April 27, 1943. C. F. BOESEL 2,317,882

ABSORBENT CLOSURE CAP FOR RECEPTACLES CONTAINING DRY MEDICINAL MATERIALS AND THE LIKE

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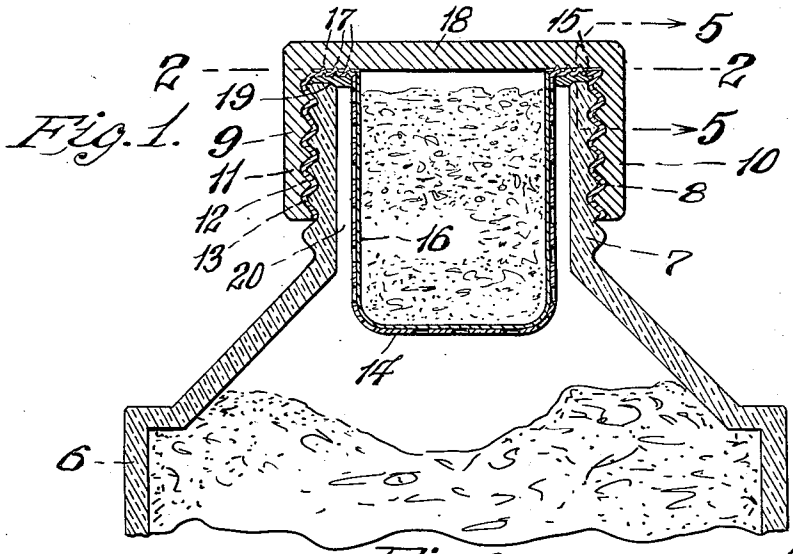


Fig. 1.

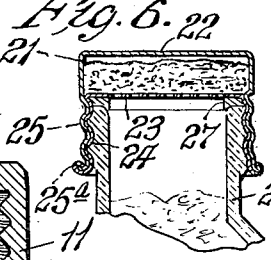


Fig. 6.

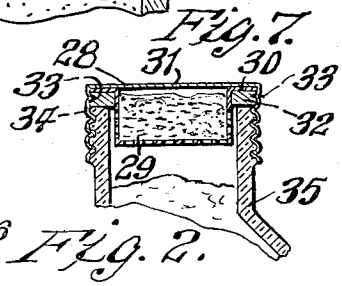
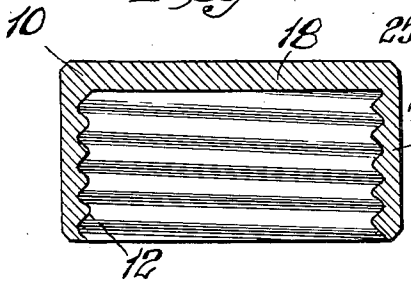


Fig. 7.

Fig. 2.

Fig. 3.



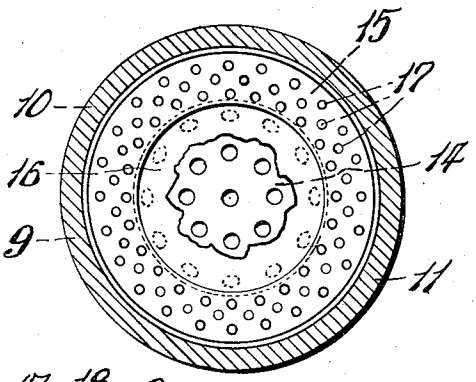
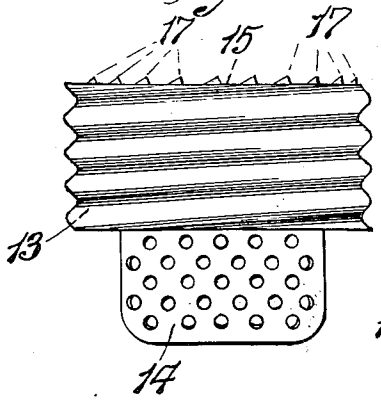


Fig. 4.



