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(54) **VALVE FITTING FOR KEGS**

VENTILARMATUR FÜR FÄSSER

Raccord à soupape pour fût

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Description

[0001] The invention relates to kegs for housing fluid and in particular to improvements in so called fittings for such kegs which fittings house a valve which operably enables ingress and egress of fluid in and out of the keg. The keg is used throughout to refer generally to containers for fluids.

[0002] It is known to provide many different types of fittings for kegs wherein the fitting principally comprises an upper flange for attachment to a connector at the end of a feed line from a supply of fluids such as beer during loading, or to a dispensing tap such as in a public house during use.

[0003] The valve generally comprises a rubber (or other elastomeric material) seal which is urged against a seat on the inside face of the upper flange by a coiled spring which reacts against a housing for the spring, which housing is connected to the flange.

[0004] However, in known keg fittings, the arrangement of the flange and housing is relatively complex requiring considerable machining of parts and number of components. The invention seeks to provide a simplified fitting over the known art and in particular a relatively easy to manufacture fitting which is relatively easy to attach to a keg. Moreover, it is sometimes known for the valve seal sometimes to incorrectly locate against the valve seat. The prior art tries to mitigate this problem by providing a relatively long guide in the flange adjacent the valve seat for directing the valve seal into position. Nevertheless, problems are known to occur and the invention seeks to mitigate such problems.

[0005] EP-A-25682 discloses a valve fitting in accordance with the preamble of Claim 1.

[0006] According to the invention, as defined in claim 1, there is provided a valve fitting for a keg of fluid, comprising a substantially flat upper flange adapted for attachment to a neck of the keg at a first annular part which upper flange comprises an aperture, and a support arrangement for co-operating with a biasing device such as a spring to urge a valve seal against a valve seat provided on the inside of the upper flange adjacent the aperture, and characterised in that the support arrangement comprises at least two legs which depend from the upper flange from a separate and radially inward position with respect to the first annular part thereby to position the support arrangement radially inwardly of the keg neck in use.

[0007] Preferably the flange and support arrangement are integrally formed. Preferably the upper flange is adapted to weld to the upper rim of a keg neck.

[0008] Preferably the support arrangement comprises a lower ring for co-operating with the spring. The ring can be cup shaped thereby to seat the circular end of a helical spring within the arrangement. Preferably the support arrangement comprises more than two legs extending between a flange and lower ring. Preferably the legs are adapted to guide the valve seal in an axial man-

ner during opening and closing of the valve. In a preferred form three legs are provided.

[0009] Preferably the flange comprises a seal guide proximal the valve seat. Preferably the depth of the seal guide is less than 50% of the thickness of the valve seal. Preferably the depth of the seal guide is in the order of the thickness of the bulk of the flange body. Preferably the depth of the guide is in the order of 3 mm.

[0010] Preferably, the major element and/or percentage of reactive force against the biasing means (ie. in opposition to the force urging the seal against the valve seat) is relayed via the fitting through to the keg. Preferably, the fitting comprises a support arrangement for co-operating with the spring (or biasing device) which support arrangement is only connected to a flange fitting in the valve fitting for attachment to the container.

[0011] Embodiments of the invention will now be described, by way of example only, with reference to the accompanying drawings, in which:

FIGURE 1 is a schematic sectional view of a keg and fitting according to the invention;

FIGURE 2 is a schematic side elevation view of a fitting according to the invention attached to the top of a keg;

FIGURE 3 is a schematic cross sectional view from above of the lower end of the support arrangement for the fitting according to the invention as shown in Figure 2;

FIGURE 4 is a schematic side elevation view of a second embodiment of a fitting attached to a keg according to the invention;

FIGURE 5 is a schematic sectional plan view of a support arrangement as shown in Figure 4; and

FIGURE 6 is a schematic side elevation view of part of a downtube and spring arrangement.

[0012] Referring to Figure 1 there is shown a keg K for housing pressurised fluid such as beer. Keg K comprises a top wall T having a central aperture in which is mounted a fitting F enabling the ingress and egress of fluid into and out of the keg K. Fitting F comprises an upper flange to which a connector is clamped during filling and emptying operations. Fitting F further comprises a spring S for urging a valve seal against a valve seat in the under side of the upper flange. The spring S is supported by a support arrangement A. Alternatively, the spring is supported on lugs which extend radially from downtube D proximal the lower end of support arrangement A as described later. Fitting F further comprises a downtube D to assist in siphoning fluid out of keg K during use.

