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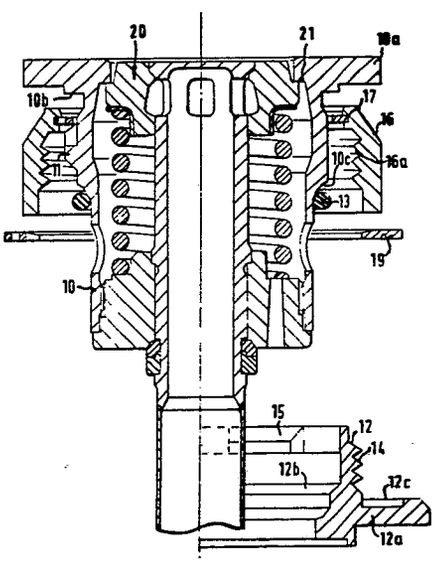
(54) Valved closure for kegs or casks.

(57) To guard against unauthorised removal of a valved closure from a pressure vessel, such as keg or cask for beverages, the closure comprises an externally screw-threaded neck (12), to be welded to the tap-hole in the vessel, a valve-body (10) inserted coaxially in the neck, the neck and body having lugs (11, 15) engageable by axial displacement and turning of the valve body, a screw collar (16) carried by the valve body and screwed on to the neck, a check ring (17), preventing withdrawal of the valve body from the collar, and a split locking ring (19) laterally insertable in a groove (12c) in the neck to hold the collar and thereby the valve body against axial displacement for disengagement of the lugs.



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VALVED CLOSURE FOR KEGS OR CASKS

This invention relates to valved closures for pressure vessels, such as kegs or casks for beverages dispensed through the valved closure by pressure gas admitted to the keg or cask through the closure.

The object of the invention is to provide such a valved closure the unauthorised removal of which, or its components, is rendered difficult by making the manner of removal unobvious and also reducing to a minimum the risk of ejection of the valve of the closure by the pressure gas.

According to the invention, a valved closure, for a pressure vessel such as a keg or a cask, comprises an externally screw-threaded neck, for rigid attachment as a mounting ring to the rim of a tap-hole in the vessel, the neck having internal angularly-spaced radial lugs, a valve-containing tubular body inserted coaxially in the neck, the valve body having external angularly-spaced radial lugs engageable with and disengageable from the neck lugs by axial displacement and rotation of the valve body, an internally screw-threaded collar carried by the valve body and screwed on to the neck, check means preventing axial withdrawal of the valve body from the collar and a locking ring removably interposed axially between opposed parts of the collar and neck to hold the collar in a position preventing axial displacement of the valve body for disengagement of the lugs.

Preferably, a resilient seal is provided between the valve body and the neck and the seal must be compressed by axial movement of the body before the lugs can be brought into engagement by rotation of the body.

Conveniently the locking ring is a split ring which can be opened at its split and passed laterally into or from its locking position and it may also be frangible so that its removal involves breakage, thus providing evidence of tampering and preventing re-use.

The above and other features of the invention will now be described with reference, by way of example, to the accompanying drawings, in which:-

Figs. 1, 2 and 3 are part axial sections showing a closure according to the invention in successive stages of assembly and locking,

Fig. 4 is an exploded part-sectional view of the components of a closure essentially similar to that of Figs. 1 to 3 but with some modification in design.

Fig. 5, on a smaller scale, is an inverted plan of the locking ring of Fig. 4, and

Fig. 6, on a smaller scale, is a side elevation of a modified design of valve body.

The valve closure comprises a valve body 10 housing valve components, generally indicated by the reference 20 in Fig. 4, of the kind which are assembled in the body 10 from its inner end, the body including internally a valve seat 21 against which the valve seals and which prevents

ejection of the valve. The valve itself does not form part of the present invention and need not be further described.

The body 10 has a top flange 10a, of lobed shape to provide a hand-grip for turning, a rebate forming an inward axially-facing shoulder 10b, angularly-spaced circumferentially-extending lugs 11 at about mid-length of the body, these lugs having at their ends anti-rotation stops 11a, and an inward shoulder 10c near the inner end of the main part of the body.

The body 10 is inserted coaxially into a neck 12 which has a flange 12a at its inner end to form a mounting ring which is welded to the rim of a tap-hole of a keg or cask (not shown).

