

Internal - Current DB: PATENW - Search Recording ON

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Results in PATENW 77

[SS 16] expanding and cooling and separating and process and liquefying and hydrocarbon and gas and mixed and refrigerant and first and second and nitrogen and hydrocarbons and turboexpander and compressor and heat and exchange

Results in PATENW 72

[SS 17] expanding and cooling and separating and process and liquefying and hydrocarbon and gas and mixed and refrigerant and first and second and nitrogen and hydrocarbons and turboexpander and compressor and heat and exchange and subcool

Results in PATENW 14

[SS 18] ..li

sfplusda://CPC/F25J1/0042
(by liquid expansion with extraction of work)

1/14 PATENW / EPO

PN - AU2015307114 A1 20170323

PR - US201414473343 20140829; WO2015US43444 20150803

AP - AU20150307114 20150803

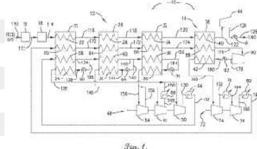
DT - I

CCI - F25J1/0022 ; F25J1/0035 ; F25J1/0042 ; F25J1/0052 ; F25J1/0057 ; F25J1/0214 ; F25J1/0238 ; F25J1/0288 ; F25J1/0292

CCA - F25J2220/64 ; F25J2230/08 ; F25J2230/20 ; F25J2230/30

PA - BLACK & VEATCH HOLDING CO

TI - Dual mixed refrigerant system



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2/14 PATENW / EPO

PN - AU2015307118 A1 20170323

PR - US201414473473 20140829; WO2015US43541 20150804

AP - AU20150307118 20150804

DT - I

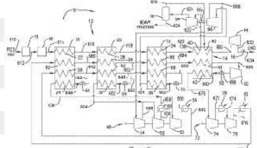
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CCA - F25J2220/64 ; F25J2230/08 ; F25J2230/20 ; F25J2230/30

PA - BLACK & VEATCH HOLDING CO

TI - Dual mixed refrigerant system

AB - Processes and systems are provided for recovering a liquefied natural gas (LNG) stream from a hydrocarbon-containing feed gas stream using dual closed-loop mixed refrigerant cycles. In particular, the processes and systems described herein can be used to efficiently and effectively liquefy methane from a hydrocarbon-containing feed gas stream with the use of a first refrigeration system and a second refrigeration system utilizing a first mixed refrigerant and a second mixed refrigerant. Furthermore, the first refrigeration system and second refrigeration system may be in fluid communication with a turboexpander and separator.



3/14 PATENW / EPO

PN - AU2015307117 A1 20170323

PR - US201414473403 20140829; WO2015US43537 20150804

AP - AU20150307117 20150804

DT - I

CCI - F25J1/0022 ; F25J1/0035 ; F25J1/0042 ; F25J1/0052 ; F25J1/0057 ; F25J1/0214 ; F25J1/0238 ; F25J1/0288 ; F25J1/0292

CCA - F25J2220/64 ; F25J2230/08 ; F25J2230/20 ; F25J2230/30

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4/14 PATENW / EPO

PN - CA2959122 A1 20160303

PR - US201414473343 20140829; WO2015US43444 20150803

AP - CA20152959122 20150803

DT - I

CCI - F25J1/0022 ; F25J1/0035 ; F25J1/0042 ; F25J1/0052 ; F25J1/0057 ; F25J1/0214 ; F25J1/0238 ; F25J1/0288 ; F25J1/0292

CCA - F25J2220/64 ; F25J2230/08 ; F25J2230/20 ; F25J2230/30

PA - BLACK & VEATCH HOLDING CO [US]

TI - DUAL MIXED REFRIGERANT SYSTEM

AB - Processes and systems are provided for recovering a liquefied natural gas (LNG) stream from a **hydrocarbon**-containing feed **gas** stream using dual closed-loop **mixed refrigerant** cycles. In particular, the processes and systems described herein can be used to efficiently and effectively liquefy methane from a **hydrocarbon**-containing feed **gas** stream with the use of a **first** refrigeration system and a **second** refrigeration system utilizing a **first mixed refrigerant** and a **second mixed refrigerant**.