[0013] Referring more particularly to a first embodi-

ment of a fitting F according to the invention there is shown in Figures 2 and 3, a fitting F attached to a neck 10 in the top wall T of a keg K, which neck 10 is formed by deep drawing the top wall T of the keg into a somewhat hollow frusto-conical shape providing an upper rim 12 against which fitting flange 14 can be attached in use. For example flange 14 can be attached to rim 12 using a rebated annulus 16 which can be welded to the rim 12. In another form annulus 16 and rim 12 can comprise co-operating threading for example.

[0014] Flange 14 comprises an outer rim 18 for co-operation with a connector on a feed or outlet pipe. Flange 14 further comprises a central aperture 20 to allow ingress and egress of fluid to and from the keg K which aperture 20 has a valve seat 22 about its periphery. Flange 14 also provides a valve seal guide 24 adjacent seat 22 to assist in locating a valve seal against seat 22 in use.

[0015] Depending from flange 14 is a spring support arrangement consisting of three legs 26 which in this embodiment extend away from seal guide 24. At the lower end of legs 26 there is provided a ring or cage base 28 which in this embodiment is cup shaped and comprises a lip 30 for locating a coiled spring S. Support arrangement A further comprises an aperture 32 for passing downtube D into the bottom of the keg K. Alternatively, radially protruding lugs can be provided on a downtube D for contacting ring 28 on the underside. The upper side of the lugs on downtube D can be used to engage the lower end of coil spring S such that the reactive force of spring S which urges a valve seal to engage valve seat 22, is conveyed through to support arrangement A via the lugs on the downtube D. This arrangement is shown in Figure 6 described later.

[0016] In use, a downtube D or centrepiece is located within fitting F below aperture 20 down through aperture 32 into the bottom of keg K. A spring S is provided between base 28 and flange 14 which spring carries at its upper end an annular seal adapted to engage on its inside edge with the downtube D and on an outer edge with annular seat 22 in flange 14. By attaching a connector to flange 14, it is possible to manipulate the valve by causing spring S to move axially away from upper aperture 20 thereby causing the valve seal to move away from seat 22 and enable ingress and/or egress of fluid to or from the keg. When allowing the valve to close, the spring S urges the valve seal towards seat 22 and beneficially legs 26 act to guide the valve seal axially towards aperture 20. This guiding action is further assisted by annular guide 24 surrounding seat 22.

[0017] Referring to Figures 4 and 5 there is shown a second embodiment of a fitting F according to the invention wherein the fitting comprises like components with the fitting shown in Figures 2 and 3 which are accordingly labelled using the same two digit reference number prefixed with the digit 1. However, in this arrangement an open ended cylindrical neck 110 is provided having a rebated lower end for engaging the rim of the aperture

provided in the centre of a substantially flat top wall T of a keg. The rebated lower end 111 of neck 110 can for example be welded into the aperture and top wall T. Similarly, the upper end 112 can be connected to flange 114 as described earlier. Thereafter, fitting F shown in Figures 4 and 5 has like components such as legs 122 and spring support arrangement base 128 identical to that shown in the first embodiment.

[0018] Accordingly, once fitted to a keg, the operation of filling or emptying a keg using a fitting F housing a suitable valve spring and downtube components is the same as described earlier.

[0019] Beneficially, the length of legs 26 and/or 126 can protrude beyond the lower edge of top wall T for example by a distance of more than 20 mm. Further, there is no need to provide any obstructions to fluid flow between legs 26 and base 28 and the inside wall of the top of the keg thereby providing a large cavity about the valve and spring arrangement for the ingress and the egress of fluid into and from the keg.

