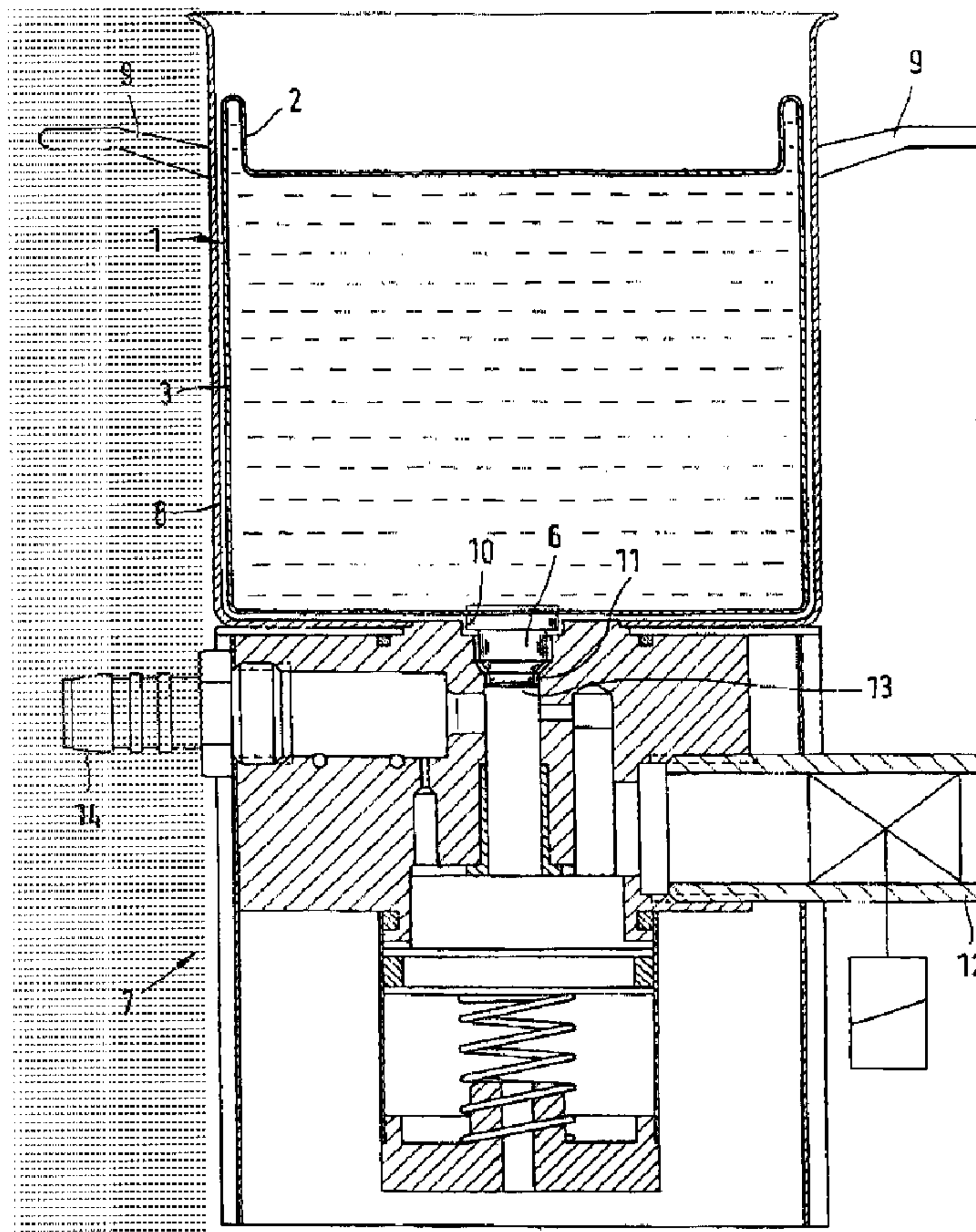




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 (72) Inventeurs/Inventors:
AMBERG, GUENTHER, DE;
SCHENK, BERND, DE
 (73) Propriétaire/Owner:
HENKEL ECOLAB GMBH & CO. OHG, DE
 (74) Agent: OGILVY RENAULT LLP/S.E.N.C.R.L.,S.R.L.