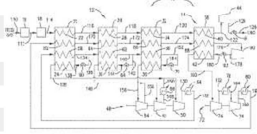


Fig. 1

5/14 PATENW / EPO

PN - CA2959119 A1 20160303

PR - US201414473403 20140829; WO2015US43537 20150804

AP - CA20152959119 20150804

DT - I

CCI - F25J1/0022 ; F25J1/0035 ; F25J1/0042 ; F25J1/0052 ; F25J1/0057 ; F25J1/0214 ; F25J1/0238 ; F25J1/0288 ; F25J1/0292

CCA - F25J2220/64 ; F25J2230/08 ; F25J2230/20 ; F25J2230/30

PA - BLACK & VEATCH HOLDING CO [US]

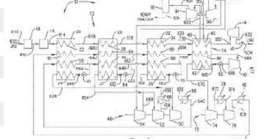


Fig. 6

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6/14 PATENW / EPO

PN - CA2959140 A1 20160303

PR - US201414473473 20140829; WO2015US43541 20150804

AP - CA20152959140 20150804

DT - I

CCI - F25J1/0022 ; F25J1/0035 ; F25J1/0042 ; F25J1/0052 ; F25J1/0057 ; F25J1/0214 ; F25J1/0238 ; F25J1/0288 ; F25J1/0292

CCA - F25J2220/64 ; F25J2230/08 ; F25J2230/20 ; F25J2230/30

PA - BLACK & VEATCH HOLDING CO [US]

TI - DUAL MIXED REFRIGERANT SYSTEM

AB - Processes and systems are provided for recovering a liquefied natural gas (LNG) stream from a **hydrocarbon**-containing feed **gas** stream using dual closed-loop **mixed refrigerant** cycles. In particular, the processes and systems described herein can be used to efficiently and effectively liquefy methane from a **hydrocarbon**-containing feed **gas** stream with the use of a **first** refrigeration system and a **second** refrigeration system utilizing a **first mixed refrigerant** and a **second mixed refrigerant**. Furthermore, the **first** refrigeration system and **second** refrigeration system may be in fluid communication with a **turboexpander** and separator.

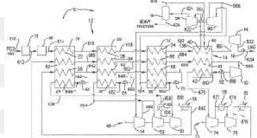


Fig. 6

7/14 PATENW / EPO

PN - US2016061518 A1 20160303

PR - US201414473473 20140829

AP - US201414473473 20140829

DT - **

CT - || R141 (A1)
US2009064712 A1 20090312 || (BUIJS CORNELIS INLI et al)

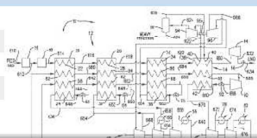


Fig. 6

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8/14 PATENW / EPO Next record (Alt+N)

PN - [US2016061517](#) A1 20160303

PR - US201414473403 20140829

AP - US201414473403 20140829

DT - **

CT - || R141 (A1)
[US2008006053](#) A1 20080110 [] (BAUER HEINZ [DE], et al);
[US2004255617](#) A1 20041223 [] (PARADOWSKI HENRI [FR]);
[WO2005090885](#) A1 20050929 [] (LINDE AG [DE], et al);
[US2009064712](#) A1 20090312 [] (BUIJS CORNELIS [NL], et al)

CTNP - || R141 (A1)
[] - English translation of WO 2005090885 A1, provided by Espacenet on 05 January 2017.,

CCI - [F25J1/0022](#) ; [F25J1/0035](#) ; [F25J1/0042](#) ; [F25J1/0052](#) ; [F25J1/0057](#) ; [F25J1/0214](#) ; [F25J1/0238](#) ; [F25J1/0288](#) ; [F25J1/0292](#)

CCA - [F25J2220/64](#) ; [F25J2230/08](#) ; [F25J2230/20](#) ; [F25J2230/30](#)

PA - BLACK & VEATCH HOLDING CO [US]

TI - DUAL MIXED REFRIGERANT SYSTEM

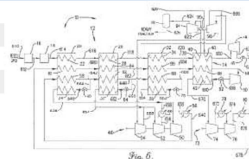
AB - Processes and systems are provided for recovering a liquefied natural gas (LNG) stream from a hydrocarbon-containing feed gas stream using dual closed-loop mixed refrigerant cycles. In particular, the processes and systems described herein can be used to efficiently and effectively liquefy methane from a hydrocarbon-containing feed gas stream by utilizing a first refrigeration system and a second refrigeration system in fluid communication with a turboexpander and separator.

