

Search history

Search 1: FT=(tube* or mandrel*) and (soil* or ground*) (Results 711005)

Search 2: 1 and PD<20130905 (Results 613881)

Search 3: 2 and (teeth or tooth) (Results 44873)

Search 4: 3 and (pier* or pile* or pillar* or column*) (Results 13385)

Search 5: FT=(4) and CPC=(E02D) (Results 286)

Title: SYSTEMS FOR THE SUBTERRANEAN SUPPORT OF UNDERGROUND CONDUITS

Abstract: Source: US2010074690A [EN] The present invention relates to a support system for supporting a conduit. In one exemplary embodiment, the system includes support beams extending across an excavated opening. For example, a pair of beams may be positioned to span the excavated opening with the opposing ends of the beams supported on the **ground** above the excavated opening. Support rods may be positioned to extend through and/or from the beams and into the excavated opening. In one exemplary embodiment, the support rods include a J-hook configured for receipt within an opening in sections of curved sheet **pile** positioned beneath a conduit. By using a plurality of rods, the individual sections of curved sheet **pile** may be connected to the beams to provide a support structure for the curved sheet **pile** and, correspondingly, the conduit extending above the curved sheet **pile** and below the beam.

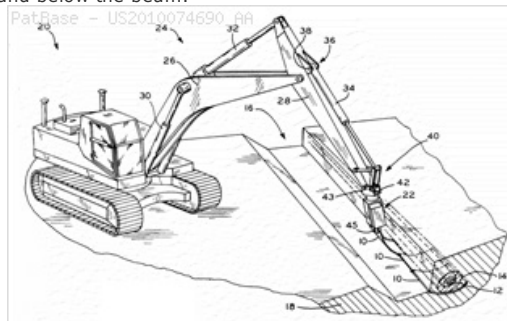
Classifications:

International (IPC 8-9): E02D13/00 E02D27/46 E02D5/00 E02D5/02 E02D5/04 E02D7/00 E02D7/18 F16L1/028 F16L1/06 F16L1/11 F16L3/00 F16L57/00 F16L7/00 (Advanced/Invention); E02D13/00 E02D5/00 E02D5/02 E02D7/00 F16L57/00 (Core/Invention)

CPC: E02D5/04 E02D7/18 E02D27/46 E02D27/48

European: E02D27/46 E02D5/04 E02D7/18

US: 248/58 405/157 405/157P 405/184.4 405/184.400P 405/232 405/232P 405/274 405/276 405/276P 405/279

**Family:**

Publication number	Publication date	Application number	Application date
BRPI0903846 A2	20100720	BR2009PI03846	20090924
BRPI0903939 A2	20100720	BR2009PI03939	20090924
BRPI0905608 A2	20110329	BR2009PI05608	20090925
CA2678340 AA	20100325	CA20092678340	20090911
CA2678340 C	20120703	CA20092678340	20090911
CA2678441 AA	20100325	CA20092678441	20090911
CA2678441 C	20121127	CA20092678441	20090911
CA2678446 AA	20100325	CA20092678446	20090911
CA2678446 C	20120103	CA20092678446	20090911
DE602009007415 D1	20120802	DE200960007415T	20090921
DE602009008132 D1	20120906	DE200960008132T	20090921
DE602009013185 D1	20130411	DE200960013185T	20090921
EP2169119 A1	20100331	EP20090011981	20090921
EP2169119 B1	20120711	EP20090011981	20090921
EP2169120 A1	20100331	EP20090011982	20090921
EP2169120 B1	20130213	EP20090011982	20090921
EP2169121 A1	20100331	EP20090011983	20090921
EP2169121 B1	20120606	EP20090011983	20090921
MX2009010291 A1	20100503	MX20090010291	20090924
MX2009010292 A1	20100503	MX20090010292	20090924
MX2009010293 A1	20100503	MX20090010293	20090924
PA8843301 A1	20100526	PA20090088433	20090924
PA8843401 A1	20100526	PA20090088434	20090924
PA8843501 A1	20100526	PA20090088435	20090924
US2010074690 AA	20100325	US20090488049	20090619
US2010074694 AA	20100325	US20090488045	20090619
US2010074698 AA	20100325	US20090488046	20090619
US2010296872 AA	20101125	US20100851081	20100805
US2012207549 AA	20120816	US20120451633	20120420
US7771140 BB	20100810	US20090488045	20090619
US8016518 BB	20110913	US20090488046	20090619
US8061934 BB	20111122	US20100851081	20100805
US8303217 BB	20121106	US20090488049	20090619
US8936414 BB	20150120	US20120451633	20120420

Priority:

CA20092678340	20090911	CA20092678441	20090911	CA20092678446	20090911
EP20090011983	20090921	EP20090011981	20090921	EP20090011982	20090921
US20080100010P	20080925	US20090169805P	20090416	US20090488049	20090619
US20090488045	20090619	US20090488046	20090619	US20100851081	20100805
US20120451633	20120420				

Probable Assignee: TERRA TECHNOLOGIES LLC

Assignee(s): (std): JINNINGS JOHN W ; TERRA SHIELD LLC ; TERRA TECHNOLOGIES LLC ; WEGENER ROBERT J

Assignee(s): TERRA SHIELD LLC FORT WAYNE

Inventor(s): (std): JOHN W JINNINGS ; JOHN W JINNINGS ; ROBERT J WEGENER ; WEGENER ROBERT J ; JINNINGS JOHN W

Inventor(s): JINNINGS JOHN W LEO

Agent(s): SIM AND MCBURNEY; DR WEITZEL AND PARTNER PATENT U RECHTSANWAELTE MBB; SCHMIDT SVEN HENDRIK; Schmidt Sven Hendrik; BAKER AND DANIELS LLP 111 E WAYNE STREET; BAKER AND DANIELS LLP; SCHERRER PATENT AND TRADEMARK LAW PC; STEPHEN T; MONIQUE A

Designated states: AL AT BA BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Title: METHOD AND APPARATUS FOR CREATING **SOIL** OR ROCK SUBSURFACE SUPPORT

Abstract: Source: US2005135882A [EN] A subsurface support includes a protective outer member that encases an interior support member. The inner support member may typically be a steel or iron rod which is held within the outer **tube** as by grout or cement. The outer **tube** is preferably emplaced by forcing the outer **tube** into the **ground** by use of a launching device. The distal end of the outer **tube** is pointed thus allowing easier penetration of the outer **tube** into the **ground**. The subsurface support may be used in numerous functional ways to provide support for an overlying man made structure, or to stabilize surrounding rock and **soil**. The support can be used in compression, tension, bending, and/or shear.

Classifications:

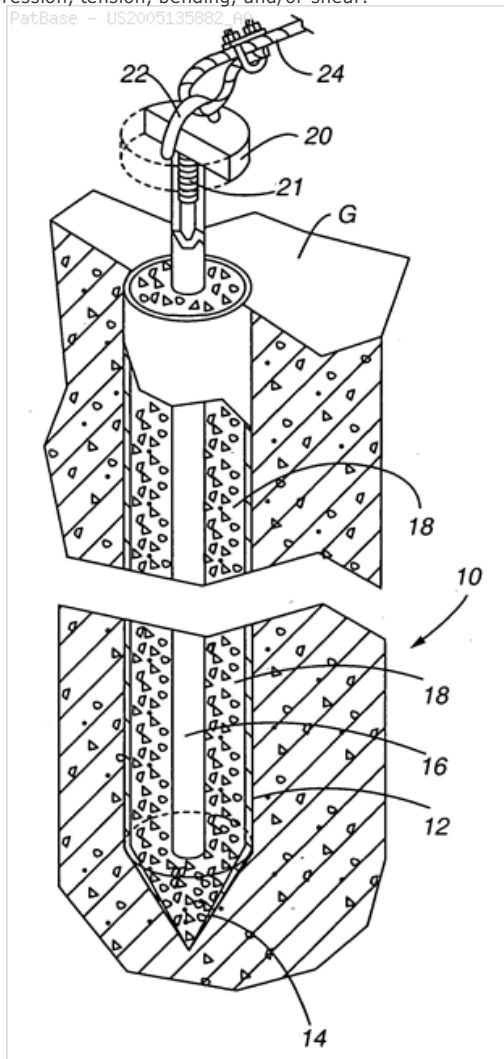
International (IPC 8-9): E02D17/00 E02D17/20 E02D3/00 E02D3/12 E02D37/00 E02D5/80 E02D7/02 E02D7/06 E04H17/22 E21D20/00 E21D21/00 (Advanced/Invention); E02D3/00 E02D5/80 E02D7/00 E21D20/00 E21D21/00 (Core/Invention)

