

April 4, 1939.

R. BERGERIOUX

2,152,862

CONTAINER FOR DISPENSING MATERIALS

Filed Sept. 17, 1937

2 Sheets-Sheet 1

Fig. 1

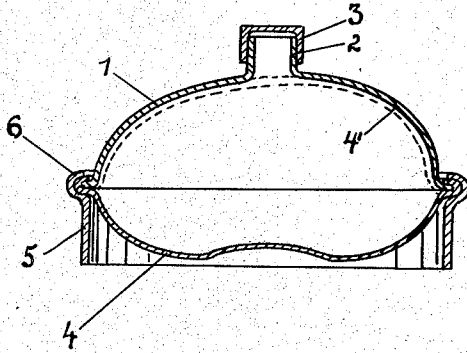


Fig. 2

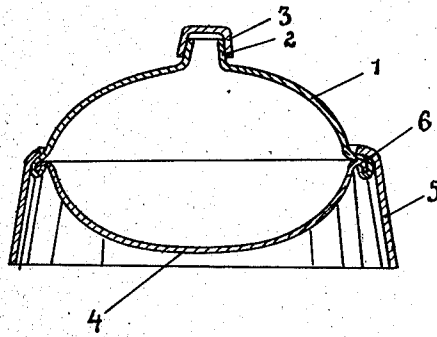


Fig. 3.

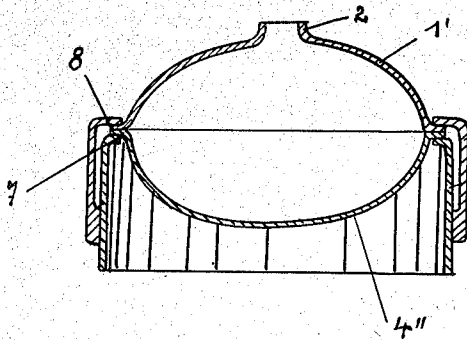


Fig. 4.

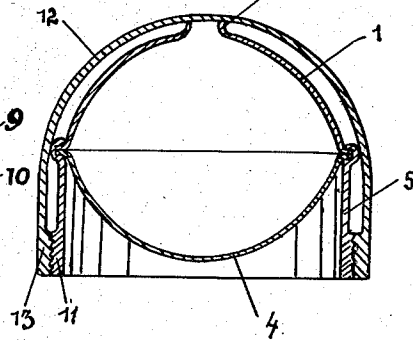


Fig. 5.

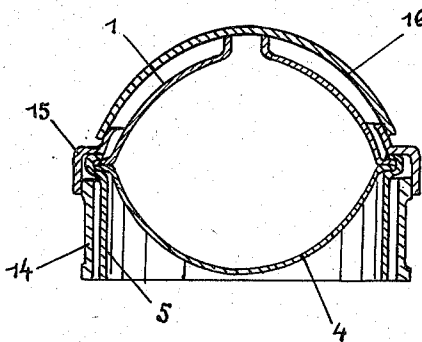
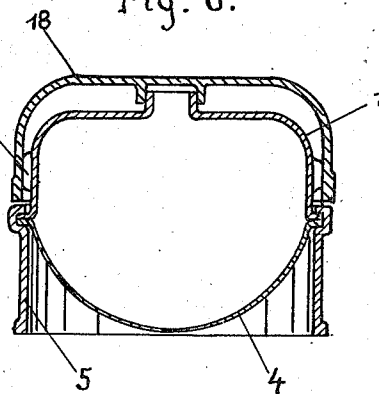


Fig. 6.



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Fig. 7.

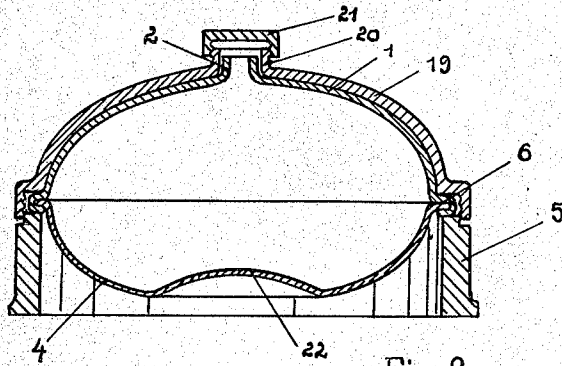


Fig. 8.

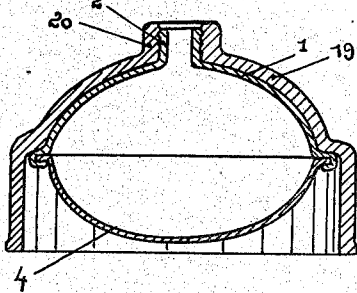


Fig. 9.

