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(54) **PRESSURE STOPPER FOR BOTTLES AND THE LIKE**

STOPFEN MIT KLEMMANORDNUNG FÜR FLASCHEN UND DERGLEICHEN

BOUCHON A PRESSION POUR BOUTEILLES ET AUTRES OBJETS SEMBLABLES

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Description

OBJECT OF THE INVENTION

[0001] The present invention refers to a stopper, specially designed for bottles of the type providing sufficient air tightness in the closure by means of radial pressure of the stopper itself over the bottle neck, but may likewise be applied to any container requiring a similar closing system.

[0002] The object of the invention is to obtain a stopper of very easy placement in the bottle neck or container, assuring an airtight closure which also permits easy opening and a stopper that may be continuously used.

BACKGROUND OF THE INVENTION

[0003] In the field of bottles and other similar containers, basically two closing systems have been developed; one in which the bottle and stopper are provided with complementary means of threading or others of axial fastening which in turn, permit the axial deformation of a discoidal or annular component, acting as a seal between the stopper body and the container mouth and another, in which the container lacks coupling and axial retention means for the stopper, so that the latter is kept stable in a closed position by radial and internal pressure over the bottle neck.

[0004] Stoppers normally used in wine, champagne, etc. bottling belong to this type, in which the stopper is a cork cylinder, conveniently oversized with respect to the inside diameter of the bottle neck, requiring a special machine for its insertion in the latter. Said machine has a trunco-conical nozzle which converges in a downwards direction, forcing the stopper, on being axially pressed by its piston, on suffering a significant radial contraction, possible due to its material nature, so that once the stopper passes said nozzle and reaches the bottle neck, it elastically recovers exerting a high pressure over said neck, assuring the stability and tightness of the closure.

[0005] Independently from the difficulty involved in this type of stopper, totally impossible from the manual point of view, assuring optimum closure conditions, the removal manoeuvre thereof is also complex, requiring the use of corkscrews which on many occasions during the opening process break the stopper. To this drawback, we should add that when the degree of stopper deformation is significant during insertion, its expansion after first removal is so large, that it is impossible to manually close the bottle again with the same stopper, in the normal case of not having consumed all the contents of the bottle.

[0006] A stopper made of three parts including a bushing made of a soft material is disclosed in document DE-A-32 31 140. This bushing is closed at an end by a conical or drop-shaped bottom.

DESCRIPTION OF THE INVENTION

[0007] The pressure stopper proposed by the invention satisfactorily solves the aforementioned problem, it being possible to use it in the first bottling process or as an auxiliary stopper replacing the classical original one, when for the reasons already indicated, the latter cannot be reused for such a purpose.

[0008] More specifically, the stopper being disclosed consists of the functional combination of three parts, one of soft material, like, for example, rubber, shaped as a cylindrical bushing, fitted in correspondence with what should be its upper end of a perimetric flange, acting as a limiting stop for penetration over the bottle mouth, the outside diameter of said bushing being equal or less than the inside diameter of the bottle neck, collaborating with this part of soft material, two parts of rigid material which in their combination define a telescopic shaft finishing the outside part in a discoidal head to activate said part, while the other is finished inside a trunco-conical head, diverging towards its interior and free end, with a maximum diameter closed to that of the inside diameter of the bottle neck, so that in the situation of a maximum distance between the discoidal head and the trunco-conical head, the assembly may be easily placed inside the bottle or container being considered, until the limit situation in which the flange of the soft part acts as a stop over the bottle mouth, since the bushing to which said flange is linked maintains its original cylindrical configuration, whilst when it acts over the rigid parts, according to the axial contraction thereof, the trunco-conical head provokes a radial and elastic deformation of the soft bushing generating a high pressure of said bushing over the internal surface of the bottle neck and assuring both an airtight closure and a perfect stability for the stopper as a whole.

DESCRIPTION OF THE DRAWINGS

[0009] To complete the description being made and to permit a better understanding of the features of the invention according to a preferred example of embodiment thereof, said description is accompanied by a set of drawings in which the following is shown with an illustrative and non-limiting nature:

Figure 1 shows a side elevation exploded view and sectional view of the components integrating the pressure stopper constituting the object of the present invention, in which the neck of a bottle specifically destined to receive said stopper is also shown.