(54) Titre : EMBALLAGE POUR PRODUIT PATEUX
 (54) Title: PACKAGING FOR A PASTE PRODUCT



(57) Abrégé/Abstract:

The invention relates to a packaging for a paste product, in the form of a flexible, closed storage drum which has a sealable outlet opening on the underside. Said opening can be connected to a metering device which conveys the product using negative



(57) **Abrégé(suite)/Abstract(continued):**

pressure. The aim of the invention is to provide a simple means of safely, practically entirely emptying a drum of this type. To this end, the flexible storage drum (1) is configured with a thinner wall in its upper area (2) than in its lower area (3).



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(71) Anmelder (für alle Bestimmungsstaaten ausser US):
HENKEL-ECOLAB GMBH & CO. OHG [DE/DE];
Reisholzer Werftstrasse 38-42, D-40589 Düsseldorf (DE).

(72) Erfinder; und

(75) Erfinder/Anmelder (nur für US): AMBERG, Günther
[DE/DE]; Bahnhofstrasse 38, D-41472 Neuss (DE).
SCHENK, Bernd [DE/DE]; Eibenweg 7, D-76337 Wald-
bronn (DE).

(74) Anwalt: HASE, Christian; Henkel Kommanditgesellschaft auf
Aktien, Patente (VTP), D-40191 Düsseldorf (DE).

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(54) Title: PACKAGING FOR A PASTE PRODUCT

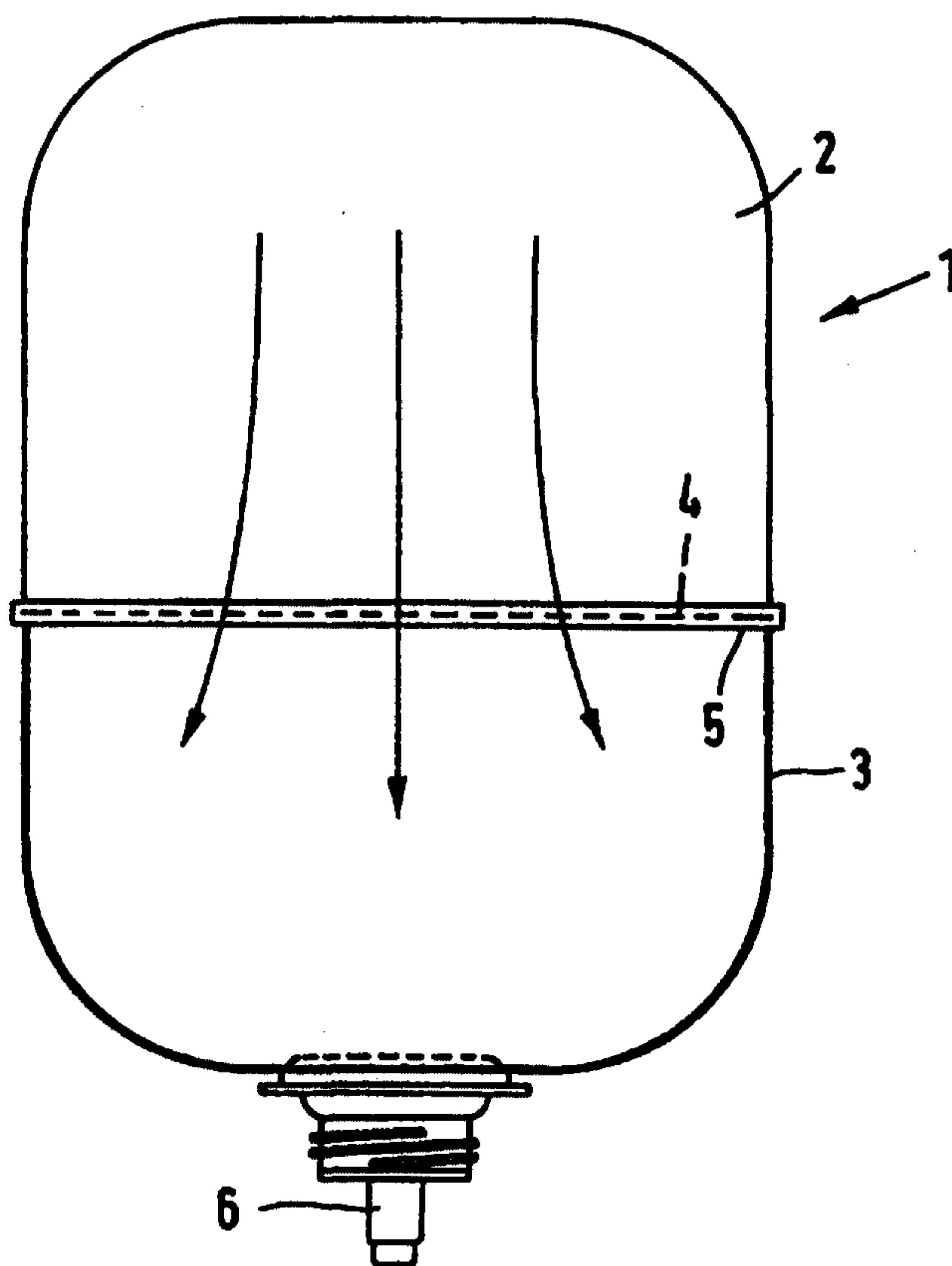
(54) Bezeichnung: VERPACKUNG FÜR EIN PASTENFÖRMIGES PRODUKT