9/14 PATENW / EPO

PN - [US2016061516](#) A1 20160303

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PN - [US2016061516](#) A1 20160303

PR - US201414473343 20140829

AP - US201414473343 20140829

DT - **

CT - || R141 (A1)
[WO2011114012](#) A2 20110922 [] (IFP ENERGIES NOUVELLES [FR], et al)

CTNP - || R141 (A1)
[] - Machine translation of WO2011114012A2, provided by Espacenet on 28 Nov 2017.

CCI - [F25J1/0022](#) ; [F25J1/0035](#) ; [F25J1/0042](#) ; [F25J1/0052](#) ; [F25J1/0057](#) ; [F25J1/0214](#) ; [F25J1/0238](#) ; [F25J1/0288](#) ; [F25J1/0292](#)

CCA - [F25J2220/64](#) ; [F25J2230/08](#) ; [F25J2230/20](#) ; [F25J2230/30](#)

PA - BLACK & VEATCH HOLDING CO [US]

TI - DUAL MIXED REFRIGERANT SYSTEM

AB - Processes and systems are provided for recovering a liquefied natural gas (LNG) stream from a hydrocarbon-containing feed gas stream using dual closed-loop mixed refrigerant cycles. In particular, the processes and systems described herein can be used to efficiently and effectively liquefy methane from a hydrocarbon-containing feed gas stream with the use of a first refrigeration system and a second refrigeration system utilizing a first mixed refrigerant and a second mixed refrigerant.

10/14 PATENW / EPO

PN - [WO2016032701](#) A1 20160303

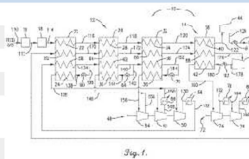
PR - US201414473473 20140829

AP - WO2015US43541 20150804

DT - *

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PN - WO2016032700 A1 20160303

PR - US201414473403 20140829

AP - WO2015US43537 20150804

DT - *; Rep

CT - [KR] ISR (A1)
US2004255617 A1 20041223 [A] (PARADOWSKI HENRI [FR])
[A] 1-24
* See abstract; paragraphs [0021]-[0036], [0046]-[0049]; claims 1-4; table 1; figure 1. *;
US6367286 B1 20020409 [A] (PRICE BRIAN C [US])
[A] 1-24
* See abstract; column 5, line 53-column 6, line 63; claims 1, 9; figures 3, 4. *;
US6295833 B1 20011002 [A] (HOFFART SHAWN D [US], et al)
[A] 1-24
* See abstract; column 5, line 51-column 7, line 40; claim 1; figures 1, 2. *;
US2012137726 A1 20120607 [A] (CURRENCE KEVIN L [US], et al)
[A] 1-24
* See abstract; paragraphs [0014]-[0033]; claims 1, 5, 7, 12; figure 1. *;
US5363655 A 19941115 [A] (KIKKAWA YOSHITSUGI [JP], et al)
[A] 1-24
* See abstract; column 4, line 13-column 7, line 5; claim 1; figures 3, 4. *

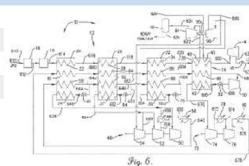
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CCA - F25J2220/64 ; F25J2230/08 ; F25J2230/20 ; F25J2230/30

PA - BLACK & VEATCH HOLDING CO [US]

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PN - WO2016032697 A1 20160303