[0020] Referring to Figure 6 there is shown part of a downtube D for passing through aperture 32 (or 132) in a fitting F according to the invention. As can be seen from the exploded view, the downtube forms a centrepiece in the arrangement wherein spring S is passed over the upper part of the downtube such that the lower end of spring S contacts some radially protruding lugs L which can be provided with a suitable curved recess for engaging the lower edge of spring S. The underside of lugs L engages the upper surface of ring 28 (or 128) of the earlier embodiments thereby to locate the centrepiece in position. Additionally, a lower set of protruding lugs L can be provided for engaging the underside of cage 28 (or 128) thereby better to locate downtube D in position. The lower set of lugs L can be passed through slots such as slots 33 in ring 28 forming part of the pre-mature of aperture 32. Additionally, a slot 40 can be provided in this shoulder arrangement which forms the series of lugs L in order to engage a downwardly protruding tip 42 at the end of spring S. Finally, at the top of spring S there is provided a cup C in which is located a valve seal VS which is operably urged against valve seats 22 (or 122).

Claims

1. A valve fitting (F) for a keg (K) of fluid, comprising a substantially flat upper flange (14) adapted for attachment to a neck (10) of the keg (K) at a first annular part (12) which upper flange (14) comprises an aperture (20), and a support arrangement (A) for co-operating with a biasing device such as a spring (S) to urge a valve seal against a valve seat (22) provided on the inside of the upper flange (14) adjacent the aperture (20), and **characterised in that** the support arrangement (A) comprises at least two legs (26) which depend from the upper flange (14)

from a separate and radially inward position with respect to the first annular part (12) thereby to position the support arrangement (A) radially inwardly of the keg neck (10) in use.

2. A valve fitting (F) according to Claim 1 wherein the flange (14) and support arrangement (A) are integrally formed.
3. A valve fitting (F) according to Claim 1 or 2 wherein the upper flange (14) is adapted to weld to the upper rim (12) of a keg neck (10).
4. A valve fitting (F) according to Claim 1, 2 or 3 wherein the support arrangement comprises a lower ring (28) for co-operating with the spring (S).
5. A valve fitting (F) according to Claim 4 wherein the ring (28) is substantially cup shaped thereby to seat the circular end of a helical spring (S) within the support arrangement (A).
6. A valve fitting (F) according to any preceding claim wherein the support arrangement (A) comprises more than two legs (26) extending between the upper flange (14) and a lower ring (26).
7. A valve fitting (F) according to Claim 6 wherein the legs (26) are adapted to guide the valve seal in an axial manner during opening and closing of the valve.
8. A valve fitting (F) according to Claim 7 wherein three legs (26) are provided.
9. A valve fitting (F) according to any preceding claim wherein the flange (14) comprises a seal guide (24) proximal the valve seat (22).
10. A valve fitting (F) according to Claim 9 wherein the depth of the seal guide (24) is less than 50% of the thickness of the valve seal.
11. A valve fitting (F) according to Claim 9 or 10 wherein the depth of the seal guide (24) is in the order of the thickness of the bulk of the flange (14) body.
12. A valve fitting (F) according to Claim 9, 10 or 11 wherein the depth of the guide (24) is in the order of 3 mm.
13. A valve fitting (F) for a keg (K) of fluid according to any preceding claim wherein the major element and/or percentage of reactive force against the biasing means (S) that is in opposition to the force urging the seal against the valve seat is relayed via the fitting (F) through to the keg (K).

14. A valve fitting (F) according to Claim '13 wherein the fitting (F) comprises a support arrangement (A) for co-operating with the spring (S) or biasing device which support arrangement (A) is only connected to a flange (14) fitting in the valve fitting (F) for attachment to the keg (K).