International (IPC 1-7): E02D3/00 E21D20/00

CPC: E02D3/12 E02D5/808 E02D7/02 E02D5/80

European: E02D3/12 E02D5/80 P02D5/80F

US: 1/1 173/90 405/232 405/239 405/244 405/258.1 405/259.1 405/259.100P 405/259.100S 405/259.5 405/259.500P 405/302.4 427/433



Family:

Publication number	Publication date	Application number	Application date
AU2010200459 AA	20110707	AU20100200459	20100209
AU2010200459 BB	20121206	AU20100200459	20100209
CA2591617 AA	20080127	CA20072591617	20070716
CA2591617 C	20110614	CA20072591617	20070716
CA2692138 AA	20110623	CA20102692138	20100204
CA2692138 C	20130521	CA20102692138	20100204
CA2809129 AA	20110623	CA20102809129	20100204
CA2809129 C	20151201	CA20102809129	20100204
CA2809139 AA	20110623	CA20102809139	20100204
CA2809139 C	20141209	CA20102809139	20100204
NZ583117 A	20101029	NZ20100583117	20100205
NZ586911 A	20101029	NZ20100586911	20100205
US2005135882 AA	20050623	US20030741951	20031218
US2006263150 AA	20061123	US20060460317	20060727
US2007172315 AA	20070726	US20070693584	20070329
US2010054866 AA	20100304	US20090615668	20091110
US2010166505 AA	20100701	US20090646573	20091223
US2010166506 AA	20100701	US20090646672	20091223
US2013209177 AA	20130815	US20120586683	20120815
US2014255107 AA	20140911	US20140285986	20140523
US7226247 BB	20070605	US20030741951	20031218
US7338233 BB	20080304	US20060460317	20060727
US8851801 BB	20141007	US20090646573	20091223
US9273442 BB	20160301	US20090646672	20091223

Priority:

CA20072591617 20070716	CA20102692138 20100204	CA20102809129 20100204
CA20102809139 20100204	CA20132692138 20130325	CA20132692138 20130325
US20070693584 20070329	US20090615668 20091110	US20090646573 20091223
US20090646672 20091223	US20060460317 20060727	US20030741951 20031218
US20120586683 20120815	US20140285986 20140523	

Probable Assignee: R AND B LEASING LLC

Assignee(s): (std): BARRETT COLBY ; BARRETT ROBERT K ; R AND B LEASING LLC ; RUCKMAN ALBERT C ; RUCKMAN TIMOTHY ALLEN

Assignee(s): R AND B LEASING LLC955 MALACHITE DRIVEFRUITACO81521US ; FIFTH THIRD BANK ADMINISTRATIVE AGENT AS ; FIFTH THIRD BANK AN OHIO BANKING CORP

Inventor(s): (std): ALLEN RUCKMAN TIMOTHY ; BARRETT COLBY ; COLBY BARRETT ; RUCKMAN TIMOTHY ALLEN ; RUCKMAN ALBERT C ; BARRETT ROBERT K

Inventor(s): BARRETT ROBERT ; RUCKMAN ALBERT ; RUCKMAN TIMOTHY ALLENUS ; BARRETT COLBYUS

Agent(s): SHELSTON IP; SHELSTON IP PTY LTD; GOODWIN MCKAY; PARLEE MCLAWS LLP; BURNET DUCKWORTH AND PALMER LLP; SHERIDAN ROSS PC

Title: METHODS AND APPARATUS FOR REMOVAL AND CONTROL OF MATERIAL IN LASER DRILLING OF A BOREHOLE

Abstract: Source: US2010044102A [EN] There is provided a system, apparatus and methods for removal of material for the path of a laser beam during laser drilling of a borehole and for removal of displaced borehole material from the borehole during laser drilling. In particular, there are provided paths, dynamics and parameters of fluid flows, and apparatus for obtaining such, for use in conjunction with a laser bottom hole assembly.

Classifications:

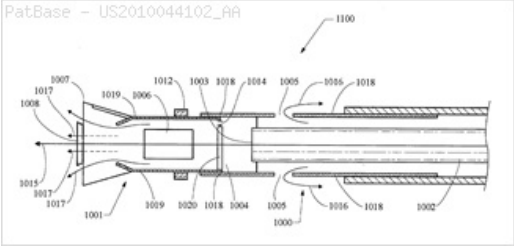
International (IPC 8-9): B01J19/12 B08B7/00 B08B9/02 B08B9/023 B08B9/027 B08B9/055 B23K26/00 B23K26/04 B23K26/06 B23K26/064 B23K26/073 B23K26/08 B23K26/10 B23K26/12 B23K26/122 B23K26/14 B23K26/16 B23K26/24 B23K26/352 B23K26/36 B23K26/38 B23K26/382 B23K26/40 B23K26/402 B23P11/00 B63B17/00 B63B35/28 B63C11/40 B63C11/44 B63C11/48 B63G8/00 B63G8/08 B65H55/00 B65H59/00 E01C23/08 E01C23/12 E02B17/00 E02D17/00 E21B10/00 E21B10/50 E21B10/54 E21B10/60 E21B17/00 E21B17/20 E21B19/00 E21B19/22 E21B21/00 E21B21/08 E21B21/10 E21B21/14 E21B21/16 E21B23/00 E21B23/14 E21B29/00 E21B29/02 E21B29/06 E21B33/00 E21B33/06

E21B33/064 E21B33/12 E21B33/13 E21B37/00 E21B4/02 E21B4/04 E21B41/00 E21B41/04 E21B43/00 E21B43/11 E21B43/114 E21B43/119 E21B43/24 E21B43/26 E21B43/267 E21B44/00 E21B47/00 E21B47/113 E21B47/12 E21B49/00 E21B7/00 E21B7/14 E21B7/15 E21B7/16 E21C35/00 E21C37/16 E21C37/18 E21C41/00 E21D9/10 F21V15/01 F21V15/06 F21V29/00 F21V8/00 G01J1/04 G01M11/00 G01M5/00 G02B6/08 G02B27/14 G02B27/20 G02B6/02 G02B6/26 G02B6/28 G02B6/32 G02B6/36 G02B6/38 G02B6/44 H01J27/24 H01J40/14 H01L21/00 H01L31/00 H01L31/055 H01S3/00 H01S3/04 H01S3/067 H01S3/08 H01S3/094 H01S3/0941 H01S3/109 H01S3/16 H01S3/30 H01S5/024 H01S5/40 H02G1/08 H04B10/079 (Advanced/Invention); B08B7/00 B23K103/00 B63B19/00 B63B21/00 B63B35/00 E02B17/00 E21B15/00 E21B23/00 E21B43/00 E21B43/116 E21B43/16 E21B49/00 E21B7/04 E21B7/15 G02B6/32 G02B6/36 G02B6/38 G02B6/42 G02B6/50 (Advanced/Non-invention); B65H55/00 E21B17/00 E21B7/00 E21B7/14 G02B6/44 (Core/Invention)