A resilient O-ring seal 13 lies between a shoulder 12b on the neck and the shoulder 10c on the body 10.

The neck 12 has an external screw-thread 14 and internally has angularly-spaced lugs 15 of a circumferential dimension to allow the lugs 11 to pass axially between them and to fit between the anti-rotation stops 11a when the body is turned to inter-engage the lugs.

The valve closure also includes a collar 16 which has an internal screw-thread 16a to engage the thread 14 on the neck. Within its outer end the collar has a circumferential groove in which is engaged a split metal check ring 17 the internal diameter of which is less than the outer diameter of the lugs 11.

In practice the neck 12 will remain fixed to the cask or keg and only the remaining components will be

removed at any time.

To assemble the body 10 and collar 16 to the neck 12, the body and collar are first axially inter-engaged and loosely held together by inserting the check ring 17 into its groove whilst projecting into the axial gap between the shoulder 10b and the lugs 11.

This assembly is now offered up to the neck with the body entering the neck and the collar outside the neck, the seal 13 being on the body 10 against shoulder 10c. When the threads 14, 16a meet, the seal 13 will be below lugs 15 at the level of space 18 (Fig. 1).

With the lugs 11 angularly offset from the lugs 15, the collar 16 is now screwed down until its lower end abuts the bottom of an annular groove 12c in the flange 12a, the components then being in the positions shown in Fig. 1. It will be noted that the lugs 11 axially overlap lugs 15.

The valve body 10 is now pushed down to compress the seal 13 to carry the lugs 11 axially clear of lugs 15 and the body is then rotated to align the sets of lugs 11 and 15. On releasing the body, the lugs 11 rise into abutment with lugs 15 which lie between the anti-rotation stops 11a as shown in Fig. 2.

The collar 16 is now unscrewed upwardly on the thread 14 until its upper end abuts the valve body flange 10a and the check ring 17 abuts the shoulder 10b (Fig. 3). A split locking ring 19 of plastics or other frangible material is now passed laterally into the groove 12c to occupy the axial space between the lower

end of the collar 16 and the bottom of the groove.

It will be clear that the body 10 can neither be rotated, this being prevented by the engaging lugs 11, 15, nor displaced axially, this being prevented by the collar 16 abutting both the flange 10a and the locking ring 19.

Further, the components are so dimensioned that unless the lugs 15 are properly engaged between the stops 11a the locking ring 19 cannot be inserted between the collar 16 and the bottom of groove 12c.

Removal of the valve body 10 is effected by a reverse operation. After ensuring that the pressure within the cask or keg is fully relieved, the locking ring 19 is removed, the collar 16 is screwed down to contact the bottom of groove 12c, and the lugs 11, 15 are disengaged by depressing and then turning the valve body 10. The body 10 and collar 16 may now be removed.

If the operator fails to de-pressurise the cask or keg before attempting removal, release of pressure will occur automatically when the lugs 11, 15 are disengaged. Although the body 10 will be forced upwards, it will be prevented from ejection by the lugs 11 abutting the check ring 17. Also the seal 13 will travel upwards so that pressure gas escapes around the seal through the space 18.

It will be clear that when the closure is assembled the valve body 10 cannot be rotated because the anti-rotation stops 11a contact the fixed lugs 15. Also the collar 16 shrouds the neck 12 and cannot be screwed up or down so that the method of removal of the body and collar

is not obvious, thus militating against tampering with the closure.

Modified design details are shown in Figs. 4, 5 and 6.

The shoulders 10c and 12b are bevelled to facilitate rolling displacement of the O-ring seal 13 during assembly of the closure.

As shown in Fig. 6, increased height is given to one end stop 11a on each lug 11 which encounters the respective lug 15 when the body 10 is turned in assembly of the closure. These higher stops preclude the body 10 being rotated beyond alignment of the lugs 11 and 15 even if the body 10 is thrust in too far before rotation.

The locking ring 19 as shown in Figs. 4 and 5 is weakened by a deep circumferential groove 19a in its underside so that when the ring is removed, such as by a hook engaged in an eye 19b at the split of the ring, the outer part of the ring will tear before the remainder of the ring leaves the groove 12c. Thus the ring 19 is not re-usable and its torn state indicates tampering.

