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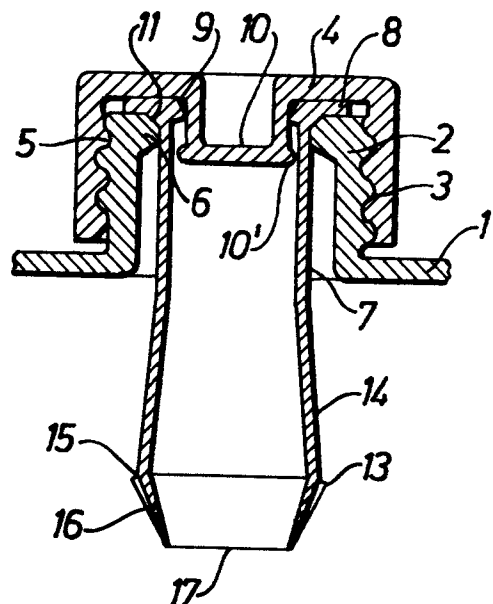
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⑤④ Improved pouring mechanism in a container for liquids which has a tubular pouring spout.

⑤⑦ An improved pouring mechanism in a container for liquids, e.g., a can, has an extensible pouring spout (7) in the form of a tube which is movable in the axial direction in the orifice of a container neck (2) or pipe stub having external threads (3) for a screw cap (4). The outlet of the tube (7) is provided with an outwardly-directed abutting and sealing flange (8), and the neck (2) on the container is provided with an inwardly-directed, annular flange (6). An inwardly-directed flange (9) on the spout (7) is formed as a sealing lip which, when the container (1) is closed, cooperates with a central plug (10) inside the cap (4). Said inwardly-directed sealing lip (9) is adapted to engage with the internal plug (10) in the cap with a press-fit sufficiently tight to permit the pouring spout (7) to be drawn outward through the container neck (2) when the cap (4) is unscrewed and lifted off, until protruding catch surfaces (13) on the spout encounter the inner face of the flange (6) in the neck.



DESCRIPTIONIMPROVED POURING MECHANISM IN A CONTAINER FOR LIQUIDS WHICH
HAS A TUBULAR POURING SPOUT

The present invention pertains to an improved pouring mechanism in a container for liquids, e.g., a can having a tubular pouring spout. In a special embodiment of the invention, the vessel has an extensible pouring spout in the form of a tube which is movable in the axial direction in the orifice of a pipe stub or neck having external helical threads for a screw cap, the outlet end of the tube being provided with an outwardly-directed abutting and sealing flange.

Containers for liquids are normally provided merely with a relatively short outlet, spout or neck, which can be provided with external threads and closed by means of a screw-on cap. However, a somewhat longer pouring spout is often required, for example, if the site where the contents of the can are to be poured out is not easily accessible. This is true, for example, for cans containing motor oil, because the oil tank opening on the engine is often difficult to reach with a can having a short spout.

Cans with elongated spouts are available on the market, e.g., in the form of an extensible pouring spout in the form of a tube which is movable in the axial direction in the orifice of a pipe stub or neck on the vessel. Experience has shown, however, that this type of long pouring spout has an unfortunate side-effect: The air which must enter the can to compensate for the contents pouring out has a tendency to pass through the pouring spout in the form of large bubbles, causing the contents of the can to be poured out in spurts, which can easily result in spilling. Because of this, cans with long pouring spouts have not been used to the wide extent which might otherwise have been the case.

The purpose of the present invention is to eliminate the above disadvantage so that spurt-like pouring from a can with a long pouring spout can be avoided, in that the air flowing into the can passes the pouring spout in the form of small bubbles.