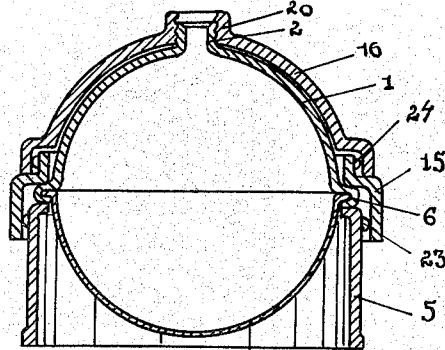


Fig. 10.

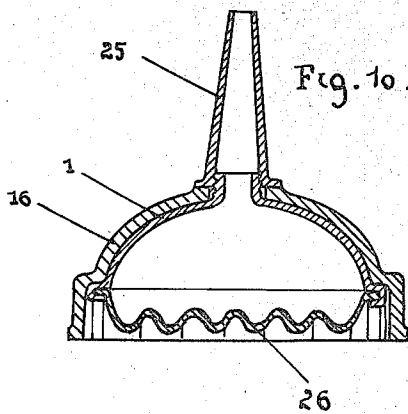
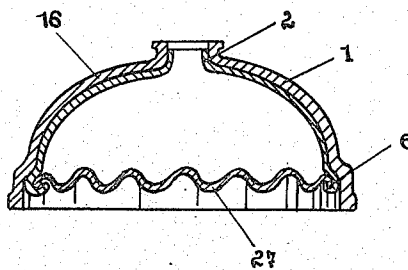


Fig. 11.



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UNITED STATES PATENT OFFICE

2,152,862

CONTAINER FOR DISPENSING MATERIALS

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Application September 17, 1937, Serial No. 164,297
In France September 30, 1936

18 Claims. (Cl. 221-60)

The invention relates to a container for dispensing materials comprising a permanent portion and a deformable flexible portion which is pushed progressively inwards up to the inner wall of the permanent portion to dispense the contents of the container.

Containers for dispensing materials have already been proposed which comprise a permanent portion and a deformable flexible diaphragm, but such containers are useless in practice, either because their diaphragms are not sufficiently protected, or because the means proposed for assembling the two portions are very costly or very difficult to apply.

The present invention has for its object to avoid these drawbacks by means of a dispensing container comprising a permanent portion provided with an outlet nozzle, a deformable flexible diaphragm and a protecting skirt.

According to a first embodiment, the three component elements of the container, viz: the permanent portion, the flexible diaphragm and the protecting skirt are assembled together in a single crimping ring.

According to other embodiments, the protecting skirt which is removable or not, is fixed on the container by clamping, screwing or any other means. The permanent portion can be held in shape either by the rigid formation of its wall, or by a rigid outer cap. The cap and the protecting skirt as a whole can form a case in which is arranged the container which forms a refill cartridge.

The invention further includes a container the deformable portion of which comprises bellows.

Several embodiments of the invention are illustrated in the accompanying drawings by way of example.

Fig. 1 shows a container wherein the protecting skirt is fixed;

Figs. 2 and 3 show containers having removable protecting skirts;

Figs. 4 to 6 show containers provided with a lid forming a stopper;

Figs. 7 to 10 show different embodiments of containers arranged in a case;

Fig. 11 shows a container wherein the deformable portion comprises bellows.

The dispensing container shown in Fig. 1 comprises a permanent portion 1 provided with an outlet nozzle 2, having a stopper 3, a deformable flexible diaphragm 4 and a protecting skirt 5. The three parts are assembled together at 6 by a single or repeated crimping.

The container can be made of tin, aluminum,

paper, metallized paper, plastic material, transparent or translucent material or any other appropriate material. The assembly of the three component parts by crimping permits of very low production costs and thereby ensures a very great economy relatively to the known containers. Furthermore, the protecting skirt enables the container to be held more conveniently in the hand, ensures the perfect preservation of its outer shape and consequently its stability. The filling of this container is most advantageously effected in the following manner: The flexible diaphragm is arranged before filling against the inner wall of the permanent portion and is turned inside out by the pressure of the product introduced through the nozzle. To cause the contents of the container to come out, it suffices to press the flexible diaphragm 4 with the thumb or a finger, and said flexible diaphragm will progressively take up the inside shape of the permanent wall 1.