Patentansprüche

1. Eine Ventilaratur (F) für ein Fluidfass (K), bestehend aus einem im Wesentlichen flachen oberen Flansch (14) zur Verbindung mit einem Hals (10) des Fasses (K) an einem ersten ringförmigen Teil (12), wobei der obere Flansch (14) eine Öffnung (20) und eine Trageinrichtung (A) aufweist, die mit einer Spannungsvorrichtung, wie einer Feder (S) eine Wirkverbindung eingeht, um eine Ventildichtung gegen einen Ventilsitz (22) zu drücken, wobei der Ventilsitz auf der Innenseite des oberen Flansches (14) in der Nähe der Öffnung (20) angeordnet ist, und, **dadurch gekennzeichnet, dass** die Trageinrichtung (A) mindestens zwei Stege (26) aufweist, die sich von dem oberen Flansch (14) von einer getrennten und radial nach innen gerichteten Position im Verhältnis zu dem ersten ringförmigen Teil (12) erstrecken, wodurch die Trageinrichtung (A) im Betrieb radial nach innen von dem Hals (10) des verwendeten Fasses positioniert ist.
2. Ventilaratur (F) gemäß Anspruch 1, wobei der Flansch (14) und die Trageinrichtung (A) einteilig ausgebildet sind.
3. Ventilaratur (F) gemäß Anspruch 1 oder 2, wobei der obere Flansch (14) ausgebildet ist, um mit dem oberen Rand (12) des Fasshalses (10) verschweißt zu werden.
4. Ventilaratur (F) gemäß Anspruch 1, 2 oder 3, wobei die Trageinrichtung einen unteren Ring (28) zum Verbinden mit der Feder (S) aufweist.
5. Ventilaratur (F) gemäß Anspruch 4, wobei der Ring (28) im Wesentlichen becherförmig ausgebildet ist, um das kreisförmige Ende der spiralförmigen Feder (S) innerhalb der Trageinrichtung (A) zu positionieren.
6. Ventilaratur (F) gemäß einem der vorhergehenden Ansprüche, wobei die Trageinrichtung (A) mehr als zwei Stege (26) aufweist, die sich zwischen dem oberen Flansch (14) und dem unteren Ring (26) erstrecken.
7. Ventilaratur (F) nach Anspruch 6, wobei die Stege (26) angepasst sind, um die Ventildichtung axial zu führen während des Öffnens und des Schließens

des Ventils.

8. Ventilarmatur (F) gemäß Anspruch 7, wobei drei Stege (26) vorgesehen sind.
9. Ventilarmatur (F) gemäß einem der vorhergehenden Ansprüche, wobei der Flansch (14) eine Dichtungsführung (24) proximal zu dem Ventilsitz (22) aufweist.
10. Ventilarmatur (F) gemäß Anspruch 9, wobei die Tiefe der Dichtungsführung (24) weniger als 50% der Dicke der Ventildichtung beträgt.
11. Ventilarmatur (F) gemäß Anspruch 9 oder 10, wobei die Tiefe der Dichtungsführung (24) in etwa der Dicke der Größe des Flanschkörpers (14) entspricht.
12. Ventilarmatur (F) gemäß Anspruch 9, 10 oder 11, wobei die Tiefe der Führung (24) im Bereich von 3 mm beträgt.
13. Ventilarmatur (F) für ein Fluidfass (K) gemäß einem der vorhergehenden Ansprüche, wobei der wesentliche Bestandteil und/oder Anteil der Wirkkraft gegen die Spannungsvorrichtung (S), die der Kraft entgegenwirkt, welche die Dichtung gegen den Dichtsitz drückt, mittels der Armatur (F) durch das Fass (K) übertragen wird.
14. Ventilarmatur (F) gemäß Anspruch 13, wobei die Armatur (F) eine Stützordnung (A) zur Wirkverbindung mit der Feder (S) oder der Spannungsvorrichtung aufweist, welche nur mit einer Flanscharmatur (14) in der Ventilarmatur (F) zur Verbindung mit dem Fass (K) verbunden ist.

Revendications

1. Embout (F) à soupape pour tonnelet (K) de fluide, comprenant un flasque supérieur (14) pratiquement plat destiné à être fixé à un col (10) du tonnelet (K) à une première partie annulaire (12), le flasque supérieur (14) comportant une ouverture (20), et un arrangement (A) de support destiné à coopérer avec un dispositif de rappel, tel qu'un ressort (S), destiné à rappeler un organe d'étanchéité de soupape contre un siège (22) de soupape placé à l'intérieur du flasque supérieur (14) en position adjacente à l'ouverture (20), **caractérisé en ce que** l'arrangement de support (A) possède au moins deux branches (26) dépassant sous le flasque supérieur (14) depuis une position séparée disposée radialement vers l'intérieur par rapport à la première partie annulaire (12) afin que l'arrangement de support (A) soit positionné radialement à l'intérieur du col (10) du tonnelet pendant l'utilisation,

