

[SS 11] /IC (F15B11/072 or F16K31/163 or F15B3/00)

Results in EPODOC 8.423

[SS 12] pressurized 1w gas

Results in EPODOC 15.382

[SS 13] 11 and 12

Results in EPODOC 27

[SS 14] emergency and 13

Results in EPODOC 1

[SS 15] ..li



1/1 © EPODOC / EPO

PN - [GB1537430](#) A 19781229

PR - DE19762650802 19761103

AP - GB19770037491 19770908

DT - **

CCI - [F15B11/0725](#)

CCA - [F15B2211/212](#) ;
[F15B2211/30505](#) ;

[F15B2211/3052](#) ;

[F15B2211/30525](#) ;

[F15B2211/329](#) ;

[F15B2211/40515](#) ;

[F15B2211/41509](#) ;

[F15B2211/455](#) ; [F15B2211/615](#) ;

[F15B2211/6355](#) ;

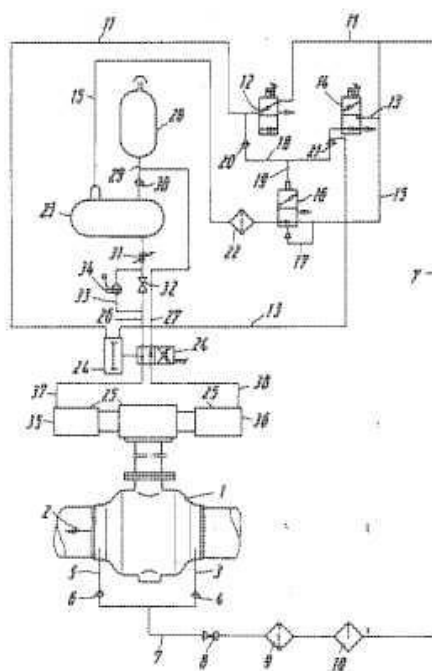
[F15B2211/7053](#) ;

[F15B2211/8636](#)

PA - BORSIG GMBH

TI - ACTUATINGDRIVEMEANS

AB - 1537430 Fluid-pressure control circuits BORSIG GmbH 8 Sept 1977 [3 Nov 1976] 37491/77
Heading F1P A double-acting actuator, 25, 35, 36, is operated by hydraulic liquid from a reservoir 23 which is **pressurized** by **gas**, and liquid is returned to an unpressurized tank 28 connected to the reservoir 23 through a check-valve 30. The actuator opens and closes a valve 1 in a gas line and the pressure of the gas in the line is



used to pressurize the reservoir
23. The system is controlled by
electromagnetically operated
valves 12, 14. A hand pump 34 is
provided for **emergency** use.

[SS 15] ..v

A command starts with 2 dots. [More info](#) *ERROR(-104001)*

[SS 15] ..v

[EPODOC: SS 15] 11

Results in EPODOC 8.423

[SS 16] 13

Results in EPODOC 27

[SS 17] ..li



1/27 © EPODOC / EPO

PN - [MX2016001008](#) A 20170410

PR - BR20151001623 20150123

AP - MX20160001008 20160122

DT - I

CCI - [F17C7/00](#) ; [F17C9/00](#)

CCA - [F17C2201/0109](#) ; [F17C2201/032](#) ; [F17C2201/035](#) ; [F17C2201/054](#) ; [F17C2201/056](#) ; [F17C2205/0142](#) ;
[F17C2205/0157](#) ; [F17C2205/0397](#) ; [F17C2221/033](#) ; [F17C2223/0123](#) ; [F17C2223/033](#) ; [F17C2223/043](#) ;
[F17C2223/045](#) ; [F17C2225/0123](#) ; [F17C2225/035](#) ; [F17C2227/0192](#)

PA - NEOGAS DO BRASIL GAS NATURAL COMPRIMIDO S A [BR]

TI - SYSTEM AND EQUIPMENT FOR SUPPLYING HIGH PRESSURE GAS USING SPECIAL HYDRAULIC OIL, IN A TRUCK
TRACTOR USING VERTICAL OR HORIZONTAL CYLINDERS.

AB - This invention concerns a system and equipment for supplying high pressure gas using special
hydraulic oil which comprises a mobile hydraulic pressurization unit also known as an HPU , mounted
on a truck which is connected to a semi-trailer comprising **pressurized gas** cylinders, where a pump,
which activates a mobile hydraulic pressurization unit is coupled by a coupling device to the engine of
the truck itself, and with **pressurized gas** cylinders with open upper and lower ends, comprising a single
valve positioned at the upper end of the cylinders, which send the **pressurized gas** to a client, a single
valve positioned at the lower end of the cylinders which both send hydraulic oil to the cylinders from an
oil reservoir, and return the hydraulic oil to a hydraulic oil reservoir from the cylinders.

2/27 © EPODOC / EPO

PN - [US2016215796](#) A1 20160728

PR - BR20151001623 20150123

AP - US201514674611 20150331

DT - *; Rep

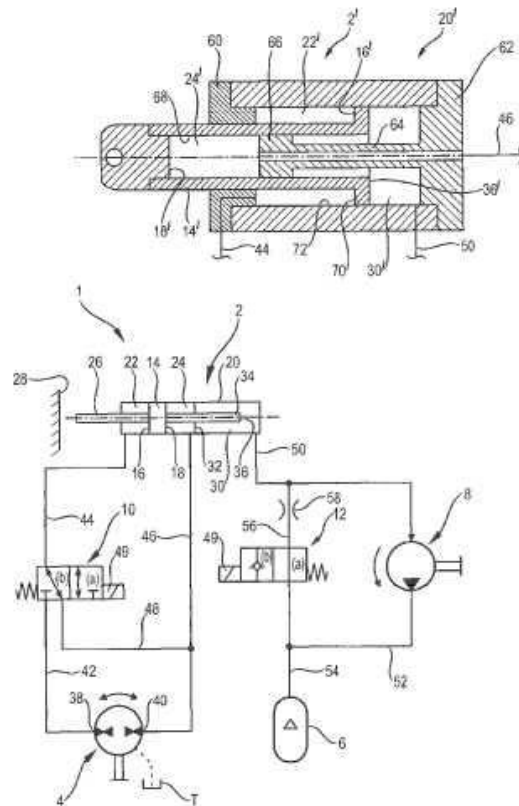
CT - || R141 (A1)

[US2009294470](#) A1 20091203 [] (LAMPE STEVEN W [US]);

- [US7748262](#) B2 20100706 [] (REGINALDO ALBERTO NERIDA [US], et al);
[WO2013097399](#) A1 20130704 [] (ENRIC LANGFANG ENERGY EQUIPMENT INTEGRATION CO LTD [CN], et al)
- CCI - [F17C7/00](#) ; [F17C9/00](#)
- CCA - [F17C2201/0109](#) ; [F17C2201/032](#) ; [F17C2201/035](#) ; [F17C2201/054](#) ; [F17C2201/056](#) ; [F17C2205/0142](#) ;
[F17C2205/0157](#) ; [F17C2205/0397](#) ; [F17C2221/033](#) ; [F17C2223/0123](#) ; [F17C2223/033](#) ; [F17C2223/043](#) ;
[F17C2223/045](#) ; [F17C2225/0123](#) ; [F17C2225/035](#) ; [F17C2227/0192](#)
- PA - NEOGÁS DO BRASIL GÁS NATURAL COMPRIMIDO S A [BR]
- TI - SYSTEM AND EQUIPMENT FOR SUPPLYING HIGH PRESSURE GAS USING SPECIAL HYDRAULIC OIL, IN A TRUCK TRACTOR USING VERTICAL OR HORIZONTAL CYLINDERS
- AB - This invention concerns a system and equipment for supplying high pressure gas using special hydraulic oil which comprises a mobile hydraulic pressurization unit also known as an "HPU", mounted on a truck which is connected to a semi-trailer comprising **pressurized gas** cylinders, where a pump, which activates a mobile hydraulic pressurization unit is coupled by a coupling device to the engine of the truck itself, and with **pressurized gas** cylinders with open upper and lower ends, comprising a single valve positioned at the upper end of the cylinders, which send the **pressurized gas** to a client, a single valve positioned at the lower end of the cylinders which both send hydraulic oil to the cylinders from an oil reservoir, and return the hydraulic oil to a hydraulic oil reservoir from the cylinders.

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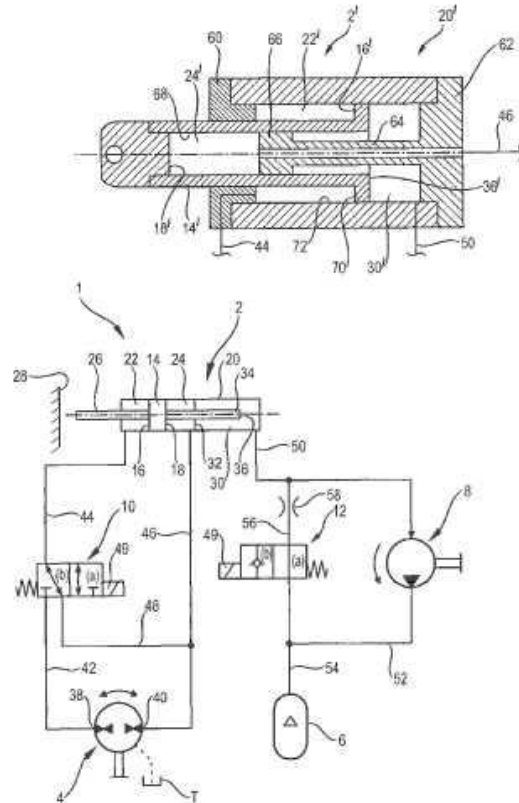
- PN - [US2015354604](#) A1 20151210
- PR - DE20121012142 20120620; WO2013EP01605 20130531
- AP - US201314409580 20130531
- DT - **
- CT - || R141 (A1)
[US1812587](#) A 19310630 [] (ELLIS ARTHUR L);
[US9239064](#) B2 20160119 [] (HELBIG ACHIM [DE], et al)
- CCI - [F15B11/072](#) ; [F15B20/002](#)
- CUI - [F15B1/022](#) ; [F15B11/0725](#) ; [F15B15/1423](#) ;
[F15B15/20](#) ; [F15B20/004](#)
- CCA - [F15B15/1409](#) ; [F15B15/1466](#) ; [F15B15/1476](#) ;
[F15B2211/212](#) ; [F15B2211/7054](#) ;
[F15B2211/7055](#) ; [F15B2211/8623](#) ;
[F15B2211/8752](#)
- PA - BOSCH GMBH ROBERT [DE]
- TI - Hydraulic Adjusting Device
- AB - A hydraulic adjusting device, in particular for use in a power plant and/or a wind power plant, includes a double-acting adjusting cylinder that has an adjusting function for a working operation and for a special operation. The double-acting adjusting cylinder is configured to be pressurized with a working pressure medium. In order to satisfy the adjusting function in the special operation, the double-acting adjusting cylinder is further configured to be connected to a pressure medium reservoir that has a **pressurized gas** isolated from the working pressure medium. The adjusting cylinder has a working chamber configured for the adjusting function of the special operation, the piston area



of which is coupled to a piston arrangement of the adjusting cylinder that is configured for the working operation or is configured to be coupled to the piston arrangement.

4/27 © EPODOC / EPO

- PN - [CN104541066](#) A 20150422
- PR - WO2013EP01605 20130531; DE20121012142 20120620
- AP - CN2013844094 20130531
- DT - I
- CT - || STSE (A)
[DE102007050350](#) A1 20090402 [X] (SAUER THOMAS [DE])
[X] 1-4,7-12
* 说明书摘要, 附图3-4 *;
[CN1440489](#) A 20030903 [A] (BOSCH REXROTH AG [DE])
[A] 1-15
* 全文 *;
[CN1871440](#) A 20061129 [A] (BOSCH REXROTH AG [DE])
[A] 1-15
* 全文 *;
[FR1216426](#) A 19600425 [A] (RENAULT)
[A] 1-15
* 全文 *;
[US5522212](#) A 19960604 [X] (KUBIK PHILIP A [US])
[X] 1-3,5-12
* 说明书第2栏第49行-第4栏第20行, 附图1 *
- CCI - [F15B11/072](#) ; [F15B20/002](#)
- CUI - [F15B1/022](#) ; [F15B11/0725](#) ; [F15B15/1423](#) ;
[F15B15/20](#) ; [F15B20/004](#)
- CNOI - [F03D7/02](#) ; [F15B11/072](#) ; [F15B15/14](#) ;
[F15B20/002](#)
- CCA - [F15B15/1409](#) ; [F15B15/1466](#) ; [F15B15/1476](#) ;
[F15B2211/212](#) ; [F15B2211/7054](#) ;
[F15B2211/7055](#) ; [F15B2211/8623](#) ;
[F15B2211/8752](#)
- CNOA - [F15B15/1409](#) ; [F15B15/1466](#) ; [F15B15/1476](#) ;
[F15B2211/212](#) ; [F15B2211/7054](#) ;
[F15B2211/7055](#) ; [F15B2211/8623](#) ;
[F15B2211/8752](#)
- PA - BOSCH GMBH ROBERT
- TI - Hydraulic adjusting device
- AB - The invention relates to a hydraulic adjusting device, in particular for use in a power plant, in particular a wind power plant, which has an adjusting function for a working operation and for a special operation. To this end, a double-acting adjusting cylinder (2; 2'; 2'') provided for this purpose can be pressurized with a working pressure medium and, in order to satisfy the



adjusting function in the special operation, can be connected to a pressure medium reservoir (6), which has a **pressurized gas** isolated from the working pressure medium. The adjusting cylinder has a working chamber (30; 30'; 30'') provided in particular for the adjusting function of the special operation, the piston area of which is coupled to a piston arrangement of the adjusting cylinder that is in particular provided for the working operation or can be coupled to said piston arrangement.

