003146002 AA, US2003131989 AA, US2003085034 AA, US2003079877 AA, US2003066642 AA, US2003062159 AA, US2003029617 AA, US2002153141 AA, US2002112987 AA, US2002112890 AA, US2002076212 AA, US2002053431 AA, US2002040780 AA, US2002040779 AA, US2002038069 AA, US2002036089 AA, US2002036085 AA, US2002033253 AA, US2002028070 AA, US2002027001 AA, US1913395 A, US1681523 A, US1666488 A, US1646599 A, US1634236 A, US1510655 A, US1457479 A, US1342741 A, US1269747 A, SU1836876, SE126674, SE123138, SE123137, SE123136, SE121737, JP2000340350, GB674082, GB2068014, GB156396, GB1454324, GB1010023, EP0940558, CA2015460, CA1288043, CA1253555, CA1196594, CA1168283,

Forward Citations:

WO14145169, WO14145169, WO13052561, WO13052561, WO13016685, WO12031016, WO12031016, US9938782, US9822592, US9776794, US9755415, US9725999, US9624759, US9605524, US9540916, US9517885, US9451792, US9399905, US9341034, US9309755, US9309050, US9242800, US9226341, US9181780, US9181467, US9133398, US9127538, US9127523, US9114386, US9080917, US9080409, US9033042, US9033033, US9022118, US9022109, US9016370, US8997869, US8992771, US8954188, US8939207, US8936089, US8935106, US8881806, US8875788, US8859942, US8857506, US8857051, US8851177, US8851170, US8839860, US8789586, US8739869, US8733437, US8701788, US8700372, US8657000, US8656996, US8573292, US8151482, US8138931, US8096064, US8020313, US7954254, US2015062300, US2014216733, US2013110417, US2013087327, US2012232871, US2012232705, US2012059640, US2010206709, US2010126037, US2010102974, US10221014, US10220374, US10053286, US10047594, US10024122,

Abstract:

An in situ process for treating a hydrocarbon containing formation is provided. The process may include providing heat from one or more heaters to at least a portion of the formation. The heat may be allowed to transfer from the one or more heaters to a part of the formation such that heat from the one or more heat sources pyrolyzes at least some hydrocarbons within the part. Hydrocarbons may be produced from the formation.



24) Family number: 66393307 (US2014190691A)

Title: METHOD OF SELECTING A PRODUCTION WELL LOCATION IN A HYDROCARBON SUBSURFACE FORMATION

Priority:	US20010334568P	20011024	US20010337136P	20011024	US20020374970P	20020424
	US20020374995P	20020424	US20020279288	20021024	US20070657442	20070123
	US20080329942	20081208	US20140155043	20140114		

Family:	Publication number	Publication date	Application number	Application date
	US2014190691 AA	20140710	US20140155043	20140114

Probable Assignee: CRANE STEVEN DEXTER

Assignee(s):(std): CRANE STEVEN DEXTER ; DE ROUFFIGNAC ERIC PIERRE ; KARANIKAS JOHN MICHAEL ; MAHER KEVIN ALBERT ; VINEGAR HAROLD J ; WELLINGTON SCOTT LEE ; SUMNU DINDORUK MELIHA DENIZ ; MESSIER MARGARET ANN ; ROBERTS BRUCE EDMUNDS

Inventor(s):(std): CRANE STEVEN DEXTER ; DE ROUFFIGNAC ERIC PIERRE ; KARANIKAS JOHN MICHAEL ; MAHER KEVIN ALBERT ; MESSIER MARGARET ANN ; ROBERTS BRUCE EDMUNDS ; SUMNU DINDORUK MELIHA DENIZ ; VINEGAR HAROLD J ; WELLINGTON SCOTT LEE

International class B09C1/02 B09C1/06 C10G45/00 C10G9/24 E21B17/02 E21B36/00 E21B43/16 E21B43/24 E21B43/243
(IPC 8-9): E21B43/30 E21B44/00 E21B47/02 G01V3/26 (Advanced/Invention)

CPC: E21B43/2401

US class: 166/272.1

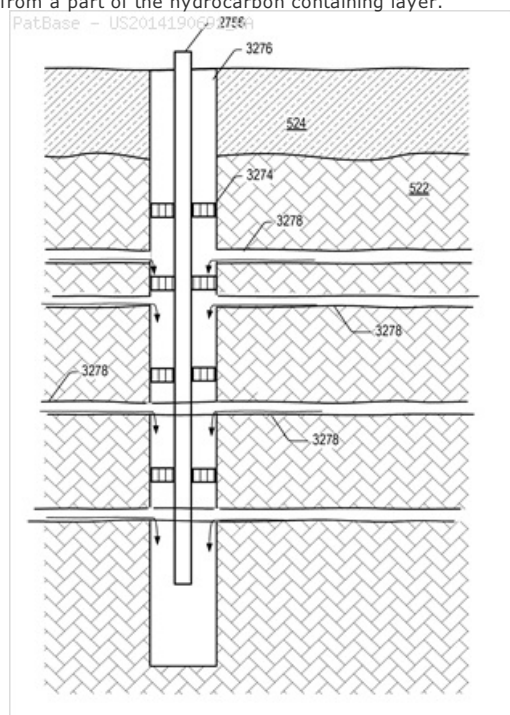
Classification Explorer

Cited documents: US4886118 A, US4646824 A, US4545435 A, US4458945 A, US2780450 A, US2734579 A,

Forward Citations: WO18200179, WO18102882, WO17127848, US9863228, US9803457, US9605524, US9601237, US2017249405, US2015248950, US2015082891, US2014216736, US10221665, US10125588, US10047594,

Abstract:

An in situ process for treating a hydrocarbon containing formation is provided. A method for treating a tar sands formation includes providing heat from one or more heaters to a hydrocarbon containing layer in the formation such that at least some hydrocarbons in the layer are mobilized; and producing at least some of the hydrocarbons through one or more production wells located in the hydrocarbon containing layer. At least one of the production wells is located at a selected depth in the hydrocarbon containing layer so that hydrocarbons of a selected quality are produced from a part of the hydrocarbon containing layer.



Title:SEISMIC MONITORING OF IN SITU CONVERSION IN A HYDROCARBON CONTAINING FORMATION

Priority:US20010334568P 20011024US20010337136P 20011024US20020374970P 20020424US20020374995P 20020424US20020279228 20021024US20020279288 20021024

Family:	Publication number	Publication date	Application number	Application date
	US7051808 BA	20060530	US20020279228	20021024

Probable Assignee: SHELL OIL CO

Assignee(s):(std): SHELL OIL CO

Assignee(s): SHELL OIL COMPANY

Inventor(s):(std): BERCHENKO ILYA EMIL ; DEMARTINI DAVID CHARLES ; VINEGAR HAROLD J

International class (IPC 8-9): B09C1/02 B09C1/06 E21B17/02 E21B47/022 E21B47/09 G01V3/26 (Advanced/Invention); E21B47/00 (Core/Invention)

US class: 166/250.01 166/250.1 166/250.15 166/302 166/66

[Classification Explorer](#)

Cited documents:

WO9901640, WO9850179, WO9701017, WO9533122, WO9512746, WO9512745, WO9512744, WO9512743, WO9512742, WO9506093, WO0181723 A1, WO0181505 A1, USRE36569 E, USRE35696 E, USRE30738 E, USRE30019 E, USRE27309 E, US94813 A, US760304 A, US6820688 BA, US6805195 BA, US6789625 BA, US6782947 BA, US6769485 BA, US6769483 BA, US6763886 BA, US6761216 BA, US6758268 BA, US6752210 BA, US6749021 BA, US6745837 BA, US6745832 BA, US6745831 BA, US6742593 BA, US6742589 BA, US6742588 BA, US6742587 BA, US6739394 BA, US6739393 BA, US6736215 BA, US6732796 BA, US6732795 BA, US6732794 BA, US6729401 BA, US6729397 BA, US6729396 BA, US6729395 BA, US6725928 BA, US6725921 BA, US6725920 BA, US6722431 BA, US6722430 BA, US6722429 BA, US6719047 BA, US6715549 BA, US6715548 BA, US6715547 BA, US6715546 BA, US6712137 BA, US6712136 BA, US6712135 BA, US6708758 BA, US6702016 BA, US6698515 BA, US6688387 BA, US6684948 BA, US6679332 BA, US6679332 B1, US6609570 BA, US6607033 BA, US6591907 BA, US6591906 BA, US6588504 BA, US6588503 BA, US6584406 BA, US6581684 BA, US6499536 BA, US6485232 BA, US6467543 BA, US6466020 BA, US6429784 BA, US6422318 BA, US6412559 BA, US6389814 BA, US6357526 BA, US6354373 BA, US6353706 BA, US6328104 BA, US6244338 BA, US6234259 BA, US6209640 BA, US6192748 BA, US6187465 BA, US6173775 B1, US6172124 B1, US6155117 A, US6152987 A, US6112808 A, US6110358 A, US6102622 A, US6102137 A, US6102122 A, US6094048 A, US6085512 A, US6079499 A, US6065538 A, US6056057 A, US6049508 A, US6035701 A, US6026914 A, US6023554 A, US6019172 A, US6016868 A, US6016867 A, US6015015 A, US5997214 A, US5985138 A, US5984582 A, US5984010 A, US5968349 A, US5955039 A, US5935421 A, US5923170 A, US5899269 A, US5891829 A, US5868202 A, US5862858 A, US5861137 A, US5826655 A, US5777229 A, US5769569 A, US5767584 A, US5760307 A, US5751895 A, US5747750 A, US5725059 A, US5713415 A, US5676212 A, US5657826 A, US5656239 A, US5652389 A, US5632336 A, US5626191 A, US5624188 A, US5621844 A, US5589775 A, US5571403 A, US5566756 A, US5566755 A, US5554453 A, US5553189 A, US5545803 A, US5541517 A, US5539853 A, US5525322 A, US5517593 A, US5515931 A, US5513710 A, US5512830 A, US5498960 A, US5497087 A, US5491969 A, US5456315 A, US5454666 A, US5439054 A, US5437506 A, US5435666 A, US5433271 A, US5431224 A, US5415231 A, US5411104 A, US5411089 A, US5411086 A, US5409071 A, US5404952 A, US5402847 A, US5400430 A, US5392854 A, US5391291 A, US5388645 A, US5388643 A, US5388642 A, US5388641 A, US5388640 A, US5377756 A, US5366012 A, US5363094 A, US5360067 A, US5349859 A, US5343152 A, US5340467 A, US5339904 A, US5339897 A, US5325918 A, US5318116 A, US5316664 A, US5306640 A, US5305829 A, US5305239 A, US5305212 A, US5297626 A, US5295763 A, US5289882 A, US5285846 A, US5284878 A, US5261490 A, US5258755 A, US5255742 A, US5236039 A, US5229583 A, US5229102 A, US5226961 A, US5218301 A, US5217076 A, US5211230 A, US5207273 A, US5201219 A, US5190405 A, US5189283 A, US5182792 A, US5168927 A, US5145003 A, US5126037 A, US5109928 A, US5099918 A, US5097903 A, US5085276 A, US5082055 A, US5082054 A, US5074365 A, US5065818 A, US5064006 A, US5060726 A, US5060287 A, US5059303 A, US5055180 A, US5054551 A, US5050386 A, US5046559 A, US5041210 A, US5027896 A, US5020596 A, US5014788 A, US5011329 A, US5008085 A, US4994093 A, US4988389 A, US4987368 A, US4984594 A, US4983319 A, US4982786 A, US4974425 A, US4933640 A, US4931171 A, US4928765 A, US4927857 A, US4926941 A, US4913065 A, US4912971 A, US48994 A, US4895206 A, US4893504 A, US4886118 A, US4885080 A, US4884455 A, US4883582 A, US4866983 A, US4860544 A, US4856587 A, US4856341 A, US4848924 A, US4848460 A, US4845434 A, US4831600 A, US4828031 A, US4827761 A, US4818370 A, US4817711 A, US4815790 A, US4793656 A, US4791373 A, US4787452 A, US4778586 A, US4776638 A, US4772634 A, US4769606 A, US4769602 A, US4766958 A, US4762425 A, US4756367 A, US4744245 A, US4743854 A, US4737267 A, US4734115 A, US4730162 A, US4728892 A, US4728412 A, US4719423 A, US4716960 A, US4706751 A, US4704514 A, US4702758 A, US4700142 A, US4698149 A, US4696345 A, US4694907 A, US4691771 A, US4683947 A, US4682652 A, US4671102 A, US4669542 A, US4663711 A, US4662443 A, US4662439 A, US4662438 A, US4658215 A, US4651825 A, US4644283 A, US4640353 A, US4640352 A, US4637464 A, US4635197 A, US4626665 A, US4623444 A, US4616705 A, US4613754 A, US4608818 A, US4605680 A, US4605489 A, US4598772 A, US4598770 A, US4598392 A, US4597444 A, US4597441 A, US4594468 A, US4592423 A, US4585066 A, US4583242 A, US4583046 A, US4577690 A, US4577503 A, US4576231 A, US4573530 A, US4572299 A, US4571491 A, US4570715 A, US4552214 A, US4549396 A, US4544478 A, US4542648 A, US4540882 A, US4537252 A, US4530401 A, US4529939 A, US4524827 A, US4524826 A, US4524113 A, US4518548 A, US4513816 A, US4508170 A, US4502010 A, US4501445 A, US4501326 A, US4499209 A, US4498535 A, US4491179 A, US4489782 A, US4485869 A, US4483398 A, US4479541 A, US4476927 A, US4474238 A, US4463807 A, US4460044 A, US4458767 A, US4458757 A, US4457374 A, US4457365 A, US4456065 A, US4455215 A, US4452491 A, US4448252 A, US4448251 A, US4445574 A, US4444258 A, US4444255 A, US4443762 A, US4442896 A, US4440224 A, US4439307 A, US4437519 A, US4429745 A, US4428700 A, US4425967 A, US4423311 A, US4418752 A, US4415034 A, US4412585 A, US4412124 A, US4410042 A, US4409090 A, US4407973 A, US4401163 A, US4399866 A, US4398151 A, US4397732 A, US4396062 A, US4390973 A, US4390067 A, US4384948 A, US4384614 A, US4384613 A, US4381641 A, US4380930 A, US4378048 A, US4375302 A, US4372398 A, US4366668 A, US4363361 A, US4359687 A, US4353418 A, US4344483 A, US4342429 A, US4323848 A, US4319635 A, US4306621 A, US4305463 A, US4303126 A, US4299285 A, US4299086 A, US4285547 A, US4282587 A, US4277416 A, US4274487 A, US4273188 A, US4265307 A, US4260192 A, US4260018 A, US4252191 A, US4250962 A, US4250230 A, US4243511 A, US4243101 A, US4234230 A, US4228854 A, US4197911 A, US4193451 A, US4186801 A, US4185692 A, US4184548 A, US4183405 A, US4167213 A, US4160479 A, US4158467 A, US4151877 A, US4148359 A, US4144935 A, US4140181 A, US4140180 A, US4138442 A, US4133825 A, US4130575 A, US4125159 A, US4114688 A, US4099567 A, US4096163 A, US4093026 A, US4093025 A, US4091869 A, US4089374 A, US4089372 A, US4087130 A, US4084637 A, US4076761 A, US4069868 A, US4067390 A, US4065183 A, US4057293 A, US4049053 A, US4048637 A, US4043393 A, US4042026 A, US4031956 A, US4026357 A, US4019575 A, US4018280 A, US4016239 A, US4010800 A, US4008762 A, US4006778 A, US4005752 A, US3999607 A, US3994341 A, US3994340 A, US3993132 A, US3992148 A, US3987851 A, US3986557 A, US3986556 A, US3986349 A, US3982592 A, US3982591 A, US3973628 A, US3954140 A, US3952802 A, US3948755 A, US3948319 A, US3947683 A, US3947656 A, US3941421 A, US3924680 A, US3922148 A, US3907045 A, US3892270 A, US3882941 A, US3881551 A, US3874733 A, US3870063 A, US3853185 A, US3809159 A, US3804172 A, US3804169 A, US3794116 A, US3779602 A, US3775185 A, US3770398 A, US3766982 A,

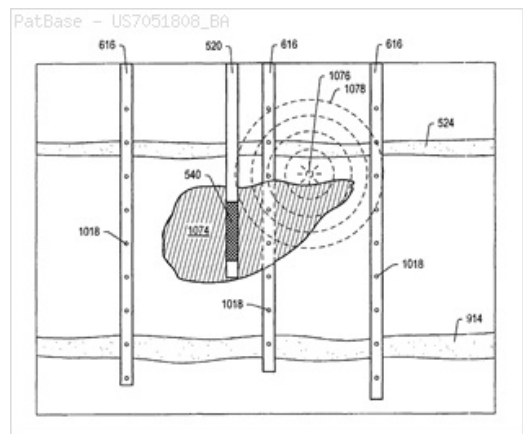
US3759574 A, US3759328 A, US3700280 A, US3691291 A, US3680633 A, US3675715 A, US3661423 A, US3622071 A, US3618663 A, US3617471 A, US3605890 A, US3599714 A, US3595082 A, US3593790 A, US3580987 A, US3562401 A, US3547193 A, US3529682 A, US3528501 A, US3513913 A, US3502372 A, US3501201 A, US3497000 A, US3477058 A, US345586 A, US3455383 A, US3454365 A, US3434541 A, US3389975 A, US3386508 A, US3380913 A, US3379248 A, US3352355 A, US3349845 A, US3342267 A, US3342258 A, US3338306 A, US3316962 A, US3310109 A, US3302707 A, US3294167 A, US3288648 A, US3285335 A, US3284281 A, US3275076 A, US3273640 A, US3267680 A, US326439 A, US3250327 A, US3246695 A, US3244231 A, US3241611 A, US3237689 A, US3233668 A, US3223166 A, US3221811 A, US3209825 A, US3208531 A, US3207220 A, US3205946 A, US3205944 A, US3205942 A, US3191679 A, US3183675 A, US3182721 A, US3181613 A, US3170842 A, US3165154 A, US3164207 A, US3163745 A, US3149672 A, US3149670 A, US3142336 A, US3139928 A, US3137347 A, US3132692 A, US3131763 A, US3127936 A, US3127935 A, US3120264 A, US3116792 A, US3114417 A, US3113623 A, US3113620 A, US3113619 A, US3110345 A, US3106244 A, US3105545 A, US3095031 A, US3084919 A, US3079085 A, US3062282 A, US3061009 A, US3050123 A, US3048221 A, US3044545 A, US3036632 A, US3032102 A, US3026940 A, US3017168 A, US3016053 A, US3010516 A, US3010513 A, US3007521 A, US3004603 A, US3004601 A, US3004596 A, US2998457 A, US2994376 A, US2974937 A, US2970826 A, US2969226 A, US2958519 A, US2954826 A, US2939689 A, US2932352 A, US2923535 A, US2914309 A, US2906340 A, US2906337 A, US2902270 A, US2890755 A, US2890754 A, US2857002 A, US2841375 A, US2825408 A, US2819761 A, US2804149 A, US2803305 A, US2801089 A, US2793696 A, US2789805 A, US2786660 A, US2780450 A, US2780449 A, US2777679 A, US2771954 A, US2743906 A, US2734579 A, US2732195 A, US2714930 A, US2703621 A, US2695163 A, US2685930 A, US2670802 A, US2642943 A, US2634961 A, US2630307 A, US2630306 A, US2623596 A, US2595979 A, US2593477 A, US2584605 A, US2548360 A, US2497868 A, US2484063 A, US2472445 A, US2466945 A, US2444755 A, US2423674 A, US2375689 A, US2244256 A, US2244255 A, US2004108111 AA, US2004069486 AA, US2004040715 AA, US2004020642 AA, US2004015023 AA, US2003213594 AA, US2003209348 AA, US2003205378 AA, US2003201098 AA, US2003196810 AA, US2003196801 AA, US2003196793 AA, US2003196789 AA, US2003196788 AA, US2003192691 AA, US2003183390 AA, US2003178191 AA, US2003173081 AA, US2003173080 AA, US2003173078 AA, US2003164239 AA, US2003164238 AA, US2003164234 AA, US2003155111 AA, US2003148894 AA, US2003146002 AA, US2003142964 AA, US2003141068 AA, US2003141067 AA, US2003141066 AA, US2003131996 AA, US2003131995 AA, US2003131994 AA, US2003131993 AA, US2003116315 AA, US2003111223 AA, US2003102130 AA, US2003102126 AA, US2003102125 AA, US2003102124 AA, US2003100451 AA, US2003098605 AA, US2003098149 AA, US2003085034 AA, US2003080604 AA, US2003079877 AA, US2003075318 AA, US2003070807 AA, US2003066644 AA, US2003066642 AA, US2003062164 AA, US2003062154 AA, US2003051872 AA, US2003029617 AA, US2003024699 AA, US2003019626 AA, US2003006039 AA, US2002191969 AA, US2002191968 AA, US2002170708 AA, US2002132862 AA, US2002117303 AA, US2002112987 AA, US2002112890 AA, US2002108753 AA, US2002104654 AA, US2002096320 AA, US2002084074 AA, US2002077515 AA, US2002076212 AA, US2002074117 AA, US2002066565 AA, US2002062961 AA, US2002062959 AA, US2002062052 AA, US2002062051 AA, US2002057905 AA, US2002056552 AA, US2002056551 AA, US2002053436 AA, US2002053435 AA, US2002053432 AA, US2002053431 AA, US2002053429 AA, US2002052297 AA, US2002050357 AA, US2002050356 AA, US2002050353 AA, US2002050352 AA, US2002049360 AA, US2002049358 AA, US2002046883 AA, US2002046839 AA, US2002046838 AA, US2002046837 AA, US2002046832 AA, US2002045553 AA, US2002043405 AA, US2002043367 AA, US2002043366 AA, US2002043365 AA, US2002040781 AA, US2002040780 AA, US2002040779 AA, US2002040778 AA, US2002040177 AA, US2002040173 AA, US2002039486 AA, US2002038712 AA, US2002038711 AA, US2002038710 AA, US2002038709 AA, US2002038708 AA, US2002038706 AA, US2002038705 AA, US2002038069 AA, US2002036103 AA, US2002036089 AA, US2002036084 AA, US2002036083 AA, US2002035307 AA, US2002034380 AA, US2002033280 AA, US2002033257 AA, US2002033256 AA, US2002033255 AA, US2002033254 AA, US2002033253 AA, US2002029885 AA, US2002029884 AA, US2002029882 AA, US2002029881 AA, US2002027001 AA, US2002018697 AA, US2002004533 AA, US2001049342 AA, US1913395 A, US1681523 A, US1666488 A, US1646599 A, US1634236 A, US1510655 A, US1457479 A, US1342741 A, US1269747 A, SU1836876, SE126674, SE123138, SE123137, SE123136, SE121737, GB697189, GB674082, GB2086416, GB1588693, GB156396, GB1501310, GB1454324, GB1010023, EP0940558 A1, EP0570228 B1, EP0357314, EP0294809, CA983704, CA2015460, CA1288043, CA1253555, CA1196594, CA1168283, CA1165361,

Forward Citations:

WO14177188, US9975701, US9835017, US9803135, US9776794, US9755415, US9669997, US9665604, US9528322, US9517885, US9466896, US9399905, US9337550, US9309755, US9309050, US9242800, US9226341, US9181780, US9129728, US9127538, US9127523, US9121965, US9080917, US9080409, US9051829, US9048653, US9033042, US9022118, US9022109, US9016370, US9008884, US8967259, US8954188, US8943686, US8939207, US8881806, US8859942, US8857506, US8857051, US8851170, US8833453, US8820406, US8816203, US8791396, US8789586, US8752904, US8739874, US8732946, US8701769, US8701768, US8662175, US8656998, US8640779, US8636323, US8631866, US8627887, US8608249, US8586867, US8586866, US8579031, US8562078, US8555971, US8536497, US8502120, US8485847, US8485256, US8485252, US8459359, US8450540, US8448707, US8434555, US8381815, US8381806, US8356935, US8353347, US8327932, US8327681, US8296968, US8281861, US8276661, US8272455, US8267185, US8267170, US8261832, US8257112, US8256512, US8240774, US8233782, US8230927, US8225866, US8224165, US8220539, US8196658, US8192682, US8191630, US8177305, US8172335, US8168570, US8162059, US8151907, US8151482, US8146669, US8146661, US8113272, US8096064, US8083813, US8071037, US8042610, US8028438, US8027571, US8011451, US8006407, US7986869, US7975398, US7954254, US7950453, US7942203, US7942197, US7931086, US7912358, US7866388, US7866386, US7866385, US7860377, US7849922, US7845411, US7832484, US7831134, US7831133, US7802377, US7802376, US7798221, US7798220, US7748137, US2018348111, US2014254319, US2014083681, US2014040324, US2011170843, US2011024653, US2010133143, US2010126037, US2010073506, US2009324453, US2009301724, US2009288820, US2009194287, US2009151190, US2009095480, US2008178490, US2007294914, US2006112589, US2005000109, US10221014, US10208585, US10053286, US10036233, ES2477665, EP1860277, EP1860277,

Abstract:

In an embodiment, a system may be used to heat a hydrocarbon containing formation. The system may include a conduit placed within an opening in the formation. A conductor may be placed within the conduit. The conductor may provide heat to a portion of the formation. In some embodiments, an electrically conductive material may be coupled to a portion of the conductor in the overburden. The electrically conductive material may lower the electrical resistance of the portion of the conductor in the overburden. Lowering the electrical resistance of the portion of the conductor in the overburden may reduce the heat output of the portion in the overburden. The system may allow heat to transfer from the conductor to a section of the formation.



26) Family number: 46843334 (US2010230830A)

© PatBase

Title:	SYSTEMS AND METHODS FOR PROCESSING CO2																						
Priority:	US20090158992P 20090310		US20090168166P 20090409		US20090178475P 20090514																		
	US20090178360P 20090514		US20090221457P 20090629		US20090221631P 20090630																		
	US20090223657P 20090707		US20090228210P 20090724		US20090230042P 20090730																		
	US20090239429P 20090902		US20090289657P 20091223		US20100306412P 20100219																		
	US20100311275P 20100305		US20100721545 20100310																				
Family:	<table><tr><th>Publication number</th><th>Publication date</th><th>Application number</th><th>Application date</th><th></th></tr><tr><td>US2010230830 AA</td><td>20100916</td><td>US20100721545</td><td>20100310</td><td></td></tr><tr><td>US8137444 BB</td><td>20120320</td><td>US20100721545</td><td>20100310</td><td></td></tr></table>								Publication number	Publication date	Application number	Application date		US2010230830 AA	20100916	US20100721545	20100310		US8137444 BB	20120320	US20100721545	20100310	
Publication number	Publication date	Application number	Application date																				
US2010230830 AA	20100916	US20100721545	20100310																				
US8137444 BB	20120320	US20100721545	20100310																				
Probable Assignee:	CALERA CORP																						
Assignee(s):(std):	CALERA CORP ; ELLIOTT ROBERT W ; FARSAK KASRA ; O CONNOR RICHARD P ; WALL JUSTIN ; SELF KYLE ; SEEKER WILLIAM RANDALL																						
Assignee(s):	MOSS LANDING CEMENT CO LLC																						
Inventor(s):(std):	ELLIOTT ROBERT W ; FARSAK KASRA ; O CONNOR RICHARD P ; SEEKER WILLIAM RANDALL ; SELF KYLE ; WALL JUSTIN																						
Inventor(s):	O'CONNOR RICHARD P																						
Agent(s):	CALERA ERIC WITT CORP																						
International class (IPC 8-9):	B01D47/00 B01D47/06 B01D53/14 C01B32/60 (Advanced/Invention); B01D47/00 B01D47/06 (Core/Invention)																						
CPC:	B01D53/1456 B01D53/18 B01D53/60 B01D53/62 B01D53/64 B01D53/78 B01D2257/302 B01D2257/404 B01D2257/504 B01D2257/602 Y02C10/04																						
European class:	B01D53/14H B01D53/18 B01D53/60 B01D53/62 B01D53/64 B01D53/78 L01D257/302 L01D257/404 L01D257/504 L01D257/602 Y02C10/04																						
US class:	261/108 261/108S 261/111 261/111S 261/20 261/20P 261/78.1 261/78.100S 95/152 95/236 96/234 96/235																						

[Classification Explorer](#)

Cited documents: WO9913967 A1, WO9634997 A1, WO9418119, WO9316216 A1, WO11038076 A1, WO1107609 A1, WO11008223 A1, WO10136744 A1, WO10132863 A1, WO10104989 A1, WO10101953 A1, WO10093716 A1, WO10093713 A1, WO10091029 A1, WO10087823 A1, WO10074687 A1, WO10074686 A1, WO10068924 A1, WO10051458 A1, WO10048457 A1, WO10039909 A1, WO10039903 A1, WO10030826 A1, WO10009273 A1, WO10008896 A1, WO10006242 A1, WO09155378 A1, WO09146436 A1, WO09102817 A2, WO09102816 A2, WO09086460 A1, WO09070273 A1, WO09065031 A1, WO09049085 A2, WO09039655 A1, WO09036087 A1, WO09032331 A2, WO09024826 A1, WO09006295 A2, WO08151060 A1, WO08148055 A1, WO08142025 A2, WO08142017 A2, WO08140821 A2, WO08124538 A1, WO08115662 A2, WO08108657 A1, WO08101293 A1, WO08095057 A2, WO08089523 A1, WO08068322 A1, WO08061305 A1, WO08031834 A1, WO08026201 A2, WO08018928 A2, WO07142945 A2, WO07140544 A1, WO07139392 A1, WO07123917 A2, WO07106883 A2, WO07106372 A2, WO07096671 A1, WO07094691 A1, WO07082505 A2, WO07071633 A1, WO07069902 A1, WO07060149 A1, WO07022595 A1, WO07016271 A2, WO07003013 A1, WO06134080 A1, WO06113997 A1, WO06099599 A2, WO06036396 A2, WO06034339 A1, WO06009600, WO05108297 A2, WO05086843 A2, WO05078836 A2, WO05028379 A1, WO04098740 A2, WO04094043 A2, WO04041731 A1, WO03068685 A1, WO03054508 A2, WO03008071 A1, WO0200551 A2, WO0196243 A1, WO0107365 A1, US7914685 BB, US7906028 BB, US7887694 BB, US7875163 BB, US7829053 BB, US7815880 BB, US7790012 BB, US7771684 BB, US7754169 BB, US7753618 BB, US7749476 BB, US7744761 BB, US7735274 BB, US7727374 BB, US7704369 BB, US7674443 BA, US7628847 BB, US7595001 BB, US7541011 BB, US7459134 BB, US7455854 BB, US7452449 BB, US7440871 BB, US7427449 BB, US7390444 BB, US7347896 BB, US7314847 BA, US7285166 BB, US7282189 BB, US7261912 BB, US7255842 BA, US7198722 BB, US7182851 BB, US7135604 BB, US7132090 BB, US7040400 BB, US7037434 BB, US6938425 BB, US6936573 BB, US6908507 BB, US6890497 BB, US6890419 BB, US6881256 BB, US6841512 BA, US6786963 BB, US6776972 BB, US6755905 BB, US6712946 BB, US6648949 BA, US6638413 BA, US6623555 BA, US6620856 BA, US6613141 BB, US6602630 BA, US6537456 BB, US6518217 BB, US6517631 BB, US6517631 BA, US6495013 BB, US6475460 BA, US6447437 BA, US6444107 BB, US6428767 BA, US6416574 BA, US6402831 BA, US6387212 BA, US6387174 BB, US6375825 BA, US6352576 BA, US6331207 BA, US6309570 BA, US6293731 BA, US6280505 BA, US6264740 BA, US6264736 BA, US6251356 BA, US6248166 BA, US6235186 BA, US6221225 BA, US6217728 BA, US6200543 BA, US6200381 BA, US6190428 BA, US6186426 BA, US6180012 BA, US6180012 B1, US6174507 BA, US6174507 B1, US6168426 BA, US6139605 A, US6129832 A, US6090197 A, US6080297 A, US6071336 A, US6059974 A, US6024848 A, US5965201 A, US5958353 A, US5925255 A, US5897704 A, US5885478 A, US5855759 A, US5855666 A, US5853686 A, US5849075 A, US5846669 A, US5803894 A, US5792440 A, US5785868 A, US5776328 A, US5766339 A, US5766338 A, US5749930 A, US5702585 A, US5690729 A, US5624493 A, US5614078 A, US5595641 A, US5584926 A, US5584923 A, US5569558 A, US5547027 A, US5536310 A, US5531865 A, US5531821 A, US5520898 A, US5470671 A, US5388456 A, US5378279 A, US5376343 A, US5366513 A, US5364611 A, US5362688 A, US5282935 A, US5275794 A, US5246551 A, US5244304 A, US5230734 A, US5141620 A, US5100633 A,

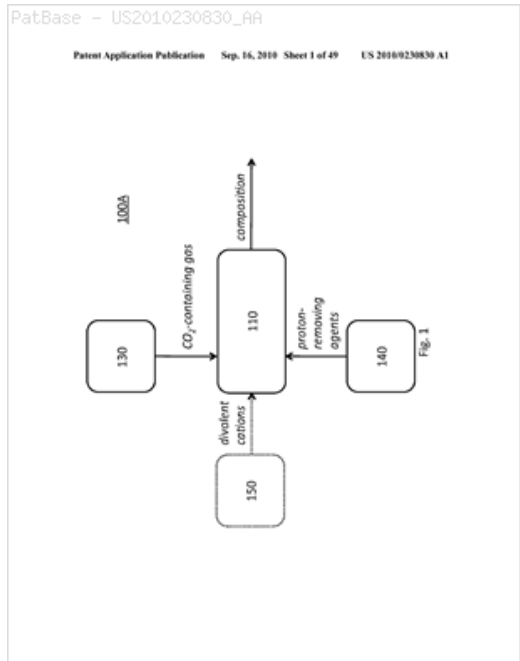
US5037286 A, US4931264 A, US4915914 A, US4915877 A, US4899544 A, US4852344 A, US4838941 A, US4818367 A, US4804449 A, US4716027 A, US4670234 A, US4634533 A, US4620969 A, US4588443 A, US4561945 A, US4504450 A, US4477573 A, US4450009 A, US4410606 A, US4377554 A, US4376101 A, US4370307 A, US4363667 A, US4361475 A, US4340572 A, US4337230 A, US4335788 A, US4308298 A, US4307066 A, US4303549 A, US4264367 A, US4253922 A, US4246075 A, US4242185 A, US4219396 A, US4217186 A, US4188291 A, US4164537 A, US4157250 A, US4147599 A, US4140510 A, US4128462 A, US4117060 A, US4107022 A, US4106296 A, US4080270 A, US4069063 A, US4036749 A, US4026716 A, US4002721 A, US4000991 A, US3975503 A, US3970528 A, US3963592 A, US3953568 A, US3925534 A, US3917795 A, US3904496 A, US3864236 A, US3861928 A, US3847632 A, US3816592 A, US3733788 A, US3725267 A, US3721621 A, US3686372 A, US3663379 A, US3630762 A, US3627480 A, US3627479 A, US3574530 A, US3558769 A, US3525675 A, US3511712 A, US3511595 A, US3466169 A, US3463814 A, US3420775 A, US3374164 A, US3350292 A, US3340003 A, US3322574 A, US3264125 A, US3262865 A, US3202522 A, US3196092 A, US3179579 A, US3165460 A, US3120426 A, US3046152 A, US2967807 A, US2934419 A, US2606839 A, US2458039 A, US2383674 A, US2329940 A, US2304391 A, US2242294 A, US2082101 A, US2011071309 AA, US2011067605 AA, US2011067603 AA, US2011067600 AA, US2011059000 AA, US2011054084 AA, US2011042230 AA, US2011036728 AA, US2011035154 AA, US2011033239 AA, US2011030957 AA, US2011030586 AA, US2010326328 AA, US2010319586 AA, US2010313794 AA, US2010313793 AA, US2010290967 AA, US2010276299 AA, US2010258035 AA, US2010247410 AA, US2010239487 AA, US2010239467 AA, US2010236242 AA, US2010230293 AA, US2010229725 AA, US2010224503 AA, US2010219373 AA, US2010200419 AA, US2010196104 AA, US2010158786 AA, US2010155258 AA, US2010154679 AA, US2010150802 AA, US2010144521 AA, US2010140103 AA, US2010135882 AA, US2010135865 AA, US2010132591 AA, US2010132556 AA, US2010116683 AA, US2010111810 AA, US2010089142 AA, US2010084280 AA, US2010083880 AA, US2010077922 AA, US2010077691 AA, US2010068109 AA, US2010063902 AA, US2010051859 AA, US2010037653 AA, US2010024686 AA, US2010000444 AA, US2009301352 AA, US2009294366 AA, US2009263301 AA, US2009232861 AA, US2009214408 AA, US2009202410 AA, US2009186244 AA, US2009169452 AA, US2009148238 AA, US2009143211 AA, US2009120644 AA, US2009120288 AA, US2009107038 AA, US2009101008 AA, US2009090277 AA, US2009081112 AA, US2009081096 AA, US2009081093 AA, US2009078162 AA, US2009043687 AA, US2009020044 AA, US2009010827 AA, US2009001020 AA, US2008289495 AA, US2008277319 AA, US2008276553 AA, US2008275149 AA, US2008270272 AA, US2008248350 AA, US2008245672 AA, US2008245660 AA, US2008245274 AA, US2008236143 AA, US2008233029 AA, US2008223727 AA, US2008213146 AA, US2008178739 AA, US2008171158 AA, US2008138265 AA, US2008134891 AA, US2008112868 AA, US2008104858 AA, US2008099122 AA, US2008059206 AA, US2008035036 AA, US2008031801 AA, US2007266632 AA, US2007261947 AA, US2007251393 AA, US2007240570 AA, US2007233616 AA, US2007217981 AA, US2007212584 AA, US2007202032 AA, US2007187247 AA, US2007186820 AA, US2007184394 AA, US2007163443 AA, US2007148509 AA, US2007113500 AA, US2007099038 AA, US2007092427 AA, US2007056487 AA, US2007045125 AA, US2007002847 AA, US2006288912 AA, US2006286011 AA, US2006196836 AA, US2006195002 AA, US2006189837 AA, US2006186562 AA, US2006185985 AA, US2006185560 AA, US2006185516 AA, US2006184445 AA, US2006173169 AA, US2006169593 AA, US2006169177 AA, US2006165583 AA, US2006105082 AA, US2006093540 AA, US2006060532 AA, US2006057036 AA, US2006051274 AA, US2006048517 AA, US2006039853 AA, US2005255174 AA, US2005252215 AA, US2005238563 AA, US2005232856 AA, US2005232855 AA, US2005180910 AA, US2005154669 AA, US2005136310 AA, US2005129606 AA, US2005118081 AA, US2005098499 AA, US2005087496 AA, US2005036932 AA, US2005031522 AA, US2005031515 AA, US2005011770 AA, US2005002847 AA, US2004267077 AA, US2004259231 AA, US2004234443 AA, US2004231568 AA, US2004228788 AA, US2004224214 AA, US2004219090 AA, US2004213705 AA, US2004151957 AA, US2004139891 AA, US2004126293 AA, US2004111968 AA, US2004109927 AA, US2004052865 AA, US2004040715 AA, US2004040671 AA, US2004028963 AA, US2004014845 AA, US2003229572 AA, US2003213937 AA, US2003188668 AA, US2003126899 AA, US2003123930 AA, US2003027023 AA, US2003017088 AA, US2002155103 AA, US2002151017 AA, US2002127474 AA, US2002009410 AA, US2001054253 AA, US2001023655 AA, US2001022952 AA, US1924503 A, US1897725 A, US1865833 A, US1759361 A, US1678345 A, US1655171 A, NL7607470 A, JP7061842 A2, JP63312988, JP59100280, JP51102357 A1, JP3170363 A2, JP3020491, JP2006076825, JP2005052762, JP2004174370, JP2003041388, JP2002273163 A2, JP2000226402 A2, JP10305212 A2, JP10287461, GB911386 A, GB2371810, GB2210035 A1, GB2208163 A1, GB2050325 A1, GB2032441, GB1392907, EP2253600 A1, EP1716911 A1, EP1650162 A1, EP1571105 B1, EP1554031 B1, EP1379469 B1, EP0844905 B1, EP0628339 B1, EP0591350 B1, EP0522382 A1, EP0487102 B1, DE3638317 A1, DE3146326 A1, DE2653649 A1, DE19631794 A1, DE19523324 A1, DE19512163 A1, CA2659447 AA, CA2646462, CA2617325 AA, CA2353830 AA, CA2308224 C, CA2255287 AA, CA1335974, CA1303822 A1, AU2008256636 BB, AU2008256636 B2, AU2007100157,

Forward Citations:

WO17192728, WO16160612, WO16044631, WO13014421, WO13014421, WO12158689, WO12139743, US9969660, US9968883, US9957623, US9957621, US9944573, US9902652, US9880124, US9869513, US9828313, US9625210, US9611421, US9598826, US9528761, US9513115, US9469547, US9446372, US9446341, US9359221, US9327207, US9279615, US9267211, US9260314, US9216376, US9205375, US9200375, US9187835, US9187834, US9139472, US9133581, US9061940, US9056790, US8999057, US8999041, US8936773, US8932400, US8906156, US8894830, US8883104, US8869477, US8857118, US8834688, US8795508, US8753488, US8741244, US8691175, US8689460, US8608833, US8603424, US8491858, US8470275, US8431100, US8357270, US8333944, US8177909, US8151482, US8137455, US8114214, US8062418, US8020313, US8015725, US8006446, US7993500, US7987613, US7984566, US7895769, US7891114, US2017362095, US2016258263, US2015233708, US2015129208, US2015001745, US2014202206, US2013011315, US2012325646, US2012240764, US2012077971, US2011303089, US2011203939, US2011132234, US2011126715, US2011071309, US2011054084, US2010313793, US2010223804, US2009186767, US2009186761, US2009127127, US2008134540, US10236526, US10161050, US10130897, US10052584, US10047020, EP2734286, EP2696959, EP2511003,

Abstract:

Systems and methods for lowering levels of carbon dioxide and other atmospheric pollutants are provided. Economically viable systems and processes capable of removing vast quantities of carbon dioxide and other atmospheric pollutants from gaseous waste streams and sequestering them in storage-stable forms are also discussed.



27) Family number: 22439376 (US2002045140A)

© PatBase

Title: HIGH VELOCITY REBURN FUEL INJECTOR

Priority: US19950483441 19950607

Family:

Publication number	Publication date	Application number	Application date
US2002045140 AA	20020418	US19950483441	19950607
US6481998 BB	20021119	US19950483441	19950607

Probable Assignee: GE ENERGY AND ENVIRONMENTAL RESEARCH CORP

Assignee(s):(std): GE ENERGY AND ENVIRONMENTAL RE ; MOYEDA DAVID ; NGUYEN QUANG ; PAYNE ROY

Assignee(s): GE ENERGY AND ENVIRONMENTAL RESEARCH CORP ; GE ENERGY AND E NV

Inventor(s):(std): MOYEDA DAVID ; NGUYEN QUANG ; PAYNE ROY

International class
(IPC 8-9): F23G7/08 (Advanced/Invention);
F23G7/06 (Core/Invention)

International class
(IPC 1-7): F23C7/02 F23D1/00 F23D11/38 F23D13/20 F23D14/00 F23G7/08 F23M3/02

CPC: F23G7/08

European class: F23G7/08

US class: 110/212 110/213 431/187 431/202 431/5 431/8

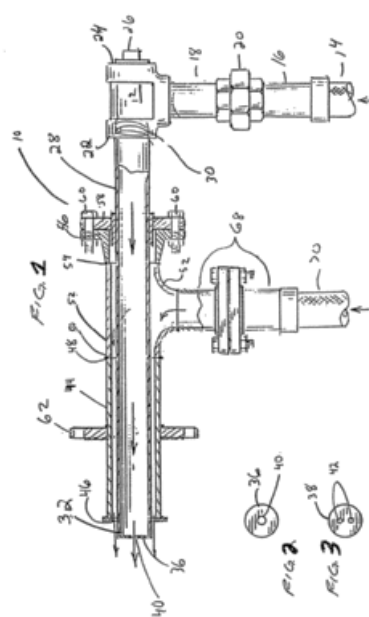
[Classification Explorer](#)

Cited documents: WO8803634 A1, US765534 A, US5449286 A, US5443805 A, US5366699 A, US5332386 A, US5275552 A, US5252298 A, US5249952 A, US5242295 A, US5213492 A, US5209656 A, US5201650 A, US5158445 A, US5158443 A, US5087175 A, US5078064 A, US4960059 A, US4783325 A, US4645449 A, US4642047 A, US4496306 A, US4466359 A, US4419074 A, US4403941 A, US4345529 A, US4320875 A, US3893810 A, US3881870 A, US3864072 A, US3780674 A, US3780530 A, US3729285 A, US3724401 A, US3695192 A, US3567399 A, US3408167 A, US3266552 A, US3236281 A, US3051100 A, US2838105 A, US2810433 A, US2618325 A, US2138998 A, US1950044 A, US1721484 A, US1151258 A, SU1179016 T, GB2109, GB190102109 A, DE3604304 A1,

Forward Citations: US9689614, US7967600, US7249946, US7014458, US6685464, US2017038065, US2012082946, US2011151386, US2010141925, US2010116183, US2007224564, US2004161716, US2004115576, JP2007263550, EP1840462, EP1840462,

Abstract:

An apparatus and method for high velocity injection of a stream of fluid fuel into a stream of NOX containing combustion effluents downstream of a primary combustion zone, without the use of recirculated flue gas or other carrier gas. The apparatus includes a fuel introducing member that has a fuel receiving end for receiving fluid fuel from a fuel source and a fuel injection end for injecting the fluid fuel into the stream of combustion effluents. A fuel passage is in fluid communication with the fuel receiving end and the fuel injection end of the fuel introducing member. A means for increasing the velocity of the fluid fuel, without the need of a carrier gas, is associated with the fuel introducing member.

**28) Family number: 48436458** (US2011059000A)

© PatBase

Title: METHODS OF SEQUESTERING CO₂

Priority: US20070017405P 20071228 US20080057173P 20080529 US20080073319P 20080617
 US20080082766P 20080722 US20080088340P 20080812 US20080088347P 20080813
 US20080101626P 20080930 US20080121872P 20081211 WO2008US88242 20081223
 WO2008US88246 20081223 US20080344019 20081224 US20100942558 20101109

Family:

Publication number	Publication date	Application number	Application date
US2011059000 AA	20110310	US20100942558	20101109
US8333944 BB	20121218	US20100942558	20101109

Probable Assignee: CALERA CORP

Assignee(s):(std): BARD ALLEN J ; CALERA CORP ; CONSTANTZ BRENT R ; DANZIGER ROBERT ; DECKER VALENTIN ; OMELON SIDNEY ; KIRK DONALD W ; WAY J DOUGLAS ; RYAN CECILY ; GILLIAM RYAN J ; FERNANDEZ MIGUEL ; YOUNGS ANDREW ; FARSAD KASRA ; TUET PHILIP BRIAN

Inventor(s):(std): OMELON SIDNEY ; KIRK DONALD W ; WAY J DOUGLAS ; DECKER VALENTIN ; BARD ALLEN J ; DANZIGER ROBERT ; RYAN CECILY ; GILLIAM RYAN J ; FERNANDEZ MIGUEL ; YOUNGS ANDREW ; FARSAD KASRA ; CONSTANTZ BRENT R ; TUET PHILIP BRIAN

Agent(s): CALERA CORP

International class
(IPC 8-9): B01D53/62 B01D53/78 (Advanced/Invention)

CPC: Y02W10/33 Y02W10/37 C01F11/18 B01D53/1425 B01D53/1475 B01D53/1493 B01D53/62 B01D53/77 B01D2251/402 B01D2251/404 B01D2257/302 B01D2257/404 B01D2257/504 B01D2257/602 C01F5/24 C01P2004/03 C02F1/66 C02F1/683 C04B7/367 Y02C10/04 Y02C10/06 Y02E60/366 Y02P20/152 Y02P40/18 C01B32/60 Y02P20/133

European class: B01D53/14E B01D53/14H6 B01D53/14M B01D53/62 C01B31/24 C01F11/18 C01F5/24 C02F1/68K C04B7/36E4 L01D251/402 L01D251/404 L01D257/302 L01D257/404 L01D257/504 L01D257/602 L01D53/77 M01P4/03 M02F1/66 Y02C10/04 Y02C10/06 Y02E60/36F

US class: 422/168 422/168S 423/220 423/220S 423/225 423/230 423/232 423/232P 423/234

[Classification Explorer](#)

Cited documents: WO9913967 A1, WO9634997 A1, WO9418119, WO9316216 A1, WO11102868 A1, WO11097468 A2, WO11081681 A1, WO11075680 A1, WO11066293 A1, WO11049996 A1, WO11038076 A1, WO11017609 A1, WO11008223 A1, WO10136744 A1, WO10132863 A1, WO10104989 A1, WO10101953 A1, WO10093716 A1, WO10093713 A1, WO10091029 A1, WO10087823 A1, WO10074687 A1, WO10074686 A1, WO10068924 A1, WO10051458 A1, WO10048457 A1, WO10039909 A1, WO10039903 A1, WO10030826 A1, WO10009273 A1, WO10008896 A1, WO10006242 A1, WO09155378 A1, WO09146436 A1, WO09102817 A2, WO09102816 A2, WO09086460 A1, WO09070273 A1, WO09065031 A1, WO09049085 A2, WO09039655 A1, WO09036087 A1, WO09032331 A2, WO09024826 A1, WO09006295 A2, WO08151060 A1, WO08148055 A1, WO08142025 A2, WO08142017 A2, WO08140821 A2, WO08124538 A1, WO08115662 A2, WO08108657 A1, WO08101293 A1, WO08095057 A2, WO08089523 A1, WO08068322 A1, WO08061305 A1, WO08031834 A1, WO08026201 A2, WO08018928 A2, WO07142945 A2, WO07140544 A1, WO07139392 A1, WO07123917 A2, WO07106883 A2, WO07106372 A2, WO07096671 A1, WO07094691 A1, WO07082505 A2, WO07071633 A1, WO07069902 A1, WO07060149 A1, WO07022595 A1, WO07016271 A2, WO07003013 A1, WO06134080 A1, WO06113997 A1, WO06099599 A2, WO06094968 A1, WO06036396 A2, WO06034339 A1, WO06032797, WO06009600 A2, WO05108297 A2, WO05086843 A2, WO05078836 A2, WO05028379 A1, WO04098740 A2, WO04094043 A2, WO04041731 A1, WO03068685 A1, WO03054508 A2, WO03008071 A1, WO02085788 A1, WO0200551 A2, WO0196243 A1, WO0107365 A1, US8114214 BB, US8062418 BB, US8006446 BB, US7993511 BB, US7993500 BB, US7966250 BB, US7939336 BB, US7931809 BB, US7922809 BA, US7914685 BB, US7906028 BB, US7887694 BB, US7875163 BB, US7842264 BB, US7829053 BB, US7815880 BB, US7790012 BB, US7771684 BB, US7754169 BB, US7753618 BB, US7749476 BB, US7744761 BB, US7736430 BB, US7735274 BB, US7727374 BB, US7704370 BB, US7704369 BB,

US7674443 BA, US7628847 BB, US7597747 BA, US7595001 BB, US7541011 BB, US7459134 BB, US7455854 BB, US7452449 BB, US7440871 BB, US7427449 BB, US7390444 BB, US7347896 BB, US7314847 BA, US7285166 BB, US7282189 BB, US7261912 BB, US7255842 BA, US7198722 BB, US7182851 BB, US7147692 BB, US7135604 BB, US7132090 BB, US7040400 BB, US7037434 BB, US6938425 BB, US6936573 BB, US6908507 BB, US6890497 BB, US6890419 BB, US6881256 BB, US6841512 BA, US6786963 BB, US6776972 BB, US6755905 BB, US6712946 BB, US6648949 BA, US6638413 BA, US6623555 BA, US6620856 BA, US6613141 BB, US6602630 BA, US6537456 BB, US6518217 BB, US6517631 BB, US6517631 BA, US6495013 BB, US6475460 BA, US6468074 BA, US6447437 BA, US6444107 BB, US6428767 BA, US6416574 BA, US6402831 BA, US6387212 BA, US6387174 BB, US6375825 BA, US6352576 BA, US6331207 BA, US6309570 BA, US6293731 BA, US6284208 BA, US6280505 BA, US6264740 BA, US6264736 BA, US6251356 BA, US6248166 BA, US6235186 BA, US6228145 BA, US6221225 BA, US6217728 BA, US6200543 BA, US6200381 BA, US6190428 BA, US6186426 BA, US6180074 BA, US6180074 B1, US6180012 BA, US6180012 B1, US6174507 BA, US6174507 B1, US6139605 A, US6129832 A, US6090197 A, US6080320 A, US6080297 A, US6071336 A, US6059974 A, US6024848 A, US5994838 A, US5965201 A, US5958353 A, US5925255 A, US5897704 A, US5885478 A, US5879948 A, US5855759 A, US5855666 A, US5853686 A, US5849075 A, US5846669 A, US5833736 A, US5803894 A, US5792440 A, US5785868 A, US5776328 A, US5766339 A, US5766338 A, US5749930 A, US5702585 A, US5690729 A, US5624493 A, US5618392 A, US5614078 A, US5595641 A, US5584926 A, US5584923 A, US5569558 A, US5547027 A, US5536310 A, US5531865 A, US5531821 A, US5520898 A, US5470671 A, US5455013 A, US5439509 A, US5427608 A, US5388456 A, US5378279 A, US5376343 A, US5366513 A, US5364611 A, US5362688 A, US5348712 A, US5318758 A, US5282935 A, US5275794 A, US5246551 A, US5244304 A, US5230734 A, US5141620 A, US5127765 A, US5100633 A, US5037286 A, US4931264 A, US4915914 A, US4915877 A, US4899544 A, US4880447 A, US4852344 A, US4838941 A, US4818367 A, US4804449 A, US4738695 A, US4716027 A, US4670234 A, US4634533 A, US4620969 A, US4588443 A, US4561945 A, US4508545 A, US4477573 A, US4450009 A, US4432175 A, US4410606 A, US4377554 A, US4376101 A, US4370307 A, US4363667 A, US4361475 A, US4340572 A, US4337230 A, US4335788 A, US4315872 A, US4312646 A, US4308298 A, US4307066 A, US4303549 A, US4264367 A, US4263021 A, US4253922 A, US4246075 A, US4242185 A, US4219396 A, US4217186 A, US4188291 A, US4164537 A, US4157250 A, US4147599 A, US4140510 A, US4128462 A, US4117060 A, US4107022 A, US4106296 A, US4080270 A, US4069063 A, US4045524 A, US4036749 A, US4026716 A, US4002721 A, US4000991 A, US3997303 A, US3975503 A, US3970528 A, US3963592 A, US3959419 A, US3953568 A, US3925534 A, US3917795 A, US3912801 A, US3907526 A, US3904496 A, US3864236 A, US3861928 A, US3847632 A, US3834129 A, US3816592 A, US3733788 A, US3725267 A, US3721621 A, US3686372 A, US3663379 A, US3630762 A, US3627480 A, US3627479 A, US3574530 A, US3558769 A, US3525675 A, US3511712 A, US3511595 A, US3471999 A, US3466169 A, US3463814 A, US3420775 A, US3374164 A, US3350292 A, US3340003 A, US3322574 A, US3264125 A, US3262865 A, US3222267 A, US3202522 A, US3196092 A, US3179579 A, US3165460 A, US3120426 A, US3046152 A, US2967807 A, US2934419 A, US2810450 A, US2606839 A, US2458039 A, US2383674 A, US2329940 A, US2304391 A, US2273795 A, US2242294 A, US2241674 A, US2227465 A, US2204771 A, US2082101 A, US2054315 A, US2011277670 AA, US2011277474 AA, US2011247336 A9, US2011240916 AA, US2011226989 A9, US2011203489 AA, US2011147227 AA, US2011132234 AA, US2011091955 AA, US2011091366 AA, US2011083968 AA, US2011079515 AA, US2011071309 AA, US2011067605 AA, US2011067603 AA, US2011067600 AA, US2011054084 AA, US2011042230 AA, US2011036728 AA, US2011035154 AA, US2011033239 AA, US2011030957 AA, US2011030586 AA, US2010326328 AA, US2010319586 AA, US2010313794 AA, US2010313793 AA, US2010290967 AA, US2010276299 AA, US2010258506 AA, US2010258035 AA, US2010247410 AA, US2010239487 AA, US2010239467 AA, US2010236242 AA, US2010230830 AA, US2010230293 AA, US2010229725 AA, US2010224503 AA, US2010219373 AA, US2010200419 AA, US2010196104 AA, US2010158786 AA, US2010155258 AA, US2010154679 AA, US2010150802 AA, US2010144521 AA, US2010140103 AA, US2010135882 AA, US2010135865 AA, US2010132591 AA, US2010132556 AA, US2010116683 AA, US2010111810 AA, US2010089142 AA, US2010084280 AA, US2010083880 AA, US2010077922 AA, US2010077691 AA, US2010068109 AA, US2010063902 AA, US2010051859 AA, US2010037653 AA, US2010024686 AA, US2010000444 AA, US2009301352 AA, US2009294366 AA, US2009263301 AA, US2009232861 AA, US2009214408 AA, US2009202410 AA, US2009186244 AA, US2009169452 AA, US2009148238 AA, US2009143211 AA, US2009120644 AA, US2009120288 AA, US2009117019 AA, US2009107038 AA, US2009101008 AA, US2009090277 AA, US2009081112 AA, US2009081096 AA, US2009081093 AA, US2009081092 AA, US2009078162 AA, US2009043687 AA, US2009020044 AA, US2009010827 AA, US2009001020 AA, US2008289495 AA, US2008277319 AA, US2008276553 AA, US2008275149 AA, US2008270272 AA, US2008248350 AA, US2008245672 AA, US2008245660 AA, US2008245274 AA, US2008241337 AA, US2008236143 AA, US2008233029 AA, US2008223727 AA, US2008213146 AA, US2008178739 AA, US2008171158 AA, US2008138265 AA, US2008134891 AA, US2008112868 AA, US2008104858 AA, US2008099122 AA, US2008059206 AA, US2008035036 AA, US2008031801 AA, US2007266632 AA, US2007261947 AA, US2007251393 AA, US2007240570 AA, US2007233616 AA, US2007217981 AA, US2007212584 AA, US2007202032 AA, US2007187247 AA, US2007186820 AA, US2007184394 AA, US2007163443 AA, US2007148509 AA, US2007113500 AA, US2007099038 AA, US2007092427 AA, US2007084344 AA, US2007056487 AA, US2007045125 AA, US2006295 A, US2006288912 AA, US2006286011 AA, US2006249380 AA, US2006245993 AA, US2006196836 AA, US2006195002 AA, US2006189837 AA, US2006186562 AA, US2006185985 AA, US2006185560 AA, US2006185516 AA, US2006184445 AA, US2006173169 AA, US2006169593 AA, US2006169177 AA, US2006165583 AA, US2006105082 AA, US2006093540 AA, US2006060532 AA, US2006057036 AA, US2006051274 AA, US2006048517 AA, US2006039853 AA, US2005255174 AA, US2005252215 AA, US2005238563 AA, US2005232856 AA, US2005232855 AA, US2005180910 AA, US2005154669 AA, US2005136310 AA, US2005129606 AA, US2005118081 AA, US2005112044 AA, US2005103234 AA, US2005098499 AA, US2005087496 AA, US2005036932 AA, US2005031522 AA, US2005031515 AA, US2005011770 AA, US2005002847 AA, US2004267077 AA, US2004259231 AA, US2004234443 AA, US2004231568 AA, US2004228788 AA, US2004224214 AA, US2004219090 AA, US2004213705 AA, US2004151957 AA, US2004139891 AA, US2004126293 AA, US2004111968 AA, US2004109927 AA, US2004052865 AA, US2004040715 AA, US2004040671 AA, US2004028963 AA, US2004014845 AA, US2003229572 AA, US2003213937 AA, US2003188668 AA, US2003146163 AA, US2003126899 AA, US2003123930 AA, US2003027023 AA, US2003017088 AA, US2002155103 AA, US2002151017 AA, US2002127474 AA, US2002009410 AA, US2001054253 AA, US2001023655 AA, US2001022952 AA, US1986736 A, US1924503 A, US1897725 A, US1865833 A, US1823269 A, US1785365 A, US1759361 A, US1678345 A, US1655171 A, US1543942 A, US1493579 A, US1176747 A, US1172930 A, US1169766 A, RU1819854, NL7607470 A, JP7061842 A2, JP63312988, JP59100280, JP51102357 A1, JP4317721 A2, JP4190829, JP3184892 B2, JP3170363 A2, JP3020491, JP2009279530 A2, JP2006076825, JP2005052762, JP2004174370, JP2003041388, JP2002273163 A2, JP200226402 A2, JP10305212 A2, JP10287461, GB911386 A, GB2371810 A1, GB2210035 A1, GB2208163 A1, GB2050325 A1, GB2032441, GB1392907, EP2253600 A1, EP1716911 A1, EP1650162 A1, EP1571105 B1, EP1554031 B1, EP1379469 B1, EP0844905 B1, EP0628339 B1, EP0591350 B1, EP0522382 A1, EP0487102 B1, DE3638317 A1, DE3146326 A1, DE2653649 A1, DE19631794 A1, DE19523324 A1, DE19512163 A1, CN101289200 A, CN101219330 A, CA2682952 AA, CA2659447 AA, CA2646462, CA2617325 AA, CA2440325 AA, CA2353830 AA, CA2308224 C, CA2255287 AA, CA1335974, CA1303822 A1, AU2008256636 BB, AU2008256636 B2, AU2008101140 AD, AU2007201171 AA, AU2007101174 AD, AU2007100157 AD, AU2001213118 BB, AU2001213118 B2,

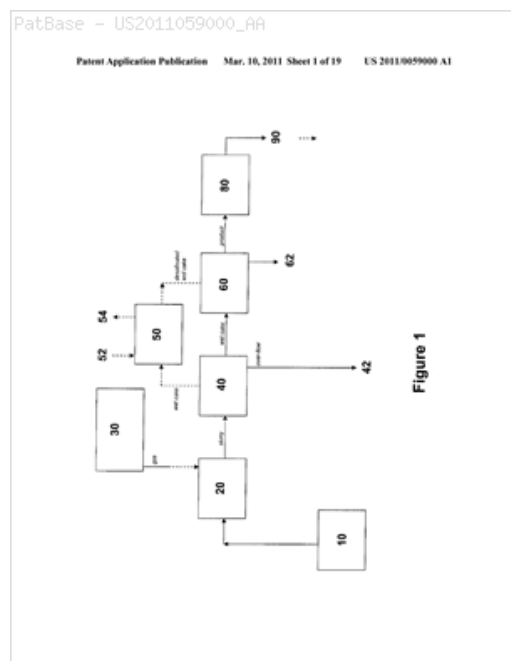
Forward Citations:

WO15088685, WO13106712, US9957623, US9957621, US9902652, US9880124, US9828313, US9790131, US9758437, US9738562, US9718045, US9644219, US9604849, US9597656, US9499846, US9492945, US9463580, US9458407, US9388072, US9376345, US9345208, US9283511, US9267211, US9260314, US9216926, US9200375, US9187835, US9187834, US9139472, US9133581, US9108883, US9061940, US9056790, US8999057, US8936773, US8932400, US8906156, US8894830, US8883104, US8869477, US8857118, US8834688, US8709151, US8691175, US8603424, US8491858, US8470275,

US8431100, US8357270, US8354086, US8177909, US8151482, US8137455, US8137444, US8114214, US8062418, US8006446, US7993500, US2012312194, US2011174196, US2011165400, US2011132234, US2011054084, US2010313794, US2010313793, US2010230293, US2010229725, US2010140103, US2010135882, US2010135865, US2010132556, US2010126037, US2010002587, US2006112588, US10236526, US10161050, US10156373, AU2012267929,

Abstract:

Methods of sequestering carbon dioxide (CO₂) are provided. Aspects of the methods include precipitating a storage stable carbon dioxide sequestering product from an alkaline-earth-metal-containing water and then disposing of the product, e.g., by placing the product in a disposal location or using the product as a component of a manufactured composition. Also provided are systems for practicing methods of the invention.