The removable protecting skirt 5 shown in Fig. 2 is held on the crimping ring 6 of the two caps by merely forcing, owing to its slightly conical shape. The crimping ring will be advantageously provided with a flange or a recess to ensure a firmer fit of the removable skirt which could be fixed by any other known means such as screwing, bayonet closure, etc.

The dispensing container shown in Fig. 3 comprises two parts 1' and 4'', each provided with a flat collar 7 and 8, the two collars being held together by a protecting skirt made in two parts 9, 10 which screw or fit firmly into each other.

This container can be delivered in separate parts for assembling by the user or by the retailer after the two caps have been filled. The permanent cap 1 can be made of rigid or of flexible material; in the latter case it is held in shape solely owing to its being fixed to the protecting skirt.

According to the embodiment shown in Fig. 4, the protecting skirt 5, which is fixed on the ring 6, is provided with a screw thread 11, permitting of the fixing of a case 12 forming a cover and having a corresponding thread 13, shown in the drawing, or the fixing of a case provided with a nozzle.

Fig. 5 shows a container assembled by crimping to a protecting skirt 5, the assembly being arranged in a case formed by an outer protecting skirt 14 fixed by means of a clamping ring 15 and having a cover 16. This embodiment enables the cartridge to be transported without

packing and optionally without a removable stopper.

According to an embodiment shown in Fig. 6, the permanent portion of the container is provided with ribs 17. On said ribs 17 is fitted the closure 18 forming a cover. The ribs have the advantage of reinforcing the permanent portion. The ribs can be replaced by nipples, or by a screw thread or the beginning of a screw thread formed on the permanent portion.

In order to obtain an easy and efficient fixing of the stopper forming a cover so that same can be readily fitted or removed, the following means can be employed: a stopper forming a cover having a resilient wall on a cartridge having a rigid wall; a stopper forming a cover having a rigid wall on a cartridge having a resilient wall; a stopper forming a cover having a rigid wall on a cartridge likewise having a rigid wall but provided with resilient ribs.

The dispensing container shown in Fig. 7 has a case formed by a cap 19 carrying the nozzle 20 provided with a stopper 21 and secured by screwing to a protecting skirt 5.

In this construction the container forming a refill cartridge containing the product to be dispensed, comprises an upper cover 19 provided with a nozzle 20 and secured to the deformable diaphragm 4 by crimping at 6. The cartridge is held stationary in the case by clamping its crimping ring 6 between the upper cover 19 and the protecting skirt 5. To reduce the height of the protecting skirt, the deformable diaphragm can have a concave central portion 22.

In Fig. 8, the upper cap 19 and the protecting skirt 5 are integral. The nozzle 20 of the case is internally threaded and serves for assembling the case to the threaded nozzle 2 of the cartridge.

Fig. 9 shows a container comprising a permanent portion 1 provided with a nozzle 2 and secured to a deformable flexible diaphragm 4. A protecting skirt 5 is mounted by means of a clamping ring 15 on the crimping ring 6. On said clamping ring is fixed a cap 16 secured to the nozzle 20. The clamping of the ring 15 is ensured by projections 23 arranged on the skirt and the clamping of the cap 16 is effected by projections 24 arranged on the ring 15, or by any other known means, for example screwing, clamping, bayonet joint, etc.

Fig. 10 shows a dispensing container provided with a tubular nozzle 25 enabling the container to be used as an oil can. The nozzle can be fixed on the case or, as shown in the drawings, screwed on the threaded nipple 2 of the cartridge, so that the case 16 is clamped between the permanent portion 1 of the cartridge and the collar 26 of the nozzle 25.

The invention furthermore includes two novel constructions of the refill cartridge. In Fig. 10, the deformable portion of the cartridge is partly formed by bellows 26 having concentric elements. In Fig. 11, the cartridge is formed by a permanent cap 1 which is closed by bellows 27 or by a deformable diaphragm. This cartridge can be employed in combination with the various cases described above.

What I claim as new and desire to procure by Letters Patent, is:—

1. A container for dispensing materials, comprising in combination: a permanent upper part provided with an outlet port; means for closing said outlet port; a deformable diaphragm closing the lower end of said upper part and adapted to be progressively pushed by direct finger pressure

inwards up to the inner wall of the permanent upper part for dispensing the contents of the container, said permanent part and said deformable diaphragm being jointed at their peripheries; and a protecting skirt surrounding and protecting said deformable diaphragm and the joint between the upper part and the deformable diaphragm.