Figure 2 shows, according to a side elevation view, and in diametric section, the same assembly as above, duly assembled, according to another embodiment in which the plug component of the threaded coupling is linked to the trunco-conical head, instead of the discoidal and external head, as

in the case above.

Figure 3 finally shows, according to similar representations to that of the previous figure, the different process sequences of introducing the stopper in the bottle neck.

PREFERRED EMBODIMENT OF THE INVENTION

[0010] In the light of the above figures, it may be observed that the stopper being considered is destined to bottles or other types of container having a revolution neck (1) and is shaped as a cylindrical bushing (2) of a soft material of appropriate length, at its upper end finished in a flange or outside perimetric ring (3), destined to lean over the mouth (4) of said bottle neck (1), with the double purpose of acting as a limiting stop for penetration of said bushing (2) and in turn as an airtight closure area, as will be seen later, collaborating with said bushing (2) a pair of parts of a rigid material, like for example, plastic, specifically an outside part (5) in turn externally finished in a discoidal head (6), whose diameter should at least coincide with that of the soft bushing (2) flange (3), said rigid part (5) being provided with an axial and threaded pin (7) as shown in figure 1 or with a hollow neck (8), internally threaded, as shown by the embodiment in figure 2, anyway being completed with the other rigid part (9), at its lower or internal end also provided with a trunco-conical head (10), evidently diverging towards its free end, and with an internal and axially threaded neck (11), when the part (5) has the threaded pin (7) of figure 1 or a threaded pin (12) when the part (5) has an internally threaded neck (8) as in the case of figure 2.

[0011] Anyway, the complementary threads (7-11) or (8-12) permit the axial and telescopic shifting of a rigid part (5) with respect to the other (9) and also in any case the maximum diameter of the trunco-conical head (10) of the rigid part (9) will be suitable for introducing it through the bottle neck (2).

[0012] According to this arrangement, the manoeuvre to incorporate the stopper in the bottle is as follows:

[0013] According to the first sequence of figure 3, we start from a situation of maximum distance between the rigid parts (5) and (9), meaning that the trunco-conical head (10) is totally located beyond the bushing (2) maintaining it in its original cylindrical configuration.

[0014] As from this situation, and as shown by the second sequence of figure 3, the stopper is totally inserted in the bottle neck (1) not requiring excessive force.

[0015] Then, an initial small adjustment pull is made over the discoidal head (6) of the rigid part (5), so that with its raising movement the latter drags the rigid part (9) whose trunco-conical head (10) provokes a radial and complementary deformation of the lower end of the soft bushing (2), which is adapted to the anatomy of the bottle neck (1) as shown in the third sequence of figure 3, the discoidal head (6) remaining significantly dis-

tanced from the flange (3) of the soft part (2).

[0016] Then, and according to the fourth sequence of figure 3, the discoidal head (5) is rotated so that it progressively approaches the flange (3) as its threading is produced over the internal rigid part (9), which is kept stable by the friction coefficient established between its own trunco-conical head (10) and the soft cylindrical bushing (2).

[0017] In a limit approach situation of the discoidal head (6) to the flange (3), a final tightening is carried out which, as observed in the fifth and last sequence of figure 3, produces the definite deformation of the lower end of the bushing (2), assuring a totally airtight closure over the bottle neck (1) wall and over the trunco-conical head (10), in turn producing an axial pressure of the discoidal head (6) over the flange (3), also deforming the latter in this direction, enhancing the tightness of the stopper as a whole.

[0018] Evidently, a manoeuvre in the opposite direction permits an easy uncoupling of the stopper which may be indefinitely reused.