CPC: E21B4/18 E21B17/203 E21B21/12 E21B21/16 H01L31/03046 Y02E10/544 H04B10/807 H01L2924/01015 H01L2924/01047 H01L2924/00014 B63B35/28 E21C37/18 E21D9/1073 G02B6/4413 B23K26/0626 B23K37/0288 E02B2017/0052 B08B9/02 B08B9/055 G02B6/502 B23K26/142 B23K26/40 B63G2008/007 B63G8/001 E21B41/04 E21B33/076 E21B36/04 E21B37/00 E21B37/08 F17D5/00 B08B9/04 B08B9/0436 B08B7/0071 B08B9/023 B08B9/027 B23K26/0093 B23K26/0648 B23K26/10 E21B4/04 E21B2023/008 H01L31/0201 H01L31/022433 H01L31/0508 H01L31/054 E02B2017/0052 B08B9/02 B08B9/055 G02B6/502 B23K26/142 B23K26/40 B63G2008/007 B63G8/001 E21B41/04 B23K26/1462 E01C23/127 G01M5/0025 G01M5/0033 G01M5/0091 G01M11/35 Y02E10/52 G02B6/4415 G02B6/443 G02B6/4436 G02B6/4492 B23K2203/52 E21B33/064 E21B33/063 B23K26/14 B63B17/00 B63B19/00 B63B21/00 B63B35/00 E02D17/00 B08B7/0042 B23K26/0652 B23K26/127 B23K26/0732 B23K26/0736 H01S3/04 G02B6/44 E21C25/64 E21C27/24 H01S3/0675 H01S3/094003 H01S3/094042 H01S3/1608 H01S3/1616 B08B9/043 E21B43/00 E21B43/01 G21C17/017 E21B17/00 G02B6/02395 B23K26/0096 B23K26/04 E21B29/02 H01S3/0064 G02B6/4427 G02B2006/4297 E21B43/119 E21B43/26 B23K26/382 H01S3/0071 B23K26/16 B23K2201/04 B23K26/282 B23K26/38 B60P1/5423 B66C23/36 B23K26/106 H01S5/02423 G02B23/2492 H01S3/005 G02B26/0875 G02B6/4296 E21B33/1204 H01L2924/00011 B23K26/402 B23K2203/30 E21B43/162 E21B49/00 H01S3/06733 H01S3/1603 H01S3/0941 H01S3/094007 G02B6/2817 G02B6/3871 G02B6/3897 H01S3/08 G02B6/3604 E21B7/14 H01S3/302 H01S3/094046 H01S3/09415 H01S3/06708 H01S3/109 E21B29/06 E21B43/2405 B23K26/06 H01S3/094015 H01S3/094092 H01S3/094096 H01S3/1693 H01S3/1695 H01S3/2383 E21B7/15 E21B10/60 G02B6/4458 E21B21/00 E21B21/08 E21B21/103 E21B29/00 E21B43/11 E02B17/027 G02B6/3624 G02B6/4417 B23K26/03 B23K26/0622 B23K26/122 B23K26/1476 B23K37/02 B23K2201/06 B23K2203/04 G02B6/262 G02B6/3813 G02B6/3814 G02B6/3818 H01S3/042 B23K2203/50 B23K26/146 G02B6/14

European: B08B7/00S2 B23K26/00M B23K26/06C B23K26/06C3 B23K26/06C5 B23K26/10 B23K26/10R1 B23K26/12B B23K26/12F B23K26/14D B23K26/14N1 B23K26/38 B23K26/40B7 B63G8/00B E21B10/60 E21B17/20B E21B21/08 E21B21/12 E21B21/16 E21B4/18 E21B7/14 E21B7/15 G02B6/44C1 G02B6/44C6 G02B6/44C7A H04B10/807 L23K203/10 S02B6/42H S02B6/44C10 S02B6/44C5B S02B6/44C6 S02B6/44C7A S02B6/44C7F

US: 1/1 114/26 114/312 114/313 114/337 134/1.1 166/242.2 166/250.1 166/280.1 166/288 166/297 166/304 166/361 166/376 166/384 166/385 166/55.1 166/55.2 166/65.1 166/65.100S 166/66 166/77.1 166/77.2 175/107 175/11 175/15 175/15P 175/16 175/162 175/16P 175/16S 175/40 175/424 175/57 175/65 175/65S 175/92 175/92S 219/121.61 219/121.67 219/121.670S 219/121.7 219/121.72 219/121.720P 219/121.84 219/60R 219/61 242/159 242/159S 250/215 250/227.11 250/492.1 250/492.100P 254/134.3FT 254/134.3R 254/134.4 29/428 29/428S 299/14 299/29 359/226.2 362/259 362/317 362/553 362/553S 372/14 372/4 372/9 385/100 385/102 385/104 385/109 385/109P 385/111 385/12 385/13 385/134 385/26 385/88 385/89 385/92 385/93 385/94



Family:

Publication number	Publication date	Application number	Application date
AU2009340454 AA	20100826	AU20090340454	20090819
AU2014228980 AA	20140918	AU20140228980	20140314
AU2014228980 BB	20180222	AU20140228980	20140314
BR112013001512 A2	20160607	BR20131101512	20110719
BR112013021478 A2	20161011	BR20131121478	20120223
BRPI0918403 A2	20151124	BR2009P118403	20090819
CA2734492 AA	20100826	CA20092734492	20090819
CA2734492 C	20160517	CA20092734492	20090819
CA2805437 AA	20130114	CA20112805437	20110719
CA2805437 C	20160906	CA20112805437	20110719
CA2808214 AA	20130212	CA20112808214	20110816
CA2808214 C	20160223	CA20112808214	20110816
CA2823922 AA	20100826	CA20092823922	20090819
CA2891500 AA	20150513	CA20132891500	20131115
CA2906738 AA	20150914	CA20142906738	20140314
CN102187046 A	20110914	CN200980141304	20090819
CN102187046 B	20150429	CN200980141304	20090819
EP2315904 A1	20110504	EP20090840554	20090819
EP2315904 A4	20160420	EP20090840554	20090819
EP2399155 A1	20111228	EP20100786516	20100217
EP2399155 A4	20140709	EP20100786516	20100217
EP2596395 A2	20130529	EP20110810287	20110719
EP2596395 A4	20171227	EP20110810287	20110719
EP2606201 A1	20130626	EP20110818657	20110816
EP2606201 A4	20180307	EP20110818657	20110816
EP2611566 A1	20130710	EP20110822594	20110831

EP2611566 A4	20171108	EP20110822594	20110831
EP2664010 A2	20131120	EP20120734537	20120110
EP2678512 A1	20140101	EP20120749304	20120223
EP2678512 A4	20170614	EP20120749304	20120223
EP2715887 A1	20140409	EP20120793799	20120601
EP2715887 A4	20161123	EP20120793799	20120601
EP2739429 A2	20140611	EP20120820743	20120802
EP2739429 A4	20161102	EP20120820743	20120802
EP2820466 A1	20150107	EP20130754543	20130219
EP2820466 A4	20160330	EP20130754543	20130219
GC3576 A	20150604	GC2009P014608	20091031
GC5934 A	20170716	GC2013P023714	20130302
JP2012500350 T2	20120105	JP20110523959T	20090819
JP2012518210 T2	20120809	JP20110551172T	20100217
JP2015017498 A2	20150129	JP20140191026	20140919
JP5684151 B2	20150311	JP20110551172T	20100217
JP5844868 B2	20160120	JP20140191026	20140919
MX2011001908 A1	20110620	MX20110001908	20090819
RU2011110388 A	20120927	RU20110110388	20090819
RU2011138270 A	20130327	RU20110138270	20100217
RU2522016 C2	20140710	RU20110110388	20090819
RU2551392 C2	20150520	RU20110138270	20100217
US2010044102 AA	20100225	US20090543968	20090819
US2010044103 AA	20100225	US20090543986	20090819
US2010044104 AA	20100225	US20090544038	20090819
US2010044105 AA	20100225	US20090544094	20090819
US2010044106 AA	20100225	US20090544136	20090819
US2010215326 AA	20100826	US20100706576	20100216
US2012020631 AA	20120126	US20100840978	20100721
US2012067643 AA	20120322	US20110211729	20110817
US2012068086 AA	20120322	US20110210581	20110816
US2012074110 AA	20120329	US20110222931	20110831
US2012248078 AA	20121004	US20120403692	20120223
US2012255774 AA	20121011	US20120403615	20120223
US2012255933 AA	20121011	US20120366882	20120206
US2012261188 AA	20121018	US20120403132	20120223
US2012266803 AA	20121025	US20120347445	20120110
US2012267168 AA	20121025	US20120403287	20120223
US2012273269 AA	20121101	US20120403723	20120223
US2012273470 AA	20121101	US20120403741	20120223
US2012275159 AA	20121101	US20120403509	20120223
US2013011102 AA	20130110	US20120486795	20120601
US2013175090 AA	20130711	US20130777650	20130226
US2013192893 AA	20130801	US20130800559	20130313
US2013192894 AA	20130801	US20130800933	20130313
US2013228372 AA	20130905	US20130782869	20130301
US2013228557 AA	20130905	US20130768149	20130215
US2013266031 AA	20131010	US20130782942	20130301
US2013319984 AA	20131205	US20130966969	20130814
US2014060802 AA	20140306	US20130800820	20130313
US2014060930 AA	20140306	US20130800879	20130313
US2014090846 AA	20140403	US20130105949	20131213
US2014190949 AA	20140710	US20140213212	20140314
US2014231085 AA	20140821	US20120565345	20120802
US2014231398 AA	20140821	US20130139680	20131223
US2014248025 AA	20140904	US20130057567	20131018
US2015129203 AA	20150514	US20130082026	20131115
US2015307174 AA	20151029	US20150791172	20150702
US2015308194 AA	20151029	US20140330980	20140714
US2015321290 AA	20151112	US20150803228	20150720
US2015322738 AA	20151112	US20130104395	20131212
US2016017661 AA	20160121	US20140335627	20140718
US2016084008 AA	20160324	US20150958864	20151203
US2016090790 AA	20160331	US20130852719	20130328
US2016186497 AA	20160630	US20150746382	20150622
US2016186524 AA	20160630	US20160064165	20160308
US2016187588 AA	20160630	US20160997072	20160115
US2016221125 AA	20160804	US20130080722	20131114
US2016222763 AA	20160804	US20130058681	20131021
US2016251940 AA	20160901	US20140214304	20140314
US2016299304 AA	20161013	US20160154718	20160513
US2016341906 AA	20161124	US20160147269	20160505
US2017016299 AA	20170119	US20160218509	20160725
US2017059854 AA	20170302	US20160140412	20160427
US2017183913 A9	20170629	US20130782869	20130301
US2017191314 AA	20170706	US20170445238	20170228
US2017214213 AA	20170727	US20130099948	20131207
US2017252858 AA	20170907	US20160349914	20161111
US2017266760 AA	20170921	US20170612679	20170602
US2017321486 AA	20171109	US20170656976	20170721
US2018045024 AA	20180215	US20170603192	20170523