2. A container for dispensing materials, comprising in combination: a permanent upper part provided with an outlet port; means for closing said outlet port; a deformable diaphragm closing the lower end of said upper part and adapted to be progressively pushed by direct finger pressure inwards up to the inner wall of the permanent upper part for dispensing the contents of the container, said permanent part and said deformable diaphragm being jointed at their peripheries; and a protecting skirt surrounding and protecting said deformable diaphragm and the joint between the upper part and the deformable diaphragm, said protecting skirt forming also the support and base of the container.

3. A container for dispensing materials, comprising in combination: a permanent upper part provided with an outlet port; means for closing said outlet port; a deformable diaphragm closing the lower end of said upper part and adapted to be progressively pushed by direct finger pressure inwards up to the inner wall of the permanent upper part for dispensing the contents of the container, said permanent part and said deformable diaphragm being jointed at their peripheries; and a protecting skirt surrounding and protecting said deformable diaphragm and the joint between the upper part and the deformable diaphragm, said protecting skirt being mounted upon the joint between the permanent part and the deformable diaphragm.

4. A container for dispensing materials, comprising in combination: a permanent upper part provided with an outlet port; means for closing said outlet port; a deformable diaphragm closing the lower end of said upper part and adapted to be progressively pushed by direct finger pressure inwards up to the inner wall of the permanent upper part for dispensing the contents of the container, said permanent part and said deformable diaphragm being jointed at their peripheries by crimping; and a protecting skirt surrounding and protecting said deformable diaphragm and the joint between the upper part and the deformable diaphragm.

5. A container for dispensing materials, comprising in combination: a permanent upper part provided with an outlet port; means for closing said outlet port; a deformable diaphragm closing the lower end of said upper part and adapted to be progressively pushed by direct finger pressure inwards up to the inner wall of the permanent upper part for dispensing the contents of the container, said permanent part and said deformable diaphragm being jointed at their peripheries; and a removable protecting skirt surrounding and protecting said deformable diaphragm and the joint between the upper part and the deformable diaphragm.

6. A container for dispensing materials, comprising in combination: a permanent upper part provided with an outlet port; means for closing said outlet port; a deformable diaphragm closing the lower end of said upper part and adapted to be progressively pushed by direct finger pressure inwards up to the inner wall of the permanent upper part for dispensing the contents of the container, said permanent part and said deformable diaphragm being jointed at their periph-

eries; and a protecting skirt surrounding and protecting said deformable diaphragm and the joint between the upper part and the deformable diaphragm, said protecting skirt being frictionally mounted upon the joint between the permanent part and the deformable diaphragm.

7. A container for dispensing materials, comprising in combination: a permanent upper part provided with an outlet port; means for closing said outlet port; a deformable diaphragm closing the lower end of said upper part and adapted to be progressively pushed by direct finger pressure inwards up to the inner wall of the permanent upper part for dispensing the contents of the container, said permanent part and said deformable diaphragm being jointed at their peripheries; and a protecting skirt surrounding and protecting said deformable diaphragm and the joint between the upper part and the deformable diaphragm, said protecting skirt being mounted upon said joint by means of an extension covering the permanent upper part.

8. A container for dispensing materials, comprising in combination: a permanent upper part provided with an outlet port; means for closing said outlet port; a deformable diaphragm closing the lower end of said upper part and adapted to be progressively pushed by direct finger pressure inwards up to the inner wall of the permanent upper part for dispensing the contents of the container, said permanent part and said deformable diaphragm being jointed at their peripheries; and a protecting skirt surrounding and protecting said deformable diaphragm and the joint between the upper part and the deformable diaphragm, said protecting skirt being mounted upon said joint by means of an extension covering the permanent upper part, said extension carrying means for closing the port in the upper part.

9. A container for dispensing materials, comprising in combination: a permanent upper part provided with an outlet port; means for closing said outlet port; a deformable diaphragm closing the lower end of said upper part and adapted to be progressively pushed by direct finger pressure inwards up to the inner wall of the permanent upper part for dispensing the contents of the container, said permanent part and said deformable diaphragm being jointed at their peripheries; and a protecting skirt surrounding and protecting said deformable diaphragm and the joint between the upper part and the deformable diaphragm, said closing means being constituted by a member covering the upper part.

10. A container for dispensing materials, comprising in combination: a permanent upper part provided with an outlet port; means for closing said outlet port; a deformable diaphragm closing the lower end of said upper part and adapted to be progressively pushed by direct finger pressure inwards up to the inner wall of the permanent upper part for dispensing the contents of the container, said permanent part and said deformable diaphragm being jointed at their peripheries; and a protecting skirt surrounding and protecting said deformable diaphragm and the joint between the upper part and the deformable diaphragm, said closing means being constituted by an outer casing covering both the skirt and the upper part.