29) Family number: 46814459 (WO09086460A1)

© PatBase

Title: METHODS OF SEQUESTERING CO₂

Priority: US20070017405P 20071228 US20080057173P 20080529 US20080073319P 20080617
US20080082766P 20080722 US20080088340P 20080812 US20080088347P 20080813
US20080101626P 20080930 US20080121872P 20081211 AU20080278300 20081223
AU20080278300 20081223 WO2008US88246 20081223 WO2008US88242 20081223
WO2008US88318 20081224

Family:

Publication number	Publication date	Application number	Application date
AR070056 AA	20100310	AR2008P105752	20081229
AU2008278301 AA	20090716	AU20080278301	20081224
AU2008278301 BB	20100121	AU20080278301	20081224
CA2652803 AA	20090628	CA20082652803	20081224
CN101687648 A	20100331	CN200880023216	20081224
CN101687648 B	20150128	CN200880023216	20081224
EA201000896 A1	20110630	EA20100000896	20081224
EP2118004 A1	20091118	EP20080867440	20081224
EP2118004 A4	20100331	EP20080867440	20081224
GB200901414 A0	20090311	GB20090001414	20081224
GB201004571 A0	20100505	GB20100004571	20100319
GB201005476 A0	20100519	GB20100005476	20100331
GB2460910 A1	20091223	GB20090001414	20081224
GB2460910 A8	20100714	GB20090001414	20081224
GB2460910 B2	20100623	GB20090001414	20081224
GB2460910 B8	20100714	GB20090001414	20081224
HK1139376 A1	20110506	HK20100105950	20100614
HK1139376 A1	20100917	HK20100105950	20100614
HK1139376 B	20110506	HK20100105950	20100614
IL206580 A0	20101230	IL20080206580	20081224
MX2010007197 A1	20101005	MX20100007197	20081224
TW200946210 A	20091116	TW20080150781	20081226
WO09086460 A1	20090709	WO2008US88318	20081224

Probable Assignee: CALERA CORP

Assignee(s):(std): OMELON SIDNEY ; KIRK DONALD W ; WAY J DOUGLAS ; DECKER VALENTIN ; GILLIAM RYAN J ; FARSAID KASRA ; TUET PHILIP BRIAN ; YOUNGS ANDREW ; BARD ALLEN J ; CALERA CORP ; CONSTANTZ BRENT ; DANZIGER ROBERT

Assignee(s): WAY J

Inventor(s):(std): TUET PHILIP BRIAN ; WAY DOUGLAS J ; WAY J DOUGLAS ; YOUNGS ANDREW ; BARD ALLEN ; BARD ALLEN J ; CONSTANTZ BRENT ; DANZIGER ROBERT ; DECKER VALENTIN ; FARSAID KASRA ; FERNANDEZ MIGUEL ; GILLIAM RYAN ; GILLIAM RYAN J ; KIRK DONALD ; KIRK DONALD W ; OMELON SIDNEY ; VALENTIN DECKER ; SIDNEY OMELON ; ROBERT DANZIGER ; MIGUEL FERNANDEZ ; KASRA FARSAID ; DOUGLAS WAY J ; CECILY RYAN ; BRIAN TUET PHILIP ; BRENT CONSTANTZ ; ANDREW

YOUNGS ; RYAN CECILY

Inventor(s): RYAN J GILLIAM ; ALLEN J BARD ; JDOUGLAS WAY ; PHILIP BRIAN TUET ; J DOUGLAS WAY ; DONALD W KIRK ; WAY J

Agent(s): PIZZEYS; PIZZEYS PATENT AND TRADE MARK ATTORNEYS PTY LTD; BROUGHTON JON PHILIP; MAYER BROWN JSM; FIELD BRET E

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

International class (IPC 8-9): B01D B01D53/14 B01D53/62 B01D53/74 B01D53/78 B01D59/00 C01B C01B31/20 C01B31/24 C01F C01F11/18 C01F5/24 C04B14/26 C25B1/00 C25B1/16 F25J F25J3/00 (Advanced/Invention); B01D53/14 B01D53/62 B01D59/00 C01B31/00 C01F11/00 C01F5/00 C25B1/00 F25J3/00 (Core/Invention); B01D53/62 B01D53/74 B01D53/78 C04B14/26 (Core/Non-invention); B01D C01B C01F F25J (Subclass/Invention)

International class (IPC 1-7): B01D59/00

CPC: Y02E70/10 Y02E70/20 Y02W10/33 Y02W10/37 C01F11/182 F25J3/00 C01F11/18 B01D53/1425 B01D53/1475 B01D53/1493 B01D53/62 B01D53/77 B01D2251/402 B01D2251/404 B01D2257/302 B01D2257/404 B01D2257/504 B01D2257/602 C01F5/24 C01P2004/03 C02F1/66 C02F1/683 C04B7/367 Y02C10/04 Y02C10/06 Y02E60/366 Y02P20/152 Y02P40/18 C01B32/60 C01B32/50 Y02P20/133

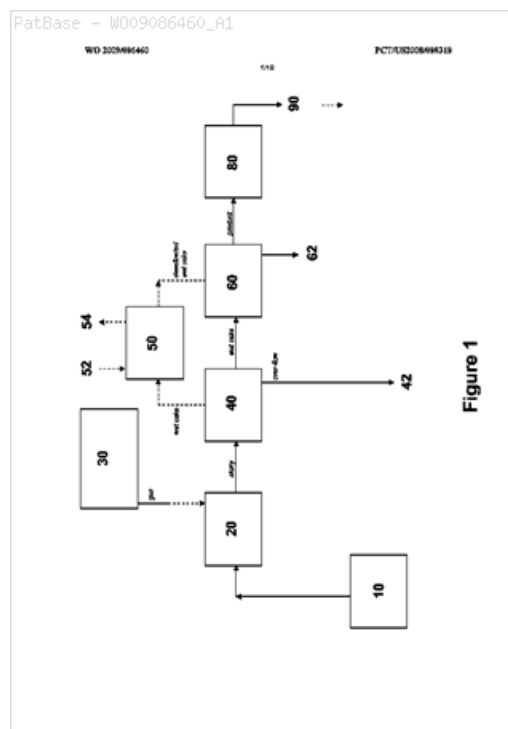
European class: B01D53/14E B01D53/14H6 B01D53/14M B01D53/62 C01B31/24 C01F11/18 C01F5/24 C02F1/68K C04B7/36E4 L01D251/402 L01D251/404 L01D257/302 L01D257/404 L01D257/504 L01D257/602 L01D53/77 M01P4/03 M02F1/66 Y02C10/04 Y02C10/06 Y02E60/36F Y02E70/10

[Classification Explorer](#)

Cited documents: WO05108297 A2, WO0010691, US6890497 BB, US6352576 BA, US6200543 BA, US4376101 A, US3511712 A, US3196092 A, US2006185985 AA, US2005180910 AA, US2004219090 AA, CN1185989,

Forward Citations: WO12158969, US9968883, US9957623, US9957621, US9902652, US9880124, US9828313, US9714406, US9359221, US9267211, US9260314, US9205375, US9200375, US9187835, US9187834, US9139472, US9133581, US9061940, US9056790, US8999057, US8936773, US8932400, US8906156, US8894830, US8883104, US8869477, US8857118, US8834688, US8795508, US8741244, US8691175, US8603424, US8506916, US8491858, US8470275, US8431100, US8367025, US8357270, US8333944, US8246727, US8177909, US8137455, US8137444, US8114214, US8105558, US8062418, US8006446, US7993616, US7993511, US7993500, US7966250, US7939336, US7931809, US7914685, US7906086, US7887694, US7875163, US7829053, US7815880, US7790012, US7771684, US7754169, US7753618, US7749476, US7744761, US10236526, US10203434, US10161050, TWI625160, TWI614217, TWI492780, GB2461622, GB2461622, EP2831313, EP2710650, EP2244808, EP2244808, CN103998381, AU2009290159,

Abstract:
Methods of sequestering carbon dioxide (CO2) are provided. Aspects of the methods include precipitating a storage stable carbon dioxide sequestering product from an alkaline-earth-metal-containing water and then disposing of the product, e.g., by placing the product in a disposal location or using the product as a component of a manufactured composition. Also provided are systems for practicing methods of the invention.



30) Family number: 47097473 (US2010258265A)

© PatBase

Title:	RECOVERING ENERGY FROM A SUBSURFACE FORMATION			
Priority:	US20090168498P 20090410	US20090250218P 20091009	US20090250337P 20091009	
	US20090250347P 20091009	US20090250353P 20091009	US20100757632 20100409	
Family:	Publication number	Publication date	Application number	Application date
	US2010258265 AA	20101014	US20100757632	20100409
	US8327932 BB	20121211	US20100757632	20100409

Probable Assignee: SHELL OIL CO
Assignee(s):(std): KARANIKAS JOHN MICHAEL ; MCNEIL III ROBERT IRVING ; POLLARD RICHARD ; SHELL OIL CO
Assignee(s): SHELL OIL COMPANY
Inventor(s):(std): KARANIKAS JOHN MICHAEL ; MCNEIL III ROBERT IRVING ; POLLARD RICHARD
Agent(s): SHELL OIL COMPANY; SHELL OIL CO
International class E21B43/00 F24J3/08 (Advanced/Invention)
(IPC 8-9):
CPC: E21B43/243 E21B36/04 E21B43/2401 H05B2214/03
European class: E21B43/243
US class: 165/45 165/45P 166/251.1 166/256 166/256S 166/261 166/262

[Classification Explorer](#)

Cited documents: WO9901640, WO9723924, WO9506093, WO08048448, WO0181505, WO0019061, USRE39244 E, USRE39077 E, USRE35696 E, USRE30738 E, USRE30019 E, US94813 A, US8196658 BB, US8192682 BB, US8191630 BB, US8177305 BB, US8172335 BB, US8162405 BB, US8162059 BB, US8151907 BB, US8151880 BB, US8146669 BB, US8146661 BB, US8083813 BB, US8070840 BB, US8042610 BB, US8027571 BB, US7986869 BB, US7950453 BB, US7942203 BB, US7942197 BB, US7931086 BB, US7912358 BB, US7866388 BB, US7866386 BB, US7866385 BB, US7860377 BB, US7849922 BB, US7845411 BB, US7841425 BB, US7841408 BB, US7841401 BB, US7832484 BB, US7831134 BB, US7831133 BB, US7798221 BB, US7798220 BB, US7793722 BB, US7785427 BB, US7735935 BB, US7730947 BB, US7730946 BB, US7730945 BB, US7717171 BB, US7703513 BB, US7683296 BB, US7681647 BB, US7677314 BB, US7677310 BB, US7673786 BB, US7673681 BB, US7644765 BB, US7640980 BB, US7635025 BB, US7635024 BB, US7635023 BB, US7631690 BB, US7631689 BB, US7610962 BB, US7604052 BB, US760304 A, US7597147 BB, US7591310 BB, US7584789 BB, US7581589 BB, US7575053 BB, US7575052 BB, US7562707 BB, US7562706 BB, US7559368 BB, US7559367 BB, US7556096 BB, US7556095 BB, US7549470 BB, US7546873 BB, US7540324 BB, US7533719 BB, US7527094 BB, US7510000 BB, US7500528 BB, US7490665 BB, US7481274 BB, US7461691 BB, US7441597 BB, US7435037 BB, US7431076 BB, US7424915 BB, US7383877 BB, US7370704 BB, US7360588 BB, US7357180 BB, US7353872 BB, US7331385 BB, US7320364 BB, US7259688 BB, US7225866 BB, US7219734 BB, US7204327 BB, US7170424 BB, US7165615 BB, US7156176 BB, US7153373 BB, US7147059 BB, US7147057 BB, US7128153 BB, US7128150 BB, US7121342 BB, US7121341 BB, US7114880 BB, US7114566 BB, US7104319 BB, US7100994 BB, US7096953 BB, US7096942 BA, US7096941 BB, US7090013 BB, US7086468 BB, US7086465 BB, US7077199 BB, US7077198 BB, US7073578 BB, US7066257 BB, US7066254 BB, US7063145 BB, US7055602 BB, US7055600 BB, US7051808 BA, US7051807 BB, US7048051 BB, US7040400 BB, US7040399 BB, US7040398 BB, US7040397 BB, US7036583 BB, US7032809 BA, US7032660 BB, US7011154 BB, US7004251 BB, US7004247 BB, US6997518 BB, US6997255 BB, US6995646 BA, US6994169 BB, US6994168 BB, US6994160 BB, US6991045 BB, US6991036 BB, US6991033 BB, US6991032 BB, US6981553 BB, US6981548 BB, US6973967 BB, US6969123 BB, US6966374 BB, US6966372 BB, US6964300 BB, US6959761 BB, US6958704 BB, US6953087 BB, US6951250 BB, US6951247 BB, US6948563 BB, US6948562 BB, US6942037 BA, US6942032 BB, US6932155 BB, US6929067 BB, US6923258 BB, US6923257 BB, US6918444 BB, US6918443 BB, US6918442 BB, US6915850 BB, US6913079 BB, US6913078 BB, US6910537 BB, US6910536 BB, US6902004 BB, US6902003 BB, US6896053 BB, US6889769 BB, US6880635 BB, US6880633 BB, US6877555 BB, US6877554 BB, US6871707 BB, US6866097 BB, US6854929 BB, US6854534 BB, US6820688 BB, US6805195 BB, US6805194 BB, US6789625 BB, US6782947 BB, US6769485 BB, US6769483 BB, US6763886 BB, US6761216 BB, US6758268 BB, US6755251 BB, US6752210 BB, US6749021 BB, US6745837 BB, US6745832 BB, US6745831 BB, US6742593 BB, US6742589 BB, US6742588 BB, US6742587 BB, US6739394 BB, US6739393 BB, US6736215 BB, US6732796 BB, US6732795 BB, US6732794 BB, US6729401 BB, US6729397 BB, US6729396 BB, US6729395 BB, US6725928 BB, US6725920 BB, US6722431 BB, US6722430 BB, US6722429 BB, US6719047 BB, US6715553 BB, US6715550 BB, US6715548 BB, US6715547 BB, US6715546 BB, US6712137 BB, US6712136 BB, US6712135 BB, US6708758 BB, US6702016 BB, US6698515 BB, US6688387 BA, US6684948 BA, US6679332 BB, US66609570 BB, US6607033 BB, US6591907 BB, US6591906 BB, US6588504 BB, US6588503 BB, US6588266 BB, US6585046 BB, US6584406 BA, US6581684 BB, US6540018 BA, US6516891 BA, US6499536 BA, US6485232 BA, US6467543 BA, US6429784 BA, US6427124 BA, US6422318 BA, US6412559 BA, US6412557 BA, US6388947 BA, US6357526 BA, US6354373 BA, US6353706 BA, US6328104 BA, US6318468 BA, US6288372 BA, US6283230 BA, US6269881 BA, US6269310 BA, US6257334 BA, US6193010 BA, US6192748 BA, US6173775 B1, US6172124 B1, US6155117 A, US6152987 A, US6112808 A, US6110358 A, US6102622 A, US6102137 A, US6102122 A, US6099208 A, US6094048 A, US6088294 A, US6085512 A, US6084826 A, US6079499 A, US6078868 A, US6065538 A, US6056057 A, US6049508 A, US6039121 A, US6035701 A, US6026914 A, US6023554 A, US6022834 A, US6019172 A, US6016868 A, US6016867 A, US6015015 A, US5997214 A, US5992522 A, US5985138 A, US5984582 A, US5984578 A, US5984010 A, US5968349 A, US5958365 A, US5935421 A, US5926437 A, US5923170 A, US5911898 A, US5899958 A, US5899269 A, US5879110 A, US5868202 A, US5862858 A, US5861137 A, US5828797 A, US5826655 A, US5826653 A, US5816325 A, US5802870 A, US5782301 A, US5777229 A, US5769569 A, US5760307 A, US5759022 A, US5751895 A, US5723423 A, US5713415 A, US5656239 A, US5652389 A, US5632336 A, US5624188 A, US5621845 A, US5621844 A, US5589775 A, US5579575 A, US5571403 A, US5566756 A, US5566755 A, US5554453 A, US5553189 A, US5545803 A, US5541517 A, US5525322 A, US5517593 A, US5512732 A, US5503226 A, US5498960 A, US5497087 A, US5491969 A, US5456315 A, US5454666 A, US5439054 A, US5437506 A, US5435666 A, US5433271 A, US5431224 A, US5415231 A, US5411104 A, US5411089 A, US5411086 A, US5409071 A, US5404952 A, US5400430 A, US5392854 A, US5391291 A, US5388645 A, US5388643 A, US5388642 A, US5388641 A, US5388640 A, US5377756 A, US5366012 A, US5363094 A, US5360067 A, US5358045 A, US5349859 A, US5340467 A, US5339904 A, US5339897 A, US5332036 A, US5325918 A, US5318709 A, US5318116 A, US5316664 A, US5306640 A, US5305829 A, US5305239 A, US5297626 A, US5295763 A, US5289882 A, US5285846 A, US5285071 A, US5261490 A, US5255742 A, US5255740 A, US5246273 A, US5246071 A, US5236039 A, US5229583 A, US5226961 A, US5217076 A, US5217075 A, US5211230 A, US5209987 A, US5207273 A, US5201219 A, US5193618 A, US5190405 A, US5189283 A, US5182792 A, US5182427 A, US5168927 A, US5152341 A, US5145003 A, US5133406 A, US5126037 A, US5109928 A, US5103920 A, US5103909 A, US5099918 A, US5097903 A, US5085276 A, US5082055 A, US5082054 A, US5073625 A, US5070533 A, US5066852 A, US5065818 A, US5065501 A, US5064006 A, US5060726 A, US5060287 A, US5059303 A, US5054551 A, US5050386 A, US5046560 A, US5046559 A, US5042579 A, US5041210 A, US5032042 A, US5027896 A, US5020596 A, US5011329 A, US5008085 A, US4994093 A, US4987368 A, US4985313 A, US4984594 A, US4983319 A, US4982786 A, US4974425 A, US4940095 A, US4928765 A, US4927857 A, US4926941 A, US4913065 A, US4912971 A, US489994 A, US4895206 A, US4893504 A, US4886118 A, US4885080 A, US4884635 A, US4884455 A, US4883582 A, US4866983 A, US4860544 A, US4856587 A, US4856341 A, US4849611 A, US4848924 A, US4848460 A, US4842448 A, US4828031 A, US4827761 A, US4823890 A, US4821798 A, US4818370 A, US4817711 A, US4815791 A, US4814587 A, US4808925 A, US4794226 A, US4793409 A, US4787452 A, US4785163 A, US4778586 A, US4776638 A, US4772634 A, US4769606 A, US4769602 A, US4766958 A, US4762425 A, US4756367 A, US4752673 A, US4744245 A, US4743854 A, US4734115 A, US4733057 A, US4730162 A, US4728892 A, US4719423 A, US4717814 A, US4716960 A, US4706751 A, US4704514 A, US4701587 A, US4698583 A, US4698149 A, US4696345 A, US4695713 A, US4694907 A, US4691771 A, US4682652 A, US4671102 A, US4669542 A, US4663711 A, US4662443 A, US4662439 A, US4662438 A, US4662437 A, US4658215 A, US4651825 A, US4645906 A, US4644283 A, US4643256 A, US4640353 A, US4640352 A, US4637464 A, US4635197 A, US4634187 A, US4626665 A, US4623444 A, US4623401 A, US4620592 A,

US4616705 A, US4613754 A, US4609041 A, US4608818 A, US4605680 A, US4605489 A, US4598772 A, US4598770 A, US4598392 A, US4597444 A, US4597441 A, US4592423 A, US4585066 A, US4583242 A, US4583046 A, US4577691 A, US4577690 A, US4577503 A, US4576231 A, US4573530 A, US4572299 A, US4571491 A, US4570715 A, US4552214 A, US4549396 A, US4545435 A, US4544478 A, US4542648 A, US4540882 A, US4538682 A, US4537252 A, US4530401 A, US4524827 A, US4524826 A, US4518548 A, US4513816 A, US4501445 A, US4501326 A, US4499209 A, US4498535 A, US4498531 A, US4491179 A, US4489782 A, US4487257 A, US4485869 A, US4485868 A, US4479541 A, US4474238 A, US4474236 A, US4463988 A, US4460044 A, US4458767 A, US4458757 A, US4457374 A, US4457365 A, US4456065 A, US4455215 A, US4452491 A, US4448251 A, US4446917 A, US4445574 A, US4444258 A, US4444255 A, US4442896 A, US4440224 A, US4439307 A, US4437519 A, US4429745 A, US4428700 A, US4425967 A, US4423311 A, US4418752 A, US4417782 A, US4415034 A, US4412585 A, US4412124 A, US4410042 A, US4409090 A, US4407973 A, US4401163 A, US4401162 A, US4401099 A, US4399866 A, US4398151 A, US4397732 A, US4396062 A, US4390973 A, US4390067 A, US4385661 A, US4384614 A, US4384613 A, US4382469 A, US4381641 A, US4380930 A, US4378048 A, US4366864 A, US4366668 A, US4363361 A, US4359687 A, US4353418 A, US4344483 A, US4327805 A, US4324292 A, US4306621 A, US4305463 A, US4303126 A, US4299285 A, US4299086 A, US4285547 A, US4282587 A, US4277416 A, US4274487 A, US4273188 A, US4265307 A, US4260192 A, US4258955 A, US4257650 A, US4256945 A, US4252191 A, US4250962 A, US4250230 A, US4248306 A, US4243511 A, US4243101 A, US4234230 A, US4228854 A, US4228853 A, US4216079 A, US4199025 A, US4199024 A, US4197911 A, US4193451 A, US4186801 A, US4185692 A, US4184548 A, US4183405 A, US4169506 A, US4162707 A, US4158467 A, US4151877 A, US4151068 A, US4148359 A, US4144935 A, US4140181 A, US4140180 A, US4138442 A, US4133825 A, US4130575 A, US4125159 A, US4119349 A, US4114688 A, US4099567 A, US4096163 A, US4093026 A, US4093025 A, US4091869 A, US4089374 A, US4089373 A, US4089372 A, US4087130 A, US4085803 A, US4084637 A, US4083604 A, US4077471 A, US4076761 A, US4069868 A, US4067390 A, US4065183 A, US4064943 A, US4059308 A, US4057293 A, US4049053 A, US4048637 A, US4043393 A, US4042026 A, US4037658 A, US4037655 A, US4031956 A, US4029360 A, US4026357 A, US4019575 A, US4018280 A, US4016239 A, US4014575 A, US4010800 A, US4008762 A, US4006778 A, US4005752 A, US3999607 A, US3994341 A, US3994340 A, US3993132 A, US3992474 A, US3987851 A, US3986557 A, US3986556 A, US3986349 A, US3973628 A, US3972372 A, US3958636 A, US3954140 A, US3952802 A, US3950029 A, US3948755 A, US3948319 A, US3947683 A, US3946812 A, US3943160 A, US3941421 A, US3933447 A, US3924680 A, US3922148 A, US3907045 A, US3894769 A, US3893918 A, US3892270 A, US3882941 A, US3881551 A, US3853185 A, US3812913 A, US3809159 A, US3804172 A, US3804169 A, US3794116 A, US3794113 A, US3779602 A, US3770398 A, US3766982 A, US3761599 A, US3759574 A, US3759328 A, US3757860 A, US3700280 A, US3680633 A, US3679812 A, US3675715 A, US3661423 A, US3647358 A, US3629551 A, US3618663 A, US3617471 A, US3614986 A, US3605890 A, US3599714 A, US3595082 A, US3593789 A, US3580987 A, US3578080 A, US3565171 A, US3562401 A, US3554285 A, US3547193 A, US3547192 A, US3542131 A, US3537528 A, US3529682 A, US3528501 A, US3526095 A, US3515837 A, US3513913 A, US3502372 A, US3501201 A, US3492463 A, US3485300 A, US3480082 A, US3477058 A, US3474863 A, US3465819 A, US345586 A, US3455383 A, US3434541 A, US3412011 A, US3410977 A, US3410796 A, US3399623 A, US3389975 A, US3386508 A, US3380913 A, US3379248 A, US3372754 A, US3362751 A, US3358756 A, US3352355 A, US3349845 A, US3346044 A, US3342267 A, US3342258 A, US3338306 A, US3332480 A, US3316962 A, US3316344 A, US3310109 A, US3303883 A, US3302707 A, US3294167 A, US3288648 A, US3285335 A, US3284281 A, US3275076 A, US3273640 A, US3272261 A, US3267680 A, US326439 A, US3250327 A, US3246695 A, US3241611 A, US3237689 A, US3233668 A, US3221811 A, US3221505 A, US3209825 A, US3208531 A, US3207220 A, US3205946 A, US3205944 A, US3205942 A, US3191679 A, US3183675 A, US3182721 A, US3181613 A, US3170842 A, US3165154 A, US3164207 A, US3163745 A, US3150715 A, US3149672 A, US3149670 A, US3142336 A, US3139928 A, US3138203 A, US3137347 A, US3132692 A, US3131763 A, US3127936 A, US3127935 A, US3120264 A, US3116792 A, US3114417 A, US3113623 A, US3113620 A, US3113619 A, US3110345 A, US3106244 A, US3105545 A, US3097690 A, US3095031 A, US3062282 A, US3061009 A, US3057404 A, US3051235 A, US3050123 A, US3048221 A, US3044545 A, US3036632 A, US3032102 A, US3026940 A, US3017168 A, US3016053 A, US3010516 A, US3010513 A, US3007521 A, US3004603 A, US3004601 A, US2998457 A, US2997105 A, US2994376 A, US2991046 A, US2974937 A, US2970826 A, US2969226 A, US2958519 A, US2954826 A, US2950240 A, US2942223 A, US2939689 A, US2932352 A, US2923535 A, US2914309 A, US2906340 A, US2906337 A, US2902270 A, US2890755 A, US2890754 A, US2889882 A, US2886255 A, US2857002 A, US2841375 A, US2825408 A, US2819761 A, US2804149 A, US2803305 A, US2801089 A, US2799341 A, US2794504 A, US2793696 A, US2789805 A, US2786660 A, US2780450 A, US2780449 A, US2777679 A, US2771954 A, US2761663 A, US2757739 A, US2743906 A, US2734579 A, US2732195 A, US2714930 A, US2703621 A, US2695163 A, US2685930 A, US2670802 A, US2647306 A, US2642943 A, US2634961 A, US2630307 A, US2630306 A, US2623596 A, US2595979 A, US2593477 A, US2548360 A, US2497868 A, US2484063 A, US2481051 A, US2472445 A, US2466945 A, US2444755 A, US2423674 A, US2390770 A, US2381256 A, US2365591 A, US2319702 A, US2244256 A, US2244255 A, US2011247820 AA, US2011247811 AA, US2011247809 AA, US2011132600 AA, US2011042085 AA, US2010288497 AA, US2010258309 AA, US2010258291 AA, US2010258290 AA, US2010258265 AA, US2010224368 AA, US2010206570 AA, US2010175872 AA, US2010155070 AA, US2010147522 AA, US2010147521 AA, US2010108379 AA, US2010108310 AA, US2010101794 AA, US2010101784 AA, US2010101783 AA, US2010096137 AA, US2010089586 AA, US2010089584 AA, US2010071904 AA, US2010071903 AA, US2009321417 AA, US2009301724 AA, US2009294332 AA, US2009272578 AA, US2009272536 AA, US2009272535 AA, US2009272526 AA, US2009260824 AA, US2009260823 AA, US2009228222 AA, US2009207041 AA, US2009206834 AA, US2009200854 AA, US2009200290 AA, US2009200031 AA, US2009200023 AA, US2009200022 AA, US2009194524 AA, US2009194333 AA, US2009194329 AA, US2009194287 AA, US2009194286 AA, US2009194269 AA, US2009189617 AA, US2009139716 AA, US2009126929 AA, US2009120646 AA, US2009107679 AA, US2009101346 AA, US2009095479 AA, US2009095478 AA, US2009095477 AA, US2009090509 AA, US2009090158 AA, US2009084547 AA, US2009056941 AA, US2009038795 AA, US2009014181 AA, US2009014180 AA, US2008283241 AA, US2008277113 AA, US2008217321 AA, US2008217016 AA, US2008173444 AA, US2008142216 AA, US2008135253 AA, US2008078552 AA, US2008078551 AA, US2008048668 AA, US2008035346 AA, US2008017416 AA, US2008017380 AA, US2008006410 AA, US2007246994 AA, US2007144732 AA, US2007137857 AA, US2007137856 AA, US2007133960 AA, US2007133959 AA, US2007131428 AA, US2007127897 AA, US2007119098 AA, US2007045268 AA, US2007045267 AA, US2007044957 AA, US2006289536 AA, US2006175061 AA, US2006116430 AA, US2006052905 AA, US2005269313 AA, US2005045325 AA, US2005006097 AA, US2004146288 AA, US2004144540 AA, US2004140096 AA, US2004035582 AA, US2003201098 AA, US2003196789 AA, US2003157380 AA, US2003146002 AA, US2003131989 AA, US2003085034 AA, US2003079877 AA, US2003066642 AA, US2003062159 AA, US2003029617 AA, US2002153141 AA, US2002112987 AA, US2002112890 AA, US2002076212 AA, US2002053431 AA, US2002040780 AA, US2002040779 AA, US2002038069 AA, US2002036089 AA, US2002033253 AA, US2002028070 AA, US2002027001 AA, US1913395 A, US1811560 A, US1681523 A, US1666488 A, US1646599 A, US1634236 A, US1510655 A, US1457479 A, US1342741 A, US1269747 A, SU1836876, SE126674, SE123138, SE123137, SE121336, SE121737, GB674082, GB156396, GB1454324, GB1204405, GB1010023, EP0940558, EP0130671, EP0107927, CA899987, CA2015460, CA1288043, CA1253555, CA1196594, CA1168283,

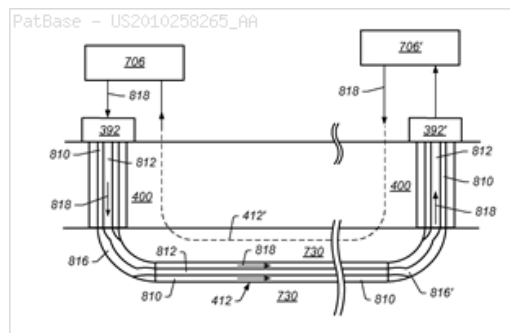
Forward Citations:

WO16004232, WO15181579, WO14068369, WO14062862, WO13096494, WO13052559, WO13052559, WO12154343, WO11044489, US9982205, US9970888, US9927151, US9926775, US9874480, US9755415, US9739122, US9702223, US9661690, US9647194, US9605524, US9580839, US9574430, US9573434, US9537428, US9528322, US9466896, US9464513, US9451792, US9399907, US9399905, US9356410, US9337550, US9309755, US9249786, US9243487, US9226341, US9181931, US9181780, US9129728, US9127538, US9127523, US9080917, US9080409, US9051829, US9048653, US9033042, US9022118, US9022109, US9016370, US8991510, US8977502, US8967259, US8943686, US8939207, US8881806, US8875788, US8869891, US8859942, US8857506, US8857051, US8851170, US8833475, US8833453, US8820406, US8816203, US8791396, US8789586, US8752904, US8739874, US8732946,

US8701769, US8701768, US8701470, US8636323, US8631866, US8627887, US8608249, US8586867, US8586866, US8579031, US8555971, US8536497, US8502120, US8485847, US8485256, US8485252, US8459359, US8450540, US8448707, US8434555, US8381815, US8381806, US8356935, US8327932, US8327681, US8296968, US8281861, US8276661, US8267185, US8267170, US8261832, US8257112, US8256512, US8233782, US8230927, US8225866, US8220539, US8196658, US8191630, US8177305, US8172335, US8162405, US8162059, US8151907, US8146669, US8146661, US8113272, US8070840, US8042610, US7987613, US2016145986, US2016084544, US2016010630, US2015200609, US2015136399, US2015020580, US2014262137, US2014175688, US2013277049, US2013255936, US2013199786, US2012298343, US2012110845, US2011265558, US2011108269, US2010307759, US2010101794, US2009194287, US10125588, US10119366, US10100625, US10047594, US10031148, US10018385, US10001446, RU2610459, RU2596225, EP2745365, EP2695242, EP2486380,

Abstract:

A method of recovering energy from a subsurface hydrocarbon containing formation includes introducing an oxidizing fluid in a wellbore positioned in at least a first portion of the formation. At least a portion of the first portion of the formation has been subjected to an in situ heat treatment process. The portion includes a treatment area having elevated levels of coke substantially adjacent the wellbore. The pressure in the wellbore is increased by introducing the oxidizing fluid under pressure such that the oxidizing fluid substantially permeates a majority of the treatment area and initiates a combustion process. Heat from the combustion process is allowed to transfer to fluids in the treatment area. Pressure decreases in the wellbore such that heated fluids from the portion of the formation are conveyed into the wellbore. The heated fluids are transferred to a heat exchanger configured to collect thermal energy.



31) Family number: 46814476 (AU2010200225A)

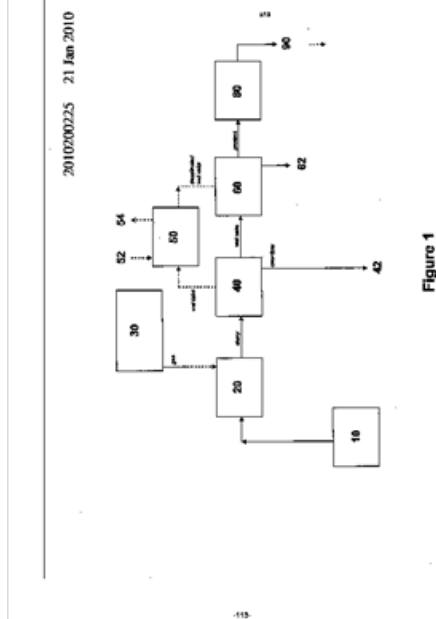
© PatBase

Title:	METHODS OF SEQUESTERING CO ₂			
Priority:	US20070017405P 20071228	US20080057173P 20080529	US20080073319P 20080617	
	US20080082766P 20080722	US20080088340P 20080812	US20080088347P 20080813	
	US20080101626P 20080930	US20080121872P 20081211	WO2008US88246 20081223	
	WO2008US88242 20081223	AU20080278301 20081224	AU20100200225 20100121	
Family:	Publication number	Publication date	Application number	Application date
	AU2010200225 AA	20100211	AU20100200225	20100121
Probable Assignee:	CALERA CORP			
Assignee(s):(std):	CALERA CORP			
Inventor(s):(std):	BARD ALLEN J ; CONSTANTZ BRENT ; DANZIGER ROBERT ; DECKER VALENTIN ; FARSAD KASRA ; FERNANDEZ MIGUEL ; GILLIAM RYAN J ; KIRK DONALD W ; OMELOM SIDNEY ; RYAN CECILY ; TUET PHILIP BRIAN ; WAY J DOUGLAS ; YOUNGS ANDREW			
Inventor(s):	VALENTIN DECKER ; RYAN J GILLIAM ; SIDNEY OMELOM ; PHILIP BRIAN TUET ; ROBERT DANZIGER ; MIGUEL FERNANDEZ ; J DOUGLAS WAY ; KASRA FARSAD ; DONALD W KIRK ; BRENT CONSTANTZ ; CECILY RYAN ; ALLEN J BARD ; ANDREW YOUNGS			
Agent(s):	PIZZEYS; PIZZEYS PATENT AND TRADE MARK ATTORNEYS; PIZZEYS PATENT AND TRADE MARK ATTORNEYS PTY LTD			
International class (IPC 8-9):	B01D59/00 (Advanced/Invention); B01D59/00 (Core/Invention)			
CPC:	Y02W10/33 Y02W10/37 C01F11/18 B01D53/1425 B01D53/1475 B01D53/1493 B01D53/62 B01D53/77 B01D2251/402 B01D2251/404 B01D2257/302 B01D2257/404 B01D2257/504 B01D2257/602 C01F5/24 C01P2004/03 C02F1/66 C02F1/683 C04B7/367 Y02C10/04 Y02C10/06 Y02E60/366 Y02P20/152 Y02P40/18 C01B32/60 Y02P20/133			
European class:	B01D53/14E B01D53/14H6 B01D53/14M B01D53/62 C01B31/24 C01F11/18 C01F5/24 C02F1/68K C04B7/36E4 L01D251/402 L01D251/404 L01D257/302 L01D257/404 L01D257/504 L01D257/602 L01D53/77 M01P4/03 M02F1/66 Y02C10/04 Y02C10/06 Y02E60/36F			

[Classification Explorer](#)

Abstract:

OF THE DISCLOSURE 5 Methods of sequestering carbon dioxide (CO₂) are provided. Aspects of the methods include precipitating a storage stable carbon dioxide sequestering product from an alkaline-earth-metal-containing water and then disposing of the product, e.g., by placing the product in a disposal location or using the product as a component of a manufactured composition. Also provided are systems for practicing 10 methods of the invention. F:\DOCUMENT\CLRA\003WO\CLRA-003WO patent application.doc 112 1/19 F-0 0 co CL CDq 00 Lnf coo r0)

**32) Family number: 46814481** (WO10104989A1)

© PatBase

Title: SYSTEMS AND METHODS FOR PROCESSING CO₂

Priority: US20090158992P 20090310 US20090168166P 20090409 US20090178475P 20090514
 US20090178360P 20090514 US20090221457P 20090629 US20090221631P 20090630
 US20090223657P 20090707 US20090228210P 20090724 US20090230042P 20090730
 US20090239429P 20090902 US20090289657P 20091223 US20100306412P 20100219
 US20100311275P 20100305 WO2010US26880 20100310

Family:

Publication number	Publication date	Application number	Application date
AU2010201373 AA	20100930	AU20100201373	20100310
CA2695006 AA	20100525	CA20102695006	20100310
EP2247366 A1	20101110	EP20100739828	20100310
EP2247366 A4	20110420	EP20100739828	20100310
TW201105406 A	20110216	TW20100106893	20100310
WO10104989 A1	20100916	WO2010US26880	20100310

Probable Assignee: CALERA CORP

Assignee(s):(std): CALERA CORP ; ELLIOTT ROBERT W ; FARSAD KASRA ; WALL JUSTIN ; SELF KYLE ; O CONNOR RICHARD PETER ; SEEKER WILLIAM RANDALL

Inventor(s):(std): ELLIOTT ROBERT W ; FARSAD KASRA ; JUSTIN WALL ; KASRA FARSAD ; KYLE SELF ; O CONNOR RICHARD P ; O CONNOR RICHARD PETER ; PETER O CONNOR RICHARD ; RANDALL SEEKER WILLIAM ; SEEKER WILLIAM RANDAL ; SEEKER WILLIAM RANDALL ; SELF KYLE ; WALL JUSTIN

Inventor(s): O'CONNOR, RICHARD P.

Agent(s): PIZZEYS; PIZZEYS PATENT AND TRADE MARK ATTORNEYS PTY LTD; BROUGHTON JON PHILIP; WITT ERIC

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

International class (IPC 8-9): B01D53/14 B01D53/60 B01D53/62 B01D53/64 B01F3/04 C01B31/24 C01B32/60 (Advanced/Invention); B01D53/14 B01D53/46 B01D53/60 B01D53/62 (Core/Invention); B01D53/14 B01D53/62 B01F3/04 C01B31/24 (Core/Non-invention)

CPC: B01D53/1456 B01D53/18 B01D53/60 B01D53/62 B01D53/64 B01D53/78 B01D2257/302 B01D2257/404 B01D2257/504 B01D2257/602 Y02C10/04 Y02A50/2344

European class: B01D53/14H B01D53/18 B01D53/60 B01D53/62 B01D53/64 B01D53/78 L01D257/302 L01D257/404 L01D257/504 L01D257/602 Y02C10/04

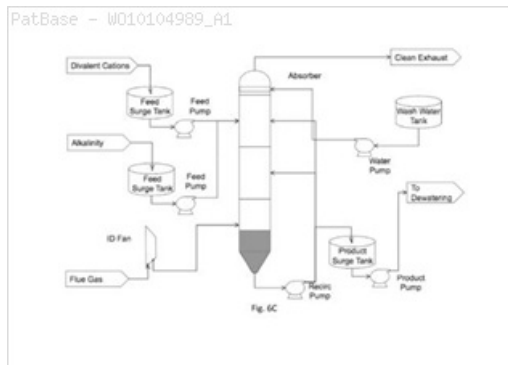
[Classification Explorer](#)

Cited documents: US7459134 BB, US4670234 A, US4340572 A, US4157250 A, US2242294 A, US2009020044 AA, US2006186562 AA, US2001022952 AA, US1655171 A, US1543942 A, US1172930 A, FR899196 A,

Forward Citations: WO14071511, WO12139743, WO12128721, WO12013961, US9957623, US9957621, US9902652, US9880124, US9828313, US9714406, US9267211, US9260314, US9216376, US9200375, US9187835, US9187834, US9139472, US9133581, US9061940, US9056790, US8999057, US8961654, US8936773, US8932400, US8906156, US8894830, US8883104, US8869477, US8857118, US8834688, US8691175, US8603424, US8491858, US8470275, US8431100, US8357270, US8333944, US8177909, US8137455, US8137444, US8114214, US8062418, US8006446, US7993500, US10236526, US10203434, US10161050, TWI614217, EP2696959, EP2511003, CN104190253, CN102908889,

Abstract:

Systems and methods for lowering levels of carbon dioxide and other atmospheric pollutants are provided. Economically viable systems and processes capable of removing vast quantities of carbon dioxide and other atmospheric pollutants from gaseous waste streams and sequestering them in storage-stable forms are also discussed.



33) Family number: 46814486 (ZA201004552A)

© PatBase

Title: METHODS OF SEQUESTERING CO₂

Priority: US20070017405P 20071228 US20080057173P 20080529 US20080073319P 20080617
 US20080082766P 20080722 US20080088340P 20080812 US20080088347P 20080813
 US20080101626P 20080930 US20080121872P 20081211 WO2008US88242 20081223
 WO2008US88246 20081223 WO2008US88318 20081224

Family:	Publication number	Publication date	Application number	Application date
	HK1137009 A1	20100716	HK20100104691	20100514
	IN07070CN2009 A	20100521	IN2009CN07070	20091201
	KR20100105860 A	20100930	KR20107016361	20081224
	ZA201004552 A	20110928	ZA20100004552	20100628

Probable Assignee: CALERA CORP

Assignee(s):(std): CALERA CORP

Inventor(s):(std): YOUNGS ANDREW ; WAY J DOUGLAS ; TUET PHILIP BRIAN ; RYAN CECILY ; OMELON SIDNEY ; KIRK DONALD W ; GILLIAM RYAN J ; FERNANDEZ MIGUEL ; FARSAK KASRA ; DECKER VALENTIN ; DANZIGER ROBERT ; CONSTANTZ BRENT ; BARD ALLEN J

Inventor(s): GILLIAM RYAN ; KIRK DONALD

Agent(s): MAYER BROWN JSM

International class (IPC 8-9): B01D B01D53/14 B01D53/62 C01B C01B31/20 F25J F25J3/00 (Advanced/Invention); B01D53/14 B01D53/62 C01B31/20 F25J3/00 (Advanced/Non-invention); C01B F25J (Subclass/Invention)

International class (IPC 1-7): C01B31/20

CPC: Y02E60/366 Y02E70/10 Y02E70/20 C01F11/18 B01D53/1425 B01D53/1475 B01D53/1493 B01D53/77 B01D2251/402 B01D2251/404 B01D2257/302 B01D2257/404 B01D2257/504 B01D2257/602 C01F5/24 C01P2004/03 C02F1/66 C02F1/683 C04B7/367 Y02C10/04 Y02C10/06 Y02P20/152 Y02P40/18 Y02W10/33 Y02W10/37 C01B32/60 B01D53/62 C01B32/50 B01D53/14 F25J3/00 Y02P20/133

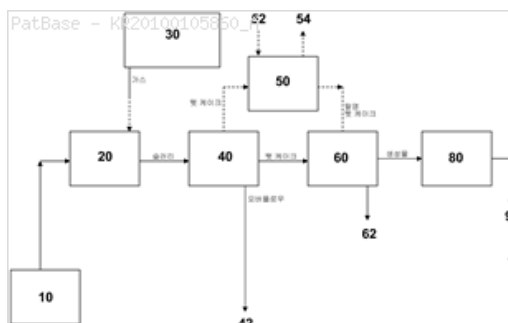
European class: Y02C10/06 Y02E60/36F Y02E70/10

[Classification Explorer](#)

Forward Citations: KR101251264,

Abstract:

Methods of sequestering carbon dioxide (CO₂) are provided. Aspects of the methods include precipitating a storage stable carbon dioxide sequestering product from an alkaline-earth-metal- containing water and then disposing of the product, e.g., by placing the product in a disposal location or using the product as a component of a manufactured composition. Also provided are systems for practicing methods of the invention.



34) Family number: 46814490 (US2009169452A)

© PatBase

Title: METHODS OF SEQUESTERING CO₂

Priority: US20070017405P 20071228 US20080057173P 20080529 US20080073319P 20080617
 US20080082766P 20080722 US20080088340P 20080812 US20080088347P 20080813
 US20080101626P 20080930 US20080121872P 20081211 WO2008US88242 20081223
 WO2008US88246 20081223 US20080344019 20081224

Family:	Publication number	Publication date	Application number	Application date
	US2009169452 AA	20090702	US20080344019	20081224

Probable Assignee: CALERA CORP

Assignee(s):(std): CALERA CORP ; CONSTANTZ BRENT R ; OMELON SIDNEY ; KIRK DONALD W ; WAY J DOUGLAS ; DECKER VALENTIN ; GILLIAM RYAN J ; YOUNGS ANDREW ; FARSAK KASRA ; TUET PHILIP BRIAN ; BARD ALLEN J

Inventor(s):(std): BARD ALLEN J ; CONSTANTZ BRENT R ; DANZIGER ROBERT ; DECKER VALENTIN ; FARSAK KASRA ; FERNANDEZ MIGUEL ; GILLIAM RYAN J ; KIRK DONALD W ; OMELON SIDNEY ; RYAN CECILY ; TUET PHILIP BRIAN ; WAY J DOUGLAS ; YOUNGS ANDREW

Agent(s): CALERA ERIC WITT CORP

International class (IPC 8-9): B01D53/62 B01D53/78 B01J19/00 C01B31/22 C25B1/04 C25B1/10 C25B1/18 (Advanced/Invention); B01D53/62 B01J19/00 C01B31/00 (Core/Invention)

CPC: Y02W10/33 Y02W10/37 C01F11/18 B01D53/1425 B01D53/1475 B01D53/1493 B01D53/62 B01D53/77 B01D2251/402 B01D2251/404 B01D2257/302 B01D2257/404 B01D2257/504 B01D2257/602 C01F5/24 C01P2004/03 C02F1/66 C02F1/683 C04B7/367 Y02C10/04 Y02C10/06 Y02E60/366 Y02P20/152 Y02P40/18 C01B32/60 Y02P20/133

European class: B01D53/14E B01D53/14H6 B01D53/14M B01D53/62 C01B31/24 C01F11/18 C01F5/24 C02F1/68K C04B7/36E4 L01D251/402 L01D251/404 L01D257/302 L01D257/404 L01D257/504 L01D257/602 L01D53/77 M01P4/03 M02F1/66 Y02C10/04 Y02C10/06 Y02E60/36F

US class: 205/480 422/176 422/176S 423/220 423/220S 423/225 423/230 423/230P 423/231 423/232

[Classification Explorer](#)

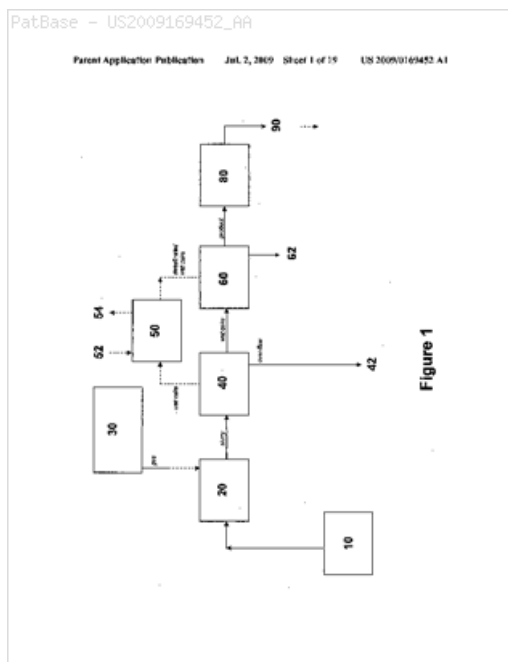
Cited documents: WO9913967 A1, WO9634997 A1, WO9316216 A1, WO09086460 A1, WO09070273 A1, WO09065031 A1, WO09039655 A1, WO09024826 A1, WO09006295 A2, WO08151060 A1, WO08142025 A2, WO08142017 A2, WO08140821 A2, WO08124538 A1, WO08115662 A2, WO08108657 A1, WO08101293 A1, WO08095057 A2, WO08089523, WO08068322 A1, WO08061305, WO08031834 A1, WO08026201, WO08018928, WO07140544 A1, WO07139392 A1, WO07123917 A2, WO07106883 A2, WO07106372, WO07096671 A1, WO07094691 A1, WO07071633 A1, WO07060149 A1, WO07016271, WO07003013, WO06134080 A1, WO06036396 A2, WO06034339 A1, WO06009600 A2, WO05108297 A2, WO05086843, WO05078836 A2, WO04098740 A2, WO04094043 A2, WO04041731 A1, WO03068685 A1, WO03054508 A2, WO03008071 A1, WO0200551 A2, WO0196243 A1, WO0107365 A1, US7452449 BB, US7440871 BB, US7427449 BB, US7347896 BB, US7285166 BB, US7261912 BB, US7198722 BB, US7135604 BB, US7132090 BB, US7037434 BB, US6908507 BB, US6890497 BB, US6890419 BB, US6841512 BA, US6786963 BB, US6776972 BB, US6755905 BB, US6712946 BB, US6648949 BA, US6638413 BA, US6623555 BA, US6602630 BA, US6537456 BB, US6518217 BB, US6495013 BB, US6475460 BA, US6444107 BB, US6402831 BA, US6375825 BA, US6352576 BA, US6280505 BA, US6251356 BA, US6235186 BA, US6217728 BA, US6200543 BA, US6190428 BA, US6180012 BA, US6180012 B1, US6129832 A, US6080297 A, US6071336 A, US6059974 A, US6024848 A, US5925255 A, US5855759 A, US5846669 A, US5785868 A, US5776328 A, US5766339 A, US5702585 A, US5624493 A, US5614078 A, US5595641 A, US5584926 A, US5584923 A, US5531865 A, US5531821 A, US5470671 A, US5366513 A, US5364611 A, US5362688 A, US5282935 A, US5246551 A, US5230734 A, US5100633 A, US5037286 A, US4931264 A, US4915914 A, US4899544 A, US4838941 A, US4818367 A, US4804449 A, US4716027 A, US4620969 A, US4561945 A, US4477573 A, US4450009 A, US4410606 A, US4376101 A, US4370307 A, US4361475 A, US4335788 A, US4264367 A, US4246075 A, US4242185 A, US4217186 A, US4188291 A, US4147599 A, US4140510 A, US4128462 A, US4107022 A, US4080270 A, US4036749 A, US4026716 A, US3970528 A, US3963592 A, US3953568 A, US3925534 A, US3917795 A, US3864236 A, US3725267 A, US3627479 A, US3574530 A, US3525675 A, US3511712 A, US3511595 A, US3466169 A, US3463814 A, US3420775 A, US3374164 A, US3350292 A, US3179579 A, US3046152 A, US2967807 A, US2934419 A, US2606839 A, US2383674 A, US2009186244 AA, US2009169452 AA, US2009090277 AA, US2009081096 AA, US2009081093 AA, US2009020044 AA, US2009010827 AA, US2009001020 AA, US2008289495 AA, US2008277319 AA, US2008248350 AA, US2008245672 AA, US2008245660 AA, US2008245274 AA, US2008236143 AA, US2008223727 AA, US2008171158 AA, US2008138265 AA, US2008112868 AA, US2008031801 AA, US2007261947 AA, US2007240570 AA, US2007217981 AA, US2007212584 AA, US2007202032 AA, US2007187247 AA, US2007163443 AA, US2007148509 AA, US2007092427 AA, US2007056487 AA, US2006288912 AA, US2006196836 AA, US2006195002 AA, US2006185985 AA, US2006185560 AA, US2006185516 AA, US2006184445 AA, US2006169593 AA, US2006165583 AA, US2006105082 AA, US2006060532 AA, US2006051274 AA, US2006048517 AA, US2005255174 AA, US2005238563 AA, US2005180910 AA, US2005129606 AA, US2005118081 AA, US2005087496 AA, US2005036932 AA, US2005031522 AA, US2005022847 AA, US2005011770 AA, US2005002847 AA, US2004267077 AA, US2004259231 AA, US2004231568 AA, US2004228788 AA, US2004219090 AA, US2004213705 AA, US2004126293 AA, US2004052865 AA, US2004040715 AA, US2004040671 AA, US2003188668 AA, US2003126899 AA, US2003017088 AA, US2002127474 AA, US2002009410 AA, US2001054253 AA, US2001022952 AA, US1897725 A, US1865833 A, US1678345 A, JP59100280, JP51102357 A1, JP2003041388, GB911386 A, GB2371810, EP1716911 A1, EP1650162 A1, EP1571105 B1, EP1554031, EP1379469, EP0844905 B1, EP0628339 B1, EP0591350 B1, EP0522382 A1, EP0487102 B1, DE3638317 A1, DE3146326 A1, DE2653649 A1, DE19631794 A1, DE19523324 A1, CA1335974, AU2007100157,

Forward Citations: WO14177857, WO14151224, WO13112619, WO12158194, WO12122496, WO12109379, WO12109379, WO12006601, WO12006601, WO12005867, WO11102868, WO11075680, WO11073988, WO11017609, WO10132784, WO10009273, US9993797, US9968883, US9957624, US9957623, US9957621, US9957284, US9941534, US9932230, US9923219, US9903184, US9902652, US9880124, US9861933, US9828313, US9815021, US9809737, US9790161, US9786939, US9774053, US9755258, US9735440, US9718045, US9676989, US9650246, US9647284, US9644132, US9617478, US9616375, US9604849, US9598742, US9597656, US9581062, US9567678, US9556753, US9555367, US9553321, US9527747, US9520607, US9504957, US9487716, US9464359, US9455463, US9419295, US9376609, US9371755, US9362580, US9359221, US9353323, US9346684, US9343764, US9343763, US9339761, US9302219, US9297285, US9283511, US9267211, US9263755, US9260314, US9257711, US9231267, US9205375, US9200375, US9193593, US9187835, US9187834, US9181625, US9180401, US9178234, US9157020, US9150773, US9139472, US9133581, US9097152, US9077008, US9077007, US9077006, US9077005, US9061940, US9061230, US9056790, US9051505, US9022747, US9012345, US9006155, US9006154, US8999057, US8974757, US8956990, US8950486, US8945368, US8940265, US8936773, US8932400, US8921284, US8906156, US8895486, US8895485, US8894830, US8883104, US8869477, US8857118, US8834688, US8814983, US8808529, US8795508, US8753851, US8741244, US8741057, US8691737, US8691175, US8673257, US8603424, US8506918, US8506916, US8491858, US8470275, US8431100, US8367025, US8357270, US8333944, US8246727, US8177909, US8151482, US8137455, US8137444, US8114266, US8114214, US8105558, US8062418, US8015724, US8006446, US7993616, US7993511, US7993500, US7966250, US7939336, US7931809, US7914685, US7906086, US7887694, US7879305, US7875163, US7829053, US7815880, US7790012, US7771684, US7754169, US7753618, US7749476, US7744761, US2016024405, US2015165373, US2015044757, US2014271440, US2014150445, US2014109766, US2013312641, US2013089482, US2012291672, US2012230840, US2012049114, US2011237830, US2011226989, US2011203939, US2011147227, US2011135548, US2011132234, US2011100836, US2011083968, US2011081586, US2011079515, US2011073023, US2011071309, US2011061295, US2011059000, US2011054084, US2010313794, US2010313793, US2010260653, US2010258506, US2010258035, US2010239467, US2010230830, US2010230293, US2010229725, US2010219373, US20101050803, US20101050802, US2010144521, US2010140103, US2010135882, US2010135865, US2010132556, US2010126037, US2010084280, US2010077654, US2010002587, US2009301352, US2009280046, US2009263301, US2009127127, US2009081093, US2008267838,

US2008229606, US2006112588, US10236526, US10215412, US10203434, US10173169, US10161050, US10150112, US10093997, US10052584, US10023967, US10010829, KR101782310, KR101335552, EP2969999, EA023492, CN105143140, CN103347815, AU2011274391,

Abstract:

Methods of sequestering carbon dioxide (CO₂) are provided. Aspects of the methods include precipitating a storage stable carbon dioxide sequestering product from an alkaline-earth-metal-containing water and then disposing of the product, e.g., by placing the product in a disposal location or using the product as a component of a manufactured composition. Also provided are systems for practicing methods of the invention.