This is obtained according to the invention through a modification of a container for liquids, e.g., a can, having an

extensible pouring spout in the form of an internal tube which is movable in the axial direction in the orifice of a pipe stub or neck having external threads for a screw-on cap, in which the outlet of the tube is provided with an outwardly-directed
5 abutting and sealing flange. A can of this general type is known from British Patent No. 986,684, for example. The characteristic feature of the invention is an inwardly-directed flange on the spout which is formed as a sealing lip which, when the container is closed, cooperates with a central plug inside the screw-on
10 cap, the inwardly-directed sealing lip on the spout being adapted to fit the internal plug in the cap with a press-fit sufficiently tight to permit the spout to be drawn out into the pouring position through the neck of the container when the cap is unscrewed and lifted off. In this connection, it is also preferable that an
15 annular, radially-directed bead be provided at the bottom, free end of the plug. To facilitate the insertion of the plug on the cap into the annular sealing lip, it is advantageous that the annular sealing lip slope inwards and downwards toward the center of the pouring spout.

20 With this design, the air merely has to pass a rather narrow threshold, viz., the inwardly-directed, annular flange. Interior of the annular flange, an air pocket forms which extends all the way in to the inner edge of the pouring spout. Air from the air pocket will flow continuously into the can to compensate
25 for the contents of the can which are being poured out, and air from the atmosphere will press over the annular flange in the form of small bubbles and flow into the air pocket. One thereby obtains an especially smooth pouring without spurts.

A further improvement of the seal is obtained in that the
30 outlet of the container neck is beveled at the internal edge of the inwardly-directed flange thereon, and that the transition area between the pouring spout and its outwardly-directed flange has a corresponding beveled configuration. A conical section on the pouring spout will thus fit and seal against a corresponding
35 conical section on the flange in the container neck.

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The invention will be further elucidated with reference to the drawings, which illustrate two exemplary embodiments of the invention.

Figure 1 shows a container provided with an extensible
5 pouring spout, in partial cross section.

Figure 2 is a modified embodiment of a container with an extensible pouring spout, also in partial cross section.

Figure 3 is a detail drawing of the lower portion of the extensible pouring spout of Fig. 2.

10 Figure 4 is a detail drawing, on an enlarged scale, of the outlet section of the pouring spout of Fig. 2.

In the relatively simple embodiment shown on Fig. 1, a container 1 is provided with a neck or pipe stub 2 having external threads 3, adapted to engage with a screw cap 4 having internal threads 5. The upper, outer edge of the neck 2 is provided
15 with an inwardly-directed flange 6. An extensible pouring spout 7 is arranged in the neck 2, the outlet end of the spout being provided in a conventional way with an outwardly-directed flange 8. When the can is closed, this flange is adapted to function as a
20 gasket between the screw-on cap 4 and the neck 2. In accordance with the invention, the outlet end of the pouring spout 7 is also provided with an annular, inwardly-directed flange 9, which serves to restrict the passageway for the spout.

The embodiment illustrated on Fig. 2 has many features
25 in common with the embodiment of Fig. 1, and the portions thereof which correspond to those in Fig. 1 are designated by the same reference numbers. The difference is that the inwardly-directed, annular flange 9 forms a downwardly-sloping sealing lip which cooperates with a cylindrical plug 10 on the cap 4. In addition,
30 the inwardly-directed flange 6 on the neck 2 is provided with a beveled edge 11 (see Fig. 4), and the transition area between the outwardly-directed flange 8 and the pouring spout 7 also has a beveled configuration 12. The beveled edge 11 on the neck and the beveled portion 12 on the pouring spout will abut when the
35 can is closed, thus providing an extra seal. The dimensions of the sealing lip 9 relative to the plug 10 are such that the lip will be press-fitted around the plug when the can is closed.