(57) Abstract

The invention relates to a packaging for a paste product, in the form of a flexible, closed storage drum which has a sealable outlet opening on the underside. Said opening can be connected to a metering device which conveys the product using negative pressure. The aim of the invention is to provide a simple means of safely, practically entirely emptying a drum of this type. To this end, the flexible storage drum (1) is configured with a thinner wall in its upper area (2) than in its lower area (3).

(57) Zusammenfassung

Eine Verpackung für ein pastenförmiges Produkt in Form eines flexiblen geschlossenen Vorratsgebindes, welches unterseitig eine verschließbare Auslaßöffnung aufweist, die mit einer mittels Unterdruck fördernden Dosiereinrichtung kupelbar ist, soll so weiterentwickelt werden, daß mit einfachen Mitteln ein sicheres und praktisch vollständiges Entleeren des Vorratsgebindes möglich ist. Dies wird dadurch erreicht, daß das flexible Vorratsgebinde (1) in seinem oberen Bereich (2) mit einer geringeren Wandstärke als in seinem unteren Bereich (3) ausgebildet ist.



PACKAGING FOR A PASTE PRODUCT

BACKGROUND OF THE INVENTION

FIELD OF THE INVENTION

5 This invention relates to a pack for a paste-form product in the form of a flexible closed storage container which, underneath, has a closable outlet opening designed to be coupled to a dosing unit which delivers by reduced pressure.

DESCRIPTION OF THE RELATED ART

10 Liquid to paste-form detergents are known. These detergents are generally adapted to meet household requirements which means that they have to be sufficiently liquid so that they can be poured out and dosed without difficulty. Since, in addition, they have to be stable in storage over a relatively broad temperature range, the use of organic solvents and/or hydrotropic additives normally cannot be avoided. Unfortunately, such as additives are non-detergent, relatively expensive and take up
15 additional packaging volume and transportation and storage capacity. In addition, the presence of inflammable solvents is particularly problematical in that it necessitates additional safety precautions on account of the comparatively high consumption of detergents in laundries. For this reason, detergent concentrates of this type are of only limited use, if any, for laundries.

