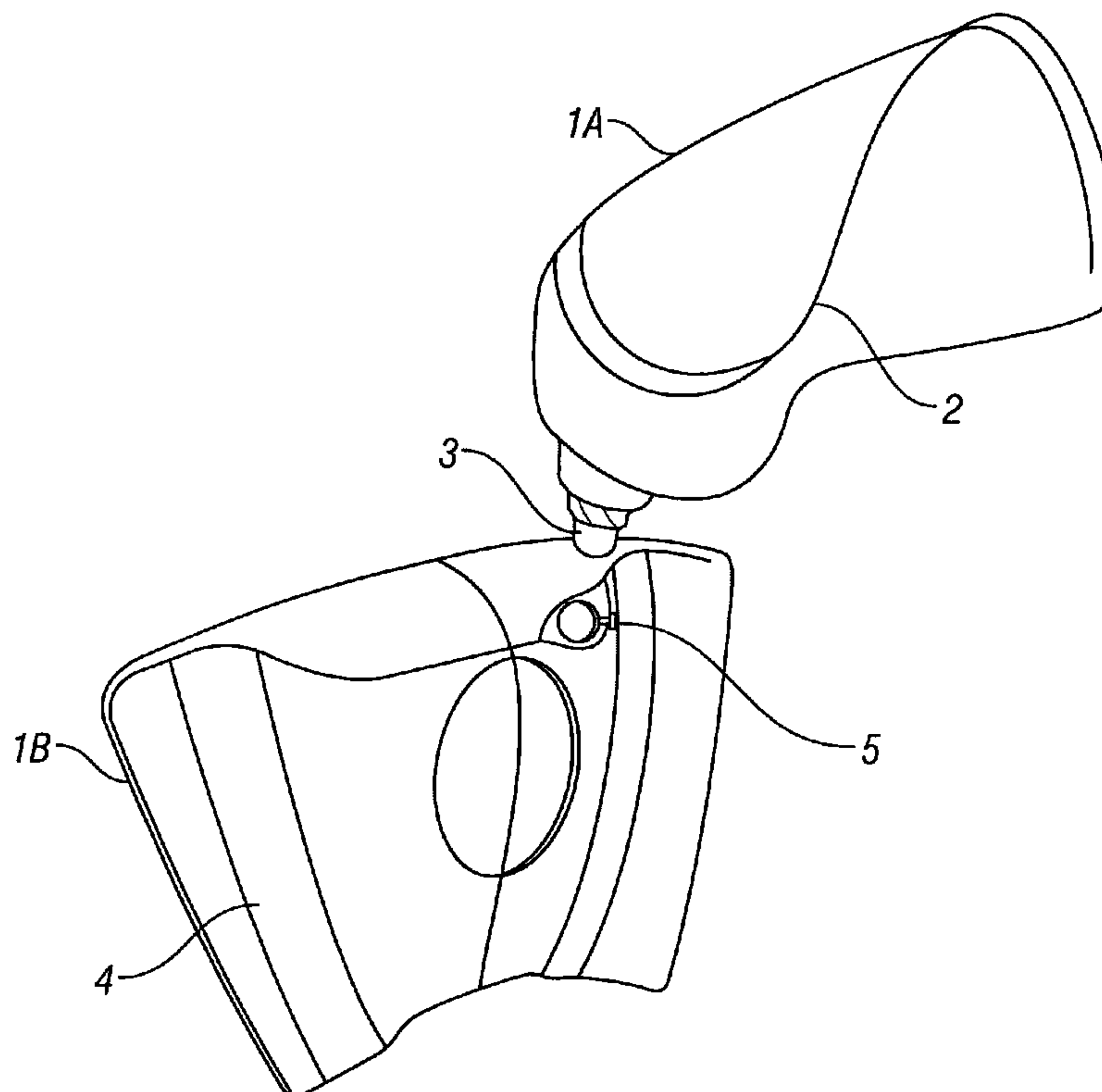




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(54) **Titre : SYSTEME DE REMPLISSAGE POUR UN RECIPIENT DE DETERGENT**  
(54) **Title: FILLING SYSTEM FOR A DETERGENT VESSEL**



(57) **Abrégé/Abstract:**

A filling system for a detergent vessel comprises a reservoir (2) having a dispensing nozzle (3) and a detergent vessel (16) having a filling spout (15). The nozzle has a collar with engagement means which when inserted into the filling spout engage a portion of the filling spout providing an effective seal.



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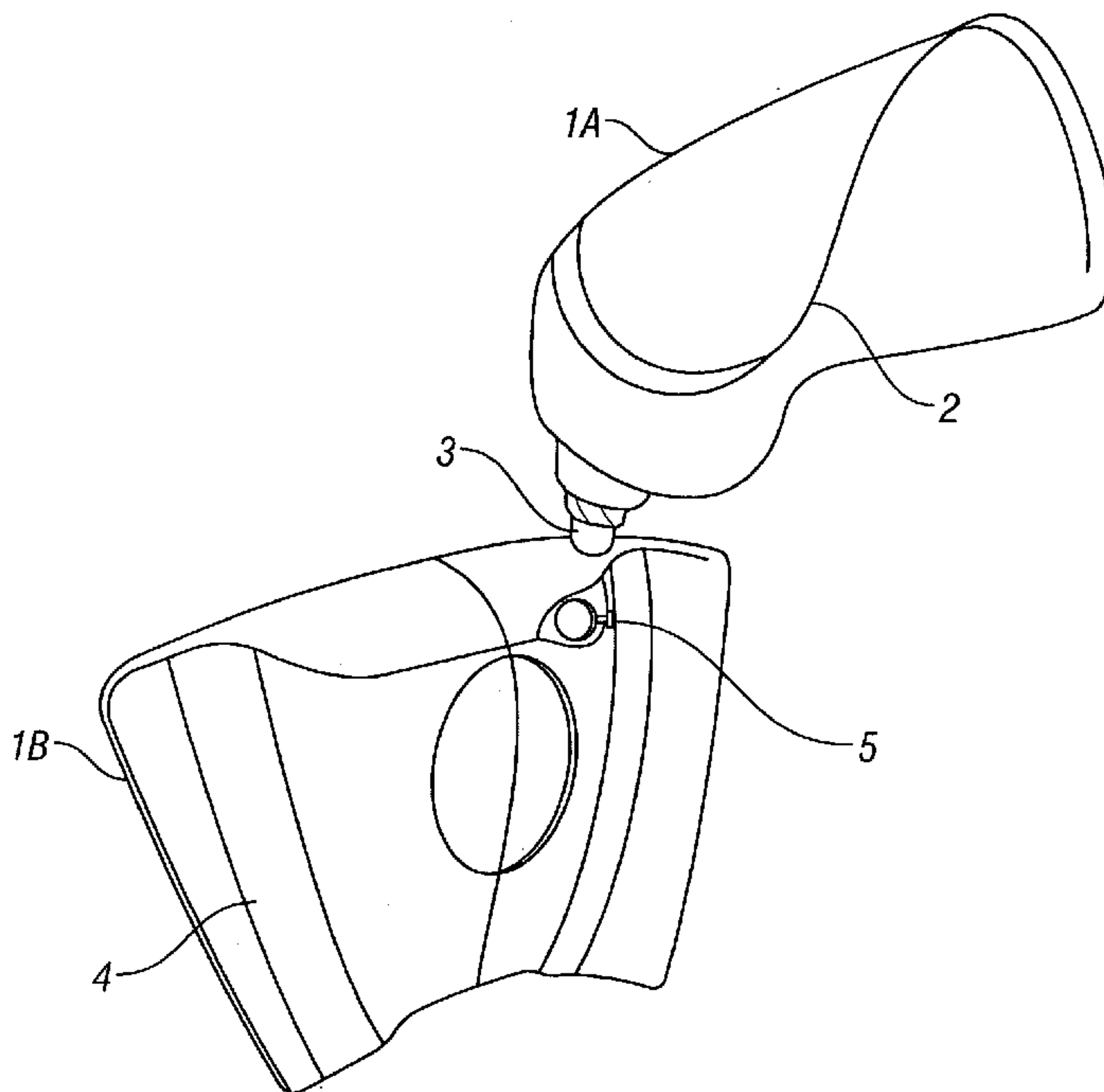
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(54) Title: FILLING SYSTEM