Claims

1. A pressure stopper for bottles and similar containers, provided with a revolution neck of internal and smooth surface, **characterised by** being constituted by means of the functional combination of three parts, one part (2) of soft material, configuring a cylindrical bushing with a throughgoing opening with an external diameter according to the internal diameter of the bottle neck (1), a bushing which finishes in what should be the external or upper end of a flange (3), radially emerging outwards and destined to lean over the bottle mouth (4), collaborating with this soft part (2), a coaxially intercoupled pair of parts (5) and (9) of rigid material, like, for example, plastic, with relative adjustable positioning, the external part (5) finishing at its external end, in a discoidal head (6) for leaning over the flange (3) of the soft part (2), while the inside part (9) of rigid material in turn finishes in a trunco-conical head (10), diverging towards its free end and with a maximum diameter suitable to permit its passage through the bottle neck (1), in the situation of maximum extension for the assembly consisting of the two rigid parts (5) and (6), the trunco-conical head (10) not affecting the cylindrical bushing (2) of the soft material part, while the axial contraction of the assembly consisting of said rigid parts provokes a radial deformation of the lower area of said bushing (2) against the internal wall of the bottle neck (1) and an axial deformation of the flange (3) against the front (4) of said bottle mouth.
2. A pressure stopper for bottles and similar containers according to claim 1, **characterised in that** the

two rigid parts (4) and (5) are telescopically related to each other, with the possibility of varying the axial level of both parts as a whole by means a thread coupling (7-11), (8-12).

3. A pressure stopper for bottles and similar containers according to the previous claims, **characterised in that** the rigid external part (5) is provided with a threaded pin (7) whilst the rigid internal part (9) is provided with an internally threaded neck (11) receiving said pin (7).
4. A pressure stopper for bottles and similar containers, according to claims 1 and 2, **characterised in that** the rigid external part (5) is provided with an internally threaded neck (8) whilst the rigid internal part (9) is provided with a threaded pin (12) corresponding with said neck (8).

Patentansprüche

1. Druckverschlussstopfen für Flaschen und Ähnliches, mit einem mit einer glatten Innenfläche versehenen Drehhals, **dadurch gekennzeichnet, dass** er durch das funktionelle Zusammenwirken von drei Teilen gebildet wird, einem Teil (2) aus weichem Material, das eine zylinderförmige Hülse mit einer Durchgangsöffnung bildet, mit einem Außendurchmesser der dem Innendurchmesser des Flaschenhalses (1) entspricht, wobei diese Hülse in einem umgebogenen Rand (3) endet, der das äußere bzw. obere Ende bildet, der radial nach außen geneigt ist und dazu vorgesehen ist, sich auf der Flaschenmündung (4) abzustützen, wobei mit diesem Teil (2) aus weichem Material ein Paar aus den Teilen (5) und (9) aus starrem Material, wie zum Beispiel Kunststoff, zusammenwirkt, die coaxial miteinander verbunden sind und deren relative Positionierung zueinander einstellbar ist, wobei das Außenteil (5) am äußeren Ende in einem scheibenartigen Kopf (6) zur Abstützung auf dem umgebogenen Rand (3) des Teils (2) aus weichem Material endet, während das innere Teil (9) aus starrem Material seinerseits in einem kegelförmigen Kopf (10) endet, der in Richtung seines freien Endes divergiert und einen maximalen Durchmesser aufweist, der dazu geeignet ist, den Durchtritt durch den Flaschenhals (1) zu ermöglichen, in der Lage der größten Verlängerung für die Gesamtanordnung bestehend aus den zwei starren Teilen (5) und (6), wobei der kegelförmige Kopf (10) nicht die zylinderförmige Hülse (2) des Teils aus weichem Material beeinträchtigt, während die axiale Einschnürung der Gesamtanordnung aus den beiden starren Teilen eine radiale Verformung des unteren Bereichs der genannten Hülse (2) gegen die Innenwand des Flaschenhalses (1) bewirkt, sowie eine

axiale Verformung des umgebogenen Rands (3) gegen die Stirnseite (4) der Mündung der genannten Flasche.

2. Druckverschlussstopfen für Flaschen und Ähnliches nach Anspruch 1, **dadurch gekennzeichnet, dass** die beiden starren Teile (4) und (5) teleskopierbar miteinander verbunden sind, mit der Möglichkeit das Axialmaß der beiden Teile in der Gesamtanordnung über eine Schraubverbindung (7-11), (8-12) zu verändern.
3. Druckverschlussstopfen für Flaschen und Ähnliches nach den vorhergehenden Ansprüchen, **dadurch gekennzeichnet, dass** das äußere starre Teil (5) mit einem Gewindezapfen (7) versehen ist, während das innere starre Teil (9) einen mit einem Innengewinde versehenen Hals (11) aufweist, der den genannten Zapfen (7) aufnimmt.
4. Druckverschlussstopfen für Flaschen und Ähnliches nach den Ansprüchen 1 und 2, **dadurch gekennzeichnet, dass** das äußere starre Teil (5) einen mit einem Innengewinde versehenen Hals (8) aufweist, während das innere starre Teil (9) einen Gewindezapfen (12) aufweist, der in den genannten Hals (8) eingeschraubt ist.