5/27 © EPODOC / EPO

PN - [WO2013189566](#) A1 20131227

PR - DE20121012142 20120620

AP - WO2013EP01605 20130531

DT - **

CT - |EP| ISR (A1)
[DE102007050350](#) A1 20090402 [XI] (SAUER THOMAS [DE])

[X] 1,7-12

* paragraph [0027] - paragraph [0055]; figures 3-4 *

[I] 2-4;

[FR1216426](#) A 19600425 [XI] (RENAULT)

[X] 1,8-13

* column 3, line 1 - column 5, line 12; figure 3 *

[I] 2-4;

[DE10122858](#) A1 20021114 [AD] (BOSCH

REXROTH AG [DE])

[AD] 1-15

* paragraph [0021] - paragraph [0027]; figures 1-2 *;

[WO2012076178](#) A1 20120614 [A] (MOOG GMBH [DE], et al)

[A] 1-15

* page 25 - page 27; figures 5-6 *

CCI - [F15B11/072](#) ; [F15B20/002](#)

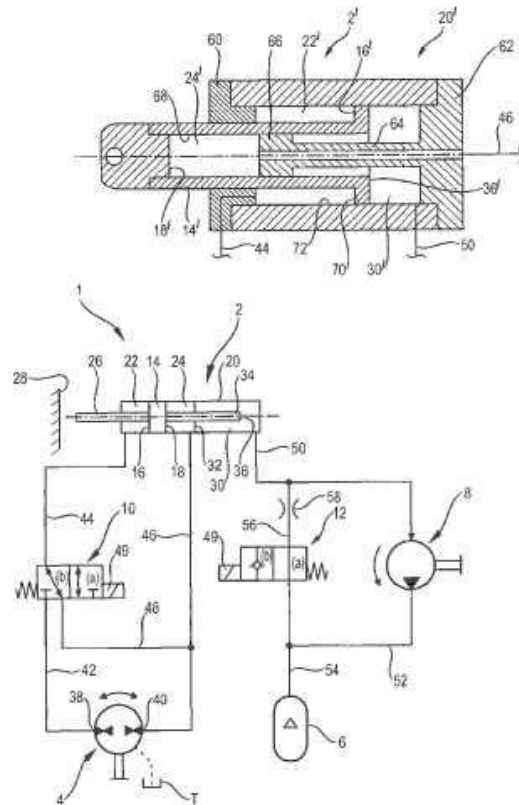
CUI - [F15B1/022](#) ; [F15B11/0725](#) ; [F15B15/1423](#) ;
[F15B15/20](#) ; [F15B20/004](#)

CCA - [F15B15/1409](#) ; [F15B15/1466](#) ; [F15B15/1476](#) ;
[F15B2211/212](#) ; [F15B2211/7054](#) ;
[F15B2211/7055](#) ; [F15B2211/8623](#) ;
[F15B2211/8752](#)

PA - BOSCH GMBH ROBERT [DE]

TI - HYDRAULIC ADJUSTING DEVICE

AB - The invention relates to a hydraulic adjusting device, in particular for use in a power plant, in particular a wind power plant, which has an adjusting function for a working operation and for a special operation. To this end, a double-acting adjusting cylinder (2; 2'; 2'') provided for this purpose can be pressurized with a working pressure medium and, in order to satisfy the



adjusting function in the special operation, can be connected to a pressure medium reservoir (6), which has a **pressurized gas** isolated from the working pressure medium. The adjusting cylinder has a working chamber (30; 30'; 30'') provided in particular for the adjusting function of the special operation, the piston area of which is coupled to a piston arrangement of the adjusting cylinder that is in particular provided for the working operation or can be coupled to said piston arrangement.

6/27 © EPODOC / EPO

- PN - [EP2416040](#) A1 20120208
- PNFP - EP2416040 B1 20130529
- PR - DE20101033438 20100804
- AP - EP20110175983 20110729
- DT - *; Rep
- CT - || STSE (A1)
[DE19910215](#) C1 20000113 [A] (WELCKER F [DE])
 [A] 1,2,5,6
 * column 2, line 51 - column 3, line 37; figure .
 *;
[DE102007062505](#) A1 20090702 [AD] (E ON RUHRGAS AG [DE], et al)
 [AD] 1
 * paragraphs [0027] - [0047]; figure - *;
[DE9307536U](#) U1 19930722 [AD] (KNEBEL HEINZ-HERMANN)
 [AD] 1
 * page 2, paragraph 7 - page 3, paragraph 3; figure 1 *;
[DE10000447](#) A1 20010719 [AD] (WELCKER F [DE])
 [AD] 1
 * column 2, line 50 - column 3, line 22; figure .
 *;
[EP1491413](#) A2 20041229 [A] (TRW AIRBAG SYS GMBH [DE])
 [A] 1
 * paragraphs [0016] - [0024] *

- CCI - [F16K31/122](#) ; [F16K17/40](#) ; [F16K31/003](#)
- CCA - [F15B15/19](#) ; [F15B15/22](#) ; [Y10T137/1647](#)
- PA - (A1 B1)
 BECKER DOMINIC [DE]
- TI - (A1 B1)
 Shut-off valve
- AB - (A1)

The shut-off device (1) has a housing (2) comprising a locking structure which is displaceable from an open position to a closed position. The housing has a hybrid gas generator (3) comprising a reaction chamber (12) and a compressed gas chamber (14). An inlet membrane (13) is provided in the reaction

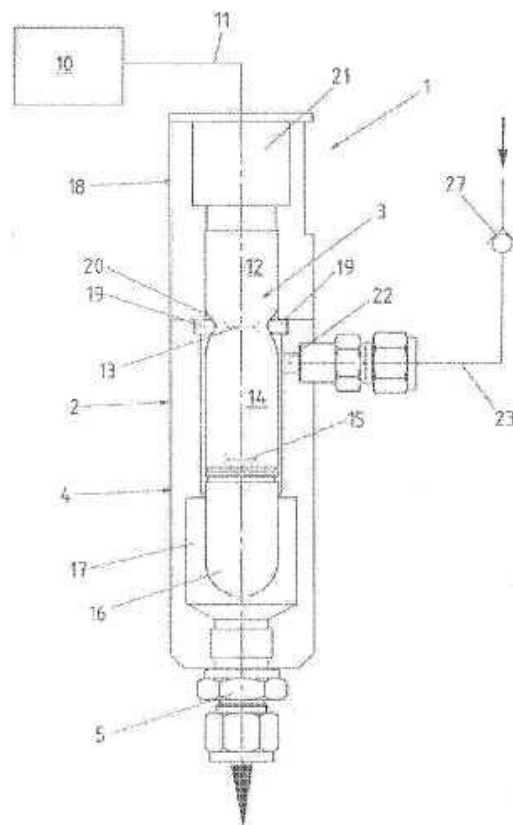


Fig. 1

chamber. An outlet membrane is provided in the **pressurized gas** chamber. The inlet membrane is destroyed by activation of the reaction substance from the reaction chamber. The outlet membrane is destroyed if pressure of **pressurized gas** chamber is increased.

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PN - [US2011146813](#) A1 20110623

PNFP - US8899262 B2 20141202

PR - GB20080006530 20080410; WO2009GB00915 20090408

AP - US20090936920 20090408

DT - **

CT - || R141 (A1)

[US3334648](#) A 19670808 [] (PROBST RICHARD O);

[US2970609](#) A 19610207 [] (BEREMAND DONALD G);

[US2621885](#) A 19521216 [] (SCHMITT WILLIAM H);

[US3518032](#) A 19700630 [] (DEGROFF RICHARD C, et al);

[US3698425](#) A 19721017 [] (FISHER JOHN A);

[US4015865](#) A 19770405 [] (KONGELKA ROBERT M);

[US4015630](#) A 19770405 [] (CONTRERAS BORIS L);

[US4159102](#) A 19790626 [] (FALLON LEO J [US], et al);

[US4266538](#) A 19810512 [] (RUCHTI HEINZ);

[US4572477](#) A 19860225 [] (PHLIPOT JAMES R [US], et al);

[US4655246](#) A 19870407 [] (PHLIPOT JAMES R [US], et al);

[US6000419](#) A 19991214 [] (BERNHARD ERNST [CH]);

[US5640997](#) A 19970624 [] (REED GEORGE DENNIS [US], et al);

[US5704589](#) A 19980106 [] (CANUTESON ROBERT M [US]);

[US6026854](#) A 20000222 [] (DAVIDSON GILBERT [US]);

[US6082396](#) A 20000704 [] (DAVIDSON GILBERT [US]);

[US6089259](#) A 20000718 [] (SHUMAN JR CLYDE W [US]);

[US6158457](#) A 20001212 [] (BYRD DOUGLAS S [US], et al);

[US2008149103](#) A1 20080626 [] (TAYLOR SHANE S [US]);

[US7658366](#) B2 20100209 [] (LARSEN TODD W [US]);

[US8240325](#) B2 20120814 [] (ZAISER LENOIR E [US], et al);

[US8353314](#) B2 20130115 [] (RADFORD RICHARD [GB], et al);

[US4046157](#) A 19770906 [] (CAZALAA JEAN

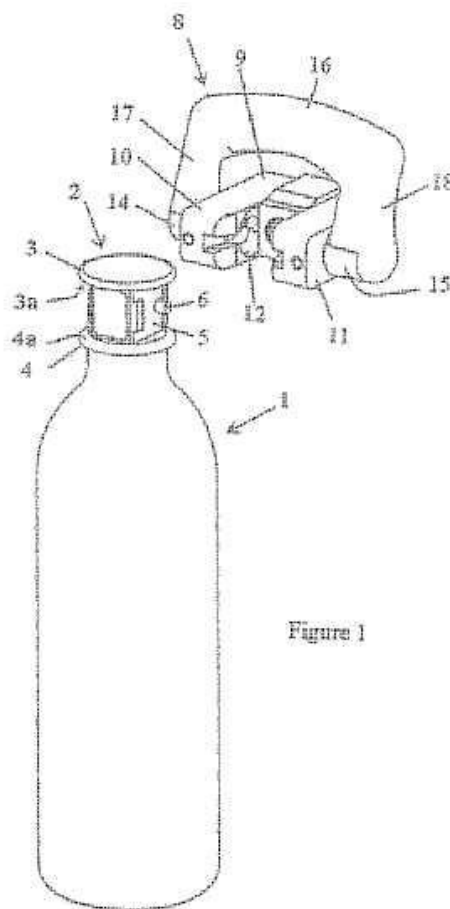


Figure 1

MICHEL, et al);
[US5071148](#) A 19911210 [] (SALVUCCI SR FRANK S [US]);
[FR2619432](#) A1 19890217 [] (AIR LIQUIDE [FR]);
[US2008072977](#) A1 20080327 [] (GEORGE PAUL A [US], et al);
[US3881505](#) A 19750506 [] (DUNKELIS EVALD);
[US6386227](#) B1 20020514 [] (POWELL WALTER W [US]);
[US4669493](#) A 19870602 [] (KOBBER DRAGO [DE], et al);
[US2007186977](#) A1 20070816 [] (WONG TAK-YIU [US]);
[US4064157](#) A 19771220 [] (NAFZIGER JOHN L, et al);
[US6161570](#) A 20001219 [] (MCNEELY MICHAEL D [US])

- | | STSE (B2)
[US2621885](#) A 19521216 [] (SCHMITT WILLIAM H);
[US2970609](#) A 19610207 [] (BEREMAND DONALD G);
[US3334648](#) A 19670808 [] (PROBST RICHARD O);
[US3518032](#) A 19700630 [] (DEGROFF RICHARD C, et al);
[US3698425](#) A 19721017 [] (FISHER JOHN A);
[US4015630](#) A 19770405 [] (CONTRERAS BORIS L);
[US4015865](#) A 19770405 [] (KONGELKA ROBERT M);
[US4046157](#) A 19770906 [] (CAZALAA JEAN MICHEL, et al);
[US4159102](#) A 19790626 [] (FALLON LEO J [US], et al);
[US4266538](#) A 19810512 [] (RUCHTI HEINZ);
[US4572477](#) A 19860225 [] (PHILIPOT JAMES R [US], et al);
[US4655246](#) A 19870407 [] (PHILIPOT JAMES R [US], et al);
[US5071148](#) A 19911210 [] (SALVUCCI SR FRANK S [US]);
[US5640997](#) A 19970624 [] (REED GEORGE DENNIS [US], et al);
[US5704589](#) A 19980106 [] (CANUTESON ROBERT M [US]);
[US6000419](#) A 19991214 [] (BERNHARD ERNST [CH]);
[US6026854](#) A 20000222 [] (DAVIDSON GILBERT [US]);
[US6082396](#) A 20000704 [] (DAVIDSON GILBERT [US]);
[US6089259](#) A 20000718 [] (SHUMAN JR CLYDE W [US]);
[US6158457](#) A 20001212 [] (BYRD DOUGLAS S [US], et al);
[US7658366](#) B2 20100209 [] (LARSEN TODD W [US]);
[US8240325](#) B2 20120814 [] (ZAISER LENOIR E

[US], et al);
[US8353314](#) B2 20130115 [] (RADFORD RICHARD
[GB], et al);
[US2008149103](#) A1 20080626 [] (TAYLOR SHANE S
[US]);
[FR2619432](#) A1 19890217 [] (AIR LIQUIDE [FR])

CTNP - || R141 (A1)
[] - Machine translation for FR2619432A1
taken from EPO website
[] - Machine translation for FR2619432 A1
taken from EPO website on 7/23/2014, 2 pages
- || STSE (B2)
[] - Machine translation for FR2619432A1
taken from EPO website.
[] - Machine translation for FR2619432 A1
taken from EPO website on Jul. 23, 2014, 2 pages.

CCI - [F16K35/00](#) ; [F16K35/022](#) ; [F16K1/30](#) ; [F16K1/307](#)

CUI - [F16K35/06](#) ; [F16K17/10](#) ; [F16K27/07](#)

CCA - [Y10T137/777](#) ; [Y10T137/7828](#) ; [Y10T137/7065](#) ;
[Y10T137/7762](#) ; [Y10T137/7769](#)

PA - (B2)
WADHAM PAUL[GB]; TATAREK ANDREW [GB];
LINDE AG [DE]

TI - (A1)
TAMPER-RESISTANT VALVE AND CONNECTION
ARRANGEMENT
- (B2)
Tamper-resistant valve and connection
arrangement

AB - (A1)
A gas cylinder valve 2 is able to be opened by
application of a pilot gas pressure. In certain
embodiments the gas cylinder valve 2 is usable
with a yoke 8 for engaging with a valve assembly
of a gas cylinder 1, the yoke comprising a pilot
gas passage 28 able to connect a pilot gas
chamber 37 in the cylinder valve assembly to a
source of pressurised pilot gas and the cylinder
gas port of the gas cylinder valve to an external
cylinder gas passage. The valve and yoke enable
the tamper-resistance of a gas cylinder to be
improved.
- (B2)
A gas cylinder valve 2 is able to be opened by
application of a pilot gas pressure. In certain
embodiments the gas cylinder valve 2 is usable
with a yoke 8 for engaging with a valve assembly
of a gas cylinder 1, the yoke comprising a pilot
gas passage 28 able to connect a pilot gas
chamber 37 in the cylinder valve assembly to a
source of **pressurized** pilot **gas** and the cylinder
gas port of the gas cylinder valve to an external
cylinder gas passage. The valve and yoke enable
the tamper-resistance of a gas cylinder to be

improved.