35) Family number: 46814500 (US2010132556A)

© PatBase

Title: METHODS OF SEQUESTERING CO₂

Priority: US20070017405P 20071228 US20080057173P 20080529 US20080073319P 20080617
US20080082766P 20080722 US20080088340P 20080812 US20080088347P 20080813
US20080101626P 20080930 US20080121872P 20081211 WO2008US88242 20081223
WO2008US88246 20081223 US20080344019 20081224 US20100698802 20100202

Family:	Publication number	Publication date	Application number	Application date
	US2010132556 AA	20100603	US20100698802	20100202

Probable Assignee: CALERA CORP

Assignee(s):(std): CONSTANTZ BRENT R ; DANZIGER ROBERT ; OMELOM SIDNEY ; KIRK DONALD W ; DECKER VALENTIN ; RYAN CECILY ; GILLIAM RYAN J ; FERNANDEZ MIGUEL ; FARSAD KASRA ; TUET PHILIP BRIAN ; WAY J DOUGLAS ; YOUNGS ANDREW ; BARD ALLEN J

Assignee(s): CALERA CORP

Inventor(s):(std): BARD ALLEN J ; CONSTANTZ BRENT R ; DANZIGER ROBERT ; DECKER VALENTIN ; FARSAD KASRA ; FERNANDEZ MIGUEL ; GILLIAM RYAN J ; KIRK DONALD W ; OMELOM SIDNEY ; RYAN CECILY ; TUET PHILIP BRIAN ; WAY J DOUGLAS ; YOUNGS ANDREW

Agent(s): CALERA ERIC WITT CORP

International class B01D47/00 (Advanced/Invention);
(IPC 8-9): B01D47/00 (Core/Invention)

CPC: Y02W10/33 Y02W10/37 C01F11/18 B01D53/1425 B01D53/1475 B01D53/1493 B01D53/62 B01D53/77 B01D2251/402 B01D2251/404 B01D2257/302 B01D2257/404 B01D2257/504 B01D2257/602 C01F5/24 C01P2004/03 C02F1/66 C02F1/683 C04B7/367 Y02C10/04 Y02C10/06 Y02E60/366 Y02P20/152 Y02P40/18 C01B32/60 Y02P20/133

European class: B01D53/14E B01D53/14H6 B01D53/14M B01D53/62 C01B31/24 C01F11/18 C01F5/24 C02F1/68K C04B7/36E4 L01D251/402 L01D251/404 L01D257/302 L01D257/404 L01D257/504 L01D257/602 L01D53/77 M01P4/03 M02F1/66 Y02C10/04 Y02C10/06 Y02E60/36F

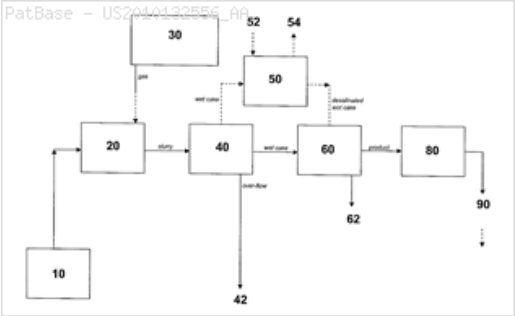
US class: 95/234 95/234P 95/235 95/235S 95/236 95/236S

[Classification Explorer](#)

Cited documents: US7914685 BB, US7906028 BB, US7887694 BB, US7875163 BB, US7674443 BA, US7347896 BB, US7314847 BA, US6841512 BA, US6712946 BB, US6537456 BB, US6518217 BB, US6517631 BB, US6352576 BA, US6200543 BA, US6200381 BA, US6190428 BA, US6186426 BA, US6180012 BA, US6174507 BA, US6024848 A, US5885478 A, US5855759 A, US5855666 A, US5614078 A, US5595641 A, US5388456 A, US5282935 A, US5275794 A, US5100633 A, US4899544 A, US4804449 A, US4634533 A, US4376101 A, US4370307 A, US4253922 A, US4246075 A, US4188291 A, US4140510 A, US4080270 A, US4002721 A, US4000991 A, US3864236 A, US3861928 A, US3725267 A, US3574530 A, US3558769 A, US3420775 A, US3420292 A, US3374164 A, US3179579 A, US3120426 A, US2967807 A, US2934419 A, US2458039 A, US2011071309 AA, US2011067605 AA, US2011067603 AA, US2011067600 AA, US2011059000 AA, US2011054084 AA, US2011042230 AA, US2011036728 AA, US2011035154 AA, US2011033239 AA, US2011030957 AA, US2011030586 AA, US2010063902 AA, US2010051859 AA, US2010024686 AA, US2010000444 AA, US2009081096 AA, US2009081093 AA, US2009078162 AA, US2009043687 AA, US2009020044 AA, US2009010827 AA, US2009001020 AA, US2008059206 AA, US2008035036 AA, US2008031801 AA, US2007056487 AA, US2007045125 AA, US2006060532 AA, US2006057036 AA, US2006051275 AA, US2006048517 AA, US2005036932 AA, US2005031522 AA, US2005011770 AA, US2005002847 AA, US2004052865 AA, US2004040715 AA, US2004040671 AA, US2004014845 AA, US2003027023 AA, US2003017088 AA, US2002009410 AA, US1897725 A, US1655171 A,

Forward Citations: US9957624, US9957623, US9957621, US9902652, US9880124, US9828313, US9815021, US9790161, US9790131, US9758437, US9738562, US9566574, US9555367, US9492945, US9464359, US9463580, US9388072, US9376345, US9346684, US9267211, US9260314, US9200375, US9193593, US9187835, US9187834, US9181625, US9139472, US9133581, US9061940, US9056790, US9012345, US8999057, US8956990, US8932400, US8906156, US8894830, US8883104, US8869477, US8857118, US8834688, US8691175, US8603424, US8506916, US8491858, US8480787, US8470275, US8431100, US8367025, US8357270, US8333944, US8246727, US8177909, US8151482, US8137455, US8137444, US8114214, US8105558, US8062418, US8006446, US7993616, US7993511, US7993500, US7939336, US7931809, US7875163, US2017158569, US2015197447, US2012017759, US2011135548, US2011132234, US2011071309, US2011054084, US2010313794, US2010258506, US2010224503, US2010126037, US2010116683, US2010051859, US2009081093, US10236526, US10173169, US10161050, US10023967,

Abstract: Methods of sequestering carbon dioxide (CO2) are provided. Aspects of the methods include precipitating a storage stable carbon dioxide sequestering product from an alkaline-earth-metal-containing water and then disposing of the product, e.g., by placing the product in a disposal location or using the product as a component of a manufactured composition. Also provided are systems for practicing methods of the invention.



36) Family number: 46814502 (US2010135865A) © PatBase

Title:	ELECTROCHEMICAL METHODS OF SEQUESTERING CO2			
Priority:	US20070017405P 20071228	US20080057173P 20080529	US20080073319P 20080617	
	US20080082766P 20080722	US20080088340P 20080812	US20080088347P 20080813	
	US20080101626P 20080930	US20080121872P 20081211	WO2008US88242 20081223	
	WO2008US88246 20081223	US20080344019 20081224	US20100698483 20100202	

Family:	Publication number	Publication date	Application number	Application date
	US2010135865 AA	20100603	US20100698483	20100202

Probable Assignee: CALERA CORP
Assignee(s):(std): CONSTANTZ BRENT R ; DANZIGER ROBERT ; OMELOM SIDNEY ; KIRK DONALD W ; DECKER VALENTIN ; RYAN CECILY ; GILLIAM RYAN J ; FERNANDEZ MIGUEL ; FARSAK KASRA ; TUET PHILIP BRIAN ; YOUNGS ANDREW ; WAY DOUGLAS J ; BARD ALLEN J

Assignee(s): CALERA CORP
Inventor(s):(std): BARD ALLEN J ; CONSTANTZ BRENT R ; DANZIGER ROBERT ; DECKER VALENTIN ; FARSAK KASRA ; FERNANDEZ MIGUEL ; GILLIAM RYAN J ; KIRK DONALD W ; OMELOM SIDNEY ; RYAN CECILY ; TUET PHILIP BRIAN ; WAY DOUGLAS J ; YOUNGS ANDREW

Agent(s): CALERA ERIC WITT CORP
International class (IPC 8-9): B01D53/62 (Advanced/Invention); B01D53/62 (Core/Invention)

CPC: Y02W10/33 Y02W10/37 C01F11/18 B01D53/1425 B01D53/1475 B01D53/1493 B01D53/62 B01D53/77 B01D2251/402 B01D2251/404 B01D2257/302 B01D2257/404 B01D2257/504 B01D2257/602 C01F5/24 C01P2004/03 C02F1/66 C02F1/683 C04B7/367 Y02C10/04 Y02C10/06 Y02E60/366 Y02P20/152 Y02P40/18 C01B32/60 Y02P20/133

European class: B01D53/14E B01D53/14H6 B01D53/14M B01D53/62 C01B31/24 C01F11/18 C01F5/24 C02F1/68K C04B7/36E4 L01D251/402 L01D251/404 L01D257/302 L01D257/404 L01D257/504 L01D257/602 L01D53/77 M01P4/03 M02F1/66 Y02C10/04 Y02C10/06 Y02E60/36F

US class: 422/170 422/170P

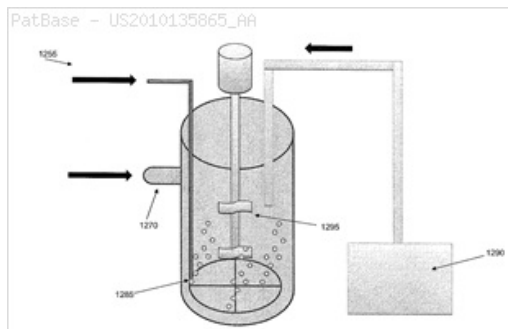
[Classification Explorer](#)

Cited documents: US7914685 BB, US7906028 BB, US7887694 BB, US7875163 BB, US7674443 BA, US7347896 BB, US7314847 BA, US7198722 BB, US7182851 BB, US6841512 BA, US6712946 BB, US6537456 BB, US6518217 BB, US6375825 BA, US6352576 BA, US6217728 BA, US6200543 BA, US6200381 BA, US6190428 BA, US6186426 BA, US6180012 BA, US6174507 BA, US6024848 A, US5897704 A, US5885478 A, US5855759 A, US5855666 A, US5624493 A, US5618392 A, US5614078 A, US5595641 A, US5388456 A, US5282935 A, US5275794 A, US5100633 A, US4915914 A, US4915877 A, US4899544 A, US4818367 A, US4804449 A, US4634533 A, US4377554 A, US4376101 A, US4370307 A, US4320969 A, US4264367 A, US4253922 A, US4246075 A, US4188291 A, US4147599 A, US4140510 A, US4080270 A, US4002721 A, US4000991 A, US3953568 A, US3861928 A, US3725267 A, US3574530 A, US3558769 A, US3420775 A, US3374164 A, US3179579 A, US3120426 A, US2967807 A, US2934419 A, US2458039 A, US2011079515 AA, US2011071309 AA, US2011067605 AA, US2011067603 AA, US2011067600 AA, US2011059000 AA, US2011054084 AA, US2011042230 AA, US2011036728 AA, US2011035154 AA, US2011033239 AA, US2011030957 AA, US2011030586 AA, US2010089142 AA, US2010084280 AA, US2010083880 AA, US2010077922 AA, US2010077691 AA, US2010063902 AA, US2010051859 AA, US2010024686 AA, US2010000444 AA, US2009078162 AA, US2009043687 AA, US2009020044 AA, US2009001020 AA, US2008059206 AA, US2008035036 AA, US2007045125 AA, US2006057036 AA, US2003027023 AA, US1897725 A, US1655171 A,

Forward Citations: WO12129510, WO12005867, US9957624, US9957623, US9957621, US9902652, US9880124, US9828313, US9815021, US9790161, US9566574, US9555367, US9493881, US9464359, US9346684, US9340455, US9267211, US9260314, US9200375, US9193593, US9187835, US9187834, US9181625, US9139472, US9133581, US9061940, US9056790, US9012345, US8999057, US8956990, US8936773, US8932400, US8906156, US8894830, US8883104, US8869477, US8857118, US8834688, US8691175, US8603424, US8506916, US8491858, US8470275, US8431100, US8367025, US8357270, US8333944, US8246727, US8177909, US8151482, US8137455, US8137444, US8114214, US8105558, US8062418, US8006446, US7993616, US7993511, US7993500, US7939336, US7931809, US7875163, US2011168061, US2011135548, US2011132234, US2011071309, US2011054084, US2010313794,

Abstract:

Methods of sequestering carbon dioxide (CO₂) are provided. Aspects of the methods include precipitating a storage stable carbon dioxide sequestering product from an alkaline-earth-metal-containing water and then disposing of the product, e.g., by placing the product in a disposal location or using the product as a component of a manufactured composition. Also provided are systems for practicing methods of the invention.



37) Family number: 46814503 (US2010135882A)

© PatBase

Title: METHODS OF SEQUESTERING CO₂

Priority: US20070017405P 20071228 US20080057173P 20080529 US20080073319P 20080617
US20080082766P 20080722 US20080088340P 20080812 US20080088347P 20080813
US20080101626P 20080930 US20080121872P 20081211 WO2008US88242 20081223
WO2008US88246 20081223 US20080344019 20081224 US20100698741 20100202

Family:	Publication number	Publication date	Application number	Application date
	US2010135882 AA	20100603	US20100698741	20100202

Probable Assignee: CALERA CORP

Assignee(s):(std): CONSTANTZ BRENT R ; DANZIGER ROBERT ; OMELON SIDNEY ; KIRK DONALD W ; DECKER VALENTIN ; RYAN CECILY ; GILLIAM RYAN J ; FERNANDEZ MIGUEL ; FARSAK KASRA ; TUET PHILIP BRIAN ; WAY J DOUGLAS ; YOUNGS ANDREW ; BARD ALLEN J

Assignee(s): CALERA CORP

Inventor(s):(std): BARD ALLEN J ; CONSTANTZ BRENT R ; DANZIGER ROBERT ; DECKER VALENTIN ; FARSAK KASRA ; FERNANDEZ MIGUEL ; GILLIAM RYAN J ; KIRK DONALD W ; OMELON SIDNEY ; RYAN CECILY ; TUET PHILIP BRIAN ; WAY J DOUGLAS ; YOUNGS ANDREW

Agent(s): CALERA ERIC WITT CORP

International class
(IPC 8-9): B01D53/62 (Advanced/Invention);
B01D53/62 (Core/Invention)

CPC: Y02W10/33 Y02W10/37 C01F11/18 B01D53/1425 B01D53/1475 B01D53/1493 B01D53/62 B01D53/77
B01D2251/402 B01D2251/404 B01D2257/302 B01D2257/404 B01D2257/504 B01D2257/602 C01F5/24
C01P2004/03 C02F1/66 C02F1/683 C04B7/367 Y02C10/04 Y02C10/06 Y02E60/366 Y02P20/152
Y02P40/18 C01B32/60 Y02P20/133

European class: B01D53/14E B01D53/14H6 B01D53/14M B01D53/62 C01B31/24 C01F11/18 C01F5/24 C02F1/68K
C04B7/36E L01D251/402 L01D251/404 L01D257/302 L01D257/404 L01D257/504 L01D257/602
L01D53/77 M01P4/03 M02F1/66 Y02C10/04 Y02C10/06 Y02E60/36F

US class: 423/234 423/234P

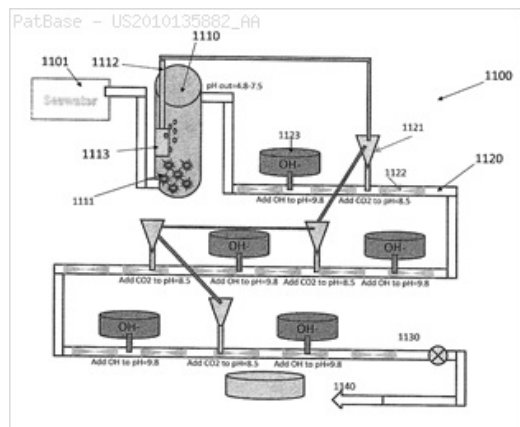
[Classification Explorer](#)

Cited documents: US8114214 BB, US7914685 BB, US7906028 BB, US7887694 BB, US7875163 BB, US7674443 BA,
US7347896 BB, US7314847 BA, US6841512 BA, US6712946 BB, US6537456 BB, US6518217 BB,
US6517631 BB, US6352576 BA, US6200543 BA, US6200381 BA, US6190428 BA, US6180012 BA,
US6024848 A, US5885478 A, US5879948 A, US5855759 A, US5855666 A, US5614078 A, US5595641 A,
US5388456 A, US5282935 A, US5275794 A, US5100633 A, US4899544 A, US4804449 A, US4634533 A,
US4376101 A, US4370307 A, US4253922 A, US4246075 A, US4188291 A, US4140510 A, US4080270 A,
US3864236 A, US3861928 A, US3725267 A, US3574530 A, US3558769 A, US3420775 A, US3374164 A,
US3179579 A, US3120426 A, US2967807 A, US2934419 A, US2458039 A, US2273795 A, US2011071309
AA, US2011067605 AA, US2011067603 AA, US2011067600 AA, US2011059000 AA, US2011054084 AA,
US2011042230 AA, US2011036728 AA, US2011035154 AA, US2011033239 AA, US2011030957 AA,
US2011030586 AA, US2010063902 AA, US2010051859 AA, US2010024686 AA, US2010000444 AA,
US2009081096 AA, US2009081093 AA, US2009078162 AA, US2009043687 AA, US2009020044 AA,
US2009010827 AA, US2009001020 AA, US2008059206 AA, US2008035036 AA, US2008031801 AA,
US2007056487 AA, US2007045125 AA, US2006060532 AA, US2006057036 AA, US2006051274 AA,
US2006048517 AA, US2005036932 AA, US2005031522 AA, US2005031515 AA, US2005011770 AA,
US2005002847 AA, US2004052865 AA, US2004040715 AA, US2004040671 AA, US2004014845 AA,
US2003027023 AA, US2003017088 AA, US2002009410 AA, US1897725 A, US1655171 A, US1169766 A,
EP0558275 A1,

Forward Citations: WO12139743, US9957623, US9957621, US9902652, US9880124, US9868667, US9828313, US9480949,
US9346684, US9267211, US9260314, US9216926, US9200375, US9187835, US9187834, US9139472,
US9133581, US9095815, US9061940, US9056790, US8999057, US8936773, US8932400, US8906156,
US8894830, US8883104, US8869477, US8857118, US8846377, US8834688, US8721784, US8709960,
US8691175, US8603424, US8506916, US8491858, US8470275, US8431100, US8367025, US8357270,
US8333944, US8313802, US8246727, US8177909, US8151482, US8137455, US8137444, US8114367,
US8114214, US8105558, US8062418, US8006446, US7993616, US7993511, US7993500, US7939336,
US7931809, US7875163, US2011182799, US2011158873, US2011135548, US2011132234,
US2011129407, US2011104469, US2011071309, US2011054084, US2010313794, US2010258506,
US2010224503, US2010126037, US2010116683, US2010051859, US2009143211, US2009142578,
US2009081093, US10236526, US10220348, US10161050, EP3309238, EP2696959, EP2511003,

Abstract:

Methods of sequestering carbon dioxide (CO₂) are provided. Aspects of the methods include precipitating a storage stable carbon dioxide sequestering product from an alkaline-earth-metal-containing water and then disposing of the product, e.g., by placing the product in a disposal location or using the product as a component of a manufactured composition. Also provided are systems for practicing methods of the invention.



38) Family number: 47399508 (IN02547CN2010A)

© PatBase

Title: SYSTEMS AND METHODS FOR PROCESSING CO₂

Priority: US20090158992P 20090310 WO2010US26880 20100310

Family:	Publication number	Publication date	Application number	Application date
	IN02547CN2010 A	20101022	IN2010CN02547	20100429

Probable Assignee: CALERA CORP

Assignee(s): CALERA CORP

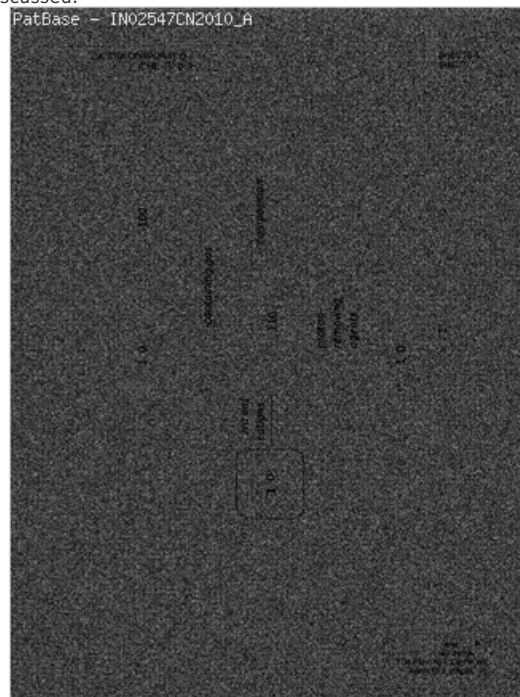
Inventor(s): WALL JUSTIN ; SELF KYLE ; SEEKER WILLIAM ; O CONNOR RICHARD P ; FARSAK KASRA ; ELLIOTT ROBERT

International class (IPC 8-9): B01D53/14 (Advanced/Invention)

[Classification Explorer](#)

Abstract:

Systems and methods for lowering levels of carbon dioxide and other atmospheric pollutants are provided. Economically viable systems and processes capable of removing vast quantities of carbon dioxide and other atmospheric pollutants from gaseous waste streams and sequestering them in storage-stable forms are also discussed.



39) Family number: 29081531 (US2003173081A)

© PatBase

Title: IN SITU THERMAL PROCESSING OF AN OIL RESERVOIR FORMATION

Priority: US20010338625P 20011024 US20010338695P 20011024 US20020374939P 20020424
US20020374998P 20020424 US20020279230 20021024

Family:	Publication number	Publication date	Application number	Application date
	US2003173081 AA	20030918	US20020279230	20021024
	US7077199 BB	20060718	US20020279230	20021024

Probable Assignee: SHELL OIL CO

Assignee(s):(std): BERCHENKO ILYA EMIL ; DE ROUFFIGNAC ERIC P ; FOWLER THOMAS DAVID ; RYAN ROBERT CHARLES

; SHELL OIL CO ; VINEGAR HAROLD J ; WELLINGTON SCOTT LEE ; ZHANG ETUAN

Assignee(s): SHELL OIL COMPANY
Inventor(s):(std): ZHANG ETUAN ; WELLINGTON SCOTT LEE ; VINEGAR HAROLD J ; RYAN ROBERT CHARLES ; FOWLER THOMAS DAVID ; DE ROUFFIGNAC ERIC P ; BERCHENKO ILYA EMIL
International class (IPC 8-9): E21B43/24 E21B43/243 E21B43/40 E21B47/00 (Advanced/Invention); E21B43/16 E21B43/34 E21B47/00 (Core/Invention)
International class (IPC 1-7): E21B43/24
CPC: E21B43/243
European class: E21B43/243
US class: 166/245 166/250.01 166/263 166/266 166/267 166/272.1 166/272.3 166/272.6 166/272.7 166/302 166/303 166/50

[Classification Explorer](#)

Cited documents: WO9901640, WO9850179, WO9701017, WO9533122, WO9512746, WO9512745, WO9512744, WO9512743, WO9512742, WO9506093, WO0181723 A1, WO0181505 A1, USRE36569 E, USRE35696 E, USRE30738 E, USRE30019 E, USRE27309 E, US94813 A, US760304 A, US6880635 BA, US6880633 BA, US6877555 BA, US6877554 BA, US6871707 BA, US6866097 BA, US6820688 BA, US6805195 BA, US6789625 BA, US6782947 BA, US6769485 BA, US6769483 BA, US6763886 BA, US6761216 BA, US6758268 BA, US6752210 BA, US6749021 BA, US6745837 BA, US6745832 BA, US6745831 BA, US6742593 BA, US6742589 BA, US6742588 BA, US6742587 BA, US6739394 BA, US6739393 BA, US6736215 BA, US6732796 BA, US6732795 BA, US6732794 BA, US6729401 BA, US6729397 BA, US6729396 BA, US6729395 BA, US6725928 BA, US6725921 BA, US6725920 BA, US6722431 BA, US6722430 BA, US6722429 BA, US6719047 BA, US6715549 BA, US6715548 BA, US6715547 BA, US6715546 BA, US6712137 BA, US6712136 BA, US6712135 BA, US6708758 BA, US6702016 BA, US6698515 BA, US6688387 BA, US6684948 BA, US6679332 BA, US6609570 BA, US6607033 BA, US6591907 BA, US6591906 BA, US6588504 BA, US6588503 BA, US6584406 BA, US6581684 BA, US6499536 BA, US6485232 BA, US6467543 BA, US6466020 BA, US6429784 BA, US6422318 BA, US6412559 BA, US6389814 BA, US6357526 BA, US6354373 BA, US6353706 BA, US6328104 BA, US6244338 BA, US6234259 BA, US6209640 BA, US6192748 BA, US6187465 BA, US6173775 B1, US6172124 B1, US6155117 A, US6152987 A, US6112808 A, US6110358 A, US6109358 A, US6102622 A, US6102137 A, US6102122 A, US6094048 A, US6085512 A, US6079499 A, US6065538 A, US6056057 A, US6049508 A, US6035701 A, US6026914 A, US6023554 A, US6019172 A, US6016876 A, US6016868 A, US6015015 A, US5997214 A, US5985138 A, US5984582 A, US5984010 A, US5968349 A, US5955039 A, US5935421 A, US5923170 A, US5899269 A, US5891829 A, US5868202 A, US5862858 A, US5861137 A, US5826655 A, US5777229 A, US5769569 A, US5767584 A, US5760307 A, US5751895 A, US5747750 A, US5725059 A, US5713415 A, US5676212 A, US5657826 A, US5656239 A, US5652389 A, US5632336 A, US5626191 A, US5624188 A, US5621844 A, US5589775 A, US5571403 A, US5566756 A, US5566755 A, US5554453 A, US5553189 A, US5545803 A, US5541517 A, US5539853 A, US5525322 A, US5517593 A, US5515931 A, US5513710 A, US5512830 A, US5498960 A, US5497087 A, US5491969 A, US5485089 A, US5456315 A, US5454666 A, US5439054 A, US5437506 A, US5435666 A, US5433271 A, US5431224 A, US5415231 A, US5411104 A, US5411089 A, US5411086 A, US5409071 A, US5404952 A, US5402847 A, US5400430 A, US5392854 A, US5391291 A, US5388645 A, US5388642 A, US5388641 A, US5388640 A, US5377756 A, US5366012 A, US5363094 A, US5360067 A, US5349859 A, US5343152 A, US5340467 A, US5339904 A, US5339897 A, US5325918 A, US5318116 A, US5316664 A, US5306640 A, US5305829 A, US5305239 A, US5305212 A, US5297626 A, US5295763 A, US5289882 A, US5285846 A, US5284878 A, US5261490 A, US5258755 A, US5255742 A, US5236039 A, US5229583 A, US5229102 A, US5226961 A, US5218301 A, US5217076 A, US5211230 A, US5207273 A, US5201219 A, US5190405 A, US5189283 A, US5182792 A, US5168927 A, US5145003 A, US5126037 A, US5109928 A, US5103920 A, US5099918 A, US5097903 A, US5085276 A, US5082055 A, US5082054 A, US5074365 A, US5065818 A, US5064006 A, US5060726 A, US5060287 A, US5059303 A, US5055180 A, US5054551 A, US5050386 A, US5046559 A, US5041210 A, US5027896 A, US5020596 A, US5014788 A, US5011329 A, US5008085 A, US4994093 A, US4988389 A, US4987368 A, US4984594 A, US4983319 A, US4982786 A, US4974425 A, US4933640 A, US4931171 A, US4928765 A, US4927857 A, US4926941 A, US4913065 A, US4912971 A, US48994 A, US4895206 A, US4893504 A, US4886118 A, US4885080 A, US4884455 A, US4883582 A, US4866983 A, US4860544 A, US4856587 A, US4856341 A, US4849360 A, US4848924 A, US4848460 A, US4845434 A, US4831600 A, US4828031 A, US4827761 A, US4818370 A, US4817711 A, US4815791 A, US4815790 A, US4808925 A, US4793656 A, US4791373 A, US4787452 A, US4778586 A, US4776638 A, US4772634 A, US4769606 A, US4769602 A, US4766958 A, US4762425 A, US4756367 A, US4744245 A, US4743854 A, US4737267 A, US4734115 A, US4730162 A, US4728892 A, US4728412 A, US4719423 A, US4716960 A, US4706751 A, US4704514 A, US4702758 A, US4700142 A, US4698149 A, US4696345 A, US4694907 A, US4691771 A, US4683947 A, US4682652 A, US4671102 A, US4669542 A, US4663711 A, US4662443 A, US4662439 A, US4662438 A, US4658215 A, US4651825 A, US4644283 A, US4640652 A, US4640353 A, US4637464 A, US4635197 A, US4634187 A, US4626665 A, US4623444 A, US4616705 A, US4613754 A, US4608818 A, US4605680 A, US4605489 A, US4598772 A, US4598770 A, US4598392 A, US4597444 A, US4597441 A, US4594468 A, US4592423 A, US4585066 A, US4583242 A, US4583046 A, US4577690 A, US4577503 A, US4576231 A, US4573530 A, US4572299 A, US4571491 A, US4570715 A, US4552214 A, US4549396 A, US4544478 A, US4542648 A, US4540882 A, US4537252 A, US4530401 A, US4529939 A, US4524827 A, US4524826 A, US4524113 A, US4518548 A, US4513816 A, US4508170 A, US4502010 A, US4501445 A, US4501326 A, US4499209 A, US4498535 A, US4491179 A, US4489782 A, US4485869 A, US4483398 A, US4479541 A, US4476927 A, US4474238 A, US4463807 A, US4460044 A, US4458767 A, US4458757 A, US4457374 A, US4457365 A, US4456065 A, US4455215 A, US4452491 A, US4448252 A, US4448251 A, US4445574 A, US4444258 A, US4444255 A, US4443762 A, US4442896 A, US4440224 A, US4439307 A, US4437519 A, US4429745 A, US4428700 A, US4425967 A, US4423311 A, US4418752 A, US4415034 A, US4412585 A, US4412124 A, US4410042 A, US4409090 A, US4407973 A, US4401163 A, US4399866 A, US4398151 A, US4397732 A, US4396062 A, US4390973 A, US4390067 A, US4384948 A, US4384614 A, US4384613 A, US4381641 A, US4380930 A, US4378048 A, US4375302 A, US4372398 A, US4366668 A, US4363361 A, US4359687 A, US4353418 A, US4344483 A, US4324292 A, US4323848 A, US4319635 A, US4306621 A, US4305463 A, US4303126 A, US4299285 A, US4299086 A, US4285547 A, US4282587 A, US4277416 A, US4274487 A, US4273188 A, US4265307 A, US4260192 A, US4260018 A, US4252191 A, US4250962 A, US4250230 A, US4243511 A, US4243101 A, US4234230 A, US4228854 A, US4197911 A, US4193451 A, US4186801 A, US4185692 A, US4184548 A, US4183405 A, US4167213 A, US4162707 A, US4160479 A, US4158467 A, US4151877 A, US4148359 A, US4144935 A, US4140181 A, US4140180 A, US4138442 A, US4133825 A, US4130575 A, US4125159 A, US4114688 A, US4099567 A, US4096163 A, US4093026 A, US4093025 A, US4091869 A, US4089374 A, US4089372 A, US4087130 A, US4084637 A, US4076761 A, US4069868 A, US4067390 A, US4065183 A, US4057293 A, US4049053 A, US4048637 A, US4043393 A, US4042026 A, US4031956 A, US4026357 A, US4019575 A, US4018280 A, US4016239 A, US4014575 A, US4010800 A, US4008762 A, US4006778 A, US4005752 A, US3999607 A, US3994341 A, US3994340 A, US3993132 A, US3992148 A, US3987851 A, US3986557 A, US3986556 A, US3986349 A, US3982592 A, US3982591 A, US3973628 A, US3954140 A, US3952802 A, US3948755 A, US3948319 A, US3947683 A, US3947656 A, US3941421 A, US3924680 A, US3922148 A, US3907045 A, US3892270 A, US3882941 A, US3881551 A, US3874733 A, US3870063 A, US3853185 A, US3809159 A, US3804172 A, US3804169 A, US3794116 A, US3779602 A, US3775185 A, US3770398 A, US3766982 A, US3759574 A, US3759328 A, US3700280 A, US3691291 A, US3680633 A, US3675715 A, US3661423 A, US3622071 A, US3618663 A, US3617471 A, US3605890 A, US3599714 A, US3595082 A, US3593790 A, US3580987 A, US3562401 A, US3547193 A, US3529682 A, US3528501 A, US3513913 A, US3502372 A, US3501201 A, US3497000 A, US3477058 A, US345586 A, US3455383 A, US3454365 A,

US3434541 A, US3389975 A, US3386508 A, US3380913 A, US3379248 A, US3352355 A, US3349845 A, US3342267 A, US3342258 A, US3338306 A, US3316962 A, US3310109 A, US3302707 A, US3294167 A, US3288648 A, US3285335 A, US3284281 A, US3275076 A, US3273640 A, US3267680 A, US326439 A, US3250327 A, US3246695 A, US3244231 A, US3241611 A, US3237689 A, US3233668 A, US3223166 A, US3221811 A, US3209825 A, US3208531 A, US3207220 A, US3205946 A, US3205944 A, US3205942 A, US3191679 A, US3183675 A, US3182721 A, US3181613 A, US3170842 A, US3165154 A, US3164207 A, US3163745 A, US3149672 A, US3149670 A, US3142336 A, US3139928 A, US3137347 A, US3132692 A, US3131763 A, US3127936 A, US3127935 A, US3120264 A, US3116792 A, US3114417 A, US3113623 A, US3113620 A, US3113619 A, US3110345 A, US3106244 A, US3105545 A, US3095031 A, US3084919 A, US3079085 A, US3062282 A, US3061009 A, US3050123 A, US3048221 A, US3044545 A, US3036632 A, US3032102 A, US3026940 A, US3017168 A, US3016053 A, US3010516 A, US3010513 A, US3007521 A, US3004603 A, US3004601 A, US3004596 A, US2998457 A, US2994376 A, US2974937 A, US2970826 A, US2969226 A, US2958519 A, US2954826 A, US2939689 A, US2932352 A, US2923535 A, US2914309 A, US2906340 A, US2906337 A, US2902270 A, US2890755 A, US2890754 A, US2857002 A, US2841375 A, US2825408 A, US2819761 A, US2804149 A, US2803305 A, US2801089 A, US2793696 A, US2789805 A, US2786660 A, US2780450 A, US2780449 A, US2777679 A, US2771954 A, US2743906 A, US2734579 A, US2732195 A, US2714930 A, US2703621 A, US2695163 A, US2685930 A, US2670802 A, US2642943 A, US2634961 A, US2630307 A, US2630306 A, US2623596 A, US2595979 A, US2593477 A, US2584605 A, US2548360 A, US2497868 A, US2484063 A, US2472445 A, US2466945 A, US2444755 A, US2423674 A, US2375689 A, US2244256 A, US2244255 A, US2004108111 AA, US2004069486 AA, US2004040715 AA, US2004035582 AA, US2004020642 AA, US2004015023 AA, US2003213594 AA, US2003209348 AA, US2003205378 AA, US2003201098 AA, US2003196810 AA, US2003196801 AA, US2003196793 AA, US2003196789 AA, US2003196788 AA, US2003192691 AA, US2003183390 AA, US2003178191 AA, US2003173081 AA, US2003173080 AA, US2003173078 AA, US2003164239 AA, US2003164238 AA, US2003164234 AA, US2003155111 AA, US2003148894 AA, US2003146002 AA, US2003142964 AA, US2003141068 AA, US2003141067 AA, US2003141066 AA, US2003131996 AA, US2003131995 AA, US2003131994 AA, US2003131993 AA, US2003116315 AA, US2003111223 AA, US2003102130 AA, US2003102126 AA, US2003102125 AA, US2003102124 AA, US2003100451 AA, US2003098605 AA, US2003098149 AA, US2003085034 AA, US2003080604 AA, US2003079877 AA, US2003075318 AA, US2003070807 AA, US2003066644 AA, US2003066642 AA, US2003062164 AA, US2003062154 AA, US2003051872 AA, US2003029617 AA, US2003024699 AA, US2003019626 AA, US2003006039 AA, US2002191969 AA, US2002191968 AA, US2002170708 AA, US2002132862 AA, US2002117303 AA, US2002112987 AA, US2002112890 AA, US2002108753 AA, US2002104654 AA, US2002096320 AA, US2002084074 AA, US2002077515 AA, US2002076212 AA, US2002074117 AA, US2002066565 AA, US2002062961 AA, US2002062959 AA, US2002062052 AA, US2002062051 AA, US2002057905 AA, US2002056552 AA, US2002056551 AA, US2002053436 AA, US2002053435 AA, US2002053432 AA, US2002053431 AA, US2002053429 AA, US2002052297 AA, US2002050357 AA, US2002050356 AA, US2002050353 AA, US2002050352 AA, US2002049360 AA, US2002049358 AA, US2002046883 AA, US2002046839 AA, US2002046838 AA, US2002046837 AA, US2002046832 AA, US2002045553 AA, US2002043405 AA, US2002043367 AA, US2002043366 AA, US2002043365 AA, US2002040781 AA, US2002040780 AA, US2002040779 AA, US2002040778 AA, US2002040177 AA, US2002040173 AA, US2002039486 AA, US2002038712 AA, US2002038711 AA, US2002038710 AA, US2002038709 AA, US2002038708 AA, US2002038706 AA, US2002038705 AA, US2002038069 AA, US2002036103 AA, US2002036089 AA, US2002036084 AA, US2002036083 AA, US2002035307 AA, US2002034380 AA, US2002033280 AA, US2002033257 AA, US2002033256 AA, US2002033255 AA, US2002033254 AA, US2002033253 AA, US2002029885 AA, US2002029884 AA, US2002029882 AA, US2002029881 AA, US2002027001 AA, US2002018697 AA, US2002004533 AA, US2001049342 AA, US1913395 A, US1681523 A, US1666488 A, US1646599 A, US1634236 A, US1510655 A, US1457479 A, US1342741 A, US1269747 A, SU1836876, SE12674, SE123138, SE123137, SE123136, SE121737, GB974082, GB697189, GB2086416, GB1588693, GB156396, GB1501310, GB1454324, GB1010023, EP0640558 A1, EP0570228 B1, EP0357314, EP0294809, CA983704, CA2015460, CA1288043, CA1253555, CA1196594, CA1168283, CA1165361,

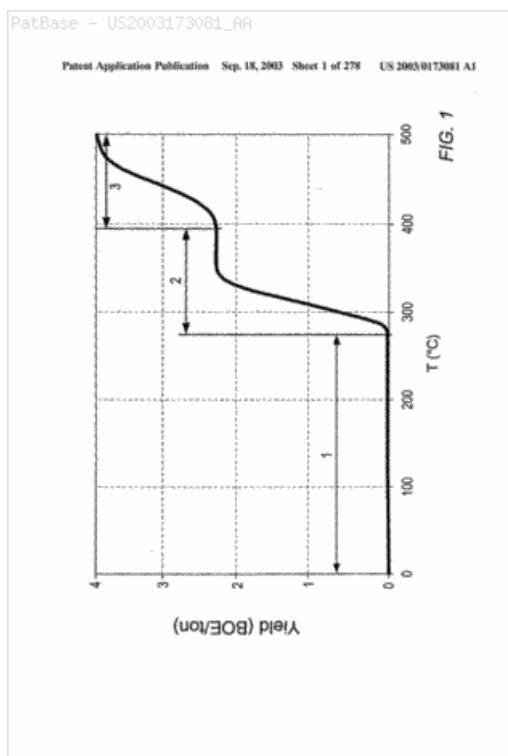
Forward Citations:

WO18161577, WO16085869, WO12078068, WO08131169, WO08131169, US9951658, US9938861, US9932874, US9920599, US9915200, US9903588, US9903316, US9903271, US9896918, US9885290, US9869279, US9869247, US9863267, US9835089, US9819292, US9810050, US9803865, US9784185, US9784182, US9784140, US9776794, US9759829, US9755415, US9752458, US9739122, US9732675, US9732673, US9726157, US9719682, US9708977, US9689309, US9670841, US9644466, US9631815, US9631542, US9618261, US9617914, US9612194, US9611756, US9605524, US9599070, US9599021, US9587510, US9581081, US9574496, US9528322, US9517885, US9512759, US9512699, US9482467, US9466896, US9463417, US9399905, US9394772, US9353682, US9347302, US9337550, US9309755, US9309050, US9243482, US9242800, US9242190, US9226341, US9222671, US9181780, US9181467, US9133398, US9129728, US9127538, US9127523, US9080917, US9080441, US9080409, US9074122, US9051829, US9048653, US9033042, US9033033, US9027321, US9022118, US9022109, US9016370, US9008884, US8997869, US8992771, US8984857, US8967259, US8961652, US8954188, US8943686, US8939207, US8936089, US8881806, US8875789, US8875371, US8863839, US8859942, US8857506, US8857051, US8851177, US8851170, US8839860, US8833453, US8820406, US8816203, US8791396, US8789586, US8770284, US8752904, US8739874, US8734545, US8732946, US8701788, US8701769, US8701768, US8691731, US8662175, US8641150, US8636323, US8631866, US8627887, US8622133, US8622127, US8616280, US8616279, US8608249, US8606091, US8596355, US8586867, US8586866, US8579031, US8562078, US8555971, US8540020, US8536497, US8502120, US8490703, US8485847, US8485256, US8485252, US8464971, US8459359, US8448707, US8434555, US8424784, US8381815, US8366918, US8366917, US8365478, US8356935, US8355623, US8353647, US8349171, US8327932, US8327681, US8323481, US8296968, US8281861, US8279273, US8276661, US8272455, US8267481, US8267185, US8267170, US8261832, US8257112, US8256512, US8240774, US8238730, US8233782, US8230929, US8230927, US8225866, US8224165, US8224164, US8224163, US8220539, US8205674, US8200072, US8196658, US8194380, US8192682, US8191630, US8177305, US8172335, US8162405, US8162059, US8151907, US8151884, US8151880, US8151877, US8151482, US8146669, US8146664, US8146661, US8122955, US8113272, US8109047, US8104537, US8096064, US8087460, US8083813, US8082995, US8070840, US8042610, US8028438, US8027571, US8025445, US8020313, US8011451, US8006407, US8003844, US7986869, US7975398, US7967974, US7950453, US7942203, US7942197, US7931086, US7912358, US7906014, US7866388, US7866386, US7866385, US7862706, US7862705, US7860377, US7849922, US7845411, US7841425, US7841408, US7841401, US7832484, US7832482, US7831134, US7831133, US7809538, US7802377, US7802376, US7798221, US7798220, US7785427, US7770643, US7748137, US7735935, US7730947, US7730946, US7730945, US7717171, US7703513, US7683296, US7681647, US7677314, US7677310, US7673786, US7673681, US7669657, US7644765, US7640987, US7640980, US7635025, US7635024, US7635023, US7631691, US7631690, US7631689, US7610962, US7604052, US7597147, US7591310, US7584789, US7581589, US7575053, US7575052, US7562707, US7562706, US7559368, US7559367, US7556096, US7556095, US7549470, US7546873, US7540324, US7533719, US7527094, US7510000, US7500528, US7490665, US7481274, US7461691, US7435037, US7431076, US7424915, US7398823, US7383877, US7370704, US7360588, US7357180, US7353872, US7320364, US7225866, US7219734, US7185702, US7165615, US7156176, US7128153, US7121342, US7121341, US7114566, US7104319, US7100994, US7096942, US7090013, US7086465, US7077199, US7077198, US7073578, US7066257, US7066254, US7063145, US7055600, US7051811, US7051808, US7051807, US7040400, US7040399, US7040398, US7032660, US7013972, US7011154, US7004251, US7004247, US6997518, US6994169, US6991045, US6991036, US6991033, US6991032, US6981548, US6969123, US6966374, US6964300, US6951247, US6948562, US6932155, US6929067, US6923257, US6918443, US6918442, US6915850, US6880633, US6877555, US6782947, US2018038205, US2016252640, US2015300327, US2014347472, US2013213651, US2013105151, US2011170843, US2011138649, US2011114323, US2011094952, US2010303427, US2010206709, US2010206518, US2010206410, US2010200468, US2010200467, US2010200466, US2010200465,

US2010200464, US2010105975, US2009250380, US2009159288, US2009095480, US2009078414, US2008207970, US2008190818, US2008190816, US2008190815, US2008190813, US2008162056, US2007230075, US2007177010, US2007042306, US2006191686, US2006151166, US10227920, US10221762, US10221014, US10215412, US10208677, US10161312, US10145269, US10138815, US10132950, US10107495, US10100741, US10094566, US10082063, US10079564, US10060359, US10053286, US10047633, US10047594, US10030588, US10012151, JP6367354, JP2017510799, EA017711, CN107002486, CN105973759, CN105973759, CN102418511, CN101881149, AU2007342387,

Abstract:

An in situ process for treating an oil containing formation is provided. The process may include providing heat from one or more heaters to at least a portion of the formation. The heat may be allowed to transfer from the one or more heaters to a part of the formation such that heat from the one or more heat sources pyrolyzes at least some hydrocarbons within the part. Hydrocarbons may be produced from the formation.



40) Family number: 29081532 (US2003173082A)

© PatBase

Title: IN SITU THERMAL PROCESSING OF A HEAVY OIL DIATOMITE FORMATION

Priority: US20010337476P 20011024 US20010338788P 20011024 US20020375011P 20020424
US20020374997P 20020424 US20020279293 20021024

Family:

Publication number	Publication date	Application number	Application date
US2003173082 AA	20030918	US20020279293	20021024
US7104319 BB	20060912	US20020279293	20021024

Probable Assignee: SHELL OIL CO

Assignee(s):(std): BERCHENKO ILYA EMIL ; KARANIKAS JOHN MICHAEL ; MAHER KEVIN ALBERT ; ROUFFIGNAC ERIC PIERRE DE ; SHAHIN GORDON THOMAS ; SHELL OIL CO ; VINEGAR HAROLD J ; STEGEMEIER GEORGE LEO ; WELLINGTON SCOTT LEE

Assignee(s): SHELL OIL COMPANY

Inventor(s):(std): KARANIKAS JOHN MICHAEL ; MAHER KEVIN ALBERT ; ROUFFIGNAC ERIC PIERRE DE ; SHAHIN GORDON THOMAS ; SHAHIN JR GORDON THOMAS ; STEGEMEIER GEORGE LEO ; VINEGAR HAROLD J ; WELLINGTON SCOTT LEE ; BERCHENKO ILYA EMIL ; DE ROUFFIGNAC ERIC PIERRE

Inventor(s): JR GORDON THOMAS ; SHAHIN

International class (IPC 8-9): E21B43/24 E21B43/243 E21B43/30 E21B47/00 (Advanced/Invention); E21B43/00 E21B43/16 E21B47/00 (Core/Invention)

International class (IPC 1-7): E21B43/24

CPC: E21B43/243

European class: E21B43/243

US class: 166/245 166/250.01 166/272.1 166/272.2 166/302 166/308.1

[Classification Explorer](#)

Cited documents: WO9901640, WO9850179, WO9701017, WO9533122, WO9512746, WO9512745, WO9512744, WO9512743, WO9512742, WO9506093, WO0181723 A1, WO0181505 A1, USRE36569 E, USRE35696 E, USRE30738 E, USRE30019 E, USRE27309 E, US94813 A, US760304 A, US6910536 BA, US6902004 BA, US6902003 BA, US6896053 BA, US6889769 BA, US6880635 BA, US6880633 BA, US6877555 BA, US6877554 BA, US6871707 BA, US6866097 BA, US6820688 BA, US6805195 BA, US6789625 BA, US6782947 BA, US6769485 BA, US6769483 BA, US6763886 BA, US6761216 BA, US6758268 BA, US6752210 BA, US6749021 BA, US6745837 BA, US6745832 BA, US6745831 BA, US6742593 BA, US6742589 BA, US6742588 BA, US6742587 BA, US6739394 BA, US6739393 BA, US6736215 BA, US6732796 BA, US6732795 BA, US6732794 BA, US6729401 BA, US6729397 BA, US6729396 BA, US6729395 BA, US6725928 BA, US6725921 BA, US6725920 BA, US6722431 BA, US6722430 BA, US6722429 BA, US6719047 BA, US6715549 BA, US6715548 BA, US6715547 BA, US6715546 BA, US6712137 BA, US6712136 BA, US6712135 BA, US6708758 BA, US6702016 BA, US6698515 BA,