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Therefore, when the cap 4 is unscrewed and lifted up, the pouring spout 7 will follow along and be drawn out until protruding catch surfaces 13 or pawls provided on the lower portion of the pouring spout encounter the bottom face of the flange 6 in the neck 2. When the cap is pulled further, it will of course be pulled off. To increase the friction between the sealing lip 9 and the plug 10, the latter is provided with a radial, outwardly-directed annular bead 10' at the lower edge thereof. As can best be seen on Fig. 4, the pouring spout 7 is positioned so as to have good clearance in the neck 2, so that it can easily be pulled out. The lower portion of the pouring spout 7 expands conically at a section 14 to a section 15 of greatest diameter, where the catch surfaces 13 are located. Past this point, the pouring spout again narrows down toward the free, inner end 17 thereof. The material in the conical end section 16 becomes thinned out toward the free end 17, as can be seen most clearly on Fig. 3. This spout configuration, which is known from the previously-mentioned British Patent No. 986, 684, has two purposes. Firstly, the conical section 14 is held by friction in the opening in the neck 2 at the flange 6, so that the pouring spout 7 does not fall back into the can when it becomes detached from the cap 4. Secondly, the conical end section 16 serves to facilitate the insertion of the pouring spout 7 into the neck 2 of the can when the pouring spout is being installed. The pouring spout 7 is preferably made of pliable plastic.

Figure 4 shows how an air pocket 18 will be formed behind the annular lip 9 as the liquid contents 20 of the container 1 are being poured out. The air will enter into the can in the form of small bubbles 19 which press in beneath the annular lip 9 and into the air pocket 18. The bubbles are small owing to the little distance they are required to cover from the atmosphere and into the pocket. If the air pocket were not there, the air would be forced to pass over a threshold of quite other dimensions, i.e., the entire length of the pouring spout 7. In that case, a much greater partial vacuum would have to build up in the can before a bubble could manage to squeeze past this broad threshold, and the bubble would then assume larger dimensions than the small

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bubbles 19, thus causing the contents of the container to pour out in spurts.

CLAIMS

1. An improved pouring mechanism in a container for liquids, e.g., a can, having an extensible pouring spout (7) in the form of a tube which is movable in the axial direction in the orifice of a container neck (2) or pipe stub having external threads (3) for a screw cap (4), the outlet of the tube (7) being provided with an outwardly-directed abutting and sealing flange (8), and the neck (2) on the container being provided with an inwardly-directed, annular flange (6), characterized in an inwardly-directed flange (9) on the spout (7) which is formed as a sealing lip which, when the container (1) is closed, cooperates with a central plug (10) inside the cap (4), said inwardly-directed sealing lip (9) being adapted to engage with the internal plug (10) in the cap with a press-fit sufficiently tight to permit the pouring spout (7) to be drawn outward through the container neck (2) when the cap (4) is unscrewed and lifted off, until protruding catch surfaces (13) on the spout encounter the inner face of the flange (6) in the neck.

2. An improved pouring mechanism according to claim 1, characterized in that a small, radially-directed, annular bead (10') is disposed on the bottom, free end of the plug (10).

3. An improved pouring mechanism according to claim 1, characterized in that the annular sealing lip (9) slopes inwards and downward in the pouring spout (7).

4. An improved pouring mechanism according to one or more of the preceding claims, characterized in that the outlet of the container neck (2) is beveled, and that the transition region between the pouring spout (7) and its outwardly-directed flange (8) is correspondingly beveled in order thereby to form an extra seal.