US8511401 BB	20130820	US20090544136	20090819
US8571368 BB	20131029	US20100840978	20100721
US8627901 BA	20140114	US20100896021	20101001
US8636085 BB	20140128	US20090543968	20090819
US8662160 BB	20140304	US20110210581	20110816
US8701794 BB	20140422	US20130800559	20130313
US8757292 BB	20140624	US20130800933	20130313
US8820434 BB	20140902	US20090544038	20090819
US8826973 BB	20140909	US20090543986	20090819
US8869914 BB	20141028	US20130800820	20130313
US8879876 BB	20141104	US20130057567	20131018
US8936108 BB	20150120	US20130800879	20130313
US8997894 BB	20150407	US20130777650	20130226
US9027668 BB	20150512	US20120403692	20120223
US9074422 BB	20150707	US20120403287	20120223
US9080425 BB	20150714	US20120347445	20120110
US9089928 BB	20150728	US20120565345	20120802
US9138786 BB	20150922	US20120366882	20120206
US9242309 BB	20160126	US20130768149	20130215
US9244235 BB	20160126	US20130782942	20130301
US9267330 BB	20160223	US20120403723	20120223
US9284783 BA	20160315	US20130852719	20130328
US9327810 BB	20160503	US20150791172	20150702
US9347271 BB	20160524	US20100706576	20100216
US9360631 BB	20160607	US20120403509	20120223
US9360643 BB	20160607	US20120486795	20120601
US9399269 BB	20160726	US20140213212	20140314
US9492885 BB	20161115	US20150803228	20150720
US9512679 BB	20161206	US20130104395	20131212
US9534447 BB	20170103	US20140335627	20140718
US9545692 BB	20170117	US20130080722	20131114
US9562395 BB	20170207	US20120403615	20120223
US9664012 BB	20170530	US20130105949	20131213
US9669492 BB	20170606	US20130966969	20130814
US9719302 BB	20170801	US20130782869	20130301
US9784037 BB	20171010	US20150746382	20150622
WO10096086 A1	20100826	WO2009US54295	20090819
WO10144160 A1	20101216	WO2010US24368	20100217
WO12012436 A2	20120126	WO2011US44548	20110719
WO12012436 A3	20120315	WO2011US44548	20110719
WO12024285 A1	20120223	WO2011US47902	20110816
WO12031009 A1	20120308	WO2011US50044	20110831
WO12096966 A2	20120719	WO2012US20789	20120110
WO12096966 A3	20121004	WO2012US20789	20120110
WO12116148 A1	20120830	WO2012US26265	20120223
WO12116153 A1	20120830	WO2012US26277	20120223
WO12116155 A1	20120830	WO2012US26280	20120223
WO12167102 A1	20121206	WO2012US40490	20120601
WO13019959 A2	20130207	WO2012US49338	20120802
WO13019959 A3	20130328	WO2012US49338	20120802
WO13130302 A1	20130906	WO2013US26673	20130219
WO14078663 A2	20140522	WO2013US70321	20131115
WO14078663 A3	20140821	WO2013US70321	20131115
WO14144591 A2	20140918	WO2014US29067	20140314
WO14144591 A3	20141211	WO2014US29067	20140314
WO14144887 A2	20140918	WO2014US29482	20140314
WO14144887 A3	20141204	WO2014US29482	20140314
WO14149114 A2	20140925	WO2013US77614	20131223
WO14149114 A3	20150115	WO2013US77614	20131223

Priority:

CA20092734492	20090819	CA20092823922	20090819	US20080090384P	20080820
US20080102730P	20081003	JP20110523959	20090819	JP20110523959T	20090819
US20080106472P	20081017	US20090153271P	20090217	US20090543968	20090819
US20090543986	20090819	US20090544038	20090819	US20090544094	20090819
US20090247796P	20091001	US20090320581	20090129	US20090544136	20090819
US20100295562P	20100115	US20100706576	20100216	US20100840978	20100721
US20100374594P	20100817	US20100378910P	20100831	US20110211729	20110817
US20110210581	20110816	US20110222931	20110831	US20110431827P	20110111
US20110431830P	20110207	US20100896021	20101001	US20110034037	20110224
US20110034183	20110224	US20110034017	20110224	US20110034175	20110224
US20110446042P	20110224	US20110446043P	20110224	US20110446312P	20110224
US20110439970P	20110207	US20110514391P	20110802	US20110446040P	20110224
US20110446041P	20110224	US20110446412P	20110224	US20110446407P	20110224
US20120403692	20120223	US20120403615	20120223	US20120366882	20120206
US20120403132	20120223	US20120347445	20120110	US20120403287	20120223
US20110446047P	20110224	US20120403723	20120223	US20120403741	20120223
US20120403509	20120223	US20120605429P	20120301	US20120605434P	20120301
US20120605422P	20120301	US20120605413P	20120301	US20110493174P	20110603
US20120486795	20120601	US20120727096P	20121115	US20120565345	20120802
US20120745661P	20121224	US20130057567	20131018	US20120734809P	20121207
US20130015003	20130830	US20120605401P	20120301	WO2009US54295	20090819
WO2010US24368	20100217	WO2011US44548	20110719	WO2011US47902	20110816
WO2011US50044	20110831	US20130777650	20130226	US20130800559	20130313
US20130800933	20130313	US20130782869	20130301	US20130768149	20130215

US20130755745P	20130123	WO2012US20789	20120110	US20130966969	20130814
WO2012US26265	20120223	US20130800820	20130313	US20130800879	20130313
US20130105949	20131213	WO2012US40490	20120601	US20130786687P	20130315
US20130798875P	20130315	WO2012US49338	20120802	US20140213212	20140314
US20130139680	20131223	US20130786875P	20130315	US20130080722	20131114
US20130082026	20131115	US20130786763P	20130315	US20130099948	20131207
WO2013US26673	20130219	WO2013US70321	20131115	WO2014US29067	20140314
US20150791172	20150702	US20140330980	20140714	US20150803228	20150720
US20130104395	20131212	US20140335627	20140718	US20130852719	20130328
US20150958864	20151203	US20140214304	20140314	US20150746382	20150622
US20160064165	20160308	US20140270288	20140505	US20150266509P	20151211
US20130058681	20131021	US20160154718	20160513	US20160147269	20160505
US20160218509	20160725	US20150262870P	20151203	US20160140412	20160427
US20170445238	20170228	US20160997072	20160115	US20130782942	20130301
US20160349914	20161111	US20170612679	20170602	US20170656976	20170721
US20130768149P	20130215	US20170603192	20170523	US20170788752	20171019
US20160410724P	20161020				