US6688387 BA, US6684948 BA, US6679332 BB, US6679332 BA, US6609570 BA, US6607033 BA, US6591907 BA, US6591906 BA, US6588504 BA, US6588503 BA, US6584406 BA, US6581684 BA, US6499536 BA, US6485232 BA, US6467543 BA, US6466020 BA, US6429784 BA, US6422318 BA, US6412559 BA, US6389814 BA, US6357526 BA, US6354373 BA, US6353706 BA, US6328104 BA, US6244338 BA, US6234259 BA, US6209640 BA, US6192748 BA, US6187465 BA, US6173775 BA, US6173775 B1, US6172124 BA, US6172124 B1, US6155117 A, US6152987 A, US6112808 A, US6110358 A, US6109358 A, US6102622 A, US6102137 A, US6102122 A, US6094048 A, US6085512 A, US6079499 A, US6065538 A, US6056057 A, US6049508 A, US6035701 A, US6026914 A, US6023554 A, US6019172 A, US6016868 A, US6016867 A, US6015015 A, US5997214 A, US5985138 A, US5984582 A, US5984010 A, US5968349 A, US5955039 A, US5935421 A, US5923170 A, US5899269 A, US5891829 A, US5868202 A, US5862858 A, US5861137 A, US5826655 A, US5777229 A, US5769569 A, US5767584 A, US5760307 A, US5751895 A, US5747750 A, US5725059 A, US5713415 A, US5676212 A, US56657826 A, US5656239 A, US5652389 A, US5632336 A, US5626191 A, US5624188 A, US5621844 A, US5589775 A, US5571403 A, US5566756 A, US5566755 A, US5554453 A, US5553189 A, US5545803 A, US5541517 A, US5539853 A, US5525322 A, US5517593 A, US5515931 A, US5513710 A, US5512830 A, US5498960 A, US5497087 A, US5491969 A, US5485089 A, US5456315 A, US5454666 A, US5439054 A, US5437506 A, US5435666 A, US5433271 A, US5431224 A, US5415231 A, US5411104 A, US5411089 A, US5411086 A, US5409071 A, US5404952 A, US5402847 A, US5400430 A, US5392854 A, US5391291 A, US5388645 A, US5388643 A, US5388642 A, US5388641 A, US5388640 A, US5377756 A, US5366012 A, US5363094 A, US5360067 A, US5349859 A, US5343152 A, US5340467 A, US5339904 A, US5339897 A, US5325918 A, US5318116 A, US5316664 A, US5306640 A, US5305829 A, US5305239 A, US5305212 A, US5297626 A, US5295763 A, US5289882 A, US5285846 A, US5284878 A, US5261490 A, US5258755 A, US5255742 A, US5236039 A, US5229583 A, US5229102 A, US5226961 A, US5218301 A, US5217076 A, US5211230 A, US5207273 A, US5201219 A, US5190405 A, US5189283 A, US5182792 A, US5168927 A, US5145003 A, US5126037 A, US5109928 A, US5103920 A, US5099918 A, US5097903 A, US5085276 A, US5082055 A, US5082054 A, US5074365 A, US5065818 A, US5064006 A, US5060726 A, US5060287 A, US5059303 A, US5055180 A, US5054551 A, US5050386 A, US5046559 A, US5041210 A, US5027896 A, US5020596 A, US5014788 A, US50011329 A, US5008085 A, US4994093 A, US4988389 A, US4987368 A, US4984594 A, US4983319 A, US4982786 A, US4974425 A, US4933640 A, US4931171 A, US4928765 A, US4927857 A, US4926941 A, US4913065 A, US4912971 A, US48994 A, US4895206 A, US4893504 A, US4886118 A, US4885080 A, US4884455 A, US4883582 A, US4866983 A, US4860544 A, US4856587 A, US4856341 A, US4849360 A, US4848924 A, US4848460 A, US4845434 A, US4831600 A, US4828031 A, US4827761 A, US4823890 A, US4818370 A, US4817711 A, US4815791 A, US4815790 A, US4808925 A, US4793656 A, US4791373 A, US4787452 A, US4778586 A, US4776638 A, US4772634 A, US4769606 A, US4769602 A, US4766958 A, US4762425 A, US4756367 A, US4744245 A, US4743854 A, US4737267 A, US4734115 A, US4730162 A, US4728892 A, US4728412 A, US4719423 A, US4716960 A, US4706751 A, US4704514 A, US4702758 A, US4700142 A, US4698149 A, US4696345 A, US4694907 A, US4691771 A, US4683947 A, US4682652 A, US4671102 A, US4669542 A, US4663711 A, US4662443 A, US4662439 A, US4662438 A, US4658215 A, US4651825 A, US4644283 A, US4640353 A, US4640352 A, US4637464 A, US4635197 A, US4634187 A, US4626665 A, US4623444 A, US4616705 A, US4613754 A, US4608818 A, US4605680 A, US4605489 A, US4598772 A, US4598770 A, US4598392 A, US4597444 A, US4597441 A, US4594468 A, US4592423 A, US4585066 A, US4583242 A, US4583046 A, US4577690 A, US4577503 A, US4576231 A, US4573530 A, US4572299 A, US4571491 A, US4570715 A, US4552214 A, US4549396 A, US4544478 A, US4542648 A, US4540882 A, US4537252 A, US4530401 A, US4529939 A, US4524827 A, US4524826 A, US4524113 A, US4518548 A, US4513816 A, US4508170 A, US4502010 A, US4501445 A, US4501326 A, US4501010 A, US4499209 A, US4498535 A, US4491179 A, US4489782 A, US4485869 A, US4483398 A, US4479541 A, US4476927 A, US4474238 A, US4463807 A, US4460044 A, US4458767 A, US4458757 A, US4457374 A, US4457365 A, US4456065 A, US4455215 A, US4452491 A, US4448252 A, US4448251 A, US4445574 A, US4444258 A, US4444255 A, US4443762 A, US4442896 A, US4440224 A, US4439307 A, US4437519 A, US4429745 A, US4428700 A, US4425967 A, US4423311 A, US4418752 A, US4415034 A, US4412585 A, US4412124 A, US4410042 A, US4409090 A, US4407973 A, US4401163 A, US4399866 A, US4398151 A, US4397732 A, US4396062 A, US4390973 A, US4390067 A, US4384948 A, US4384614 A, US4384613 A, US4381641 A, US4380930 A, US4378048 A, US4375302 A, US4372398 A, US4366668 A, US4363361 A, US4359687 A, US4353418 A, US4344483 A, US4324292 A, US4323848 A, US4319635 A, US4306621 A, US4305463 A, US4303126 A, US4299285 A, US4299086 A, US4285547 A, US4282587 A, US4277416 A, US4274487 A, US4273188 A, US4265307 A, US4260192 A, US4260018 A, US4252191 A, US4250962 A, US4250230 A, US4243511 A, US4243101 A, US4234230 A, US4228854 A, US4197911 A, US4193451 A, US4186801 A, US4185692 A, US4184548 A, US4183405 A, US4167213 A, US4162707 A, US4160479 A, US4158467 A, US4148359 A, US4144935 A, US4140181 A, US4140180 A, US4138442 A, US4133825 A, US4130575 A, US4125159 A, US4114688 A, US4099567 A, US4096163 A, US4093026 A, US4093025 A, US4091869 A, US4089374 A, US4089372 A, US4087130 A, US4084637 A, US4076761 A, US4069868 A, US4067390 A, US4065183 A, US4057293 A, US4049053 A, US4048637 A, US4043393 A, US4042026 A, US4031956 A, US4026357 A, US4019575 A, US4018280 A, US4016239 A, US4014575 A, US4010800 A, US4008762 A, US4006778 A, US4005752 A, US3999607 A, US3994341 A, US3994340 A, US3993132 A, US3987851 A, US3986557 A, US3986556 A, US3986349 A, US3982592 A, US3982591 A, US3973628 A, US3954140 A, US3952802 A, US3948755 A, US3948319 A, US3947683 A, US3947656 A, US3941421 A, US3924680 A, US3922148 A, US3907045 A, US3892270 A, US3882941 A, US3881551 A, US3874733 A, US3870063 A, US3853185 A, US3809159 A, US3804172 A, US3804169 A, US3794116 A, US3779602 A, US3775185 A, US3770398 A, US3766982 A, US3759574 A, US3759328 A, US3700280 A, US3691291 A, US3680633 A, US3675715 A, US3661423 A, US3622071 A, US3618663 A, US3617471 A, US3605890 A, US3599714 A, US3595082 A, US3593790 A, US3580987 A, US3562401 A, US3547193 A, US3529682 A, US3528501 A, US3513913 A, US3502372 A, US3501201 A, US3497000 A, US3477058 A, US345586 A, US3455383 A, US3454365 A, US3434541 A, US3389975 A, US3386508 A, US3380913 A, US3379248 A, US3352355 A, US3349845 A, US3342267 A, US3342258 A, US3338306 A, US3316962 A, US3310109 A, US3302707 A, US3294167 A, US3288648 A, US3285335 A, US3284281 A, US3275076 A, US3273640 A, US3267680 A, US326439 A, US3250327 A, US3246695 A, US3244231 A, US3241611 A, US3237689 A, US3233668 A, US3223166 A, US3221811 A, US3209825 A, US3208531 A, US3207220 A, US3205946 A, US3205944 A, US3205942 A, US3191679 A, US3183675 A, US3182721 A, US3181613 A, US3170842 A, US3165154 A, US3164207 A, US3163745 A, US3149672 A, US3149670 A, US3142336 A, US3139928 A, US3137347 A, US3132692 A, US3131763 A, US3127936 A, US3127935 A, US3120264 A, US3116792 A, US3114417 A, US3113623 A, US3113620 A, US3113619 A, US3110345 A, US3106244 A, US3105545 A, US3095031 A, US3084919 A, US3079085 A, US3062282 A, US3061009 A, US3050123 A, US3048221 A, US3044545 A, US3036632 A, US3032102 A, US3026940 A, US3017168 A, US3016053 A, US3010516 A, US3010513 A, US3007521 A, US3004603 A, US3004601 A, US3004596 A, US2998457 A, US2994376 A, US2974937 A, US2970826 A, US2969226 A, US2958519 A, US2954826 A, US2939689 A, US2932352 A, US2923535 A, US2914309 A, US2906340 A, US2906337 A, US2902270 A, US2890755 A, US2890754 A, US2857002 A, US2841375 A, US2825408 A, US2819761 A, US2804149 A, US2803305 A, US2801089 A, US2793696 A, US2789805 A, US2786660 A, US2780450 A, US2780449 A, US2777679 A, US2771954 A, US2743906 A, US2734579 A, US2732195 A, US2714930 A, US2703621 A, US2695163 A, US2685930 A, US2670802 A, US2642943 A, US2634961 A, US2630307 A, US2630306 A, US2623596 A, US2595979 A, US2593477 A, US2584605 A, US2548360 A, US2497868 A, US2484063 A, US2472445 A, US2466945 A, US2444755 A, US2423674 A, US2375689 A, US2244256 A, US2244255 A, US2005051327 AA, US2005006097 AA, US2004177966 AA, US2004146288 AA, US2004145969 AA, US2004144541 AA, US2004144540 AA, US2004140096 AA, US2004140095 AA, US2004108111 AA, US2004069486 AA, US2004040715 AA, US2004035582 AA, US2004020642 AA, US2004015023 AA, US2003213594 AA, US2003209348 AA, US2003205378 AA, US2003201098 AA, US2003196810 AA, US2003196801 AA, US2003196793 AA, US2003196789 AA, US2003196788 AA, US2003192691 AA, US2003183390 AA, US2003178191 AA, US2003173085 AA, US2003173081 AA, US2003173080 AA, US2003173078 AA, US2003173072 AA, US2003164239 AA, US2003164238 AA, US2003164234 AA, US2003155111 AA, US2003148894 AA, US2003146002 AA, US2003142964 AA, US2003141068 AA, US2003141067 AA,

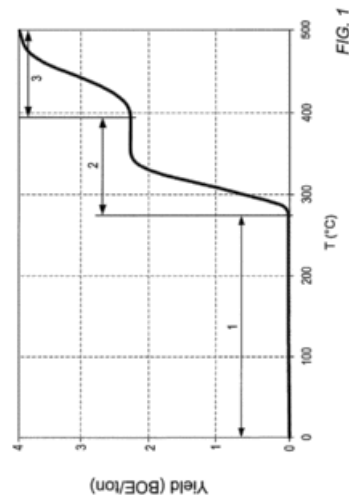
US2003141066 AA, US2003136559 AA, US2003131996 AA, US2003131995 AA, US2003131994 AA, US2003131993 AA, US2003116315 AA, US2003111223 AA, US2003102130 AA, US2003102126 AA, US2003102125 AA, US2003102124 AA, US2003100451 AA, US2003098605 AA, US2003098149 AA, US2003085034 AA, US2003080604 AA, US2003079877 AA, US2003075318 AA, US2003070807 AA, US2003066644 AA, US2003066642 AA, US2003062164 AA, US2003062154 AA, US2003051872 AA, US2003029617 AA, US2003024699 AA, US2003019626 AA, US2003006039 AA, US2002191969 AA, US2002191968 AA, US2002170708 AA, US2002132862 AA, US2002117303 AA, US2002112987 AA, US2002112890 AA, US2002108753 AA, US2002104654 AA, US2002096320 AA, US2002084074 AA, US2002077515 AA, US2002076212 AA, US2002074117 AA, US2002066565 AA, US2002062961 AA, US2002062959 AA, US2002062052 AA, US2002062051 AA, US2002057905 AA, US2002056552 AA, US2002056551 AA, US2002053436 AA, US2002053435 AA, US2002053432 AA, US2002053431 AA, US2002053429 AA, US2002052297 AA, US2002050357 AA, US2002050356 AA, US2002050353 AA, US2002050352 AA, US2002049360 AA, US2002049358 AA, US2002046883 AA, US2002046839 AA, US2002046838 AA, US2002046837 AA, US2002046832 AA, US2002045553 AA, US2002043405 AA, US2002043367 AA, US2002043366 AA, US2002043365 AA, US2002040781 AA, US2002040780 AA, US2002040779 AA, US2002040778 AA, US2002040177 AA, US2002040173 AA, US2002039486 AA, US2002038712 AA, US2002038711 AA, US2002038710 AA, US2002038709 AA, US2002038708 AA, US2002038706 AA, US2002038705 AA, US2002038069 AA, US2002036103 AA, US2002036089 AA, US2002036084 AA, US2002036083 AA, US2002035307 AA, US2002034380 AA, US2002033280 AA, US2002033257 AA, US2002033256 AA, US2002033255 AA, US2002033254 AA, US2002033253 AA, US2002029885 AA, US2002029884 AA, US2002029882 AA, US2002029881 AA, US2002027001 AA, US2002018697 AA, US2002004533 AA, US2001049342 AA, US1913395 A, US1681523 A, US1666488 A, US1646599 A, US1634236 A, US1510655 A, US1457479 A, US1342741 A, US1269747 A, SE126674, SE123138, SE123137, SE123136, SE121737, RU1836876, GB697189, GB674082, GB2086416, GB1588693, GB156396, GB1501310, GB1454324, GB1010023, EP0940558 A1, EP0570228 B1, EP0357314, EP0294809, CA983704, CA2015460, CA1288043, CA1253555, CA1196594, CA1168283, CA1165361,

Forward Citations:

WO15089405, WO14176290, WO14176290, WO09108940, WO09108940, WO07050476, US9975156, US9951658, US9938861, US9932874, US9915200, US9903588, US9903316, US9903271, US9890627, US9885290, US9869279, US9869247, US9863267, US9840898, US9835089, US9819292, US9810050, US9803865, US9784185, US9784182, US9784140, US9776794, US9755415, US9752458, US9739122, US9732675, US9732673, US9726157, US9719682, US9708977, US9689309, US9670841, US9644466, US9631815, US9631542, US9618261, US9617914, US9611756, US9605524, US9599070, US9599021, US9587510, US9581081, US9574496, US9528322, US9517885, US9512759, US9512699, US9466896, US9463417, US9399905, US9394772, US9353682, US9347302, US9337550, US9309755, US9309050, US9242800, US9226341, US9222671, US9181780, US9181467, US9133398, US9129728, US9127538, US9127523, US9080917, US9080441, US9080409, US9051829, US9048653, US9033042, US9033033, US9027321, US9022118, US9022109, US9016370, US9008884, US8997869, US8992771, US8984857, US8967259, US8954188, US8943686, US8939207, US8936089, US8881806, US8875789, US8863839, US8859942, US8857506, US8857051, US8851177, US8851170, US8839860, US8833453, US8820406, US8816203, US8791396, US8789586, US8776901, US8770284, US8756019, US8752904, US8739874, US8734545, US8732946, US8701788, US8701769, US8701768, US8662175, US8641150, US8636323, US8631866, US8627887, US8622133, US8622127, US8616280, US8616279, US8608249, US8606091, US8596355, US8586867, US8586866, US8579031, US8562078, US8555971, US8540020, US8536497, US8502120, US8485847, US8485256, US8485252, US8459359, US8448707, US8434555, US8381815, US8356935, US8355623, US8353347, US8353340, US8327932, US8327681, US8296968, US8281861, US8277145, US8276661, US8272455, US8267185, US8267170, US8261832, US8257112, US8256992, US8256991, US8256512, US8240774, US8238730, US8233782, US8230929, US8230927, US8225866, US8224165, US8224164, US8224163, US8220539, US8205674, US8200072, US8196658, US8192682, US8191630, US8177305, US8172335, US8162405, US8162059, US8151907, US8151884, US8151880, US8151877, US8151482, US8146669, US8146664, US8146661, US8122955, US8113272, US8104537, US8087460, US8083813, US8082995, US8070840, US8042610, US8028438, US8027571, US8020313, US8011451, US8006407, US7986869, US7975398, US7950453, US7942203, US7942197, US7931086, US7912358, US7866388, US7866386, US7866385, US7860377, US7857056, US7849922, US7845411, US7841425, US7841408, US7841401, US7832484, US7832482, US7831134, US7831133, US7809538, US7802377, US7802376, US7798221, US7798220, US7785427, US7770643, US7748137, US7735935, US7730947, US7730946, US7730945, US7717171, US7703513, US7683296, US7681647, US7677314, US7677310, US7673786, US7673681, US7669657, US7647972, US7647971, US7644993, US7644765, US7640987, US7640980, US7635025, US7635024, US7635023, US7631691, US7631690, US7631689, US7610962, US7604052, US7597147, US7591310, US7584789, US7581589, US7575053, US7575052, US7562707, US7562706, US7559368, US7559367, US7556096, US7556095, US7549470, US7546873, US7540324, US7533719, US7527094, US7516787, US7516785, US7510000, US7500528, US7490665, US7481274, US7461691, US7441603, US7435037, US7431076, US7424915, US7383877, US7370704, US7360588, US7357180, US7353872, US7331385, US7320364, US7225866, US7096942, US7055600, US7051811, US7051807, US7040400, US7040399, US7040398, US7032660, US7013972, US7004251, US7004247, US6997518, US6994169, US6991036, US6991033, US6991032, US6981548, US6966374, US6964300, US6951247, US6948562, US6929067, US6923257, US6918443, US6918442, US6915850, US6880633, US6877555, US6782947, US2015300327, US2011288778, US2011247820, US2011011582, US2010101789, US2010098492, US2009220303, US2009107679, US2009101348, US2009038795, US2008290719, US2008207970, US2008087426, US2008087420, US2007131411, US2007023186, US2007000662, US2006289536, US10227920, US10221762, US10221014, US10215412, US10208677, US10161312, US10145269, US10138815, US10107495, US10100741, US10094566, US10082063, US10079564, US10060359, US10053286, US10047633, US10047594, US10030588, US10012151, KR101434248, JP2009512801, EA014196, CN105745396, CN105672977, CN104428489, AU2006306411,

Abstract:

An in situ process for treating a diatomite formation is provided. The process may include providing heat from one or more heaters to at least a portion of the formation. The heat may be allowed to transfer from the one or more heaters to a part of the formation such that heat from the one or more heat sources pyrolyzes at least some hydrocarbons within the part. Hydrocarbons may be produced from the formation.

**41) Family number: 29081534 (US2003173085A)**

© PatBase

Title: UPGRADING AND MINING OF COAL

Priority: US20010337137P 20011024 US20010338648P 20011024 US20020375000P 20020424
 US20020374996P 20020424 US20020279286 20021024

Family:

Publication number	Publication date	Application number	Application date
US2003173085 AA	20030918	US20020279286	20021024
US6969123 BB	20051129	US20020279286	20021024

Probable Assignee: SHELL OIL CO**Assignee(s):(std):** SHELL OIL CO**Assignee(s):** SHELL OIL COMPANY ; VINEGAR HAROLD J ; WELLINGTON SCOTT LEE ; MAHER KEVIN ALBERT**Inventor(s):(std):** WELLINGTON SCOTT LEE ; VINEGAR HAROLD J ; MAHER KEVIN ALBERT

International class (IPC 8-9): E21B36/00 E21B43/00 E21B43/24 E21F7/00 (Advanced/Invention);
 E21B36/00 E21B43/00 E21B43/16 E21F7/00 (Core/Invention)

International class (IPC 1-7): E21B36/00 E21B43/24 E21C37/16 E21C37/20 E21C41/00

CPC: E21B43/006 E21B43/295 E21F7/00**European class:** E21B43/00M E21B43/295 E21F7/00**US class:** 166/302 299/14 299/14S 299/3[Classification Explorer](#)**Cited documents:**

WO9901640, WO9850179, WO9701017, WO9533122, WO9512746, WO9512745, WO9512744, WO9512743, WO9512742, WO9506093, WO0181723 A1, WO0181505 A1, USRE36569 E, USRE35696 E, USRE30738 E, USRE30019 E, USRE27309 E, US94813 A, US760304 A, US6609570 BB, US6607033 BB, US6591907 BB, US6591906 BB, US6588504 BB, US6588503 BB, US6581684 BB, US6485232 BA, US6466020 BB, US6412559 BA, US6389814 BB, US6357526 BA, US6354373 BA, US6328104 BA, US6244338 BA, US6234259 BA, US6192748 BA, US6187465 BA, US6173775 B1, US6172124 B1, US6155117 A, US6152987 A, US6112808 A, US6102622 A, US6102122 A, US6094048 A, US6085512 A, US6079499 A, US6056057 A, US6035701 A, US6026914 A, US6023554 A, US6019172 A, US6016868 A, US6016867 A, US6015015 A, US5997214 A, US5985138 A, US5984010 A, US5968349 A, US5955039 A, US5935421 A, US5923170 A, US5899269 A, US5868202 A, US5862858 A, US5861137 A, US5826655 A, US5777229 A, US5769569 A, US5767584 A, US5760307 A, US5751895 A, US5725059 A, US5713415 A, US5676212 A, US5657826 A, US5656239 A, US5652389 A, US5632336 A, US5624188 A, US5621844 A, US5589775 A, US5571403 A, US5566756 A, US5566755 A, US5554453 A, US5553189 A, US5545803 A, US5541517 A, US5525322 A, US5517593 A, US5515931 A, US5513710 A, US5512830 A, US5498960 A, US5497087 A, US5491969 A, US5454666 A, US5439054 A, US5437506 A, US5435666 A, US5433271 A, US5431224 A, US5415231 A, US5411104 A, US5411089 A, US5409071 A, US5404952 A, US5402847 A, US5392854 A, US5391291 A, US5388645 A, US5388643 A, US5388642 A, US5388641 A, US5388640 A, US5366012 A, US5360067 A, US5349859 A, US5343152 A, US5340467 A, US5339904 A, US5339897 A, US5318116 A, US5316664 A, US5306640 A, US5305239 A, US5305212 A, US5297626 A, US5289882 A, US5285846 A, US5284878 A, US5261490 A, US5258755 A, US5255742 A, US5236039 A, US5229583 A, US5229102 A, US5226961 A, US5218301 A, US5217076 A, US5211230 A, US5207273 A, US5201219 A, US5190405 A, US5189283 A, US5182792 A, US5168927 A, US5145003 A, US5126037 A, US5109928 A, US5099918 A, US5097903 A, US5082055 A, US5082054 A, US5074365 A, US5065818 A, US5064006 A, US5060726 A, US5060287 A, US5054551 A, US5050386 A, US5046559 A, US5020596 A, US5014788 A, US5011329 A, US5008085 A, US4994093 A, US4988389 A, US4987368 A, US4984594 A, US4983319 A, US4982786 A, US4974425 A, US4933640 A, US4931171 A, US4928765 A, US4927857 A, US4926941 A, US4913065 A, US4912971 A, US48994 A, US4895206 A, US4893504 A, US4886118 A, US4884455 A, US4866983 A, US4860544 A, US4856587 A, US4856341 A, US4848924 A, US4848460 A, US4845434 A, US4827761 A, US4818370 A, US4817711 A, US4815790 A, US4793656 A, US4791373 A, US4787452 A, US4778586 A, US4776638 A, US4772634 A, US4769606 A, US4769602 A, US4762425 A, US4756367 A,

US4744245 A, US4743854 A, US4737267 A, US4730162 A, US4728892 A, US4728412 A, US4719423 A, US4716960 A, US4706751 A, US4704514 A, US4702758 A, US4700142 A, US4696345 A, US4694907 A, US4691771 A, US4682652 A, US4671102 A, US4669542 A, US4663711 A, US4662443 A, US4662439 A, US4662438 A, US4658215 A, US4651825 A, US4644283 A, US4640353 A, US4640352 A, US4637464 A, US4635197 A, US4626665 A, US4616705 A, US4613754 A, US4608818 A, US4605680 A, US4598770 A, US4598392 A, US4597444 A, US4597441 A, US4594468 A, US4592423 A, US4585066 A, US4583242 A, US4583046 A, US4577690 A, US4577503 A, US4576231 A, US4573530 A, US4572299 A, US4571491 A, US4570715 A, US4552214 A, US4549396 A, US4542648 A, US4540882 A, US4537252 A, US4530401 A, US4529939 A, US4524827 A, US4524826 A, US4524113 A, US4518548 A, US4513816 A, US4508170 A, US4502010 A, US4501445 A, US4501326 A, US4499209 A, US4498535 A, US4491179 A, US4489782 A, US4485869 A, US4483398 A, US4479541 A, US4476927 A, US4474238 A, US4463807 A, US4460044 A, US4458767 A, US4458757 A, US4457374 A, US4457365 A, US4456065 A, US4455215 A, US4452491 A, US4448252 A, US4448251 A, US4444258 A, US4444255 A, US4443762 A, US4437519 A, US4429745 A, US4428700 A, US4425967 A, US4423311 A, US4412585 A, US4412124 A, US4410042 A, US4409090 A, US4407973 A, US4401163 A, US4398151 A, US4397732 A, US4396062 A, US4390973 A, US4390067 A, US4384948 A, US4384614 A, US4384613 A, US4381641 A, US4380930 A, US4378048 A, US4375302 A, US4372398 A, US4366668 A, US4363361 A, US4359687 A, US4353418 A, US4344483 A, US4324292 A, US4323848 A, US4306621 A, US4299285 A, US4299086 A, US4282587 A, US4277416 A, US4274487 A, US4273188 A, US4265307 A, US4252191 A, US4250962 A, US4250230 A, US4243101 A, US4228854 A, US4197911 A, US4193451 A, US4186801 A, US4185692 A, US4184548 A, US4183405 A, US4160479 A, US4158467 A, US4148359 A, US4144935 A, US4140181 A, US4140180 A, US4138442 A, US4133825 A, US4130575 A, US4114688 A, US4099567 A, US4096163 A, US4093026 A, US4093025 A, US4091869 A, US4089374 A, US4089372 A, US4087130 A, US4084637 A, US4076761 A, US4069868 A, US4067390 A, US4057293 A, US4049053 A, US4048637 A, US4043393 A, US4042026 A, US4031956 A, US4026357 A, US4019575 A, US4016239 A, US4010800 A, US4008762 A, US4006778 A, US4005752 A, US3999607 A, US3994341 A, US3994340 A, US3993132 A, US3992148 A, US3987851 A, US3986556 A, US3986349 A, US3982592 A, US3982591 A, US3973628 A, US3954140 A, US3952802 A, US3948319 A, US3947683 A, US3947656 A, US3941421 A, US3924680 A, US3922148 A, US3892270 A, US3882941 A, US3881551 A, US3874733 A, US3870063 A, US3853185 A, US3809159 A, US3794116 A, US3775185 A, US3770398 A, US3766982 A, US3759574 A, US3680633 A, US3675715 A, US3661423 A, US3622071 A, US3617471 A, US3605890 A, US3599714 A, US3595082 A, US3593790 A, US3580987 A, US3562401 A, US3547193 A, US3528501 A, US3513913 A, US3502372 A, US3501201 A, US3497000 A, US3477058 A, US345586 A, US3455383 A, US3389975 A, US3380913 A, US3379248 A, US3352355 A, US3349845 A, US3342267 A, US3342258 A, US3338306 A, US3316962 A, US3310109 A, US3294167 A, US3285335 A, US3284281 A, US3275076 A, US3273640 A, US3267680 A, US326439 A, US3250327 A, US3246695 A, US3244231 A, US3241611 A, US3237689 A, US3233668 A, US3223166 A, US3221811 A, US3208531 A, US3207220 A, US3205946 A, US3205944 A, US3191679 A, US3183675 A, US3182721 A, US3181613 A, US3165154 A, US3164207 A, US3163745 A, US3149672 A, US3149670 A, US3142336 A, US3139928 A, US3137347 A, US3132692 A, US3131763 A, US3127936 A, US3127935 A, US3120264 A, US3116792 A, US3114417 A, US3113623 A, US3113620 A, US3113619 A, US3110345 A, US3106244 A, US3105545 A, US3095031 A, US3084919 A, US3062282 A, US3061009 A, US3050123 A, US3044545 A, US3036632 A, US3026940 A, US3010516 A, US3010513 A, US3007521 A, US3004603 A, US3004596 A, US2998457 A, US2994376 A, US2974937 A, US2969226 A, US2958519 A, US2954826 A, US2939689 A, US2932352 A, US2923535 A, US2914309 A, US2906340 A, US2906337 A, US2902270 A, US2890755 A, US2890754 A, US2857002 A, US2841375 A, US2825408 A, US2819761 A, US2804149 A, US2803305 A, US2801089 A, US2793696 A, US2789805 A, US2786660 A, US2780450 A, US2780449 A, US2777679 A, US2771954 A, US2734579 A, US2732195 A, US2714930 A, US2703621 A, US2695163 A, US2685930 A, US2670802 A, US2642943 A, US2634961 A, US2630307 A, US2630306 A, US2623596 A, US2595979 A, US2593477 A, US2584605 A, US2548360 A, US2497868 A, US2484063 A, US2472445 A, US2466945 A, US2444755 A, US2423674 A, US2375689 A, US2244256 A, US2244255 A, US2003209348 AA, US2003205378 AA, US2003201098 AA, US2003196810 AA, US2003196801 AA, US2003196789 AA, US2003196788 AA, US2003192693 AA, US2003192691 AA, US2003183390 AA, US2003178191 AA, US2003173081 AA, US2003173080 AA, US2003173078 AA, US2003164239 AA, US2003164238 AA, US2003164234 AA, US2003155111 AA, US2003148894 AA, US2003146002 AA, US2003142964 AA, US2003141068 AA, US2003141067 AA, US2003141066 AA, US2003131996 AA, US2003131995 AA, US2003131994 AA, US2003131993 AA, US2003116315 AA, US2003111223 AA, US2003102130 AA, US2003102126 AA, US2003102125 AA, US2003102124 AA, US2003100451 AA, US2003098605 AA, US2003098149 AA, US2003085034 AA, US2003080604 AA, US2003079877 AA, US2003075318 AA, US2003070807 AA, US2003066644 AA, US2003066642 AA, US2003062164 AA, US2003062154 AA, US2003051872 AA, US2003024699 AA, US2003019626 AA, US2003006039 AA, US2002191969 AA, US2002191968 AA, US2002170708 AA, US2002132862 AA, US2002117303 AA, US2002108753 AA, US2002104654 AA, US2002096320 AA, US2002084074 AA, US2002077515 AA, US2002076212 AA, US2002074117 AA, US2002066565 AA, US2002062961 AA, US2002062959 AA, US2002062052 AA, US2002062051 AA, US2002057905 AA, US2002056552 AA, US2002056551 AA, US2002053436 AA, US2002053435 AA, US2002053432 AA, US2002053431 AA, US2002053429 AA, US2002052297 AA, US2002050357 AA, US2002050356 AA, US2002050353 AA, US2002050352 AA, US2002049360 AA, US2002049358 AA, US2002046883 AA, US2002046839 AA, US2002046838 AA, US2002046837 AA, US2002046832 AA, US2002045553 AA, US2002043405 AA, US2002043367 AA, US2002043366 AA, US2002043365 AA, US2002040781 AA, US2002040780 AA, US2002040779 AA, US2002040778 AA, US2002040177 AA, US2002040173 AA, US2002039486 AA, US2002038712 AA, US2002038711 AA, US2002038710 AA, US2002038709 AA, US2002038708 AA, US2002038706 AA, US2002038705 AA, US2002038069 AA, US2002036103 AA, US2002036089 AA, US2002036084 AA, US2002036083 AA, US2002035307 AA, US2002034380 AA, US2002033280 AA, US2002033257 AA, US2002033256 AA, US2002033255 AA, US2002033254 AA, US2002033253 AA, US2002029885 AA, US2002029884 AA, US2002029882 AA, US2002029881 AA, US2002027001 AA, US2002018697 AA, US2001049342 AA, US1913395 A, US1681523 A, US1666488 A, US1646599 A, US1634236 A, US1510655 A, US1457479 A, US1342741 A, US1269747 A, SU1836876, SE126674, SE123138, SE123137, SE123136, SE121737, GB697189, GB674082, GB2086416, GB1588693, GB156396, GB1501310, GB1454324, GB1010023, EP0940558 A1, EP0570228 B1, EP0357314, EP0294809, CA983704, CA2015460, CA1288043, CA1253555, CA1196594, CA1168283, CA1165361,

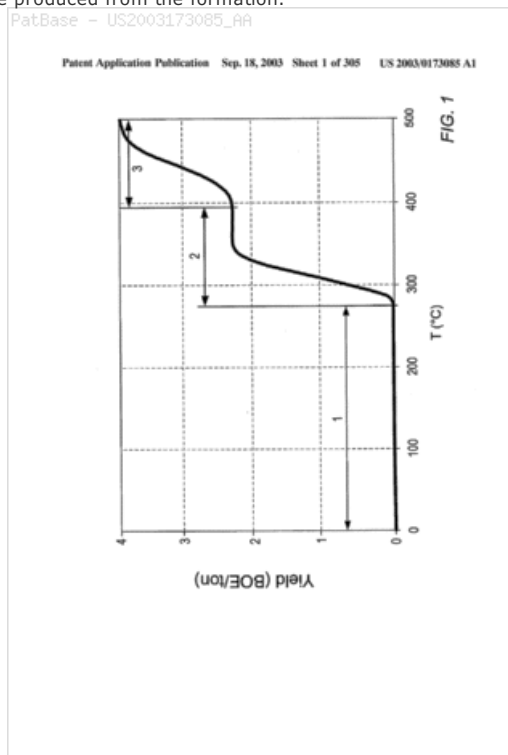
Forward Citations:

WO16112759, WO14151903, WO12027110, US9951658, US9940413, US9938861, US9932874, US9915200, US9903588, US9903316, US9903271, US9885290, US9869279, US9869247, US9869168, US9863267, US9835089, US9819292, US9810050, US9803865, US9784185, US9784182, US9784140, US9776794, US9755415, US9752458, US9739122, US9732675, US9732673, US9719682, US9719380, US9708977, US9689309, US9670841, US9644466, US9631815, US9631542, US9618261, US9617914, US9611756, US9605524, US9599070, US9599021, US9587510, US9581081, US9574496, US9528322, US9517885, US9512759, US9512699, US9466896, US9463417, US9399905, US9394772, US9353682, US9347302, US9337550, US9309755, US9309050, US9242800, US9226341, US9222671, US9181780, US9129728, US9127538, US9127523, US9109905, US9080917, US9080441, US9080409, US9051829, US9048653, US9033042, US9027321, US9022118, US9022109, US9016370, US9014859, US9008884, US8984857, US8967259, US8954188, US8943686, US8939207, US8881806, US8875789, US8863839, US8859942, US8857506, US8857051, US8851170, US8833453, US8820406, US8816203, US8791396, US8789891, US8789586, US8770284, US8752904, US8739874, US8734545, US8732946, US8701769, US8701768, US8662175, US8646846, US8641150, US8636323, US8631866, US8627887, US8622133, US8622127, US8616280, US8616279, US8608249, US8606091, US8596355, US8586867, US8586866, US8579031, US8562078, US8555971, US8540020, US8536497, US8502120, US8485847, US8485256, US8485252, US8459359, US8448707, US8434555, US8381815, US8356935, US8355623, US8353347, US8327932, US8327681, US8296968, US8281861, US8276661, US8272455, US8267185, US8267170, US8261832, US8257112, US8256512, US8240774, US8238730, US8233782, US8230929, US8230927, US8225866, US8224165, US8224164, US8224163, US8220539, US8205947, US8205674, US8200072,

US8196658, US8192682, US8191630, US8177305, US8172335, US8162405, US8162059, US8151907, US8151884, US8151880, US8151877, US8151482, US8146669, US8146664, US8146661, US8122955, US8113272, US8104537, US8096064, US8087460, US8083813, US8082995, US8070840, US8042610, US8028438, US8027571, US8011451, US8006407, US7986869, US7975398, US7954254, US7950453, US7942203, US7942197, US7931086, US7912358, US7866388, US7866386, US7866385, US7860377, US7857056, US7849922, US7845411, US7841425, US7841408, US7841401, US7832484, US7831134, US7831133, US7802377, US7802376, US7798221, US7798220, US7793722, US7785427, US7748137, US7735935, US7730947, US7730946, US7730945, US7717171, US7703513, US7683296, US7681647, US7677314, US7677310, US7673786, US7673681, US7669657, US7647972, US7647971, US7644993, US7644765, US7640980, US7635025, US7635024, US7635023, US7631691, US7631690, US7631689, US7610962, US7604052, US7597147, US7591310, US7584789, US7581589, US7575053, US7575052, US7562707, US7562706, US7559368, US7559367, US7556096, US7556095, US7549470, US7546873, US7540324, US7537061, US7533719, US7527094, US7516787, US7516785, US7510000, US7500528, US7490665, US7481274, US7461691, US7441603, US7435037, US7431083, US7431076, US7424915, US7383877, US7370704, US7360588, US7357180, US7353872, US7331385, US7320364, US7225866, US7219734, US7165615, US7156176, US7128153, US7121342, US7121341, US7114566, US7104319, US7096942, US7090013, US7073578, US7055600, US7051811, US7051807, US7040400, US7040399, US7040398, US7032660, US7013972, US7011154, US7004251, US7004247, US6997518, US6994169, US6991036, US6991033, US6991032, US6981548, US6966374, US6964300, US6951247, US6948562, US6929067, US6923257, US6918443, US6918442, US6915850, US6880633, US6877555, US6872947, US2015203776, US2015168153, US2014366539, US2014305644, US2014257774, US2012043801, US2012041604, US2009184563, US2009107679, US2009101348, US2009038795, US2008290719, US2008207970, US2008087426, US2008087420, US2007284116, US2007240880, US2007209799, US2007137857, US2007023186, US2007000662, US2006217947, US2005051327, US10227920, US10221762, US10221014, US10215412, US10208677, US10161312, US10145269, US10138815, US10118129, US10107495, US10100741, US10094566, US10082063, US10079564, US10060359, US10053286, US10047633, US10047594, US10030588, US10012151, CN106437709, CN105735965, CN105735965, CN104632271, CN104314607, CN103061797, CN103061797, CN102562132, CN102562132, CN102536305, CN102155255, CN101806224, AU2015377012,

Abstract:

A method for treating a coal formation to alter properties of coal in the formation is provided. In one embodiment, heat from one or more heaters may be provided to at least a portion of the formation. Heat may be allowed to transfer from the one or more heaters to a part of the formation. In certain embodiments, the heat from the one or more heaters may pyrolyze at least some hydrocarbons within the part of the formation. The method may include producing a fluid from the formation. In some embodiments, the produced fluid may include at least some pyrolyzed hydrocarbons from the formation. In an embodiment, after at least some coal has been treated at least a portion of such coal may be produced from the formation.



42) Family number: 28997557 (US2002090324A)

© PatBase

Title:	DUAL SECTION EXHAUST AFTERTREATMENT FILTER AND METHOD					
Priority:	US20000522152	20000309	US20000573747	20000518	US20010851300	20010508
	US20010303563P	20010706	US20010935847	20010823	WO2002US02133	20020125
	WO2002US21333	20020125	US20020075035	20020212	CA20022453094	20020703
	US20020483035	20020703	WO2002US21333	20020703	EP20020015469	20020712
	US20020325001	20021220	US20030339683	20030108	US20030339683	20030108
	US20030442516	20030521	WO2003US40475	20031218	WO2002US21333	20040106
	US20040483035	20040528	US20050146792	20050607	US20060333737	20060117

Family:	Publication number	Publication date	Application number	Application date
	AU200116756 A1	20010913	AU20010016756	20010131
	AU200116756 A5	20010913	AU20010016756	20010131
	AU200131369 A1	20011122	AU20010031369	20010328
	AU200131369 A5	20011122	AU20010031369	20010328
	AU200224610 A1	20021114	AU20020024610	20020314
	AU200224610 A5	20021114	AU20020024610	20020314
	AU2002318208 AA	20030121	AU20020318208	20020703

AU200247538 A1	20030227	AU20020047538	20020613
AU200247538 A5	20030227	AU20020047538	20020613
AU2003301086 AA	20040810	AU20030301086	20031218
AU2003301086 AH	20040810	AU20030301086	20031218
BRPI0100792 A	20011106	BR2001PI00792	20010223
BRPI0101522 A	20020102	BR2001PI01522	20010419
CA2453094 AA	20040105	CA20022453094	20020703
CA2690461 AA	20030116	CA20022690461	20020703
CA2690461 C	20101221	CA20022690461	20020703
CN1553885 A	20041208	CN20028017539	20020703
DE60208275 D1	20060202	DE20026008275	20020712
DE60208275 D1	20060202	DE20026008275T	20020712
DE60208275 T2	20060810	DE20026008275T	20020712
DE60222826 D1	20071122	DE20026022826	20020506
DE60222826 D1	20071122	DE20026022826T	20020506
DE60222826 T2	20080717	DE20026022826T	20020506
EP1132587 A2	20010912	EP20010104985	20010301
EP1132587 A3	20040102	EP20010104985	20010301
EP1155723 A2	20011121	EP20010111411	20010510
EP1155723 A3	20021106	EP20010111411	20010510
EP1256369 A2	20021113	EP20020010052	20020506
EP1256369 A3	20030521	EP20020010052	20020506
EP1256369 B1	20071010	EP20020010052	20020506
EP1285685 A2	20030226	EP20020015469	20020712
EP1285685 A3	20030806	EP20020015469	20020712
EP1285685 B1	20051228	EP20020015469	20020712
EP1423345 A2	20040602	EP20020748083	20020703
EP1666123 A1	20060607	EP20050028538	20020712
JP2001295625 A2	20011026	JP20010060121	20010305
JP2002028419 A2	20020129	JP20010149669	20010518
JP2003041926 A2	20030213	JP20020128579	20020430
JP2003175310 A2	20030624	JP20020223537	20020731
JP2005516877 T2	20050609	JP20030510408T	20020703
KR100958960 B1	20100520	KR20047000155	20020703
KR20040030791 A	20040409	KR20047000155	20020703
KR20100017974 A	20100216	KR20097027477	20020703
MXPA04000118 A1	20040603	MX2004PA00118	20020703
US2002090324 AA	20020711	US20010851300	20010508
US2002162310 AA	20021107	US20010935847	20010823
US2003165638 AA	20030904	US20030339683	20030108
US2003190269 AA	20031009	US20020075035	20020212
US2004231307 AA	20041125	US20040483035	20040528
US2005223687 AA	20051013	US20050146792	20050607
US2006254426 AA	20061116	US20060333737	20060117
US6444006 BA	20020903	US20000573747	20000518
US6582490 BB	20030624	US20010935847	20010823
US6669913 BA	20031230	US20000522152	20000309
US6776814 BB	20040817	US20010851300	20010508
US6946012 BA	20050920	US20030442516	20030521
US7052532 BA	20060530	US20020325001	20021220
US7211226 BB	20070501	US20020075035	20020212
US7235124 BB	20070626	US20060333737	20060117
US7258719 BB	20070821	US20050146792	20050607
US7404840 BB	20080729	US20020483035	20020703
WO03004438 A2	20030116	WO2002US21333	20020703
WO03004438 A3	20040408	WO2002US21333	20020703
WO03068362 A1	20030821	WO2003US00053	20030102
WO04063539 A2	20040729	WO2003US40475	20031218
WO04063539 A3	20041223	WO2003US40475	20031218

Probable Assignee: CUMMINS FILTRATION INC

Assignee(s):(std): 3M INNOVATIVE PROPERTIES COMPANY ; HABERKAMP WILLIAM C ; FLEETGUARD INC ; LIU Z GERALD ; MILLER ROBERT K ; LIU Z G ; DEMIRDOGEN A C ; FLEETGAURD INC ; CUMMINS FILTRATION IP INC ; SCHUKAR MURRAY R ; VERDEGAN BARRY M ; TAN ZHONGSHU ; 3M INNOVATIVE PROPERTIES CO ; WOOD THOMAS E

Assignee(s): 3M INNOVATIVE PROPERTIES CO AND FLEETGUARD INC ; WERNER PAUL S ; YORKGITIS ELAINE M ; DEMIRDOGEN CANER A ; LOUKS JOHN W ; MUNOZ JUAN A ; SCHORNAK ELIZABETH M ; FEMRITE TIMOTHY J ; FLEETGUARD INC ; 3M INNOVATIVE PROPERTIES COMPANY AND FLEETGUARD IN ; 3M INNOVATIVE PROPERTIES COMPANY AND FLEETGUARD INC ; BADEAU KURT M A ; BADEAU KURT MA ; CUMMINS FILTRATION INC

Inventor(s):(std): HENRICHSEN MATTHEW P ; LIU Z G ; THOMAS E WOOD ; DEMIRDOGEN A C ; ZHONGSHU TAN ; WILLIAM C HABERKAMP ; TIMOTHY J FEMRITE ; THOMAS M YONUSHONIS ; LIU GERALD Z ; JUAN A MUNOZ ; JOHN W LOUKS ; ELIZABETH M SCHORNAK ; ELAINE M YORKGITIS ; YORKGITIS ELAINE M ; YONUSHONIS THOMAS M ; WOOD THOMAS E ; WERNER PAUL S ; VERDEGAN BARRY M ; TAN ZHONGSHU ; SCHUKAR MURRAY R ; SCHORNAK ELIZABETH M ; MUNOZ JUAN A ; MILLER ROBERT K ; LOUKS JOHN W ; LIU Z GERALD ; HABERKAMP WILLIAM C ; FEMRITE TIMOTHY J ; DEMIRDOGEN CANER A ; DEMIRDOGEN A CANER ; PAUL S WERNER ; BADEAU KURT M A

Inventor(s): BADEAU KURT MA ; MURRAY R SCHUKAR ; DEMIRDOGEN A ; LIU Z ; KURT M A BADEAU ; BARRY M VERDEGAN ; A CANER DEMIRDOGEN ; ROBERT K MILLER ; Z GERALD LIU ; HABERKAMP WILLIAM ; HENRICHSEN MATTHEW ; VERDEGAN BARRY ; WOOD THOMAS ; YORKGITIS ELAINE ; MILLER ROBERT ; SCHUKAR MURRAY

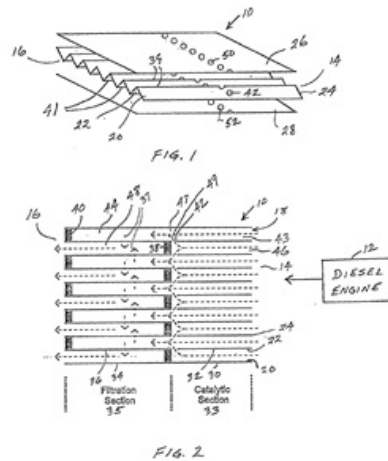
Agent(s): FREEHILLS PATENT AND TRADE MARK ATTORNEYS; FREEHILLS PATENT ATTORNEYS; FPA PATENT ATTORNEYS PTY LTD; FISHER ADAMS KELLY CALLINANS; SPRUSON AND FERGUSON; CALLINANS; SMART AND BIGGAR; ANDRUS SCEALES STARKE AND SAWALL LLP; 3M INNOVATIVE PROPERTIES COMPANY; 3M INNOVATIVE PROPERTIES CO; HAROLD C; J BRUCE; KNECHT III HAROLD C

Designated states:	AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LI LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NE NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
International class (IPC 8-9):	B01D29/07 B01D39/00 B01D39/14 B01D39/16 B01D39/20 B01D46/00 B01D46/10 B01D46/12 B01D46/24 B01D46/52 B01D50/00 B01D53/02 B01D53/04 B01D53/86 B01D53/88 B01D53/94 B01J21/16 B01J27/224 B01J35/04 B28B1/30 B28B11/00 B28B7/34 B31D3/00 B31F1/22 C01B33/12 C03C10/14 C04B30/02 C04B35/80 C04B38/00 C04B38/06 F01N13/02 F01N3/02 F01N3/021 F01N3/022 F01N3/035 F01N3/24 F01N3/28 (Advanced/Invention); B01D39/00 B01D39/14 B01D46/00 B01D46/24 B01D53/86 B28B11/00 C04B38/00 F01N13/02 F01N3/02 F01N3/021 F01N3/24 (Advanced/Non-invention); B01D29/01 B01D39/00 B01D39/14 B01D39/16 B01D39/20 B01D46/00 B01D46/24 B01D46/52 B01D53/02 B01D53/04 C04B38/00 F01N3/02 F01N3/022 F01N3/24 (Core/Invention)
International class (IPC 1-7):	B01D27/06 B01D29/07 B01D29/52 B01D29/54 B01D39/00 B01D39/06 B01D39/14 B01D39/20 B01D46/00 B01D46/02 B01D46/12 B01D46/24 B01D46/52 B01D50/00 B01D53/34 B01D53/74 B01D53/86 B01D53/88 B01D53/94 B01J21/16 B01J27/224 B01J35/04 B05D3/02 B28B11/00 B31F1/22 C01B33/12 C04B30/02 C04B35/01 C04B35/01 C04B35/14 C04B35/80 C04B38/00 C04B38/06 D21H13/36 F01N3/02 F01N3/021 F01N3/022 F01N3/035 F01N3/10 F01N3/20 F01N3/24 F01N3/28 F02M27/02
CPC:	Y10S55/30 Y10S55/05 Y10S55/28 Y10S55/10 Y10S264/48 B01D2275/10 B01D2275/206 B31D3/002 B01D39/2086 B01D39/2075 B01D39/2082 B01D46/0021 B01D46/0063 B01D46/2403 B01D46/30 B01D53/944 B01D2273/20 F01N3/0217 F01N3/0224 F01N3/106 F01N2330/08 F01N2510/06 B01D46/2422 B01D46/2425 B01D46/2466 B01D46/527 B01D39/163 B01D39/2089 B01D46/2429 B01D46/2455 B01D2046/2477 B01D2239/0478 B01D2239/0681 B01D2239/0695 B01D2239/086 B01D2239/1225 B01D2239/1233 B01D2239/1291 B01D2258/012 B01D2275/30 C04B38/0083 F01N2330/06 B01D2239/065 B01D2239/1216 B01D2275/105 C04B2111/00198 C04B2111/00224 C04B2111/00612 C04B2111/00793 F01N3/0226 F01N2330/323 F01N2330/48 B01D39/2068 B01D46/0001 B01D46/2451 B01D2046/2433 B01D2046/2437 B01D2046/2492 B01D2279/30 B01J35/04 B28B1/30 B28B7/342 B28B11/0872 C04B30/02 C04B38/008 F01N3/2828 F01N2330/18 Y02T10/20 F01N13/0097 B01D46/525 B01D46/0039 B01D46/10 B01D46/2418 B01D53/885 B01D53/94 F01N3/0218 F01N3/0222 F01N3/035 F01N2240/20 F01N2330/38 Y10T156/1016 Y02P40/63 F01N2330/101
European class:	B01D39/16B4B B01D39/20H B01D39/20H2B B01D39/20H4 B01D39/20H4B B01D39/20H4D B01D46/00B B01D46/00D2A B01D46/00G B01D46/00R20H B01D46/10 B01D46/12 B01D46/24F B01D46/24F8 B01D46/24F8A B01D46/24F8B2 B01D46/24F8D2 B01D46/30 B01D46/52 B01D46/52F6 B01D46/52F6W B01D53/88B B01D53/94 B01D53/94H B01J35/04 B28B1/30 B28B11/08F B28B7/34B B31D3/00B C04B30/02 C04B38/00L C04B38/00L2 F01N3/021G F01N3/021H F01N3/022B F01N3/022D F01N3/022E F01N3/035 F01N3/10C1 F01N3/28B4B L01D239/04P2 L01D239/06F L01D239/06F50 L01D239/06H2 L01D239/08D L01D239/12D L01D239/12F L01D239/12H L01D239/12Y L01D258/01D L01D267/20H L01D273/20 L01D275/10 L01D275/10W L01D275/20S L01D275/30 L01D279/30 L01D46/24F8B L01D46/24F8B2B L01D46/24F8B2D L01D46/24F8D L01D46/24F8D14 L01D46/24F8D22 L01D46/24F8D8 M04B111/00M21 M04B111/00M35 M04B111/00T50 M04B111/00T6 R01N13/02S R01N240/20 R01N330/06 R01N330/08 R01N330/101 R01N330/18 R01N330/323 R01N330/38 R01N330/48 R01N510/06
US class:	156/205 156/474 264/628 264/679 264/DIG.48 422/168 422/168P 422/169 422/169S 422/171 422/171P 422/176 422/176S 422/177 422/177S 422/179 422/18 422/180 422/180S 425/369 427/376.1 427/376.100S 427/376.2 427/376.200S 427/600 427/600P 501/133 501/154 501/4 501/54 501/70 55/282.3 55/385.3 55/483 55/484 55/499 55/520 55/521 55/521P 55/523 55/523 55/524 55/525 55/527 55/DIG.1 55/DIG.10 55/DIG.28 55/DIG.3 55/DIG.30 55/DIG.5 60/311 96/154 96/154P 977/DIG.1
Classification Explorer	
Cited documents:	WO9952838 A1, WO9833013 A1, WO9519943 A1, WO9325499 A1, WO8803431 A1, WO03097213 A1, WO03004438 A2, WO0249741 A1, WO0104466 A1, USRE33118 E, USD342990 S1, US7052532 BA, US6881699 BA, US6776814 BB, US6702650 BB, US6669913 BA, US6594991 BB, US6582490 BB, US6582490 BA, US6582490 B1, US6568178 BB, US6510686 BB, US6444600 BA, US6444006 BA, US6413303 BB, US6413303 BA, US6413303 B1, US6397603 BA, US6331233 BA, US6294141 BA, US6294125 BA, US6245301 BA, US6238561 BA, US6231639 BA, US6190162 BA, US6146451 A, US6101793 A, US6099901 A, US6093378 A, US6093376 A, US6013599 A, US5993192 A, US5961931 A, US5955177 A, US5925561 A, US5908480 A, US5902364 A, US5895574 A, US5891402 A, US5876637 A, US5876537 A, US5866859 A, US5863311 A, US5849375 A, US5846641 A, US5846276 A, US5820646 A, US5792247 A, US5780126 A, US5772883 A, US5750026 A, US573747 A, US5682740 A, US5662728 A, US5632792 A, US5611832 A, US5601674 A, US5567536 A, US5562825 A, US5549722 A, US5546069 A, US5519993 A, US5505769 A, US5488017 A, US5486410 A, US5480621 A, US5476684 A, US5468384 A, US5456069 A, US5433902 A, US5411763 A, US5395428 A, US5385873 A, US5380580 A, US5380501 A, US5376218 A, US5372380 A, US5369063 A, US5346675 A, US5328774 A, US5328758 A, US5322537 A, US5306554 A, US5304351 A, US5298046 A, US5260125 A, US5252299 A, US5250476 A, US5223195 A, US5208195 A, US5207807 A, US5196170 A, US5196120 A, US5194414 A, US5194078 A, US5177962 A, US5174895 A, US5154970 A, US5153295 A, US5145659 A, US5137696 A, US5106397 A, US5096857 A, US5089237 A, US5082479 A, US5078818 A, US5077089 A, US5075160 A, US5063736 A, US5052178 A, US5042249 A, US5035236 A, US5030263 A, US5015376 A, US5014509 A, US5008086 A, US4977111 A, US4968467 A, US4960449 A, US4925561 A, US4902487 A, US4878929 A, US4864821 A, US4857089 A, US4828774 A, US4818729 A, US4808559 A, US4718926 A, US4712643 A, US4652286 A, US4619675 A, US4617072 A, US4608361 A, US4589983 A, US4548626 A, US4542286 A, US4512147 A, US4510193 A, US4498989 A, US4485621 A, US4455823 A, US4441899 A, US4430223 A, US4421599 A, US4419108 A, US4410427 A, US4410417 A, US4409931 A, US4398931 A, US4390355 A, US4370855 A, US4276071 A, US4157902 A, US4130487 A, US4081371 A, US4073655 A, US4073655, US4056375 A, US4028252 A, US4017347 A, US3966646 A, US3958967 A, US3899555 A, US3869282 A, US3844749 A, US3800515 A, US3799354 A, US3708957 A, US3702279 A, US3692184 A, US3664095 A, US3655060 A, US3458329 A, US3445252 A, US3441381 A, US3308853 A, US3146197 A, US3112184 A, US3025964 A, US3025963 A, US3022861 A, US2973828 A, US2553054 A, US2410371 A, US2004231307 AA, US2004132607 AA, US2004073655 AA, US2003190269 AA, US2003165638 AA, US2002117253 AA, US2002090324 AA, US2002090314 AA, US2002088599 AA, US2002088214 AA, US2002086165 AA, US2002079604 AA, US2001029843 AA, US2001027647 AA, US2001027646 AA, US2001027645 AA, US1924472 A, US1893372 A, KR20000010218 A, JP9125931 A2, JP60161713, JP5157214 A2, JP5115723 A2, JP4292440 A2, JP4161213 A2, JP2079024 A2, JP2053442 A2, JP2002519190 T2, JP2002030924, JP2001342818, JP2001200715 A2, JP2/53442, JP11180780 A2, JP11033413, JP11033413, GB563768 A, GB1502373 A, GB1440184 A, GB1424126 A, GB1360200 A, GB1360199 A, GB1360198 A, GB1360197 A, EP1260683 A1, EP1155723 A2, EP1132587 A2, EP0735387 A1, EP0681858 A1, EP0307716 A1, DE10202005 A1,
Forward Citations:	WO17196606, WO16076994, WO16040302, WO15189102, WO13192393, WO13090214, WO13052637, WO13052637, WO13048850, WO13025654, WO13025654, WO12062424, WO12036797, WO11159914, WO11159914, WO11084688, WO11084688, WO10092073, WO10012992, WO09106420, WO09106420, WO09103415, WO09020693, WO09012189, WO09012189, WO08147684, WO08122025, WO08113507, WO08107486, WO08107423, WO08094956, WO08094956, WO08094955, WO08065077, WO08051433, WO08051433, WO08021587, WO08021587, WO08005130, WO08005130, WO07061457, WO07061457, WO07025959, WO07013747, WO06130711, WO06130711, WO06100103, WO06088733, WO06088733, WO06049748, WO05093231, WO05037395, WO05037395, WO05000446, WO04065102, WO04063539,

WO04063539, WO04015251, USRE46700, US9988936, US9987508, US9970394, US9937455, US9932943, US9915176, US9890750, US9885265, US9855519, US9849423, US9810118, US9809893, US9808752, US9802146, US9795911, US9782708, US9770686, US9757676, US9718021, US9717186, US9694321, US9636634, US9623351, US9574469, US9555370, US9555346, US9545593, US9545591, US9534296, US9527023, US9517430, US9511663, US9511330, US9500112, US9457340, US9457310, US9433884, US9409126, US9394672, US9387419, US9352267, US9327226, US9320997, US9314719, US9222681, US9216371, US9199185, US9194265, US9180399, US9157639, US9149750, US9133744, US9120047, US9114346, US9108394, US9084957, US9062633, US9057530, US9057307, US9027765, US8980186, US8974567, US8945268, US8940068, US8906128, US8893689, US8883108, US8882876, US8845792, US8808418, US8807097, US8784979, US8784539, US8784039, US8758863, US8758671, US8734557, US8728383, US8709119, US8685128, US8673064, US8668757, US8636820, US8623320, US8617399, US8617295, US8613801, US8608819, US8551412, US8551375, US8551272, US8545589, US8540790, US8535612, US8529675, US8518152, US8518141, US8506663, US8500856, US8496723, US8480779, US8449641, US8444752, US8444730, US8444729, US8435320, US8409316, US8408148, US8398737, US8397488, US8388719, US8366989, US8361183, US8341946, US8328897, US8327539, US8292983, US8292981, US8277532, US8277531, US8257460, US8245498, US8241384, US8241383, US8240132, US8236084, US8206625, US8202484, US8192517, US8177877, US8177876, US8158054, US8128723, US8119234, US8114184, US8080081, US8071037, US8062399, US8057746, US8057568, US8048187, US8042694, US8039050, US8038955, US8038928, US8038759, US8034145, US8029591, US7998422, US7998259, US7980067, US7971357, US7967887, US7967886, US7959704, US7959703, US7959702, US7947102, US7941995, US7938877, US7938876, US7935166, US7931725, US7931724, US7921557, US7919050, US7918913, US7909954, US7909916, US7901480, US7892309, US7862641, US7862640, US7861521, US7858554, US7856809, US7836688, US7824481, US7806956, US7785544, US7781372, US7753983, US7753982, US7753978, US7744669, US7743606, US7722828, US7717975, US7713324, US7713322, US7708794, US7704292, US7695544, US7691167, US7682578, US7682577, US7674743, US7673448, US7658778, US7645427, US7641712, US7640732, US7640730, US7632335, US7628839, US7625419, US7618596, US7597735, US7595350, US7588619, US7582270, US7578979, US7578865, US7574796, US7572416, US7572311, US7569090, US7563415, US7553349, US7550117, US7527671, US7527666, US7486962, US7485273, US7481047, US7472610, US7451849, US7444805, US7438739, US7434584, US7425266, US7421839, US7404840, US7396376, US7347042, US7340888, US7278406, US7276098, US7258719, US7250212, US7235124, US7225613, US7211232, US7211226, US7204965, US7201572, US7153336, US7090714, US7062904, US7052532, US7033412, US7010910, US6946013, US6946012, US6942708, US6916450, US6913059, US6887343, US6860917, US6776814, US6582490, US2018056100, US2017314587, US2017197171, US2016250773, US2015007496, US2014260146, US2014224727, US2014199482, US2014010723, US2014010721, US2013298513, US2013288881, US2013276632, US2013126780, US2013011313, US2012285901, US2012247073, US2012196733, US2012111199, US2012048111, US2012040106, US2012014843, US2011314797, US2011306088, US2011275505, US2011243824, US2011232266, US2011232244, US2011203241, US2011185709, US2011180052, US2011167800, US2011165040, US2011151181, US2011139706, US2011135449, US2011132195, US2011132194, US2011126957, US2011124941, US2011118106, US2011094207, US2011047991, US2011042110, US2011041469, US2011017064, US2011005394, US2011005200, US2011005180, US2010326396, US2010307138, US2010300082, US2010257830, US2010247396, US2010209321, US2010164150, US2010154393, US2010154392, US2010154370, US2010129271, US20101015899, US2010107582, US2010089518, US2010048374, US2010038305, US2010037573, US2010032365, US2009324453, US2009313977, US2009274602, US2009272263, US2009266041, US2009255402, US2009255227, US2009241780, US2009241494, US2009235649, US2009220734, US2009217633, US2009211696, US2009186309, US2009183635, US2009173687, US2009166910, US2009164085, US2009158698, US2009149318, US2009139400, US2009136709, US2009127211, US2009113863, US2009113857, US2009092786, US2009084363, US2009084094, US2009056319, US2009049831, US2009041074, US2009038294, US2009035511, US2009025349, US2009008327, US20090000260, US2008317966, US2008307759, US2008292518, US2008282890, US2008274020, US2008264020, US2008260991, US2008242535, US2008242530, US2008241014, US2008236123, US2008224343, US2008216667, US2008202084, US2008199369, US2008184686, US2008179782, US2008178992, US2008176013, US2008171243, US2008155952, US2008155951, US2008148945, US2008148700, US2008148695, US2008134796, US2008120968, US2008120952, US2008112865, US2008083214, US2008081757, US2008081007, US2008041040, US2008034741, US2008011896, US2008010960, US2008000206, US2007289275, US2007289270, US2007277511, US2007277489, US2007266686, US2007241484, US2007240406, US2007220871, US2007217978, US2007157818, US2007157608, US2007157468, US2007152364, US2007144960, US2007144156, US2007144153, US2007141255, US2007137186, US2007137157, US2007134138, US2007131481, US2007111878, US2007110645, US2007108647, US2007107396, US2007107395, US2007044443, US2007041881, US2007039298, US2007029246, US2007017196, US2006292393, US2006272306, US2006266022, US2006254426, US2006236684, US2006236680, US2006230731, US2006201119, US2006185651, US2006179825, US2006150775, US2006150774, US2006150773, US2006130659, US2006107640, US2006101812, US2006091066, US2006018806, US2005284140, US2005279062, US2005217258, US2005204714, US2005193623, US2005126481, US2005115216, US2005081712, US2005042151, US2005031513, US2005011343, US2004231307, US2004172929, US2004132607, US2004118771, US2004103627, US2004065068, US2004031495, US2003209488, US2003196419, US2003190269, US2003165638, US2003101701, US2003097834, US2002053202, US10214451, US10213724, US10167725, US10159925, US10137392, US10112138, US10065146, US10065145, US10060632, US10058812, US10058808, US10046260, US10040020, US10036319, TW1549736, TW1328467, KR101480811, KR101478985, KR100885477, KR100826762, KR100801165, KR100784483, KR100713098, JP4860630, JP4849418, JP4819820, JP4659455, JP2018505071, JP2016107254, JP2015147257, JP2013063439, JP2010531731, JP2010501451, JP2009538723, JP2009525938, JP2009515097, JP2009287572, JP2009256199, JP2008531264, JP2008518756, JP2008518754, JP2008505743, JP2008145191, JP2006297235, JP2005534487, JP2005254231, GB2514567, GB2481057, EP3282105, EP3124115, EP2907983, EP2907983, EP2630959, EP2300697, EP2093490, EP2072105, EP2007496, EP1945332, EP1945332, EP1941940, EP1894902, EP1894902, EP1740300, EP1740300, EP1666123, EP1450015, EP1436490, EP1436490, EP1420149, EP1420149, EP1408207, EP1375849, EP1375849, EP1371826, EP1371826, EP1285685, EP1285685, EP1256369, EP1256369, EP1256369, DE202007002430, DE112008002531, DE112008002531, DE10235766, DE102017204897, DE102016217351, DE102012012941, DE102010026868, DE102010010039, DE102009000804, DE102009000804, DE102008042767, DE102008042767, DE102008042766, DE102007062832, DE102007061363, DE102006058554, DE102006056195, DE102006047766, DE102006034640, DE102005023294, CN107287765, CN106731240, CN106731240, CN106132540, CN105970740, CN105970739, CN105970715, CN105201595, CN104619393, CN104548753, CN104548753, CN104532661, CN104529241, CN104474917, CN104474917, CN104018915, CN103958138, CN103958138, CN103958027, CN103896589, CN103827055, CN103429345, CN103429345, CN103313954, CN103157328, CN103157328, CN102802760, CN102748107, CN102733893, CN102733893, CN102720565, CN102199903, CN102171419, AU2015347232,

Abstract:

An exhaust aftertreatment filter (100) is provided for internal combustion engine exhaust, and includes an axially extending cylindrical filter roll (106) having pleated filter media (110) defining a plurality of axially extending flow channels (130), and having a first open-flow section (142) with open flow channels (140), and a second filtering section (148) with alternately sealed flow channels (136, 138) forcing exhaust to flow through (158) the pleated filter media (110). A core section (142) aides filter regeneration by providing an exothermic reaction. A combination catalytic converter and filter includes a first catalytic section (142) treated with a catalyst, and a second filter section (148) with alternately sealed flow channels (136, 138).