Revendications

1. Bouchon à pression pour bouteilles et similaires, pourvu d'un goulot de révolution de surface intérieure et lisse, **caractérisé en ce qu'il est constitué par la combinaison fonctionnelle de trois pièces**, une pièce (2) en matière molle, qui configure une douille cylindrique avec une ouverture traversante, avec un diamètre externe conforme au diamètre interne du goulot (1) de bouteille, la douille étant coiffée de la soi-disant extrémité extérieure ou supérieure dans une collerette à la wallonne (3), projetée radialement vers l'extérieur et destinée à prendre appui contre l'embouchure (4) de la bouteille, en collaboration avec cette pièce (2) en matière molle se trouve une paire de pièces (5) et (9) en matière rigide inter-accouplées coaxialement, comme par exemple du plastique, de positionnement relatif réglable, la pièce (5) extérieure étant coiffée (5) à son extrémité extérieure, d'une tête (6) discoïdale d'appui sur la collerette à la wallonne (3) de la pièce (2) en matière molle, tandis que la pièce (9) intérieure en matière rigide est coiffée à son tour d'une tête (10) tronconique, divergente vers son extrémité libre et à diamètre maximal approprié pour permettre son passage à travers le goulot (1) de la bouteille, lors de la situation d'élargissement maximal pour l'ensemble constitué des deux pièces (5) et (6) rigides, la tête (10) tronconique n'affectant pas la

douille (2) cylindrique de la pièce en matière molle, tandis que la contraction axiale de l'ensemble constitué desdites pièces rigides produit une déformation radiale de la zone inférieure de ladite douille (2) contre la paroi interne du goulot (1) de la bouteille, et une déformation axiale de la collerette à la wallonne (3) contre le front (4) de l'embouchure de ladite bouteille. 5

2. Bouchon à pression pour bouteilles et similaires selon la revendication 1, **caractérisé en ce que** les deux pièces (4) et (5) rigides sont mises en rapport télescopiquement entre elles, avec la possibilité de varier dans l'ensemble la cote axiale des deux pièces, à travers un accouplement (7-11), (8-12) fileté. 10 15

3. Bouchon à pression pour bouteilles et similaires selon les revendications antérieures, **caractérisé en ce que** la pièce rigide (5) extérieure est pourvue d'une tige (7) filetée tandis que la pièce (9) rigide intérieure comprend un goulot (11) intérieurement fileté qui loge ladite tige (7). 20

4. Bouchon à pression pour bouteilles et similaires selon les revendications 1 et 2, **caractérisé en ce que** la pièce (5) rigide extérieure est pourvue d'un goulot (8) intérieurement fileté, tandis que la pièce (9) rigide intérieure se trouve avec une tige (12) filetée en correspondance avec ledit goulot (8). 25 30

