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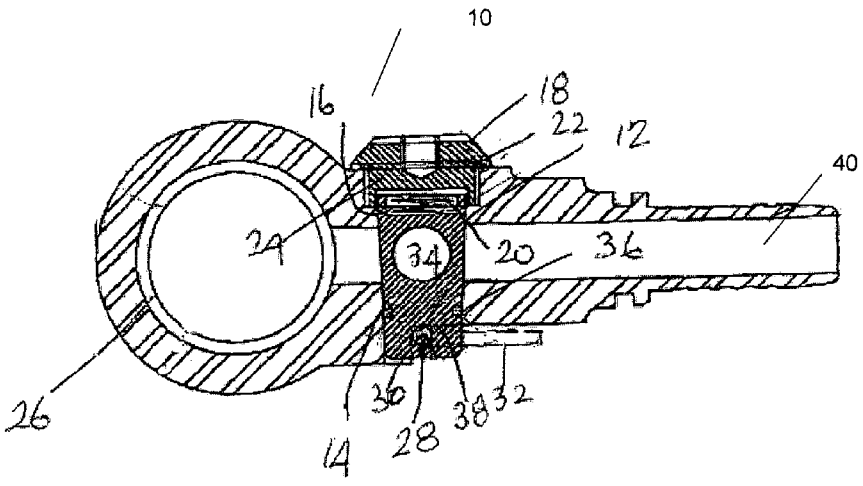
(54) **Title**: BANJO FITTING FOR FUEL TANKS



(57) **Abstract**: The invention provides a banjo fitting (10) for a fuel tank, the fitting including a rotatable valve (12) which is movable from a first position in which fluid is able to pass therethrough to a second position in which the fluid flow is interrupted, the valve including a nut member that is releasable only with a specific tool, and spring means (20) located under the nut and bearing against the frustoconical swivelable portion (14) of the valve for a frictional and sealing fit with the valve body (12); the frustoconical portion (14) is adapted to receive a handle (30) that is accessible to an operator whereby rotation of the handle (30) causes the frustoconical portion (14) to move between the two positions.

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BANJO FITTING FOR FUEL TANKS

TECHNICAL FIELD OF THE INVENTION

This invention relates to a banjo fitting and in particular to a banjo fitting for fuel tanks.

BACKGROUND ART

Large vehicles often have two or more fuel tanks connected with hoses. The hoses are attached to the tanks by means of banjo fittings or bolts so that a particular tank can be disconnected for cleaning and other purposes. The fittings are provided with valves for this purpose but this leads to tampering and theft of fuel.

SUMMARY OF THE INVENTION

According to the invention a banjo fitting is provided with a rotatable valve which is movable from a first position in which fluid is able to pass therethrough; and a second position at an angle thereto in which the fluid flow is interrupted, the valve including a nut member that is releasable only with a specific tool, a spring assembly located under the nut and that bears against the frustoconical swivelable portion of the valve for a frictional and sealing fit with the valve body; the frustoconical portion which has or is adapted to receive a handle that is accessible to an operator, rotation of the handle causing the frustoconical portion to move between the two positions.

The body of the fitting may include a cut-out for access to the handle.

The nut is preferably screwed into the body of the fitting and the spring assembly is located between the underside of the nut and the top of the frustoconical portion. A copper washer is located between the nut and the valve body.

The fitting is attached to a tank so that it is swivelable therewith to provide for sympathetic movement that may be caused by road agencies- such as bumps, rocks and the like.

BRIEF DESCRIPTION OF THE DRAWINGS

An embodiment is described below with reference to the accompanying drawings, in which:

Figure 1 is a sectional view through a fitting according to the invention,

Figure 2 is an exploded view of the fitting,

Figure 3 is a view of the assembled fitting.

DETAILED DESCRIPTION OF THE INVENTION

In the drawings, a conventional banjo fitting 10 is provided with a rotating valve member 12 which has a frustoconical portion 14 which is swivelable in the body of the fitting. The frustoconical portion includes space 16 between its top surface and the lower surface 18 of a nut member to retain a compression spring 20 whereby the valve is maintained under pressure and in frictional engagement within the body. A copper washer 22 fits on the skirt 24 of the nut.

The banjo portion 26 of the fitting may also be provided with a copper or the like washer (not shown) to permit swivelling thereof as described above.

The valve extends through the body and an orifice 28 is provided at its end to receive a handle 30, shown in a first position in which it is at right angles to the paper and a second position which is indicated in broken line 32. The latter position effectively disconnects the fuel flow through passage 34.