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PN - [WO2009034421](#) A1 20090319

PR - WO2007IB53700 20070913

AP - WO2007IB53700 20070913

DT - *; Rep

CT - |AT| ISR (A1)

[US1929350](#) A 19331003 [X] (CHRISTENSEN NIELS C);

[US2121534](#) A 19380621 [A] (AIKMAN BURTON S);

[DE19846481](#) A1 20000504 [X] (SCHNEIDER CHRISTIAN [DE]);

[DE102004046316](#) A1 20060330 [X] (LINDE AG [DE])

CTNP - |AT| ISR (A1)

[AD] - CYPHELLY ET AL., "Einsatz von druckspeichersystemen", SCHLUSSBERICHT, (200405), URL: <http://www.electricity-research.ch/pages/berichte/2004/sb04-cypHELLy-2c.pdf>, (20080520),

CCI - [F01B17/02](#) ; [F01B17/025](#) ; [F01K7/025](#) ; [F01K7/36](#) ; [F01K27/005](#) ; [F04F1/10](#)

CCA - [H02J15/003](#) ; [H02J15/006](#)

PA - ECOLE POLYTECH [CH]; LEMOFOUET SYLVAIN [CH]; RUFER ALFRED [CH]

TI - A MULTISTAGE HYDRO-PNEUMATIC MOTOR-COMPRESSOR

AB - A multistage hydro -pneumatic system and methods for converting the potential energy of a **pressurized gas**, particularly air, into mechanical work when rotating a shaft (1) in one direction, and for producing compressed gas from the mechanical work of the rotating shaft when rotating the shaft (1) in the reverse direction, by performing successive expansion/compression of the said gas. Each stage (HPS) of the system comprises: a hydro -pneumatic Compression-Expansion Unit (CEU) designed to convert pressure power into a hydraulic power and vice-versa, by performing an essentially isothermal compression/expansion of the gas; a direct or indirect forced-air External Heat Exchanger (EHE) for maintaining the active hydraulic liquid at ambient temperature; and a reversible, piston-operated single cylinder valve-free Hydraulic Motor-Pump (SCMP) for converting hydraulic power into mechanical power and vice- versa.

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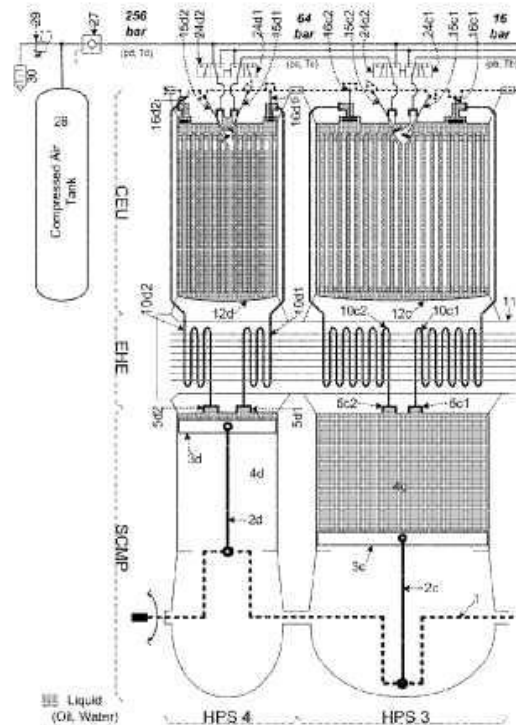
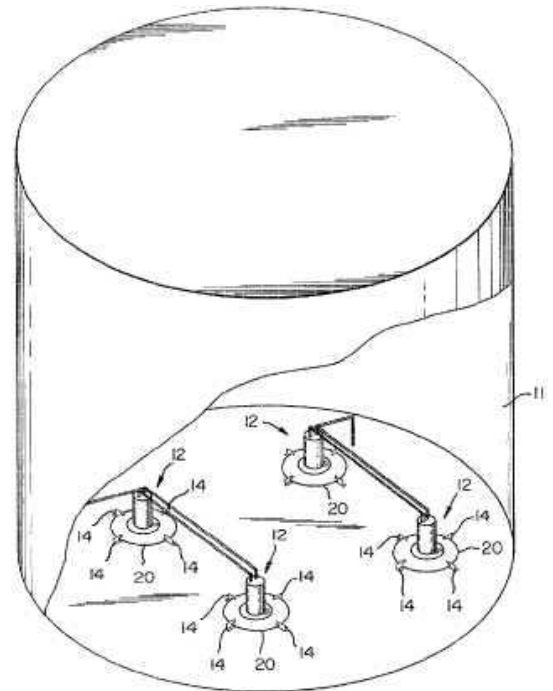


Figure 4a

PN - [US2002163854](#) A1 20021107
 PNFP - US6629773 B2 20031007
 PR - US20010850703 20010507
 AP - US20010850703 20010507
 DT - *; Rep
 CT - || STSE (B2)
[US994564](#) A 19110606 [] (BEAUVAIS JOHN B [US])
[US2084546](#) A 19370622 [] (SMIDTH & CO AS F L)
[US2171398](#) A 19390829 [] (EDOUARD HASTERT)
[US2171399](#) A 19390829 [] (LOUIS PETERS)
[US2791404](#) A 19570507 [] (MILDRED M KELLY, et al)
[US2844361](#) A 19580722 [] (FULLER CO)
[US3003752](#) A 19611010 [] (FULLER CO)
[US3386182](#) A 19680604 [] (BAYER AG)
[US3450389](#) A 19690617 [] (HERCULES INC)
[US3544074](#) A 19701201 [] (SUSANNA MIKHAILOVNA KARPACHEVA, et al)
[US3582046](#) A 19710601 [] (WHIRL AIR FLOW CORP)
[US3608866](#) A 19710928 [] (SUSANNA MIKHAILOVNA KARPACHEVA, et al)
[US3722836](#) A 19730327 [] (DRAVO CORP)
[US4136970](#) A 19790130 [] (COULTER ELECTRONICS)
[US4496076](#) A 19850129 [] (GLOBAL MANUFACTURING CO INC [US])
[US4923374](#) A 19900508 [] (SVENSKA ROTOR MASKINER AB [SE])
[US5564825](#) A 19961015 [] (SHRADER CANADA LIMITED [CA])
[GB442355](#) A 19360206 [] (WILLIAM GILBERT)
 - || R141 (A1)
[US4136970](#) A [];
[US4496076](#) A [];
[US3722836](#) A [];
[US2791404](#) A [];
[US4923374](#) A [];
[US994564](#) A [];
[US2084546](#) A [];
[US3386182](#) A [];
[US3450389](#) A [];
[US3582046](#) A [];
[US2844361](#) A [];
[US2171398](#) A [];
[US2171399](#) A [];
[US3608866](#) A [];
[US3003752](#) A [];
[US5564825](#) A [];
[US3544074](#) A []
 CCI - [B01F13/0255](#) ; [B01F13/0283](#) ; [B01F15/024](#) ;
[F16K31/1221](#) ; [F16K31/163](#)
 CCA - [B01F3/08](#) ; [B01F3/12](#)
 TI - (A1 B2)



Method and apparatus for gas induced mixing and blending of fluids and other materials

AB

- (A1 B2)
- An improved injector system including an injector operatively connected to a source of **pressurized gas** and mounted to an accumulator located in close proximity to the bottom of a tank containing a fluid or other materials. The injector comprises a chamber housing and a valve disposed in the chamber housing. The chamber housing is matable to an accumulator that defines an orifice, and receives **pressurized gas** from an external source. The valve engages the accumulator and selectively administers or obstructs the release of the gas into the tank as directed by an actuator contained within the chamber housing. In ambient environments that tend to foul and clog the chamber orifice or accumulator orifice, a removable orifice plate is used wherein the valve engages the orifice plate.

10/27 © EPODOC / EPO

PN

- [US5865419](#) A 19990202

PR

- US19960620295 19960322

AP

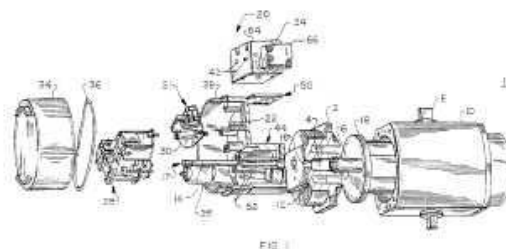
- US19960620295 19960322

DT

- **

CT

- || STSE (A)
- [US4238109](#) A 19801209 [] (BADGER METER INC);
- [US4253640](#) A 19810303 [] (HILLS MCCANNA CO);
- [US4478245](#) A 19841023 [] (VICKERS INC [US]);
- [US4763691](#) A 19880816 [] (BARMAG BARMER MASCHF[DE]);
- [US5263679](#) A 19931123 [] (BUSHNELL ENG INC [US]);
- [US5465746](#) A 19951114 [] (APPLIED MATERIALS INC [US]);
- [EP0016553](#) A1 19801001 [] (HILLS MCCANNA CO [US]);
- [EP0073268](#) A1 19830309 [] (SPERRY VICKERS [DE]);
- [EP0182408](#) A1 19860528 [] (EL O MATIC BV [NL]);
- [DE9409093U](#) U1 19940915 [] (RICHTER ALBERT ARIARMATUREN[DE]);
- [DE4438293](#) A1 19960502 [] (MAGDEBURGER ARMATURENWERKE [DE]);
- [JP56138285](#) A 19860224 [] (KONAN ELECTRIC CO);
- [WO8905938](#) A1 19890629 [] (DU PONT [US])



CCI

- [F16K31/1635](#) ; [F16K37/0041](#)

CCA

- [Y10T137/87193](#)

PA

- WORCESTER CONTROLS LICENSECO I [US]

TI

- Pneumatic actuator having an end mounted control device

AB - This invention features a device for controlling the operation of a pneumatic actuator and a pneumatic actuator having such a control device. More particularly, the actuator control device of the instant invention includes a housing mounted to an actuator end cap, a solenoid valve disposed within the housing and a gas control valve that controls the **pressurized gas** admitted to and exhausted from the actuator for valve actuation. The gas control valve is responsive to the solenoid valve and is mounted to the housing. Preferably, the control device includes a position indication mechanism, disposed within the housing, that determines a prespecified position of the valve responsive to the movement of at least one and preferably two moveable actuator probes extending from the actuator end cap into the housing. The gas control valve is a spool valve that is pneumatically controlled by the solenoid valve. The position indication mechanism includes a mechanical switch or an inductive proximity switch, one for each actuator probe that determines the position of an end of each actuator probe that are each actuated by an end of an actuator probe as it moves within the housing responsive to the motion of the actuator.

11/27 © EPODOC / EPO

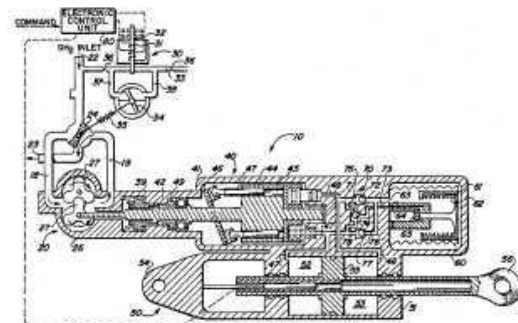
PN - [US5117633](#) A 19920602
 PR - US19900550609 19900710
 AP - US19900550609 19900710
 DT - *
 CT - [US1429101](#) A []; [US1923268](#) A [];
[US2467508](#) A []; [US2467509](#) A [];
[US2634679](#) A []; [US2811834](#) A [];
[US2927429](#) A []; [US3135217](#) A [];
[US3263425](#) A []; [US3741688](#) A [];
[US3772889](#) A []; [US3928968](#) A [];
[US3979910](#) A []; [US4041704](#) A [];
[US4343153](#) A []; [US4363211](#) A [];
[US4412590](#) A []; [US4611529](#) A [];
[US4630441](#) A []; [US4766728](#) A [];
[US4799419](#) A []; [US4953109](#) A [];
[DE2524005](#) A1 []

CCI - [F15B15/18](#) ; [F15B11/0725](#)
 CCA - [F15B2211/214](#) ; [F15B2211/216](#) ;
[F15B2211/6336](#) ; [F15B2211/665](#)

PA - ALLIED SIGNAL INC [US]

TI - Pneumohydraulic actuator

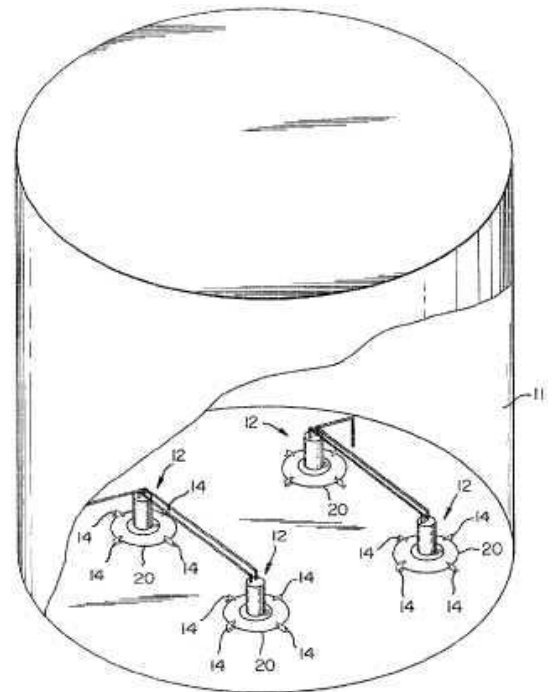
AB - A pneumatically driven hydrostatic actuator and a pneumatically driven recirculating hydraulic actuator are provided. Each of these actuators consists of a hydraulic pump fluidly coupled to an actuator. The pump is driven by a low inertia



pneumatic motor that extracts pressure energy from **pressurized gas** and converts it to rotary motion. The pneumatic motor is preferably made from stainless steel A286 so that it can operate using **pressurized hydrogen gas**. The components of both actuators are in a closely coupled relationship so that they can be arranged in a compact unitary package.

