

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau

(43) International Publication Date  
10 December 2020 (10.12.2020)



(10) International Publication Number  
**WO 2020/246896 A1**

(51) International Patent Classification:  
**E21B 43/12** (2006.01)

(21) International Application Number:  
PCT/NO2020/050144

(22) International Filing Date:  
05 June 2020 (05.06.2020)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
20190703 06 June 2019 (06.06.2019) NO

(71) Applicant: **PETROLEUM TECHNOLOGY COMPAN-  
NY AS** [NO/NO]; Slettestrandveien 13, 4032 STA-  
VANGER (NO).

(72) Inventor: **HARESTAD, Kristian**; Tjuvholmveien 58B,  
4007 STAVANGER (NO).

(74) Agent: **ZACCO NORWAY AS**; P.O Box 2003 Vika, 0125  
OSLO (NO).

(81) Designated States (*unless otherwise indicated, for every  
kind of national protection available*): AE, AG, AL, AM,  
AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ,  
CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO,  
DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN,  
HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP,  
KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME,  
MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ,  
OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA,  
SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR,  
TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(54) Title: GAS LIFT VALVE

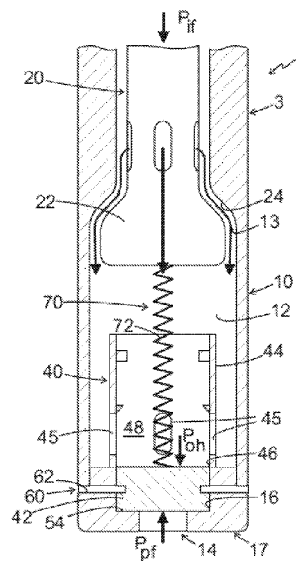


FIG. 1a

(57) **Abstract:** A valve arrangement (1) for injection of an injection fluid in a process fluid tubing, comprising an inlet part (3) connectable to an injection fluid source, an outer housing (10) that is connectable to a process fluid tubing and comprising at least one outlet opening (14) that enables a fluid communication between an interior (12) of the outer housing (10) and a process fluid tubing, and a first valve device (20) comprising a first valve member (22) that is arranged in the outer housing (10) and movable within the outer housing (10) in a longitudinal direction, and said first valve member (22) is arranged to control an inflow of injection fluid into the valve arrangement by being movable between a closed position and an open position. The valve arrangement further comprises a second valve device (40) comprising a second valve member (42) that is arranged in the outer housing (10) and movable within the outer housing (10) in a longitudinal direction, and said second valve member (42) is arranged to control the at least one outlet opening (14) by being movable between a

[Continued on next page]

**(84) Designated States** (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

**Published:**

— with international search report (Art. 21(3))

---

closed position and an open position, and a locking device (60) that locks the second valve member (42) in the closed position, and the locking device is releasable in order to allow the second valve member be released to move to the open position. Also disclosed are a side pocket mandrel comprising a valve arrangement and method for operating a valve arrangement.