The lower end of the valve portion is sealingly maintained by virtue of an O-ring 36 and there is a cut-out zone 38 that provides access for the handle to be screwed into a corresponding threaded orifice (not shown) in the body of the fitting.

The connecting tube 40 may be male or female or any other configuration as required.

CLAIMS

1. A banjo fitting (10) comprising a rotatable valve (12) having a frustoconical portion (14) which is swivelable in the body of the fitting and movable from a first position in which fluid is able to pass therethrough, to a second position at an angle to the first position in which the fluid flow is interrupted, characterised in that the valve (12) includes a nut member that is releasable only with a specific tool, and a spring assembly (20) located under the nut and bearing against the frustoconical swivelable portion (14) of the valve (12) for a frictional and sealing fit with the valve (12) body;
the frustoconical portion (14) having or being adapted to receive a handle (30) that is accessible to an operator,
rotation of the handle (30) causing the frustoconical portion (14) to move between the first and second positions.

2. A banjo fitting (10) as claimed in claim 1, characterised in that the body of the fitting includes a cut-out for access to the handle (30).

3. A banjo fitting (10) as claimed in either of claims 1 or 2, characterised in that the nut (18) is screwed into the body of the fitting and the spring assembly (20) is located between the underside (18) of the nut and the top of the frustoconical portion (14).

4. A banjo fitting (10) as claimed in any of claims 1 to 3, characterised in that a copper washer (22) is located between the nut and the valve body (12).

5. A banjo fitting (10) as claimed in any of claims 1 to 4, characterised in that the fitting (10) is attached to a tank so that it is swivelable therewith to provide for sympathetic movement that may be caused by road agencies- such as bumps, rocks and the like.