12/27 © EPODOC / EPO

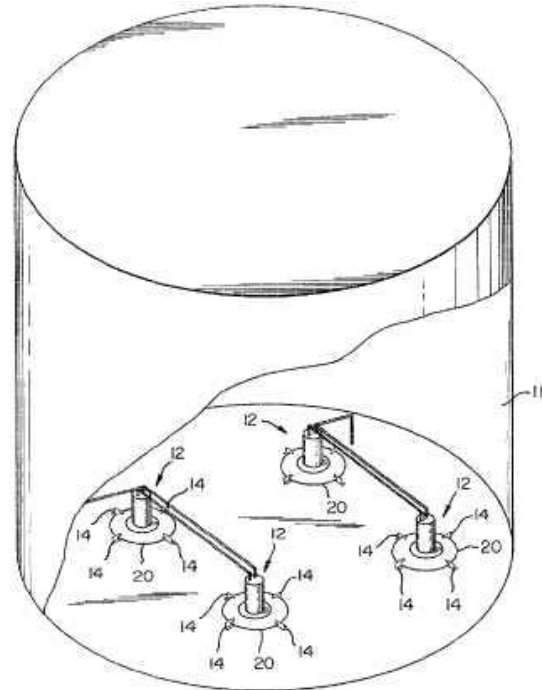
- PN - [WO02089967](#) A1 20021114
- PR - US20010850703 20010507
- AP - WO2002US14319 20020506
- DT - **
- CT - |EP| ISR (A1)
[US3913891](#) A 19751021 [X] (STEELE JAMES R)
 [X] 1-3,6,8,12-14,24,25,28,30,34-36
 * column 2, line 26 - column 3, line 67; figures 1,3 *;
[US4534914](#) A 19850813 [X] (TAKAHASHI MASASHI [JP], et al)
 [X] 1-5,7,8,12,13,24-27,29,30,34-36
 * column 3, line 4 - line 56; figures 1,7 *
 * column 5, line 10 - line 24 *;
[DE1911412](#) A1 19700924 [X] (SEIDL WILHELM)
 [X] 1,2,18-20,24,40-42
 * the whole document *;
[DE3004223](#) A1 19810813 [X] (HESS GUENTHER, et al)
 [X] 1,2,9-11,24,31-33
 * the whole document *;
[DE1245912](#) B 00000000 [X] (H BEHAM)
 [X] 1,2,18-24,40-45
 * figure 3; claim 1 *;
[US4595296](#) A 19860617 [A] (PARKS RICHARD E [US])
 [A] 1-45
 * the whole document *
- CCI - [B01F13/0255](#) ; [B01F13/0283](#) ; [B01F15/024](#) ;
[F16K31/1221](#) ; [F16K31/163](#)
- CCA - [B01F3/08](#) ; [B01F3/12](#)
- PA - PARKS RICHARD E [US]
- TI - METHOD AND APPARATUS FOR GAS INDUCED MIXING AND BLENDING OF FLUIDS AND OTHER MATERIALS
- AB - An improved injector system including an injector operatively connected to a source of **pressurized gas** and mounted to an accumulator located in close proximity to the bottom of a tank containing a fluid or other materials. The injector comprises a chamber housing and a valve disposed in the chamber housing. The chamber housing is matable to an accumulator that defines an orifice, and receives



pressurized gas from an external source. The valve engages the accumulator and selectively administers or obstructs the release of the gas into the tank as directed by an actuator contained within the chamber housing. In ambient environments that tend to fool and clog the chamber orifice or accumulator orifice, a removable orifice plate is used wherein the valve engages the orifice plate.

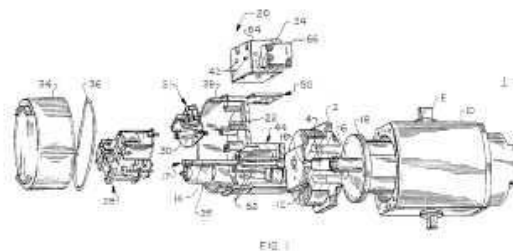
13/27 © EPODOC / EPO

- PN - [NZ530008](#) A 20051223
- PR - US20010850703 20010507; WO2002US14319 20020506
- AP - NZ20020530008 20020506
- DT - I
- CCI - [B01F13/0255](#) ; [B01F13/0283](#) ; [B01F15/024](#) ; [F16K31/1221](#) ; [F16K31/163](#)
- CCA - [B01F3/08](#) ; [B01F3/12](#)
- PA - RICHARD E
- TI - Method and apparatus for gas induced mixing and blending of fluids and other materials
- AB - An injector system is disclosed including an injector operatively connected to a source of **pressurized gas** and mounted to an accumulator located in close proximity to the bottom of a tank containing a fluid or other materials. The injector comprises a chamber housing and a valve disposed in the chamber housing. The chamber housing is able to be mated to an accumulator that defines an orifice, and receives pressurized gas from an external source. The valve engages the accumulator and selectively administers or obstructs the release of the gas into the tank as directed by an actuator contained within the chamber housing. In ambient environments that tend to fool and clog the chamber orifice or accumulator orifice, a removable orifice plate is used wherein the valve engages the orifice plate.



14/27 © EPODOC / EPO

- PN - [MX9702114](#) A 19980731
- PR - US19960620295 19960322
- AP - MX19970002114 19970320
- DT - I
- CCI - [F16K31/1635](#) ; [F16K37/0041](#)
- CCA - [Y10T137/87193](#)
- PA - WORCESTER CONTROLS CORP [US]
- TI - PNEUMATIC ACTUATOR HAVING AN END MOUNTED CONTROL DEVICE.
- AB - This invention features a device for controlling



the operation of a pneumatic actuator and a pneumatic actuator having such a control device. More particularly, the actuator control device of the instant invention includes a housing mounted to an actuator end cap, a solenoid valve disposed within the housing and a gas control valve that controls the **pressurized gas** admitted to and exhausted from the actuator for valve actuation. The gas control valve is responsive to the solenoid valve and is mounted to the housing. Preferably, the control device includes a position indication mechanism, disposed within the housing, that determines a prespecified position of the valve responsive to the movement of at least one and preferably two moveable actuator probes extending from the actuator end cap into the housing. The gas control valve is a spool valve that is pneumatically controlled by the solenoid valve. The position indication mechanism includes a mechanical switch or an inductive proximity switch, one for each actuator probe that determines the position of an end of each actuator probe that are each actuated by and end of an actuator probe as it moves within the housing responsive to the motion of the actuator.

15/27 © EPODOC / EPO

PN - [JP2007275958](#) A 20071025

PNFP - JP4361914B B2 20091111

PR - JP20060107411 20060410

AP - JP20060107411 20060410

DT - I

FI - B22D17/00&Z; B22D17/02&B; B22D27/13; B22D39/00; F04B9/12&F; F04B9/123; F15B3/00&E

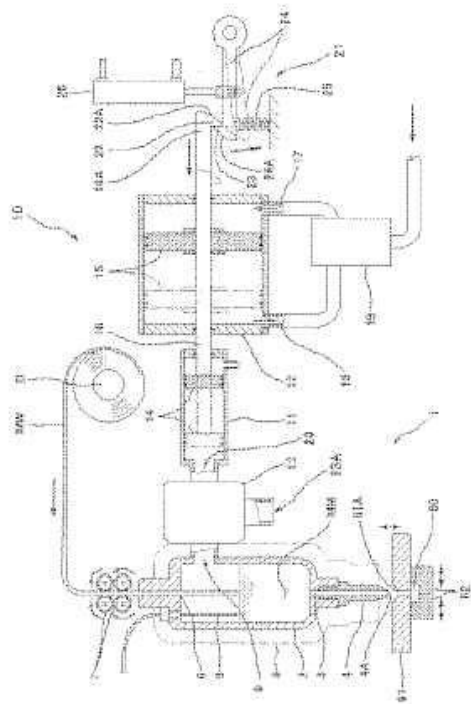
FT - 3H075/AA18; 3H075/BB03; 3H075/CC10; 3H075/DA03; 3H075/DA04; 3H075/DA20; 3H075/DB10; 3H075/DB43; 3H086/BA01; 3H086/BA03; 3H086/BA12; 3H086/BA19; 3H086/BB10; 3H086/BC20; 4E014/LA09

PA - (A)
SHINTANI TETSUO

TI - (A)
PRESSURIZED GAS SUPPLYING SYSTEM

AB - (A)
PROBLEM TO BE SOLVED: To provide a **pressurized gas** supplying system for instantly supplying the high pressure gas without needing a high pressurizing apparatus, such as high power compressor, pump, etc.

- SOLUTION: This **pressurized gas** supplying system comprises: a pressurizing cylinder 11 for supplying the **pressurized gas** to a pressurizing



object; a driving cylinder 12 for driving the pressurizing cylinder 11; and a locking unit 21 which can switch the locking state impossible to move a piston 14 in the pressurizing cylinder 11 in the direction of compressing the gas, and the working state possible to move, wherein a piston 15 in the driving cylinder 12 has the larger receiving area than that of the piston 14 in the pressurizing cylinder 11, with a piston rod 16 in the driving cylinder 12 connected to a piston rod 16 in the pressurizing cylinder 11, like the same shaft.

- COPYRIGHT: (C)2008,JPO&INPIT

16/27 © EPODOC / EPO

PN - [JPH10118954](#) A 19980512

PR - JP19960272496 19961015

AP - JP19960272496 19961015

DT - I

FI - B25B21/00&510Z; B25B29/02; F15B11/06&C; F15B11/06&N; F15B11/072

FT - 3C031/GG03; 3H089/AA01; 3H089/AA12; 3H089/BB15; 3H089/BB27; 3H089/DA01; 3H089/DA15; 3H089/DB01; 3H089/EE01; 3H089/EE15; 3H089/EE41; 3H089/GG02; 3H089/GG03; 3H089/JJ20

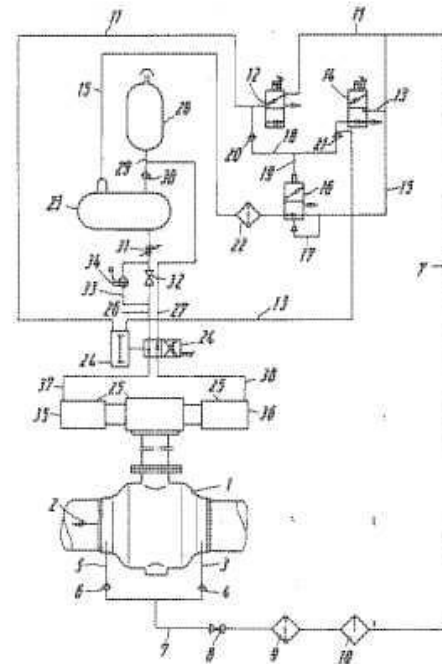
PA - CHUBU ELECTRIC POWER; TOENEC CORP; TERANISHI SHOJI KK; SEIATSU KK

TI - BOLT FASTENING DEVICE

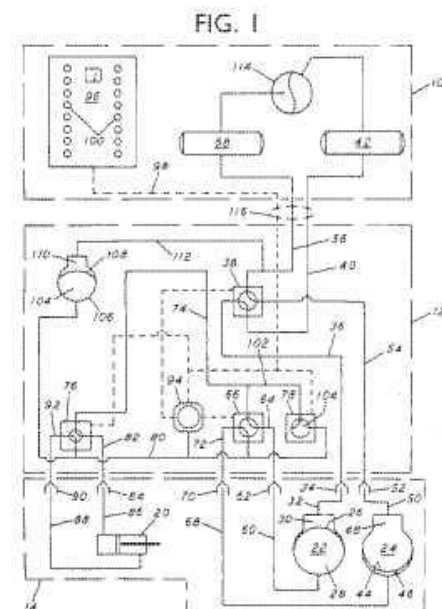
AB - PROBLEM TO BE SOLVED: To dispense with a hydraulic pump so as to accomplish reduction in a size and in weight by providing a bolt tensioner applying a tensile force to a bolt, a **pressurized gas** feeder, and an oil pressure generator pressurizing working fluid to be fed to the bolt tensioner by means of a pressure of **pressurized gas**. SOLUTION: When working fluid is fed from a working fluid supply path 73 to a working fluid hose 51, a pressure of the working fluid inside the working fluid supply path 73 is lowered and a piston 69 starts moving so as to be shifted in the left-hand direction. When a rod 64 is moved to the predetermined position on the left side, the rod 64 is pressed by means of an air piston B and a switching valve 63 is shifted to the left, so that the moving direction of the piston 69 is switched into the right-hand direction. This lateral reciprocation of the piston 69 is repeated, so that an oil pressure of the working fluid is increased, and as a result, a driving force is applied to a bolt puller 20 and a tensile force is applied to the bolt.

17/27 © EPODOC / EPO

PN - [GB1537430](#) A 19781229
 PR - DE19762650802 19761103
 AP - GB19770037491 19770908
 DT - **
 CCI - [F15B11/0725](#)
 CCA - [F15B2211/212](#) ; [F15B2211/30505](#) ;
[F15B2211/3052](#) ; [F15B2211/30525](#) ;
[F15B2211/329](#) ; [F15B2211/40515](#) ;
[F15B2211/41509](#) ; [F15B2211/455](#) ;
[F15B2211/615](#) ; [F15B2211/6355](#) ;
[F15B2211/7053](#) ; [F15B2211/8636](#)
 PA - BORSIG GMBH
 TI - ACTUATING DRIVE MEANS
 AB - 1537430 Fluid-pressure control circuits BORSIG GmbH 8 Sept 1977 [3 Nov 1976] 37491/77
 Heading F1P A double-acting actuator, 25, 35, 36, is operated by hydraulic liquid from a reservoir 23 which is **pressurized by gas**, and liquid is returned to an unpressurized tank 28 connected to the reservoir 23 through a check-valve 30. The actuator opens and closes a valve 1 in a gas line and the pressure of the gas in the line is used to pressurize the reservoir 23. The system is controlled by electromagnetically operated valves 12, 14. A hand pump 34 is provided for emergency use.



18/27 © EPODOC / EPO
 PN - [GB1503963](#) A 19780315
 PR - US19740478185 19740610
 AP - GB19750022738 19750523
 DT - **
 CCI - [E21B33/064](#) ; [E21B33/0355](#)
 PA - CHEVRON RES [US]
 TI - SYSTEM FOR OPERATING HYDRAULIC APPARATUS
 AB - 1503963 Fluid pressure control circuits CHEVRON RESEARCH CO 23 May 1975 [10 June 1974] 22738/75 Heading F1P [Also in Division E1] A closed hydraulic system for operating devices 20, such as blow-out preventers, comprises a pair of hydraulic accumulators 22, 24 which are alternately pressurized by connection to a **pressurized gas** receiver 42 to operate the device and reduced in pressure by connection to a low-pressure gas receiver 58 to serve as a receiving chamber for hydraulic fluid discharged from the device, the alternation of the accumulator pressures being such that when one accumulator serves to operate the device with pressurized fluid the other accumulator serves as a low-pressure receiving chamber. The switching-over of the accumulators is effected by



means of a pressure-sensitive device 94 which senses the fluid pressure in the discharge conduit 80 of the device 20 and switches over valves 66 and 38 located in the hydraulic fluid supply conduits 60, 68 and **pressurized gas** conduits 40, 56, respectively. A plurality of devices may be operated by the two accumulators, Fig. 3, (not shown), and several accumulators may be provided. The system is divided into three sub-assemblies, the first 10 being located above surface and including the gas receivers 42, 58 and a control console 96, the second 12 includes the valves and pressure sensitive device 94 and is lowered to the wellhead by means of cables (182), Fig. 4, (not shown), and the third 14 includes the device 20 and accumulators and is secured to the wellhead.