2. Embout (F) à soupape selon la revendication 1, dans lequel le flasque (14) et l'arrangement de support (A) sont formés solidairement,
3. Embout (F) à soupape selon la revendication 1 ou 2, dans lequel le flasque supérieur (14) est adapté à être soudé au rebord supérieur (12) d'un col (10) du tonnelet,
4. Embout (F) à soupape selon la revendication 1, 2 ou 3, dans lequel l'arrangement de support comporte un anneau inférieur (28) destiné à coopérer avec le ressort (S),
5. Embout (F) à soupape selon la revendication 4, dans lequel l'anneau (28) a pratiquement une forme de cuvette si bien qu'il loge l'extrémité circulaire d'un ressort hélicoïdal (S) dans l'arrangement de support (A),
6. Embout (F) à soupape selon l'une quelconque des revendications précédentes, dans lequel l'arrangement de support (A) comporte plus de deux branches (26) qui s'étendent entre le flasque supérieur (14) et un anneau inférieur (26),
7. Embout (F) à soupape selon la revendication 6, dans lequel les branches (26) sont destinées à guider l'organe d'étanchéité de soupape de manière axiale pendant l'ouverture et la fermeture de la soupape,
8. Embout (F) à soupape selon la revendication 7, dans lequel trois branches (26) sont incorporées,
9. Embout (F) à soupape selon l'une quelconque des revendications précédentes, dans lequel le flasque (14) comporte un guide (24) de joint d'étanchéité du côté interne au siège de soupape (22),
10. Embout (F) à soupape selon la revendication 9, dans lequel la profondeur du guide (24) de joint d'étanchéité est inférieure à 50 % de l'épaisseur du joint d'étanchéité de soupape,
11. Embout (F) à soupape selon la revendication 9 ou 10, dans lequel la profondeur du guide (24) de joint d'étanchéité est de l'ordre de l'épaisseur de la masse du corps du flasque (14),
12. Embout (F) à soupape selon la revendication 9, 10 ou 11, dans lequel la profondeur du guide (24) est de l'ordre de 3 mm,
13. Embout (F) à soupape pour tonnelet (K) de fluide selon l'une quelconque des revendications précédentes, dans lequel l'élément principal et/ou un pourcentage de la force de réaction agissant contre

le dispositif de rappel (S) qui s'oppose à la force rappelant le joint d'étanchéité contre le siège de soupape est relayé par l'embout (F) par l'intermédiaire du tonnelet (K),

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- 14.** Embout (F) à soupape selon la revendication 13, dans lequel l'embout (F) comprend un arrangement de support (A) destiné à coopérer avec le ressort (S) ou dispositif de rappel, l'arrangement de support (A) étant raccordé uniquement à un flasque (14) qui se loge dans l'embout de soupape (F) destiné à la fixation au tonnelet (K).