Probable Assignee: FORO ENERGY INC

Assignee(s): (std): MOXLEY JOEL F ; LAND MARK S ; KOBLICK YESHAYA ; GRUBB DARYL L ; GRAY WILLIAM C ; MCKAY RYAN P ; KOLACHALAM SHARATH K ; MAKKI SIAMAK ; JONES ALBERTUS REBECCA ; FRAZE JASON D ; FORO ENERGY INC ; LINYAEV EUGENE J ; MARSHALL SCOTT A ; MESNARD DAVID R ; HAVLINEK KENNETH L ; KOLACHALAM SHARARTH ; FAIRCLOTH BRIAN O ; FAIRCLOTH BRIAN O ; DEWITT RON A ; DEWITT RONALD A ; FORD ENERGY INC ; FAIRDOTH BRIAN O ; FORO EHNERDZHI INK ; LINYAEV EUGENCE J ; KOLACHALAM SHARARTH K ; NEHLSSEN JAMES P ; RINZLER CHARLES C ; ZEDIKER MARK S ; UNDERWOOD LANCE D ; SCHROIT SAM N ; NORTON RYAN J ; VOLKMAR JOHN F ; ALLEN ERIK C ; CHEVRON USA INC ; DE WITT RONALD A ; DEUTCH PAUL D

Assignee(s): DEUTSCH PAUL D ; YEARWOOD JOHN ; ZIMMERMAN TOM ; ELY JOHN L ; ENERGY UNITED STATES DEPARTMENT OF ; KELLERMANN FRED C

Inventor(s): (std): ALLEN ERIK C ; BRIAN O FAIRCLOTH ; CHARLES C RINZLER ; DE WITT RONALD A ; DEUTCH PAUL D ; DEWITT RON A ; DEWITT RONALD A ; ELY JOHN ; ELY JOHN L ; FAIRCLOTH BRIAN O ; FAIRDOTH BRIAN O ; FEHRKLOT BRAJAN O ; FRAZE JASON D ; GRAY WILLIAM C ; GRUBB DARYL L ; HAVLINEK KENNETH L ; JOEL F MOXLEY ; JONES ALBERTUS REBECCA ; KELLERMANN FRED C ; KOBLICK YESHAYA ; KOBLIK JESHAJA ; KOLACHALAM SHARARTH ; KOLACHALAM SHARATH K ; LAND MARK S ; LEHND MARK S ; LINYAEV EUGENCE J ; LINYAEV EUGENE J ; MAKKI SIAMAK ; MARK S LAND ; MARK S ZEDIKER ; MARSHALL SCOTT A ; MCKAY RYAN P ; MOKSLI DZHOEL F ; MOXLEY JOEL F ; NEHLSSEN JAMES P ; RINZLER CHARL Z K ; RINZLER CHARLES C ; SCHROIT SAM N ; UNDERWOOD LANCE D ; YEARWOOD JOHN ; YESHAYA KOBLICK ; ZEDIKER MARK S ; ZIMMERMAN TOM ; VOLKMAR JOHN F ; KOLACHALAM SHARARTH K ; GRUBB DARYL ; NORTON RYAN J ; MESNARD DAVID R ; FAIRCLOTH BRIAN O ; LEE IAN ; KUZNETSOV ANDREY

Inventor(s): DEUTSCH PAUL D ; SHARATH K KOLACHALAM ; MARK SZEDIKER ; JOEL FMOXLEY ; ERIK C ALLEN ; CHARLES CRINZLER ; DARYL L GRUBB ; BRIAN OFAIRCLOTH

Agent(s): SPRUSON AND FERGUSON; CASSAN MACLEAN; CASSAN MACLEAN IP AGENCY INC; BUNGARTZ KLAUS PETER; TERSTEEGEN FELIX; SABA AND CO TMP; SAUD M A SHAWWAF LAW OFFICE; ITOH SHIGERU; BRINKS HOFER GILSON AND LIONE; FORO ENERGY/BHGL; FORO ENERGY BHGL; GLEN; GLEN P; STEPTOE AND JOHNSON LLP; STEPTOE AND JOHNSON; BRIAN; STEPTOE AND JOHNSON LLC; BELVIS LAW LLC; BELVIS GLEN P; FREEMAN JOHN C; BELVIS GLEN P 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

Title: **PILE** COUPLING

Abstract: Source: US2008063479A [EN] The invention includes a coupling for assembling **pile** sections in series. The **pile** sections each include transverse flanges at each end. The **pile** sections are coupled together by fastening a flange of one **pile** section to a flange of another **pile** section. This allows the fasteners to be oriented in a direction that is substantially parallel to the longitudinal axis of the **pile** sections.

Classifications:

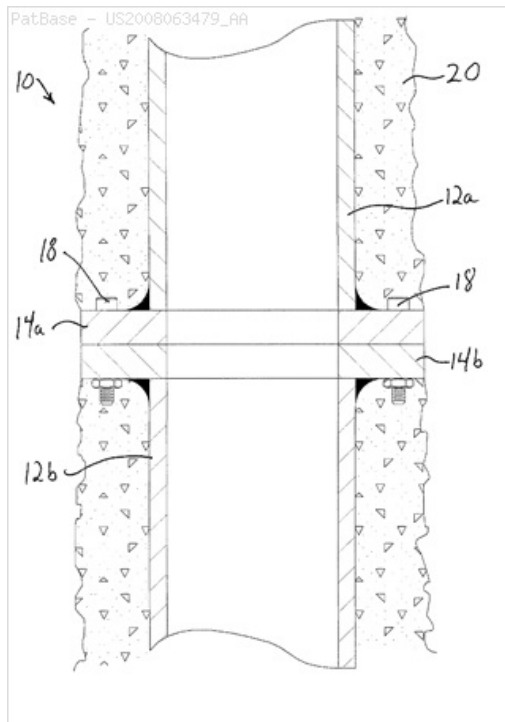
International (IPC 8-9): E02D11/00 E02D27/12 E02D5/00 E02D5/03 E02D5/08 E02D5/16 E02D5/24 E02D5/34 E02D5/36 E02D5/46 E02D5/52 E02D5/56 E02D5/62 E02D5/74 E02D5/76 (Advanced/Invention);

E02D5/00 E02D5/02 E02D5/74 (Core/Invention)

CPC: E02D5/36 E02D5/56 E02D5/34 E02D11/00 E02D27/12 E02D5/52 E02D5/24 E02D5/28 E02D5/285 E02D5/46 E02D5/523 E02D5/526 E02D5/801 E02D5/808

European: A61N1/00 E02D5/36 E02D5/52 E02D5/56

US: 175/323 175/394 405/232 405/233 405/233P 405/241 405/241P 405/244 405/244S 405/251 405/252.1 405/253



Family:

Publication number	Publication date	Application number	Application date
AU2010307175 AA	20110421	AU20100307175	20100930
AU2010307175 BB	20141002	AU20100307175	20100930
CA2777681 AA	20120413	CA20102777681	20100930
CA2777681 C	20180213	CA20102777681	20100930
EP2488702 A1	20120822	EP20100823826	20100930
EP2488702 A4	20160810	EP20100823826	20100930
NZ599362 A	20131129	NZ20100599362	20100930
US2008063479 AA	20080313	US20070852858	20070910
US2010054864 AA	20100304	US20090580004	20091015
US2012087740 AA	20120412	US20110269595	20111009
US2015176238 AA	20150625	US20140577363	20141219
US2018030681 AA	20180201	US20170678599	20170816
US8033757 BB	20111011	US20090580004	20091015
US8926228 BB	20150106	US20110269595	20111009
WO08031107 A2	20080313	WO2007US78066	20070910
WO08031107 A3	20080717	WO2007US78066	20070910
WO08031107 C2	20080424	WO2007US78066	20070910
WO11046748 A1	20110421	WO2010US50869	20100930

Priority:

US20060843015P 20060908	US20070852858 20070910	US20090580004 20091015
US20110269595 20111009	US20140577363 20141219	US20150112952P 20150206
WO2010US50869 20100930	US20170678599 20170816	US20160018360 20160208

Probable Assignee: BEN STROYER

Assignee(s): (std): BEN STROYER ; STROYER BEN ; STROYER BENJAMIN G

Inventor(s): (std): STROYER BEN ; STROYER BENJAMIN G

Agent(s): SHELSTON IP; SHELSTON IP PTY LTD; ADAMS PATENT AND TRADEMARK AGENCY; RIDOUT AND MAYBEE LLP; FLEUCHAUS MICHAEL A; HISCOCK AND BARCLAY LLP; HALL WILLIAM M; FITZGERALD THOMAS R ET AL