19/27 © EPODOC / EPO

PN - [GB1463940](#) A 19770209

PR - FR19740020828 19740614

AP - GB19750020910 19750516

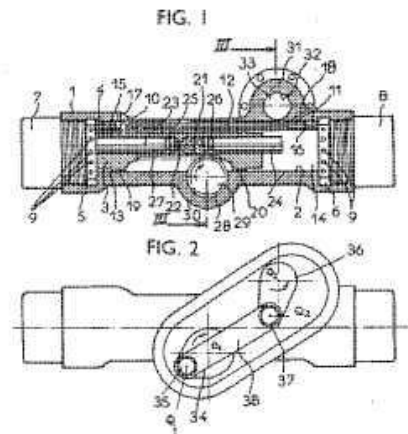
DT - **

CCI - [F15B15/065](#) ; [F16K31/1635](#)

PA - MESSIER HISPANO SA

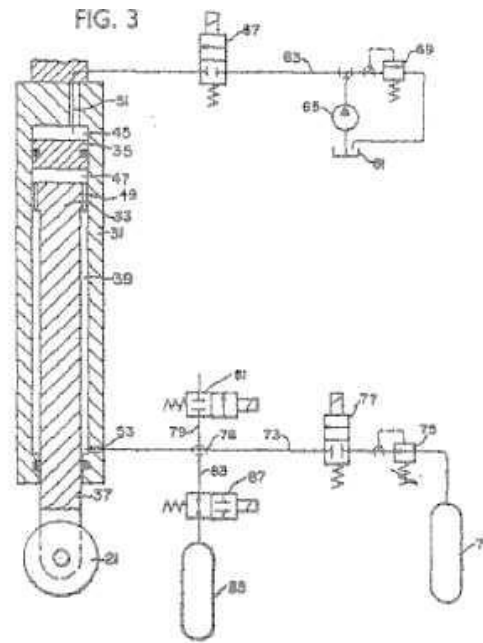
TI - DEVICE FOR OPENING AND CLOSING A ROTARY VALVE BY REMOTE CONTROL

AB - 1463940 Fluid-pressure actuators
 MESSIERHISPANO 16 May 1975 [14 June 1974]
 20910/75 Heading F1D In an actuator, for opening and closing a valve, of the type in which a rack 27, Fig. 1, on a piston 3 rotates a pinion 28, a shaft 33 connected to the valve is rotated by cranks 34, 36, Fig. 2, and a link 38, the arrangement being such that the axes Q 1, Q 2 and O 1 lie substantially in the same plane at the end of the piston stroke. This ensures that any torque applied to the shaft 33 by the valve cannot cause rotation of the pinion 28. Sources of compressed gas 7, 8 are provided and slidable members 10, 11 linked by a rod 12 are displaced by the **pressurized gas** to open and close ports 15, 16, which connect chambers 5, 6 with chambers 13, 14, and ports 17, 18 which connect chambers 13, 14 to atmosphere via ports 15, 16. Movement of the piston 3 is damped by slidable rods 23, 24 which displace a damping liquid or an elastomeric material through an orifice 22 when one of the rods abuts the end of the cylinder.



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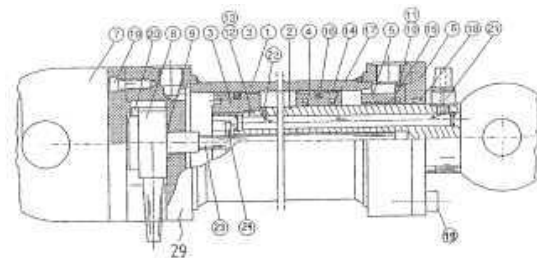
PN - [GB1413453](#) A 19751112
 PR - US19730347980 19730404
 AP - GB19740013930 19740329
 DT - **
 CCI - [B66C13/02](#) ; [F15B11/02](#) ; [F15B11/072](#)
 CCA - [F15B2211/20538](#) ; [F15B2211/212](#) ;
[F15B2211/40515](#) ; [F15B2211/41572](#) ;
[F15B2211/41581](#) ; [F15B2211/426](#) ;
[F15B2211/455](#) ; [F15B2211/46](#) ;
[F15B2211/50518](#) ; [F15B2211/50545](#) ;
[F15B2211/55](#) ; [F15B2211/625](#) ; [F15B2211/7052](#) ;
[F15B2211/7053](#)
 PA - WESTINGHOUSE ELECTRIC CORP
 TI - HOIST WITH CABLE TENSIONING DEVICE
 AB - 1413453 Cable tensioning devices
 WESTINGHOUSE ELECTRIC CORP 29 March 1974
 [4 April 1973] 13930/74 Heading B8B [Also in
 Division F2] A crane (3) which is mounted on the
 deck of a ship (1) comprises a boom (9) which is
 raised and lowered by means of a cable (15)
 wound on a drum (13) and a load lifting cable
 (23) which extends from a motor-driven hoist
 drum (7) and passes about a sheave (17) at the
 upper end of the boom (9) and then passes about
 a sheave 21 mounted on the piston-rod 37 of a
 ram (19) which is used to maintain a
 predetermined tension in the cable (23) during
 raising and lowering of a load (25), the cable
 (23) passing from the sheave 21 back to a second
 sheave (17) at the upper end of the boom (9) and
 then passing vertically downwardly to the load
 (25), Fig. 1 (not shown). The ram (19) is shown in
 Fig. 3 and consists of a housing 31 in which a
 first piston 33 is displaceable, the piston 33
 dividing the housing 31 into chambers 39, 47,
 there being a piston-rod 37 extending from the
 piston 33 which carries the sheave 21, and a
 second piston 35 is located for movement
 between the end of the housing 31 and the first
 piston 33. A cylinder of **pressurized gas** 71 is
 connected by a conduit 73 to a gas inlet port 53
 in the housing 31 and an adjustable pressure
 regulating valve 75 in the conduit 73 is adjusted
 to a predetermined pressure depending on the
 load to be lifted, and on opening a valve 77 in the
 conduit 73 **pressurized gas** is admitted to the
 chamber 39 and passes through openings 49 in
 the piston 33 to the chamber 47, the gas reacting
 on the piston 33 so that as a load is lifted
 through the water the **pressurized gas** absorbs
 shock and moves the piston 33, and thus the
 piston-rod 37 and sheave 21 in and out to pay
 out and take up the cable 23 thus keeping a
 generally constant tension in the cable 23. The



volume of gaseous fluid in the system can be altered by means of an expansion chamber 85 which is connected to, and is filled by, the gas cylinder 71 simultaneously with the supply of gas to the chambers 39, 47. After the load has been lifted from the water additional lifting capacity is required due to the loss of buoyancy and by admitting hydraulic fluid from a reservoir 61 through an hydraulic control valve 67 and through a fluid inlet port 51 into a chamber 45 defined by the housing 31 and a second floating piston 35, the said piston 35 is moved towards the piston 33 to cause extension of the piston-rod 37, thereby raising the load. During this latter mode of operation the hoist drum (7) may be locked to prevent the paying out of the cable (23).

21/27 © EPODOC / EPO

- PN - [WO0171197](#) A1 20010927
- PR - FI20000000656 20000321
- AP - WO2001FI00286 20010321
- DT - *; Rep
- CT - |SE| ISR (A1)
[US5009068](#) A 19910423 [Y] (CLARKE DOUGLAS C [GB]);
[GB2080419](#) A 19820203 [Y] (ATO INC);
[GB755078](#) A 19560815 [Y] (DOWTY EQUIPMENT LTD);
[DE29713825U](#) U1 19971002 [Y] (FESTO KG [DE])
- CCI - [F15B15/1409](#) ; [F15B15/227](#) ; [F16F9/063](#) ;
[F16F9/18](#)
- CCA - [F16F2230/08](#)
- PA - HYDROLL OY [FI]; VILENIUS PERTTI [FI]
- TI - A HYDRAULIC ARRANGEMENT AND A DAMPER ADAPTED THERETO
- AB - A hydraulic system with an adaptive damper and comprised of a cylinder (1), which has end pieces (6) and (29), further a first cylinder space for hydraulic inlet fluid bordered by the first piston (3) and a second cylinder space for the second inlet hydraulic fluid, bordered by the second piston (4), a first piston (3) moving in the cylinder and one second piston (4) moving in the cylinder (1). First piston (3) is fixed to piston rod (2), and the second piston is arranged to slide in regard to the piston rod, the space between the pistons then being arranged to be **pressurized** by **gas** by means of valve (21) and the damper including a device (8, 23, 24) measuring the piston rod position.



22/27 © EPODOC / EPO

PN - [EP0797035](#) A1 19970924

PNFP - EP0797035 B1 20010711

PR - US19960620295 19960322

AP - EP19970300428 19970123

DT - *; Rep

CT - || STSE (A1)
[JPS6138285](#) A 00000000 [XA];
[DE4438293](#) A1 19960502 [PA] (MAGDEBURGER
 ARMATURENWERKE [DE])
 [PA] 1-4,6,16,23,42
 * abstract *;
[US4238109](#) A 19801209 [A] (POWERS WILLIAM H
 [US])
 [A] 1-8,16,19-21,23-27
 * abstract *;
[EP0016553](#) A1 19801001 [A] (HILLS MCCANNA CO
 [US])
 [A] 1,16,23,42
 * the whole document *;
[EP0073268](#) A1 19830309 [A] (SPERRY VICKERS
 [DE])
 [A] 1
 * the whole document *;
[WO8905938](#) A1 19890629 [A] (DU PONT [US])
 [A] 2,3,9-13,15,17,22,24,28-33,36-41
 * figures 1,2; claim 1 *;
[DE9409093U](#) U1 19940915 [A] (RICHTER ALBERT
 ARIARMATUREN [DE])
 [A] 10-12,14,18,29,34,36
 * figure 1; claims 1,4 *;
[EP0182408](#) A1 19860528 [A] (EL O MATIC BV [NL])
 [A] 25,35
 * figures 2,3 *

CTNP - || STSE (A1)
 [XA] - PATENT ABSTRACTS OF JAPAN, (19860708),
 vol. 010, no. 193, Database accession no. (M -
 496),
 [X] 1,42
 * abstract *
 [A] 16,23

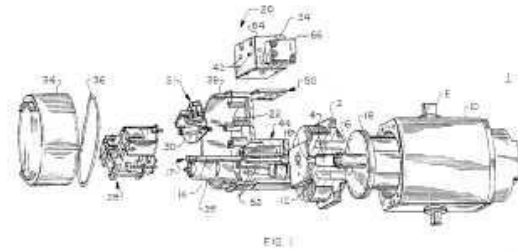
CCI - [F16K31/1635](#) ; [F16K37/0041](#)

CCA - [Y10T137/87193](#)

PA - (A1 B1)
 WORCESTER CONTROLS CORP [US]

TI - (A1 B1)
 Pneumatic actuator having an end-mounted
 control device

AB - (A1)
 This invention features a device for controlling
 the operation of a pneumatic actuator (1) and a
 pneumatic actuator having such a control device
 (20). More particularly, the actuator control
 device of the instant invention includes a
 housing (22) mounted to an actuator end cap (2),



a solenoid valve (26) disposed within the housing and a gas control valve (24) that controls the **pressurized gas** admitted to and exhausted from the actuator for valve actuation. The gas control valve is responsive to the solenoid valve and is mounted to the housing. Preferably, the control device includes a position indication mechanism, disposed within the housing, that determines a prespecified position of the valve responsive to the movement of at least one and preferably two moveable actuator probes (14) extending from the actuator end cap into the housing. The gas control valve is a spool valve that is pneumatically controlled by the solenoid valve. The position indication mechanism includes a mechanical switch (28) or an inductive proximity switch, one for each actuator probe that determines the position of an end of each actuator probe that are each actuated by and end of an actuator probe as it moves within the housing responsive to the motion of the actuator. <IMAGE>

23/27 © EPODOC / EPO

PN - [DK170285](#) A 19861017

PNFP - DK156745B B 19890925
- DK156745C C 19900226

PR - DK19850001702 19850416

AP - DK19850001702 19850416

DT - I

PA - (A B C)
NORDISK MARINE HYDRAULIK DANMA [DK]

TI - (B)
Hydraulic rotation actuator

AB - (B)
The actuator includes an actuation piston (9) in a housing (4), which via a toothed bar (10) engages with an exterior tooth system on a cross-mounted actuator spindle (12). The actuator piston's (9) advance and with it the actuator spindle's (12) rotation is controlled with the help of a hydraulic control pressure led to a working space (6), while the actuator piston's (9) return takes place with the help of a gas pressure spring, which is compressed at the same rate as the advance of the actuator piston. In one version the actuator piston (9) is hollow and embodies the compression chamber (16) with an enclosed **pressurized gas** volume and the further compression necessary for the return of the actuator piston (9) is brought about with the help of a reaction piston (14) positioned at the end of the actuator piston's (9) end turned facing the opposite working space (6), which during the advance of the actuator piston is shifted into the compression chamber (16) herein. The reaction piston has a shoulder (18) which in the reaction piston's (14) mounted condition prohibits this from being shifted completely out of the actuator piston (9). In such a way an especially compact actuator is produced, which furthermore is easy to service, in that elimination of any irregularities concerning the compression chamber can take place during removal of the whole actuator. <IMAGE>

24/27 © EPODOC / EPO

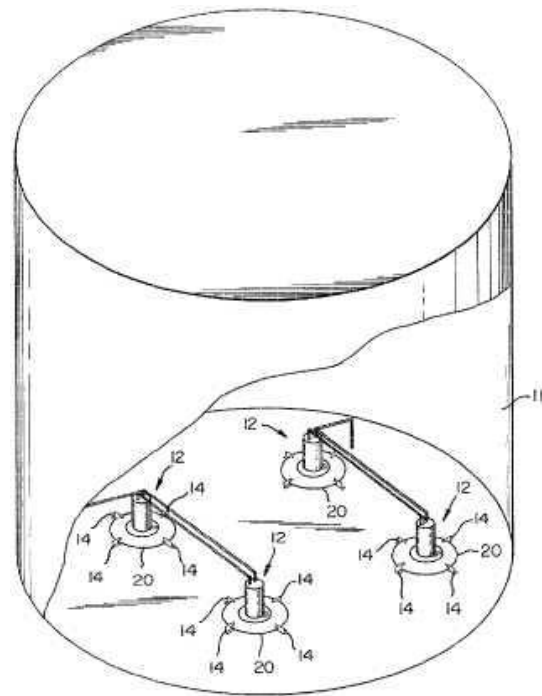
PN - [CA2453074](#) A1 20050719

PR - CA20042453074 20040119

AP - CA20042453074 20040119
 DT - *
 CCI - [F15B3/00](#) ; [F15B11/0725](#) ; [F15B21/14](#)
 CCA - [F15B2211/2053](#) ; [F15B2211/212](#) ; [F15B2211/216](#) ; [F15B2211/30525](#) ; [F15B2211/625](#) ; [F15B2211/88](#)
 PA - DOERKSEN CAREY T [CA]
 TI - **PRESSURIZED GAS** ASSISTED HYDRAULIC AMPLIFIER FOR A HYDRAULIC LIFTING ASSEMBLY
 AB - A **pressurized gas** assisted hydraulic amplifier for a hydraulic lifting assembly, when the hydraulic lifting assembly is lowered a master piston moves causing a slave piston to compress a gaseous medium. This results in a gas pressure build up within a second compartment of the slave cylinder and an associated gaseous medium accumulator. When raising the hydraulic lifting assembly, the expansion of gaseous medium in the second compartment of the slave cylinder provides a supplemental lifting force which is exerted upon the slave piston and transferred to the master piston.