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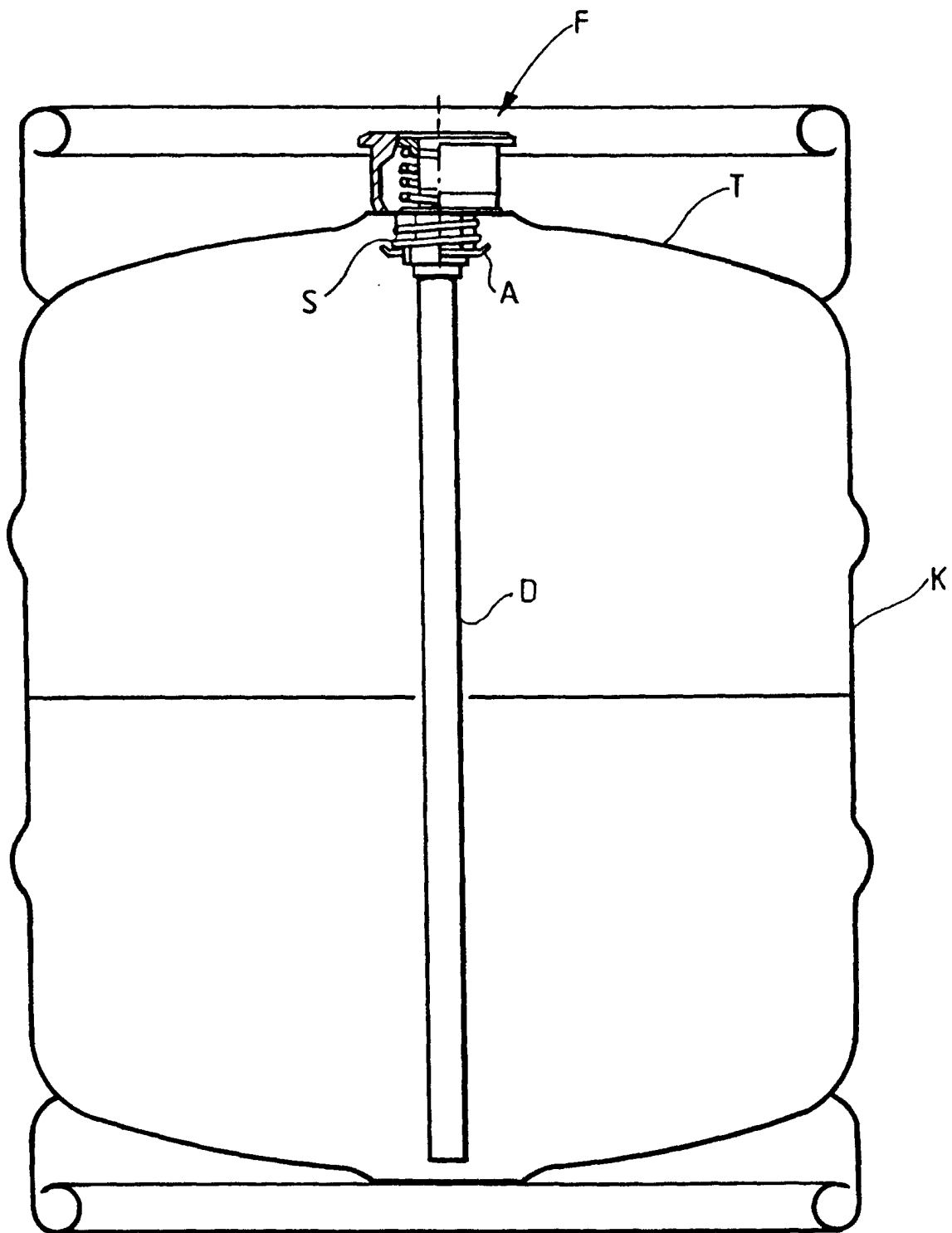


Fig.1.

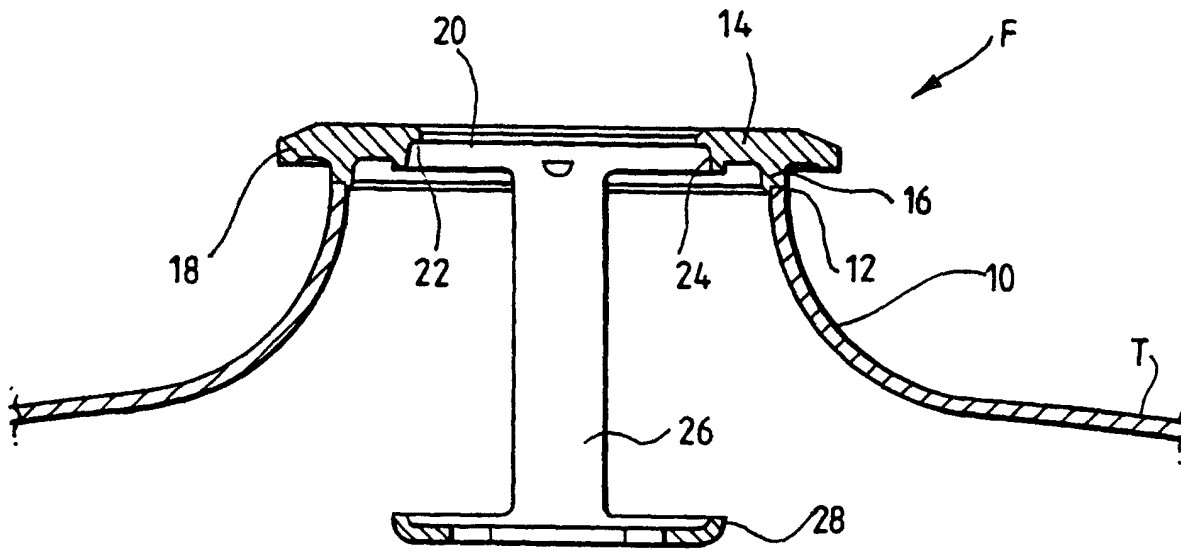


Fig.2.