20 Accordingly, powder-form detergents are mainly used in laundries. Since the exact dosing of such detergents is labor-intensive, particularly in large extensively automated laundries, the detergents are generally stored and dosed in predissolved form as stock liquors, i.e. a water-containing concentrate is first prepared and then delivered to the individual washing stations. However, the detergents traditionally used
25 in laundries contain relatively high percentages of washing alkalis which are poorly soluble in cold water and, in addition, lead to "salting out" effects. They cause phase separation with the result that the organic components, more especially the nonionic surfactants and soaps, separate and cream up. Accordingly, the stock liquors have to be diluted relatively heavily with water and, in addition, intensively stirred and circulated
30 in a continuous cycle to prevent individual components from being deposited in the

feed lines to the washing stations. Consequently, such processes involve high capital outlay on large mixing tanks and the associated mixing and feed systems and require a constant supply of energy for heating and circulating the stock liquors.

5 A detergent which meets these requirements is described in **EP 0 295 525**. This detergent is a paste-form detergent which imposes particular demands on handling for dosing and mixing with water as solvent. Detergent pastes of the type in question here are transported and stored in large containers. It is proposed that the storage container be placed in a removal unit above the dosing unit and that the paste be removed downwards. Where a pack of the type in question with a flexible storage container is
10 used, it is proposed that a follower plate be placed on the flexible storage container accommodated in the outer container, this follower plate exerting pressure on the storage container to obtain largely complete emptying of the storage container.

It has been found that the follower plate has to be made very heavy if uniform lowering and substantially complete emptying of the storage container are to be
15 obtained. However, this has the disadvantage that such heavy weights are very difficult to handle which increases the risk of errors in operation. In addition, the heavy follower plate necessitates an overall very stable and hence expensive construction for accommodating the pack.

Accordingly, the problem addressed by the present invention was to further
20 develop a pack in such a way that the storage container could be safely and substantially completely emptied by simple means.

SUMMARY OF THE INVENTION

Accordingly, in one aspect, the present invention provides a dosing unit operating by reduced pressure which comprises an entrance for paste-form product
25 opening into a reduced-pressure region and a flexible storage container for the product of which the outlet opening opens into the entrance, whereas the flexible storage container comprises a first relatively thick-walled region with the outlet opening and a second region with thinner walls which are designed in such a way that, under the effect of reduced pressure applied to the storage container, the second region applies
30 itself to the walls of the first region, following the product withdrawn under suction

towards the outlet opening, wherein a supporting ring is located between the first and second regions.

In one embodiment, the solution to this problem as provided by a pack of the type mentioned at the beginning is characterized in that the walls of the flexible storage container are thinner in its upper part than in its lower part.

With a construction such as this, the pack can be emptied substantially completely without significant effort by simple means and without any need for aids in the form of a heavy follower plate. This is because, through the removal of product by reduced pressure, the thinner-walled region follows the product towards the outlet opening and applies itself to the thicker-walled region so that the paste-form product is largely stripped off there similarly to a follower plate in a cartridge.

In one particularly advantageous embodiment of the invention, the flexible storage container consists of a lower part with relatively thick walls and an upper part with relatively thin walls which are joined tight to one another. In this way, the pack is easy to make and, for example, may be welded together from two bag-like portions differing in their wall thickness.

In order to optimize the emptying process, the upper and lower parts advantageously have substantially the same volume. Another volume ratio may also be selected, depending on the product.

In the interests of optimal complete emptying, it has proved to be of advantage for the walls of the upper part to be about three times thinner than those of the lower part, the walls of the lower part being about 0.6 mm thick and consisting of polyethylene or polyethylene blends. The wall thickness may of course also assume other values.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention is described in more detail in the following with reference to the accompanying drawing, wherein:

Figure 1 is a side elevation of a full pack according to the invention.