25/27 © EPODOC / EPO

PN - [CA2446418](#) A1 20021114
 PNFP - CA2446418 C 20100810
 PR - US20010850703 20010507; WO2002US14319 20020506
 AP - CA20022446418 20020506
 DT - I
 CCI - [F16K31/1221](#) ; [B01F13/0255](#) ; [B01F13/0283](#) ; [B01F15/024](#) ; [F16K31/163](#)
 CCA - [B01F3/08](#) ; [B01F3/12](#)
 PA - (A1 C)
 PARKS RICHARD E [US]
 TI - (A1 C)
 METHOD AND APPARATUS FOR GAS INDUCED MIXING AND BLENDING OF FLUIDS AND OTHER MATERIALS
 AB - (A1 C)
 An improved injector system including an injector operatively connected to a source of **pressurized gas** and mounted to an accumulator located in close proximity to the bottom of a tank containing a fluid or other materials. The injector comprises a chamber housing and a valve disposed in the chamber housing. The chamber housing is matable to an accumulator that defines an orifice, and receives pressurized gas from an external source. The valve engages the accumulator and selectively administers or obstructs the release of the gas into the tank as directed by an actuator contained within the chamber housing. In ambient environments that tend to fool and clog the chamber orifice or accumulator orifice, a removable orifice plate is used wherein the valve engages the orifice plate.



26/27 © EPODOC / EPO

PN - [CA2200248](#) A1 19970922

PNFP - CA2200248 C 20010102

PR - US19960620295 19960322

AP - CA19972200248 19970318

DT - I

CCI - [F16K31/1635](#) ; [F16K37/0041](#)

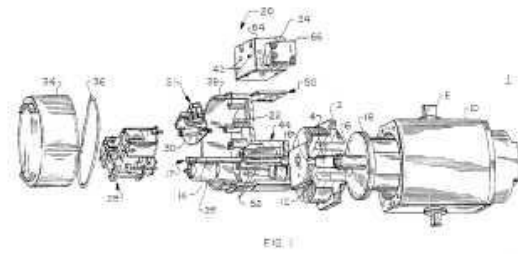
CCA - [Y10T137/87193](#)

PA - (A1 C)
WORCESTER CONTROLS CORP [US]

TI - (A1 C)
Pneumatic Actuator Having an End Mounted Control Device

AB - (A1)
This invention features a device for controlling the operation of a pneumatic actuator and a pneumatic actuator having such a control device. More particularly, the actuator control device of the instant invention includes a housing mounted to an actuator end cap, a solenoid valve disposed within the housing and a gas control valve that controls the **pressurized gas** admitted to and exhausted from the actuator for valve actuation. The gas control valve is responsive to the solenoid valve and is mounted to the housing. Preferably, the control device includes a position indication mechanism, disposed within the housing, that determines a prespecified position of the valve responsive to the movement of at least one and preferably two moveable actuator probes extending from the actuator end cap into the housing. The gas control valve is a spool valve that is pneumatically controlled by the solenoid valve. The position indication mechanism includes a mechanical switch or an inductive proximity switch, one for each actuator probe that determines the position of an end of each actuator probe that are each actuated by an end of an actuator probe as it moves within the housing responsive to the motion of the actuator.

- (C)
This invention features a device for controlling the operation of a pneumatic actuator and a pneumatic actuator having such a control device. More particularly, the actuator control device of the instant invention includes a housing mounted to an actuator end cap, a solenoid valve disposed within the housing and a gas control valve that controls the **pressurized gas** admitted to and exhausted from the actuator for valve actuation. The gas control valve is responsive to the solenoid valve and is mounted to the housing. Preferably, the control device includes a position indication mechanism, disposed within the housing, that determines a prespecified



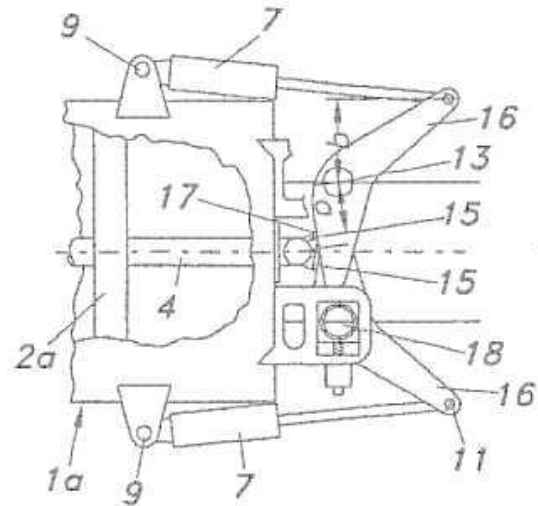
position of the valve responsive to the movement of at least one and preferably two moveable actuator probes extending from the actuator end cap into the housing. The gas control valve is a spool valve that is pneumatically controlled by the solenoid valve. The position indication mechanism includes a mechanical switch or an inductive proximity switch, one for each actuator probe that determines the position of an end of each actuator probe that are each actuated by an end of an actuator probe as it moves within the housing responsive to the motion of the actuator.

27/27 © EPODOC / EPO

PN - [WO0068578](#) A1 20001116
 PR - AT1990000816 19990506
 AP - WO2000AT00119 20000504
 DT - *; Rep
 CT - |EP| ISR (A1)
[EP0857877](#) A2 19980812 [X] (MANNESMANN REXROTH AG [DE])
 [X] 1-6,9
 * column 8, line 19 - line 46; figure 4 *;
[GB2205369](#) A 19881207 [XA] (TEVES GMBH ALFRED)
 [X] 1,2,4-6
 * page 17, line 25 - line 34; figure 2 *
 [A] 8;
[US4347701](#) A 19820907 [XA] (EDDENS FLETCHER C, et al)
 [X] 1,2,10
 * column 7, line 36 - line 41; figures 1,3 *
 [A] 7;
[DE2322284](#) A1 19731122 [X] (INST FRANCAIS DU PETROLE)
 [X] 1,2
 * page 8, paragraph 3; figures 4,5 *;
[CH63194](#) A 19140116 [A] (HEINDL RICHARD [AT])
 [A] 3,9
 * page 1, column R, line 23 - page 2, column L, line 8; figure 1 *;
[DE2447799](#) A1 19750417 [A] (MAILLET EDGARD JACQUES)
 [A] 7
 * page 12, paragraph 3; figure 2 *;
[EP0711927](#) A2 19960515 [A] (PNEUMATIC ENERGY INC [US])
 [A] 10
 * abstract *;
[WO9817492](#) A1 19980430 [A] (UNITECH AG [AT], et al)

CCI - [F04B9/135](#) ; [F15B11/0725](#)

CCA - [F15B2211/212](#) ; [F15B2211/216](#) ;
[F15B2211/30505](#) ; [F15B2211/71](#)



- PA - TCG UNITECH AG [AT]; PREINFALK MARKUS [AT]
- TI - DEVICE FOR CONVERTING PNEUMATIC ENERGY INTO HYDRAULIC ENERGY
- AB - The invention relates to a device for converting pneumatic energy into hydraulic energy, comprising at least one pneumatic cylinder (1) for relaxation of a **pressurized gas** and at least one hydraulic cylinder (7) mounted in a hydraulic circuit, wherein the pneumatic cylinder (1) and the hydraulic cylinder (7) are connected to each other by a transmission arrangement coupling a pneumatic piston (2) mounted in the pneumatic cylinder (1) with a hydraulic piston (8) mounted in the hydraulic cylinder (1). Improved efficiency can be achieved in that the transmission arrangement has a transmission ratio (i) which differs depending on the position of the pistons (2, 8).

[SS 17] ..v

[EPODOC: SS 17] /ic B67D9/00

Results in EPODOC 1.153

[SS 18] 12 and 17

Results in EPODOC 5

[SS 19] ..li



1/5 © EPODOC / EPO

PN - [PH12016500696](#) A1 20160530

PR - EP20130189337
20131018; WO2014EP72357
20141017

AP - PH12016500696 20160414

DT - I

CCI - [B67D9/00](#)

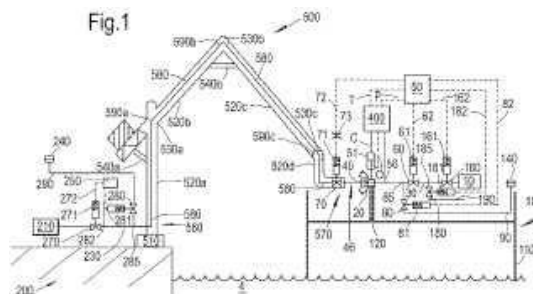
CUI - [F17C5/06](#) ; [F17C13/082](#) ;
[F16L25/00](#)

CUA - [F17C2227/0157](#) ; [F17C2250/07](#)

PA - SHELL INT RESEARCH [NL]

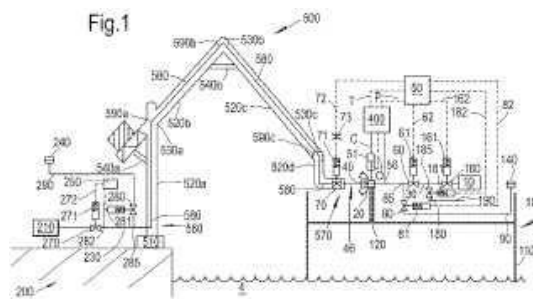
TI - LOADING ASSEMBLY FOR
CONVEYING A **PRESSURIZED GAS**
STREAM AND A SWITCHING
SYSTEM FOR USE IN A LOADING
ASSEMBLY

AB - A loading assembly has a gas
conduit that extends between a
floating structure and another



structure, to convey a **pressurized gas** stream between the two structures. An emergency disconnection coupler is configured in the gas conduit. A switching system is provided for controlling switching of an engagement mechanism in the emergency disconnection coupler between a locked position and an unlocked position (in either direction). The switching system is subject to two distinct fail-safe regimes: a fail-unlocked regime which inherently instructs for release of the emergency disconnection coupler, and a fail-closed regime which inherently precludes release of the emergency disconnection coupler when there is **pressurized gas** in the gas connection. The fail-unlocked regime is active when the gas pressure in the gas connection is below a predetermined override threshold value. The fail-locked regime overrides the fail-unlocked regime.

- 2/5 © EPDOC / EPO
- PN - [CN105658570](#) A 20160608
- PR - EP20130189337
20131018; WO2014EP72357
20141017
- AP - CN2014857184 20141017
- DT - I
- CT - || STSE (A)
[DE8809509U](#) U1 19881208 [A]
[A] 1-15
* 全文 *;
[FR2638731](#) A1 19900511
[A] (FMCEUROPE [FR])
[A] 1-15
* 全文 *;
[WO0228765](#) A1 20020411
[A] (EURODIM SA [FR], et al)
[A] 1-15
* 全文 *;
[CN2515185Y](#) Y 20021009
[A] (LIANYUNGANG OCEAN FLUID
LOADIN [CN])
[A] 1-15
* 全文 *;
[CN1605006](#) A 20050406

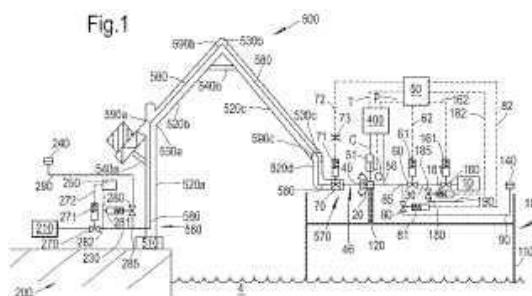


	[A] (FMC TECHNOLOGIES SA [FR])
	[A] 1-15
	* 全文 *;
	CN102264596 A 20111130 [A]
	[A] 1-15
	* 全文 *;
	CN102781772 A 20121114
	[A] (SAMSUNG HEAVY IND)
	[A] 1-15
	* 全文 *
CCI	- B67D9/00
CUI	- F17C5/06 ; F17C13/082 ; F16L25/00
CUA	- F17C2227/0157 ; F17C2250/07
PA	- SHELLINTRESEARCH
TI	- Loading assembly for conveying pressurized gas stream and switching system for use in loading assembly
AB	- A loading assembly has a gas conduit that extends between a floating structure and another structure, to convey a pressurized gas stream between the two structures. An emergency disconnection coupler is configured in the gas conduit. A switching system is provided for controlling switching of an engagement mechanism in the emergency disconnection coupler between a locked position and an unlocked position (in either direction). The switching system is subject to two distinct fail-safe regimes: a fail-unlocked regime which inherently instructs for release of the emergency disconnection coupler, and a fail- closed regime which inherently precludes release of the emergency disconnection coupler when there is pressurized gas in the gas connection. The fail- unlocked regime is active when the gas pressure in the gas connection is below a predetermined override threshold value. The fail-locked regime overrides the fail-unlocked regime.
3/5	© EPODOC / EPO
PN	- SG11201602153P A 20160530

PR - EP20130189337 20131018; WO2014EP72357 20141017
 AP - SG20161102153P 20141017
 DT - I
 CCI - [B67D9/00](#)
 CUI - [F17C5/06](#) ; [F17C13/082](#) ; [F16L25/00](#)
 CUA - [F17C2227/0157](#) ; [F17C2250/07](#)
 PA - SHELL INT RESEARCH [NL]
 TI - LOADING ASSEMBLY FOR CONVEYING A **PRESSURIZED GAS** STREAM AND A SWITCHING SYSTEM FOR USE IN A LOADING ASSEMBLY