C L A I M S

1. A valved closure, for a pressure vessel such as a keg or a cask, comprising an externally screw-threaded neck (12), for rigid attachment as a mounting ring to the rim of a tap-hole in the vessel, the neck having internal angularly-spaced radial lugs (15), a valve-containing tubular body (10) inserted coaxially in the neck, the valve body having external angularly-spaced radial lugs (11) engageable with and disengageable from the neck lugs (15) by axial displacement and rotation of the valve body, an internally screw-threaded collar (16) carried by the valve body and screwed on to the neck, check means (17) preventing axial withdrawal of the valve body from the collar and a locking ring (19) removably interposed axially between opposed parts of the collar and neck to hold the collar in a position preventing axial displacement of the valve body for disengagement of the lugs.

2. A valved closure according to claim 1, characterised thereby that a resilient seal (13) is provided between the valve body (10) and the neck (12) and the seal must be compressed by axial movement of the valve body before the lugs (11,15) can be brought into engagement by rotation of the body.

3. A valved closure according to claim 1 or 2, characterised thereby that the check means comprises a split ring inserted into a groove in the collar and

having an internal diameter less than the outer diameter of the valve body lugs (11).

4. A valved closure according to claim 1, 2 or 3, characterised thereby that the locking ring (19) is a frangible ring weakened by a circumferential groove (19a).

5. A valved closure according to any of claims 1 to 4, characterised thereby that the valve body lugs (11) have end stops (11a) to prevent rotation of the valve body when the neck lugs (15) are engaged between the end stops (11a).

6. A valved closure according to claim 5, characterised thereby that on each valve body lug (11) one end stop (11a) is of increased height to preclude the body being rotated beyond alignment of the lugs (11 and 15).

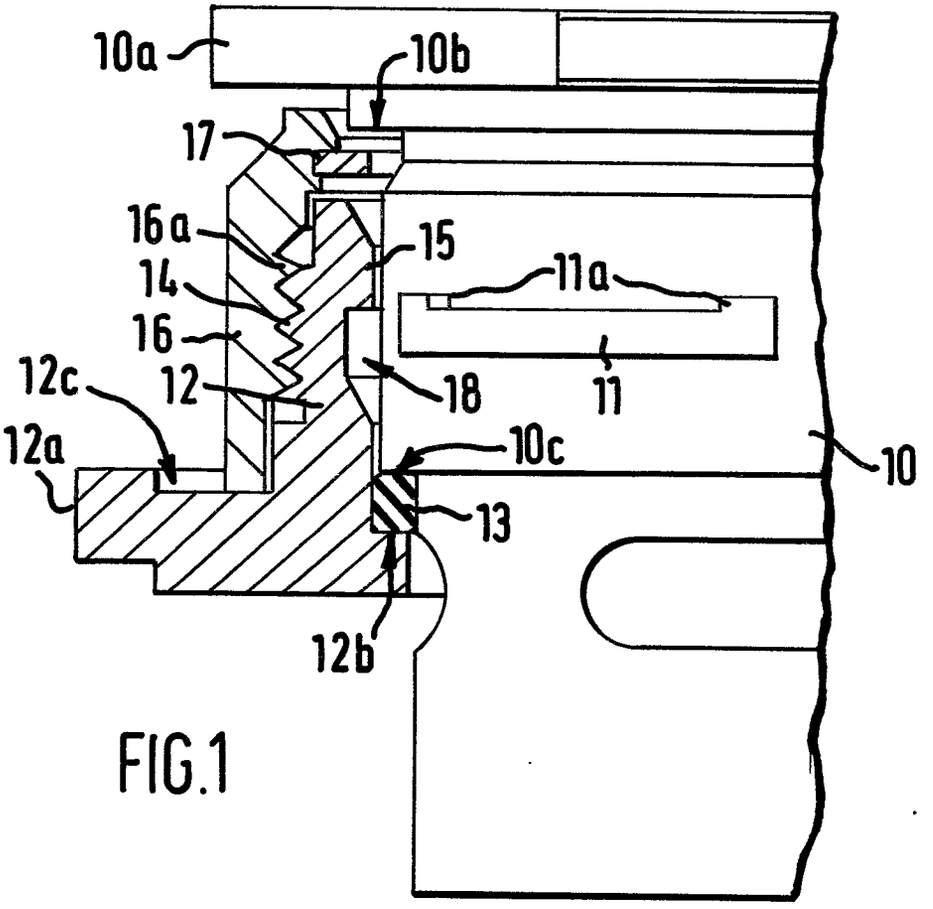
10a
10b
17
16a
15
14
11a
16
12c
12
18
11
12a
10c
10
13
12b