Fig.1

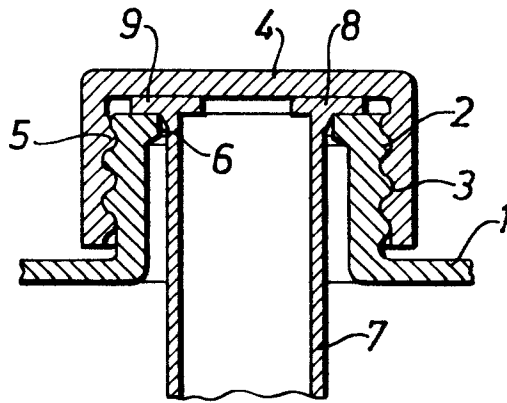


Fig.2

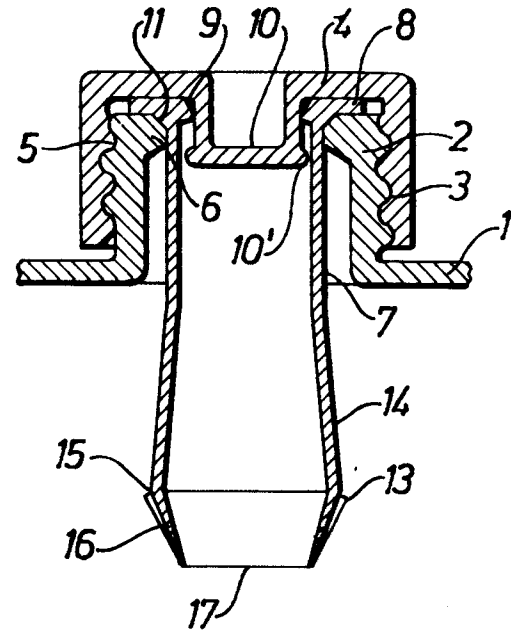


Fig.3

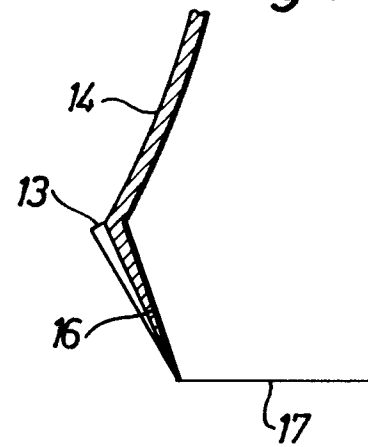
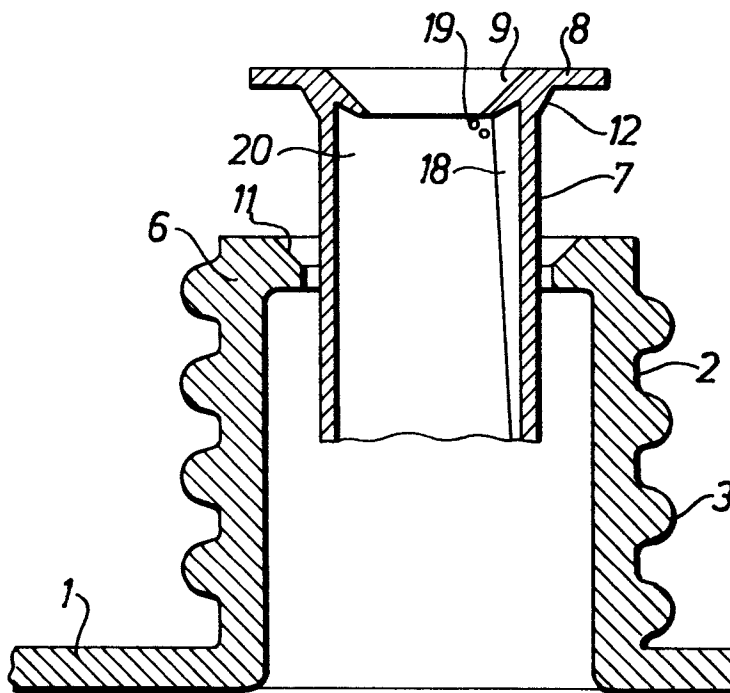


Fig.4





DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl. ³)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
X	<u>FR - A - 1 306 751</u> (SEPROSY) * Whole document * --	1,2	B 65 D 47/06 47/12
	<u>GB - A - 869 398</u> (METAL BOX) * Complete specification * --	1-3	
A	<u>FR - A - 1 543 442</u> (GAGET) * Whole document * --	1,4	
A	<u>US - A - 2 173 712</u> (WHEELING STEEL) * Whole document * ----	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl. ³)
			B 65 D 47/00
			CATEGORY OF CITED DOCUMENTS
			X: particularly relevant A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention E: conflicting application D: document cited in the application L: citation for other reasons
☒ The present search report has been drawn up for all claims			&: member of the same patent family, corresponding document
Place of search The Hague		Date of completion of the search 19-11-1979	Examiner MARTIN