11. A container for dispensing materials, comprising in combination: a permanent upper part provided with an outlet port; means for closing said outlet port; a deformable diaphragm closing

the lower end of said upper part and adapted to be progressively pushed by direct finger pressure inwards up to the inner wall of the permanent upper part for dispensing the contents of the container, said permanent part and said deformable diaphragm being jointed at their peripheries; and a protecting skirt surrounding and protecting said deformable diaphragm and the joint between the upper part and the deformable diaphragm, said deformable diaphragm being in the form of a bellows.

12. A container for dispensing materials comprising in combination: a permanent upper part provided with an outlet nozzle; means for closing said nozzle; a deformable diaphragm for closing the lower end of said upper part adapted to be progressively pushed by direct finger pressure inwards up to the inner wall of the permanent upper part for dispensing the contents of the container, said permanent upper part and deformable diaphragm being jointed at their peripheries; a removable protecting skirt surrounding said diaphragm and covering the joint between the upper part and the diaphragm; and means for detachably fixing said protecting skirt, comprising a clamping ring mounted upon said joint, said joint being located between said clamping ring and the upper end of the skirt.

13. A container for dispensing materials, comprising in combination: a permanent upper part provided with an outlet nozzle; means for closing said nozzle; a deformable diaphragm for closing the lower end of said upper part and adapted to be progressively pushed by direct finger pressure inwards up to the inner wall of the permanent part for dispensing the contents of the container; a protecting skirt surrounding said deformable diaphragm and the joint between the upper part and the deformable diaphragm, said permanent part and deformable diaphragm and skirt being joined together by crimping.

14. A container for dispensing material comprising in combination: a two-part outer casing, the upper part of the casing having a discharge nozzle, and the lower part of the casing serving as a base for supporting the container; a permanent outer part provided with an outlet nozzle; a deformable diaphragm for closing the lower part of said upper part, and adapted to be progressively pushed by direct finger pressure inwards up to the inner wall of the upper part for dispensing the contents of the container, said permanent part and said deformable diaphragm being jointed at their peripheries; the joint between the permanent upper part and the deformable diaphragm lying within the joint of the two parts of the outer casing, whereby on dismantling the outer casing, said upper part together with said deformable diaphragm can be replaced.

15. A container for dispensing materials, comprising in combination: an exchangeable cartridge consisting of a permanent upper part provided with an outlet nozzle and a deformable diaphragm closing the lower end of said permanent part and adapted to be progressively pushed by direct finger pressure inwards up to the inner wall of the permanent part for dispensing the contents of the container, said permanent part and said deformable diaphragm being jointed at their peripheries; an outer casing for receiving said cartridge and having a discharge nozzle corresponding to the discharge nozzle of said cartridge, and also having means for closing this nozzle; and means for detachably fixing said cartridge within said casing by the

engagement of the joint of said cartridge with said casing.

16. A container for dispensing materials comprising in combination: an exchangeable cartridge consisting of a permanent upper part provided with an outlet nozzle and a deformable diaphragm closing the lower end of said permanent part and adapted to be progressively pushed by direct finger pressure inwards up to the inner wall of the permanent part for dispensing the contents of the container, said permanent part and said deformable diaphragm being jointed at their peripheries; an outer casing for receiving said cartridge and having an opening corresponding to the discharge nozzle of said cartridge; and means for detachably fixing said cartridge within said casing.

17. A container for dispensing materials comprising in combination: an exchangeable cartridge consisting of a permanent upper part provided with an outlet nozzle and a deformable diaphragm closing the lower end of said permanent part and adapted to be progressively pushed by direct finger pressure inwards up to the inner wall of the permanent part for dispensing the

contents of the container, said permanent part and said deformable diaphragm being jointed at their peripheries, an outer casing for receiving said cartridge and having a discharge nozzle corresponding to the discharge nozzle of said cartridge, and also having means for closing this nozzle; and means for detachably fixing said cartridge within said casing by the engagement of the discharge nozzle of said cartridge with the nozzle of said outer casing.

18. A container for dispensing materials, comprising in combination: a permanent upper part provided with an outlet port; means for closing said outlet port; a deformable diaphragm closing the lower end of said upper part and adapted to be progressively pushed by direct finger pressure inwards up to the inner wall of the permanent upper part for dispensing the contents of the container; and a protecting skirt surrounding and protecting said deformable diaphragm; said permanent part and said deformable diaphragm being jointed at their peripheries and secured to said protective skirt by crimping.

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