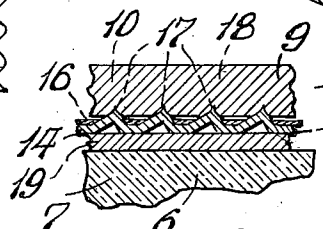


Fig. 5.

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ABSORBENT CLOSURE CAP FOR RECEPTACLES CONTAINING DRY MEDICINAL MATERIALS AND THE LIKE

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4 Claims. (Cl. 215—37)

This invention relates primarily to closure caps for receptacles containing dry medicinal materials and the like, and the cap being provided with absorbent or dehydrating means to preserve and maintain the drugs or medical chemicals which may be of granular form and consequently porous, in their original dry state so that the efficiency thereof will not be impaired by moisture from humid air entering the receptacle or bottle to which the cap is removably secured, during dispensing of some of the contents.

A cap of this improved character and as disclosed, may be used as an auxiliary cap for the receptacle after the removal of the original package cap, as the capping or closing of the package or bottle at the place of manufacture is generally carried on in especially provided air conditioned places.

Drug preparations of effervescent character are usually dispensed from wide mouthed bottles and consequently when the bottle is opened, moisture laden air is admitted into the container on every occasion of dispensing a portion of the contents, and subsequently the active properties of the contents are destroyed, thus undoing the very thing for which the drug manufacturer took pains to prevent.

The improved cap disclosed by this invention can therefore be used as an original cap or stopper or as an auxiliary cap to be applied to and used on a bottle after the original cap has been removed or destroyed, as the absorbent means thereof will dehydrate humid air, if any, which may be formed in a partially filled bottle with which this improved cap may be cooperably secured.

One of the objects of the invention is to provide an improved closure cap for bottles with attached dehydrating means forming a part thereof.

Another object is to provide an improved closure cap having improved depending dehydrating means attached thereto.

A further object is to provide a closure cap with a housing forming a part thereof for containing a dehydrating agent.

A still further object is to provide an absorbent closure cap of an improved construction.

Still another object is to provide a closure cap of a construction whereby one part is held in locked threaded engagement with another part thereof.

With the foregoing and other objects in view which will appear as the description proceeds, my invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes may be made within the scope of what is claimed without departing from the spirit of the invention.

An embodiment of the invention is illustrated in the accompanying drawing, wherein:—

Figure 1 is a vertical sectional elevation taken through this improved closure cap and the upper portion of a receptacle or bottle to which the cap is removable secured.

Figure 2 is a horizontal section elevation taken approximately on the line 2—2 of Fig. 1.

Figure 3 is a vertical sectional elevation taken through a part of this improved cap.

Figure 4 is a side elevation of another part of this improved absorbent cap.

Figure 5 is an enlarged fragmentary sectional elevation taken approximately on the line 5—5 of Fig. 1.

Figures 6 and 7 are different embodiments of the invention.

Referring by numerals to the accompanying drawing, 6 designates the upper portion of a receptacle or bottle having a neck 7 with exterior threads 8, and for sealing cooperation with the threaded neck 7 is a closure cap 9.

The cap 9 is a composite one and having a part 10 which is made of suitable material such as a self-hardening plastic material and said part having a depending wall 11 which is interiorly threaded at 12, and cooperably engaged in the thread 12 is a threaded flange 13 of a perforated housing 14.

The housing 14 and its flange 13 is made of suitable material which may be either a plastic or metal material but preferably of non-corrosive material, and the threaded flange 13 being disposed concentric with the housing but spaced therefrom to accommodate the wall thickness of the bottle neck 7 when the cap 9 and the housing 14 which forms a part thereof, is secured on the bottle, as shown in Fig. 1.

The threaded flange 13 is joined with the upper end of the housing 14 by an annular wall 15 which is disposed at a right angle to the housing and on its underside provides a seat for the gasket 19 which sealingly engages the top edge of the bottle neck at its mouth.