(57) Abstract: A filling system for a detergent vessel comprises a reservoir (2) having a dispensing nozzle (3) and a detergent vessel (16) having a filling spout (15). The nozzle has a collar with engagement means which when inserted into the filling spout engage a portion of the filling spout providing an effective seal.

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FILLING SYSTEM FOR A DETERGENT VESSEL

The present invention relates to a filling system for a  
5 detergent vessel.

Detergent vessels are commonplace in domestic / indus-  
trial environments. The vessels may be used for storage  
of detergent compositions or for dispense of detergents  
in use in a washing machine, over a single / number of  
10 washing cycles.

A problem exists with the use of such detergent vessels,  
where the vessel has to be filled with detergent from an-  
other detergent containing reservoir. Detergent composi-  
tions may not easily be transferred from one vessel to  
15 another. This problem arises because, in the case of  
powdered detergents it can be difficult to use an trans-  
ferring implement such as a spoon without spilling deter-  
gent. Similar problems occur when transferring liquid  
detergent compositions as the liquid compositions often  
20 have high viscosity.

Here it must be appreciated that most detergent composi-  
tions are aggressive / caustic to the skin of a user as  
the compositions commonly comprise antagonistic ingredi-  
ents such as bleaches / enzymes. Thus spillage of the  
25 detergent and subsequent contact of a user with the de-  
tergent should be minimised.

According to a first aspect of the present invention there is provided a filling system for a detergent vessel comprising a reservoir having a dispensing nozzle and a detergent vessel having a filling spout, the nozzle having a collar with engagement means which when inserted into the filling spout engages a portion of the filling spout providing an effective seal.

The system of the present invention enables the filling of a detergent vessel without any spillage of any detergent composition. Thus not only is a user is not brought into contact with any potentially caustic composition but also the problems of wastage of detergent composition are avoided. Furthermore as the detergent may be transferred from the reservoir to the vessel with only minimal contact with the atmosphere any potential harm to the detergent is minimised in the transfer process.

The engagement system may be any engagement system known in the art. Preferred examples of engagement systems include those based on mechanical (e.g. frictional) or magnetic operation. Most preferably the engagement system is mechanical in nature

It is preferred that the spout has a closure. Thus when the vessel is not being filled the danger of spillage of detergent through the spout / contamination of the detergent composition by material entering the spout is minimised. The closure generally comprises a flap that covers the bore of the spout. It is preferred that the flap is activated (moved into an open position) by insertion of the nozzle into the spout. It is preferred that the

flap has an associated bias means that bias the flap into an in-activated position in the absence of an activating force being applied.

5 One method of flap activation is by simply inserting the nozzle into the spout, such that frictional force (e.g. from a "friction fit") caused by interaction between the nozzle and the spout, brings the flap into an activated position. Another method of flap activation is by in-  
10 sserting the nozzle into the spout, such that the leading edge of the nozzle abuts against the flap, pushing the flap into an activated position. More preferably the flap is activated by application of a rotational force. This may be achieved by providing a lug on the nozzle and  
15 an angled slot disposed around the spout. Thus as the nozzle is inserted into the spout the lug engages an angled slot, further insertion of the nozzle into the spout causes the lugs to be propelled along the slot and effecting rotation of the slot and the attached closure.  
20 (Clearly a plurality of lugs and / or slots may be present. Also the positioning of the lug(s) / slot(s) on the nozzle / spout may be reversed / altered).

The flap activation may be brought about by a combination  
25 of individual steps (e.g. a plurality of steps from the paragraph above combined in a complex movement). For example the flap activation may be achieved in a "bayonet motion", a motion which involves a pushing motion and a twisting motion, with the individual steps being carried  
30 out in any order.

Additionally / alternatively the nozzle may have a closure. Such a nozzle closure, where present, preferable operates in a similar way to the closure on the spout.

5 Where a closure is present it is preferred that the closure is self closing. Namely it is preferred that the closure is able to close itself after use.

10 Generally the closure system comprises a plastics material such as polypropylene, polyethylene, polyvinylchloride or polyethylene terephthalate.

It is preferred that the detergent is a liquid detergent composition. Alternatively the detergent may be a flow-  
15 able solid (e.g. a granular) composition. The detergent composition may vary with the use for which it is intended. However, it will be understood that the detergent composition will comprise at least one of the conventional detergent actives such as a surfactant, a  
20 bleach, an enzyme, a pH modifying agent, a fragrance, a builder, a bleach activator, a colouring agent or a thickener.