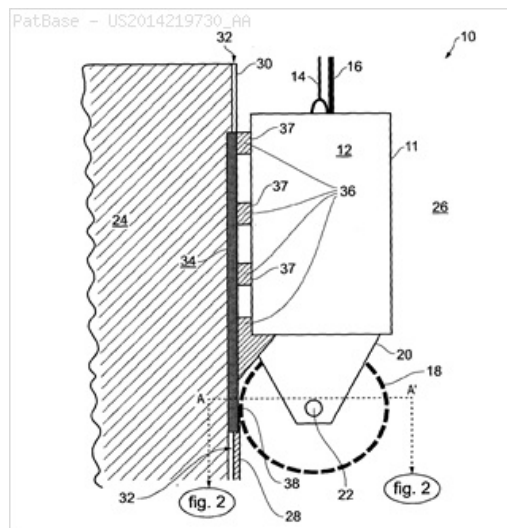
Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY 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

Title: DIAPHRAGM WALL APPARATUS AND METHODS

Abstract: Source: US2014219730A [EN] The invention relates to apparatus and methods and kits for constructing walls such as diaphragm walls comprising one or more panels and walls so constructed. In particular the invention relates to apparatus, methods and diaphragm walls having a guideway along a height of a first wall of a pane). More particularly, the invention relates to an apparatus for constructing a diaphragm wall comprising: a guideway **tube** along a height of a first wall of a first concrete panel; a sacrificial wall element in the guideway **tube** that extends along the **tube** and about a portion of a periphery of the **tube**; a cutting mechanism for cutting along the height of a first wall of the first concrete panel, the cutting mechanism being arranged to cut along the height of the wall of the first concrete panel and along the sacrificial wall element of the guideway **tube** so as to cut away at least part of the sacrificial wall element of the guideway **tube** along at least part of the height of the first wall. The invention further relates to a comprising: casting a guideway **tube** into a first concrete panel along a height of a first wall of the panel; cutting along the height of the first wall of the panel; cutting along at least part of the length of the sacrificial wall element of the guideway **tube**; pouring a second concrete panel, including pouring concrete into the cutaway guideway **tube**. The invention further provides a diaphragm wall comprising at least two or a series of concrete panels adjoining one another.

Classifications:**International (IPC 8-9):** E02D17/13 E02D29/16

E02D5/18 (Advanced/Invention)

CPC: E02D5/18 E02D17/13 E02D29/16**US:** 1/1 405/284 405/287**Family:**

Publication number	Publication date	Application number	Application date
DE602012011810 D1	20151203	DE201260011810T	20120710
EP2732101 A2	20140521	EP20120740185	20120710
EP2732101 B1	20151021	EP20120740185	20120710
GB201112136 A0	20110831	GB20110012136	20110714
GB201200655 A0	20120229	GB20120000655	20120116
GB201212300 A0	20120822	GB20120012300	20120711
GB2492890 A1	20130116	GB20120012300	20120711
US2014219730 AA	20140807	US20120232796	20120710
US9371623 BB	20160621	US20120232796	20120710
WO13007968 A2	20130117	WO2012GB00579	20120710
WO13007968 A3	20130926	WO2012GB00579	20120710

Priority:

EP20120740185 20120710 GB20110012136 20110714 GB20120000655 20120116
 WO2012GB00579 20120710

Probable Assignee: CCMJ SYSTEMS LTD**Assignee(s):** (std): CCMJ SYSTEMS LTD ; COUPLAND JOHN W ; COUPLAND JOHN WILLIAM**Assignee(s):** JOHN WILLIAM COUPLAND ; CCMJ SYSTEMS LTD STRATHPEFFER**Inventor(s):** (std): COUPLAND JOHN WILLIAM**Inventor(s):** JOHN WILLIAM COUPLAND**Agent(s):** KILBURN AND STRODE LLP; MACDONALD KATE; MOORE AND VAN ALLEN PLLC; W KEVIN

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 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

Title: WATER HAMMER **PILE** DRIVING WITH CONDENSABLE VAPOR RESET

Abstract: Source: US3800548A [EN] Driving long **piles** with a liquid ram or spear generated in an evacuated **tube** using a condensable vapor reset. In one embodiment, the **pile** itself is used as at least a portion of the working chamber for generating water hammer.

Classifications:

International (IPC 8-9): E02D7/00 E02D7/02 E02D7/26

E02D7/28 (Advanced/Invention);

E02D7/00 (Core/Invention)

International (IPC 1-7): E02D7/00 E02D7/02 E02D7/10 E02D7/18

E02D7/20 E02D7/26 E02D7/28 G01V1/38

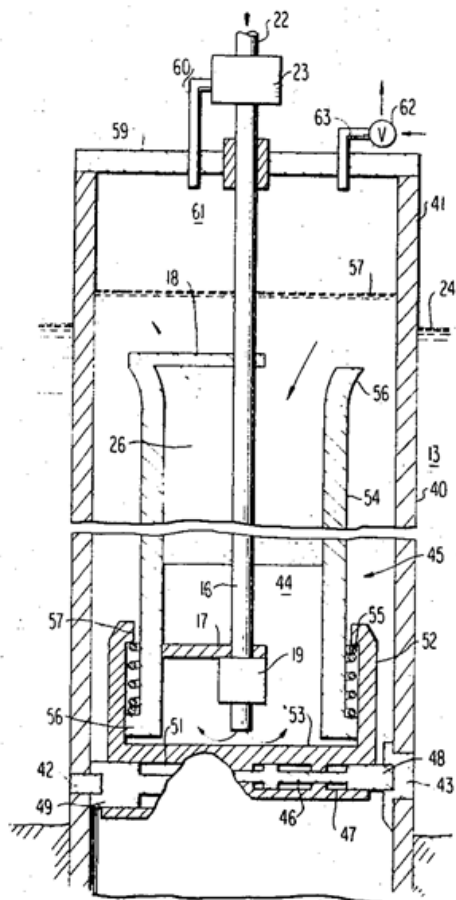
CPC: E02D7/02 E02D7/26 E02B17/02 E02D7/18 E02D7/20

E02D13/04 Y10S173/02 E02D7/00 E02D7/28

European: E02B17/02 E02D13/04 E02D7/02 E02D7/18 E02D7/20 E02D7/26

US: 173/1 173/200 173/49 173/9. 173/90 173/DIG.2 175/19 175/56 175/6 181/119 181/120 405/228

PatBase - US3800548_A



Family:

Publication number	Publication date	Application number	Application date
BE794077 A	19730502		00000000
BE794077 A1	19730502	BE19730126489	19730115
CA963278 A1	19750225	CA19720146884	19720712
DE2333607 A1	19740117	DE19732333607	19730702
DK140462 B	19790903	DK19730000219	19730115
DK140462 C	19800128	DK19730000219	19730115
GB1397137 A	19750611	GB19720033175	19720714
NL170318 B	19820517	NL19730000581	19730115
NL170318 C	19821018	NL19730000581	19730115
NL7300581 A	19740102	NL19730000581	19730115
NO138775 B	19780731	NO19720002488	19720712
NO138775 C	19781108	NO19720002488	19720712
US3800548 A	19740402	US19720267751	19720630
US3820346 A	19740628	US19720267740	19720630
US3824797 A	19740723	US19720267753	19720630
US3842917 A	19741022	US19720267741	19720630
US3846991 A	19741112	US19720267752	19720630
US3922869 A	19751202	US19740493421	19740731

Priority:

US19710163422 19710716	US19720267740 19720630	US19720267741 19720630
US19720267751 19720630	US19720267753 19720630	US19720267752 19720630
US19720267753 19720716	US19740493421 19740731	

Probable Assignee: ORB INC

Assignee(s): (std): ORB INC

Assignee(s): ORB INC SHARON MASSACHUSETTS E U A ; ORB INC TE MARION OHIO VER ST V AM ; ORB INC US ; WISOTSKY SERGE S ; ORB

Inventor(s): (std): WISOTSKY S ; WISOTSKY S S ; WISOTSKY SERGE S

Inventor(s): WISOTSKY S US ; S S WISOTSKY ; S WISOTSKY SERGE ; SERGE S WISOTSKY ; SS WISOTSKY

Title: PILING APPARATUS AND METHOD OF INSTALLATION

Abstract: Source: US2005031418A [EN] An in-situ **piling** apparatus 10 includes a helical anchor to which a plurality of elongated generally cylindrically shaped sections can be added. Each of the sections has a specially shaped end portion for connecting to another section. An internal drive is positioned in sections inside the bore of each of the connectable **piling** sections. The internal drive includes enlarged sections that fit at the joint between **piling** sections. In one embodiment, the internal drive can be removed to leave a rod behind that defines reinforcement for an added material such as concrete. The rod also allows for a tension rod connection from the anchor tip to an upper portion attachment point.