FIG.1

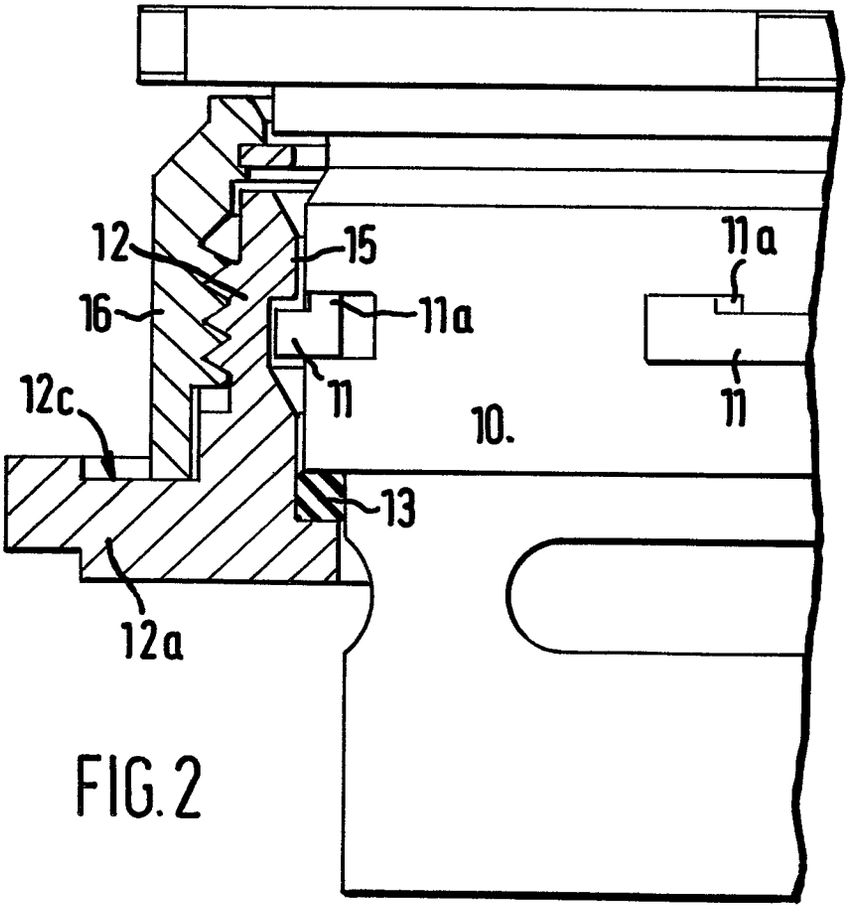
12
15
11a
16
11a
12c
11
11
10.
13
12a

FIG.2

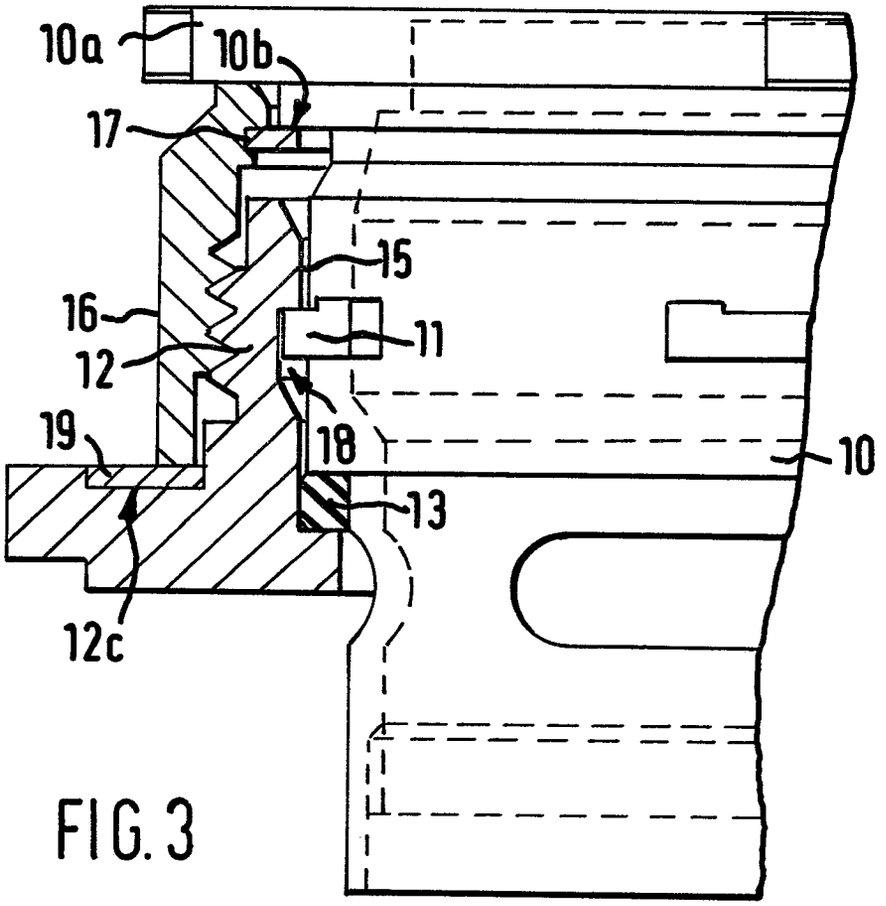

FIG. 3

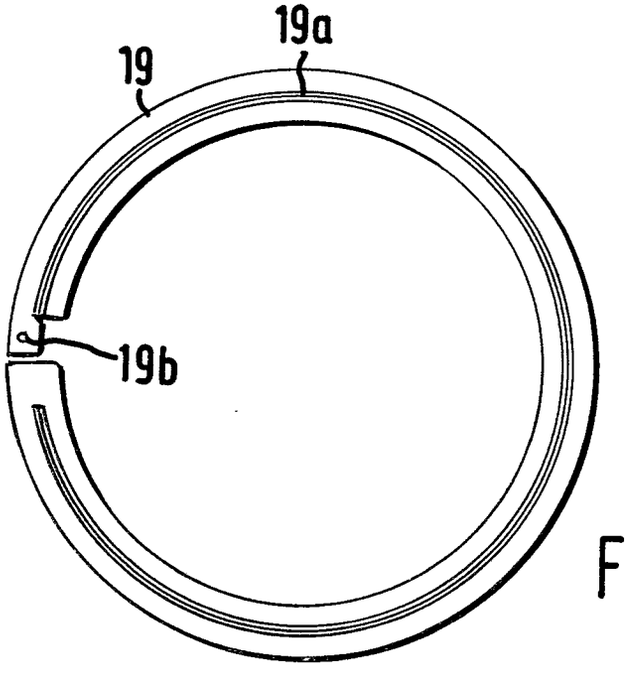

FIG.5

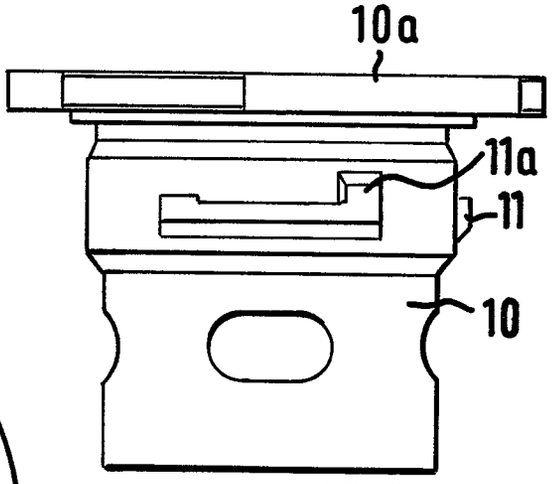

FIG.6

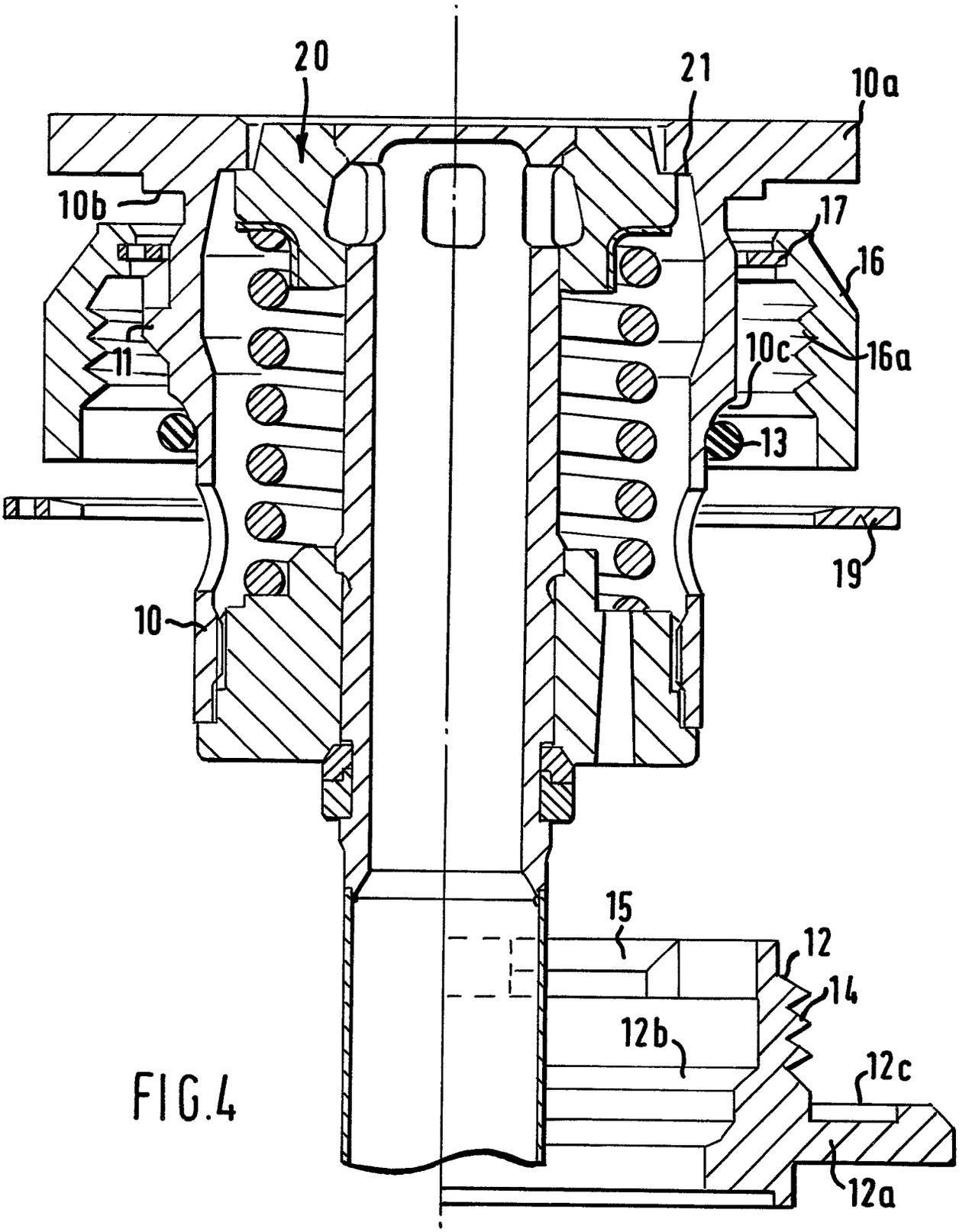

FIG.4

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EUROPEAN SEARCH REPORT

0056295
Application number
EP 82 30 0004

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim
A	US - A - 3 497 114 (JOHNSTON)	1

CLASSIFICATION OF THE APPLICATION (Int. Cl. 3)

B 67 D 1/08
B 65 D 55/02

TECHNICAL FIELDS SEARCHED (Int.Cl. 3)

B 67 D
B 65 D

CATEGORY OF CITED DOCUMENTS

X: particularly relevant if taken alone
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E: earlier patent document, but published on, or after the filing date
D: document cited in the application
L: document cited for other reasons

&: member of the same patent family, corresponding document

X The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	15-04-1982	VROMMAN

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