Preferably one or both of the reservoir / vessel has a  
25 breather valve so that transfer of detergent is not hampered by the presence of air in either the vessel / reservoir.

The breather valve, where present, may be operated (in a  
30 similar or different mechanism) to the closure for the spout / nozzle. Namely the breather valve may be de-

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signed such that it is only operational when the nozzle/spout is operational.

According to a second aspect of the invention there is provided a detergent dispensing reservoir having a dispensing nozzle, 5 the nozzle having a collar with engagement means for engagement with a filling spout of a vessel.

Preferably the reservoir is in the form of a bottle with a suitable dispensing nozzle.

According to a third aspect of the invention there is provided 10 a detergent vessel having a filling spout, the filling spout having receiving means capable of engagingly interacting with a filling nozzle.

According to a fourth aspect of the invention, there is provided a filling system for a detergent vessel comprising a 15 reservoir having a dispensing nozzle and a detergent vessel having a filling spout, the nozzle having a collar with engagement means which when inserted into the filling spout engages a portion of the filling spout providing an effective seal, the spout having a closure, wherein the closure is 20 activated into an open position by insertion of the nozzle into the spout, wherein the closure is activated into an open position by rotation, wherein the engagement means has lugs which engage with angled slots disposed around the spout to effect rotation of the closure.

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5a

The detergent vessel may be used for the storage of a detergent. The detergent vessel is more preferably for use  
20 in the dispense of a detergent composition (e.g. in an automatic washing machine such as a laundry washing machine or a dishwashing machine). The vessel may be intended for use in a single washing cycle (i.e. releasing its contents in a single cycle) or may be intended for  
25 use over a plurality of washing cycles.

The application will now be described with reference to the following Figures, in which:-

30 Figure 1 is an perspective view of an separated reservoir and vessel according to the present invention;

Figure 2 is an exploded view of a nozzle of a preferred embodiment of a reservoir according to the invention;

Figure 3 is a cross-sectional view of a spout of a preferred embodiment of a vessel according to the invention;

Figures 4a to 4c are cross-sectional views of a spout / nozzle of a preferred embodiment of a vessel according to the invention; and

10

Figures 5a and 5b are cross-sectional views of a spout / nozzle of a preferred embodiment of a vessel according to the invention.

15

In Figure 1 it can be seen that the reservoir 1a comprises a housing 2 having a nozzle 3. Similarly it can be seen that the vessel 1b comprises a body 4 having a spout 5.

20

In Figure 2 more detail of a preferred embodiment of the nozzle 3 can be seen. The nozzle 3 has a plurality of axial incisions 6 (grooves) leading away from its terminus. Adjacent the incisions 6 there is a collar 7 which has a plurality of helical shaped lugs 8.

25

The nozzle 3 has a central bore 9. Disposed within the central bore 9 there is a biased ball valve 10, biased against a narrow section of the bore 9. This ball valve 10 prevents unwanted discharge of the contents of the

30

reservoir 1a unless pressure is applied against the valve 10.

In Figure 3 more detail of a preferred embodiment of the spout 5 can be seen. The spout 5 comprises a cup 11 which is fixedly mounted to the vessel 1b. The cup 11 has a cup aperture 12. The cup 11 has a plurality of raised vanes 13 disposed around its edge.

The spout 5 has a closure 14. The closure 14 may be rotated relative to the spout 5. The closure 14 has a closure aperture 15. To allow fluid communication into the vessel 1b the closure aperture 15 and the cup aperture 12 has to be in at least partial alignment. The closure 14 has an associated collar 16 which is fixed to the closure 14 and similarly may be rotated relative to the vessel 1b. The inside of the collar 16 has a number of angled grooves 17.

In use the nozzle 3 is brought into alignment with the spout 5. The nozzle 3 is inserted into the spout 5. This insertion causes engagement of the lugs 8 with the angled grooves 17 and engagement of the incisions 6 with the raised vanes 13. Engagement of the lugs 8 with the angled grooves 17 and further insertion of the nozzle 3 into the spout 5 causes the closure 14 to be rotated relative to the vessel 1b, bringing the closure aperture 15 into alignment with the cup aperture 12. Detergent may then be dispensed from the reservoir 1a into the vessel 1b, working against the spring valve 10.

In Figures 4a to 4c more detail of a preferred embodiment of the nozzle 3 and spout 5 can be seen.

5 The spout 5 comprises a cup 11 which is fixedly mounted to the vessel 1b. The cup 11 has a cup aperture 12.

The spout 5 has a closure 14. The closure 14 may be rotated relative to the spout 5. The inside of the closure 14 has a number of angled grooves 17.

10

The closure 14 has a closure aperture 15. To allow fluid communication into the vessel 1b the closure aperture 15 and the cup aperture 12 has to be in at least partial alignment.

15

In use the nozzle 3 is brought into alignment with the spout 5. The nozzle 3 is inserted into the spout 5. This insertion causes engagement of the lugs 8 with the angled grooves 17.

20

Engagement of the lugs 8 with the angled grooves 17 and further insertion of the nozzle 3 into the spout 5 causes the closure 14 to be rotated relative to the vessel 1b, bringing the closure aperture 15 into alignment with the  
25 cup aperture 12.

Before the detergent can flow a twisting motion has to be applied to the nozzle 3. This twisting motion causes a biased nozzle closure 14a to be rotated relative to the  
30 nozzle and thus opening a nozzle discharge outlet 18.

Detergent may then be dispensed.

In Figures 5a and 5b more detail of a preferred embodiment of the nozzle 3 and spout 5 can be seen.

- 5 The nozzle 3 comprises a closure valve 19 comprising a flat plate 19a and a stem 19b. The valve 19 is biased into a closed position by a deformable spring 20 in the form of a dome.
- 10 The spout 5 comprises a closure valve 21 comprising a flat plate 21a and a stem 21b. The valve 21 is biased into a closed position by a deformable spring 22 in the form of a dome.
- 15 In use the nozzle 3 is brought into alignment with the spout 5. The nozzle 3 is inserted into the spout 5. This insertion causes abutment / engagement of the valve stems 19b and 21b. Further insertion of the nozzle 3 into the spout 5 causes movement of the valves 19 and 21
- 20 against their springs 20 and 22 respectively.

Detergent may then be dispensed.

- 25 It will be appreciated that the description of the diagrams shall not be taken to limit the scope of the invention in any way.