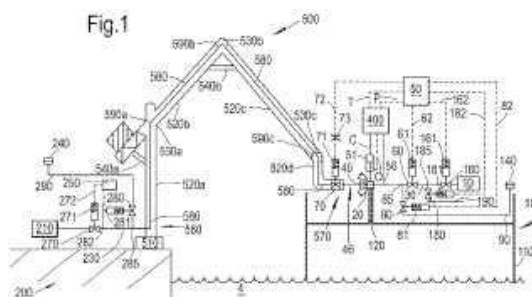
4/5 © EPODOC / EPO

PN - [EP3057905](#) A1 20160824
 PR - EP20130189337
 20131018; WO2014EP72357
 20141017; EP20140790550
 20141017
 AP - EP20140790550 20141017
 DT - I
 CCI - [B67D9/00](#)
 CUI - [F17C5/06](#) ; [F17C13/082](#) ;
[F16L25/00](#)
 CUA - [F17C2227/0157](#) ; [F17C2250/07](#)
 PA - SHELL INT RESEARCH [NL]
 TI - LOADING ASSEMBLY FOR
 CONVEYING A **PRESSURIZED GAS**
 STREAM AND A SWITCHING
 SYSTEM FOR USE IN A LOADING
 ASSEMBLY



5/5 © EPODOC / EPO

PN - [WO2015055835](#) A1 20150423
 PR - EP20130189337 20131018
 AP - WO2014EP72357 20141017
 DT - *; Rep
 CT - |EP| ISR (A1)
[DE8809509U](#) U1 19881208
 [A] (INGENIERBÜRO FÜR
 INDUSTRIEPLANUNG GMBH)
 [A] 1,14
 * page 6, paragraph 3 - page 9,
 paragraph 3; figure - *;
[FR2638731](#) A1 19900511
 [A] (FMC EUROPE [FR])
 [A] 1,14
 * page 7, line 3 - page 8,
 line 22; figures 2,3 *;
[WO0228765](#) A1 20020411
 [A] (EURODIM SA [FR], et al)
 [A] 1
 * page 4, line 29 - page 5,
 line 26; figure - *



CCI	- B67D9/00
CUI	- F17C5/06 ; F17C13/082 ; F16L25/00
CUA	- F17C2227/0157 ; F17C2250/07
PA	- SHELL INT RESEARCH [NL]; SHELL OIL CO [US]
TI	- LOADING ASSEMBLY FOR CONVEYING A PRESSURIZED GAS STREAM AND A SWITCHING SYSTEM FOR USE IN A LOADING ASSEMBLY
AB	- A loading assembly has a gas conduit that extends between a floating structure and another structure, to convey a pressurized gas stream between the two structures. An emergency disconnection coupler is configured in the gas conduit. A switching system is provided for controlling switching of an engagement mechanism in the emergency disconnection coupler between a locked position and an unlocked position (in either direction). The switching system is subject to two distinct fail-safe regimes: a fail-unlocked regime which inherently instructs for release of the emergency disconnection coupler, and a fail-closed regime which inherently precludes release of the emergency disconnection coupler when there is pressurized gas in the gas connection. The fail-unlocked regime is active when the gas pressure in the gas connection is below a predetermined override threshold value. The fail-locked regime overrides the fail-unlocked regime.

[SS 19] ..v

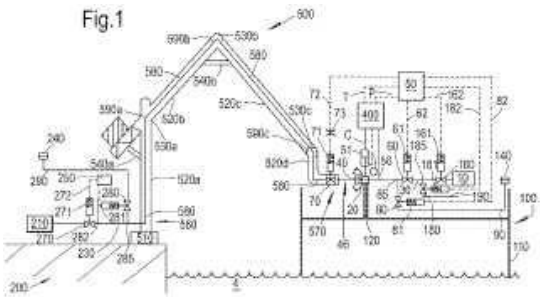
[EPODOC: SS 19] gas and 17

Results in EPODOC 154

[SS 20] emergency and 19

Results in EPODOC 9

- 1/9 © EPODOC / EPO
- PN - [PH12016500696](#) A1 20160530
- PR - EP20130189337
20131018; WO2014EP72357
20141017
- AP - PH12016500696 20160414
- DT - I
- CCI - [B67D9/00](#)
- CUI - [F17C5/06](#) ; [F17C13/082](#) ;
[F16L25/00](#)
- CUA - [F17C2227/0157](#) ; [F17C2250/07](#)
- PA - SHELLINT RESEARCH [NL]
- TI - LOADING ASSEMBLY FOR
CONVEYING A PRESSURIZED **GAS**
STREAM AND A SWITCHING
SYSTEM FOR USE IN A LOADING
ASSEMBLY
- AB - A loading assembly has a **gas**
conduit that extends between a
floating structure and another
structure, to convey a
pressurized **gas** stream between
the two structures. An **emergency**
disconnection coupler is
configured in the **gas** conduit. A
switching system is provided for
controlling switching of an
engagement mechanism in
the **emergency** disconnection
coupler between a locked
position and an unlocked
position (in either direction). The
switching system is subject to
two distinct fail-safe regimes: a
fail-unlocked regime which
inherently instructs for release of
the **emergency** disconnection
coupler, and a fail-closed regime
which inherently precludes
release of the **emergency**
disconnection coupler when
there is pressurized **gas** in the **gas**
connection. The fail-unlocked
regime is active when the **gas**
pressure in the **gas** connection is
below a predetermined override
threshold value. The fail-locked
regime overrides the fail-
unlocked regime.



PN - [CN105858584](#) A 20160817

PR - CN20161400841 20160608

AP - CN20161400841 20160608

DT - I

PA - LIANYUNGANG JUMP PETROLEUM CHEMICAL MACHINE CO LTD

TI - Single pipe loading and unloading arm for low-temperature ship

AB - The invention relates to a single pipe loading and unloading arm for a low-temperature ship. The single pipe loading and unloading arm comprises a supporting structure, a pipe system, a hydraulic drive system, a maintenance platform, a nitrogen **gas** blowing and sweeping system, an **emergency** escaping system, a hydraulic substation, an upper rope pulley, a steel wire rope and a lower rope wheel; the steel wire rope is arranged between the upper rope wheel and the lower rope wheel, the maintenance platform is arranged on the upper portion of the loading and unloading arm, the nitrogen **gas** blowing, sweeping and distributing system is arranged near an inlet flange of the loading and unloading arm, and the hydraulic substation is arranged on the side face of a stand column. The pipe system comprises a stand column pipe, an inner arm pipe and an outer arm pipe, the upper end and the lower end of the stand column pipe are constrained with a shaft, and it is guaranteed that the stand column pipe stretches out and contracts back freely in the axial direction and rotates freely in the axial direction; one end of the inner arm pipe is constrained with a hinge, and the other end of the inner arm pipe is constrained with a plane; one end of the outer arm pipe is constrained with a hinge, and the other end of the outer arm pipe is constrained with a plane. By means of the single pipe loading and unloading arm, the pipe system can stretch and contract freely under an environmental temperature as well as an ultra-low temperature working condition, and thus internal stress generated by temperature deformation is eliminated.

3/9 © EPODOC / EPO

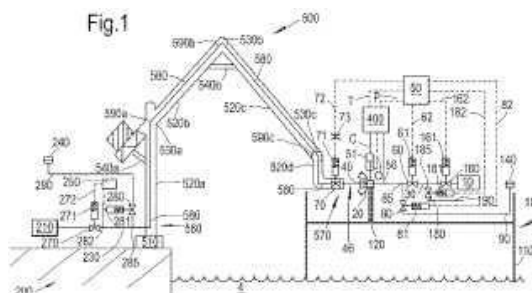
PN - [CN105658570](#) A 20160608

PR - EP20130189337
20131018; WO2014EP72357
20141017

AP - CN2014857184 20141017

DT - I

CT - || STSE (A)
[DE8809509U](#) U1 19881208 [A]
[A] 1-15
* 全文 *;
[FR2638731](#) A1 19900511
[A] (FMC EUROPE [FR])
[A] 1-15
* 全文 *;
[WO0228765](#) A1 20020411
[A] (EURODIM SA [FR], et al)
[A] 1-15
* 全文 *;
[CN2515185Y](#) Y 20021009
[A] (LIANYUNGANG OCEAN FLUID
LOADIN [CN])
[A] 1-15
* 全文 *;
[CN1605006](#) A 20050406
[A] (FMC TECHNOLOGIES SA [FR])
[A] 1-15
* 全文 *;



[CN102264596](#). A 20111130 [A]

[A] 1-15

* 全文 *;

[CN102781772](#). A 20121114

[A] (SAMSUNG HEAVY IND)

[A] 1-15

* 全文 *

- CCI - [B67D9/00](#)
- CUI - [F17C5/06](#) ; [F17C13/082](#) ;
[F16L25/00](#)
- CUA - [F17C2227/0157](#) ; [F17C2250/07](#)
- PA - SHELLINTRESEARCH
- TI - Loading assembly for conveying
pressurized **gas** stream and
switching system for use in
loading assembly
- AB - A loading assembly has a **gas**
conduit that extends between a
floating structure and another
structure, to convey a
pressurized **gas** stream between
the two structures. An **emergency**
disconnection coupler is
configured in the **gas** conduit. A
switching system is provided for
controlling switching of an
engagement mechanism in
the **emergency** disconnection
coupler between a locked
position and an unlocked
position (in either direction). The
switching system is subject to
two distinct fail-safe regimes: a
fail-unlocked regime which
inherently instructs for release of
the **emergency** disconnection
coupler, and a fail-closed regime
which inherently precludes
release of the **emergency**
disconnection coupler when
there is pressurized **gas** in the **gas**
connection. The fail-unlocked
regime is active when the **gas**
pressure in the **gas** connection is
below a predetermined override
threshold value. The fail-locked
regime overrides the fail-
unlocked regime.

4/9 © EPODOC / EPO

PN - [RU2014141807](#) A 20160510

PNFP - RU2589811 C2 20160710

PR - UA20120003198 20120319; WO2012UA00112 20121214

AP - RU20140141807 20121214

DT - I

CCI - [B63B11/02](#) ; [B63B17/0027](#) ; [B63B25/14](#) ; [F17C13/082](#)

CCA - [B63B2025/087](#) ; [F17C2201/0104](#) ; [F17C2201/035](#) ; [F17C2201/054](#) ; [F17C2203/0617](#) ; [F17C2205/0142](#) ; [F17C2205/0146](#) ; [F17C2205/0326](#) ; [F17C2205/0332](#) ; [F17C2205/0335](#) ; [F17C2221/033](#) ; [F17C2223/0123](#) ; [F17C2223/035](#) ; [F17C2270/0105](#)

PA - (C2)
AKHMED MIAVAD EL-SAID KHAASSAN [RU]; HAMDO ABDUL KARIM [SY]; MOROZOV VALERIY [UA]; SHUSTYK OLEKSIY [UA]

TI - (C2)
VESSEL FOR TRANSPORTATION OF COMPRESSED **GAS**

AB - (C2)
FIELD: shipbuilding.SUBSTANCE: invention relates to ship building, particularly to compressed **gas** transfer by sea transport. Proposed ship for transportation of compressed **gas**, which hull is divided into cells with vertical guides, at least one bulkhead in which is water and **gas** tight, unified containers with horizontal vessels for compressed **gas** are installed on each other in guides, which are connected with ship system of compressed **gas** transfer, wherein ship hull is divided into cells so that in area of at least one cell limiting bulkhead distance is provided from 0.8 to 2 m and compressed **gas** distribution headers, pipelines with shutoff valves, compressor, and **emergency** control devices are located in this space.EFFECT: technical result consists in enhanced performances for transportation of compressed **gas** vessel, expansion of its functional capabilities.12 cl, 6 dwg

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PN - [WO2015055835](#) A1 20150423

PR - EP20130189337 20131018

AP - WO2014EP72357 20141017

DT - *; Rep

CT - |EP| ISR (A1)
[DE8809509U](#) U1 19881208
[A] (INGENIERBÜRO FÜR INDUSTRIEPLANUNG GMBH)
[A] 1,14
* page 6, paragraph 3 - page 9,
paragraph 3; figure - *;
[FR2638731](#) A1 19900511
[A] (FMCEUROPE [FR])
[A] 1,14
* page 7, line 3 - page 8,
line 22; figures 2,3 *;
[WO0228765](#) A1 20020411
[A] (EURODIM SA [FR], et al)
[A] 1
* page 4, line 29 - page 5,
line 26; figure - *

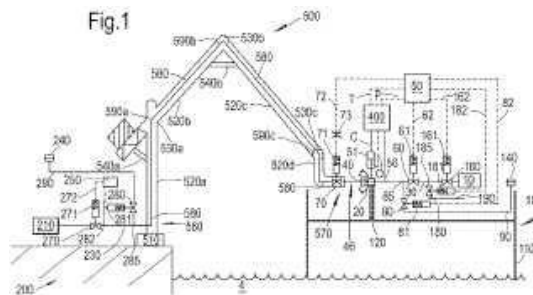
CCI - [B67D9/00](#)

CUI - [F17C5/06](#) ; [F17C13/082](#) ;
[F16L25/00](#)

CUA - [F17C2227/0157](#) ; [F17C2250/07](#)

PA - SHELLINT RESEARCH[NL]; SHELL
OIL CO [US]

TI - LOADING ASSEMBLY FOR
CONVEYING A PRESSURIZED **GAS**



STREAM AND A SWITCHING
SYSTEM FOR USE IN A LOADING
ASSEMBLY

- AB - A loading assembly has a **gas** conduit that extends between a floating structure and another structure, to convey a pressurized **gas** stream between the two structures. An **emergency** disconnection coupler is configured in the **gas** conduit. A switching system is provided for controlling switching of an engagement mechanism in the **emergency** disconnection coupler between a locked position and an unlocked position (in either direction). The switching system is subject to two distinct fail-safe regimes: a fail-unlocked regime which inherently instructs for release of the **emergency** disconnection coupler, and a fail-closed regime which inherently precludes release of the **emergency** disconnection coupler when there is pressurized **gas** in the **gas** connection. The fail-unlocked regime is active when the **gas** pressure in the **gas** connection is below a predetermined override threshold value. The fail-locked regime overrides the fail-unlocked regime.