**43) Family number: 40830573** (US2003080604A)

© PatBase

Title: IN SITU THERMAL PROCESSING AND INHIBITING MIGRATION OF FLUIDS INTO OR OUT OF AN IN SITU OIL SHALE FORMATION

Priority: US20010286062P 20010424 US20010337249P 20011024 US20020128698 20020424
 US20020128697 20020424 US20020128699 20020424 US20020128700 20020424
 US20020131234 20020424 US20020131154 20020424 US20020131233 20020424
 US20020131123 20020424 US20020131235 20020424 US20020131264 20020424
 US20020131122 20020424 US20020131050 20020424 WO2002US13311 20020424
 US20020131785 20020424 US20020131348 20020424 US20020131351 20020424
 US20020131347 20020424 US20020131285 20020424 US20020131350 20020424
 US20020131352 20020424

Family:

Publication number	Publication date	Application number	Application date
CA2445415 AA	20031023	CA20022445415	20020424
CA2445415 C	20110830	CA20022445415	20020424
US2003080604 AA	20030501	US20020131352	20020424
US2003111223 AA	20030619	US20020128700	20020424
US2003131993 AA	20030717	US20020131122	20020424
US2003131994 AA	20030717	US20020131350	20020424
US2003131996 AA	20030717	US20020131264	20020424
US2003136558 AA	20030724	US20020131123	20020424
US2003136559 AA	20030724	US20020131347	20020424
US2003137181 AA	20030724	US20020131285	20020424
US2003141066 AA	20030731	US20020128697	20020424
US2003141067 AA	20030731	US20020128699	20020424
US2003141068 AA	20030731	US20020131351	20020424
US2003142964 AA	20030731	US20020131348	20020424
US2003146002 AA	20030807	US20020131785	20020424
US2003148894 AA	20030807	US20020131050	20020424
US2003164239 AA	20030904	US20020131233	20020424
US2003173078 AA	20030918	US20020131235	20020424
US2003209348 AA	20031113	US20020131154	20020424
US2004211554 AA	20041028	US20020128698	20020424
US2004211557 AA	20041028	US20020131234	20020424
US6877555 BB	20050412	US20020128697	20020424
US6880633 BB	20050419	US20020131123	20020424
US6915850 BB	20050712	US20020131264	20020424
US6918442 BB	20050719	US20020131233	20020424
US6918443 BB	20050719	US20020131285	20020424
US6923257 BB	20050802	US20020131235	20020424
US6929067 BB	20050816	US20020128698	20020424
US6951247 BB	20051004	US20020128700	20020424
US6991033 BB	20060131	US20020131347	20020424
US6994169 BB	20060207	US20020131122	20020424
US6997518 BB	20060214	US20020131350	20020424
US7004247 BB	20060228	US20020131234	20020424
US7004251 BB	20060228	US20020131154	20020424
US7013972 BB	20060321	US20020131050	20020424

US7032660 BB	20060425	US20020131352	20020424
US7040397 BB	20060509	US20020128699	20020424
US7040399 BB	20060509	US20020131348	20020424
US7051811 BB	20060530	US20020131351	20020424
WO02086018 A2	20021031	WO2002US13311	20020424
WO02086018 A3	20040115	WO2002US13311	20020424

Probable Assignee: SHELL OIL CO

Assignee(s):(std): SHELL OIL CO ; SHELL INT RESEARCH ; SHELL CANADA LTD

Assignee(s): ROBERTS BRUCE ; VAN HARDEVELD MARTIJN ; WELLINGTON SCOTT L ; RYAN ROBERT C ; STEGEMEIER GEORGE L ; SUMNU DINDORUK MELIHA D ; WARD JOHN M ; SCHOELING LANNY ; WATKINS WADE ; SHAHIN GORDON T ; PRATT KIP ; VEENSTRA PETER ; SHELL INT RESEARCH MIJ BV ; WATKINS RONNIE WADE ; PALFREYMAN BRUCE DONALD ; SCHOELING LANNY GENE ; STEGEMEIER GEORGE LEO ; VAN HARDEVELD ROBERT MARTIJN ; RYAN ROBERT CHARLES ; SHAHIN GORDON THOMAS ; ZHANG ETUAN ; VINEGAR HAROLD J ; WELLINGTON SCOTT LEE ; ROUFFIGNAC ERIC PIERRE DE ; PIERRE DE ROUFFIGNAC ERIC ; WARD JOHN MICHAEL ; VINEGAR HOROLD J ; PLAFREYMAN BRUCE DONALD ; PRATT CHRISTOPHER ARNOLD ; SHELL INTERNATIONALE RESEARCH MAATSCHAPPIJ B V ; SHELL CANADA LIMITED ; AYMOND DANNIE ANTOINE ; BASS RONALD ; BASS RONALD MARSHALL ; BAXLEY PHILIP T ; BERCHENKO ILYA E ; COLES JOHN MATTHEW ; CARL FREDRICK GORDON ; BERCHENKO ILYA EMIL ; BIELAMOWICZ LAWRENCE JAMES ; COLE ANTHONY THOMAS ; COLES JOHN M ; BIELAMOWICZ LAWRENCE J ; DE ROUFFIGNAC ERIC ; CARL FRED G ; CRANE STEVE ; MCKINZIE BILLY JOHN ; HUNSUCKER BRUCE GERARD ; MENOTTI JAMES LOUIS ; MAHER KEVIN ALBERT ; FOWLER THOMAS DAVID ; KARANIKAS JOHN MICHAEL ; DE ROUFFIGNAC ERIC PIERRE ; KEEDY CHARLES ROBERT ; MADGAVKAR AJAY MADHAV ; MAHER KEVIN A ; GLANDT CARLOS ; MESSIER MARGARET ; KARANIKAS JOHN M ; HUNSUCKER BRUCE G ; MENOTTI JAMES L ; FOWLER THOMAS D ; LEPPER BRUCE ; MIKUS TOM ; KEEDY CHARLIE R ; MADGAVKAR AJAY M ; SHELL OIL COMPANY

Inventor(s):(std): RYAN R BERT C ; ROUFFIGNAC ERIC PIERRE DE ; ROBERTS BRUCE ; PRATT KIP ; PRATT CHRISTOPHER ARNOLD ; PLAFREYMAN BRUCE DONALD ; PIERRE DE ROUFFIGNAC ERIC ; PALFREYMAN BRUCE DONALD ; MIKUS TOM ; MESSIER MARGARET ; MENOTTI JAMES LOUIS ; MENOTTI JAMES L ; MCKINZIE II BILLY JOHN ; MCKINZIE BILLY JOHN ; MAHER KEVIN ALBERT ; MAHER KEVIN A ; MADGAVKAR AJAY MADHAV ; MADGAVKAR AJAY M ; LEPPER BRUCE ; KEEDY CHARLIE R ; KEEDY CHARLES ROBERT ; KARANIKAS JOHN MICHAEL ; KARANIKAS JOHN M ; HUNSUCKER BRUCE GERARD ; HUNSUCKER BRUCE G ; GLANDT CARLOS ; FOWLER THOMAS DAVID ; FOWLER THOMAS D ; DE ROUFFIGNAC ERIC PIERRE ; DE ROUFFIGNAC ERIC ; CRANE STEVE ; COLES JOHN MATTHEW ; COLES JOHN M ; COLE ANTHONY THOMAS ; CARL JR FREDRICK GORDON ; CARL FREDRICK GORDON ; CARL FRED G ; BIELAMOWICZ LAWRENCE JAMES ; BIELAMOWICZ LAWRENCE J ; BERCHENKO ILYA EMIL ; BERCHENKO ILYA E ; BAXLEY PHILIP T ; BASS RONALD MARSHALL ; BASS RONALD ; AYMOND JR DANNIE ANTOINE ; AYMOND DANNIE ANTOINE ; ZHANG ETUAN ; WELLINGTON SCOTT LEE ; WELLINGTON SCOTT L ; WATKINS WADE ; WATKINS RONNIE WADE ; WARD JOHN MICHAEL ; WARD JOHN M ; VINEGAR HOROLD J ; VINEGAR HAROLD J ; VEENSTRA PETER ; VAN HARDEVELD ROBERT MARTIJN ; VAN HARDEVELD MARTIJN ; SUMNU DINDORUK MELIHA D ; STEGEMEIER GEORGE LEO ; STEGEMEIER GEORGE L ; SHAHIN JR GORDON THOMAS ; SHAHIN GORDON THOMAS ; SHAHIN GORDON T ; SCHOELING LANNY GENE ; SCHOELING LANNY ; RYAN ROBERT CHARLES ; RYAN ROBERT C

Inventor(s): RYAN ROBERT C

Agent(s): SMART AND BIGGAR

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NE NL NO NZ OM PH PL PT RO RU SD SE SG SI SK SL SN SZ TD TG TI TM TR TT TZ UA UG UZ VN YU ZA ZM ZW

International class (IPC 8-9): C10G1/00 C10G49/00 E21B36/00 E21B42/243 E21B43/00 E21B43/24 E21B43/243 E21B43/247 E21B43/28 E21B43/30 E21B43/40 E21B47/00 E21B49/00 E21C41/24 (Advanced/Invention); E21B47/00 (Core/Invention)

International class (IPC 1-7): C01B3/24 C10G1/00 C10G47/22 C10G49/00 E21B1/00 E21B17/10 E21B19/22 E21B36/04 E21B43/00 E21B43/24 E21B43/243 E21B43/26 E21B43/295 E21B43/30 E21B43/34 E21B47/00 E21B47/06 E21C37/16 E21C37/20 E21C41/16 H05B3/80

CPC: E21B43/24 E21B43/2401 E21B43/243 E21B43/247 E21B43/30

European class: E21B43/243 E21B43/247 E21B43/30

US class: 166/242.1 166/242.100P 166/245 166/250.01 166/250.010P 166/250.07 166/250.070P 166/250.12 166/250.15 166/251.1 166/254.1 166/256 166/256S 166/257 166/261 166/264 166/266 166/267 166/271 166/272.1 166/272.100P 166/272.100S 166/272.2 166/272.3 166/272.7 166/300 166/302 166/302S 166/303 166/308 166/384 166/52 166/57 166/59 166/59S 166/6 166/60 166/60P 166/60S 299/14 299/14P 299/4 299/5 299/5P 299/6 299/7 392/301 392/301P 392/305 392/306 405/130 405/270 405/52 423/131 423/208 423/658.5 507/200 507/200P 585/1 585/2

[Classification Explorer](#)

Cited documents: WO9901640, WO9850179, WO9701017, WO9533122, WO9512746, WO9512745, WO9512744, WO9512743, WO9512742, WO9506093, WO0181723 A1, WO0181505 A1, USRE35696 E, USRE30738 E, USRE30019 E, USRE27309 E, US94813 A, US760304 A, US6880635 BA, US6880633 BA, US6877555 BA, US6877554 BA, US6871707 BA, US6866097 BB, US6866097 BA, US6866097 BA, US6820688 BB, US6820688 BA, US6805195 BB, US6805195 BA, US6789625 BB, US6789625 BA, US6782947 BB, US6782947 BA, US6769485 BB, US6769485 BA, US6769483 BB, US6769483 BA, US6763886 BB, US6763886 BA, US6761216 BB, US6761216 BA, US6758268 BB, US6758268 BA, US6752210 BB, US6752210 BA, US6749021 BB, US6749021 BA, US6745837 BB, US6745837 BA, US6745831 BB, US6745831 BA, US6745831 BA, US6742593 BB, US6742593 BA, US6742593 BA, US6742589 BB, US6742589 BA, US6742588 BB, US6742588 BA, US6742587 BB, US6742587 BA, US6739394 BB, US6739394 BA, US6739393 BB, US6739393 BA, US6736215 BB, US6736215 BA, US6732796 BB, US6732796 BA, US6732794 BB, US6732794 BA, US6729401 BB, US6729401 BA, US6729397 BB, US6729397 BA, US6729396 BB, US6729396 BA, US6729395 BB, US6729395 BA, US6729395 BA, US6725928 BB, US6725928 BA, US6725921 BB, US6725921 BA, US6725920 BB, US6725920 BA, US6722431 BB, US6722431 BA, US6722430 BB, US6722430 BA, US6722429 BB, US6722429 BA, US6719047 BB, US6719047 BA, US6715549 BB, US6715549 BA, US6715548 BB, US6715548 BA, US6715547 BB, US6715547 BA, US6715546 BB, US6715546 BA, US6712137 BB, US6712137 BA, US6712136 BB, US6712136 BA, US6712135 BB, US6712135 BA, US6708758 BB, US6708758 BA, US6708758 BA, US6702016 BB, US6702016 BA, US6702016 BA, US6698515 BB, US6698515 BA, US6684948 BA, US6679332 BB, US6679332 BA, US6609570 BB, US6609570 BA, US6607033 BB, US6607033 BA, US6591907 BB, US6591907 BA, US6591906 BB, US6591906 BA, US6588504 BB, US6588504 BA, US6588503 BB, US6588503 BA, US6584406 BA, US6581684 BB, US6581684 BA, US6499543 BA, US6499536 BA, US6485232 BA, US6467543 BA, US6429784 BA, US6422318 BA, US6412559 BA, US6389814 BB, US6389814 BA, US6357526 BA, US6354373 BA, US6353706 BA, US6328104 BA, US6269876 BA, US6244338 BA, US6209640 BA, US6192748 BA, US6187465 BA, US6173778 BA, US6173775 BA, US6173775 B1, US6172124 BA, US6172124 B1, US6165154 A, US6155117 A, US6152987 A, US6112808 A, US6110358 A, US6102622 A, US6102137 A, US6102122 A, US6094048 A, US6085512 A, US6079499 A, US6065538 A, US6056057 A, US6049508 A,

US6035701 A, US6023554 A, US6019172 A, US6016868 A, US6016867 A, US6015015 A, US5997214 A, US5985138 A, US5984582 A, US5984010 A, US5968349 A, US5955039 A, US5935421 A, US5923170 A, US5899269 A, US5891829 A, US5868202 A, US5862858 A, US5861137 A, US5826655 A, US5826191 A, US5777229 A, US5767584 A, US5760307 A, US5751895 A, US5747750 A, US5725059 A, US5713415 A, US5676212 A, US5656239 A, US5652389 A, US5632336 A, US5626191 A, US5624188 A, US5621844 A, US5589775 A, US5571403 A, US5566756 A, US5566755 A, US5554453 A, US5553189 A, US5541517 A, US5539853 A, US5525322 A, US5517593 A, US5498960 A, US5497087 A, US5491969 A, US5485089 A, US5456315 A, US5454666 A, US5439054 A, US5437506 A, US5435666 A, US5433271 A, US5431224 A, US5415231 A, US5411104 A, US5411089 A, US5411086 A, US5409071 A, US5404952 A, US5402847 A, US5400430 A, US5392854 A, US5391291 A, US5388645 A, US5388643 A, US5388642 A, US5388641 A, US5388640 A, US5377756 A, US5366012 A, US5363094 A, US5349859 A, US5340467 A, US5339904 A, US5339897 A, US5325918 A, US5318116 A, US5316664 A, US5306640 A, US5305829 A, US5297626 A, US5295763 A, US5289882 A, US5285846 A, US5284878 A, US5261490 A, US5255742 A, US5236039 A, US5229583 A, US5229102 A, US5226961 A, US5217076 A, US5211230 A, US5207273 A, US5201219 A, US5190405 A, US5189283 A, US5182792 A, US5168927 A, US5145003 A, US5126037 A, US5109928 A, US5103920 A, US5099918 A, US5097903 A, US5085276 A, US5082055 A, US5082054 A, US5065818 A, US5064006 A, US5060726 A, US5060287 A, US5059303 A, US5055180 A, US5054551 A, US5050386 A, US5046559 A, US5041210 A, US5027896 A, US5020596 A, US5014788 A, US5008085 A, US4994093 A, US4988389 A, US4987368 A, US4984594 A, US4983319 A, US4982786 A, US4974425 A, US4931171 A, US4928765 A, US4927857 A, US4926941 A, US4913065 A, US4912971 A, US48994 A, US4895206 A, US4893504 A, US4886118 A, US4885080 A, US4884455 A, US4883582 A, US4866983 A, US4860544 A, US4856587 A, US4856341 A, US4848924 A, US4831600 A, US4828031 A, US4827761 A, US4818370 A, US4817711 A, US4815790 A, US4808925 A, US4793656 A, US4787452 A, US4778586 A, US4776638 A, US4772634 A, US4769606 A, US4769602 A, US4766958 A, US4762425 A, US4756367 A, US4743854 A, US4737267 A, US4734115 A, US4730162 A, US4728892 A, US4728412 A, US4719423 A, US4716960 A, US4706751 A, US4704514 A, US4702758 A, US4698149 A, US4696345 A, US4694907 A, US4691771 A, US4683947 A, US4682652 A, US4671102 A, US4669542 A, US4663711 A, US4662443 A, US4662439 A, US4662438 A, US4658215 A, US4651825 A, US4644283 A, US4640353 A, US4640352 A, US4637464 A, US4635197 A, US4626665 A, US4623444 A, US4616705 A, US4613754 A, US4608818 A, US4605680 A, US4605489 A, US4598772 A, US4598770 A, US4597444 A, US4597441 A, US4594468 A, US4592423 A, US4585066 A, US4583242 A, US4583046 A, US4576231 A, US4573530 A, US4572299 A, US4571491 A, US4570715 A, US4552214 A, US4549396 A, US4544478 A, US4542648 A, US4540882 A, US4537252 A, US4530401 A, US4524827 A, US4524826 A, US4524113 A, US4518548 A, US4513816 A, US4508170 A, US4501445 A, US4501326 A, US4499209 A, US4498535 A, US4489782 A, US4485869 A, US4483398 A, US4479541 A, US4476927 A, US4474238 A, US4463807 A, US4460044 A, US4458767 A, US4458757 A, US4457374 A, US4457365 A, US4456065 A, US4448252 A, US4448251 A, US4445574 A, US4444258 A, US4444255 A, US4442896 A, US4440224 A, US4439307 A, US4437519 A, US4429745 A, US4428700 A, US4423311 A, US4418752 A, US4415034 A, US4412585 A, US4412124 A, US4410042 A, US4409090 A, US4407973 A, US4401163 A, US4399866 A, US4398151 A, US4397732 A, US4396062 A, US4390067 A, US4384948 A, US4384790 A, US4384614 A, US4384613 A, US4381641 A, US4378048 A, US4375302 A, US4366668 A, US4363361 A, US4359687 A, US4353418 A, US4344483 A, US4324292 A, US4319635 A, US4306621 A, US4305463 A, US4303126 A, US4299285 A, US4299086 A, US4285547 A, US4277416 A, US4274487 A, US4273188 A, US4265307 A, US4260192 A, US4260018 A, US4252191 A, US4250962 A, US4250230 A, US4243511 A, US4243101 A, US4234230 A, US4228854 A, US4197911 A, US4193451 A, US4186801 A, US4183405 A, US4167213 A, US4160479 A, US4151877 A, US4148359 A, US4144935 A, US4140181 A, US4140180 A, US4138442 A, US4133825 A, US4130575 A, US4125159 A, US4114688 A, US4099567 A, US4096163 A, US4093026 A, US4093025 A, US4091869 A, US4089374 A, US4089372 A, US4087130 A, US4084637 A, US4076761 A, US4069868 A, US4067390 A, US4065183 A, US4057293 A, US4049053 A, US4048637 A, US4043393 A, US4042026 A, US4031956 A, US4026357 A, US4019575 A, US4018280 A, US4016239 A, US4010800 A, US4008762 A, US4006778 A, US4006773 A, US4005752 A, US3999607 A, US3994341 A, US3994340 A, US3993132 A, US3992148 A, US3987851 A, US3986557 A, US3986556 A, US3986349 A, US3982592 A, US3982591 A, US3973628 A, US3954140 A, US3952802 A, US3948755 A, US3948319 A, US3947683 A, US3947656 A, US3924680 A, US3922148 A, US3907045 A, US3892270 A, US3882941 A, US3870063 A, US3809159 A, US3804172 A, US3804169 A, US3794116 A, US3779602 A, US3775185 A, US3770398 A, US3766982 A, US3759574 A, US3759328 A, US3700280 A, US3691291 A, US3680633 A, US3675715 A, US3661423 A, US3622071 A, US3618663 A, US3617471 A, US3605890 A, US3599714 A, US3595082 A, US3593790 A, US3580987 A, US3562401 A, US3547193 A, US3529682 A, US3528501 A, US3502372 A, US3501201 A, US3497000 A, US3477058 A, US345586 A, US3455383 A, US3454365 A, US3434541 A, US3389975 A, US3386508 A, US3380913 A, US3379248 A, US3352355 A, US3349845 A, US3342267 A, US3342258 A, US3338306 A, US3316962 A, US3310109 A, US3302707 A, US3294167 A, US3288648 A, US3285335 A, US3284281 A, US3275076 A, US3273640 A, US3267680 A, US326439 A, US3250327 A, US3246695 A, US3244231 A, US3244213 A, US3241611 A, US3237689 A, US3233668 A, US3223166 A, US3221811 A, US3209825 A, US3208531 A, US3207220 A, US3205946 A, US3205944 A, US3205942 A, US3191679 A, US3183675 A, US3182721 A, US3181613 A, US3170842 A, US3165154 A, US3165152 A, US3164207 A, US3163745 A, US3149672 A, US3149670 A, US3142336 A, US3139928 A, US3137347 A, US3132692 A, US3131763 A, US3127936 A, US3127935 A, US3120264 A, US3116792 A, US3114417 A, US3113623 A, US3113620 A, US3113619 A, US3110345 A, US3106244 A, US3105545 A, US3095031 A, US3084919 A, US3079085 A, US3062282 A, US3061009 A, US3048221 A, US3044545 A, US3036632 A, US3032102 A, US3026940 A, US3017168 A, US3016053 A, US3010516 A, US3010513 A, US3007521 A, US3004603 A, US3004601 A, US3004596 A, US2998457 A, US2994376 A, US2974937 A, US2970826 A, US2969226 A, US2958519 A, US2954826 A, US2939689 A, US2932352 A, US2923535 A, US2914309 A, US2906340 A, US2906337 A, US2902270 A, US2890755 A, US2890754 A, US2857002 A, US2841375 A, US2825408 A, US2819761 A, US2804149 A, US2801089 A, US2793696 A, US2789805 A, US2786660 A, US2780450 A, US2780449 A, US2777679 A, US2771954 A, US2743906 A, US2734579 A, US2732195 A, US2714930 A, US2703621 A, US2695163 A, US2685930 A, US2670802 A, US2642943 A, US2634961 A, US2630307 A, US2630306 A, US2623596 A, US2595979 A, US2593477 A, US2584605 A, US2548360 A, US2497868 A, US2484806 A, US2484063 A, US2472445 A, US2466945 A, US2444755 A, US2423674 A, US2390770 A, US2244256 A, US2244255 A, US200410811 AA, US2004069486 AA, US2004040715 AA, US2004026064 AA, US2004020642 AA, US2004015023 AA, US2003213594 AA, US2003209348 AA, US2003205378 AA, US2003201098 AA, US2003196810 AA, US2003196801 AA, US2003196793 AA, US2003196791 AA, US2003196789 AA, US2003196788 AA, US2003192693 AA, US2003192691 AA, US2003183390 AA, US2003178191 AA, US2003173085 AA, US2003173082 AA, US2003173081 AA, US2003173080 AA, US2003173078 AA, US2003173072 AA, US2003164239 AA, US2003164238 AA, US2003164234 AA, US2003155111 AA, US2003148894 AA, US2003146002 AA, US2003142964 AA, US2003141068 AA, US2003141067 AA, US2003141066 AA, US2003141065 AA, US2003131996 AA, US2003131995 AA, US2003131994 AA, US2003131993 AA, US2003116315 AA, US2003111223 AA, US2003102130 AA, US2003102126 AA, US2003102125 AA, US2003102124 AA, US2003100451 AA, US2003098605 AA, US2003098149 AA, US2003085034 AA, US2003080604 AA, US2003079877 AA, US2003075318 AA, US2003070807 AA, US2003066644 AA, US2003066642 AA, US2003062164 AA, US2003062154 AA, US2003058034 AA, US2003051872 AA, US2003029617 AA, US2003024699 AA, US2003019626 AA, US2003006039 AA, US2002191969 AA, US2002191968 AA, US2002170708 AA, US2002132862 AA, US2002117303 AA, US2002112987 AA, US2002112890 AA, US2002108753 AA, US2002104654 AA, US2002096320 AA, US2002084074 AA, US2002077515 AA, US2002076212 AA, US2002074117 AA, US2002066565 AA, US2002062961 AA, US2002062959 AA, US2002062052 AA, US2002062051 AA, US2002057905 AA, US2002056552 AA, US2002056551 AA, US2002053436 AA, US2002053435 AA, US2002053432 AA, US2002053431 AA, US2002053429 AA, US2002052297 AA, US2002050357 AA, US2002050356 AA, US2002050353 AA, US2002050352 AA, US2002049360 AA, US2002049358 AA, US2002046883 AA, US2002046839 AA, US2002046838 AA, US2002046837 AA, US2002046832 AA, US2002045553 AA, US2002043405 AA, US2002043367 AA, US2002043366 AA, US2002043365 AA, US2002041073 AA, US2002040781 AA,

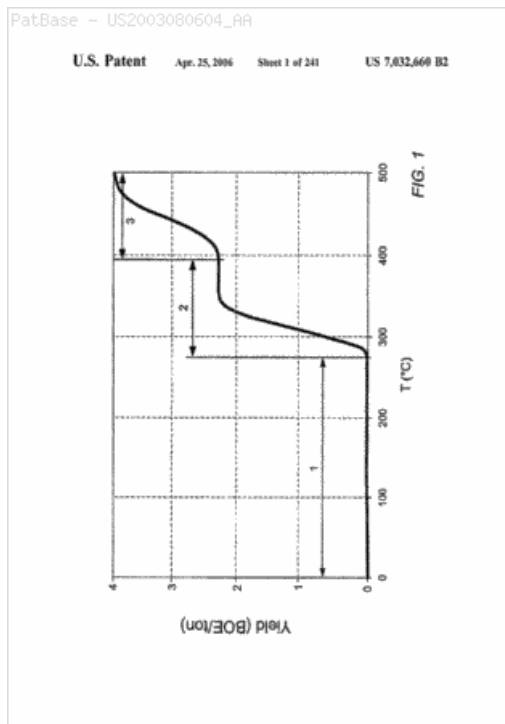
Forward Citations:

US2002040780 AA, US2002040779 AA, US2002040778 AA, US2002040177 AA, US2002040173 AA, US2002039486 AA, US2002038712 AA, US2002038711 AA, US2002038710 AA, US2002038709 AA, US2002038708 AA, US2002038706 AA, US2002038705 AA, US2002038069 AA, US2002036103 AA, US2002036089 AA, US2002036084 AA, US2002036083 AA, US2002035307 AA, US2002034380 AA, US2002033280 AA, US2002033257 AA, US2002033256 AA, US2002033255 AA, US2002033254 AA, US2002033253 AA, US2002029885 AA, US2002029884 AA, US2002029882 AA, US2002029881 AA, US2002027001 AA, US2002018697 AA, US2002004533 AA, US2001049342 AA, US19133395 A, US1681523 A, US1666488 A, US1646599 A, US1634236 A, US1510655 A, US1457479 A, US1342741 A, US1269747 A, SU1836876, SE126674, SE123138, SE123137, SE123136, SE121737, RU1836876, GB697189, GB674082, GB2086416, GB1588693, GB156396, GB1501310, GB1454324, GB1010023, EP0940558 A1, EP0570228 B1, EP0357314, EP0294809, CA983704, CA2015460, CA1288043, CA1253555, CA1196594, CA1168283, CA1165361, WO18191819, WO18027093, WO17091688, WO15164930, WO14177188, WO14047469, WO14011385, WO13112133, WO13110980, WO12033712, WO10087898, WO10022123, WO09094314, WO09026371, WO08154576, WO08137932, WO08131169, WO08131169, WO08097666, WO08063239, WO08048456, WO08048453, WO08048451, WO08030764, WO08030764, WO08030268, WO07149622, WO07137088, WO07092415, WO07092415, WO07050189, WO07033371, WO07033371, US9976409, US9970916, US9951942, US9945181, US9938782, US9897394, US9879401, US9869277, US9864092, US9822592, US9816376, US9801266, US9790108, US9781817, US9776794, US9761413, US9755415, US9739122, US9699879, US9661690, US9644466, US9644465, US9605524, US9560731, US9528322, US9517885, US9516736, US9512699, US9499443, US9482467, US9476108, US9466896, US9464513, US9461229, US9445488, US9417357, US9416640, US9399905, US9394772, US9376901, US9376635, US9356410, US9347307, US9347302, US9341034, US9337550, US9322574, US9309755, US9309050, US9291367, US9284829, US9279316, US9242800, US9242190, US9241396, US9230777, US9226341, US9194199, US9185787, US9181780, US9181467, US9176245, US9175558, US9175545, US9163584, US9133697, US9133398, US9129728, US9127541, US9127538, US9127523, US9111712, US9105433, US9080917, US9080441, US9080409, US9057249, US9051829, US9051828, US9051820, US9048653, US9033042, US9033033, US9022118, US9022109, US9016378, US9016370, US9008884, US8997869, US8992771, US8978756, US8967259, US8961652, US8954188, US8943686, US8939207, US8936089, US8925627, US8905137, US8904749, US8899331, US8898044, US8886502, US8881806, US8875789, US8875788, US8875371, US8869891, US8863839, US8859942, US8857506, US8857051, US8851177, US8851170, US8839860, US8833453, US8833054, US8820406, US8816203, US8810122, US8796581, US8791396, US8789586, US8785808, US8776901, US8772683, US8770284, US8755945, US8752904, US8739874, US8733437, US8732946, US8712747, US8701788, US8701770, US8701769, US8701768, US8692170, US8682589, US8662175, US8641150, US8636323, US8631866, US8627887, US8622133, US8622127, US8616280, US8616279, US8608249, US8606091, US8596355, US8586867, US8586866, US8579031, US8568663, US8562078, US8561702, US8555971, US8540020, US8536497, US8534124, US8532968, US8522881, US8502120, US8490703, US8485847, US8485257, US8485256, US8485252, US8464792, US8459359, US8458000, US8448707, US8443888, US8434555, US8408294, US8381815, US8366918, US8366917, US8365478, US8356935, US8355623, US8353347, US8353340, US8349171, US8333650, US8333239, US8327932, US8327681, US8323481, US8313152, US8296968, US8291668, US8287050, US8281861, US8279708, US8278928, US8278810, US8276661, US8272455, US8267481, US8267185, US8267170, US8261832, US8257112, US8256512, US8246371, US8240774, US8238730, US8233782, US8230929, US8230927, US8225866, US8224165, US8224164, US8224163, US8220539, US8210256, US8209202, US8209192, US8205947, US8205674, US8200072, US8196658, US8192682, US8191630, US8186430, US8177305, US8176982, US8172335, US8167960, US8162405, US8162059, US8162043, US8152993, US8151907, US8151884, US8151880, US8151877, US8151482, US8146669, US8146664, US8146661, US8127865, US8122955, US8118095, US8113272, US8109047, US8104537, US8087460, US8083813, US8082995, US8071037, US8070840, US8042610, US8028438, US8027571, US8016589, US8011451, US8006407, US8003844, US7986869, US7980304, US7975398, US7967974, US7957841, US7950454, US7942203, US7942197, US7931086, US7931080, US7921907, US7918271, US7912358, US7906014, US7900418, US7892597, US7866388, US7866386, US7862706, US7862705, US7860377, US7857056, US7849922, US7845411, US7841425, US7841408, US7841401, US7836650, US7835893, US7832484, US7832482, US7831134, US7831133, US7809538, US7802377, US7802376, US7798221, US7798220, US7793722, US7785427, US7772160, US7770643, US7770640, US7748137, US7743826, US7735935, US7731421, US7730947, US7730946, US7730945, US7717171, US7712327, US7704070, US7703513, US7683296, US7681647, US7677673, US7677314, US7677310, US7673786, US7673681, US7669657, US7665524, US7647972, US7647971, US7644993, US7644769, US7644765, US7640987, US7640980, US7635025, US7635024, US7635023, US7631691, US7631690, US7631689, US7610962, US7609585, US7604052, US7597147, US7591310, US7584789, US7584581, US7581589, US7579833, US7575053, US7575052, US7562707, US7562706, US7559368, US7559367, US7556096, US7556095, US7552762, US7549470, US7546873, US7543638, US7540324, US7538275, US7534926, US7533719, US7527094, US7516787, US7516785, US7510000, US7507692, US7500528, US7490665, US7484561, US7481274, US7461691, US7448447, US7445041, US7441603, US7435037, US7431076, US7424915, US7410002, US7383877, US7370704, US7360588, US7357180, US7353872, US7331385, US7320364, US7226895, US7225866, US7219734, US7185702, US7165616, US7156176, US7152675, US7128153, US7121342, US7121341, US7114566, US7104319, US7100994, US7096942, US7090013, US7086465, US7077199, US7077198, US7073578, US7066257, US7066254, US7063145, US7055600, US7051811, US7051808, US7051807, US7040400, US7040399, US7040398, US7040397, US7032660, US7013972, US7011154, US7004678, US7004251, US7004247, US6997518, US6994169, US6991045, US6991036, US6991033, US6991032, US6981548, US6969123, US6966374, US6964300, US6962466, US6951436, US6951247, US6948562, US6932155, US6929067, US6923257, US6918443, US6918442, US6915850, US6881009, US6880633, US6877555, US6854929, US6782947, US6774148, US201716639, US2017067329, US2016353521, US2016186548, US20162177676, US2016033462, US2015322720, US2015275636, US2015122491, US2015101814, US2015027955, US2014305640, US2014300895, US2014262278, US2014158358, US2014110104, US2014102693, US2013319662, US2013206411, US2013206134, US2013199786, US2013180708, US2013068462, US2013000895, US2012318512, US2012312538, US2012312079, US2012205109, US2012193092, US2012110845, US2012089335, US2012061383, US2012035773, US20111313743, US20111247809, US2011174694, US2011174507, US2011174496, US2011170843, US2011146982, US2011138649, US2011132600, US2011120718, US2011120706, US2011120705, US2011108269, US2011094952, US2011093200, US2011088904, US2011061454, US2011060573, US2011011582, US2011007605, US2010319909, US2010312589, US2010307759, US2010288497, US2010276148, US2010238971, US2010236987, US2010224370, US2010220336, US2010218946, US2010206570, US2010206563, US2010206518, US2010206410, US2010200468, US2010200467, US2010200466, US2010200465, US2010200464, US2010181069, US2010181066, US2010163227, US2010155070, US2010154656, US2010126727, US2010126037, US2010108310, US2010101793, US2010089586, US2010089585, US2010089575, US2010044035, US2010032171, US2009324453, US2009321071, US2009308608, US2009274518, US2009272536, US2009272526, US2009260833, US2009250380, US2009236092, US2009200854, US2009200290, US2009200032, US2009200022, US2009194286, US2009194280, US2009193822, US2009184651, US2009173491, US2009151190, US2009145598, US2009139716, US2009126291, US2009107679, US2009101348, US2009100754, US2009084707, US2009071647, US2009056696, US2009053660, US2009050319, US2009044943, US2009038795, US2009028000, US2009020459, US2009013596, US2008317095, US2008300727, US2008290719, US2008289819, US2008284426, US2008283241, US2008271885, US2008257552, US2008237308, US2008230219, US2008229763, US2008217003, US2008207970, US2008190818, US2008190816, US2008190815, US2008190813, US2008173443, US2008173442, US2008135244, US2008120148, US2008118987, US2008110043, US2008107577, US2008087427, US2008087426, US2008087422, US2008087421, US2008087420, US2008078552, US2008078551, US2008073079, US2008058226, US2008023197, US2008017416, US2008017370, US2007294914, US2007289740, US2007263487, US2007246994, US2007235187,

US2007221377, US2007209799, US2007199709, US2007199696, US2007193744, US2007187089, US2007181306, US2007181301, US2007137863, US2007137857, US2007137856, US2007131411, US2007108200, US2007056726, US2007039729, US2007034410, US2007023186, US2007000662, US2006230760, US2006222578, US2006213657, US2006210468, US2006191686, US2006191224, US2006112589, US2006042794, US2005236372, US2005221994, US2005109504, US2005051327, US2005000109, US2004228690, US2004228689, US2004228688, US2004220790, US2004177966, US2004145969, US2004140096, US2004126190, US2004120772, US2004120771, US2003183390, US2002003988, US10221537, US10221014, US10202733, US10197766, US10184322, US10119366, US10117318, US10107087, US10098191, US10053286, US10047594, US10030195, US10024122, US10018351, US10006271, KR101189321, GC2757, GB2523567, GB2430218, GB2430218, EP2898180, EP2745365, EP2695242, EP2486380, EP2316152, EP2098683, EA017711, EA016499, CN106255803, CN104428489, CN102369339, CN102187055, CN102037211, CN101784748, CN101636554, AU2015222053, AU2013206722, AU2010245127, AU2009298555, AU2009249493, AU2007313396, AU2007313391, AU2007261281,

Abstract:

An oil shale formation may be treated using an in situ thermal process. Fluid migration into and/or out of a treatments area in the formation may be inhibited. In some embodiments, a barrier may be used to inhibit migration of fluids into and/or out of the treatment area. Heat may be provided to the treatment area and subsequently, hydrocarbons, H₂, and/or other formation fluids may be produced from the formation.



44) Family number: 44667576 (IN06206CN2009A)

© PatBase

Title: SYSTEMS, METHODS, AND PROCESSES FOR USE IN TREATING SUBSURFACE FORMATIONS
Priority: US20070925685P 20070420 WO2008US60811 20080418

Family:	Publication number	Publication date	Application number	Application date
	IN06206CN2009 A	20100409	IN2009CN06206	20091020

Probable Assignee: SHELL INT RESEARCH MIJ BV

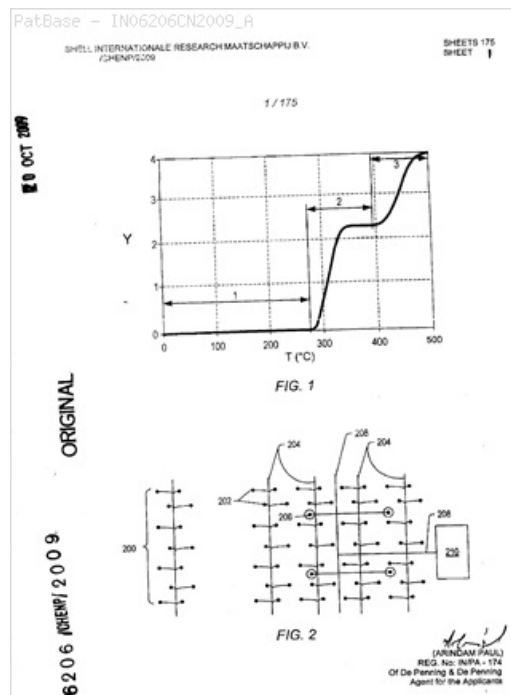
Assignee(s): SHELL INT RESEARCH MIJ BV

Inventor(s): ABBASI FARAZ ; ANDERSON KARL GREGORY ; BASS RONALD ; BASS RONALD J ; BEERS GARY LEE ; BRIGNAC JOSEPH ; BRIGNAC JOSEPH JR ; BURNS DAVID ; CLOMBURG LLOYD ANTHONY ; COSTELLO MICHAEL ; DAVIDSON IAN ALEXANDER ; DEN BOESTERT JOHANNES LEENDERT WILLEM CORNELIS ; FARMAYAN WALTER ; FONSECA ERNESTO ; GEDDES CAM ; GILES STEVEN PAUL ; GOODWIN CHARLES R ; GUIMERANS ROSALVINA ; HARRIS CHRISTOPHER KELVIN ; HARVY BERT ; HWANG H. JAY ; KARANIKAS JOHN ; KARANIKAS JOHN MICHAEL ; KIM DONG SUB ; MACDONALD DUNCAN ; MANSURE ARTHUR J ; MARWEDE JOCHEN ; MUNSHI ABDUL ; NGUYEN SCOTT VINH ; PIERCE DENNIS ; PIERCE ROBERT ; PRINCE WRIGHT ROBERT ; RENKEMA DUURT ; RUDOLF RANDY ; RYAN ROBERT CHARLES ; SANDBERG CHESTER LEDLIE ; SELBY BRUCE ; SIDDOWAY MARK ALAN ; STANECKI JOHN ; TSAI KUOCHEN ; VINEGAR HAROLD ; VINEGAR HAROLD J ; ZHANG ETUAN

International class E21B43/24
(IPC 1-7):

Abstract:

Systems, methods, and/or heaters for treating a subsurface formation are described herein. Some embodiments also generally relate to heaters that have novel components therein. Such heaters may be obtained by using the systems and methods described.



45) Family number: 50740639 (US2013149771A)

© PatBase

Title: HEAT-STABLE PERSEPHONELLA CARBONIC ANHYDRASES AND THEIR USE

Priority: EP20100173848 20100824 US20100376898P 20100825 EP20100193303 20101201
US20100420204P 20101206 CN201180051316 20110824 EP20110751585 20110824
WO2011EP64585 20110824 US20130818519 20130222 US20150639685 20150305

Family:

Publication number	Publication date	Application number	Application date
CN103180438 A	20130626	CN201180051316	20110824
CN107299095 A	20171027	CN201710422972	20110824
DE602011036916 D1	20170524	DE201160036916T	20110824
EP2609196 A1	20130703	EP20110751585	20110824
EP2609196 B1	20170412	EP20110751585	20110824
US2013149771 AA	20130613	US20110818519	20110824
US2015175997 AA	20150625	US20150639685	20150305
US9909115 BB	20180306	US20150639685	20150305
WO12025577 A1	20120301	WO2011EP64585	20110824

Probable Assignee: NOVOZYMES INC

Assignee(s):(std): BORCHERT MARTIN SIMON ; NOVOZYMES AS

Assignee(s): NOVOZYMES INC ; NOVOZYMES A S

Inventor(s):(std): BORCHERT MARTIN SIMON

Agent(s): ERIC J; NOVOZYMES A S

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT QA RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG UZ VC VN ZA ZM ZW

International class (IPC 8-9): C01B32/50 C12M1/40 C12M3/00 C12N15/60 C12N9/88 (Advanced/Invention)

CPC: C12N9/88 C12Y402/01001 C12M21/18 C12M23/44

European class: C12M21/18 C12M23/44 C12N9/88

US class: 435/232 435/266 435/289.1

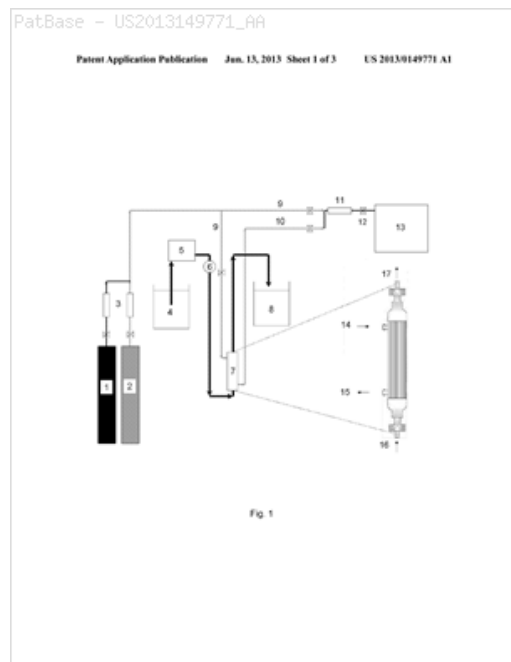
[Classification Explorer](#)

Cited documents: WO9943835 A2, WO9943835 A1, WO9600787 A1, WO9600787 A1, WO9533836 A1, WO9533836 A1, WO9522625 A1, WO9522625 A1, WO9517413 A1, WO9517413 A1, WO9206204 A1, WO9206204 A1, WO10151787 A1, WO10151787, WO10081007 A2, WO10081007, WO10037109 A2, WO10037109, WO10014774 A2, WO10014774, WO10014773 A1, WO10014773, WO08095057 A2, WO08041920 A1, WO08041920, WO07036235 A1, WO07036235, WO06089423 A1, WO06089423, WO06066595 A2, WO06066595, WO05114417 A2, WO05114417, WO04104160 A1, WO04104160, WO04056455 A1, WO04056455, WO04028667 A1, WO04028667, WO04007058 A1, WO04007058, WO0056900 A2, WO0056900, WO0024883 A1, WO0024883, US7176017 BB, US7176017, US7132090 BB, US7132090, US6524843 BA, US6524843, US6524842 BA, US6524842, US6156096 A, US6156096 A, US6143556 A, US6143556 A, US5776741 A, US5776741 A, US5223409 A, US5223409 A, US4750918 A, US4750918 A, US4112052 A, US4112052 A, US2010068784 AA, US2010068784 AA, US2010040022 AA, US2008056972 AA, US2008056972 AA, US2007256559 AA, US2007256559 AA, US2006257990 AA, US2006257990 AA, US2005214936 AA, US2005214936 AA, US2004259231 AA, US2004259231 AA, US2004059231 AA, US2004059231 AA, US2004029257 AA, US2004029257 AA, US2004029257 AA, US19043189, WO19043088, WO18017792, WO18007573, WO17186943, WO17046260, WO17046232, WO17035667, WO14206915, WO14206914, WO14206913, WO14144264, WO14122161, WO14086928, WO14029820, WO14009473, WO13171241, WO13167581, EP3401385, EP3167054, EP3013962, EP2872610, EP2847308, EP2844728, CN104437002, CN104328104, CN104313003,

Forward Citations: WO19043189, WO19043088, WO18017792, WO18007573, WO17186943, WO17046260, WO17046232, WO17035667, WO14206915, WO14206914, WO14206913, WO14144264, WO14122161, WO14086928, WO14029820, WO14009473, WO13171241, WO13167581, EP3401385, EP3167054, EP3013962, EP2872610, EP2847308, EP2844728, CN104437002, CN104328104, CN104313003,

Abstract:

The present invention relates to use of Persephonella carbonic anhydrase in CO₂ extraction, e.g., from flue gas, natural gas, biogas or ambient air. The Persephonella carbonic anhydrases are especially well suited for these purpose due to their extreme thermostability.