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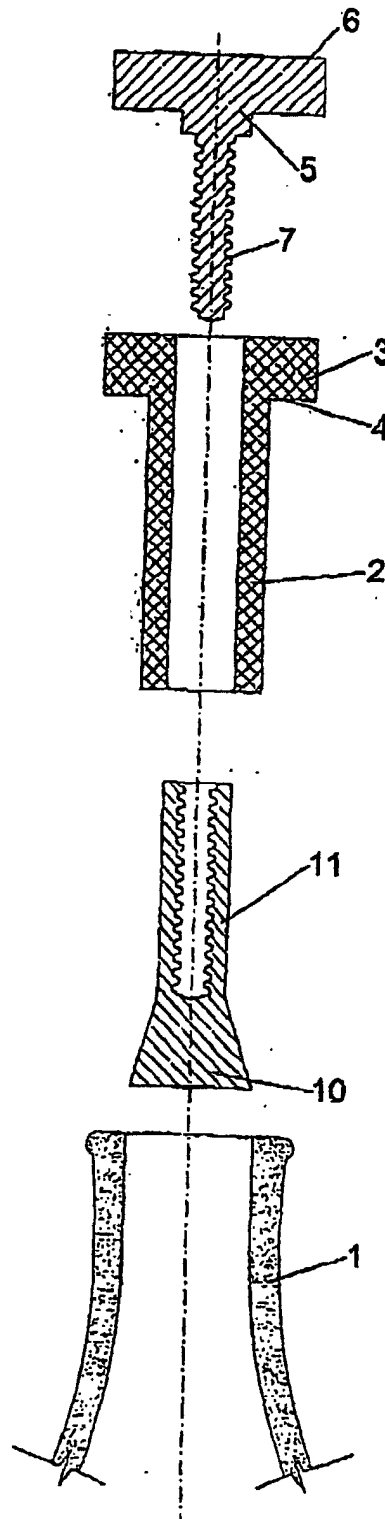
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FIG. 1



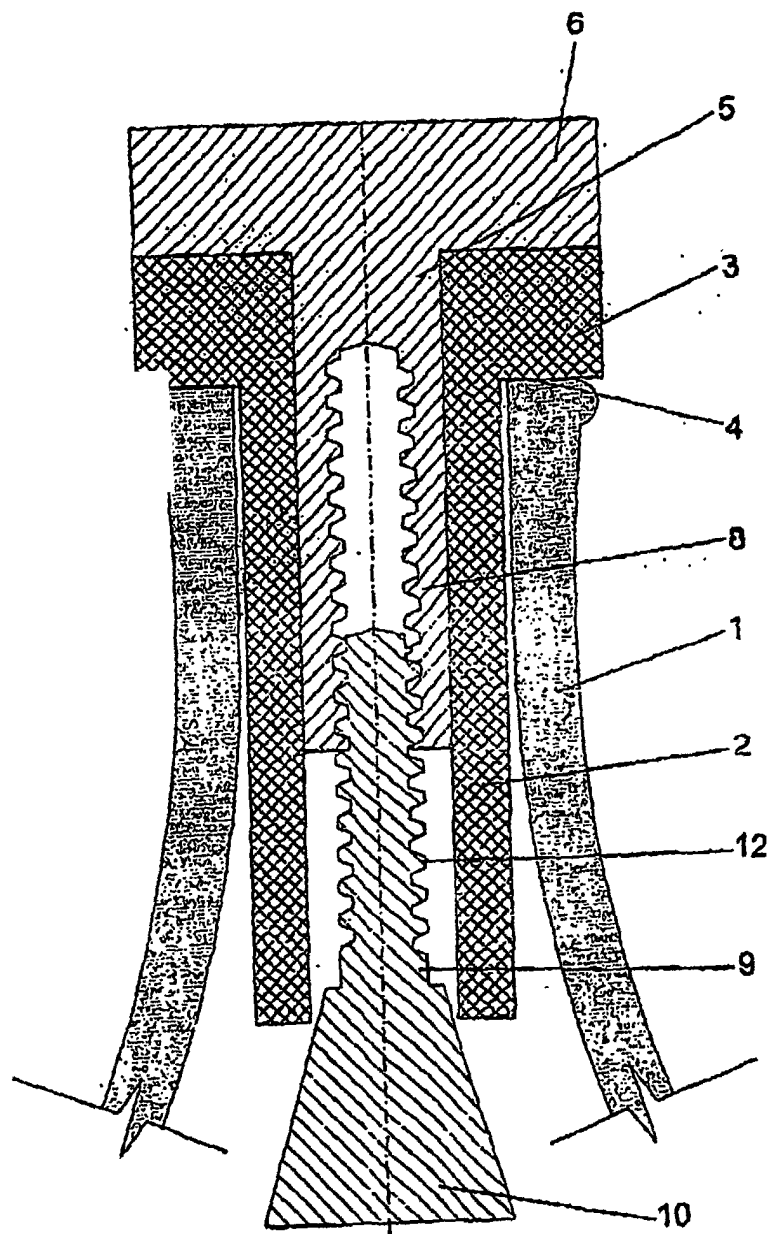


FIG. 2