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CLAIMS:

1. A filling system for a detergent vessel comprising a reservoir having a dispensing nozzle and a detergent vessel having a filling spout, the nozzle having a collar with  
5 engagement means which when inserted into the filling spout engages a portion of the filling spout providing an effective seal, the spout having a closure, wherein the closure is activated into an open position by insertion of the nozzle into  
10 the spout, wherein the closure is activated into an open position by rotation, wherein the engagement means has lugs which engage with angled slots disposed around the spout to effect rotation of the closure.
2. A system according to claim 1, wherein the system comprises a plastics material.
- 15 3. A system according to claim 1, wherein the detergent is a liquid composition.

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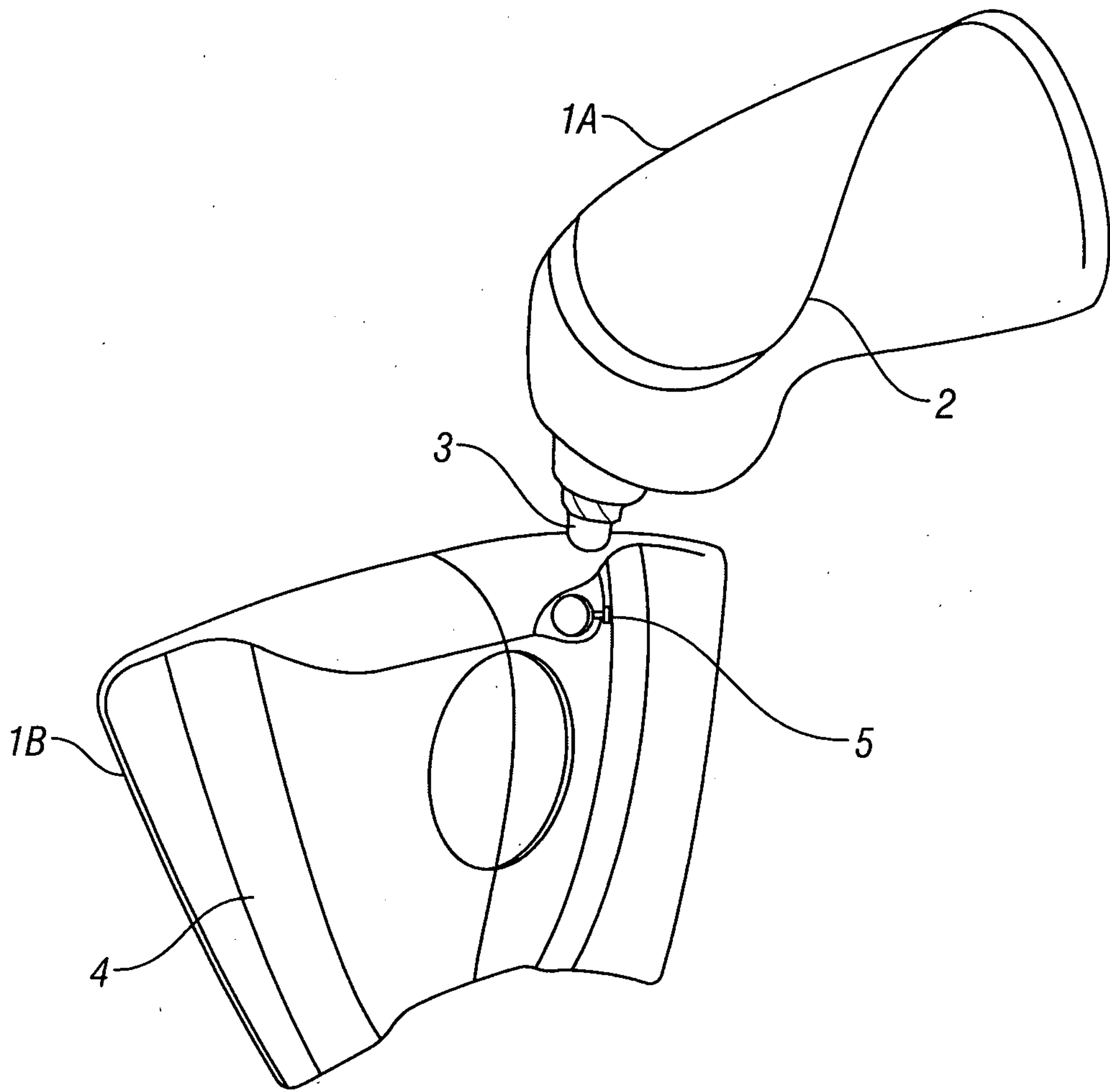