Figure 2 shows the pack illustrated in Fig. 1 after substantially complete emptying.

Figure 3 shows a pack placed in a dosing unit.

DETAILED DESCRIPTION OF THE INVENTION

5 A pack according to the invention for a paste-form product consists of a flexible closed storage container 1 which, in the embodiment illustrated, consists of two bag-like parts, namely an upper part 2 and a lower part 3. The two parts 2 and 3 preferably consist of a plastic film, the walls of the upper part 2 being thinner than the walls of the lower part 3. For example, the upper part 2 has a wall thickness of 0.2 mm while the
10 wall thickness of the lower part is about three times greater, i.e. 0.6 mm. To form the storage container 1, the two parts 2, 3 are welded tight to one another, the weld seam being denoted by the reference numeral 4. At the same time, a supporting ring 5 may be included in the weld.

Underneath, the storage container 1 has a closable outlet opening 6 in the form
15 of an adapter which enables the storage container to be connected to a dosing unit described hereinafter. It can be seen that the upper part 2 and the lower part 3 have substantially the same volume although other volume ratios could also be selected according to the product.

If, now, the paste-form product is removed from the outlet opening 6 by reduced
20 pressure, the upper thinner part 2 follows the emptying storage container 1 towards the outlet opening 6 and applies itself to the walls of the lower thicker part 3, as shown in Fig. 2. The upper thinner part 2 strips off most of the paste-form product, similarly to a follower plate in a cartridge, and provides for effective emptying of the storage container 1 without any need for additional aids, such as a follower plate.

25 As shown in Fig. 3, a storage container of the type described above is designed to be accommodated in a dosing unit generally denoted by the reference numeral 7. This dosing unit comprises a frame on which is placed a dimensionally stable container 8 optionally equipped with handles 9. The container 8 is designed to accommodate a storage container 1 according to the invention. Underneath the container 8 is provided
30 with a central opening 10 through which the adapter-like outlet opening 6 of the storage

container 1 projects into the dosing unit 7 where it is designed to be coupled tight with the entrance 11 of the dosing unit 7. The construction of the dosing unit 7 is well-known to the expert and need not be described any further here. In addition to the paste-form product from the storage container 1, water is fed to the dosing unit 7 through the inlet 5 12. Under the effect of the reduced pressure developed in the region 13, the water is mixed with the paste-form product and issues from the dosing unit 7 through the outlet 14 in the desired dosing ratio.

The invention is not of course confined to the illustrated embodiments. Further modifications may be made without departing from the basic concept. Thus, other 10 dimensions may of course be selected for the storage container 1 according to the particular paste-form product. A differently designed dosing unit may of course also be used, etc.

WHAT IS CLAIMED IS:

1. A dosing unit operating by reduced pressure which comprises an entrance (11) for paste-form product opening into a reduced-pressure region and a flexible storage container (1) for the product of which the outlet opening (6) opens into the entrance (11), whereas the flexible storage container (1) comprises a first relatively thick-walled region (3) with the outlet opening (6) and a second region (2) with thinner walls which are designed in such a way that, under the effect of reduced pressure applied to the storage container (1), the second region (2) applies itself to the walls of the first region (3), following the product withdrawn under suction towards the outlet opening (6), wherein a supporting ring is located between the first and second regions (2, 3).

2. A dosing unit as claimed in claim 1, wherein the first and second regions (2,3) of the flexible storage container (1) are joined tight to one another.

3. A dosing unit as claimed in claim 1 or 2, wherein the two regions (2,3) have substantially the same volume.

4. A dosing unit as claimed in any one of claims 1 to 3, wherein the walls of the second region (2) are three times thinner than those of the first region (3).