The part 10 of the cap 9 and the housing 14 with its threaded flange 13 are separately constructed, as shown in Figs. 3 and 4, and before mounting and securing these parts together, a portion of fabric 16 is positioned in the housing 14 against the perforated wall thereof with its

end disposed on the wall 15 of the housing, in the manner as shown in Fig. 1.

A dehydrating substance such as activated aluminum, magnesium or any other suitable agent, is deposited in the housing in the sack-formed fabric 16 and the housing is then secured in the part 10 by having its flange 13 threadingly engaged in the thread 12 of the part 10, and in securing the part 10 and housing 14 together, the final turning of one of the parts with the other will cause the pressed-out teeth 17 on the wall 15 of the housing to bite into the underside of the top portion 18 of the part 10, thus firmly securing the housing 14 and the part 10 of the cap together and comprising the absorbent or dehydrating closure cap 9.

When the cap 9 is secured for use on the bottle neck 7, the threaded flange 13 will engage the threads 8 of the neck in drawing the cap on the neck whereby the gasket 19 will sealingly engage the neck mouth, and the housing 14 by reason of being of smaller diameter than the mouth of the bottle neck, is spaced therefrom in the manner as shown at 20 in Fig. 1.

In unscrewing the cap from the bottle or receptacle, the pressed-out teeth 17 on the wall 15 of the housing 14, will prevent turning separation of the housing from the part 10 of the cap. Obviously, when the part 10 of the cap 9 is made of a self-hardening plastic material and the teeth 17 of the housing being of metal, the teeth would readily bitingly engage the under surface of the portion 18 of the part 10 when the part 10 and the housing are mounted together during the assembly of the cap.

In the embodiment shown in Fig. 6, the housing 21 containing the dehydrating substance is at the upper end of the cap 22, the perforated bottom wall 23 of the housing having a skirt 24 which is pressed into threaded conformity with the skirt 25 of the cap 22 and the depending ends of the skirts 24 and 25 being curled and crimped together at 25a to prevent separation of the skirts 24 and 25 from each other during manipulating of the cap on the threaded neck of the bottle 26.

A gasket 27 is mounted on the underside of the bottom wall 23 of the housing 21 for sealtight engagement on top of the bottle mouth.

The embodiment shown in Fig. 7 comprises a cap 28 having a depending housing 29 for containing the dehydrating substance and the housing 29 having an annular flange 30 which is held in abutment against the underside of the top wall 31 of the cap 28 by a gasket 32 which is held against displacement by indented projections 33 formed in the skirt 34 of the cap 28, said projections embedding in the side of the gasket 32 adjacent and beneath the flange 30 of the housing 29 of the cap. The skirt 34 of the cap is threaded for cooperation with the threads of the bottle 35.

Having thus described the invention so that those skilled in the art will be able to practice the same, what I desire to secure by Letters Patent is defined in what is claimed, it being understood that various changes in the devices shown and described in detail and not amounting to invention, may be made without departing from the spirit and scope of my invention.

What I claim is:

1. An interiorly threaded closure cap for a drug containing receptacle having a depending perforated housing with a flange spaced therefrom and in threaded engagement with the thread of the cap, projections on the housing penetrating the cap, and a lining in the housing secured by said projections.

2. An interiorly threaded closure cap for a drug containing receptacle having a depending perforated housing with a flange spaced therefrom and in threaded engagement with the thread of the cap, a wall joining the housing and the flange and having projections thereon, and a fabric lining in said housing and secured by said projections.

3. A dehydrating cap for a receptacle having a top and a threaded cylindrical skirt, a perforated housing disposed within said cap and having an annular wall in abutment with the top wall of the cap, and a fabric container depending in the housing and having one end clamped between the top wall of the cap and the annular wall of the housing.

4. An interiorly threaded closure cap for a drug containing receptacle having a depending perforated housing with a flange spaced therefrom and in threaded engagement with the thread of the cap, an annular wall joining the housing and the flange, and a fabric lining in said housing having one end clamped between said annular wall and the top of the cap.

CHARLES F. BOESEL.