46) Family number: 47449711 (US2010270015A)

© PatBase

Title: IN SITU THERMAL PROCESSING OF AN OIL SHALE FORMATION

Priority: US20010286062P 20010424 US20010337249P 20011024 US20020131286 20020424
US20060343913 20060131 US20070809889 20070601 US20100767572 20100426

Family:

	Publication number	Publication date	Application number	Application date
	US2010270015 AA	20101028	US20100767572	20100426
	US8608249 BB	20131217	US20100767572	20100426

Probable Assignee: SHELL OIL CO

Assignee(s):(std): DE ROUFFIGNAC ERIC PIERRE ; MAHER KEVIN ALBERT ; SCHOELING LANNY GENE ; SHELL OIL CO ; VINEGAR HAROLD J ; WELLINGTON SCOTT LEE

Assignee(s): SHELL OIL COMPANY

Inventor(s):(std): DE ROUFFIGNAC ERIC PIERRE ; MAHER KEVIN ALBERT ; SCHOELING LANNY GENE ; VINEGAR HAROLD J ; WELLINGTON SCOTT LEE

Agent(s): DEL CHRISTENSEN,SHELL OIL COMPANY; DEL CHRISTENSEN SHELL OIL CO

International class (IPC 8-9): E21B43/24 E21B43/243 E21B43/247 E21B43/28 E21B43/30 E21C41/24 (Advanced/Invention)

CPC: E21B43/24 E21B43/2401 E21B43/243 E21B43/247 E21B43/30

European class: E21B43/243 E21B43/247 E21B43/30

US class: 166/272.1 166/272.100P 166/302 299/3

[Classification Explorer](#)

Cited documents: WO9901640, WO9850179, WO9723924, WO9707321, WO9506093, WO0181723, WO0181505, WO0019061, USRE39244 E, USRE39077 E, USRE30738 E, US8240774 BB, US8196658 BB, US8192682 BB, US8191630 BB, US8177305 BB, US8172335 BB, US8162405 BB, US8162059 BB, US8151907 BB, US8151880 BB, US8146669 BB, US8146661 BB, US8083813 BB, US8070840 BB, US8042610 BB, US8027571 BB, US8011451 BB, US7986869 BB, US7950453 BB, US7942203 BB, US7942197 BB, US7931086 BB, US7912358 BB, US7866388 BB, US7866386 BB, US7866385 BB, US7860377 BB, US7849922 BB, US7845411 BB, US7841425 BB, US7841408 BB, US7841401 BB, US7832484 BB, US7831134 BB, US7831133 BB, US7798221 BB, US7798220 BB, US7793722 BB, US7785427 BB, US7730947 BB, US7730946 BB, US7730945 BB, US7717171 BB, US7703513 BB, US7681647 BB, US7677314 BB, US7677310 BB, US7673681 BB, US7644765 BB, US7640980 BB, US7635025 BB, US7635024 BB, US7635023 BB, US7631690 BB, US7631689 BB, US7610962 BB, US7604052 BB, US7597147 BB, US7591310 BB, US7584789 BB, US7581589 BB, US7575053 BB, US7575052 BB, US7562707 BB, US7562706 BB, US7559368 BB, US7559367 BB, US7556096 BB, US7556095 BB, US7549470 BB, US7546873 BB, US7540324 BB, US7533719 BB, US7490665 BB, US7441597 BB, US7435037 BB, US7431076 BB, US7424915 BB, US7383877 BB, US7370704 BB, US7320364 BB, US7259688 BB, US7258752 BB, US7225866 BB, US7219734 BB, US7204327 BB, US7170424 BB, US7165615 BB, US7156176 BB, US7153373 BB, US7147059 BB, US7147057 BB, US7128153 BB, US7128150 BB, US7121342 BB, US7121341 BB, US7114880 BB, US7114566 BB, US7104319 BB, US7100994 BB, US7096953 BB, US7096942 BA, US7096941 BB, US7090013 BB, US7086468 BB, US7086465 BB, US7077199 BB, US7077198 BB, US7073578 BB, US7066257 BB, US7066254 BB, US7063145 BB, US7055602 BB, US7055600 BB, US7051811 BB, US7051808 BA, US7051807 BB, US7040400 BB, US7040399 BB, US7040398 BB, US7040397 BB, US7036583 BB, US7032809 BA, US7032660 BB, US7013972 BB, US7011154 BB, US7004251 BB, US7004247 BB, US6997518 BB, US6997255 BB, US6994169 BB, US6994168 BB, US6994160 BB, US6991045 BB, US6991032 BB, US6981553 BB, US6981548 BB, US6973967 BB, US6969123 BB, US6966374 BB, US6966372 BB, US6964300 BB, US6959761 BB, US6958704 BB, US6953087 BB, US6951247 BB, US6948563 BB, US6948562 BB, US6932155 BB, US6929067 BB, US6923258 BB, US6923257 BB, US6918443 BB, US6918442 BB, US6915850 BB, US6913079 BB, US6913078 BB, US6910536 BB, US6902004 BB, US6902003 BB, US6896053 BB, US6889769 BB, US6880635 BB, US6880633 BB, US6877555 BB, US6877554 BB, US6871707 BB, US6866097 BB, US6854929 BB, US6854534 BB, US6821501 BB, US6820688 BB, US6805195 BB, US6805194 BB, US6789625 BB, US6782947 BB, US6769485 BB,

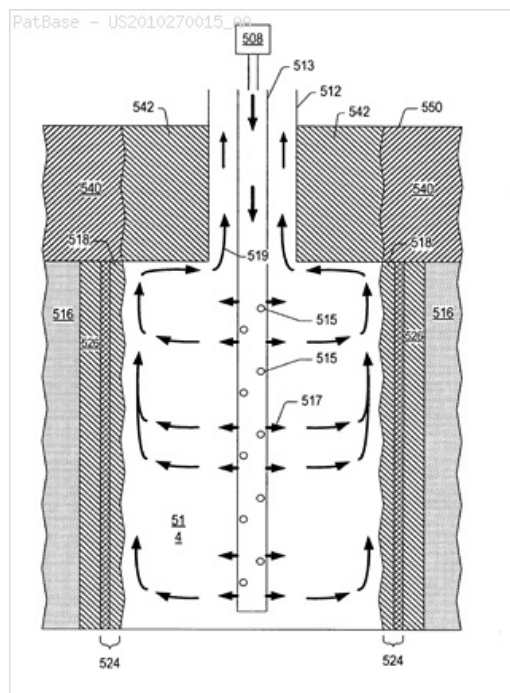
US6769483 BB, US6763886 BB, US6761216 BB, US6759364 BB, US6758268 BB, US6755251 BB, US6752210 BB, US6749021 BB, US6745837 BB, US6745832 BB, US6745831 BB, US6742593 BB, US6742589 BB, US6742588 BB, US6742587 BB, US6739394 BB, US6739393 BB, US6736215 BB, US6732796 BB, US6732795 BB, US6732794 BB, US6729401 BB, US6729397 BB, US6729396 BB, US6729395 BB, US6725928 BB, US6725921 BB, US6725920 BB, US6722431 BB, US6722430 BB, US6722429 BB, US6719047 BB, US6715550 BB, US6715549 BB, US6715548 BB, US6715547 BB, US6715546 BB, US6712137 BB, US6712136 BB, US6712135 BB, US6708758 BB, US6702016 BB, US6698515 BB, US6688387 BA, US6684948 BA, US6679332 BB, US6609761 BA, US6609570 BB, US6607033 BB, US6591907 BB, US6591906 BB, US6588504 BB, US6588503 BB, US6588266 BB, US6585046 BB, US6584406 BA, US6581684 BB, US6540018 BA, US6516891 BA, US6499536 BA, US6485232 BA, US6467543 BA, US6439308 BA, US6427124 BA, US6422318 BA, US6417268 BA, US6412559 BA, US6412557 BA, US6388947 BA, US6357526 BA, US6354373 BA, US6353706 BA, US6328104 BA, US6318468 BA, US6290841 BA, US6288372 BA, US6283230 BA, US6269881 BA, US6269310 BA, US6218333 BA, US6196350 BA, US6193010 BA, US6192748 BA, US6173775 B1, US6172124 B1, US6155117 A, US6152987 A, US6112808 A, US6110358 A, US6102622 A, US6102137 A, US6102122 A, US6099208 A, US6094048 A, US6088294 A, US6085512 A, US6084826 A, US6079499 A, US6078868 A, US6056057 A, US6039121 A, US6035701 A, US6026914 A, US6023554 A, US6022834 A, US6019172 A, US6016868 A, US6016867 A, US6015015 A, US5997214 A, US5985138 A, US5984582 A, US5984578 A, US5984010 A, US5968349 A, US5935421 A, US5926437 A, US5911898 A, US5899958 A, US5899269 A, US5879110 A, US5868202 A, US5862858 A, US5861137 A, US5828797 A, US5826655 A, US5826653 A, US5823256 A, US5782301 A, US5777229 A, US5769569 A, US5760307 A, US5759022 A, US5751895 A, US5744025 A, US5723423 A, US5713415 A, US5688736 A, US5656239 A, US5654261 A, US5652389 A, US5648305 A, US5632336 A, US5624188 A, US5621845 A, US5621844 A, US5579575 A, US5571403 A, US5566755 A, US5554453 A, US5553189 A, US5545803 A, US5517593 A, US5512732 A, US5503226 A, US5468372 A, US5458774 A, US5456315 A, US5435666 A, US5411086 A, US5400430 A, US5377756 A, US5363094 A, US5360067 A, US5339904 A, US5332036 A, US5318709 A, US5305829 A, US5305239 A, US5295763 A, US5284206 A, US5282957 A, US5275726 A, US5255740 A, US5246273 A, US5209987 A, US5201219 A, US5199490 A, US5182427 A, US5173213 A, US5152341 A, US5150118 A, US5145003 A, US5126037 A, US5103920 A, US5103909 A, US5102551 A, US5099918 A, US5097903 A, US5093002 A, US5085276 A, US5073625 A, US5066852 A, US5065501 A, US5059303 A, US5054551 A, US5046559 A, US5042579 A, US5032042 A, US5027896 A, US5020596 A, US5011329 A, US5008085 A, US4994093 A, US4987368 A, US4985313 A, US4984594 A, US4983319 A, US4982786 A, US4974425 A, US4940095 A, US4928765 A, US4927857 A, US4926941 A, US4913065 A, US4912971 A, US4895206 A, US4893504 A, US4886118 A, US4885080 A, US4884635 A, US4884455 A, US4866983 A, US4860544 A, US4856587 A, US4856341 A, US4852648 A, US4849611 A, US4848924 A, US4848460 A, US4842448 A, US4840720 A, US4828031 A, US4827761 A, US4823890 A, US4821798 A, US4818370 A, US4817711 A, US4814587 A, US4808925 A, US4794226 A, US4793409 A, US4787452 A, US4785163 A, US4776638 A, US4772634 A, US4769606 A, US4769602 A, US4766958 A, US4762425 A, US4756367 A, US4752673 A, US4744245 A, US4743854 A, US4734115 A, US4733057 A, US4730162 A, US4728892 A, US4719423 A, US4717814 A, US4716960 A, US4706751 A, US4704514 A, US4701587 A, US4698583 A, US4698149 A, US4696345 A, US4695713 A, US4694907 A, US4691771 A, US4686029 A, US4682652 A, US4671102 A, US4669542 A, US4663711 A, US4662443 A, US4662439 A, US4662438 A, US4662437 A, US4658215 A, US4651825 A, US4645906 A, US4644283 A, US4640353 A, US4640352 A, US4637464 A, US4635197 A, US4626665 A, US4623444 A, US4623401 A, US4616705 A, US4613754 A, US4609041 A, US4608818 A, US4605680 A, US4605489 A, US4598772 A, US4598770 A, US4598392 A, US4597444 A, US4597441 A, US4592423 A, US4585066 A, US4583242 A, US4583046 A, US4577691 A, US4577690 A, US4577503 A, US4576231 A, US4573530 A, US4572299 A, US4572229 A, US4571491 A, US4570715 A, US4552214 A, US4551226 A, US4549396 A, US4545435 A, US4542648 A, US4540882 A, US4538682 A, US4537252 A, US4530401 A, US4524827 A, US4524826 A, US4518548 A, US4513816 A, US4501445 A, US4501326 A, US4500651 A, US4499209 A, US4498535 A, US4498531 A, US4491179 A, US4489782 A, US4485869 A, US4485868 A, US4479541 A, US4474238 A, US4474236 A, US4458767 A, US4458757 A, US4457374 A, US4457365 A, US4456065 A, US4455215 A, US4452491 A, US4446917 A, US4445574 A, US4444258 A, US4444255 A, US4442896 A, US4440871 A, US4440224 A, US4437519 A, US4429745 A, US4428700 A, US4425967 A, US4423311 A, US4418752 A, US4417782 A, US4412585 A, US4412124 A, US4410042 A, US4409090 A, US4407973 A, US4401163 A, US4401099 A, US4399866 A, US4398151 A, US4397732 A, US4396062 A, US4390973 A, US4390067 A, US4385661 A, US4384614 A, US4384613 A, US4381641 A, US4380930 A, US4378048 A, US4375302 A, US4368114 A, US4366864 A, US4366668 A, US4363361 A, US4359687 A, US4353418 A, US4344483 A, US4327805 A, US4324292 A, US4311340 A, US4310440 A, US4306621 A, US4305463 A, US4303126 A, US4299285 A, US4299086 A, US4290650 A, US4289354 A, US4282587 A, US4277416 A, US4274487 A, US4273188 A, US4265307 A, US4256945 A, US4254297 A, US4252191 A, US4250962 A, US4250230 A, US4248306 A, US4243101 A, US4232902 A, US4228854 A, US4228853 A, US4216079 A, US4199024 A, US4197911 A, US4194562 A, US4193451 A, US4186801 A, US4185692 A, US4184548 A, US4183405 A, US4158467 A, US4151068 A, US4148359 A, US4144935 A, US4140181 A, US4140180 A, US4138442 A, US4133825 A, US4130575 A, US4125159 A, US4119349 A, US4114688 A, US4099567 A, US4096163 A, US4093026 A, US4093025 A, US4091869 A, US4089374 A, US4089372 A, US4087130 A, US4085803 A, US4084637 A, US4083604 A, US4077471 A, US4076842 A, US4076761 A, US4067390 A, US4057293 A, US4049053 A, US4048637 A, US4043393 A, US4042026 A, US4031956 A, US4029360 A, US4026357 A, US4019575 A, US4018280 A, US4017319 A, US4016245 A, US4016239 A, US4010800 A, US4008762 A, US4006778 A, US4005752 A, US3999607 A, US3994341 A, US3994340 A, US3993132 A, US3992474 A, US3987851 A, US3986557 A, US3986556 A, US3986349 A, US3973628 A, US3972372 A, US3958636 A, US3954140 A, US3952802 A, US3950029 A, US3948758 A, US3948755 A, US3948319 A, US3947683 A, US3943160 A, US3941421 A, US3924680 A, US3922148 A, US3907045 A, US3894769 A, US3893918 A, US3882941 A, US3881551 A, US3853185 A, US3832449 A, US3809159 A, US3804172 A, US3804169 A, US3794116 A, US3794113 A, US3779602 A, US3770614 A, US3770398 A, US3766982 A, US3759574 A, US3759328 A, US3757860 A, US3709979 A, US3702886 A, US3700280 A, US3680633 A, US3679812 A, US3675715 A, US3661423 A, US3629551 A, US3618663 A, US3614986 A, US3605890 A, US3599714 A, US3595082 A, US3593789 A, US3580987 A, US3578080 A, US3572838 A, US3565171 A, US3562401 A, US3554285 A, US3547193 A, US3547192 A, US3542131 A, US3537528 A, US3529682 A, US3528501 A, US3515837 A, US3513913 A, US3502372 A, US3501201 A, US3485300 A, US3480082 A, US3477058 A, US3474863 A, US3465819 A, US345586 A, US3455383 A, US3434541 A, US3412011 A, US3410977 A, US3399623 A, US3389975 A, US3386508 A, US3380913 A, US3379248 A, US3372754 A, US3362751 A, US3358756 A, US3352355 A, US3349845 A, US3346044 A, US3342267 A, US3342258 A, US3338306 A, US3332480 A, US3316962 A, US3316344 A, US3303883 A, US3302707 A, US3294167 A, US3288648 A, US3285335 A, US3284281 A, US3278234 A, US3275076 A, US3273640 A, US3267680 A, US3262741 A, US3250327 A, US3246695 A, US3241611 A, US3237689 A, US3233668 A, US3221811 A, US3209825 A, US3208531 A, US3207220 A, US3205946 A, US3205944 A, US3205942 A, US3191679 A, US3183675 A, US3182721 A, US3181613 A, US3170842 A, US3165154 A, US3164207 A, US3163745 A, US3150715 A, US3149672 A, US3149670 A, US3142336 A, US3139928 A, US3137347 A, US3132692 A, US3131763 A, US3127936 A, US3127935 A, US3120264 A, US3116792 A, US3114417 A, US3113623 A, US3113620 A, US3113619 A, US3110345 A, US3106244 A, US3105545 A, US3097690 A, US3095031 A, US3062282 A, US3061009 A, US3058730 A, US3057404 A, US3051235 A, US3050123 A, US3048221 A, US3044545 A, US3036632 A, US3032102 A, US3026940 A, US3017168 A, US3016053 A, US3010516 A, US3010513 A, US3007521 A, US3004603 A, US3004601 A, US2998457 A, US2997105 A, US2994376 A, US2991046 A, US2974937 A, US2970826 A, US2969226 A, US2958519 A, US2952449 A, US2950240 A, US2942223 A, US2889882 A, US2862558 A, US2857002 A, US2825408 A, US2819761 A, US2803305 A, US2801089 A, US2794504 A, US2761663 A, US2757739 A, US2743906 A, US2732195 A, US2481051 A, US2390770 A, US2381256 A, US2365591 A, US2319702 A, US2244255 A, US2011247820 AA, US2011247814 AA, US2011247811 AA, US2011247809 AA, US2011247802 AA, US2010258309 AA, US2010258265 AA, US2010155070 AA, US2009294332 AA, US2009200854 AA, US2009200290 AA, US2009200031 AA, US2009200025 AA, US2009200023 AA, US2009200022 AA,

US2009194524 AA, US2009194333 AA, US2009194329 AA, US2009194287 AA, US2009194286 AA, US2009194282 AA, US2009194269 AA, US2009189617 AA, US2009126929 AA, US2009120646 AA, US2009101346 AA, US2009095480 AA, US2009095479 AA, US2009095478 AA, US2009095477 AA, US2009095476 AA, US2009090509 AA, US2009090158 AA, US2009084547 AA, US2009078461 AA, US2009071652 AA, US2009014181 AA, US2009014180 AA, US2008283246 AA, US2008283241 AA, US2008236831 AA, US2008217321 AA, US2008217016 AA, US2008217015 AA, US2008217004 AA, US2008217003 AA, US2008185147 AA, US2008173449 AA, US2008173444 AA, US2008173442 AA, US2008006410 AA, US2007289733 AA, US2007284108 AA, US2007221377 AA, US2007144732 AA, US2007137857 AA, US2007137856 AA, US2007133960 AA, US2007133959 AA, US2007131428 AA, US2007131420 AA, US2007131419 AA, US2007131415 AA, US2007131411 AA, US2007127897 AA, US2007125533 AA, US2007119098 AA, US2007108201 AA, US2007108200 AA, US2007095537 AA, US2007095536 AA, US2007045268 AA, US2007045267 AA, US2007045266 AA, US2007045265 AA, US2007000810 AA, US2006289536 AA, US2006289340 AA, US2006254769 AA, US2006231465 AA, US2006213657 AA, US2006191820 AA, US2006178546 AA, US2006175061 AA, US2006005968 AA, US2005269313 AA, US2005269095 AA, US2005269094 AA, US2005269093 AA, US2005269092 AA, US2005269091 AA, US2005269090 AA, US2005269089 AA, US2005269088 AA, US2005269077 AA, US2005231022 AA, US2005133414 AA, US2005133405 AA, US2005006097 AA, US2004146288 AA, US2004144541 AA, US2004144540 AA, US2004140096 AA, US2004035582 AA, US2003201098 AA, US2003196789 AA, US2003157380 AA, US2003146002 AA, US2003131989 AA, US2003085034 AA, US2003079877 AA, US2003062159 AA, US2003038734 AA, US2003029617 AA, US2002153141 AA, US2002112987 AA, US2002112890 AA, US2002076212 AA, US2002053431 AA, US2002040780 AA, US2002040779 AA, US2002038069 AA, US2002036089 AA, US2002033253 AA, US2002028070 AA, US2001049342 AA, US1811560 A, US1646599 A, US1457479 A, US1269747 A, SU1836876, SE126674, SE123138, SE123137, SE123136, SE121737, GB697189, GB674082, GB156396, GB1454324, GB1204405, GB1010023, EP0940558, EP0130671, EP0107927, CA899987, CA2015460, CA1288043, CA1253555, CA1196594, CA1168283, CA1165361,

Forward Citations: WO15112524, WO15048186, US9739122, US9644466, US9605524, US9512699, US9394772, US9347302, US9284826, US9181467, US9133398, US9080441, US9033033, US8997869, US8992771, US8952617, US8936089, US8881424, US8875789, US8863839, US8851177, US8839860, US8770284, US8701788, US8151482, US2014262225, US2014216680, US2014014327, US2013106300, US2013019490, US2010163223, US10132130, US10077760, US10047594,

Abstract:

A oil shale formation may be treated using an in situ thermal process. A mixture of hydrocarbons, H₂, and/or other formation fluids may be produced from the formation. Heat may be applied to the formation to raise a temperature of a portion of the formation to a pyrolysis temperature. Heat sources may be used to heat the formation. The heat sources may be positioned within the formation in a selected pattern.



47) Family number: 31985716 (US2003178191A)

© PatBase

Title: IN SITU RECOVERY FROM A KEROGEN AND LIQUID HYDROCARBON CONTAINING FORMATION
Priority: US20000199213P 20000424 US20000199214P 20000424 US20000199215P 20000424
US20010337427P 20011024 US20010337405P 20011024 US20020375043P 20020424
US20020374999P 20020424 US20020279287 20021024

Family:	Publication number	Publication date	Application number	Application date
	US2003178191 AA	20030925	US20020279287	20021024
	US7011154 BB	20060314	US20020279287	20021024

Probable Assignee: SHELL OIL CO
Assignee(s):(std): SHELL OIL CO
Assignee(s): SHELL OIL COMPANY ; ZHANG ETUAN ; VINEGAR HAROLD J ; WELLINGTON SCOTT LEE ; BERCHENKO ILYA EMIL ; KARANIKAS JOHN MICHAEL ; MAHER KEVIN ALBERT ; ROUFFIGNAC ERIC PIERRE DE
Inventor(s):(std): DE ROUFFIGNAC ERIC PIERRE ; ZHANG ETUAN ; WELLINGTON SCOTT LEE ; VINEGAR HAROLD J ; ROUFFIGNAC ERIC PIERRE DE ; MAHER KEVIN ALBERT ; KARANIKAS JOHN MICHAEL ; BERCHENKO ILYA EMIL
International class C09K8/592 E21B36/00 E21B36/04 E21B41/00 E21B43/24 E21B43/243 E21B43/247 E21B43/26
(IPC 8-9): E21B43/30 (Advanced/Invention);
C09K8/58 E21B36/00 E21B41/00 E21B43/00 E21B43/16 E21B43/25 (Core/Invention)

International class E21B36/04
(IPC 1-7):
CPC: C09K8/592 E21B36/001 E21B36/04 E21B41/0057 E21B43/24 E21B43/2401 E21B43/243 E21B43/247 E21B43/30 Y02C10/14
European class: C09K8/592 E21B36/00B E21B36/04 E21B41/00M2 E21B43/24 E21B43/243 E21B43/247 E21B43/24B E21B43/30 Y02C10/14
US class: 166/245 166/257 166/272.1 166/272.2 166/272.7 166/302 166/308 166/50 166/65.1

[Classification Explorer](#)

Cited documents: WO9901640, WO9850179, WO9701017, WO9533122, WO9512746, WO9512745, WO9512744, WO9512743, WO9512742, WO9506093, WO0181723 A1, WO0181505 A1, USRE36569 E, USRE35696 E, USRE30738 E, USRE30019 E, USRE27309 E, US94813 A, US760304 A, US6880635 BA, US6880633 BA, US6877555 BA, US6877554 BA, US6871707 BA, US6866097 BA, US6820688 BA, US6805195 BA, US6789625 BA, US6782947 BA, US6769485 BA, US6769483 BA, US6763886 BA, US6761216 BA, US6758268 BA, US6752210 BA, US6749021 BA, US6745837 BA, US6745832 BA, US6745831 BA, US6742593 BA, US6742589 BA, US6742588 BA, US6742587 BA, US6739394 BA, US6739393 BA, US6736215 BA, US6732796 BA, US6732795 BA, US6732794 BA, US6729401 BA, US6729397 BA, US6729396 BA, US6729395 BA, US6725928 BA, US6725921 BA, US6725920 BA, US6722431 BA, US6722430 BA, US6722429 BA, US6719047 BA, US6715549 BA, US6715548 BA, US6715547 BA, US6715546 BA, US6712137 BA, US6712136 BA, US6712135 BA, US6708758 BA, US6702016 BA, US6698515 BA, US6688387 BA, US6684948 BA, US6679332 BA, US6609570 BA, US6607033 BA, US6591907 BA, US6591906 BA, US6588504 BA, US6588503 BA, US6584406 BA, US6581684 BA, US6499536 BA, US6485232 BA, US6467543 BA, US6466020 BA, US6429784 BA, US6422318 BA, US6412559 BA, US6389814 BA, US6357526 BA, US6354373 BA, US6353706 BA, US6328104 BA, US6244338 BA, US6234259 BA, US6209640 BA, US6192748 BA, US6187465 BA, US6173775 BA, US6173775 B1, US6172124 BA, US6172124 B1, US6155117 A, US6152987 A, US6112808 A, US6110358 A, US6109358 A, US6102622 A, US6102137 A, US6102122 A, US6094048 A, US6085512 A, US6079499 A, US6065538 A, US6056057 A, US6049508 A, US6035701 A, US6026914 A, US6023554 A, US6019172 A, US6016868 A, US6016867 A, US6015015 A, US5997214 A, US5985138 A, US5984582 A, US5984010 A, US5968349 A, US5955039 A, US5935421 A, US5923170 A, US5899269 A, US5891829 A, US5868202 A, US5862858 A, US5861137 A, US5826655 A, US5777229 A, US5769569 A, US5767584 A, US5760307 A, US5751895 A, US5747750 A, US5725059 A, US5713415 A, US5676212 A, US5665782 A, US5656239 A, US5652389 A, US5632336 A, US5626191 A, US5624188 A, US5621844 A, US5589775 A, US5571403 A, US5566756 A, US5566755 A, US5554453 A, US5553189 A, US5545803 A, US5541517 A, US5539853 A, US5525322 A, US5517593 A, US5515931 A, US5513710 A, US5512830 A, US5498960 A, US5497087 A, US5491969 A, US5456315 A, US5454666 A, US5439054 A, US5437506 A, US5435666 A, US5433271 A, US5431224 A, US5415231 A, US5411104 A, US5411089 A, US5411086 A, US5409071 A, US5404952 A, US5402847 A, US5400430 A, US5392854 A, US5391291 A, US5388645 A, US5388643 A, US5388642 A, US5388641 A, US5388640 A, US5377756 A, US5366012 A, US5363094 A, US5360067 A, US5349859 A, US5343152 A, US5340467 A, US5339904 A, US5339897 A, US5325918 A, US5318116 A, US5316664 A, US5306640 A, US5305829 A, US5305239 A, US5305212 A, US5297626 A, US5295763 A, US5289882 A, US5285846 A, US5284878 A, US5261490 A, US5258755 A, US5255742 A, US5236039 A, US5229583 A, US5229102 A, US5226961 A, US5218301 A, US5217076 A, US5211230 A, US5207273 A, US5201219 A, US5190405 A, US5189283 A, US5182792 A, US5168927 A, US5145003 A, US5126037 A, US5109928 A, US5099918 A, US5097903 A, US5085276 A, US5082055 A, US5082054 A, US5074365 A, US5065818 A, US5064006 A, US5060726 A, US5060287 A, US5059303 A, US5055180 A, US5054551 A, US5050386 A, US5046559 A, US5041210 A, US5027896 A, US5020596 A, US5014788 A, US5011329 A, US5008085 A, US4994093 A, US4988389 A, US4987368 A, US4984594 A, US4983319 A, US4982786 A, US4974425 A, US4933640 A, US4931171 A, US4928765 A, US4927857 A, US4926941 A, US4913065 A, US4912971 A, US48994 A, US4895206 A, US4893504 A, US4886118 A, US4885080 A, US4884455 A, US4883582 A, US4866983 A, US4860544 A, US4856587 A, US4856341 A, US4849360 A, US4848924 A, US4848460 A, US4845434 A, US4831600 A, US4828031 A, US4827761 A, US4823890 A, US4818370 A, US4817711 A, US4815791 A, US4815790 A, US4793656 A, US4791373 A, US4787452 A, US4778586 A, US4776638 A, US4772634 A, US4769606 A, US4769602 A, US4766958 A, US4762425 A, US4756367 A, US4744245 A, US4743854 A, US4737267 A, US4734115 A, US4730162 A, US4728892 A, US4728412 A, US4719423 A, US4716960 A, US4706751 A, US4704514 A, US4702758 A, US4700142 A, US4698149 A, US4696345 A, US4694907 A, US4691771 A, US4683947 A, US4682652 A, US4671102 A, US4669542 A, US4663711 A, US4662443 A, US4662439 A, US4662438 A, US4658215 A, US4651825 A, US4644283 A, US4640353 A, US4640352 A, US4637464 A, US4635197 A, US4634187 A, US4626665 A, US4623444 A, US4616705 A, US4613754 A, US4608818 A, US4605680 A, US4605489 A, US4598772 A, US4598770 A, US4598392 A, US4597444 A, US4597441 A, US4594468 A, US4592423 A, US4585066 A, US4583242 A, US4583046 A, US4577690 A, US4577503 A, US4576231 A, US4573530 A, US4572299 A, US4571491 A, US4570715 A, US4552214 A, US4549396 A, US4544478 A, US4542648 A, US4540882 A, US4537252 A, US4530401 A, US4529939 A, US4524827 A, US4524826 A, US4524113 A, US4518548 A, US4513816 A, US4508170 A, US4502010 A, US4501445 A, US4501326 A, US4499209 A, US4498535 A, US4491179 A, US4489782 A, US4485869 A, US4483398 A, US4479541 A, US4476927 A, US4474238 A, US4463807 A, US4460044 A, US4458767 A, US4458757 A, US4457374 A, US4457365 A, US4456065 A, US4455215 A, US4452491 A, US4448252 A, US4448251 A, US4445574 A, US4444258 A, US4444255 A, US4443762 A, US4442896 A, US4440224 A, US4439307 A, US4437519 A, US4429745 A, US4428700 A, US4425967 A, US4423311 A, US4418752 A, US4415034 A, US4412585 A, US4412124 A, US4410042 A, US4409090 A, US4407973 A, US4401163 A, US4399866 A, US4398151 A, US4397732 A, US4396062 A, US4390973 A, US4390067 A, US4384948 A, US4384614 A, US4384613 A, US4381641 A, US4380930 A, US4378048 A, US4375302 A, US4372398 A, US4366668 A, US4363361 A, US4359687 A, US4353418 A, US4344483 A, US4324292 A, US4323848 A, US4319635 A, US4306621 A, US4305463 A, US4303126 A, US4299285 A, US4299086 A, US4285547 A, US4282587 A, US4277416 A, US4274487 A, US4273188 A, US4265307 A, US4260192 A, US4260018 A, US4252191 A, US4250962 A, US4250230 A, US4243511 A, US4243101 A, US4234230 A, US4228854 A, US4197911 A, US4193451 A, US4186801 A, US4185692 A, US4184548 A, US4183405 A, US4167213 A, US4162707 A, US4160479 A, US4158467 A, US4151877 A, US4148359 A, US4144935 A, US4140181 A, US4140180 A, US4138442 A, US4133825 A, US4130575 A, US4125159 A, US4114688 A, US4099567 A, US4096163 A, US4093026 A, US4093025 A, US4091869 A, US4089374 A, US4089372 A, US4087130 A, US4084637 A, US4076761 A, US4069868 A, US4067390 A, US4065183 A, US4057293 A, US4049053 A, US4048637 A, US4043393 A, US4042026 A, US4031956 A, US4026357 A, US4019575 A, US4018280 A, US4016239 A, US4014575 A, US4010800 A, US4008762 A, US4006778 A, US4005752 A, US3999607 A, US3994341 A, US3994340 A, US3993132 A, US3992148 A, US3987851 A, US3986557 A, US3986556 A, US3986349 A, US3982592 A, US3982591 A, US3973628 A, US3954140 A, US3952802 A, US3948755 A, US3948319 A, US3947683 A, US3947656 A, US3941421 A, US3924680 A, US3922148 A, US3907045 A, US3892270 A, US3882941 A, US3881551 A, US3874733 A, US3870063 A, US3853185 A, US3809159 A, US3804172 A, US3804169 A, US3794116 A, US3779602 A, US3775185 A, US3770398 A, US3766982 A, US3759574 A, US3759328 A, US3700280 A, US3691291 A, US3680633 A, US3675715 A, US3661423 A, US3622071 A, US3618663 A, US3617471 A, US3605890 A, US3599714 A, US3595082 A, US3593790 A, US3580987 A, US3562401 A, US3547193 A, US3529682 A, US3528501 A, US3513913 A, US3502372 A, US3501201 A, US3497000 A, US3477058 A, US345586 A, US3455383 A, US3454365 A, US3434541 A, US3389975 A, US3386508 A, US3380913 A, US3379248 A, US3352355 A, US3349845 A, US3342267 A, US3342258 A, US3338306 A, US3316962 A, US3310109 A, US3302707 A, US3294167 A, US3288648 A, US3285335 A, US3284281 A, US3275076 A, US3273640 A, US3267680 A, US326439 A, US3250327 A, US3246695 A, US3244231 A, US3241611 A, US3237689 A, US3233668 A, US3223166 A, US3221811 A, US3209825 A, US3208531 A, US3207220 A, US3205946 A, US3205944 A, US3205942 A, US3191679 A, US3183675 A, US3182721 A, US3181613 A, US3170842 A, US3165154 A, US3164207 A, US3163745 A, US3149672 A, US3149670 A, US3142336 A, US3139928 A, US3137347 A, US3132692 A,

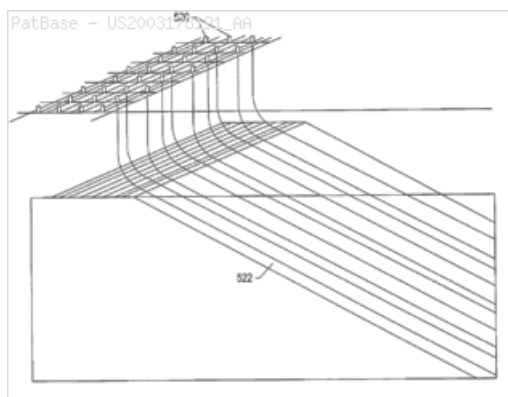
US3131763 A, US3127936 A, US3127935 A, US3120264 A, US3116792 A, US3114417 A, US3113623 A, US3113620 A, US3113619 A, US3110345 A, US3106244 A, US3105545 A, US3095031 A, US3084919 A, US3079085 A, US3062282 A, US3061009 A, US3050123 A, US3048221 A, US3044545 A, US3036632 A, US3032102 A, US3026940 A, US3017168 A, US3016053 A, US3010516 A, US3010513 A, US3007521 A, US3004603 A, US3004601 A, US3004596 A, US2998457 A, US2994376 A, US2974937 A, US2970826 A, US2969226 A, US2958519 A, US2954826 A, US2939689 A, US2932352 A, US2923535 A, US2914309 A, US2906340 A, US2906337 A, US2902270 A, US2890755 A, US2890754 A, US2857002 A, US2841375 A, US2825408 A, US2819761 A, US2804149 A, US2803305 A, US2801089 A, US2793696 A, US2789805 A, US2786660 A, US2780450 A, US2780449 A, US2777679 A, US2771954 A, US2743906 A, US2734579 A, US2732195 A, US27309 A, US2714930 A, US2703621 A, US2695163 A, US2685930 A, US2670802 A, US2642943 A, US2634961 A, US2630307 A, US2630306 A, US2623596 A, US2595979 A, US2593477 A, US2584605 A, US2548360 A, US2497868 A, US2484063 A, US2472445 A, US2466945 A, US2444755 A, US2423674 A, US2375689 A, US2244256 A, US2244255 A, US2005051327 AA, US2005006097 AA, US2004177966 AA, US2004146288 AA, US2004145969 AA, US2004144541 AA, US2004144540 AA, US2004140096 AA, US2004140095 AA, US2004108111 AA, US2004069486 AA, US2004040715 AA, US2004035582 AA, US2004020642 AA, US2004015023 AA, US2003213594 AA, US2003209348 AA, US2003205378 AA, US2003201098 AA, US2003196810 AA, US2003196801 AA, US2003196793 AA, US2003196789 AA, US2003196788 AA, US2003192691 AA, US2003183390 AA, US2003178191 AA, US2003173085 AA, US2003173081 AA, US2003173080 AA, US2003173078 AA, US2003173072 AA, US2003164239 AA, US2003164238 AA, US2003164234 AA, US2003155111 AA, US2003148894 AA, US2003146002 AA, US2003142964 AA, US2003141068 AA, US2003141067 AA, US2003141066 AA, US2003136559 AA, US2003131996 AA, US2003131995 AA, US2003131994 AA, US2003131993 AA, US2003116315 AA, US2003111223 AA, US2003102130 AA, US2003102126 AA, US2003102125 AA, US2003102124 AA, US2003100451 AA, US2003098605 AA, US2003098149 AA, US2003085034 AA, US2003080604 AA, US2003079877 AA, US2003075318 AA, US2003070807 AA, US2003066644 AA, US2003066642 AA, US2003062164 AA, US2003062154 AA, US2003051872 AA, US2003029617 AA, US2003024699 AA, US2003019626 AA, US2003006039 AA, US2002191969 AA, US2002191968 AA, US2002170708 AA, US2002132862 AA, US2002117303 AA, US2002112890 AA, US2002108753 AA, US2002104654 AA, US2002096320 AA, US2002084074 AA, US2002077515 AA, US2002076212 AA, US2002074117 AA, US2002066565 AA, US2002062961 AA, US2002062959 AA, US2002062052 AA, US2002062051 AA, US2002057905 AA, US2002056552 AA, US2002056551 AA, US2002053436 AA, US2002053435 AA, US2002053432 AA, US2002053431 AA, US2002053429 AA, US2002052297 AA, US2002050357 AA, US2002050356 AA, US2002050353 AA, US2002050352 AA, US2002049360 AA, US2002049358 AA, US2002046883 AA, US2002046839 AA, US2002046838 AA, US2002046837 AA, US2002046832 AA, US2002045553 AA, US2002043405 AA, US2002043367 AA, US2002043366 AA, US2002043365 AA, US2002040781 AA, US2002040780 AA, US2002040779 AA, US2002040778 AA, US2002040177 AA, US2002040173 AA, US2002039486 AA, US2002038712 AA, US2002038711 AA, US2002038710 AA, US2002038709 AA, US2002038708 AA, US2002038706 AA, US2002038705 AA, US2002038069 AA, US2002036103 AA, US2002036089 AA, US2002036084 AA, US2002036083 AA, US2002035307 AA, US2002034380 AA, US2002033280 AA, US2002033257 AA, US2002033256 AA, US2002033255 AA, US2002033254 AA, US2002033253 AA, US2002029885 AA, US2002029884 AA, US2002029882 AA, US2002029881 AA, US2002027001 AA, US2002018697 AA, US2002004533 AA, US2001049342 AA, US1913395 A, US1681523 A, US1666488 A, US1646599 A, US1634236 A, US1510655 A, US1457479 A, US1342741 A, US1269747 A, SU1836876, SE126674, SE123138, SE123137, SE123136, SE121737, GB679189, GB674082, GB2086416, GB156396, GB1501310, GB1454324, GB1010023, EP0940558 A1, EP0570228 B1, EP0357314, EP0294809, CA983704, CA2015460, CA1288043, CA1253555, CA1196594, CA1168283, CA1165361,

Forward Citations:

WO13071189, WO13062541, WO09027262, WO07050469, US9951658, US9938861, US9932874, US9915200, US9903588, US9903316, US9903271, US9891331, US9885290, US9869279, US9869247, US9863267, US9835089, US9819292, US9810050, US9803865, US9784185, US9784182, US9784140, US9776794, US9755415, US9752458, US9739122, US9732675, US9732673, US9719682, US9719337, US9708977, US9689309, US9670841, US9644466, US9631815, US9631542, US9618261, US9617914, US9612231, US9611756, US9605524, US9599070, US9599021, US9587510, US9581081, US9574496, US9528322, US9517885, US9512759, US9512699, US9466896, US9463417, US9399905, US9394772, US9353682, US9347302, US9337550, US9309755, US9309050, US9285500, US9262563, US9242800, US9226341, US9222671, US9181780, US9181467, US9146225, US9133398, US9129728, US9127538, US9127523, US9080917, US9080441, US9080409, US9051829, US9048653, US9033042, US9033033, US9027321, US9022118, US9022109, US9016370, US9008884, US8997869, US8992771, US8984857, US8967259, US8954188, US8943686, US8939207, US8936089, US8881806, US8875789, US8863839, US8859942, US8857506, US8857051, US8851177, US8851170, US8839860, US8833453, US8820406, US8816203, US8791396, US8789586, US8770284, US8752904, US8739874, US8734545, US8732946, US8701788, US8701769, US8701768, US8662175, US8641150, US8636323, US8631866, US8627887, US8622133, US8622127, US8616280, US8616279, US8608249, US8606091, US8596355, US8586867, US8586866, US8579031, US8562078, US8555971, US8540020, US8536497, US8502120, US8485847, US8485256, US8485252, US8459359, US8448707, US8434555, US8381815, US8356935, US8355623, US8353347, US8327932, US8327681, US8296968, US8281861, US8276661, US8272455, US8267185, US8267170, US8261832, US8257112, US8256512, US8240774, US8238730, US8233782, US8230929, US8230927, US8225866, US8224165, US8224164, US8224163, US8220539, US8205674, US8200072, US8196658, US8192682, US8191630, US8177305, US8172335, US8162405, US8162059, US8151907, US8151884, US8151880, US8151877, US8151482, US8146669, US8146664, US8146661, US8122955, US8113281, US8113272, US8104537, US8096064, US8087460, US8083813, US8082995, US8071037, US8070840, US8042610, US8028438, US8027571, US8011451, US8006407, US8003844, US7986869, US7975398, US7950453, US7942203, US7942197, US7931086, US7912358, US7909094, US7866388, US7866386, US7866385, US7860377, US7857056, US7849922, US7845411, US7841425, US7841408, US7841401, US7832484, US7832482, US7831134, US7831133, US7809538, US7802377, US7802376, US7798221, US7798220, US7793722, US7785427, US7770643, US7748137, US7735935, US7730947, US7730946, US7730945, US7717171, US7703513, US7683296, US7681647, US7677314, US7677310, US7673786, US7673681, US7669657, US7647972, US7647971, US7644993, US7644765, US7640987, US7640980, US7635025, US7635024, US7635023, US7631691, US7631690, US7631689, US7610962, US7604052, US7597147, US7591310, US7584789, US7581589, US7575053, US7575052, US7562707, US7562706, US7559368, US7559367, US7556096, US7556095, US7549470, US7546873, US7540324, US7533719, US7527094, US7516787, US7516785, US7510000, US7500528, US7490665, US7481274, US7461691, US7441603, US7435037, US7431076, US7424915, US7383877, US7370704, US7360588, US7357180, US7353872, US7331385, US7320364, US7225866, US7219734, US7165615, US7156176, US7128153, US7121342, US7121341, US7114566, US7104319, US7100994, US7096942, US7090013, US7086465, US7077199, US7077198, US7073578, US7066257, US7066254, US7063145, US7055600, US7051811, US7051808, US7051807, US7040400, US7040399, US7040398, US7032660, US7013972, US7011154, US7004251, US7004247, US6997518, US6994169, US6991045, US6991036, US6991033, US6991032, US6981548, US6969123, US6966637, US6964300, US6951247, US6948562, US6932155, US6929067, US6923257, US6918443, US6918442, US6915850, US6880633, US6877555, US6872947, US2015101814, US2014311739, US2014088878, US2011247820, US2011247697, US2011170843, US2011132600, US2011042085, US2011005190, US2011000671, US2010319909, US2010218946, US2010126037, US2010101793, US2010089585, US2009324453, US2009321071, US2009250380, US2009151190, US2009145598, US2009107679, US2009101348, US2009050319, US2009038795, US2009008088, US2008290719, US2008289819, US2008283241, US2008207970, US2008178490, US2008173443, US2008087426, US2008087420, US2007294914, US2007209799, US2007131411, US2007023186, US2007000662, US2006112589, US2005000109, US2004177966, US10227920, US10221762, US10221014, US10215412, US10208677, US10161312, US10145269, US10138815, US10107495, US10100741, US10094566, US10082063, US10079564, US10060359, US10053286,

Abstract:

In an embodiment, a method of treating a kerogen and liquid hydrocarbon containing formation in situ may include providing heat from one or more heat sources to at least a portion of the formation. Heat may be allowed to transfer from the one or more heat sources to a part of the formation. In some embodiments, at least a portion of liquid hydrocarbons in the part may be mobilized. At least a portion of kerogen in the part may be pyrolyzed. In certain embodiments, a pressure within at least a part of the formation may be controlled. The pressure may be controlled to be at least about 2.0 bars absolute. A mixture may be produced from the formation.

**48) Family number: 51779733 (US2012213688A)**

© PatBase

Title:	METHODS OF SEQUESTERING CO2			
Priority:	US20070017405P 20071228	US20080057173P 20080529	US20080073319P 20080617	
	US20080082766P 20080722	US20080088340P 20080812	US20080088347P 20080813	
	US20080101626P 20080930	US20080121872P 20081211	WO2008US88242 20081223	
	WO2008US88246 20081223	US20080344019 20081224	US20100698741 20100202	
	US20120462569 20120502			
Family:	Publication number	Publication date	Application number	Application date
	US2012213688 AA	20120823	US20120462569	20120502
Probable Assignee:	CALERA CORP			
Assignee(s):(std):	CONSTANTZ BRENT R ; DANZIGER ROBERT ; OMELOM SIDNEY ; KIRK DONALD W ; DECKER VALENTIN ; RYAN CECILY ; GILLIAM RYAN J ; FERNANDEZ MIGUEL ; FARSAK KASRA ; TUET PHILIP BRIAN ; WAY J DOUGLAS ; YOUNGS ANDREW ; BARD ALLEN J			
Assignee(s):	CALERA CORP			
Inventor(s):(std):	BARD ALLEN J ; CONSTANTZ BRENT R ; DANZIGER ROBERT ; DECKER VALENTIN ; FARSAK KASRA ; FERNANDEZ MIGUEL ; GILLIAM RYAN J ; KIRK DONALD W ; OMELOM SIDNEY ; RYAN CECILY ; TUET PHILIP BRIAN ; WAY J DOUGLAS ; YOUNGS ANDREW			
International class (IPC 8-9):	B29C39/00 C01B31/00 C01B31/24 C09K3/00 (Advanced/Invention)			
CPC:	Y02W10/33 Y02W10/37 C01F11/18 B01D53/1425 B01D53/1475 B01D53/1493 B01D53/62 B01D53/77 B01D2251/402 B01D2251/404 B01D2257/302 B01D2257/404 B01D2257/504 B01D2257/602 C01F5/24 C01P2004/03 C02F1/66 C02F1/683 C04B7/367 Y02C10/04 Y02C10/06 Y02E60/366 Y02P20/152 Y02P40/18 C01B32/60 Y02P20/133			
European class:	B01D53/14E B01D53/14H6 B01D53/14M B01D53/62 C01B31/24 C01F11/18 C01F5/24 C02F1/68K C04B7/36E4 L01D251/402 L01D251/404 L01D257/302 L01D257/404 L01D257/504 L01D257/602 L01D53/77 M01P4/03 M02F1/66 Y02C10/04 Y02C10/06 Y02E60/36F			
US class:	252/182.32 252/182.320S 264/299 264/299S 423/419.1 423/419.100P			
Classification Explorer				
Cited documents:	US3869255 A, US3321269 A, US2006185985 AA, US2005106110 AA, US2004219090 AA, EP0558275 A1,			
Forward Citations:	US9267211, US9260314, US8894830, US8869477, US8834688,			

Abstract:

Methods of sequestering carbon dioxide (CO₂) are provided. Aspects of the methods include precipitating a storage stable carbon dioxide sequestering product from an alkaline-earth-metal-containing water and then disposing of the product, e.g., by placing the product in a disposal location or using the product as a component of a manufactured composition. Also provided are systems for practicing methods of the invention.



Title:

SUBMERGED COMBUSTION MELTING PROCESSES FOR PRODUCING GLASS AND SIMILAR MATERIALS, AND SYSTEMS FOR CARRYING OUT SUCH PROCESSES

Priority:

US20100817754 20100617 US20110267990 20111007 US20110268028 20111007
US20110268130 20111007 US20110268098 20111007 US20120458211 20120427
US20120493219 20120611 US20120493170 20120611 US20120540771 20120703
US20120644039 20121003 US20150625455 20150218 US20150752556 20150626

Family:

Publication number	Publication date	Application number	Application date
US2013327092 AA	20131212	US20120493219	20120611
US2014090421 AA	20140403	US20120644039	20121003
US2015197440 AA	20150716	US20150625455	20150218
US2016002084 AA	20160107	US20150752556	20150626
US8991215 BB	20150331	US20120644039	20121003
US9096453 BB	20150804	US20120493219	20120611
US9840430 BB	20171212	US20150625455	20150218
US10087097 BB	20181002	US20150752556	20150626
WO13188167 A1	20131219	WO2013US44040	20130604

Probable Assignee:

JOHNS MANVILLE

Assignee(s):(std):

CHARBONNEAU MARK WILLIAM ; JOHNS MANVILLE

Assignee(s):

MANVILLE JOHNS

Inventor(s):(std):

CHARBONNEAU MARK WILLIAM ; SHOCK JEFFREY M

Agent(s):

ROBERT D; TOUSLEE ROBERT D

Designated states:

AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

International class (IPC 8-9):

C03B3/02 C03B5/04 C03B5/167 C03B5/193 C03B5/20 C03B5/225 C03B5/235 C03B5/24 C03B5/26 C03B5/44 C03B7/06 (Advanced/Invention)

CPC:

C03B3/023 C03B5/167 C03B5/205 C03B5/2356 C03B5/44 C03B7/06 C03B2211/22 C03B2211/70 C03B5/24 C03B5/04 C03B5/193 C03B5/202 C03B5/225 C03B5/235 C03B5/2353 C03B2211/40 Y02P40/55

US class:

1/1 65/134.4 65/134.9 65/135.1 65/157 65/162 65/29.21 65/346 65/347

[Classification Explorer](#)

Cited documents:

WO9855411 A1, WO10045196 A3, WO10045196 A2, WO10011701 A2, WO09091558 A1, WO08103291 A1, US9533905 BB, US9227865 BB, US9021838 BB, US8973400 BB, US8875544 BB, US8769992 BB, US8650914 BB, US8424342 BB, US8285411 BB, US8279899 BB, US8033254 BB, US7855267 BB, US7845314 BB, US7832365 BB, US7802452 BB, US7781562 BB, US7778290 BB, US7767606 BB, US7748592 BB, US7624595 BB, US7622677 BB, US7581948 BB, US7578988 BB, US7565819 BB, US7509819 BB, US7475569 BB, US7454925 BB, US7448231 BB, US7441686 BB, US7428827 BB, US7392668 BB, US7383698 BB, US7330634 BB, US7273583 BB, US7231788 BB, US7168395 BB, US7134300 BB, US7116888 BA, US7027467 BB, US6918256 BB, US6883349 BA, US6857999 BB, US6854290 BB, US6797351 BB, US6796147 BB, US6739152 BB, US6736129 BA, US6722161 BB, US6715319 BB, US6711942 BB, US6708527 BA, US6705118 BB, US6701751 BB, US6701617 BB, US6694791 BA, US6660106 BA, US6578779 BB, US6558606 BA, US6536651 BB, US6536238 BB, US6460376 BA, US6454562 BA, US6422041 BA, US6418755 BB, US6386271 BA, US6357264 BA, US6344747 BA, US6338337 BA, US6332339 BA, US6314896 BA, US6314760 BA, US6293277 BA, US6276928 BA, US6276924 BA, US6274164 BA, US6250916 BA, US6250136 BA, US6247315 BA, US6244857 BA, US6244197 BA, US6241514 BA, US6237369 BA, US6210703 BA, US6210151 BA, US6183848 BA, US6178777 BA, US6178777 B1, US6171100 BA, US6171100 B1, US6156285 A, US6154481 A, US6126438 A, US6123542 A, US6116896 A, US6113389 A, US6109062 A, US6085551 A, US6077072 A, US6074197 A, US6071116 A, US6068468 A, US6045353 A, US6039787 A, US6036480 A, US6029910 A, US5993203 A, US5984667 A, US5979191 A, US5975886 A, US5954498 A, US5944864 A, US5887978 A, US5863195 A, US5849058 A, US5833447 A, US5829962 A, US5814121 A, US5765964 A, US5743723 A, US5736476 A, US5718741 A, US5713668 A, US5672827 A, US5636623 A, US5615668 A, US5613994 A, US5606965 A, US5586999 A, US5575637 A, US5545031 A, US5522721 A, US5490775 A, US5483548 A, US5473885 A, US5449286 A, US5405082 A, US5374595 A, US5360171 A, US5299929 A, US5204082 A, US5199866 A, US5169424 A, US5168109 A, US5097802 A, US5062789 A, US5052874 A, US5032230 A, US5011086 A, US4953376 A, US4927886 A, US4919700 A, US4886539 A, US4882736 A, US4877436 A, US4816056 A, US4814387 A, US4798616 A, US4794860 A, US4758259 A, US4738938 A, US4735642 A, US4723708 A, US4657586 A, US4634461 A, US4632687 A, US4626199 A, US4545800 A, US4542106 A, US4539034 A, US4488537 A, US4432780 A, US4424071 A, US4413882 A, US4406683 A, US4405351 A, US4397692 A, US4360373 A, US4349376 A, US4323718 A, US4309204 A, US4303435 A, US4282023 A, US4270740 A, US4249927 A, US4238226 A, US4226564 A, US4205966 A, US4203761 A, US4185982 A, US4153438 A, US4110098 A, US4083711 A, US4028083 A, US4004903 A, US4001001 A, US3976464 A, US3951635 A, US3913560 A, US3907585 A, US3885945 A, US3856496 A, US3840002 A, US3835909 A, US3818893 A, US3810743 A, US3779731 A, US3771988 A, US3764287 A, US3763915 A, US3756800 A, US3754879 A, US3747588 A, US3746527 A, US3738792 A, US3717139 A, US3692017 A, US3627504 A, US3617234 A, US3606825 A, US3600149 A, US3592623 A, US3592151 A, US3573016 A, US3563683 A, US3547611 A, US3533770 A, US3525674 A, US3519412 A, US3510393 A, US3498779 A, US3475151 A, US3445214 A, US3432399 A, US3421873 A, US3420510 A, US3407862 A, US3407805 A, US3402025 A, US3385686 A, US3375095 A, US3325298 A, US3294512 A, US3285834 A, US3268313 A, US3260587 A, US3248206 A, US3248205 A, US3245769 A, US3241548 A, US3237929 A, US3224855 A, US3215189 A, US3174820 A, US3170781 A, US3165452 A, US3160578 A, US3104947 A, US3088812 A, US3084392 A, US3073683 A, US3056283 A, US3020165 A, US2981250 A, US2902029 A, US2890166 A, US2878844 A, US2878644 A, US2781756 A, US2773545 A, US2718096 A, US2679749 A, US2455907 A, US2432942 A, US2269459 A, US2174533 A, US2118479 A, US2014090423 AA, US2014090419 AA, US2014007622 AA, US2013283861 AA, US2013086952 AA, US2013086951 AA, US2013086950 AA, US2013086949 AA, US2013086944 AA, US2013072371 AA, US2012216568 AA, US201213458211, US2012077135 AA, US20111308280 AA, US2011236846 AA, US201113268130, US201113268028, US2011107670 AA, US2011088432 AA, US2011061642 AA, US2011054091 AA, US2010326137 AA, US2010307196 AA, US2010304314 AA, US2010300153 AA, US2010236323 AA, US2010227971 AA, US2010143601 AA, US2010126218 AA, US2010120979 AA, US2010089383 AA, US2010087574 AA, US2010064732 AA, US2009220899 AA, US2009120133 AA, US2009042709 AA, US2008293857 AA, US2008276652 AA, US2008256981 AA, US2008227615 AA, US2008035078 AA, US2007220922 AA, US2007212546 AA, US2007130994 AA, US2007122332 AA, US2007106054 AA, US2006293495 AA, US2006293494 AA, US2006287482 AA, US2006257097 AA, US2006233512 AA, US2006174655 AA, US2006144089 AA, US2006122450 AA, US2006000239 AA, US2005236747 AA, US2005103323 AA, US2005039491 AA, US2004224833 AA, US2004168474 AA, US2004131988 AA, US2003037571 AA, US2003029197 AA, US2003015000 AA, US2003000250 AA, US2002166343 AA, US2002162358 AA, US2002152770 AA, US2002134112 AA, US2002124598 AA, US2002086077 AA, US1989103 A,

NZ529140 A	20050729	NZ20020529140	20020424
PE11222002 A1	20030203	PE20020000345	20020424
US2003098149 AA	20030529	US20020128703	20020424
US2003098605 AA	20030529	US20020131155	20020424
US2003100451 AA	20030529	US20020131153	20020424
US2003102124 AA	20030605	US20020131152	20020424
US2003102125 AA	20030605	US20020128701	20020424
US2003102126 AA	20030605	US20020131354	20020424
US2003102130 AA	20030605	US20020131353	20020424
US2003116315 AA	20030626	US20020128704	20020424
US2003155111 AA	20030821	US20020279225	20021024
US6948562 BB	20050927	US20020128704	20020424
US6964300 BB	20051115	US20020131152	20020424
US6966374 BB	20051122	US20020131353	20020424
US6981548 BB	20060103	US20020128703	20020424
US6991036 BB	20060131	US20020131354	20020424
US7040398 BB	20060509	US20020128701	20020424
US7051807 BB	20060530	US20020131155	20020424
US7055600 BB	20060606	US20020131153	20020424
US7066254 BB	20060627	US20020279225	20021024
US7096942 BA	20060829	US20020128696	20020424
WO02085821 A2	20021031	WO2002US12941	20020424
WO02085821 A3	20131107	WO2002US12941	20020424
WO02086276 A2	20021031	WO2002EP04549	20020424
WO02086276 A3	20030424	WO2002EP04549	20020424

Probable Assignee: SHELL OIL CO

Assignee(s):(std): SHELL CANADA LIMITED ; SHELL OIL COMPANY ; SHELL INT RESEARCH MIJ B ; SHELL OIL CO ; SHELL INT RESEARCH ; SHELL CANADA LTD

Assignee(s): SHELL INT RESEARCH MIJ BV ; SHELL INTERNATIONALE RESEARCHMAATSCHAPPIJ B V ; SHELL INTERNATIONALE RESEARCH MAATSCHAPPIJ B V ; SHELL INTERNATIONALE RESEARCH MAATSCHAPPIJ B ; WELLINGTON SCOTT LEE ; VINEGAR HAROLD J ; SUMNU DINDORUK MELIHA DENIZ ; SHELL INTERNATIONALE RESEARCH MAATSCHAPPIJ BV ; ZHANG ETUAN ; STEGEMEIER GEORGE LEO ; BERCHENKO ILYA EMIL ; CRANE STEVEN DEXTER ; DE ROUFFIGNAC ERIC ; DE ROUFFIGNAC ERIC PIERRE ; DINDORUK MELIHA DENIZ SUMNU ; ROUFFIGNAC ERIC PIERRE DE ; MAHER KEVIN ALBERT ; ROBERTS BRUCE EDMUNDS ; KARANIKAS JOHN MICHAEL ; MESSIER MARGARET ANN ; RYAN ROBERT CHARLES ; SHAHIN GORDON THOMAS ; FOWLER THOMAS DAVID ; MESSIER ANN MARGARET

Inventor(s):(std): BASS RONALD ; BAXLEY PHILIP T ; BERCHENKO ILYA E ; BERCHENKO ILYA EMIL ; BIELAMOWICZ LAWRENCE J ; CARL FRED G ; COLES JOHN M ; CRANE STEVE ; CRANE STEVEN ; CRANE STEVEN D ; CRANE STEVEN DEXTER ; DE ROUFFIGNAC ERIC ; DE ROUFFIGNAC ERIC PIERRE ; DEXTER CRANE STEVEN ; DINDORUK MELIHA ; DINDORUK MELIHA DENIZ ; DINDORUK MELIHA DENIZ SUMNU ; FOWLER THOMAS D ; FOWLER THOMAS DAVID ; GLANDT CARLOS ; HUNSUCKER BRUCE G ; KARANIKAS JOHN M ; KARANIKAS JOHN MICHAEL ; KEEDY CHARLIE R ; LEPPER BRUCE ; MADGAVKAR AJAY M ; MAHER KEVIN ; MAHER KEVIN A ; MAHER KEVIN ALBERT ; MENOTTI JAMES L ; MESSIER ANN ; MESSIER ANN MARGARET ; MESSIER ANNMARGARET ; MESSIER MARGARET ; MESSIER MARGARET ANN ; MICHAEL KARANIKAS JOHN ; MIKUS TOM ; PRATT KIP ; ROBERTS BRUCE ; ROBERTS BRUCE EDMUNDS ; ROUFFIGNAC ERIC PIERRE DE ; RYAN ROBERT C ; RYAN ROBERT CHARLES ; SCHOEHLING LANNY ; SHAHIN GORDON T ; SHAHIN GORDON THOMAS ; STEGEMEIER GEORGE L ; STEGEMEIER GEORGE LEO ; SUMNU DINDORUK MELIHA D ; SUMNU DINDORUK MELIHA DENIZ ; VAN HARDEVELD MARTIJN ; VEENSTRA PETER ; VINEGAR HAROLD ; VINEGAR HAROLD J ; WARD JOHN M ; WATKINS WADE ; WELLINGTON SCOTT ; WELLINGTON SCOTT L ; WELLINGTON SCOTT LEE ; ZHANG ETUAN ; MARGARET MESSIER ANN ; LEE WELLINGTON SCOTT ; KARANIKAS JOHN MICHAEL ; ETUAN ZHANG ; ERIC DE ROUFFIGNAC ; DINDORUK MELIHA DENIZ SUMMU ; ALBERT MAHER KEVIN ; ROUFFIGNAC ERIC DE ; SHAHIN JR GORDON THOMAS

Inventor(s): MELIHA DENIZ SUMNU DINDORUK ; KEVIN ALBERT MAHER ; JOHN MICHAEL KARANIKAS ; HAROLD J VINEGAR ; ANN MARGARET MESSIER ; STEVEN DEXTER CRANE ; SCOTT LEE WELLINGTON ; JR GORDON THOMAS ; SHAHIN

Agent(s): SPRUSON AND FERGUSON; SMART AND BIGGAR

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LI LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NE NL NO NZ OM PH PL PT RO RU SD SE SG SI SK SL SN SZ TD TG TJ TM TN TR TT TZ UA UG UZ VN YU ZA ZM ZW

International class (IPC 8-9): C01B3/24 C10G1/00 C10G47/22 C10G49/00 E21B1/00 E21B17/10 E21B36/00 E21B36/02 E21B36/04 E21B43/14 E21B43/16 E21B43/24 E21B43/243 E21B43/247 E21B43/28 E21B43/295 E21B43/30 E21B43/34 E21B43/40 E21B47/06 E21B47/06 E21B49/00 E21B7/04 (Advanced/Invention); E21B1/00 E21B36/00 E21B43/00 E21B43/16 (Core/Invention)

International class (IPC 1-7): C07C C09K7/00 C10B3/24 C10G1/00 E21B E21B1/00 E21B36/00 E21B36/02 E21B36/04 E21B43/16 E21B43/24 E21B43/243 E21B43/30 E21B43/40 E21B49/00 E21C37/16 E21C37/20

CPC: E21B43/14 E21B43/2406 E21B43/2408 Y10T137/0391 E21B47/065 E21B7/04 E21B17/10 E21B36/00 E21B36/02 E21B36/025 E21B36/04 E21B43/166 E21B43/24 E21B43/243 E21B43/247 E21B43/281 E21B43/30 E21B43/305 Y02C10/14

European class: E21B17/10 E21B36/00 E21B36/02 E21B36/02B E21B36/04 E21B43/14 E21B43/16G E21B43/24 E21B43/243 E21B43/247 E21B43/24S E21B43/24S2 E21B43/28B E21B43/30 E21B43/30B E21B47/06B E21B7/04 Y02C10/14

US class: 137/13 166/245 166/250.01 166/250.15 166/256 166/256S 166/257 166/258 166/261 166/263 166/264 166/266 166/267 166/268 166/272.1 166/272.100P 166/272.3 166/272.7 166/302 166/303 166/303S 166/310 166/313 166/369 166/52 166/52P 166/59 166/6 166/60 166/60S 166/75.12 208/370 299/14 507/100 507/100P 585/1 585/2 703/10 705/1

[Classification Explorer](#)

Cited documents: WO9901640, WO9850179, WO9701017, WO9533122, WO9512746, WO9512745, WO9512744, WO9512743, WO9512742, WO9506093, WO4982786, WO4429745, WO0181723 A1, WO0181505 A1, USRE36569 E, USRE35696 E, USRE30738 E, USRE30019 E, USRE27309 E, US94813 A, US760304 A, US722429 A, US6880635 BA, US6880633 BA, US6877555 BA, US6877554 BA, US6871707 BA, US6866097 BB, US6866097 BA, US6820688 BB, US6820688 BA, US6805195 BB, US6805195 BA, US6789625 BB, US6789625 BA, US6782947 BB, US6782947 BA, US6769485 BB, US6769485 BA, US6769483 BB, US6769483 BA, US6763886 BB, US6763886 BA, US6761216 BB, US6761216 BA, US6758268 BB, US6758268 BA, US6752210 BA, US6752210 BA, US6749021 BB, US6749021 BA, US6745837 BB, US6745837 BA, US6745832 BA, US6745831 BB, US6745831 BA, US6742593 BB, US6742593 BA, US6742589 BB, US6742589 BA, US6742588 BB, US6742588 BA, US6742587 BB,