5. A dosing unit as claimed in claim 4, wherein the wall thickness of the first region (3) is about 0.6 mm.

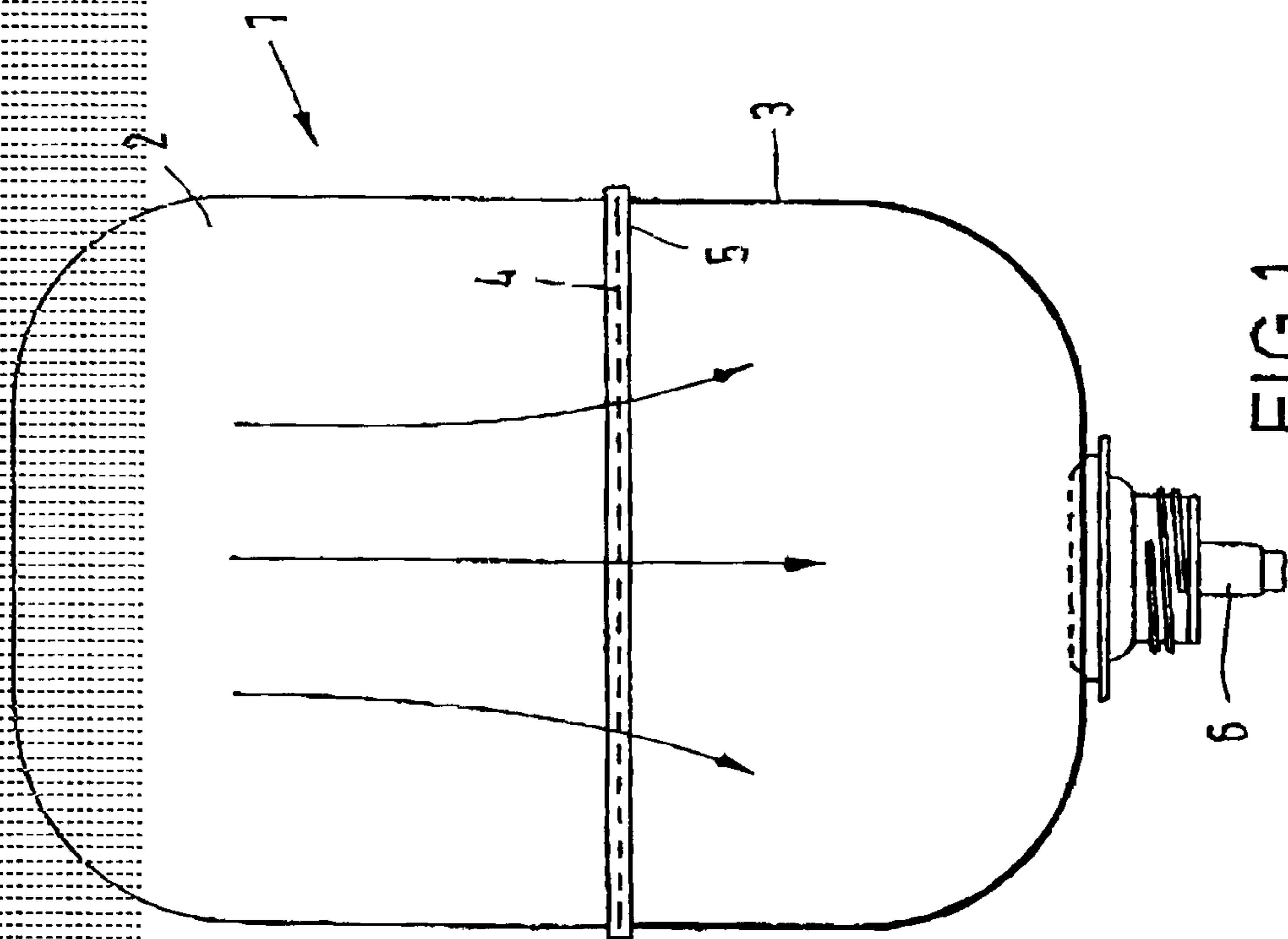


FIG. 1

