



(51) International Patent Classification:
F16L 27/08 (2006.01)

(21) International Application Number:
PCT/US2013/043144

(22) International Filing Date:
29 May 2013 (29.05.2013)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/653,461 31 May 2012 (31.05.2012) US
13/895,482 16 May 2013 (16.05.2013) US

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(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, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, 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, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(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, 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))

— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

(88) Date of publication of the international search report:
27 February 2014

(54) Title: SWIVEL JOINT

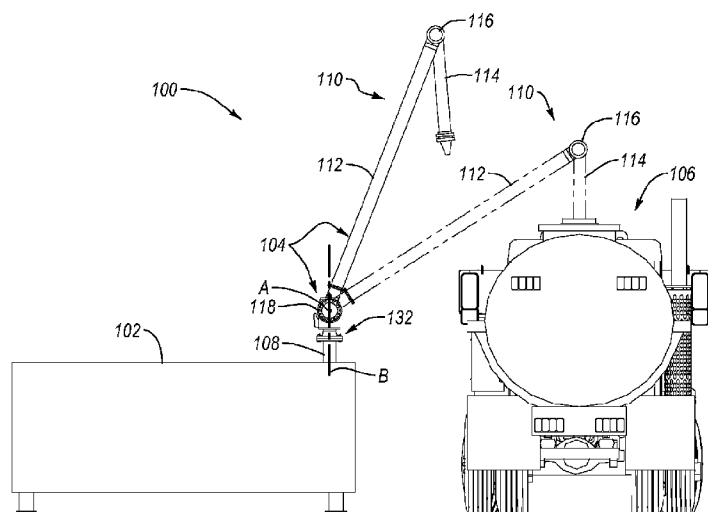


Fig. 1

(57) Abstract: A fluid system swivel joint includes a body and a tail rotatably connected together and which partially define a fluid passageway. The tail has an integrally formed flange for connecting to other fluid conduits. A counterbalancing mechanism is disposed within the fluid passageway. The counterbalancing mechanism has a selectively adjustable level of tension that adjusts the amount of force required to rotate the tail relative to the body. At least a portion of the counterbalancing mechanism can be selectively inserted into or removed from the fluid passageway through an opening in the body. The opening in the body can be closed off with an end plate. A swivel assembly rotatably connects the body to a fluid conduit so that the body can rotate relative to the fluid conduit. The swivel assembly includes a collar fixedly and selectively connectable to the body, and a flange body rotatably connected to the collar.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2013/043144

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - F16L 27/08 (2013.01)

USPC - 285/272

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC(8) - B05B 15/00, 15/08; B25J 15/04; F16L 27/00, 27/08, 27/087 (2013.01)

USPC - 16/all subclasses; 29/428; 55/all subclasses; 74/all subclasses; 96/all subclasses; 137/all subclasses; 138/all subclasses; 141/all subclasses; 194/all subclasses; 239/587.5; 251/all subclasses; 261/all subclasses; 277/all subclasses

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

USPC - 285/14; 47, 98, 190, 272, 276, 281, 348, 423; 294/all subclasses; 405/all subclasses; 417/all subclasses; 901/43

CPC - B25J 15/04; F16L 27/08, 27/0824, 27/0828, 27/087, 27/093 (2013.01)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PatBase, Orbit, Google Patent, Google, YouTube

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4,111,465 A (KNIGHT) 05 September 1978 (05.09.1978) entire document	1-17
A	US 3,479,65 A (BAHLKE et al) 18 November 1969 (18.12.1969) entire document	1-17
A	US 3,679,235 A (FACCOU) 25 July 1972 (25.07.1972) entire document	1-17

☐ Further documents are listed in the continuation of Box C.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

13 December 2013

Date of mailing of the international search report

03 JAN 2014

Name and mailing address of the ISA/US

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P.O. Box 1450, Alexandria, Virginia 22313-1450

Facsimile No. 571-273-3201

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PCT OSP: 571-272-7774

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2013/043144

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

(See Continuation Sheet Attached)

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
claims 1-17

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/US2013/043144

Continuation of Box III

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees need to be paid.

Group I, claims 1-17 are drawn to a fluid swivel joint.

Group II, claims 18-20 are drawn to a method for assembling.

The inventions listed in Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1, because under PCT Rule 13.2 they lack the same or corresponding special technical features for the following reasons:

The special technical features of Group I, a fluid swivel joint comprising a counterbalancing system, an end cap, a collar, and a flange body rotatably connectable to the collar, are not present in Group II; and the special technical features of Group II, a method for assembling comprising providing a compression tool having an elongated shaft, a weldment plate, securing the weldment plate, installing a seal, positioning the compression plate, and advancing the compression plate, are not present in Group I.

Groups I and II share the technical features of a fluid swivel joint comprising a body and a tail. However, these shared technical features do not represent a contribution over the prior art. Specifically, US 6,383,000 B1 to Burd, Jr. et al. teaches of a fluid swivel joint (40, Fig. 2; Col. 3, Lns. 42-54) comprising a body (46, Fig. 2) and a tail (44, Fig. 2).

Since none of the special technical features of the Group I and II inventions are found in more than one of the inventions, unity is lacking.