March 20, 1934. D. E. CLARK 1,951,924

STOPPER FOR BOTTLES AND THE LIKE

Original Filed March 17, 1932

Fig. 1.

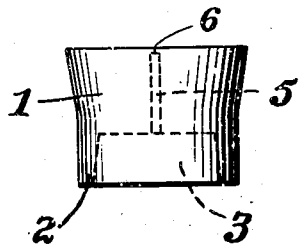


Fig. 2.

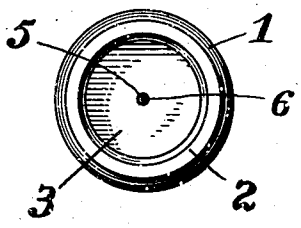


Fig. 3.

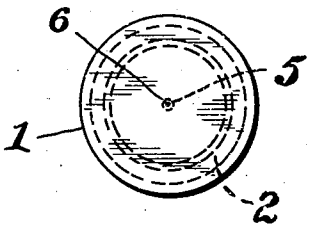
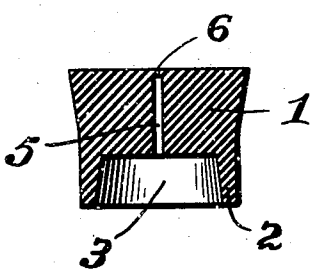


Fig. 4.



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STOPPER FOR BOTTLES AND THE LIKE

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Application March 17, 1932, Serial No. 599,517
Renewed September 23, 1933

2 Claims. (Cl. 215—47)

The invention concerns a stopper composed of rubber and intended for use in connection with containers for holding powders which it is desired to dispense from the bottle in measured quantities.

In carrying out the invention, means are provided whereby the bottle may be vented of any gas or air which might collect under pressure within the bottle and the stopper is of such a formation that the contents will not leak out, but yet gas or air under a specified pressure will be released from the container.

Furthermore the stopper is of such a form that after it has been used as a measuring device to obtain the desired quantity of powder, any of the material which might lodge in it and tend to adhere to the walls of the measuring portion of the stopper, readily can be dislodged for discharge back into the container.

The invention is shown in the accompanying drawing in which

Fig. 1 is a side elevation of the stopper,

Fig. 2 is a bottom plan view,

Fig. 3 is a top view, and

Fig. 4 is a vertical sectional view taken centrally through the stopper.

The stopper consists of a rubber body 1 which flares outwardly towards its upper end and is provided with skirt or flange 2 also of rubber and integral with the main body of the stopper. This depending flange surrounds the measuring chamber 3. The flange is flexible and lies below that portion of the stopper which is designed to have a sealing contact with the inner wall of the mouth of the container. The flange is flexible and in cross-section, as shown in Fig. 4, it is of downwardly tapered formation. At the central portion of the main body an opening 5 is provided of fine bore to allow the passage of gas upwardly. This opening or passage extends of full diameter to near the upper surface of the stopper leaving a comparatively thin film of rubber extending across the upper end of the opening. This thin film is pierced with a sharp needle so as to provide an outlet for gas under pressure. This minute aperture 6 is normally substantially closed, but upon the accession of pressure within the container the thin film will distend and the minute aperture will open slightly so as to allow discharge of the accumulative gas. After the gas has escaped the contraction of the thin film of rubber will restore the aperture to its closed position and this will prevent the passage of air from the outside into the container.

As above stated the depending flange of the stopper which is provided to define the measuring chamber is formed of rubber and is quite flexible. If any powder tends to cling to the wall of the measuring chamber it readily may be dislodged by exerting pressure upon the stopper or upon the flange so as to distort the rubber and thereby cause the powder to separate from the rubber surface so that it may be discharged back into the container.

The substantially solid rubber body or plugging portion 1, while adapted to yield readily under the forces to which it will be subjected while being inserted in the opening of a container, is sufficiently rigid or stiff to prevent it from collapsing under the pressure to which it will be subjected while being held in the fingers during the filling of the measuring chamber 3. As the body 1 will not collapse while being gripped in the fingers, all possibility of distorting the measuring chamber is obviated, and due thereto the capacity of the chamber may not be accidently reduced. The upper portion of the body 1 tapers downwardly, and the lower portion thereof is substantially cylindrical. The external diameter of the flange 2 is similar to the smallest diameter of the body 1. This, together with the freely flexible nature of the flange 2, prevents the flange from offering any appreciable resistance to the insertion of the stopper in the opening of a container, and the flexible nature of the flange enables any pressure developed in the container to force the flange into such frictional engagement with the wall of the opening as to adapt the flange to assist in holding the stopper in place.

I claim:

1. A bottle stopper of rubber comprising a relatively stiff, substantially solid body or plugging portion tapering downwardly from its upper end to a point short of its lower end, the body being provided with a passage of fine bore extending up through it to near the top with a rubber film covering said passage, said film being located substantially in the plane of the top surface of the body, and pierced to provide a discharge orifice when the film is distorted, and a freely flexible annular flange of rubber integral with and extending downwardly from the lower end of the substantially solid body and cooperating with said end to provide a measuring chamber, the flange having an external diameter equal to that of the lower end of the body, the tapered surface of the body being adapted to be gripped while filling the measuring chamber, and the body being sufficiently stiff to prevent it from collapsing under

the gripping strain thereon so as to avoid the distortion of the measuring chamber.

2. A bottle stopper of rubber comprising a relatively stiff, substantially solid body or plugging portion, the body being provided with a passage of fine bore extending up through it to near the top with a rubber film covering said passage, said film being located substantially in the plane of the top surface of the body, and pierced to provide a discharge orifice when the film is distorted, and a freely flexible annular flange of rubber extending downwardly from the lower end of the substantially solid body and cooperating with said end to provide a measuring chamber, the flange having an external diameter equal to that of the lower end of the body to adapt it to freely enter the mouth of the bottle, the flexibility of the flange adapting it to be forced by internal pressure into frictional contact with the wall of the bottle mouth and adapting it to be flexed to dislodge therefrom any of the measured quantity of material clinging thereto, and the body being sufficiently stiff to prevent it from collapsing and distorting the measuring chamber when the body is gripped to support the chamber in position to be filled.

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