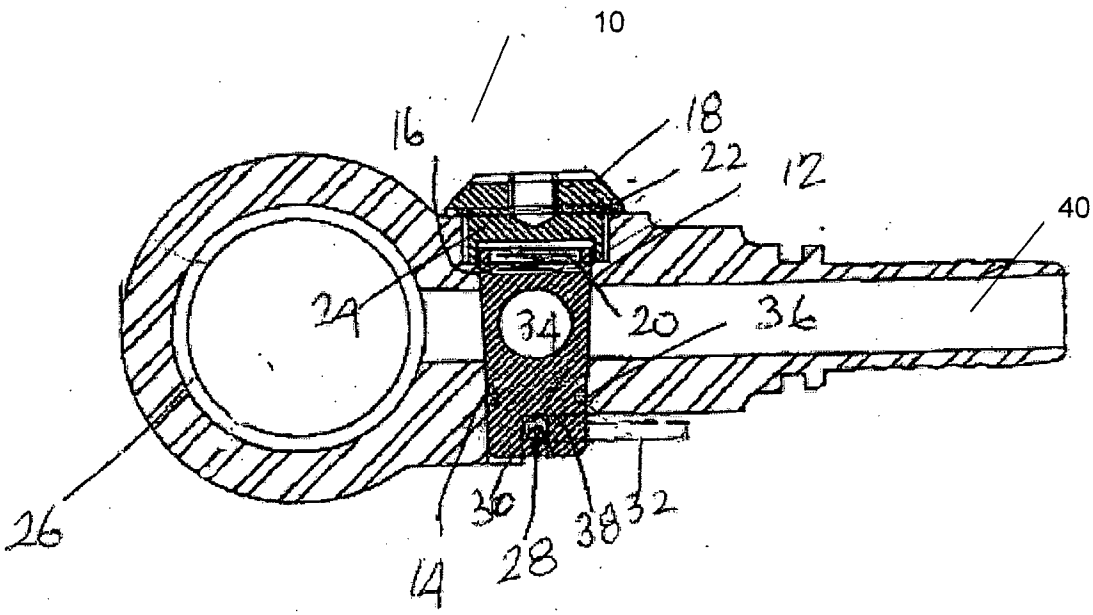

Figure 1

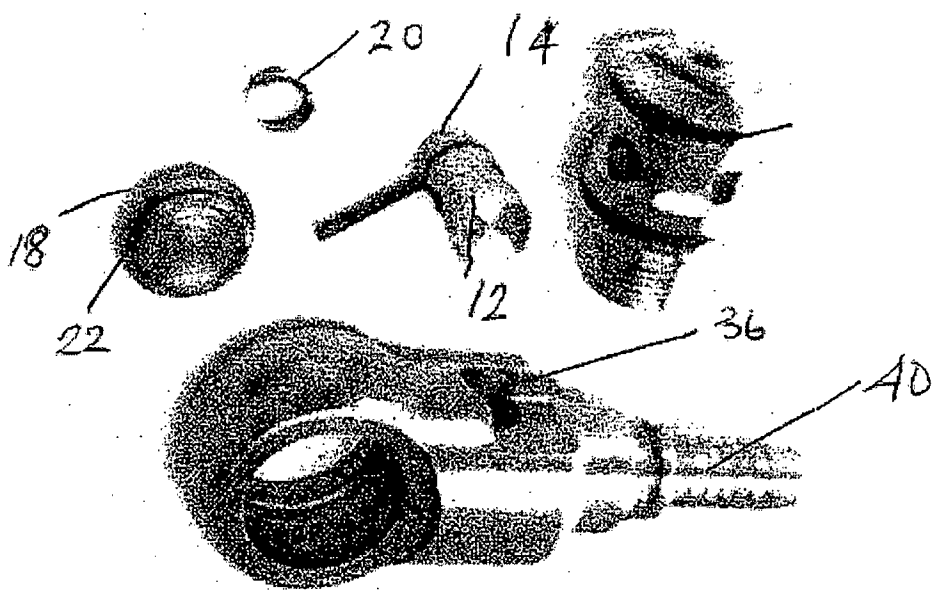

Figure 2

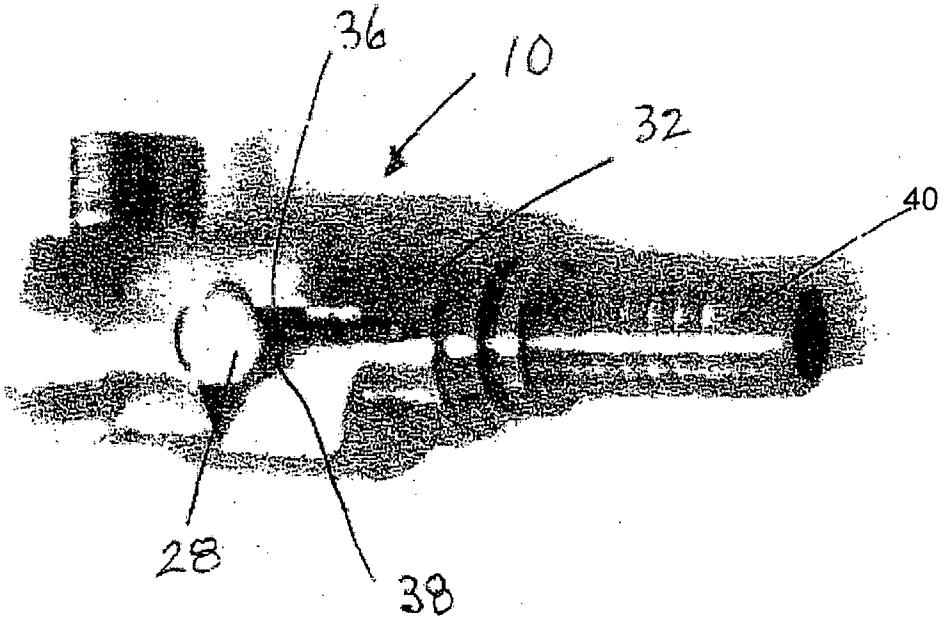

Figure 3

INTERNATIONAL SEARCH REPORT

International application No.

PCT / ZA 2013/000041

A. CLASSIFICATION OF SUBJECT MATTER

IPC: ***F16L 27/093*** (2006.01); ***F16L 41/00*** (2006.01); ***B60T 17/04*** (2006.01)

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)

B60T, F16L

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

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

WPI; EPODOC; TXTnn

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 1602834 A1 (FESTO AG & CO) 07 December 2005 (07.12.2005) figures, abstract	1-5
A	EP 1580476 A1 (FESTO AG & CO) 28 September 2005 (28.09.2005) figures, abstract	1-5
A	US 5011192 A (CAMPO) 30 April 1991 (30.04.1991) figures, abstract	1-5

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* 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	Date of mailing of the international search report
10 October 2013 (10.10.2013)	15 October 2013 (15.10.2013)
Name and mailing address of the ISA/AT Austrian Patent Office Dresdner Straße 87, A-1200 Vienna Facsimile No. +43 / 1 / 534 24-535	Authorized officer WAGNER S. Telephone No. +43 / 1 / 534 24-381

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT / ZA 2013/000041

Patent document cited in search report			Patent family member(s)			Publication date
EP	A1	1602834	EP	A1	1602834	2005-12-07
			AT	T	357602	2007-04-15
EP	A1	1580476	EP	A1	1580476	2005-09-28
			AT	T	433074	2009-06-15
US	A	5011192	US	A	5011192	1991-04-30