Classifications:

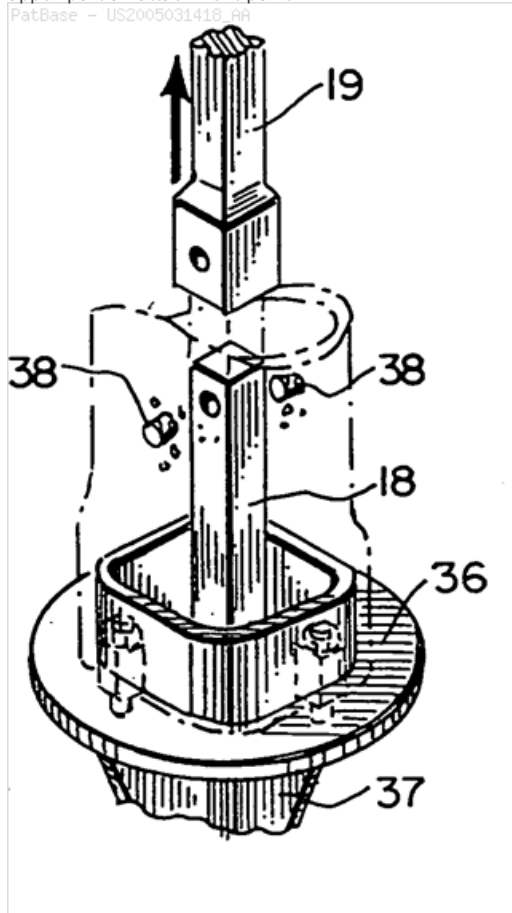
International (IPC 8-9): E02D1/00 E02D27/32 E02D27/48 E02D5/28 E02D5/38 E02D5/52 E02D5/54 E02D5/56 E02D5/72 E02D5/80 E02D7/22 E02D7/28 E02D7/30 (Advanced/Invention); E02D1/00 E02D27/32 E02D5/00 E02D5/22 E02D5/34 E02D5/80 E02D7/00 (Core/Invention); E02D (Subclass/Invention)

International (IPC 1-7): E02D E02D5/30 E02D5/38 E02D7/28

CPC: E02D5/801 E02D5/38 E02D5/52 E02D5/54 E02D5/72 E02D7/28

European: E02D5/38 E02D5/52 E02D5/54 E02D5/72 E02D5/80B E02D7/28

US: 405/232 405/233 405/233P 405/249 405/251 405/252.1 405/253 405/254 5/274.115 52/741.15

**Family:**

Publication number	Publication date	Application number	Application date
CA2544121 AA	20060421	CA20042544121	20040929
EP1692346 A2	20060823	EP20040817322	20040929
EP1692346 A4	20100310	EP20040817322	20040929
US2005031418 AA	20050210	US20040943066	20040914
US2005100416 AA	20050512	US20040983914	20041108
US2009116910 AA	20090507	US20080317353	20081222
US6814525 BA	20041109	US20010993321	20011114
US7112012 BB	20060926	US20040943066	20040914
US7314335 BB	20080101	US20040983914	20041108
US7494299 BA	20090224	US20030690489	20031021
WO05040505 A2	20050506	WO2004US31932	20040929
WO05040505 A3	20061228	WO2004US31932	20040929

Priority:

US20000248349P 20001114	US20010993321 20011114	US20040943066 20040914
US20080317353 20081222	US20030690489 20031021	US20040983914 20041108
WO2004US31932 20040929		

Probable Assignee: WHITSETT MICHAEL

Assignee(s): (std): WHITSETT MICHAEL

Inventor(s): (std): WHITSETT MICHAEL

Agent(s): GOWLING LAFLEUR HENDERSON LLP; THOMAS S KEATY KEATY PROFESSIONAL LAW CORP; KEATY PROFESSIONAL LAW THOMAS S KEATY CORP; KEATY PROFESSIONAL LAW CORP

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 SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

Title: LONGITUDINAL STABILIZER FOR A PREMANUFACTURED BUILDING

Abstract: Source: US2001000842A [EN] A longitudinal stabilizing system for a premanufactured building having support joists extending along the length of the underside of the building and being supported above the ground by upright piers. The system comprises at least one foundation plate, a joist connector, a plate connector, and a rectilinear strut. The foundation plate is placed between the pier and the ground. The joist connector attaches to the joist of the building. Plate clamps may be used in conjunction with the joist connector to grasp the joist. The plate connector attaches to the foundation plate. The strut is attached to the joist connector at one end and the plate connector at the other end such that the strut slopes downward from the joist towards the ground. In high winds, the weight of the building and the weight of the pier resting on the foundation plate retard lateral movement of the foundation plate and the end of the strut attached to the plate connector, while the end of the strut attached to the joist connector resists movement of the joist along its length.

Classifications:

International (IPC 8-9): E02D27/02 E02D27/34 E02D27/48

E04B1/343 (Advanced/Invention);

E02D27/02 E02D27/32 E02D27/34 E04B1/343 (Core/Invention)

International (IPC 1-7): E02D27/00 E02D27/32 E02D27/42

E02D27/48 E02D5/74 E04B1/98 E04H9/02

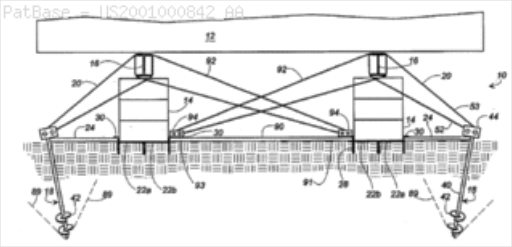
CPC: Y10S52/11 E02D27/48 E02D27/02 E02D27/34 E04B1/34347
E04B1/34352

European: E02D27/02 E02D27/34 E02D27/48 E04B1/343D2
E04B1/343D3

US: 248/188.1 248/499 248/500 248/680 248/681 52/125.6 52/126.6

52/146 52/155 52/155S 52/156 52/167.1 52/167.100S 52/167.3

52/169.9 52/292 52/292P 52/294 52/295 52/299 52/695 52/DIG.11 522/920 522/990



Family:

Publication number	Publication date	Application number	Application date
US2001000842 AA	20010510	US20000736819	20001213
US2002170253 AA	20021121	US20010772547	20010130
US5697191 A	19971216	US19960629834	19960410
US5758460 A	19980602	US19970787876	19970123
US5784844 A	19980728	US19960644069	19960509
US5850718 A	19981222	US19960739717	19961029
US6058663 A	20000509	US19980123806	19980727
US6243998 BA	20010612	US20000519698	20000307
US6256940 BA	20010710	US19990457280	19991208
US6282856 BA	20010904	US19990296992	19990422
US6318032 BB	20011120	US20000736819	20001213
US6546686 BB	20030415	US20010772547	20010130

Priority:

US19960629834 19960410	US19960644069 19960509	US19990296992 19990422
US19980123806 19980727	US19960739717 19961029	US19970787876 19970123
US20000736819 20001213	US20010772547 20010130	US20000519698 20000307
US19990457280 19991208		

Probable Assignee:	MACKARVICH CHARLES J
Assignee(s):	MACKARVICH CHARLES J
Inventor(s): (std):	MACKARVICH CHARLES J

Title: Metal foundation push-it and installation apparatus and method

Abstract: Source: US5570975A [EN] Mobile metal foundation installation apparatus and method are disclosed including a push-it carriage movably supported through controllable positioning to push a metal foundation into the **ground** by hydraulic cylinders pushing against a header frame held and secured in adjustable positions on a mobile tower. After the hydraulic cylinders extend to a maximum extension, the pushing reaction bar can be advanced to a lower position in the side frame of the tower. An auger is aligned below the push-it carriage to drill in advance of pushing the metal foundation into the **ground** in one step. Outboard satellite anchors hold down the mobile tower when the foundation is pushed into the **ground**. A second auger mounted and detachable on a crane drills holes for the outboard satellite anchors. The second auger can swing laterally to dig a left or right side outboard or satellite anchor hole. An extensible satellite anchor augering guide and anchor structural support extends and retracts on both sides of the mobile tower.