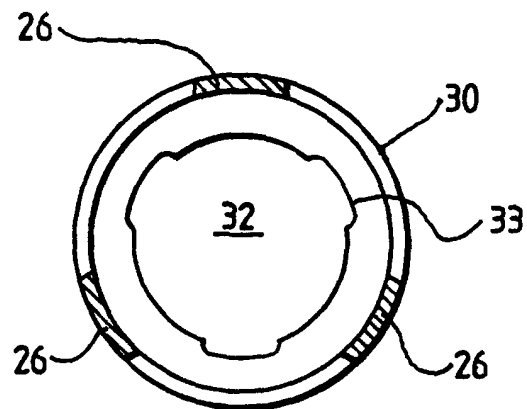


Fig.3.

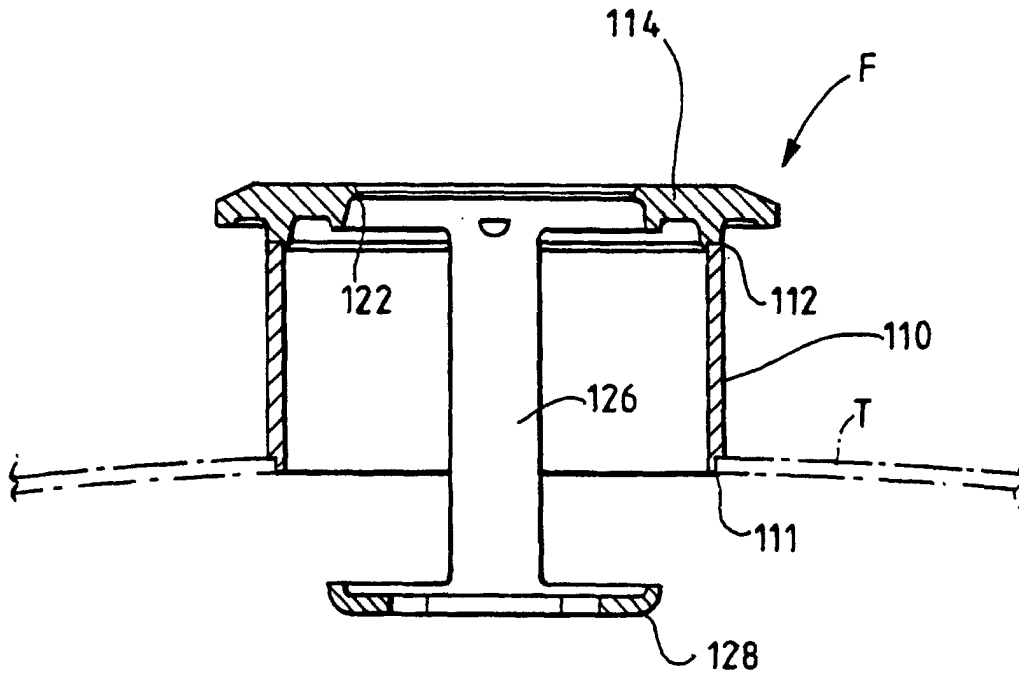


Fig.4.

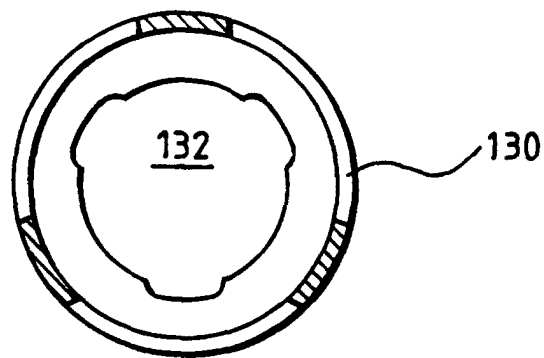


Fig.5.