FIG. 1

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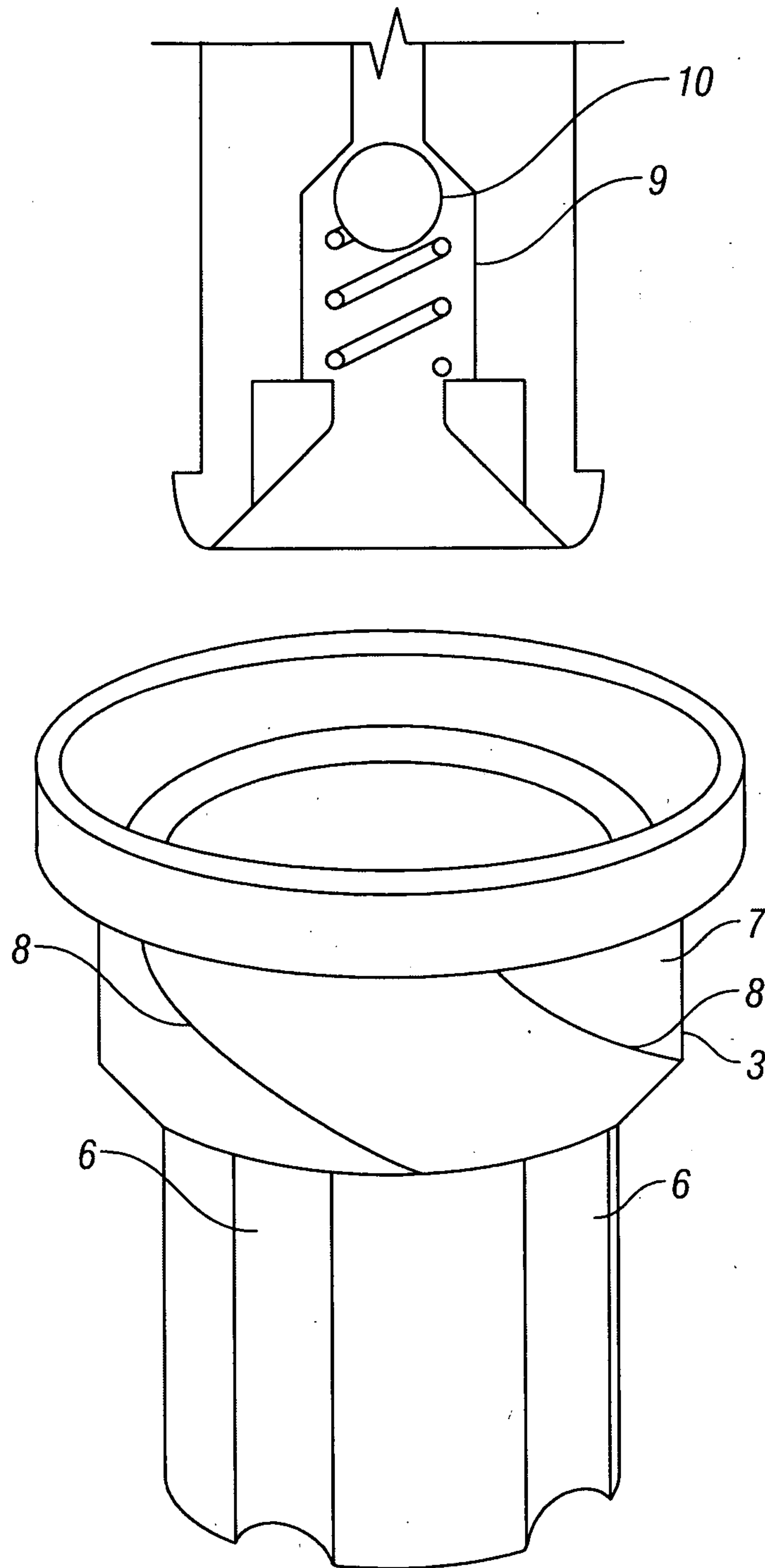


FIG. 2

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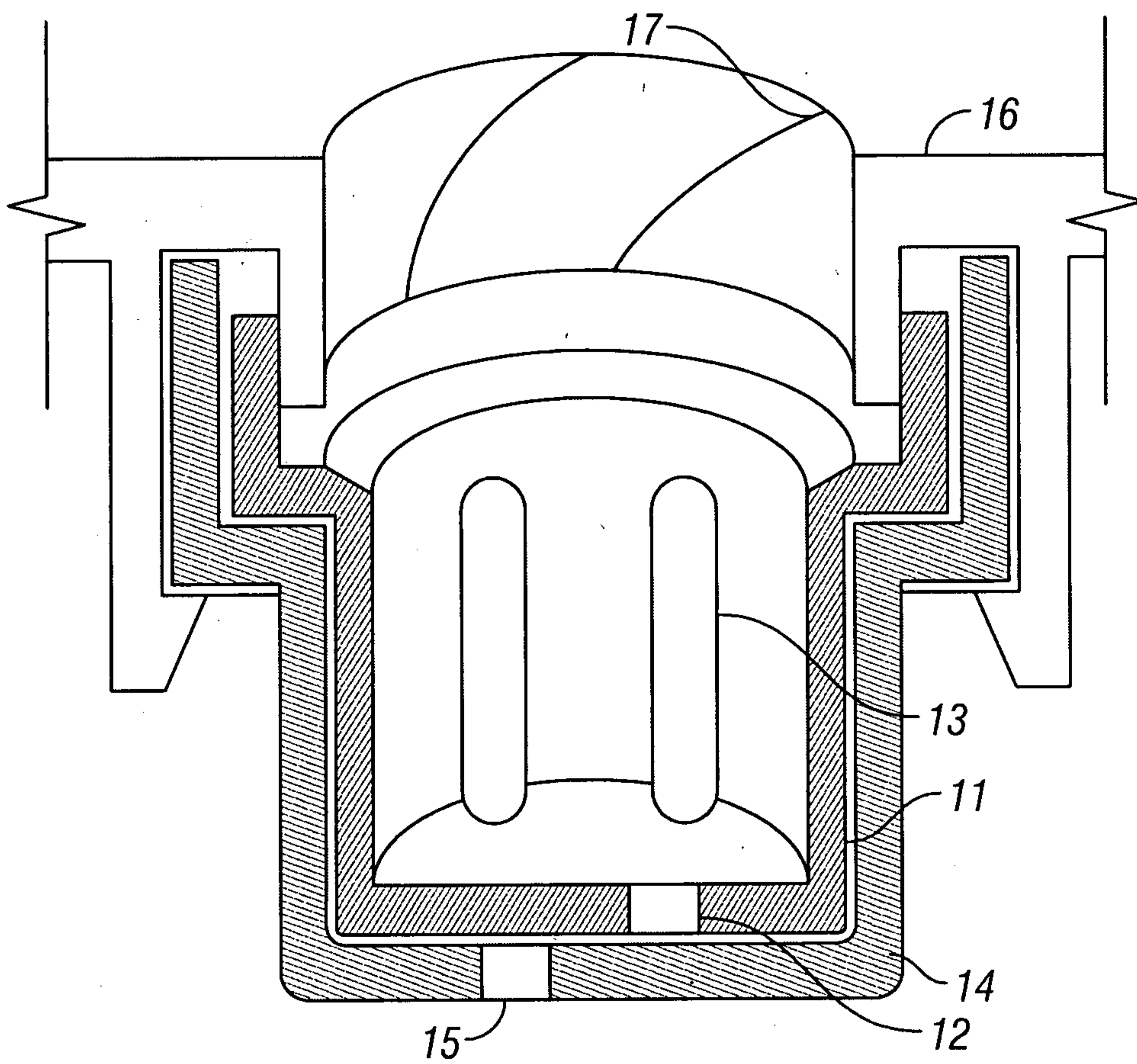