Classifications:

International (IPC 8-9): E02D7/22 E02D7/26 (Advanced/Invention)

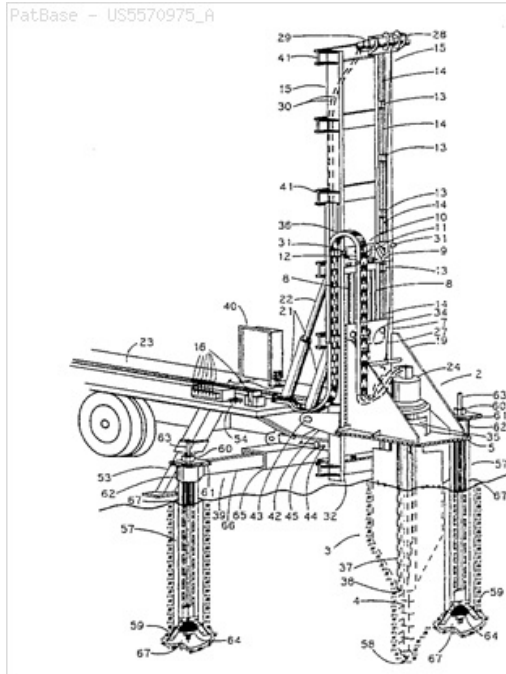
International (IPC 1-7): E02D17/02 E02D7/00 E02D7/22 E02D7/26

CPC: E02D7/26

European: E02D7/26

US: 173/184 173/188 175/171 405/229 405/232 405/244

PatBase - US5570975_R



Family:

Publication number	Publication date	Application number	Application date
AU199519930 A1	19960119	AU19950019930	19950315
AU697363 B2	19981001	AU19950019930	19950315
CA2193948 AA	19961224	CA19952193948	19950315
CA2193948 C	20060516	CA19952193948	19950315
DE69510055 D1	19990708	DE19956010055	19950315
DE69510055 T2	20000309	DE19956010055T	19950315
EP0767853 A1	19970416	EP19950912922	19950315
EP0767853 B1	19990602	EP19950912922	19950315
ES2135714 T3	19991101	ES19950912922T	19950315
MX9700214 A1	19980131	MX19970000214	19950315
US5570975 A	19961105	US19940266183	19940627
US5660504 A	19970826	US19960682636	19960726
US5733068 A	19980331	US19960705164	19960829
WO9600326 A1	19960104	WO1995US03257	19950315

Priority:

US19940266183 19940627
WO1995US03257 19950315

US19960682636 19960726

US19960705164 19960829

Probable Assignee: METAL FOUNDATIONS ACQUISITION LLC

Assignee(s): (std): REINERT GARY L SR ; REINERT GARY L ; REINERT SR GARY L ; REINERT SEN

Assignee(s): GARY L REINERT SR ; MFPF INC ; METAL FOUNDATIONS ACQUISITION LLC ; REINERT SEN GARY L ALLISON PARK PA US ; REINERT SEN GARY L ; CARLOTA M BOHM CHAPTER 11 TRUSTEE OF BANKRUPTCY ES ; CARLOTA M BOHM CHAPTER 11 TRUSTEE OF BANKRUPTCY ESTATE OF MFPF INC ; CARLOTA M BOHN CHAPTER 11 TRUSTEE OF MFPF INC ; FIFTH THIRD BANK ; GARY L REINERT

Inventor(s): (std): REINERT GARY L SR ; REINERT SEN GARY L ; REINERT SR GARY L ; REINERT GARY L

Inventor(s): GARY L REINERT ; GARY L REINERT SR ; REINERT SEN

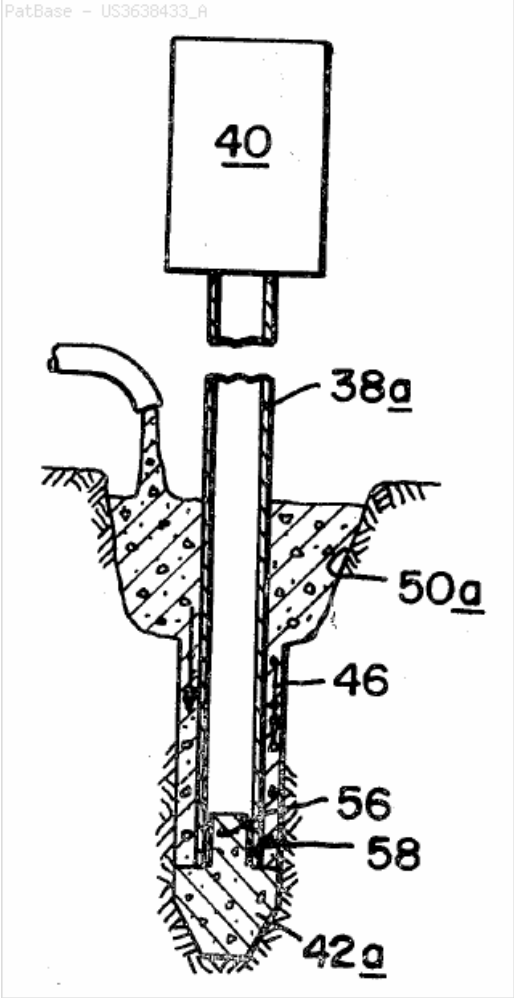
Agent(s): WATERMARK PATENT AND TRADE MARKS ATTORNEYS; WATERMARK INTELLECTUAL PROPERTY PTY LTD; MARKS AND CLERK

Designated states: AM AT AU BB BE BF BG BJ BR BY CA CF CG CH CI CM CN CZ DE DK EE ES FI FR GA GB GE GN GR HU IE IT JP KE KG KP KR KZ LK LR LT LU LV MC MD MG ML MN MR MW MX NE NL NO NZ PL PT RO RU SD SE SI SK SN SZ TD TG TJ TT UA UG US UZ VN

Title: METHOD AND APPARATUS FOR FORMING STRUCTURES IN THE GROUND

Abstract: Source: US3638433A [EN] A method for making an elongated liquid-filled hole extending downwardly in the ground which may be used in the construction of foundation piling, water wells, sand drains, tension anchors and related installations, the method comprising generally the steps of providing a rigid, elongated drive member or mandrel having a drive foot on its lower end; forcing the mandrel drive foot through and displacing the soil to form a space with a cross-sectional area greater than the mandrel stem in the wake of the drive foot; and simultaneously filling this space with a preselected liquid supplied at the ground surface, the liquid thereby flowing downwardly with the mandrel behind its drive foot. For some embodiments of the invention, the liquid is left in the hole formed where it becomes part of the body of the completed structure, such as in cast-in-place concrete piles or sand drains. The drive foot of the mandrel in all cases is left within the hole and in some instances the mandrel stem is detachable from the drive foot and is removed from the hole formed, either before or after additional liquid is applied, depending on the type of structure being built.

Classifications:
International (ipc 8-9): E02D1/04 E02D3/10 E02D5/30 E02D5/38 E02D5/46 E02D5/54 E02D5/72 (Advanced/Invention); E02D1/00 E02D3/00 E02D5/00 E02D5/22 E02D5/24 E02D5/34 (Core/Invention)
International (ipc 1-7): E02D1/04 E02D3/10 E02D3/12 E02D5/30 E02D5/34 E02D5/38 E02D5/46 E02D5/54 E02D5/72
CPC: E02D1/04 E02D3/106 E02D5/30 E02D5/385 E02D5/46 E02D5/54 E02D5/72
European: E02D1/04 E02D3/10C E02D5/30 E02D5/38B E02D5/46 E02D5/54 E02D5/72
US: 405/50



Family:

Publication number	Publication date	Application number	Application date
US3638433 A	19720201	US19690812574	19690328

Priority:

US19690812574 19690328

Probable Assignee:	SHERARD JAMES L
Assignee(s): (std):	SHERARD JAMES L
Assignee(s):	JAMES L SHERARD
Inventor(s): (std):	SHERARD JAMES L
Inventor(s):	JAMES L SHERARD