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PN - [US2014090750](#) A1 20140403

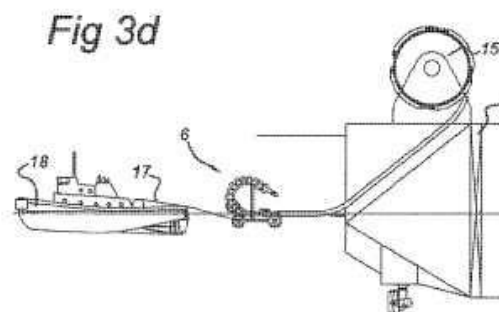
PNFP - US9404619 B2 20160802

PR - US201314097691
20131205; EP20080169566
20081120; EP20090159105
20090429; US201314023823
20130911; US201113112648
20110520; WO2009NL50704
20091120

AP - US201314097691 20131205

DT - **

CT - || STSE (A1)
[US3074082](#) A 19630122 [
] (GRIEBE ERWIN S);
[US3247674](#) A 19660426 [
] (LOUIS MACARDIER);
[US3742536](#) A 19730703 [] (SADA
C, et al);

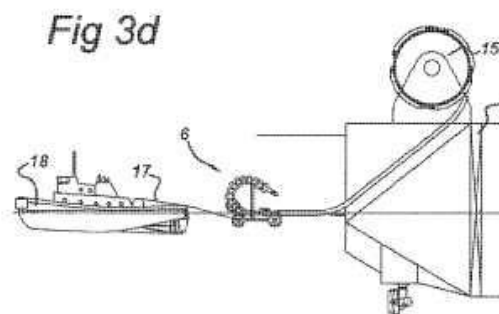


[US4107803](#) A 19780822 [] (SYLVERST LEROY M);
[US4478586](#) A 19841023 [] (GENTRY LARRY L [US], et al);
[US6367522](#) B1 20020409 [] (TYER JOHN C [US]);
[US2003172991](#) A1 20030918 [] (DE BAAN JACOB [NL]);
[US6976443](#) B2 20051220 [] (OMA NARVE [NO], et al);
[US8286678](#) B2 20121016 [] (ADKINS JIMMIE DEAN [US], et al)
- || STSE (B2)
[US3074082](#) A 19630122 [] (GRIEBE ERWIN S);
[US3247674](#) A 19660426 [] (LOUIS MACARDIER);
[US3742536](#) A 19730703 [] (SADA C, et al);
[US4107803](#) A 19780822 [] (SYLVERST LEROY M);
[US4478586](#) A 19841023 [] (GENTRY LARRY L [US], et al);
[US6367522](#) B1 20020409 [] (TYER JOHN C [US]);
[US6976443](#) B2 20051220 [] (OMA NARVE [NO], et al);
[US8286678](#) B2 20121016 [] (ADKINS JIMMIE DEAN [US], et al);
[US2003172991](#) A1 20030918 [] (DE BAAN JACOB [NL])
CCI - [B63B27/24](#) ; [B63B27/34](#) ;
[F17C9/00](#)
CUI - [B63B22/021](#) ; [B67D7/54](#) ;
[F17C6/00](#)
CCA - [B67D9/00](#) ; [F17C2201/0128](#) ;
[F17C2205/0355](#) ;
[F17C2205/0364](#) ;
[F17C2205/0367](#) ;
[F17C2221/013](#) ; [F17C2221/033](#) ;
[F17C2221/035](#) ;
[F17C2223/0161](#) ;
[F17C2223/033](#) ;
[F17C2225/0161](#) ;
[F17C2225/033](#) ;
[F17C2227/0135](#) ;
[F17C2227/044](#) ; [F17C2250/032](#) ;
[F17C2260/033](#) ; [F17C2265/05](#) ;
[F17C2265/061](#) ; [F17C2265/063](#) ;
[F17C2270/0105](#) ;
[F17C2270/0113](#) ;
[F17C2270/0126](#) ;
[Y10T137/0318](#) ; [Y10T137/6855](#)
PA - (A1 B2)

	SINGLE BUOY MOORINGS [CH]
TI	- (A1) MULTI-FUNCTION UNIT FOR THE OFFSHORE TRANSFER OF HYDROCARBONS - (B2) Multi-function unit for the offshore transfer of hydrocarbons
AB	- (A1 B2) A hydrocarbon transfer arrangement for transfer of fluids between an offshore unit and a carrier which are placed in an offloading configuration, includes at least one transfer hose and a gas return hose, wherein the end of the at least one transfer hose is connected to a floating multi-function unit allowing for the transport of the transfer hose between the offshore unit and the carrier, wherein the floating multi-function unit can be lifted out of the water and can be held in a fixed position above water-level and is provided with connection elements for making a fluid connection between the transfer hose end and a manifold of the carrier and with emergency disconnect elements for the at least one transfer hose, placed at a distance from the connection elements.

7/9 © EPODOC / EPO

PN	- US2014027008 A1 20140130
PNFP	- US9447921 B2 20160920
PR	- US201314023820 20130911; EP20080169566 20081120; EP20090159105 20090429; US201113112648 20110520; WO2009NL50704 20091120
AP	- US201314023820 20130911
DT	- **
CT	- STSE (A1) US4269239 A 19810526 [] (HALEY FRANK P); US4276917 A 19810707 [] (FUJITA GEORGE); US4346843 A 19820831 [] (LONG Z VANCE, et al);



[US4658873](#) A 19870421 [] (VON MEYERINCK WOLFGANG [DE], et al);
[US4844133](#) A 19890704 [] (VON MEYERINCK WOLFGANG [DE], et al);
[US4898211](#) A 19900206 [] (FOURNIER PAUL J E [US], et al);
[US5305805](#) A 19940426 [] (WATKINS JR ROBERT G [US]);
[US6213515](#) B1 20010410 [] (LA TERRA BRUNO P [AU]);
[US6701980](#) B2 20040309 [] (ROTHROCK GUY G [US]);
[US2008048417](#) A1 20080228 [] (SCHROEDER JEFFREY M [US]);
[US7415990](#) B2 20080826 [] (VON MEYERINCK WOLFGANG [DE])

- || STSE (B2)

[US4269239](#) A 19810526 [] (HALEY FRANK P);
[US4276917](#) A 19810707 [] (FUJITA GEORGE);
[US4346843](#) A 19820831 [] (LONG Z VANCE, et al);
[US4658873](#) A 19870421 [] (VON MEYERINCK WOLFGANG [DE], et al);
[US4844133](#) A 19890704 [] (VON MEYERINCK WOLFGANG [DE], et al);
[US4898211](#) A 19900206 [] (FOURNIER PAUL J E [US], et al);
[US5305805](#) A 19940426 [] (WATKINS JR ROBERT G [US]);
[US6213515](#) B1 20010410 [] (LA TERRA BRUNO P [AU]);
[US6701980](#) B2 20040309 [] (ROTHROCK GUY G [US]);
[US7415990](#) B2 20080826 [] (VON MEYERINCK WOLFGANG [DE]);
[US2008048417](#) A1 20080228 [] (SCHROEDER JEFFREY M [US])

CCI - [B63B27/24](#) ; [B63B27/34](#) ;
[F17C9/00](#)

CUI - [B63B22/021](#) ; [B67D7/54](#) ;
[F17C6/00](#)

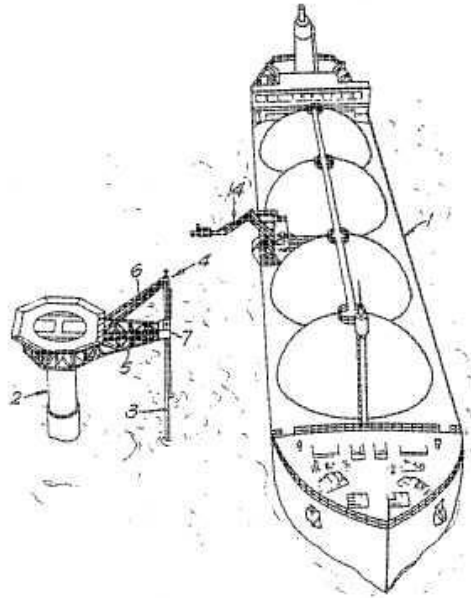
CCA - [B67D9/00](#) ; [F17C2201/0128](#) ;
[F17C2205/0355](#) ;
[F17C2205/0364](#) ;
[F17C2205/0367](#) ;
[F17C2221/013](#) ; [F17C2221/033](#) ;
[F17C2221/035](#) ;

[F17C2223/0161](#) ;
[F17C2223/033](#) ;
[F17C2225/0161](#) ;
[F17C2225/033](#) ;
[F17C2227/0135](#) ;
[F17C2227/044](#) ; [F17C2250/032](#) ;
[F17C2260/033](#) ; [F17C2265/05](#) ;
[F17C2265/061](#) ; [F17C2265/063](#) ;
[F17C2270/0105](#) ;
[F17C2270/0113](#) ;
[F17C2270/0126](#) ;
[Y10T137/0318](#) ; [Y10T137/6855](#)

- PA - (A1 B2)
SINGLE BUOY MOORINGS [CH]
- TI - (A1)
MULTI-FUNCTION UNIT FOR THE
OFFSHORE TRANSFER OF
HYDROCARBONS
- (B2)
Multi-function unit for the
offshore transfer of hydrocarbons
- AB - (A1 B2)
A hydrocarbon transfer
arrangement for transfer of fluids
between an offshore unit and a
carrier which are placed in an
offloading configuration,
includes at least one transfer
hose and a **gas** return hose,
wherein the end of the at least
one transfer hose is connected to
a floating multi-function unit
allowing for the transport of the
transfer hose between the
offshore unit and the carrier,
wherein the floating multi-
function unit can be lifted out of
the water and can be held in a
fixed position above water-level
and is provided with connection
elements for making a fluid
connection between the transfer
hose end and a manifold of the
carrier and with **emergency**
disconnect elements for the at
least one transfer hose, placed at
a distance from the connection
elements.

PN - [US4867211](#) A 19890919
 PR - GB19850030592 19851212
 AP - US19860941170 19861212
 DT - **
 CT - || STSE (A)
[US3422838](#) A 19690121 [
] (HEADRICK RICHARD T);
[US3515179](#) A 19700602 [] (EEK
 WOUTER HVAN);
[US3556170](#) A 19710119 [] (BILY
 PETER J);
[US3583445](#) A 19710608 [
] (HARBONN JACQUES, et al);
[US3595278](#) A 19710727 [] (LILLY
 HERBERT J JR, et al);
[US3690887](#) A 19720912 [
] (DANTRO HORACE F);
[US4273066](#) A 19810616 [
] (ANDERSON HAROLDE);
[US4402350](#) A 19830906 [
] (EHRET THOMAS M [FR], et al);
[US4530302](#) A 19850723 [
] (PEDERSEN KRISTEN I [US]);
[US4625746](#) A 19861202 [
] (CALVIN JOHN H [US], et al);
[US4645467](#) A 19870224 [
] (POLLACK JACK [US]);
[GB2177671](#) A 19870128 [
] (FRICK HEINZ ERWIN, et al)

CCI - [B63B27/24](#) ; [B67D9/00](#)
 CCA - [Y10T137/8807](#)
 PA - BRITISH AEROSPACE [GB]
 TI - Open sea transfer of fluids
 AB - The invention relates to
 equipment for the transfer for
 fluids, much as oil or **gas**, e.g.
 from a platform or buoy located
 by attachments to the sea bed,
 but otherwise with complete
 freedom of movement, due to the
 action of wind and wave, to a
 vessel with similarly complete
 freedom of movement. The
 equipment includes systems for
 automatically acquiring a target
 (10) to which is attached a tage
 line (11) and a transfer hose line
 (9), and for automatically
 transporting that target (10)
 accurately to a winching system
 (16) mounted on the said ship.
 The transfer hose line can be
 reeled in by the winching system
 (16) and the fluid transfer hose



thus connected automatically to the ship-mounted receiving system. The equipment includes a self-sealing fluid coupling through which fluid flow can take place, and a hose having sufficient length to accommodate the stand-off of the vessel from the platform or buoy. Routine uncoupling is accomplished by reversing the coupling procedure, including the use of the same equipment to replace the target in close proximity to the buoy in a controlled manner. The mechanical configuration of the deck equipment 16 is such that if an **emergency** occurs, the transfer hose line and the running shackle can be released from their respective clamps (43) (44), thus permitting the transport hose line to pay-out. This would allow all the equipment connecting the receiver vessel with the buoy or platform to fall overboard in a predetermined manner. This procedure maintains the continuous loop which comprises the transfer hose, transfer hose line and tag line, and enables a pick-up to be effected subsequently.

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PN	- JPH0577900 A 19930330
PNFP	- JPH0777920B B2 19950823
PR	- JP19910034841 19910228
AP	- JP19910034841 19910228
DT	- I
CT	- (A) JPS4855597U U []; JPH02179434 A []; JPS55141648 A []
FI	- B67D5/32&Z; B67D5/68&A; B67D5/70; B67D7/32&Z; B67D9/00&A; B67D9/02; G01M3/04&H; G01M3/28&C
FT	- 2G067/AA14; 2G067/AA16; 2G067/AA31; 2G067/AA37; 2G067/BB07; 2G067/BB11; 2G067/BB34; 2G067/BB36; 2G067/CC12; 2G067/CC18; 2G067/DD04; 3E083/BB04
PA	- (A) NIIGATA ENGINEERING CO LTD
TI	- (A) TESTING METHOD FOR LEAKAGE IN EMERGENCY SEVERANCE DEVICE FOR LOADING AND UNLOADING OF FLUID
AB	- (A)

PURPOSE:To make it possible to test a leak from a valve by a method wherein each of two valves, remaining in their connected state, is closed and testing **gas** is injected under pressure through piping on the outer end side of either of the valves to be quantitatively tested for leakage and the amount of the testing **gas** which flows into a tubular body intervening between the two valves is measured. CONSTITUTION:Two valves 20, 30 remain connected to each other by the use of a coupler 40 and are closed. A tubular body 24 on the outer end side of the valve 20 is closed by a lid 51 of a testing stand. Through a pipe 53 connected to a port 52 for injecting a **gas** under pressure formed in the lid 51, nitrogen **gas** (testing **gas**) is injected under pressure and the quantity of the nitrogen **gas** that flows into tubular bodies 23, 33 placed on the inner end side of the two valves is measured. This quantity represents a leakage occurring at the valve 20. To measure a leakage occurring at the valve 30, a tubular body 36 on the outer end side of the valve 30 is closed by a lid 57; through a pipe 59 connected to a port 58 for injecting a **gas** under pressure formed in the lid 57, nitrogen **gas** is injected under pressure; then the quantity of the nitrogen **gas** that flows into the tubular bodies 23, 33 placed on the inner end side of the two valves is measured.

[SS 21] ..v

[EPODOC: SS 21]