FIG. 3

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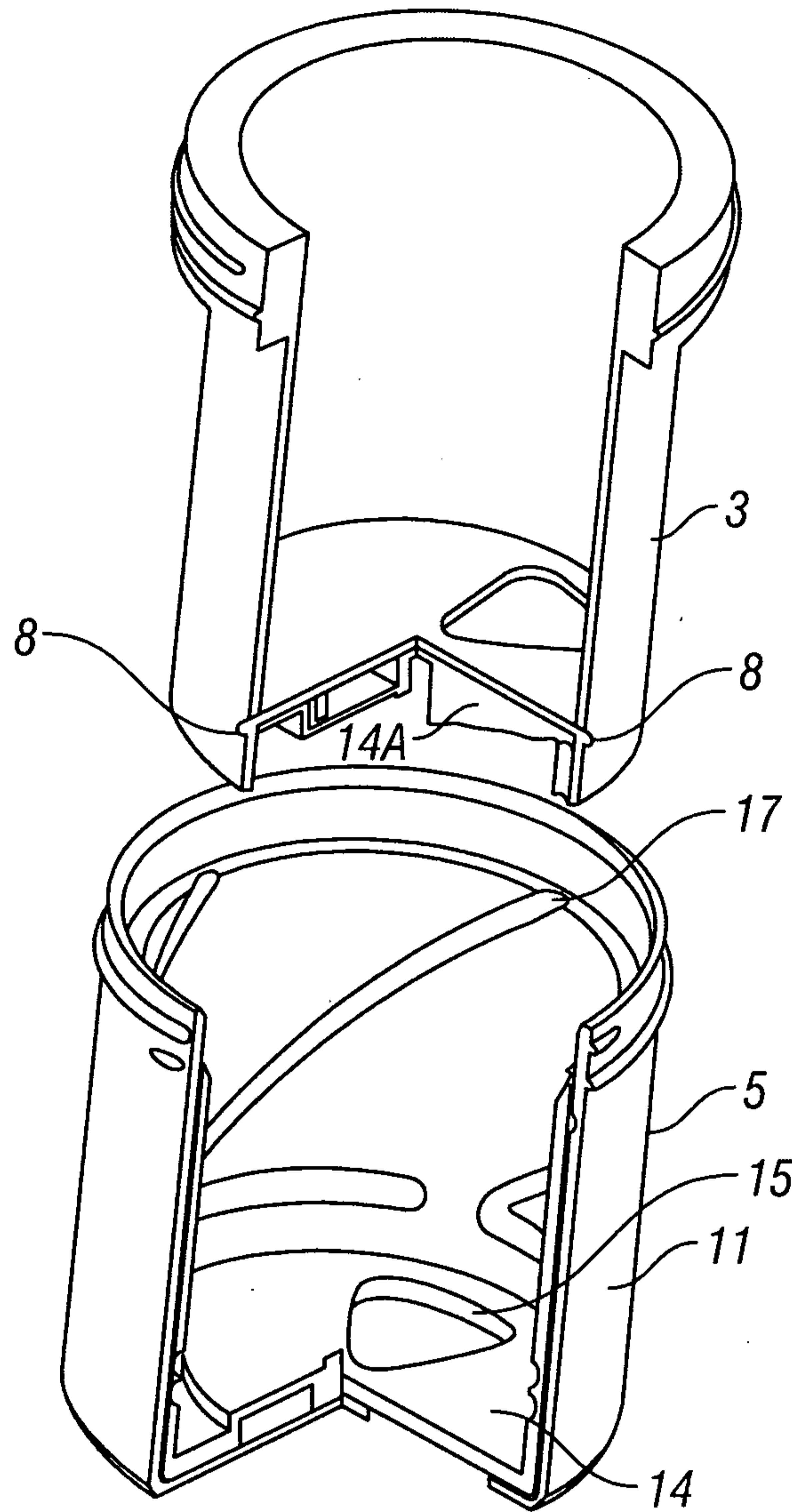
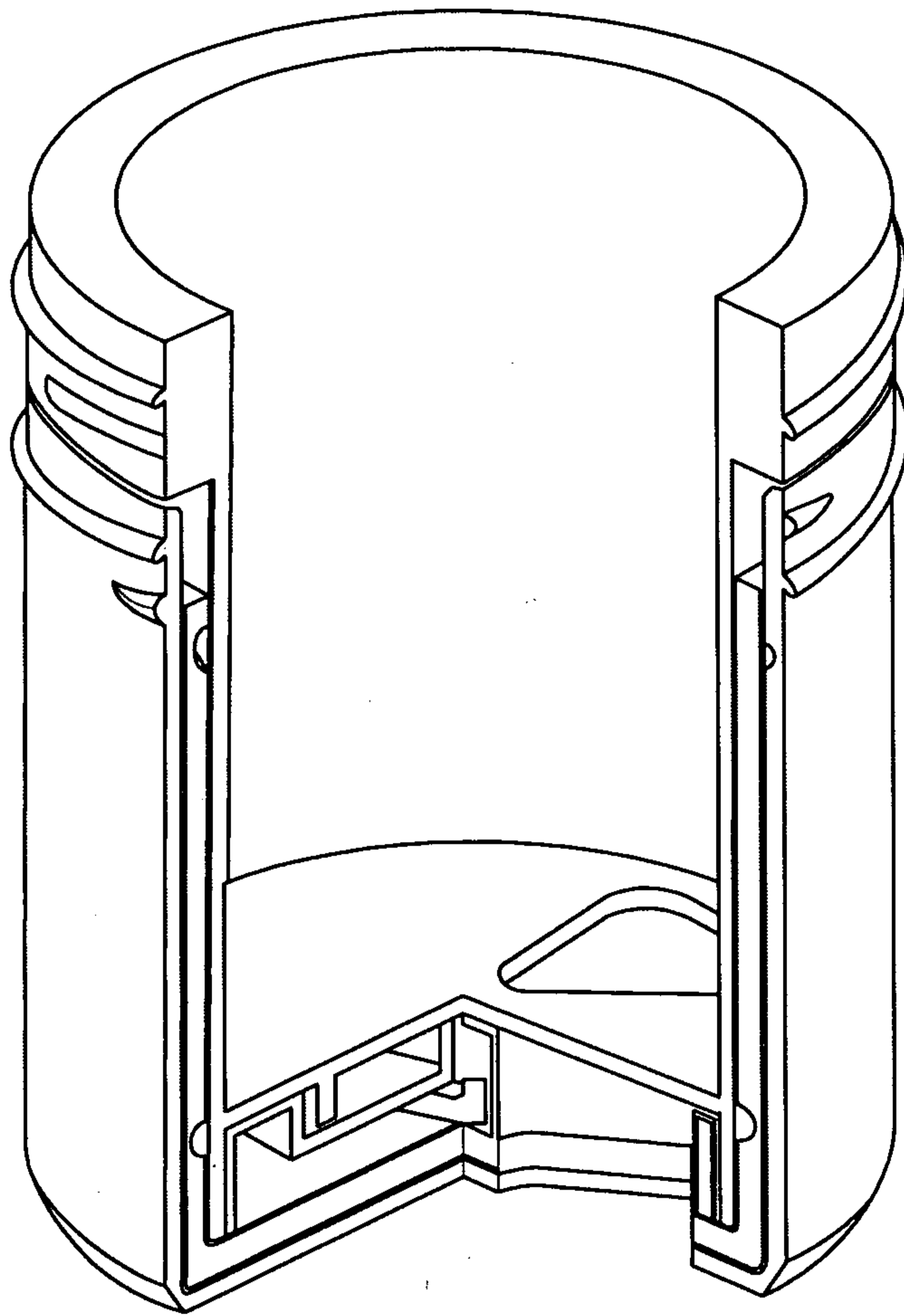