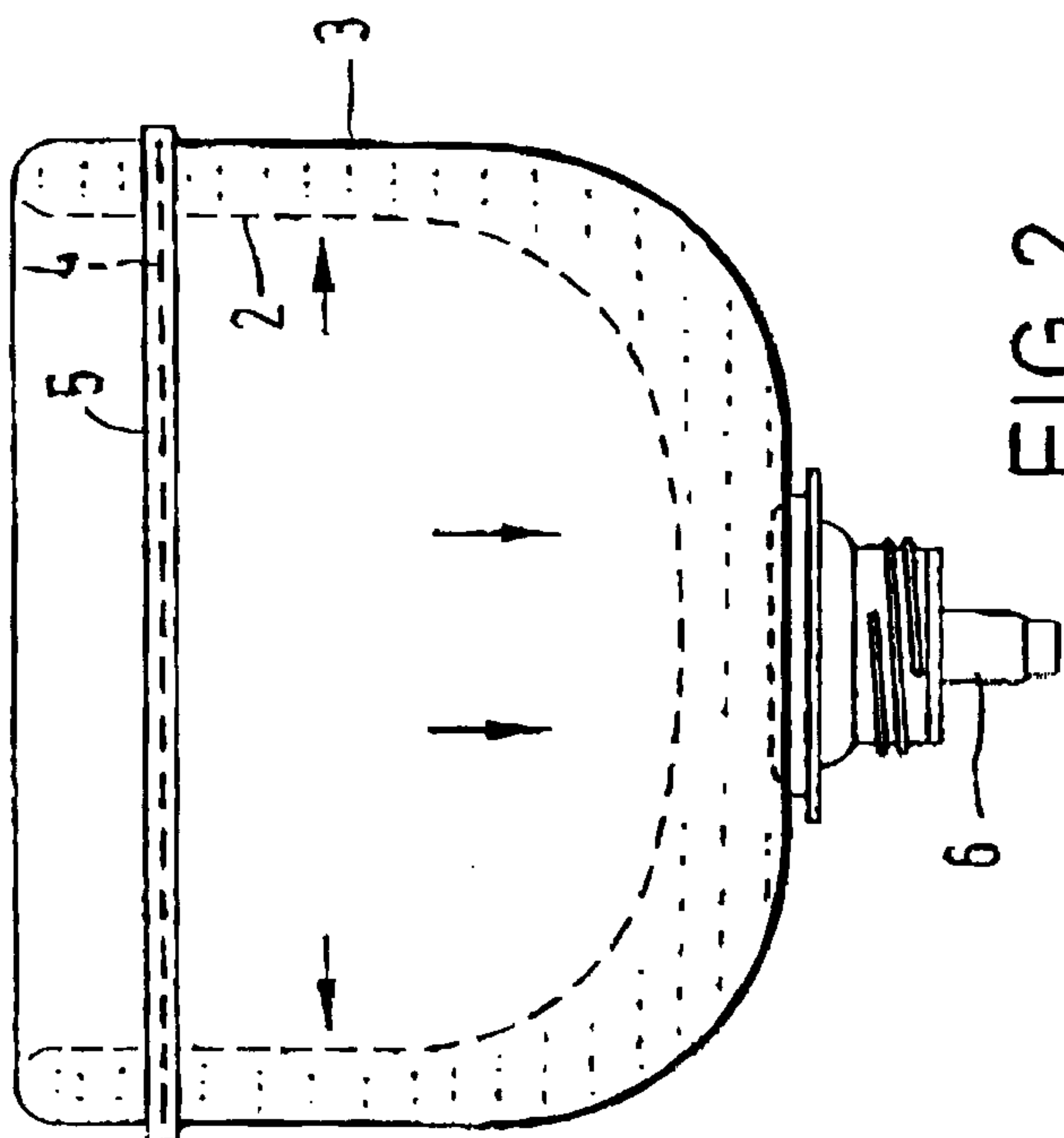


FIG. 2

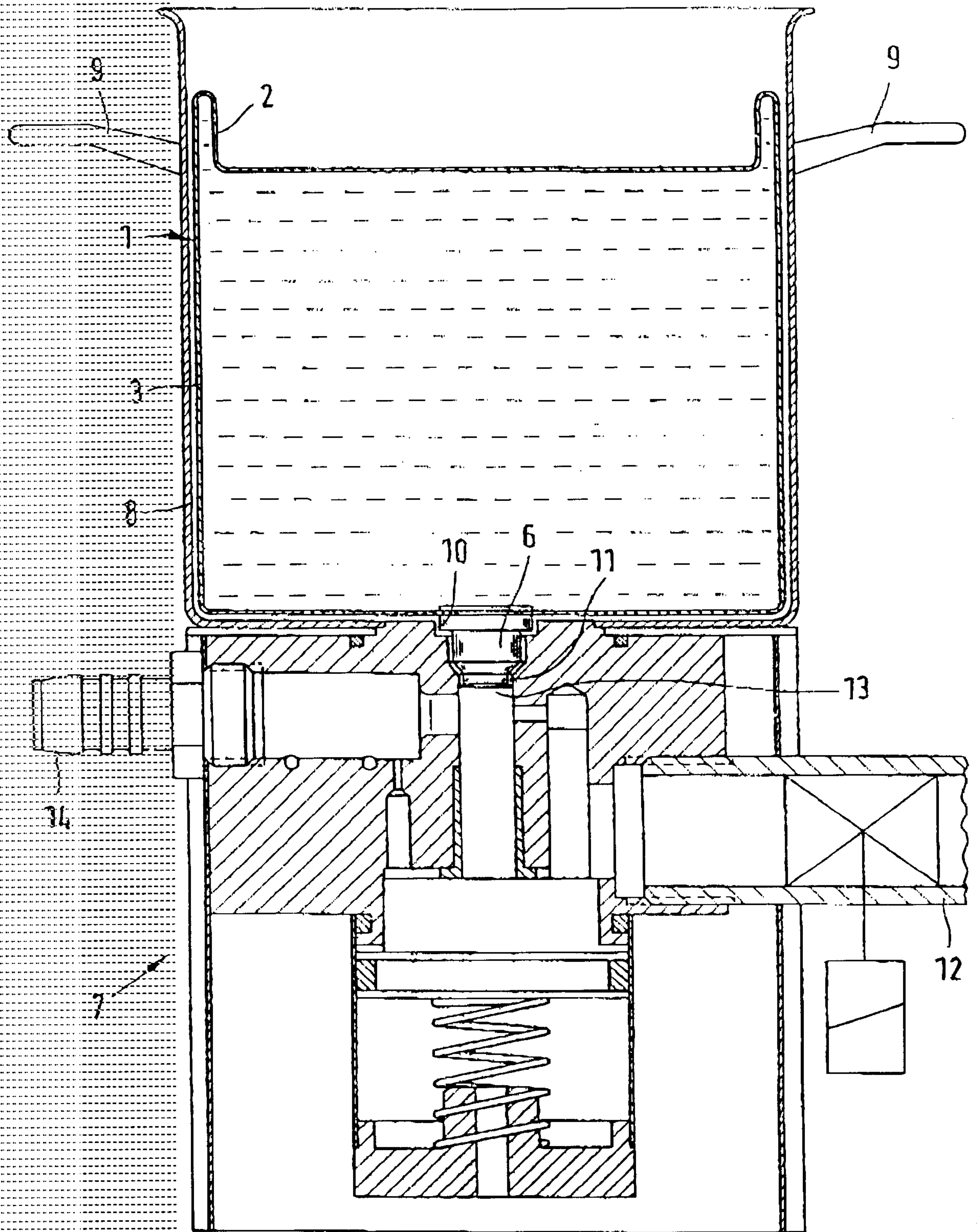


FIG. 3