PR - US201414473343 20140829

AP - WO2015US43444 20150803

DT - *; Rep

CT - [KR] ISR (A1)
US2004255617 A1 20041223 [X] (PARADOWSKI HENRI [FR])
[X] 1-20
* See abstract; paragraphs [0021]-[0036], [0046]-[0049]; claims 1-4; table 1; figure 1. *;
US4033735 A 19770705 [A] (SWENSON LEONARD K)
[A] 1-20
* See abstract; column 4, line 39-column 5, line 64; column 8, line 6-column 9, line 12; table 3; figures 1A, 4. *;
US5363655 A 19941115 [A] (KIKKAWA YOSHITSUGI [JP], et al)
[A] 1-20
* See abstract; column 4, line 13-column 7, line 5; claim 1; figures 3, 4. *;
KR101325586B B1 20131106 [A] (INSTITUTE FOR ADVANCED ENGINEERING)
[A] 1-20
* See abstract; paragraphs [0026]-[0070]; claim 1; figure 1. *;
US2009145167 A1 20090611 [A] (TURNER TERRY D [US], et al)
[A] 1-20
* See abstract; paragraphs [0030]-[0041]; claim 1; figure 1. *

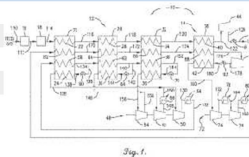
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CCA - F25J2220/64 ; F25J2230/08 ; F25J2230/20 ; F25J2230/30

PA - BLACK & VEATCH HOLDING CO [US]

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PN - WO2016032697 A1 20160303

PR - US201414473343 20140829

AP - WO2015US43444 20150803

DT - *; Rep

CT - [KR] ISR (A1)
US2004255617 A1 20041223 [X] (PARADOWSKI HENRI [FR])
[X] 1-20
* See abstract; paragraphs [0021]-[0036], [0046]-[0049]; claims 1-4; table 1; figure 1. *;
US4033735 A 19770705 [A] (SWENSON LEONARD K)
[A] 1-20
* See abstract; column 4, line 39-column 5, line 64; column 8, line 6-column 9, line 12; table 3; figures 1A, 4. *;
US5363655 A 19941115 [A] (KIKKAWA YOSHITSUGI [JP], et al)
[A] 1-20
* See abstract; column 4, line 13-column 7, line 5; claim 1; figures 3, 4. *;
KR1013255868 B1 20131106 [A] (INSTITUTE FOR ADVANCED ENGINEERING)
[A] 1-20
* See abstract; paragraphs [0026]-[0070]; claim 1; figure 1. *;
US2009145167 A1 20090611 [A] (TURNER TERRY D [US], et al)
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* See abstract; paragraphs [0030]-[0041]; claim 1; figure 1. *

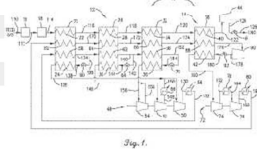
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CCA - F25J2220/64 ; F25J2230/08 ; F25J2230/20 ; F25J2230/30

PA - BLACK & VEATCH HOLDING CO [US]

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PN - WO2009076357 A1 20090618

PR - US20070012572P 20071210

AP - WO2008US86068 20081209

DT - *; Rep

CT - [US] ISR (A1)
US2007056318 A1 20070315 [Y] (RANSBARGER WELDON L [US]);
US4474591 A 19841002 [Y] (ARAND DALE P [US], et al);
US2164593 A 19390704 [Y] (RECTOR NORMAN K);
US2007012071 A1 20070118 [Y] (HUANG SHAWN S [US], et al)

CCI - F25J5/005 ; F25J1/0022 ; F25J1/0035 ; F25J1/004 ; F25J1/0042 ; F25J1/0052 ; F25J1/0085 ; F25J1/0087 ; F25J1/021 ; F25J1/0237 ; F25J3/0209 ; F25J3/0233 ; F25J3/0238

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PA - CONOCOPHILLIPS COMPANY [US]; BELLOMY MARC [US]; EVANS MEGAN V [US]; PRADERIO ATTILIO J [US]; STRASSLE LISA M [US]; ROCKWELL JAMES L [US]; GENTRY MATTHEW C [US]; CHAHAL MOHAN S [US]; QUALLS WESLEY R [US]

TI - OPTIMIZED HEAVIES REMOVAL SYSTEM IN AN LNG FACILITY

AB - An LNG facility employing an optimized heavies removal system. The optimized heavies removal system can comprise at least one distillation column and at least two separate **heat** exchangers. The **heat** exchangers can be operable to **heat** a liquid stream withdrawn from a distillation column to thereby provide predominantly vapor and/or liquid streams that can be reintroduced into the column.

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