FIG. 4A

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**FIG. 4B**

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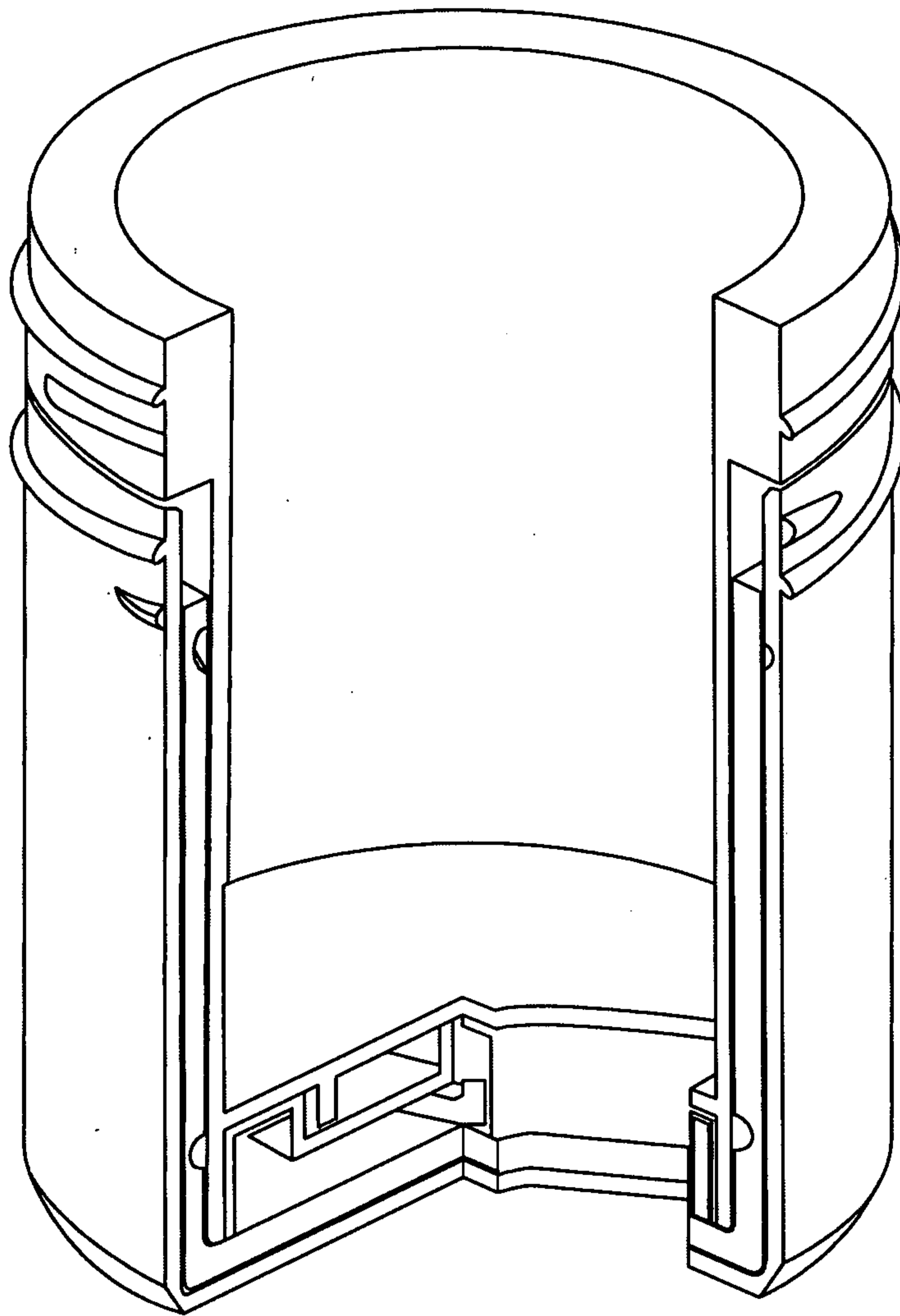