US6742587 BA, US6739394 BB, US6739394 BA, US6739393 BB, US6739393 BA, US6736215 BB, US6736215 BA, US6732796 BB, US6732796 BA, US6732795 BA, US6732794 BB, US6732794 BA, US6730406 BA, US6729401 BB, US6729401 BA, US6729397 BB, US6729397 BA, US6729396 BB, US6729396 BA, US6729395 BB, US6729395 BA, US6725928 BB, US6725928 BA, US6725921 BB, US6725921 BA, US6725920 BB, US6725920 BA, US6722431 BB, US6722431 BA, US6722430 BB, US6722430 BA, US6722429 BB, US6722429 BA, US6719047 BB, US6719047 BA, US6715549 BB, US6715549 BA, US6715548 BB, US6715548 BA, US6715547 BB, US6715547 BA, US6715546 BB, US6715546 BA, US6712137 BB, US6712137 BA, US6712136 BB, US6712136 BA, US6712135 BB, US6712135 BA, US6708758 BB, US6708758 BA, US6702016 BB, US6702016 BA, US6698515 BB, US6698515 BA, US6688387 BA, US6684948 BA, US6684948 B1, US6679332 BB, US6679332 BA, US6609570 BB, US6609570 BA, US6607033 BB, US6607033 BA, US6591907 BB, US6591907 BA, US6591906 BB, US6591906 BA, US6588504 BB, US6588504 BA, US6588503 BB, US6588503 BA, US6584406 BA, US6581684 BB, US6581684 BA, US6499536 BA, US6485232 BA, US6467543 BA, US6466020 BA, US6429784 BA, US6422318 BA, US6412559 BA, US6389814 BB, US6389814 BA, US6357526 BA, US6354373 BA, US6353706 BA, US6328104 BA, US6244338 BA, US6234259 BA, US6209640 BA, US6192748 BA, US6187465 BA, US6173775 B1, US6172124 B1, US6165538 A, US6155117 A, US6152987 A, US6112808 A, US6110358 A, US6109358 A, US6102622 A, US6102137 A, US6102122 A, US6094048 A, US6085512 A, US6079499 A, US6065538 A, US6056057 A, US6049508 A, US6035701 A, US6026914 A, US6023554 A, US6019172 A, US6016868 A, US6016867 A, US6015015 A, US5997214 A, US5985138 A, US5984582 A, US5984010 A, US5968349 A, US5955039 A, US5935421 A, US5923170 A, US5899269 A, US5891829 A, US5868202 A, US5862858 A, US5861137 A, US5826655 A, US5777229 A, US5769569 A, US5767584 A, US5760307 A, US5751895 A, US5747750 A, US5725059 A, US5713415 A, US5676212 A, US5657826 A, US5656239 A, US5652389 A, US5632336 A, US5626191 A, US5624188 A, US5621844 A, US5589775 A, US5571403 A, US5566756 A, US5566755 A, US5554453 A, US5553189 A, US5545803 A, US5541517 A, US5539853 A, US5525322 A, US5517593 A, US5515931 A, US5513710 A, US5512830 A, US5498960 A, US5497087 A, US5491969 A, US5485089 A, US5456315 A, US5454666 A, US5439054 A, US5437506 A, US5435666 A, US5433271 A, US5431224 A, US5415231 A, US5411104 A, US5411089 A, US5411086 A, US5409071 A, US5404952 A, US5402847 A, US5400430 A, US5392854 A, US5391291 A, US5388645 A, US5388642 A, US5388641 A, US5388640 A, US5377756 A, US5366012 A, US5363094 A, US5360067 A, US5349859 A, US5343152 A, US5340467 A, US5339904 A, US5339897 A, US5325918 A, US5318116 A, US5316664 A, US5316467 A, US5306640 A, US5305829 A, US5305239 A, US5305212 A, US5297626 A, US5295763 A, US5289882 A, US5285846 A, US5284878 A, US5261490 A, US5258755 A, US5255742 A, US5236039 A, US5229583 A, US5229102 A, US5226961 A, US5218301 A, US5217076 A, US5211230 A, US5207273 A, US5201219 A, US5190405 A, US5189283 A, US5182792 A, US5168927 A, US5145003 A, US5126037 A, US5109928 A, US5103920 A, US5099918 A, US5097903 A, US5085276 A, US5082055 A, US5082054 A, US5074365 A, US5065818 A, US5064006 A, US5060726 A, US5060287 A, US5059303 A, US5055180 A, US5054551 A, US5050386 A, US5046559 A, US5041210 A, US5027896 A, US5020596 A, US5014788 A, US5011329 A, US5008085 A, US4994093 A, US4988389 A, US4987368 A, US4984594 A, US4983319 A, US4982786 A, US4974425 A, US4933640 A, US4931171 A, US4928765 A, US4927857 A, US4926941 A, US4913065 A, US4912971 A, US48994 A, US4895206 A, US4893504 A, US4886118 A, US4885080 A, US4884455 A, US4883582 A, US4866983 A, US4860544 A, US4856587 A, US4856341 A, US4849360 A, US4848924 A, US4848460 A, US4845434 A, US4831600 A, US4828031 A, US4827761 A, US4818370 A, US4817711 A, US4815791 A, US4815790 A, US4808925 A, US4793656 A, US4791373 A, US4787452 A, US4778586 A, US4776638 A, US4772634 A, US4769606 A, US4769602 A, US4766958 A, US4762425 A, US4756367 A, US4744245 A, US4743854 A, US4737267 A, US4734115 A, US4730162 A, US4728892 A, US4728412 A, US4719423 A, US4716960 A, US4706751 A, US4704514 A, US4702758 A, US4700142 A, US4698149 A, US4696345 A, US4694907 A, US4691771 A, US4683947 A, US4682652 A, US4671102 A, US4669542 A, US4663711 A, US4662443 A, US4662439 A, US4662438 A, US4658215 A, US4651825 A, US4644283 A, US4640353 A, US4640352 A, US4637464 A, US4635197 A, US4634187 A, US4626665 A, US4623444 A, US4616705 A, US4613754 A, US4608818 A, US4605680 A, US4605489 A, US4598772 A, US4598770 A, US4598392 A, US4597444 A, US4597441 A, US4594468 A, US4592423 A, US4585066 A, US4583242 A, US4583046 A, US4577690 A, US4577503 A, US4576231 A, US4573530 A, US4572299 A, US4571491 A, US4570715 A, US4552214 A, US4549396 A, US4544478 A, US4542648 A, US4540882 A, US4537252 A, US4530401 A, US4529939 A, US4524827 A, US4524826 A, US4524113 A, US4518548 A, US4513816 A, US4508170 A, US4502010 A, US4501445 A, US4501326 A, US4499209 A, US4498535 A, US4491179 A, US4489782 A, US4485869 A, US4485868 A, US4483398 A, US4479541 A, US4476927 A, US4474238 A, US4463807 A, US4460044 A, US4458767 A, US4458757 A, US4457374 A, US4457365 A, US4456065 A, US4455215 A, US4452491 A, US4448252 A, US4448251 A, US4445574 A, US4444258 A, US4444255 A, US4443762 A, US4442896 A, US4440224 A, US4439307 A, US4437519 A, US4429745 A, US4428700 A, US4425967 A, US4423311 A, US4418752 A, US4415034 A, US4412585 A, US4412124 A, US4410042 A, US4409090 A, US4407973 A, US4401163 A, US4439986 A, US4398151 A, US4397732 A, US4396062 A, US4390973 A, US4390067 A, US4384948 A, US4384614 A, US4384613 A, US4381641 A, US4380930 A, US4378048 A, US4375302 A, US4372398 A, US4366668 A, US4363361 A, US4359687 A, US4353418 A, US4344483 A, US4324292 A, US4323848 A, US4319635 A, US4306621 A, US4305463 A, US4303126 A, US4299285 A, US4299086 A, US4285547 A, US4282587 A, US4277416 A, US4274487 A, US4273188 A, US4265307 A, US4260192 A, US4260018 A, US4252191 A, US4250962 A, US4250230 A, US4243511 A, US4243101 A, US4234230 A, US4228854 A, US4197911 A, US4193451 A, US4186801 A, US4185692 A, US4184548 A, US4183405 A, US4167213 A, US4162707 A, US4160479 A, US4158467 A, US4151877 A, US4148359 A, US4144935 A, US4140181 A, US4140180 A, US4138442 A, US4133825 A, US4130575 A, US4125159 A, US4114688 A, US4099567 A, US4096163 A, US4093026 A, US4093025 A, US4091869 A, US4089374 A, US4089372 A, US4087130 A, US4084637 A, US4076761 A, US4069868 A, US4067390 A, US4065183 A, US4057293 A, US4049053 A, US4048637 A, US4043393 A, US4042026 A, US4031956 A, US4026357 A, US4019575 A, US4018280 A, US4016239 A, US4014575 A, US4010800 A, US4008762 A, US4006778 A, US4006773 A, US4005752 A, US3999607 A, US3994341 A, US3994340 A, US3993132 A, US3992148 A, US3987851 A, US3986557 A, US3986556 A, US3986349 A, US3982592 A, US3982591 A, US3973628 A, US3954140 A, US3952802 A, US3948755 A, US3948319 A, US3947683 A, US3947656 A, US3941421 A, US3924680 A, US3922148 A, US3907045 A, US3892270 A, US3882941 A, US3881551 A, US3874733 A, US3870063 A, US3853185 A, US3809159 A, US3804172 A, US3804169 A, US3794116 A, US3779602 A, US3775185 A, US3770398 A, US3766982 A, US3759574 A, US3759328 A, US3700280 A, US3691291 A, US3680633 A, US3675715 A, US3661423 A, US3622071 A, US3618663 A, US3617471 A, US3605890 A, US3599714 A, US3595082 A, US3593790 A, US3580987 A, US3562401 A, US3547193 A, US3529682 A, US3528501 A, US3513913 A, US3502372 A, US3501201 A, US3497000 A, US3477058 A, US3470954 A, US345586 A, US3455383 A, US3454365 A, US3434541 A, US3389975 A, US3386508 A, US3380913 A, US3379248 A, US3352355 A, US3349845 A, US3342267 A, US3342258 A, US3338306 A, US3316962 A, US3310109 A, US3302707 A, US3294167 A, US3288648 A, US3285335 A, US3284281 A, US3275076 A, US3273640 A, US3267680 A, US326439 A, US3250327 A, US3246695 A, US3244231 A, US3241611 A, US3237689 A, US3233668 A, US3223166 A, US3221811 A, US3209825 A, US3208531 A, US3207220 A, US3205946 A, US3205944 A, US3205942 A, US3191679 A, US3183675 A, US3182721 A, US3181613 A, US3170842 A, US3165154 A, US3164207 A, US3163745 A, US3149672 A, US3149670 A, US3142336 A, US3139928 A, US3137347 A, US3132692 A, US3131763 A, US3127936 A, US3127935 A, US3120264 A, US3116792 A, US3114417 A, US3113623 A, US3113620 A, US3113619 A, US3110345 A, US3106244 A, US3105545 A, US3095031 A, US3084919 A, US3079085 A, US3062282 A, US3061009 A, US3050123 A, US3048221 A, US3044545 A, US3036632 A, US3032102 A, US3026940 A, US3017168 A, US3016053 A, US3010516 A, US3010513 A, US3007521 A, US3004603 A, US3004601 A, US3004596 A, US2998457 A, US2994376 A, US2974937 A, US2970826 A, US2969226 A, US2958519 A, US2954826 A, US2939689 A, US2932352 A, US2923535 A, US2914309 A, US2906340 A, US2906337 A, US2902270 A, US2890755 A, US2890754 A, US2857002 A, US2841375 A, US2825408 A, US2819761 A, US2804149 A, US2803305 A, US2801089 A, US2793696 A, US2789805 A, US2786660 A, US2780805 A, US2780450 A, US2780449 A, US2777679 A, US2771954 A, US2743906 A, US2734579 A, US2732195 A, US2714930 A, US2703621 A,

US2695163 A, US2685930 A, US2670802 A, US2642943 A, US2634961 A, US2630307 A, US2630306 A, US2623596 A, US2595979 A, US2593477 A, US2584605 A, US2548360 A, US2497868 A, US2484063 A, US2472445 A, US2466945 A, US2444755 A, US2423674 A, US2390770 A, US2375689 A, US2244256 A, US2244255 A, US2004108111 AA, US2004069486 AA, US2004069484 AA, US2004040715 AA, US2004035582 AA, US2004026042 AA, US2004020642 AA, US2004015023 AA, US2003213594 AA, US2003209348 AA, US2003205378 AA, US2003201098 AA, US2003196810 AA, US2003196801 AA, US2003196793 AA, US2003196791 AA, US2003196789 AA, US2003196788 AA, US2003192693 AA, US2003192691 AA, US2003183390 AA, US2003178191 AA, US2003173085 AA, US2003173082 AA, US2003173081 AA, US2003173080 AA, US2003173078 AA, US2003173072 AA, US2003164239 AA, US2003164238 AA, US2003164234 AA, US2003155111 AA, US2003148894 AA, US2003146002 AA, US2003142964 AA, US2003141068 AA, US2003141067 AA, US2003141066 AA, US2003131996 AA, US2003131995 AA, US2003131994 AA, US2003131993 AA, US2003116315 AA, US2003111223 AA, US2003102130 AA, US2003102126 AA, US2003102125 AA, US2003102124 AA, US2003100451 AA, US2003098605 AA, US2003098149 AA, US2003085034 AA, US2003080604 AA, US2003079877 AA, US2003075318 AA, US2003070807 AA, US2003066644 AA, US2003066642 AA, US2003062164 AA, US2003062154 AA, US2003051872 AA, US2003029617 AA, US2003024699 AA, US2003019626 AA, US2003006039 AA, US2002191969 AA, US2002191968 AA, US2002170708 AA, US2002132862 AA, US2002117303 AA, US2002112987 AA, US2002112890 AA, US2002108753 AA, US2002104654 AA, US2002096320 AA, US2002084074 AA, US2002077515 AA, US2002076212 AA, US2002074117 AA, US2002066565 AA, US2002062961 AA, US2002062959 AA, US2002062052 AA, US2002062051 AA, US2002057905 AA, US2002056552 AA, US2002056551 AA, US2002053436 AA, US2002053435 AA, US2002053432 AA, US2002053431 AA, US2002053429 AA, US2002052297 AA, US2002050357 AA, US2002050356 AA, US2002050353 AA, US2002050352 AA, US2002049360 AA, US2002049358 AA, US2002046883 AA, US2002046839 AA, US2002046838 AA, US2002046837 AA, US2002046832 AA, US2002045553 AA, US2002043405 AA, US2002043367 AA, US2002043366 AA, US2002043365 AA, US2002040781 AA, US2002040780 AA, US2002040779 AA, US2002040778 AA, US2002040177 AA, US2002040173 AA, US2002039486 AA, US2002038712 AA, US2002038711 AA, US2002038710 AA, US2002038709 AA, US2002038708 AA, US2002038706 AA, US2002038705 AA, US2002038069 AA, US2002036103 AA, US2002036089 AA, US2002036084 AA, US2002036083 AA, US2002035307 AA, US2002034380 AA, US2002033280 AA, US2002033257 AA, US2002033256 AA, US2002033255 AA, US2002033254 AA, US2002033253 AA, US2002029885 AA, US2002029884 AA, US2002029882 AA, US2002029881 AA, US2002027001 AA, US2002018697 AA, US2002004533 AA, US2001049342 AA, US1913395 A, US1681523 A, US1666488 A, US1646599 A, US1634236 A, US1510655 A, US1457479 A, US1342741 A, US1269747 A, SU1836876, SE126674, SE123138, SE123137, SE123136, SE121737, GB697189, GB674082, GB2086416, GB1588693, GB156396, GB1501310, GB1454324, GB1010023, EP0940558 A1, EP0570228 B1, EP0357314, EP0294809, CA983704, CA2015460, CA1288043, CA1253555, CA1196594, CA1168283, CA1165361,

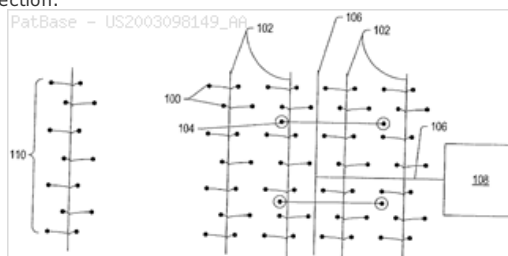
Forward Citations:

WO17091688, WO16195511, WO16010605, WO15017344, WO14062367, WO14062367, WO13110980, WO12174255, WO12037334, WO12037334, WO12037221, WO11146875, WO11146875, WO11113132, WO09129449, WO09129449, WO09129448, WO09129445, WO09129445, WO09103038, WO09016280, WO09016280, WO08143749, WO08143745, WO08131212, WO08131179, WO08131169, WO08131169, WO08051833, WO08051833, WO08051831, WO08051831, WO08051830, WO08051830, WO08051827, WO08051827, WO08051822, WO08051822, WO08030268, WO07090099, WO07050446, WO07050446, WO07050445, US9951658, US9938861, US9932874, US9915200, US9903588, US9903316, US9903271, US9895730, US9885290, US9869279, US9869247, US9869169, US9863267, US9835089, US9835017, US9828551, US9819292, US9810050, US9803865, US9791108, US9784185, US9784182, US9784140, US9776794, US9755415, US9752458, US9739122, US9732675, US9732673, US9719682, US9708977, US9702237, US9689309, US9677392, US9670841, US9661690, US9657549, US9651707, US9644466, US9644464, US9631815, US9631542, US9618261, US9617914, US9611756, US9605524, US9599070, US9599021, US9587510, US9581081, US9574496, US9528322, US9517885, US9512759, US9512699, US9512687, US9512677, US9495786, US9494012, US9482467, US9466896, US9463417, US9417357, US9399905, US9394772, US9388678, US9385531, US9359840, US9356410, US9353682, US9347302, US9337550, US9328594, US9309756, US9309755, US9309050, US9279316, US9242800, US9242190, US9228415, US9226341, US9222671, US9181780, US9181467, US9133779, US9133697, US9133398, US9129728, US9127538, US9127523, US9097110, US9091159, US9080917, US9080441, US9080409, US9051829, US9048653, US9033042, US9033033, US9027321, US9026418, US9022118, US9022109, US9016370, US9015959, US9008884, US9004288, US8997869, US8992771, US8984857, US8973317, US8967259, US8962536, US8961652, US8954188, US8943686, US8939207, US8936090, US8936089, US8925735, US8925632, US8893788, US8881806, US8875789, US8875371, US8863839, US8859942, US8857506, US8857051, US8851177, US8851170, US8849582, US8839860, US8833453, US8820406, US8818777, US8816203, US8791396, US8789586, US8780671, US8775141, US8770284, US8752904, US8739874, US8734545, US8732946, US8701788, US8701770, US8701769, US8701768, US8700371, US8662175, US8641150, US8636323, US8631866, US8627887, US8622133, US8622127, US8616280, US8616279, US8608249, US8607884, US8606091, US8596355, US8586867, US8586866, US8579031, US8573048, US8562078, US8555971, US8540020, US8536497, US8502120, US8490703, US8485847, US8485256, US8485252, US8459359, US8450540, US8448707, US8434555, US8420779, US8408294, US8381815, US8381806, US8371380, US8366918, US8366917, US8365478, US8356935, US8355873, US8355623, US8353347, US8353341, US8353340, US8352227, US8349171, US8327932, US8327681, US8323481, US8313152, US8296968, US8287050, US8281861, US8276661, US8272455, US8271142, US8267481, US8267185, US8267170, US8261832, US8257112, US8256512, US8240774, US8238730, US8233782, US8230929, US8230927, US8225866, US8224165, US8224163, US8220539, US8210265, US8209192, US8206062, US8205674, US8200072, US8196660, US8196658, US8192682, US8191630, US8177305, US8176982, US8172335, US8167960, US8167041, US8162405, US8162059, US8151907, US8151884, US8151880, US8151877, US8151482, US8146669, US8146664, US8146661, US8127865, US8122955, US8113272, US8109047, US8104537, US8091632, US8087460, US8083813, US8082955, US8071037, US8070840, US8057682, US8043829, US8042610, US8028438, US8027571, US8020313, US8011451, US8006407, US8003844, US7986869, US7976241, US7975398, US7967974, US7963720, US7957841, US7950453, US7942203, US7942197, US7931086, US7912358, US7910102, US7909088, US7906014, US7895134, US7895052, US7895051, US7890264, US7866388, US7866386, US7866385, US7862706, US7862705, US7860377, US7857056, US7849922, US7845411, US7841425, US7841408, US7841401, US7834164, US7832484, US7832482, US7831134, US7831133, US7825093, US7820623, US7809538, US7803769, US7802377, US7802376, US7798221, US7798220, US7793722, US7785427, US7770643, US7748137, US7735935, US7730947, US7730946, US7730945, US7726404, US7717171, US7703513, US7683296, US7681647, US7677314, US7677310, US7673786, US7673681, US7669657, US7647972, US7647971, US7644993, US7644769, US7644765, US7640987, US7640980, US7635025, US7635024, US7635023, US7631691, US7631690, US7631689, US7627460, US7610962, US7604052, US7597147, US7591310, US7584789, US7581589, US7575053, US7575052, US7562707, US7562706, US7559368, US7559367, US7556096, US7556095, US7552777, US7549470, US7547799, US7546663, US7540324, US7533719, US7527094, US7516787, US7516785, US7510000, US7500528, US7490665, US7486589, US7484561, US7481274, US7467664, US7461691, US7441603, US7435037, US7431076, US7424915, US7408120, US7392166, US7383877, US7370704, US7367399, US7360588, US7357180, US7353872, US7331385, US7320364, US7225866, US7219734, US7185702, US7165615, US7156176, US7147057, US7128153, US7121342, US7121341, US7114566, US7104319, US7100994, US7096942, US7090013, US7086465, US7077199, US7077198, US7073578, US7066257, US7066254, US7063145, US7055600, US7051811, US7051808, US7051807, US7040400, US7040399, US7040398, US7032675, US7032660, US7013972, US7011154, US7004251, US7004247, US6997518, US6994169, US6991045, US6991036, US6991033, US6991032, US6981548, US6969123, US6966374, US6964300, US6951247, US6948562, US6932155, US6929067, US6923257, US6918443, US6918442, US6915850, US6880633, US6877555, US6872947, US2017081950, US2016086087, US2016063749, US2015353982,

US2015285032, US2015204179, US2015203776, US2015198022, US2015081265, US2015047833, US2015021008, US2015013981, US2014345861, US2014331581, US2014251599, US2014083681, US2013213652, US2013206748, US2013146285, US2012312079, US2012227966, US2012158315, US2012138293, US2012085529, US2012061080, US2012053748, US2012016649, US2011247820, US2011186292, US2011170843, US2011138649, US2011130965, US2011110723, US2011094952, US2011091283, US2011088904, US2011011582, US2010270027, US2010250468, US2010232883, US2010227381, US2010212893, US2010209193, US2010206709, US2010206565, US2010206518, US2010206410, US2010200468, US2010200467, US2010200466, US2010200465, US2010200464, US2010185039, US2010180952, US2010133143, US2010126037, US2010108318, US2010101793, US2010101783, US2010089586, US2010073506, US2010071903, US2010000733, US2009324453, US2009321071, US2009305399, US2009301724, US2009299044, US2009281028, US2009272536, US2009272526, US2009250380, US2009228153, US2009205821, US2009200290, US2009200022, US2009194287, US2009194286, US2009193822, US2009151190, US2009139716, US2009118181, US2009107679, US2009107669, US2009101348, US2009101346, US2009100754, US2009095480, US2009095478, US2009090158, US2009071652, US2009071647, US2009038795, US2009014180, US2009013596, US2009012765, US2008300727, US2008290719, US2008277113, US2008257552, US2008236831, US2008217015, US2008217004, US2008207981, US2008207970, US2008190818, US2008190816, US2008190815, US2008190813, US2008173449, US2008173443, US2008149350, US2008149323, US2008135244, US2008133194, US2008110043, US2008103743, US2008087426, US2008087422, US2008087420, US2008017416, US2008017380, US2007294914, US2007284108, US2007284107, US2007209799, US2007193744, US2007187089, US2007183260, US2007144731, US2007137857, US2007131427, US2007131411, US2007127897, US2007124079, US2007095537, US2007056726, US2007044957, US2007039729, US2007038423, US2007023186, US2007017677, US2007000662, US2006213657, US2006191686, US2006175061, US2006149520, US2006112589, US2006110908, US2006021571, US2005252683, US2005178585, US2005072578, US2005072567, US2005000109, US2004177966, US2004145969, US2004140096, US2004040707, US2003183390, US10227920, US10221762, US10221014, US10215412, US10208677, US10202831, US10161312, US10145269, US10138815, US10119366, US10107495, US10100741, US10094566, US10094183, US10083258, US10082063, US10081994, US10079564, US10060359, US10053286, US10047633, US10047594, US10030588, US10024500, US10012151, US10006271, RU2625829, RU2597039, RU2496979, KR101190326, JP2010520959, JP2010507692, JP2009512799, JP2009512798, GB2491073, GB2486613, GB2485951, GB2470165, GB2470165, GB2462020, GB2455947, GB2455947, GB2430218, GB2430218, FR2918102, EP3315714, EP2745365, EP2695242, EP2486380, EA017711, EA013579, EA012941, CN105555919, CN105473811, CN105370210, CN104428489, CN104024568, CN103987915, CN103987915, CN103917745, CN103080461, CN103080461, CN103003613, CN102758603, CN102383772, CN102383772, CN101427004, AU2010348889, AU2008253749, AU2008242807, AU2008242797, AU2006306472, AU2006306471,

Abstract:

A method for treating a relatively permeable formation containing heavy hydrocarbons in situ may include providing heat from one or more heat sources to a portion of the formation. The heat may be allowed to transfer from the heat sources to a selected section of the formation. The transferred heat may reduce the viscosity of at least some hydrocarbons within the selected section. A gas may be produced to the selected section of the formation. The gas may produce a flow of hydrocarbons within the selected section. A mixture of hydrocarbons may be produced from the selected section.



51) Family number: 24116880 (US2003173080A)

© PatBase

Title: IN SITU THERMAL PROCESSING OF AN OIL SHALE FORMATION USING A PATTERN OF HEAT SOURCES
Priority: US20010286062P 20010424 US20010337249P 20011024 US20020131286 20020424
US20060343913 20060131

Family:	Publication number	Publication date	Application number	Application date
	US2003173080 AA	20030918	US20020131286	20020424
	US2006213657 AA	20060928	US20060343913	20060131
	US6991032 BB	20060131	US20020131286	20020424
	US7225866 BB	20070605	US20060343913	20060131

Probable Assignee: SHELL OIL CO
Assignee(s):(std): SHELL OIL CO
Assignee(s): SHELL OIL COMPANY ; STEGEMEIER GEORGE LEO ; VINEGAR HAROLD J ; WELLINGTON SCOTT LEE ; ZHANG ETUAN ; BERCHENKO ILYA EMIL ; DE ROUFFIGNAC ERIC PIERRE ; FOWLER THOMAS DAVID ; KARANIKAS JOHN MICHAEL ; RYAN ROBERT CHARLES ; SHAHIN GORDON THOMAS
Inventor(s):(std): ZHANG ETUAN ; WELLINGTON SCOTT LEE ; WELLINGTON SCOTT L ; VINEGAR HAROLD J ; STEGEMEIER GEORGE LEO ; STEGEMEIER GEORGE L ; SHAHIN JR GORDON THOMAS ; SHAHIN GORDON THOMAS ; SHAHIN GORDON T JR ; RYAN ROBERT CHARLES ; RYAN ROBERT C ; ROUFFIGNAC ERIC P D ; KARANIKAS JOHN MICHAEL ; KARANIKAS JOHN M ; DE ROUFFIGNAC ERIC PIERRE ; BERCHENKO ILYA EMIL ; BERCHENKO ILYA E ; FOWLER THOMAS DAVID ; FOWLER THOMAS D
Inventor(s): FOWLER THOMAS ; BERCHENKO ILYA ; KARANIKAS JOHN ; ROUFFIGNAC ERIC ; RYAN ROBERT ; ROUFFIGNAC ERIC PD ; SHAHIN GORDON ; SHAHIN GORDON TJR ; STEGEMEIER GEORGE ; VINEGAR HAROLD ; WELLINGTON SCOTT
Agent(s): SHELL OIL COMPANY; SHELL OIL CO
International class (IPC 8-9): E21B43/24 E21B43/243 E21B43/247 E21B43/30 E21B43/34 E21B47/06 E21C41/24 (Advanced/Invention)
International class (IPC 1-7): E21B43/24
CPC: E21B43/24 E21B43/2401 E21B43/243 E21B43/247 E21B43/30
European class: E21B43/243 E21B43/247 E21B43/30
US class: 166/245 166/250.01 166/250.010S 166/250.1 166/256 166/257 166/257S 166/267 166/267S 166/272.1

Cited documents:

WO9901640, WO9850179, WO9701017, WO9533122, WO9512746, WO9512745, WO9512744, WO9512743, WO9512742, WO9506093, WO0181723 A1, WO0181505 A1, USRE35696 E, USRE30738 E, USRE30019 E, USRE27309 E, US94813 A, US760304 A, US7077199 BB, US7077198 BB, US7073578 BB, US7066257 BB, US7066254 BB, US7063145 BB, US7055600 BB, US7051811 BB, US7051807 BB, US7040698 BB, US7040400 BB, US7040399 BB, US7040397 BB, US7036583 BB, US7032660 BB, US7011154 BB, US7004251 BB, US7004247 BB, US6997518 BB, US6997255 BB, US6994169 BB, US6994168 BB, US6994160 BB, US6991032 BB, US6981553 BB, US6981548 BB, US6969123 BB, US6966374 BB, US6966372 BB, US6964300 BB, US6959761 BB, US6953087 BB, US6951247 BB, US6948563 BB, US6948562 BB, US6929067 BB, US6923258 BB, US6923257 BB, US6918443 BB, US6918442 BB, US6915850 BB, US6913078 BB, US6910536 BB, US6902004 BB, US6902003 BB, US6896053 BB, US6889769 BB, US6880635 BB, US6877555 BB, US6877554 BB, US6871707 BB, US6866097 BB, US6820688 BB, US6805195 BB, US6789625 BB, US6782947 BB, US6769485 BB, US6769483 BB, US6763886 BB, US6761216 BB, US6758268 BB, US6752210 BB, US6749021 BB, US6745837 BB, US6745831 BB, US6742593 BB, US6742589 BB, US6742588 BB, US6742587 BB, US6739394 BB, US6739393 BB, US6736215 BB, US6732796 BB, US6732794 BB, US6729401 BB, US6729397 BB, US6729396 BB, US6729395 BB, US6725928 BB, US6725921 BB, US6725920 BB, US6722431 BB, US6722430 BB, US6722429 BB, US6719047 BB, US6715549 BB, US6715548 BB, US6715547 BB, US6715546 BB, US6712137 BB, US6712136 BB, US6712135 BB, US6708758 BB, US6702016 BB, US6698515 BB, US6684948 BA, US6609570 BB, US6607033 BB, US6591907 BB, US6591906 BB, US6588504 BB, US6588503 BB, US6581684 BB, US6499536 BA, US6485232 BA, US6467543 BA, US6422318 BA, US6412559 BA, US6389814 BB, US6357526 BA, US6354373 BA, US6353706 BA, US6328104 BA, US6244338 BA, US6192748 BA, US6187465 BA, US6173775 BA, US6173775 B1, US6172124 BA, US6172124 B1, US6155117 A, US6152987 A, US6112808 A, US6110358 A, US6102622 A, US6102137 A, US6102122 A, US6094048 A, US6085512 A, US6079499 A, US6056057 A, US6035701 A, US6023554 A, US6019172 A, US6016868 A, US6016867 A, US6015015 A, US5997214 A, US5985138 A, US5984582 A, US5984010 A, US5968349 A, US5955039 A, US5935421 A, US5923170 A, US5899269 A, US5891829 A, US5868202 A, US5862858 A, US5861137 A, US5826655 A, US5777229 A, US5767584 A, US5760307 A, US5751895 A, US5713415 A, US5676212 A, US5656239 A, US5652389 A, US5632336 A, US5626191 A, US5624188 A, US5621844 A, US5589775 A, US5571403 A, US55566756 A, US55566755 A, US5554453 A, US5553189 A, US5541517 A, US5539853 A, US5525322 A, US5517593 A, US5498960 A, US5497087 A, US5491969 A, US5456315 A, US5454666 A, US5439054 A, US5437506 A, US5435666 A, US5433271 A, US5431224 A, US5415231 A, US5411104 A, US5411089 A, US5411086 A, US5409071 A, US5404952 A, US5402847 A, US5400430 A, US5392854 A, US5391291 A, US5388645 A, US5388643 A, US5388642 A, US5388641 A, US5388640 A, US5377756 A, US5366012 A, US5349859 A, US5340467 A, US5339904 A, US5339897 A, US5318116 A, US5316664 A, US5306640 A, US5305829 A, US5297626 A, US5295763 A, US5289882 A, US5285846 A, US5284878 A, US5261490 A, US5255742 A, US5236039 A, US5229583 A, US5229102 A, US5226961 A, US5217076 A, US5211230 A, US5207273 A, US5201219 A, US5190405 A, US5189283 A, US5182792 A, US5168927 A, US5145003 A, US5126037 A, US5109928 A, US5099918 A, US5097903 A, US5085276 A, US5082055 A, US5082054 A, US5066852 A, US5065818 A, US5064006 A, US5060726 A, US5060287 A, US5059303 A, US5055180 A, US5054551 A, US5050386 A, US5046559 A, US5020596 A, US5014788 A, US5008085 A, US4994093 A, US4988389 A, US4987368 A, US4984594 A, US4983319 A, US4982786 A, US4974425 A, US4931171 A, US4928765 A, US4927857 A, US4926941 A, US4913065 A, US4912971 A, US48994 A, US4895206 A, US4893504 A, US4886118 A, US4885080 A, US4884455 A, US4883582 A, US4866983 A, US4860544 A, US4856587 A, US4856341 A, US4848924 A, US4828031 A, US4827761 A, US4823890 A, US4818370 A, US4817711 A, US4815790 A, US4793656 A, US4787452 A, US4778586 A, US4776638 A, US4772634 A, US4769606 A, US4769602 A, US4766958 A, US4762425 A, US4756367 A, US4743854 A, US4737267 A, US4734115 A, US4730162 A, US4728892 A, US4728412 A, US4719423 A, US4716960 A, US4706751 A, US4704514 A, US4702758 A, US4698149 A, US4696345 A, US4694907 A, US4691771 A, US4683947 A, US4682652 A, US4671102 A, US4669542 A, US4663711 A, US4662443 A, US4662439 A, US4662438 A, US4658215 A, US4651825 A, US4644283 A, US4640353 A, US4640352 A, US4637464 A, US4635197 A, US4626665 A, US4623444 A, US4616705 A, US4613754 A, US4608818 A, US4605680 A, US4605489 A, US4598772 A, US4598770 A, US4597444 A, US4597441 A, US4594468 A, US4592423 A, US4585066 A, US4583242 A, US4583046 A, US4576231 A, US4573530 A, US4572299 A, US4571491 A, US4570715 A, US4552214 A, US4549396 A, US4542648 A, US4540882 A, US4537252 A, US4530401 A, US4524827 A, US4524826 A, US4524113 A, US4518548 A, US4513816 A, US4508170 A, US4501445 A, US4501326 A, US4499209 A, US4498535 A, US4489782 A, US4485869 A, US4483398 A, US4479541 A, US4476927 A, US4474238 A, US4463807 A, US4460044 A, US4458767 A, US4458757 A, US4457374 A, US4457365 A, US4456065 A, US4446917 A, US4445574 A, US4444258 A, US4444255 A, US4442896 A, US4440224 A, US4437519 A, US4429745 A, US4428700 A, US4423311 A, US4418752 A, US4415034 A, US4412585 A, US4412124 A, US4410042 A, US4409090 A, US4407973 A, US4401163 A, US4399866 A, US4398151 A, US4397732 A, US4396062 A, US4390067 A, US4385661 A, US4384948 A, US4384614 A, US4384613 A, US4381641 A, US4378048 A, US4375302 A, US4366668 A, US4363361 A, US4359687 A, US4353418 A, US4344483 A, US4342492 A, US4319635 A, US4306621 A, US4305463 A, US4303126 A, US4299285 A, US4299086 A, US4277416 A, US4274487 A, US4273188 A, US4265307 A, US4260018 A, US4252191 A, US4250962 A, US4250230 A, US4243101 A, US4228854 A, US4199024 A, US4197911 A, US4193451 A, US4186801 A, US4183405 A, US4160479 A, US4148359 A, US4144935 A, US4140181 A, US4140180 A, US4138442 A, US4133825 A, US4130575 A, US4125159 A, US4114688 A, US4099567 A, US4096163 A, US4093026 A, US4093025 A, US4091869 A, US4089374 A, US4089372 A, US4087130 A, US4084637 A, US4076761 A, US4069868 A, US4067390 A, US4057293 A, US4049053 A, US4048637 A, US4043393 A, US4042026 A, US4031956 A, US4026357 A, US4019575 A, US4018280 A, US4016239 A, US4010800 A, US4008762 A, US4006778 A, US4006773 A, US4005752 A, US3999607 A, US3994341 A, US3994340 A, US3993132 A, US3992148 A, US3987851 A, US3986557 A, US3986556 A, US3986349 A, US3982592 A, US3982591 A, US3973628 A, US3954140 A, US3952802 A, US3948755 A, US3948319 A, US3947683 A, US3947656 A, US3924680 A, US3922148 A, US3907045 A, US3892270 A, US3882941 A, US3870063 A, US3809159 A, US3804172 A, US3804169 A, US3794116 A, US3779602 A, US3775185 A, US3770398 A, US3766982 A, US3759574 A, US3759328 A, US3700280 A, US3691291 A, US3680633 A, US3675715 A, US3661423 A, US3629551 A, US3622071 A, US3618663 A, US3617471 A, US3605890 A, US3599714 A, US3595082 A, US3593790 A, US3580987 A, US3562401 A, US3547193 A, US3529682 A, US3528501 A, US3502372 A, US3501201 A, US3497000 A, US3477058 A, US345586 A, US3455383 A, US3454365 A, US3434541 A, US3389975 A, US3386508 A, US3380913 A, US3379248 A, US3352355 A, US3349845 A, US3342267 A, US3342258 A, US3338306 A, US3316962 A, US3310109 A, US3302707 A, US3294167 A, US3288648 A, US3285335 A, US3284281 A, US3275076 A, US3273640 A, US3267680 A, US326439 A, US3250327 A, US3246695 A, US3244231 A, US3241611 A, US3237689 A, US3233668 A, US3223166 A, US3221811 A, US3209825 A, US3208531 A, US3207220 A, US3205946 A, US3205944 A, US3205942 A, US3191679 A, US3183675 A, US3182721 A, US3181613 A, US3170842 A, US3165154 A, US3164207 A, US3163745 A, US3149672 A, US3149670 A, US3142336 A, US3139928 A, US3137347 A, US3132692 A, US3131763 A, US3127936 A, US3127935 A, US3120264 A, US3116792 A, US3114417 A, US3113623 A, US3113620 A, US3113619 A, US3110345 A, US3106244 A, US3105545 A, US3095031 A, US3084919 A, US3079085 A, US3062282 A, US3061009 A, US3051235 A, US3048221 A, US3044545 A, US3036632 A, US3032102 A, US3026940 A, US3017168 A, US3016053 A, US3010516 A, US3010513 A, US3007521 A, US3004603 A, US3004601 A, US3004596 A, US2998457 A, US2997105 A, US2994376 A, US2974937 A, US2970826 A, US2969226 A, US2958519 A, US2954826 A, US2942223 A, US2939689 A, US2932352 A, US2923535 A, US2914309 A, US2906340 A, US2906337 A, US2902270 A, US2890755 A, US2890754 A, US28957002 A, US2841375 A, US2825408 A, US2819761 A, US2804149 A, US2801089 A, US2793696 A, US2789805 A, US2786660 A, US2780450 A, US2780449 A, US2777679 A, US2771954 A, US2743906 A, US2734579 A, US2732195 A, US2714930 A, US2703621 A, US2695163 A, US2685930 A, US2670802 A, US2642943 A,

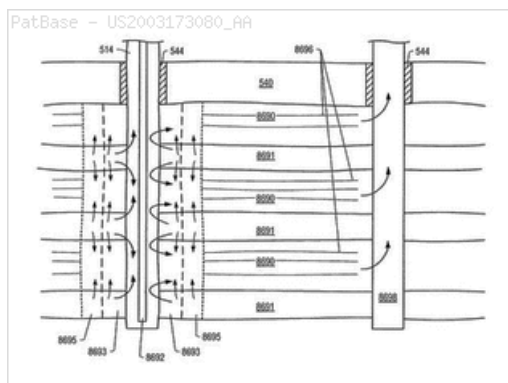
US2634961 A, US2630307 A, US2630306 A, US2623596 A, US2595979 A, US2593477 A, US2584605 A, US2548360 A, US2497868 A, US2484063 A, US2472445 A, US2466945 A, US2444755 A, US2423674 A, US2390770 A, US2244256 A, US2244255 A, US2005051327 AA, US2005006097 AA, US2004177966 AA, US2004145969 AA, US2004144541 AA, US2004144540 AA, US2004140096 AA, US2004140095 AA, US2004108111 AA, US2004069486 AA, US2004040715 AA, US2004020642 AA, US2004015023 AA, US2003213594 AA, US2003209348 AA, US2003205378 AA, US2003201098 AA, US2003196810 AA, US2003196801 AA, US2003196789 AA, US2003196788 AA, US2003192693 AA, US2003192691 AA, US2003183390 AA, US2003178191 AA, US2003173085 AA, US2003173082 AA, US2003173081 AA, US2003173080 AA, US2003173078 AA, US2003173072 AA, US2003164239 AA, US2003164238 AA, US2003164234 AA, US2003155111 AA, US2003148894 AA, US2003146002 AA, US2003142964 AA, US2003141068 AA, US2003141067 AA, US2003141066 AA, US2003131996 AA, US2003131995 AA, US2003131994 AA, US2003131993 AA, US2003116315 AA, US2003111223 AA, US2003102130 AA, US2003102126 AA, US2003102125 AA, US2003102124 AA, US2003100451 AA, US2003098605 AA, US2003098149 AA, US2003085034 AA, US2003080604 AA, US2003079877 AA, US2003075318 AA, US2003070807 AA, US2003066644 AA, US2003066642 AA, US2003062164 AA, US2003062154 AA, US2003051872 AA, US2003024699 AA, US2003019626 AA, US2003006039 AA, US2002191969 AA, US2002191968 AA, US2002170708 AA, US2002132862 AA, US2002117303 AA, US2002112987 AA, US2002112890 AA, US2002108753 AA, US2002104654 AA, US2002096320 AA, US2002084074 AA, US2002077515 AA, US2002076212 AA, US2002074117 AA, US2002066565 AA, US2002062961 AA, US2002062959 AA, US2002062052 AA, US2002062051 AA, US2002057905 AA, US2002056552 AA, US2002056551 AA, US2002053436 AA, US2002053435 AA, US2002053432 AA, US2002053431 AA, US2002053429 AA, US2002052297 AA, US2002050357 AA, US2002050356 AA, US2002050353 AA, US2002050352 AA, US2002049360 AA, US2002049358 AA, US2002046883 AA, US2002046839 AA, US2002046838 AA, US2002046837 AA, US2002046832 AA, US2002045553 AA, US2002043405 AA, US2002043367 AA, US2002043366 AA, US2002043365 AA, US2002040781 AA, US2002040780 AA, US2002040779 AA, US2002040778 AA, US2002040177 AA, US2002040173 AA, US2002039486 AA, US2002038712 AA, US2002038711 AA, US2002038710 AA, US2002038709 AA, US2002038708 AA, US2002038706 AA, US2002038705 AA, US2002038069 AA, US2002036103 AA, US2002036089 AA, US2002036084 AA, US2002036083 AA, US2002035307 AA, US2002034380 AA, US2002033280 AA, US2002033257 AA, US2002033256 AA, US2002033255 AA, US2002033254 AA, US2002033253 AA, US2002029885 AA, US2002029884 AA, US2002029882 AA, US2002029881 AA, US2002027001 AA, US2002018697 AA, US2002004533 AA, US2001049342 AA, US1913395 A, US1681523 A, US1666488 A, US1646599 A, US1634236 A, US1510655 A, US1457479 A, US1342741 A, US1269747 A, SU1836876, SE126674, SE123138, SE123137, SE123136, SE121737, GB697189, GB674082, GB2086416, GB1588693, GB156396, GB1501310, GB1454324, GB1010023, EP0940558 A1, EP0570228 B1, EP0357314, EP0294809, CA983704, CA2015460, CA1288043, CA1253555, CA1196594, CA1168283, CA1165361,

Forward Citations:

WO13180909, WO10045103, WO10009118, WO09129445, WO09129445, WO09108423, WO08131180, WO08131171, WO08131169, WO08131169, WO08098177, WO08051833, WO08051833, WO08048448, WO08048448, WO07050445, US9914879, US9776794, US9755415, US9739122, US9644466, US9605524, US9605523, US9605522, US9528322, US9517885, US9512699, US9482467, US9466896, US9464513, US9417357, US9399907, US9399905, US9394772, US9347302, US9337550, US9309755, US9309050, US9242800, US9242190, US9226341, US9181780, US9181467, US9164194, US9133398, US9129728, US9127538, US9127523, US9080917, US9080441, US9080409, US9051829, US9048653, US9033042, US9033033, US9022118, US9022109, US9016370, US9008884, US8997869, US8992771, US8967260, US8967259, US8961652, US8954188, US8943686, US8939207, US8936089, US8881806, US8875789, US8875371, US8863839, US8859942, US8857506, US8857051, US8851177, US8851170, US8839860, US8833453, US8820406, US8816203, US8791396, US8789586, US8785699, US8770284, US8768672, US8752904, US8739874, US8732946, US8701788, US8701769, US8701768, US8662175, US8641150, US8636323, US8631866, US8627887, US8622133, US8622127, US8616294, US8616280, US8616279, US8608249, US8606091, US8602095, US8596355, US8586867, US8586866, US8579031, US8562078, US8555971, US8548782, US8540020, US8536497, US8502120, US8490703, US8485847, US8485256, US8485254, US8485252, US8464792, US8459359, US8450536, US8448707, US8434555, US8394180, US8381815, US8366918, US8366917, US8365478, US8356935, US8355623, US8353347, US8349171, US8333239, US8327932, US8327681, US8323481, US8296968, US8281861, US8279708, US8276661, US8272455, US8267481, US8267185, US8267170, US8261832, US8257112, US8256512, US8240774, US8238730, US8233782, US8230929, US8230927, US8225866, US8224165, US8224164, US8224163, US8220539, US8205674, US8200072, US8196658, US8192682, US8191630, US8177305, US8172335, US8162405, US8162059, US8162043, US8151907, US8151884, US8151880, US8151877, US8151482, US8146669, US8146664, US8146661, US8137508, US8122955, US8113272, US8109047, US8104537, US8104536, US8087460, US8083813, US8082995, US8071037, US8070840, US8047007, US8042610, US8028438, US8027571, US8025445, US8011451, US8006407, US8003844, US7986869, US7975398, US7967974, US7950453, US7942203, US7942197, US7938183, US7934549, US7931086, US7921907, US7912358, US7906014, US7905288, US7902955, US7883605, US7866388, US7866386, US7866385, US7862706, US7862705, US7860377, US7849922, US7845411, US7841425, US7841408, US7841401, US7832484, US7832482, US7831134, US7831133, US7809538, US7802377, US7802376, US7798221, US7798220, US7793722, US7789164, US7785427, US7770643, US7748137, US7735935, US7730947, US7730946, US7730945, US7717171, US7703513, US7683296, US7681647, US7677314, US7677310, US7673786, US7673681, US7669657, US7650939, US7644765, US7640987, US7640980, US7635025, US7635024, US7635023, US7631691, US7631690, US7631689, US7624801, US7610962, US7604052, US7597147, US7591310, US7584789, US7581589, US7575053, US7575052, US7562707, US7562706, US7559368, US7559367, US7556096, US7556095, US7549470, US7546873, US7540324, US7533719, US7527094, US7510000, US7500528, US7500517, US7490665, US7481274, US7461691, US7435037, US7431076, US7424915, US7398823, US7383877, US7370704, US7360588, US7357180, US7353872, US7320364, US7225866, US7219734, US7185702, US7165615, US7156176, US7128153, US7121342, US7121341, US7114566, US7104319, US7100994, US7096942, US7090013, US7086465, US7077199, US7077198, US7073578, US7066257, US7066254, US7063145, US7055600, US7051811, US7051808, US7051807, US7040400, US7040399, US7040398, US7032660, US7013972, US7011154, US7004251, US7004247, US6997518, US6994169, US6991045, US6991036, US6991033, US6991032, US6981548, US6969123, US6966374, US6964300, US6951247, US6948562, US6932155, US6929067, US6923257, US6918443, US6918442, US6915850, US6880633, US6877555, US6872947, US2015136399, US2014305640, US2013153228, US2011247824, US2011203792, US2011203292, US2011180254, US2011174496, US2011170843, US2011170373, US2011166843, US2011146982, US2011108273, US2011094952, US2011007605, US2010314136, US2010303427, US2010288497, US2010282460, US2010220336, US2010206518, US2010206410, US2010200468, US2010200467, US2010200466, US2010200465, US2010200464, US2010181069, US2010140139, US2010126037, US2010108317, US2010088951, US2010071903, US2009324453, US2009272536, US2009272526, US2009250380, US2009242196, US2009236093, US2009229815, US2009200290, US2009200022, US2009194286, US2009193822, US2009151190, US2009133935, US2009126934, US2009126929, US2009090158, US2009085701, US2009071647, US2009013596, US2009008089, US2008314593, US2008283247, US2008257552, US2008236831, US2008207970, US2008200738, US2008190818, US2008190816, US2008190815, US2008190813, US2008173443, US2008110043, US2008107577, US2008017380, US2008017370, US2008006410, US2007294914, US2007289862, US2007284108, US2007137857, US2007133960, US2007133959, US2007108201, US2007095537, US2007056726, US2007045268, US2007045267, US2006213657, US2006191686, US2006151166, US2006112589, US2005269077, US2005000109, US2004177966, US2004146288, US2004145969, US10221014, US10208254, US10053286, US10047594, US10041342, US10006271, RU2510454, KR101434259, JP5611963, JP2012509419, JP2012503111, JP2010525196, JP2009512798, GB2455947, GB2455947, EA017711, EA013579, CN104956029, CN102119258, CN101981271, AU2009271072, AU2008242808, AU2008242799, AU2008242797, AU2007313394,

Abstract:

A oil shale formation may be treated using an in situ thermal process. A mixture of hydrocarbons, H₂, and/or other formation fluids may be produced from the formation. Heat may be applied to the formation to raise a temperature of a portion of the formation to a pyrolysis temperature. Heat sources may be used to heat the formation. The heat sources may be positioned within the formation in a selected pattern.