FIG. 4C

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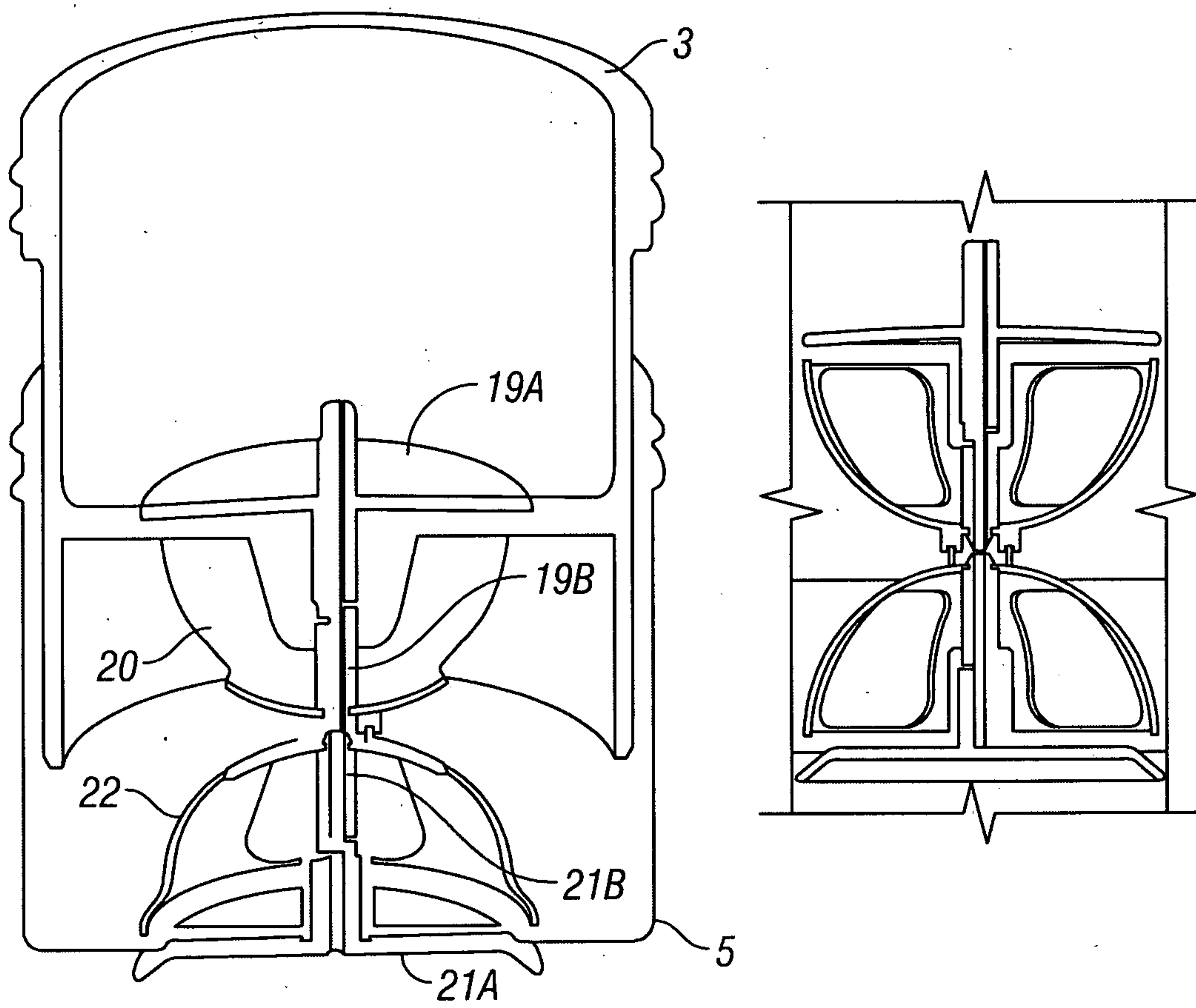
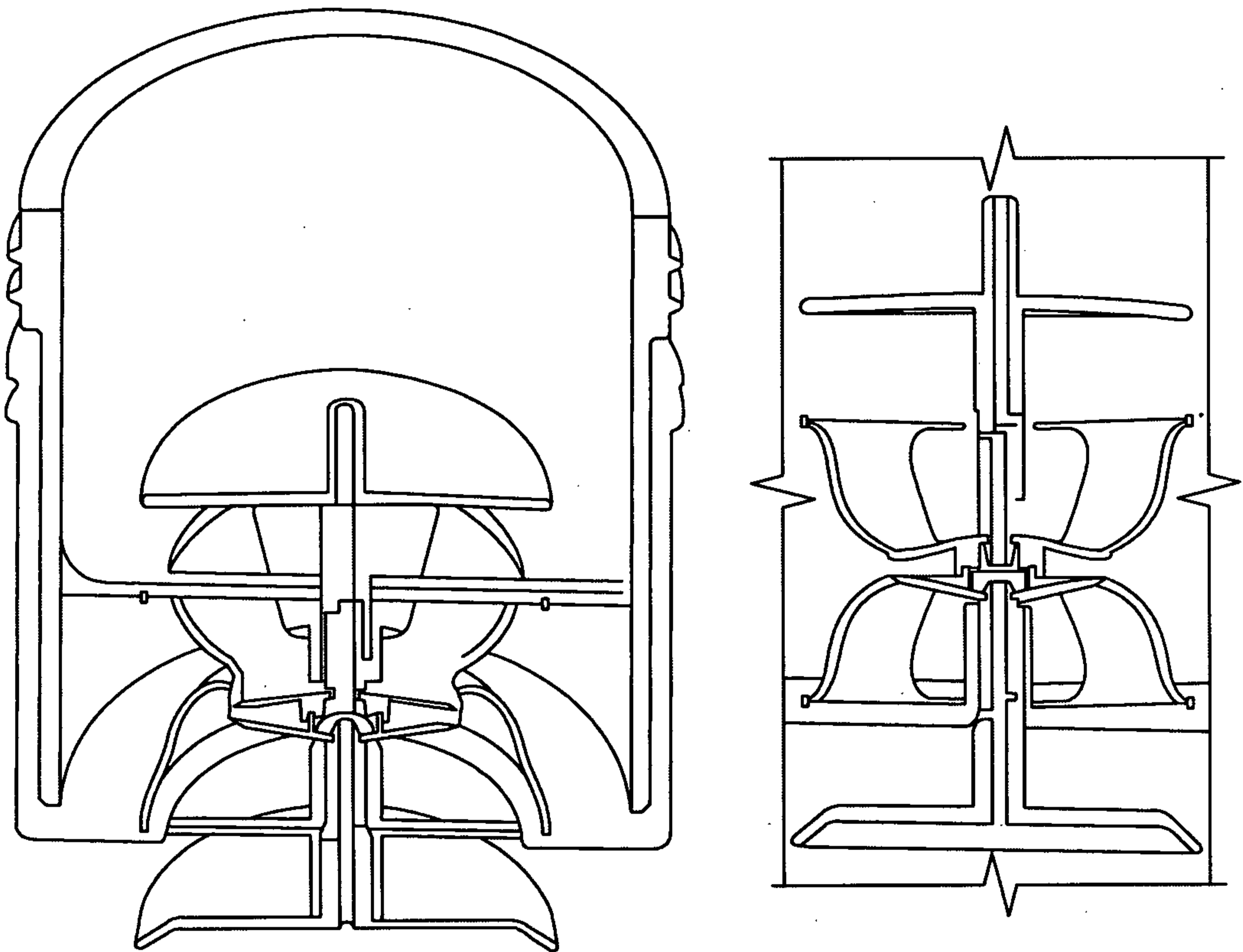


FIG. 5A

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**FIG. 5B**