52) Family number: 24116884 (US2003079877A)

© PatBase

Title: IN SITU THERMAL PROCESSING OF A RELATIVELY IMPERMEABLE FORMATION IN A REDUCING ENVIRONMENT

Priority: US20010286083P 20010424 US20010340185P 20011024 WO2002US13121 20020424
US20020131349 20020424 US20020128695 20020424 US20020128702 20020424

Family:

Publication number	Publication date	Application number	Application date
AU2002303481 AA	20021105	AU20020303481	20020424
AU2002303481 AH	20091119	AU20020303481	20020424
US2003079877 AA	20030501	US20020128695	20020424
US2003130136 AA	20030710	US20020131349	20020424
US2003131995 AA	20030717	US20020128702	20020424
US6782947 BB	20040831	US20020128702	20020424
US7040400 BB	20060509	US20020131349	20020424
WO02086029 A2	20021031	WO2002US13121	20020424
WO02086029 A3	20091001	WO2002US13121	20020424

Probable Assignee: SHELL OIL CO

Assignee(s):(std): SHELL OIL CO

Assignee(s): SHELL OIL COMPANY ; ZHANG ETUAN ; RYAN ROBERT CHARLES ; WELLINGTON SCOTT LEE ; STEGEMEIER GEORGE LEO ; SHAHIN GORDON THOMAS ; VINEGAR HAROLD J ; KEEDY CHARLES ROBERT ; ROUFFIGNAC ERIC PIERRE DE ; BERCHENKO ILYA EMIL ; DE ROUFFIGNAC ERIC PIERRE ; FOWLER THOMAS DAVID ; HUNSUCKER BRUCE GERARD ; KARANIKAS JOHN MICHAEL

Inventor(s):(std): WELLINGTON SCOTT L ; WELLINGTON SCOTT LEE ; ZHANG ETUAN ; ROUFFIGNAC ERIC DE ; BERCHENKO ILYA EMIL ; DE ROUFFIGNAC ERIC PIERRE ; FOWLER THOMAS DAVID ; HUNSUCKER BRUCE GERARD ; KARANIKAS JOHN M ; KARANIKAS JOHN MICHAEL ; KEEDY CHARLES ROBERT ; KEEDY CHARLIE R ; MADGAVKAR AJAY M ; MAHER KEVIN A ; MENOTTI JAMES L ; ROUFFIGNAC ERIC PIERRE DE ; RYAN ROBERT C ; RYAN ROBERT CHARLES ; HARDEVELD MARTIJN VAN ; WATKINS WADE ; WARD JOHN M ; VEENSTRA PETER ; VAN HARDEVELD MARTIJN ; SUMNU DINDORUK MELIHA D ; STEGEMEIER GEORGE L ; SCHOELING LANNY ; ROBERTS BRUCE ; PRATT KIP ; MIKUS TOM ; MESSIER MARGARET ; LEPPER BRUCE ; HUNSUCKER BRUCE G ; GLANDT CARLOS ; FOWLER THOMAS D ; DE ROUFFIGNAC ERIC ; CRANE STEVE ; COLES JOHN M ; CARL FRED G ; BIELAMOWICZ LAWRENCE J ; BERCHENKO ILYA E ; BAXLEY PHILIP T ; BASS RONALD ; SHAHIN GORDON T ; SHAHIN GORDON THOMAS ; SHAHIN JR GORDON THOMAS ; STEGEMEIER GEORGE LEO ; VINEGAR HAROLD J

Inventor(s): WADE WATKINS ; STEVE CRANE ; THOMAS D FOWLER ; TOM MIKUS ; GORDON T SHAHIN ; GEORGE L STEGEMEIER ; FRED G CARL ; ETUAN ZHANG ; ERIC DE ROUFFIGNAC ; CHARLIE R KEEDY ; CARLOS GLANDT ; BRUCE ROBERTS ; BRUCE LEPPER ; BRUCE G HUNSUCKER ; AJAY M MADGAVKAR ; SCOTT L WELLINGTON ; RONALD BASS ; ROBERT C RYAN ; PHILIP T BAXLEY ; PETER VEENSTRA ; MELIHA D SUMNU DINDORUK ; MARTIJN VAN HARDEVELD ; MARGARET MESSIER ; LAWRENCE J BIELAMOWICZ ; LANNY SCHOELING ; KIP PRATT ; KEVIN A MAHER ; JOHN M WARD ; JOHN M KARANIKAS ; JOHN M COLES ; JAMES L MENOTTI ; ILYA E BERCHENKO ; HAROLD J VINEGAR

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NE NL NO NZ OM PH PL PT RO RU SD SE SG SI SK SL SN SZ TD TG TJ TM TN TR TT TZ UA UG UZ VN YU ZA ZM ZW

International class (TPC 8-9): E21B43/24 E21B43/243 E21B43/247 E21B43/29 E21B43/295 E21B43/30 E21B43/34 E21B43/40 E21B47/06 (Advanced/Invention)

International class (TPC 1-7): C10L E21B1/00 E21B43/24 E21B43/30 E21B43/40 E21B47/06

CPC: E21B43/243 E21B43/247 E21B43/30

European class: E21B43/243 E21B43/247 E21B43/30

US class: 166/245 166/250.01 166/257 166/266 166/267 166/272.1 166/272.100P 166/302 166/57 166/59 166/60 507/200 507/200P 585/1 585/2

[Classification Explorer](#)

Cited documents: WO9901640, WO9850179, WO9701017, WO9533122, WO9512746, WO9512745, WO9512744, WO9512743, WO9512742, WO9506093, WO0181723 A1, WO0181505 A1, USRE35696 E, USRE30738 E, USRE30019 E, USRE27309 E, US94813 A, US760304 A, US6820688 BA, US6805195 BA, US6789625 BA, US6782947 BA, US6769485 BA, US6769483 BA, US6763886 BA, US6761216 BA, US6758268 BA, US6752210 BA, US6749021 BA, US6745837 BA, US6745832 BA, US6745831 BB, US6745831 BA, US6742593 BA, US6742589 BA, US6742588 BA, US6742587 BA, US6739394 BA, US6739393 BA, US6736215 BA, US6732796 BA, US6732795 BA, US6732794 BA, US6729401 BA, US6729397 BA, US6729396 BA, US6729395 BA, US6725928 BA, US6725921 BA, US6725920 BA, US6722431 BA,

US6722430 BA, US6722429 BA, US6719047 BA, US6715549 BA, US6715548 BA, US6715547 BA, US6715546 BA, US6712137 BA, US6712136 BA, US6712135 BA, US6708758 BA, US6702016 BA, US6698515 BA, US6688387 BA, US6684948 BA, US6679332 BA, US6609570 BB, US6609570 BA, US6607033 BB, US6607033 BA, US6591907 BB, US6591906 BB, US6591906 BA, US6588504 BB, US6588504 BA, US6588503 BB, US6588503 BA, US6584406 BA, US6581684 BB, US6581684 BA, US6499536 BA, US6485232 BA, US6467543 BA, US6429784 BA, US6422318 BA, US6412559 BA, US6389814 BA, US6357526 BA, US6354373 BA, US6353706 BA, US6328104 BA, US6244338 BA, US6209640 BA, US6192748 BA, US6187465 BA, US6173775 B1, US6172124 B1, US6155117 A, US6152987 A, US6112808 A, US6110358 A, US6102622 A, US6102137 A, US6102122 A, US6094048 A, US6085512 A, US6079499 A, US6065538 A, US6056057 A, US6049508 A, US6035701 A, US6023554 A, US6019172 A, US6016868 A, US6016867 A, US6015015 A, US5997214 A, US5985138 A, US5984582 A, US5984010 A, US5968349 A, US5955039 A, US5935421 A, US5923170 A, US5899269 A, US5891829 A, US5868202 A, US5862858 A, US5861137 A, US5826655 A, US5777229 A, US5767584 A, US5760307 A, US5751895 A, US5747750 A, US5713415 A, US5676212 A, US5656239 A, US5652389 A, US5632336 A, US5626191 A, US5624188 A, US5621844 A, US5589775 A, US5571403 A, US5566756 A, US5566755 A, US5554453 A, US5553189 A, US5541517 A, US5539853 A, US5525322 A, US5517593 A, US5498960 A, US5497087 A, US5491969 A, US5485089 A, US5456315 A, US5454666 A, US5439054 A, US5437506 A, US5435666 A, US5433271 A, US5431224 A, US5415231 A, US5411104 A, US5411089 A, US5411086 A, US5409071 A, US5404952 A, US5402847 A, US5400430 A, US5392854 A, US5391291 A, US5388645 A, US5388643 A, US5388642 A, US5388641 A, US5388640 A, US5377756 A, US5366012 A, US5363094 A, US5349859 A, US5340467 A, US5339904 A, US5339897 A, US5325918 A, US5318116 A, US5316664 A, US5306640 A, US5305829 A, US5297626 A, US5295763 A, US5289882 A, US5285846 A, US5284878 A, US5261490 A, US5255742 A, US5236039 A, US5229583 A, US5229102 A, US5226961 A, US5217076 A, US5211230 A, US5207273 A, US5201219 A, US5190405 A, US5189283 A, US5182792 A, US5168927 A, US5145003 A, US5126037 A, US5109928 A, US5103920 A, US5099918 A, US5097903 A, US5085276 A, US5082055 A, US5082054 A, US5065818 A, US5064006 A, US5060726 A, US5060287 A, US5059303 A, US5055180 A, US5054551 A, US5050386 A, US5046559 A, US5041210 A, US5027896 A, US5020596 A, US5014788 A, US5008085 A, US4994093 A, US4988389 A, US4987368 A, US4984594 A, US4983319 A, US4982786 A, US4974425 A, US4931171 A, US4928765 A, US4927857 A, US4926941 A, US4913065 A, US4912971 A, US48994 A, US4895206 A, US4893504 A, US4886118 A, US4885080 A, US4884455 A, US4883582 A, US4866983 A, US4860544 A, US4856587 A, US4856341 A, US4848924 A, US4831600 A, US4828031 A, US4827761 A, US4818370 A, US4817711 A, US4815790 A, US4808925 A, US4793656 A, US4787452 A, US4778586 A, US4776638 A, US4772634 A, US4769606 A, US4769602 A, US4766958 A, US4762425 A, US4756367 A, US4743854 A, US4737267 A, US4734115 A, US4730162 A, US4728892 A, US4728412 A, US4719423 A, US4716960 A, US4706751 A, US4704514 A, US4702758 A, US4698149 A, US4696345 A, US4694907 A, US4691771 A, US4683947 A, US4682652 A, US4671102 A, US4669542 A, US4663711 A, US4662443 A, US4662439 A, US4662438 A, US4658215 A, US4651825 A, US4644283 A, US4640353 A, US4640352 A, US4637464 A, US4635197 A, US4626665 A, US4623444 A, US4616705 A, US4613754 A, US4608818 A, US4605680 A, US4605489 A, US4598772 A, US4598770 A, US4597444 A, US4597441 A, US4594468 A, US4592423 A, US4585066 A, US4583242 A, US4583046 A, US4576231 A, US4573530 A, US4572299 A, US4571491 A, US4570715 A, US4552214 A, US4549396 A, US4544478 A, US4542648 A, US4540882 A, US4537252 A, US4530401 A, US4524827 A, US4524826 A, US4524113 A, US4518548 A, US4513816 A, US4508170 A, US4501445 A, US4501326 A, US4499209 A, US4498535 A, US4489782 A, US4485869 A, US4483398 A, US4479541 A, US4476927 A, US4474238 A, US4463807 A, US4460044 A, US4458767 A, US4458757 A, US4457374 A, US4457365 A, US4456065 A, US4448252 A, US4448251 A, US4445574 A, US4444258 A, US4444255 A, US4442896 A, US4440224 A, US4439307 A, US4437519 A, US4429745 A, US4428700 A, US4423311 A, US4418752 A, US4415034 A, US4412585 A, US4412124 A, US4410042 A, US4409090 A, US4407973 A, US4401163 A, US4399866 A, US4398151 A, US4397732 A, US4396062 A, US4390067 A, US4384948 A, US4384614 A, US4384613 A, US4381641 A, US4378048 A, US4375302 A, US4366668 A, US4363361 A, US4359687 A, US4353418 A, US4344483 A, US4324292 A, US4319635 A, US4306621 A, US4305463 A, US4303126 A, US4299285 A, US4299086 A, US4285547 A, US4277416 A, US4274487 A, US4273188 A, US4265307 A, US4260192 A, US4260018 A, US4252191 A, US4250962 A, US4250230 A, US4243511 A, US4243101 A, US4234230 A, US4228854 A, US4197911 A, US4193451 A, US4186801 A, US4183405 A, US4167213 A, US4160479 A, US4151877 A, US4148359 A, US4144935 A, US4140181 A, US4140180 A, US4138442 A, US4133825 A, US4130575 A, US4125159 A, US4114688 A, US4099567 A, US4096163 A, US4093026 A, US4093025 A, US4091869 A, US4089374 A, US4089372 A, US4087130 A, US4084637 A, US4076761 A, US4069868 A, US4067390 A, US4065183 A, US4057293 A, US4049053 A, US4048637 A, US4043393 A, US4042026 A, US4031956 A, US4026357 A, US4019575 A, US4018280 A, US4016239 A, US4010800 A, US4008762 A, US4006778 A, US4005752 A, US3999607 A, US3994341 A, US3994340 A, US3993132 A, US3992148 A, US3987851 A, US3986557 A, US3986556 A, US3986349 A, US3982592 A, US3982591 A, US3973628 A, US3954140 A, US3952802 A, US3948755 A, US3948319 A, US3947683 A, US3947656 A, US3924680 A, US3922148 A, US3907045 A, US3892270 A, US3882941 A, US3870063 A, US3809159 A, US3804172 A, US3804169 A, US3794116 A, US3779602 A, US3775185 A, US3770398 A, US3766982 A, US3759574 A, US3759328 A, US3700280 A, US3691291 A, US3680633 A, US3675715 A, US3661423 A, US3622071 A, US3618663 A, US3617471 A, US3605890 A, US3599714 A, US3595082 A, US3593790 A, US3580987 A, US3562401 A, US3547193 A, US3529682 A, US3528501 A, US3502372 A, US3501201 A, US3497000 A, US3477058 A, US345586 A, US3455383 A, US3454365 A, US3434541 A, US3389975 A, US3386508 A, US3380913 A, US3379248 A, US3352355 A, US3349845 A, US3342267 A, US3342258 A, US3338306 A, US3316962 A, US3310109 A, US3302707 A, US3294167 A, US3288648 A, US3285335 A, US3284281 A, US3275076 A, US3273640 A, US3267680 A, US326439 A, US3250327 A, US3246695 A, US3244231 A, US3241611 A, US3237689 A, US3233668 A, US3223166 A, US3221811 A, US3209825 A, US3208531 A, US3207220 A, US3205946 A, US3205944 A, US3205942 A, US3191679 A, US3183675 A, US3182721 A, US3181613 A, US3170842 A, US3165154 A, US3164207 A, US3163745 A, US3149672 A, US3149670 A, US3142336 A, US3139928 A, US3137347 A, US3132692 A, US3131763 A, US3127936 A, US3127935 A, US3120264 A, US3116792 A, US3114417 A, US3113623 A, US3113620 A, US3113619 A, US3110345 A, US3106244 A, US3105545 A, US3095031 A, US3084919 A, US3079085 A, US3062282 A, US3061009 A, US3048221 A, US3044545 A, US3036632 A, US3032102 A, US3026940 A, US3017168 A, US3016053 A, US3010516 A, US3010513 A, US3007521 A, US3004603 A, US3004601 A, US3004596 A, US2998457 A, US2994376 A, US2974937 A, US2970826 A, US2969226 A, US2958519 A, US2954826 A, US2939689 A, US2932352 A, US2923535 A, US2914309 A, US2906340 A, US2906337 A, US2902270 A, US2890755 A, US2890754 A, US2857002 A, US2841375 A, US2825408 A, US2819761 A, US2804149 A, US2801089 A, US2793696 A, US2789805 A, US2786660 A, US2780450 A, US2780449 A, US2777679 A, US2771954 A, US2743906 A, US2734579 A, US2732195 A, US2714930 A, US2703621 A, US2695163 A, US2685930 A, US2670802 A, US2642943 A, US2634961 A, US2630307 A, US2630306 A, US2623596 A, US2595979 A, US2593477 A, US2584605 A, US2548360 A, US2497868 A, US2484063 A, US2472445 A, US2466945 A, US2444755 A, US2423674 A, US2390770 A, US2244256 A, US2244255 A, US2004108111 AA, US2004069486 AA, US2004040715 AA, US2004020642 AA, US2004015023 AA, US2003213594 AA, US2003209348 AA, US2003205378 AA, US2003201098 AA, US2003196810 AA, US2003196801 AA, US2003196789 AA, US2003196788 AA, US2003192693 AA, US2003192691 AA, US2003183390 AA, US2003178191 AA, US2003173085 AA, US2003173082 AA, US2003173081 AA, US2003173080 AA, US2003173078 AA, US2003173072 AA, US2003164239 AA, US2003164238 AA, US2003164234 AA, US2003155111 AA, US2003148894 AA, US2003146002 AA, US2003142964 AA, US2003141068 AA, US2003141067 AA, US2003141066 AA, US2003131996 AA, US2003131995 AA, US2003131994 AA, US2003131993 AA, US2003116315 AA, US2003111223 AA, US2003102130 AA, US2003102126 AA, US2003102125 AA, US2003102124 AA, US2003100451 AA, US2003098605 AA, US2003098149 AA, US2003085034 AA, US2003080604 AA, US2003079877 AA, US2003075318 AA, US2003070807 AA, US2003066644 AA, US2003066642 AA, US2003062164 AA, US2003062154 AA, US2003051872 AA, US2003029617 AA, US2003024699 AA, US2003019626 AA, US2003006039 AA, US2002191969 AA, US2002191968 AA, US2002170708 AA, US2002132862 AA, US2002117303 AA, US2002112987 AA,

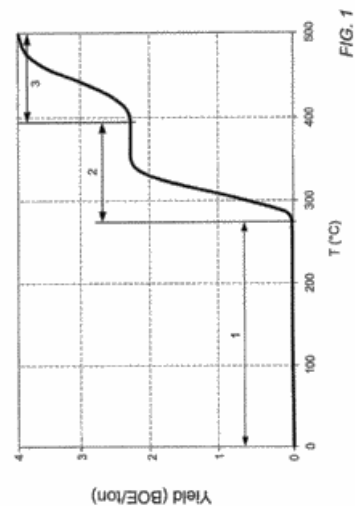
US2002112890 AA, US2002108753 AA, US2002104654 AA, US2002096320 AA, US2002084074 AA, US2002077515 AA, US2002076212 AA, US2002074117 AA, US2002066565 AA, US2002062961 AA, US2002062959 AA, US2002062052 AA, US2002062051 AA, US2002057905 AA, US2002056552 AA, US2002056551 AA, US2002053436 AA, US2002053435 AA, US2002053432 AA, US2002053431 AA, US2002053429 AA, US2002052297 AA, US2002050357 AA, US2002050356 AA, US2002050353 AA, US2002050352 AA, US2002049360 AA, US2002049358 AA, US2002046883 AA, US2002046839 AA, US2002046838 AA, US2002046837 AA, US2002046832 AA, US2002045553 AA, US2002043405 AA, US2002043367 AA, US2002043366 AA, US2002043365 AA, US2002040781 AA, US2002040780 AA, US2002040779 AA, US2002040778 AA, US2002040177 AA, US2002040173 AA, US2002039486 AA, US2002038712 AA, US2002038711 AA, US2002038710 AA, US2002038709 AA, US2002038708 AA, US2002038706 AA, US2002038705 AA, US2002038069 AA, US2002036103 AA, US2002036089 AA, US2002036084 AA, US2002036083 AA, US2002035307 AA, US2002034380 AA, US2002033280 AA, US2002033257 AA, US2002033256 AA, US2002033255 AA, US2002033254 AA, US2002033253 AA, US2002029885 AA, US2002029884 AA, US2002029882 AA, US2002029881 AA, US2002027001 AA, US2002018697 AA, US2002004533 AA, US2001049342 AA, US1913395 A, US1681523 A, US1666488 A, US1646599 A, US1634236 A, US1510655 A, US1457479 A, US1342741 A, US1269747 A, SU1836876, SE126974, SE126674, SE123138, SE123137, SE123137, SE123136, SE123136, SE121737, SE121737, GB697189, GB674082, GB2086416, GB1588693, GB156396, GB1501310, GB1454324, GB1010023, EP0940558 A1, EP0570228 B1, EP0570228, EP0357314, EP0294809, CA983704, CA2015460, CA1288043, CA1253555, CA1196594, CA1168283, CA1165361,

Forward Citations:

WO17197489, WO17161441, WO14177188, WO13110980, WO11127292, WO10144872, WO10051458, WO08143749, WO08143745, US9951658, US9938861, US9932874, US9915200, US9903588, US9903316, US9903271, US9885290, US9874077, US9869279, US9869247, US9863267, US9835089, US9819292, US9810050, US9803865, US9784185, US9784182, US9784140, US9776794, US9755415, US9752458, US9739482, US9739122, US9732675, US9732673, US9719682, US9708977, US9689309, US9689207, US9670841, US9661690, US9644466, US9631815, US9631542, US9618261, US9617914, US9611756, US9605524, US9599070, US9599021, US9587510, US9581081, US9574496, US9528322, US9517885, US9512759, US9512699, US9466896, US9463417, US9399905, US9394772, US9376885, US9356410, US9353682, US9347302, US9337550, US9309755, US9309050, US9267211, US9260314, US9242800, US9226341, US9222671, US9181780, US9181467, US9151125, US9133581, US9133398, US9129728, US9127538, US9127523, US9097110, US9080917, US9080441, US9080409, US9051829, US9048653, US9033042, US9033033, US9027321, US9022118, US9022109, US9016370, US9008884, US8997869, US8992771, US8984857, US8967259, US8954188, US8943686, US8939207, US8936089, US8899331, US8894830, US8883104, US8881806, US8875789, US8869477, US8863839, US8859942, US8857506, US8857051, US8851177, US8851170, US8839860, US8834688, US8833453, US8820406, US8816203, US8791396, US8789586, US8770284, US8752904, US8739874, US8734545, US8732946, US8701788, US8701769, US8701768, US8662175, US8641150, US8636323, US8631866, US8627887, US8622133, US8622127, US8616280, US8616279, US8608249, US8606091, US8603424, US8596355, US8586867, US8586866, US8579031, US8562078, US8555971, US8540020, US8536497, US8522872, US8502120, US8491858, US8485847, US8485256, US8485252, US8470275, US8459359, US8448707, US8434555, US8431100, US8381815, US8381814, US8357270, US8356935, US8355623, US8353347, US8353345, US8333944, US8327932, US8327681, US8296968, US8281861, US8276661, US8272455, US8272437, US8267185, US8267170, US8261832, US8257112, US8256512, US8255195, US8240774, US8238730, US8233782, US8230929, US8230927, US8225866, US8224165, US8224164, US8224163, US8220539, US8212088, US8205674, US8200072, US8196658, US8192682, US8191630, US8186028, US8177305, US8172335, US8162405, US8162059, US8162049, US8151907, US8151884, US8151880, US8151877, US8151482, US8146669, US8146664, US8146661, US8137444, US8122955, US8113272, US8109094, US8104537, US8091639, US8087460, US8083813, US8082995, US8079417, US8071037, US8070840, US8042610, US8028438, US8027571, US8011451, US8006446, US8006407, US7993511, US7993500, US7986869, US7975398, US7966250, US7956479, US7950453, US7942203, US7942197, US7939336, US7931809, US7931086, US7918271, US7914685, US7912358, US7875163, US7866388, US7866386, US7866385, US7860377, US7857056, US7849922, US7845411, US7841425, US7841408, US7841401, US7832484, US7832482, US7831134, US7831133, US7815880, US7809538, US7802377, US7802376, US7798221, US7798220, US7793722, US7785427, US7771684, US7770643, US7754169, US7753618, US7749476, US7748137, US7744761, US7735935, US7730951, US7730947, US7730946, US7730945, US7717171, US7703513, US7683296, US7681647, US7677314, US7677310, US7673786, US7673681, US7669657, US7653488, US7647972, US7647971, US7644993, US7644765, US7640987, US7640980, US7635025, US7635024, US7635023, US7631691, US7631690, US7631689, US7610962, US7608743, US7605293, US7604052, US7597147, US7591310, US7584789, US7581589, US7575053, US7575052, US7562707, US7562706, US7559368, US7559367, US7556096, US7556095, US7549470, US7546873, US7540324, US7533719, US7527094, US7516787, US7516785, US7510000, US7500528, US7490665, US7481274, US7461691, US7441603, US7435037, US7431076, US7424915, US7383877, US7370704, US7360588, US7357180, US7353872, US7331385, US7320364, US7225871, US7225866, US7219734, US7185702, US7165615, US7156176, US7152675, US7128153, US7121342, US7121341, US7114566, US7104319, US7100994, US7096953, US7096942, US7090013, US7086468, US7086465, US7077199, US7077198, US7073578, US7066257, US7066254, US7063145, US7055600, US7051811, US7051808, US7051807, US7040400, US7040399, US7040398, US7040397, US7032660, US7017661, US7013972, US7011154, US7004251, US7004247, US7000711, US6997518, US6997255, US6994169, US6994160, US6991045, US6991036, US6991033, US6991032, US6981548, US6973967, US6969123, US6966374, US6966372, US6964300, US6959761, US6953087, US6951247, US6948562, US6932155, US6929067, US6923258, US6923257, US6918443, US6918442, US6915850, US6913078, US6902004, US6896053, US6880633, US6877555, US68782947, US2013269935, US2013264058, US2013166263, US2012138293, US2012110845, US2011303423, US2011259591, US2011198084, US2011174507, US2011170843, US2011029293, US2011027739, US2011011591, US2010314105, US2010250206, US2010243639, US2010236987, US2010236242, US2010126727, US2010126037, US2010116683, US2010108317, US2010101783, US2010077691, US2010071904, US2010063902, US2010051859, US2010044039, US2010032156, US2010024686, US2010000444, US2009324453, US2009301352, US2009283260, US2009272545, US2009272511, US2009272129, US2009260833, US2009151190, US2009107679, US2009101348, US2009100657, US2009071647, US2009055098, US2009038795, US2009001020, US2008302523, US2008290719, US2008207970, US2008087426, US2008087420, US2007294914, US2007254969, US2007214878, US2007209799, US2007131428, US2007131411, US2007023186, US2007000662, US2006235091, US2006191686, US2006112589, US2006076135, US2005173156, US2005109504, US2005051327, US2005000109, US2003209348, US2003183390, US2003131994, US2002038069, US10227920, US10221762, US10221014, US10215412, US10215399, US10208677, US10161312, US10145269, US10138815, US10119366, US10107495, US10100741, US10094566, US10082063, US10079564, US10060359, US10053286, US10047633, US10047594, US10030588, US10012151, GB2430455, GB2430455, GB2430454, GB2430454, GB2430218, GB2430218, EP2745365, EP2695242, EP2486380, CN104956029, CN104428489, CN102834586, AU2011237496, AU2009287463, AU2008253753, AU2008253749,

Abstract:

A method for treating a relatively low permeability formation containing heavy hydrocarbons in situ may include providing heat from one or more heat sources to a portion of the formation. The heat may be allowed to transfer from the heat sources to a selected section of the formation. The transferred heat may pyrolyze at least some hydrocarbons within the selected section. A mixture of hydrocarbons may be produced from the selected section. In some embodiments, a reducing environment may be maintained in a portion of the formation.

**53) Family number: 46842885** (US2010229725A)

© PatBase

Title: SYSTEMS AND METHODS FOR PROCESSING CO₂

Priority: US20090158992P 20090310 US20090168166P 20090409 US20090178475P 20090514
US20090178360P 20090514 US20090221457P 20090629 US20090221631P 20090630
US20090223657P 20090707 US20090228210P 20090724 US20090230042P 20090730
US20090239429P 20090902 US20090289657P 20091223 US20100306412P 20100219
US20100311275P 20100305 US20100721549 20100310

Family:

Publication number	Publication date	Application number	Application date
US2010229725 AA	20100916	US20100721549	20100310

Probable Assignee: CALERA CORP

Assignee(s):(std): O CONNOR RICHARD P ; WALL JUSTIN ; SELF KYLE ; SEEKER WILLIAM RANDALL ; ELLIOTT ROBERT W ; FARSAD KASRA

Assignee(s): MOSS LANDING CEMENT CO LLC ; CALERA CORP

Inventor(s):(std): ELLIOTT ROBERT W ; FARSAD KASRA ; O CONNOR RICHARD P ; SEEKER WILLIAM RANDALL ; SELF KYLE ; WALL JUSTIN

Inventor(s): O'CONNOR RICHARD P

Agent(s): CALERA ERIC WITT CORP

International class (IPC 8-9): B01D47/06 B01D47/14 B03C3/01 C01B32/60 (Advanced/Invention); B01D47/00 B01D47/06 B03C3/00 (Core/Invention)

CPC: B01D53/1456 B01D53/18 B01D53/60 B01D53/62 B01D53/64 B01D53/78 B01D2257/302 B01D2257/404 B01D2257/504 B01D2257/602 Y02C10/04

European class: B01D53/14H B01D53/18 B01D53/60 B01D53/62 B01D53/64 B01D53/78 L01D257/302 L01D257/404 L01D257/504 L01D257/602 Y02C10/04

US class: 261/27 261/3 261/36.1 261/37 96/74

[Classification Explorer](#)

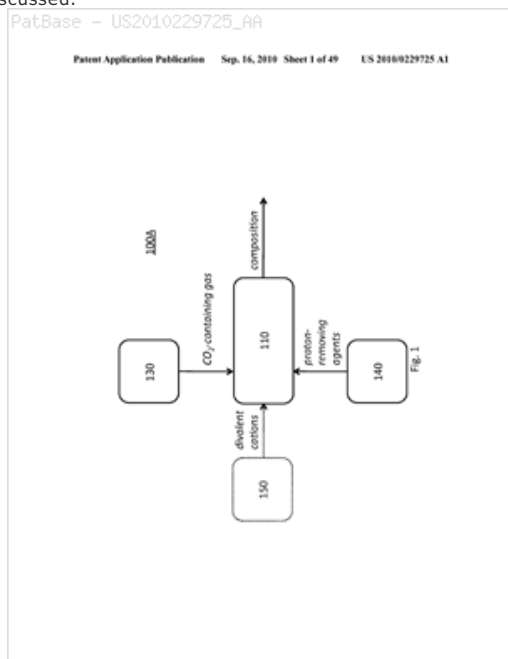
Cited documents: US7887694 BB, US7875163 BB, US7674443 BA, US7347896 BB, US7182851 BB, US6841512 BA, US6712946 BB, US6537456 BB, US6518217 BB, US6517631 BB, US6352576 BA, US6200543 BA, US6200381 BA, US6190428 BA, US6186426 BA, US6180112 BA, US6174507 BA, US6024848 A, US5855759 A, US5614078 A, US5595641 A, US5378279 A, US5282935 A, US5275794 A, US5100633 A, US4899544 A, US4804449 A, US4634533 A, US4377554 A, US4376101 A, US4370307 A, US4315872 A, US4312646 A, US4246075 A, US4188291 A, US4140510 A, US4080270 A, US4069063 A, US4002721 A, US4000991 A, US3864236 A, US3721621 A, US3558769 A, US3420775 A, US3374164 A, US3165460 A, US3120426 A, US2967807 A, US2827125 A, US2458039 A, US2227465 A, US2011067605 AA, US2011067603 AA, US2011067600 AA, US2011059000 AA, US2011054084 AA, US2011042230 AA, US2011036728 AA, US2011035154 AA, US2011033239 AA, US2011030957 AA, US2010068109 AA, US2010063902 AA, US2010051859 AA, US2010037653 AA, US2010024686 AA, US2010000444 AA, US2009081112 AA, US2009081096 AA, US2009081093 AA, US2009078162 AA, US2009020044 AA, US2009010827 AA, US2009001020 AA, US2008035036 AA, US2008031801 AA, US2007056487 AA, US2006060532 AA, US2006051274 AA, US2006048517 AA, US2006039853 AA, US2005036932 AA, US2005031522 AA, US2005031515 AA, US2005011770 AA, US2005002847 AA, US2004052865 AA, US2004040715 AA, US2004040671 AA, US2004028963 AA, US2004014845 AA, US2003017088 AA, US2002009410 AA, US1986736 A, US1897725 A, US1655171 A, US1176747 A, US1172930 A, US1169766 A,

Forward Citations: WO14116310, WO12158969, US9957623, US9957621, US9902652, US9880124, US9869513, US9828313, US9707513, US9625210, US9528761, US9423126, US9399189, US9382388, US9327237, US9296665, US9279615, US9267211, US9260314, US9206451, US9200375, US9187835, US9187834, US9144764, US9139472, US9133581, US9061940, US9056790, US8999057, US8936773, US8932400, US8906156, US8899557, US8894830, US8894748, US8883104, US8869477, US8857118, US8834688,

US8691175, US8689460, US8603424, US8512448, US8491858, US8470275, US8431100, US8357270, US8333944, US8177909, US8151482, US8137455, US8137444, US8114214, US8062418, US8020313, US8015725, US8006446, US7993500, US7987613, US7984566, US7895769, US7891114, US2017175589, US2016168477, US2015246314, US2015218027, US2015033946, US2015018536, US2014171691, US2014053731, US2013340623, US2013065285, US2012077971, US2011277633, US2011071309, US2011054084, US2009186767, US2009186761, US2008134540, US10236526, US10221726, US10161050, US10155193, US10150120, KR101951185, GC6895, FR3069459, EP2948234, EP2831313, EP2710650, CN104190185,

Abstract:

Systems and methods for lowering levels of carbon dioxide and other atmospheric pollutants are provided. Economically viable systems and processes capable of removing vast quantities of carbon dioxide and other atmospheric pollutants from gaseous waste streams and sequestering them in storage-stable forms are also discussed.



54) Family number: 34174970 (US2008058340A)

© PatBase

Title:	DERIVATIVES OF N-(ARYLAMINO) SULFONAMIDES AS INHIBITORS OF MEK			
Priority:	US20050701814 20050721	US20050701814P 20050721	US20050706719P 20050808	
	US20050731633P 20051028	US20060833886P 20060707	EP20060788078 20060721	
	WO2006US28326 20060721	US20060833886P 20060728	US20070885849P 20070119	
	US20070830733 20070730	EP20080727965 20080118	US20080016897 20080118	
	WO2008US51518 20080118	US20080034466P 20080306	US20080034464P 20080306	
	US20080034466 20080306	US20080034464 20080306	US20080159778P 20080312	
	US20080044886P 20080414	US20080044886 20080414	AU20080282338 20080728	
	CA20082693390 20080728	CN200880108829 20080728	JP20100520118 20080728	
	JP20100520118T 20080728	JP20140231450 20080728	US20080671287 20080728	
	US20080071392 20080728	WO2008US71392 20080728	WO2008US71397 20080728	
	WO2007US01392 20080728	US20080323279 20081125	US20090399848 20090306	
	US20090159778P 20090312	US20090159778 20090312	WO2009US40538 20090414	
	US20090937630 20090414	US20100879314 20100910	US20110181864 20110713	
	US20110243368 20110923	US20120556605 20120724	US20130905674 20130530	
	US20140311720 20140623	US20140478467 20140905	AU20150200390 20150128	
	CA20162693390 20160323	CA20162693390 20160331	US20160227395 20160803	

Family:

Publication number	Publication date	Application number	Application date
AP201005134 A0	20100228	AP20100005134	20080728
AP2817 A	20131231	AP20100005134	20080728
AU2006272837 AA	20070201	AU20060272837	20060721
AU2006272837 BB	20120823	AU20060272837	20060721
AU2008206045 AA	20080724	AU20080206045	20080118
AU2008282338 AA	20090205	AU20080282338	20080728
AU2008282338 BB	20150212	AU20080282338	20080728
AU2009236325 AA	20091022	AU20090236325	20090414
AU2015200390 AA	20150219	AU20150200390	20150128
AU2015200390 BB	20170223	AU20150200390	20150128
BRPI0806898 A2	20150714	BR2008PI06898	20080118
BRPI0815659 A2	20140930	BR2008PI15659	20080728
CA2618218 AA	20080207	CA20062618218	20060721
CA2618218 C	20150630	CA20062618218	20060721
CA2675358 AA	20090713	CA20082675358	20080118
CA2675358 C	20160105	CA20082675358	20080118
CA2693390 AA	20100118	CA20082693390	20080728
CA2693390 C	20170117	CA20082693390	20080728
CA2694646 AA	20100126	CA20082694646	20080728
CA2694646 C	20170905	CA20082694646	20080728
CA2720671 AA	20091022	CA20092720671	20090414
CA2924418 AA	20090205	CA20082924418	20080728
CA2924436 AA	20090205	CA20082924436	20080728

CN101495118 A	20090729	CN200680034935	20060721
CN101495118 B	20120905	CN200680034935	20060721
CN101663279 A	20100303	CN200880007510	20080118
CN101808516 A	20100818	CN200880108829	20080728
CN101808516 B	20130828	CN200880108829	20080728
CN102131771 A	20110720	CN200980118067	20090414
CN103479604 A	20140101	CN201310317815	20080728
CN103479604 B	20160810	CN201310317815	20080728
CO6210813 A2	20101020	CO20090074929	20090717
CO6331425 A2	20111020	CO20100128068	20101014
CO6470808 A2	20120629	CO20100009526	20100129
CR10939 A	20091113	CR20090010939	20090717
CR11244 A	20100520	CR20100011244	20100129
CR11731 A	20110608	CR20100011731	20101014
CU20100200 A7	20111115	CU20100000200	20101013
CU23904 B	20130628	CU20100000200	20101013
CY1118055 T1	20170628	CY20141100532T	20140716
DE602006042055 D1	20140807	DE200660042055T	20060721
DE602008038605 D1	20150730	DE200860038605T	20080118
DK1912636 T3	20140721	DK20060788078T	20060721
DOP2009000181 A	20100430	DO20090000181	20090722
DOP2010000045 A	20101031	DO20100000045	20100129
DOP2010000304 A	20111015	DO20100000304	20101014
EA020624 B1	20141230	EA20100000268	20080728
EA2009000959 A1	20100226	EA20090000959	20080118
EA201000268 A1	20100830	EA20100000268	20080728
EA201001639 A1	20110630	EA20100001639	20090414
EA201400552 A1	20140930	EA20140000552	20080728
ECSP099525 A	20091130	EC2009SP09525	20090717
ECSP10010548 A	20101130	EC2010SP10548	20101014
ECSP100548 A	20101130	EC2010SP00548	20101014
ECSP109910 A	20100430	EC2010SP09910	20100129
EP1912636 A2	20080423	EP20060788078	20060721
EP1912636 A4	20091118	EP20060788078	20060721
EP1912636 B1	20140625	EP20060788078	20060721
EP2121620 A1	20091125	EP20080727965	20080118
EP2121620 B1	20150617	EP20080727965	20080118
EP2175885 A1	20100421	EP20080782470	20080728
EP2175885 A4	20101201	EP20080782470	20080728
EP2175885 B1	20161012	EP20080782470	20080728
EP2184984 A1	20100519	EP20080796733	20080728
EP2184984 A4	20130724	EP20080796733	20080728
EP2291350 A2	20110309	EP20090732683	20090414
EP2291350 A4	20120919	EP20090732683	20090414
ES2481402 T3	20140730	ES20060788078T	20060721
ES2547303 T3	20151005	ES20080727965T	20080118
HK1134436 A1	20100430	HK20100100120	20100107
HK1134436 A1	20130614	HK20100100120	20100107
HK1134436 B	20130614	HK20100100120	20100107
HK1147396 A1	20110812	HK20110101625	20110218
HK1147396 A1	20140516	HK20110101625	20110218
HK1147396 B	20140516	HK20110101625	20110218
HK1157738 A1	20120706	HK20110112088	20111109
HK1157738 A3	20120706	HK20110112088	20111109
HK1193032 A1	20140912	HK20140106509	20140627
HK1193032 B	20171020	HK20140106509	20140627
HN2010000203 A	20121119	HN20100000203	20100129
HN2010002097 A	20130610	HN20100002097	20101014
IL189201 A0	20090211	IL20060189201	20060721
IL189201 A1	20140528	IL20060189201	20060721
IL199727 A0	20100415	IL20080199727	20080118
IL203296 A0	20101031	IL20080203296	20080728
IL203296 A1	20170629	IL20080203296	20080728
IL208284 A0	20101230	IL20090208284	20090414
IN00614DN2010 A	20111014	IN2010DN00614	20100128
IN00861CN2008 A	20081128	IN2008CN00861	20080220
IN04579DN2009 A	20100514	IN2009DN04579	20090714
IN07650DN2010 A	20110909	IN2010DN07650	20101029
IN280313 B	20170224	IN2008CN00861	20080220
JP2010516698 T2	20100520	JP20090546558T	20080118
JP2010535232 T2	20101118	JP20100520118T	20080728
JP2010535233 T2	20101118	JP20100520122T	20080728
JP2011518786 T2	20110630	JP20110505138T	20090414
JP2015078199 A2	20150423	JP20140231450	20141114
JP2017125021 A2	20170720	JP20170018477	20170203
JP5479337 B2	20140423	JP20100520122T	20080728
JP5491199 B2	20140514	JP20090546558T	20080118
JP6309880 B2	20180411	JP20140231450	20141114
KR101377688 B1	20140325	KR20087004227	20060721
KR20080068637 A	20080723	KR20087004227	20060721
KR20090111847 A	20091027	KR20097017247	20080118

KR20100094144 A	20100920	KR20107094304	20080728
KR20140098185 A	20140807	KR20147017261	20080728
KR20150091434 A	20150810	KR20157020493	20080728
MA31183 B1	20100201	MA20090032166	20090812
MA31881 B1	20101201	MA20100032636	20100219
MA32226 B1	20110401	MA20100033245	20101014
MX2008002114 A1	20080417	MX20080002114	20060721
MX2009007661 A1	20091214	MX20090007661	20080118
MX2010001244 A1	20100831	MX20100001244	20080728
MX2010011314 A1	20101112	MX20100011314	20090414
MY159735 A	20170131	MY20090000922	20090306
NZ582929 A	20120330	NZ20080582929	20080728
PH2015501914 A	20170731	PH20150501914	20150828
PT1912636 T	20140724	PT20060788078T	20060721
SG189784 A1	20130531	SG20130028378	20090414
SI1912636 T1	20140829	SI20060031805T	20060721
SV2010003469 A	20100430	SV20100003469	20100129
TH148538 A	20160407	TH20091000961	20090305
TN2009000291 A1	20101231	TN20090000291	20090707
TN2010000049 A1	20110926	TN20100000049	20100129
TN2010000463 A1	20120524	TN20100000463	20101013
TW200951107 A	20091216	TW20090107166	20090305
TWI481590 B	20150421	TW20090107166	20090305
UA99731 C2	20120925	UA20100002026	20080728
US2008058340 AA	20080306	US20070830733	20070730
US2008255133 AA	20081016	US20080016897	20080118
US2009082457 AA	20090326	US20080323279	20081125
US2009227681 AA	20090910	US20090399848	20090306
US2010331334 AA	20101230	US20100879314	20100910
US2011033539 AA	20110210	US20090937630	20090414
US2011060049 AA	20110310	US20080671287	20080728
US2012016034 AA	20120119	US20110181864	20110713
US2012022076 AA	20120126	US20110243368	20110923
US2012302518 AA	20121129	US20120556605	20120724
US2013261339 AA	20131003	US20130905674	20130530
US2014303253 AA	20141009	US20140311720	20140623
US2014378466 AA	20141225	US20140478467	20140905
US2017183333 AA	20170629	US20160227395	20160803
US7759518 BB	20100720	US20080323279	20081125
US7820664 BB	20101026	US20080016897	20080118
US8044240 BB	20111025	US20090399848	20090306
US8063049 BB	20111122	US20100879314	20100910
US8101799 BB	20120124	US20070830733	20070730
US8252842 BB	20120828	US20110181864	20110713
US8466316 BB	20130618	US20120556605	20120724
US8648116 BB	20140211	US20080671287	20080728
US8759577 BB	20140624	US20130905674	20130530
US8808742 BB	20140819	US20090937630	20090414
US8829052 BB	20140909	US20110243368	20110923
US9174933 BB	20151103	US20140311720	20140623
WO07014011 A2	20070201	WO2006US28326	20060721
WO07014011 A3	20090423	WO2006US28326	20060721
WO08089459 A1	20080724	WO2008US51518	20080118
WO09018233 A1	20090205	WO2008US71392	20080728
WO09018238 A1	20090205	WO2008US71397	20080728
WO09129246 A2	20091022	WO2009US40538	20090414
WO09129246 A3	20110331	WO2009US40538	20090414
ZA200801443 A	20090826	ZA20080001443	20080212
ZA201006944 A	20150624	ZA20100006944	20100929

Probable Assignee:

ARDEA BIOSCIENCES INC

Assignee(s):(std):

ABDELLAOUI HASSAN EL ; ADJEI ALEX ; ANDREA BIOSCIENCES INC ; ARDEA BIOSCIENCE INC ; ARDEA BIOSCIENCES ; BARAWKAR DINESH ; CHAMAKURA VARAPRASAD ; ARDEA BIOSCIENCES INC ; HONG ZHI ; MADERNA ANDREAS ; KOH YUNG HYO ; ROWLINGS COLIN EDWARD ; QUART BARRY ; GIRARDET JEAN LUC ; DIMOCK STUART ; MINER JEFFREY N ; CHAPMAN MARK S ; QUART BARRY D ; ARDEA BIOSCIENCES INC ; EL ABDELLAOUL HASSAN ; EL ABDELLAOUI HASSAN ; VALEANT RES AND DEV ; VERNIER JEAN MICHEL ; YU CHUNRONG ; PHILIP MORRIS PRODUCTS SA

Assignee(s):

VALEANT RESEARCH AND DEVELOPMENT ; VALEANT PHARMACEUTICALS INT ; VALEANT PHARMACEUTICALS NORTH AMERICA LLC ; VARA PRASAD CHAMAKURA V N S ; INTRABIOTICS PHARMACEUTICALS INC ; GOLDMAN SACHS LENDING PARTNERS LLC COLLATERAL AGENT AS ; BARCLAYS BANK PLC SUCCESSOR AGENT AS ; ARDEA BIOSCIENCES INC COSTA MESA ; ARDEA BIOSCIENCES INC SAN DIEGO ; GOLDMAN SACHS LENDING PARTNERS LLC COLLATERAL AGENT ; CORIA LABORATORIES LTD ; DOW PHARMACEUTICAL SCIENCES ; PRESTWICK PHARMACEUTICALS INC ; VALEANT BIOMEDICALS INC ; BAYER SCHERING PHARMA AG ; ATON PHARMA INC

Inventor(s):(std):

JEAN MICHEL VERNIER ; MINER JEFFREY ; YUNG HYO KOH ; ZHI HONG ; YU CHUNRONG ; VERNIER JEAN MICHEL ; VERNIER JEAN MICHAEL ; VARAPRASAD CHAMAKURA ; ROWLINGS COLIN EDWARD ; QUART BARRY ; MINER JEFFREY N ; MADERNA ANDREAS ; HONG ZHI ; HASSAN EL ABDELLAOUI ; GIRARDET JEAN LUC ; GI RARDET JEAN LUC ; EL ABDELLAOUI HASSAN ; DINESH BARAWKAR ; KOH YUNG HYO ; KOH Y UNG HYO ; JEFFREY N MINER ; JEFF MINER ; JEAN MICHEL VERNIER J ; JEAN LUC GIRARDET J ; DIMOCK STUART ; COLLIN EDWARD ROWLINGS ; COLIN EDWARD ROWLINGS ; CHAPMAN MARK S ; BARAWKAR DINESH A ; BARAWKAR DINESH ; ANDREAS MADERNA ; ADJEI ALEX ; ABDELLAOUI HASSAN EL ; STUART DIMOCK ; ROWLINGS COLLIN EDWARD ; RARDET JEAN LUC ; JEFFREY MINER ; JEAN MICHAEL VERNIER ; JEAN LUC GIRARDET ; EL ABDELLAOUL HASSAN ; EDWARD ROWLINGS COLIN ; COLIN EDWARD ROWLING ; BARRY QUART ; VARA PRASAD CHAMAKURA V N S ; QUART BARRY D ; MINER JEFF ; CHAMAKURA VARAPRASAD ; BARRY D QUART

Inventor(s):	BARAWKAR DINESH A DHANAKAWADIPUNE ; ABDELLAOUI HASSAN EI ; GIRARDET JEAN LUC J ; ABDELLAOUI HASSAN ; VERNIER JEAN MICHEL J ; VERNIER JEAN MICHAEL ; ABDELLAOUI HASSAN EL JAMESTOWN ; CHAMAKURA VARAPRASAD IRVINE ; HONG ZHI CHAPEL HILL ; DINESH A BARAWKAR ; KOH YUNG HYO IRVINE ; MADERNA ANDREAS STONY POINT ; VERNIER JEAN MICHEL SAN DIEGO ; VERNIER JEAN MICHEL LAGUNA NIGUEL
Agent(s):	DAVIES COLLISON CAVE; DAVIES COLLISON CAVE PTY LTD; SMART AND BIGGAR; FETHERSTONHAUGH AND CO; MARKS AND CLERK; J IAN RAISBECK; VIERING JENTSCHURA AND PARTNER; WILLIAMS PAUL HOWARD; HGF LTD; LEHMANN MARIA ISABEL; CHINA PATENT AGENT HK LTD; NTD PATENT AND TRADE MARK AGENCY LTD; REINHOLD COHN AND PARTNERS; HIROE AND ASSOCIATES PATENT PROFESSIONAL CORP; KOGA TETSUJI; AOKI ATSUSHI; FUKUMOTO TSUMORU; ISHIDA TAKASHI; SHIGEMORI KAZUKI; TSUBOKURA MICHIAKI; KANAYAMA MASATAKA; ONO MAKOTO; NITTA MASAHIRO; SAMEJIMA MUTSUMI; DREW AND NAPIER LLC; WILSON SONSINI GOODRICH AND ROSATI; MILLEN WHITE ZELANO AND BRANIGAN PC; MILLEN WHITE ZELANO AND BRANIGAN P C; MILLEN WHITE ZELANO BRANIGAN PC; REESE HEIDI; WITT ERIC ET AL; HADDACH AUBREY A ET AL
Designated states:	AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MX MW MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW
International class (IPC 8-9):	A01K31/18 A01N A01N41/06 A61K A61K31/18 A61K31/185 A61K31/195 A61K31/34 A61K31/341 A61K31/352 A61K31/381 A61K31/40 A61K31/415 A61K31/416 A61K31/4162 A61K31/4164 A61K31/4184 A61K31/42 A61K31/423 A61K31/426 A61K31/433 A61K31/4353 A61K31/4355 A61K31/437 A61K31/44 A61K31/4406 A61K31/4412 A61K31/4465 A61K31/47 A61K31/495 A61K31/4965 A61K31/501 A61K31/502 A61K31/5025 A61K31/517 A61K31/519 A61K31/56 A61K31/63 A61K31/675 A61K31/685 A61K31/7068 A61K31/7076 A61K31/7088 A61K39/395 A61K45/00 A61K45/06 A61K47/02 A61K47/12 A61K47/20 A61K47/38 A61K48/00 A61K9/00 A61K9/14 A61K9/20 A61K9/28 A61K9/48 A61P A61P1/04 A61P17/00 A61P17/06 A61P19/02 A61P25/00 A61P25/28 A61P27/02 A61P29/00 A61P3/00 A61P3/10 A61P31/00 A61P31/04 A61P35/00 A61P35/02 A61P37/00 A61P37/02 A61P43/00 A61P9/00 A61P9/10 C07C C07C303/36 C07C303/42 C07C303/44 C07C307/00 C07C307/06 C07C311/00 C07C311/08 C07C311/09 C07C311/10 C07C311/13 C07C311/14 C07C311/21 C07C311/25 C07C311/28 C07C311/29 C07C311/32 C07C311/36 C07C327/38 C07D207/36 C07D213/38 C07D213/42 C07D215/38 C07D231/12 C07D231/18 C07D231/56 C07D233/84 C07D235/02 C07D235/08 C07D235/14 C07D237/26 C07D237/28 C07D239/74 C07D261/10 C07D261/20 C07D277/36 C07D277/54 C07D295/088 C07D295/13 C07D307/64 C07D333/34 C07D333/38 C07D401/04 C07D417/04 C07D471/04 C07D487/04 C07D498/04 C12N5/02 C12N9/99 (Advanced/Invention); A61K31/18 A61P1/16 A61P11/00 A61P13/12 A61P17/00 A61P17/02 A61P19/02 A61P21/00 A61P29/00 A61P35/00 A61P35/02 A61P37/02 C07C311/08 C07C311/14 C07C311/28 (Advanced/Non-invention); A01N41/00 A61K31/00 A61K31/18 A61K31/185 A61K31/341 A61K31/381 A61K31/40 A61K31/415 A61K31/416 A61K31/4162 A61K31/4164 A61K31/42 A61K31/423 A61K31/426 A61K31/433 A61K31/4353 A61K31/44 A61K31/47 A61K31/495 A61K31/501 A61K31/5025 A61K31/517 A61K31/519 A61K31/63 A61K39/395 A61K47/38 A61P1/00 A61P17/00 A61P19/00 A61P27/00 A61P29/00 A61P3/00 A61P31/00 A61P35/00 A61P37/00 A61P9/00 C07C307/00 C07C311/00 C07D207/00 C07D215/00 C07D231/00 C07D233/00 C07D235/00 C07D239/00 C07D261/00 C07D277/00 C07D295/00 C07D307/00 C07D333/00 C07D401/00 C07D417/00 C07D471/00 C07D487/00 C07D498/00 (Core/Invention); A61K31/18 A61P35/00 C07C311/14 (Core/Non-invention); A01N A61K A61P C07C C07D (Subclass/Invention)
International class (IPC 1-7):	A01N41/06 A61K31/18 A61K31/416 A61K31/423 A61P35/00 C07D231/56 C07D235/14 C07D239/74 C07D261/20
CPC:	A61K31/381 A61K31/40 A61K31/4409 A61K31/496 A61K9/146 A61K9/4858 A61K9/4866 A61K47/02 A61K47/20 C07D231/56 C07D235/14 C07D261/20 A61K45/06 A61K31/352 A61K47/3 A61K9/14 A61K9/48 A61K31/1 A61K47/0 A61K47/2 C07B2200/07 C07D211/54 C07D285/04 C07D295/13 C07D213/42 A61K31/34 A61K31/426 A61K31/42 A61K31/4164 A61K31/495 A61K31/415 A61K31/433 A61K31/4406 A61K9/20 C07C303/44 C07C2601/02 C07C2601/04 C07C2601/08 C07C2601/14 C07B2200/13 C07C311/28 C07D307/64 C07C311/29 C07D231/18 C07D233/84 C07D261/10 C07D277/36 C07D277/54 C07D333/38 C07D417/04 C07D295/088 C07C311/09 C07C311/21 C07C311/32 C07D207/36 C07D213/38 C07D231/12 C07D333/34 C07C311/08 C07C311/14 A61K47/38 A61K31/18 C07D239/74 C07D471/04 C07C311/10
European class:	A61K31/18 A61K31/352 A61K31/381 A61K31/40 A61K31/415 A61K31/433 A61K31/4406 A61K31/4409 A61K31/496 A61K45/06 A61K47/02 A61K47/20 A61K47/38 A61K9/14H6 A61K9/48H4 A61K9/48H6 C07C311/08 C07C311/09 C07C311/14 C07C311/21 C07C311/28 C07C311/29 C07C311/32 C07D207/36 C07D211/54 C07D213/38 C07D231/12 C07D231/18 C07D231/56 C07D233/84 C07D235/14 C07D239/74 C07D261/10 C07D261/20 C07D277/36 C07D277/54 C07D285/04 C07D307/64 C07D333/34 C07D333/38 C07D417/04 C07D471/04 M07B200/07 M07B200/13 M07C101/02 M07C101/04 M07C101/08 M07C101/14
US class:	1/1 424/474 424/474P 435/184 435/184S 435/375 435/375S 514/171 514/171S 514/248 514/249 514/249S 514/252.02 514/252.020P 514/252.12 514/252.120P 514/259.3 514/266.1 514/266.100S 514/300 514/300S 514/302 514/302 A14/311 514/311S 514/327 514/327S 514/346 514/357 514/357S 514/361 514/361S 514/369 514/369S 514/379 514/379S 514/380 514/380S 514/393 514/393S 514/394 514/398 514/398S 514/406 514/407 514/407S 514/423 514/423S 514/424 514/424S 514/445 514/445S 514/45 514/471 514/471S 514/49 514/600 514/601 514/601S 514/602 514/604 514/604S 514/605 514/605S 514/709 514/77 544/235 544/235S 544/236 544/238 544/238S 544/281 544/283 544/283S 544/398 544/398S 546/115 546/118 546/118S 546/119 546/119S 546/121 546/121S 546/171 546/171S 548/128 548/128S 548/184 548/184S 548/185 548/185S 548/241 548/241S 548/243 548/243S 548/304.4 548/309.7 548/309.700S 548/323.5 548/323.500S 548/361.1 548/370.1 548/370.100S 548/534 548/534S 549/479 549/479S 549/65 549/65S 564/79 564/80 564/80S 564/84 564/86 564/89 564/89S 564/92 564/92S 564/97 564/97S 564/99 564/99S 600/1
Classification Explorer	
Cited documents:	WO9952910 A1, WO9952889 A1, WO9932889 A2, WO9932889 A1, WO9929667 A1, WO9907675 A1, WO9834918 A1, WO9834915 A1, WO9833768 A1, WO9830566 A1, WO9807697 A1, WO9803516 A1, WO9703667 A1, WO9633182 A1, WO9633172 A1, WO9627583 A1, WO9005719 A1, WO09018238 A1, WO09018233 A1, WO08120004 A1, WO08120004 A1, WO08089459 A1, WO08089459 A1, WO07121481 A2, WO07121481 A2, WO07121269 A2, WO07071638 A1, WO07071638, WO07014011 A2, WO06115154 A1, WO06115154, WO06110811 A1, WO06067446 A1, WO06067446 A1, WO06058752 A1, WO06054068, WO05121142 A1, WO05051906 A2, WO05051906 A1, WO05051302 A2, WO05051302 A1, WO05028426 A1, WO04083167 A1, WO04083167, WO04064733 A2, WO04064733 A2, WO04031174 A1, WO03077914 A1, WO03077855 A3, WO03077855 A2, WO03043985 A1, WO03043985, WO0206213 A3, WO0206213 A2, WO0074681 A1, WO0042029 A1, WO0042022 A1, WO0042003 A1, USD403768 S1, US8648116 BB, US8466316 BB, US83073307, US8252842 BB, US8044240 BB, US8005 A, US7842836 BB, US7820664 BB, US7759518 BB, US73710907, US7115632 BA, US6891066 BB, US6846181 BB, US6833471, US6780870 BB, US6770778 BB, US6750217 BB, US6696507 BB, US6592369 BB, US6572693 BA, US6545030 BA, US6506816 BA, US6469004 BA, US6440966 BA, US6415916 BA, US6395803 BA, US6384106 BA, US6382980 BA, US6359090 BA, US6353040 BA, US6345984 BB, US6316462 BA, US6252014 BA, US6244870 BA, US622068 A, US6196840 BA, US6187836 BA,

US6186790 BA, US6183249 BA, US6084004 A, US6057383 A, US5919870 A, US5914185 A, US5876209 A, US5863949 A, US5861510 A, US5797236 A, US5785178 A, US5775913 A, US5753781 A, US5636736 A, US5635545 A, US5545676 A, US5538129 A, US5487663 A, US5418301 A, US5403188 A, US5401169 A, US5332390 A, US5162117 A, US5135545 A, US5102332 A, US4857599 A, US4767331 A, US4737550 A, US4718849 A, US4694064 A, US4652274 A, US4648843 A, US4642126 A, US4597466 A, US4587329 A, US4585417 A, US4571188 A, US4568737 A, US4514174 A, US4503169 A, US4449936 A, US4431420 A, US4347888 A, US4278630 A, US4115488 A, US4113499 A, US4080412 A, US4071424 A, US3949476 A, US3585723 A, US3565387 A, US3390458 A, US2678470 A, US2551812 A, US2480048 A, US2474676 A, US2310448 A, US2271454 A, US2009227681 AA, US2008058340 AA, US2007238710 AA, US2007018346 AA, US2006140872 AA, US2006119003 AA, US2006030610 AA, US2006028326, US2005147944 AA, US2005100868 AA, US2005054701 AA, US2005042577 AA, US2005042576 AA, US2005040551 AA, US2005026970 AA, US2005004186 AA, US2004176418 AA, US2004171632 AA, US2004171632 AA, US2004084792 AA, US2004082683 AA, US2004054172 AA, US2004029898 AA, US2004029898 AA, US20040176418, US2004005524 AA, US2004005277 AA, US2003153645 AA, US2003149015 AA, US2003149015 AA, US2003134930 AA, US2003114553 AA, US2003096908 AA, US2003092748 AA, US2003092748, US2002117393 AA, US2002115743 AA, US2002102519 AA, US2002086266 AA, US2002081546 AA, US2002061493 AA, US1896123 A, US1864365 A, US14846499 P, US1468428 A, JPS57203079, JP8501288 T2, JP8501288, JP8081441 A2, JP6092970 A2, JP6092970, JP57203079 A2, JP2010526069 T2, JP2007099763 A2, JP2007099763, JP2006502117 T2, JP2005535688 T2, JP2005508322 T2, JP2005162727 A2, JP2003504399 T2, JP2002534498 T2, JP10508760 T2, IB9801113, GB9912961 A1, GB6199129 A1, GB2005004405, EP99308617, EP99302282, EP99302232, EP97304971, EP1004578 A2, EP0945864 A2, EP0931788 A2, EP0818442 A2, EP0780386 A1, EP0679641 A1, EP0606046 A1, EP0239362 A2, EP0239362, CN1149204 C,

Forward Citations:

WO19038367, WO19032640, WO18215938, WO18215937, WO18215936, WO18107146, WO17221100, WO17221092, WO17214619, WO17072662, WO17039751, WO17033113, WO16203432, WO16151499, WO16106359, WO16103155, WO16100882, WO16075670, WO16054555, WO16040892, WO16040880, WO16024195, WO16020791, WO15191986, WO15178770, WO15156674, WO15041534, WO15041533, WO15036512, WO14160160, WO14133071, WO14071183, WO13178581, WO13169858, WO13109142, WO13107283, WO13105022, WO13094546, WO12168884, WO12163799, WO12145503, WO12144463, WO12059041, WO12041987, WO11128407, WO11128407, WO11106298, WO11068881, WO11054828, WO11047795, WO11047055, WO11047055, WO11044072, WO11009541, WO10105110, WO10105082, WO10068738, WO10051935, WO10051935, WO10051933, WO09152288, WO09129938, WO09129246, WO09129246, WO08138639, US9987357, US9945862, US9937158, US9908869, US98727237, US9732139, US9579361, US9573998, US9504746, US9381177, US9334239, US9328066, US9296686, US9290468, US9279144, US9220696, US9174933, US9095581, US9084781, US9056858, US9034861, US9006256, US8993630, US8969344, US8962650, US8927550, US8884058, US8871786, US8808742, US8759577, US8716318, US8716291, US8673876, US8648116, US8637246, US8569378, US8513443, US8501992, US8470878, US8466316, US8466289, US8440822, US8299248, US8293761, US8278465, US8252842, US8247411, US8227603, US8044240, US7956056, US7928109, US7897792, US7897624, US7851484, US7842836, US7759518, US7652047, US7429667, US2016220494, US2015018411, US2014303253, US2014080783, US2013261120, US2013184270, US2012136030, US2012071435, US2011294793, US2011190334, US2011112152, US2011033539, US2009275606, US2009227681, US2009082457, US2009082328, US2008260262, US2008249131, US2008214557, US2007244164, US2006194802, US10213386, US10182998, US10139415, US10125140, US10106548, US10105368, US10065968, US10023862, US10017498, US10010507, TWI551579, TWI524890, TWI481590, KR101863021, KR101763437, KR101398772, JP6309880, JP6021805, JP5911929, JP5892612, JP5886271, JP5844727, JP5776115, JP5767122, JP5592253, JP2018012710, JP2017536353, JP2017125021, JP2016531151, JP2015527874, JP2015503597, JP2015502958, JP2015078199, JP2014520087, JP2014517004, JP2014505658, JP2014237716, JP2013538840, JP2013525293, JP2013510118, JP2013508318, JP2013507453, JP2013500242, JP2013094546, JP2012521968, JP2012520321, JP2012520319, JP2010535233, JP2010535232, JP2010526788, JP2010516698, GC6082, EP3266786, EP3237418, EP3043778, EP3028699, EP3028699, EP2968590, EP2963114, EP2916859, EP2848246, EP2804855, EP2804855, EP2804855, EP2796455, EP2714652, EP2714652, EP2635587, EP2506716, EP2488507, EP2488507, EP2405908, EP2370568, EP2291350, EP2291350, EP2184984, EP2184984, EP2175885, EP2175885, EP2175885, EP2139478, EP2139478, EA026550, EA023623, CN105658209, CN105384754, CN105384754, CN105085427, CN105085427, CN104011039, CN103998935, CN103948600, CN103848808, CN103848808, CN103748085, CN103596921, CN103570594, CN103479604, CN103228274, CN102958540, CN102666512, CN102666512, CN102649773, CN102648188, CN102596951, CN102596951, CN102471246, CN102438609, CN102421427, CN102143943, CN102131771, AU2015200390, AU2011310532, AU2010317167, AU2010306830, AU2010306830, AU2010275780, AU2009257487, AU2008282338,

Abstract:

This invention concerns N-(2-arylamino) aryl sulfonamides, which are inhibitors of MEK and are useful in treatment of cancer and other hyperproliferative diseases.

