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2,196,785

RUBBER STOPPER FOR BOTTLES, JARS, VESSELS, AND LIKE CONTAINERS

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Fig. 1.

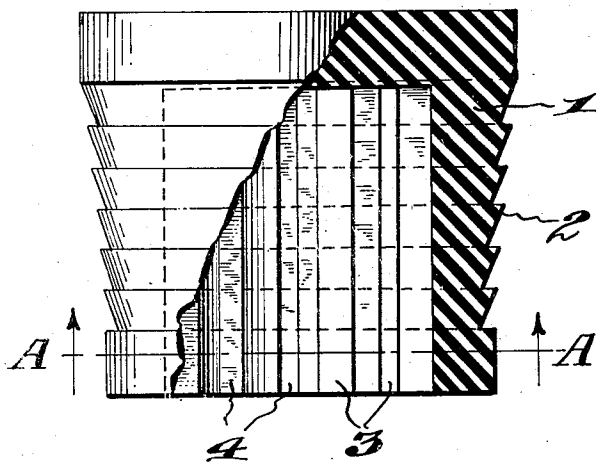
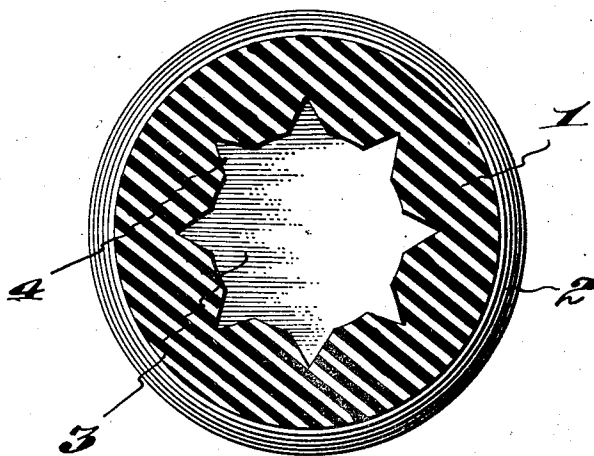


Fig. 2.



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RUBBER STOPPER FOR BOTTLES, JARS,
VESSELS, AND LIKE CONTAINERS

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In Japan October 13, 1936

1 Claim. (Cl. 215—47)

Rubber stoppers for bottles, jars, vessels, flasks and the like have been used heretofore, as they are easily moulded at cheap cost, and close the containers in a tighter and more hygienic manner as compared with stoppers of other materials. They have, however, a material defect in that they can never be inserted into the mouth of bottles, if the diameter of their inserting parts is a little larger than the inside diameter of the mouth of the bottles, because the cylindrical rubber body, either solid or hollow, is not uniformly compressible to diminish the diameter on account of its softness and elasticity, even though it may be deformed irregularly to some extent.

The object of the present invention is to remove the above defects in rubber stoppers by providing the inserting part with a bore to form a cavity opening into the bottles and the like, the peripheral surface of which is channeled lengthwise to make the desired number of linear grooves.

Another object of the invention is to render the insertion and drawing of the rubber stopper easy and the closing of containers tighter by means of stepped projections with conical surfaces which are constructed on the outside of the inserting part of the said stopper.

An example of the invention is hereafter described with reference to the accompanying drawing, in which Fig. 1 shows in elevation partly in section one form of stopper used in constructions according to the invention and Fig. 2 is a section on line A—A of Fig. 1. The inserting part 1, of the rubber stopper body is provided with stepped projections having conical surfaces 2 surrounding the outside that will come in contact with the interior of the bottle neck, is bored at centre from below so as to form a cavity 3 opening into the containers, the depth of the cavity being suitably determined. The peripheral surface of the said cavity 3 is scooped lengthwise linearly, at spaced points and preferably in parallel directions with one another, so as to construct the proper number of grooves 4 of acute angular or V-shaped section, as shown in the figures.

According to the present invention the inserting part 1 of the stopper can be compressed uniformly by pinching and pressing it with the fingers, because the said inserting part is constructed hollow and the surface of the cavity 3 shrinks to some extent in consequence of the

presence of the V shaped grooves, so that the outside diameter of the inserting part can be easily reduced. In the present invention, therefore, it is not only very easy to insert it into the mouth of a bottle when the inside diameter of the bottle is equivalent to that of the cork, but it fits to several kinds of bottles having mouths of various diameters, as it can be inserted into the mouth even if its diameter may be little larger than those of the latter.

Moreover, the rubber stopper of the present invention may be inserted into and drawn out of the mouth in a more efficient manner and the container closed in a tighter manner by the presence of the stepped projections with conical surfaces surrounding the outside of the inserting part, because the contacting surface or resistance between the stopper and the bottle mouth wall is remarkably reduced and the tip of each projection sticks to the wall very tightly.

The stopper body specifically includes cylindrical end portions the inner end portion of which is slightly smaller in diameter than the outer end portion as well as an intermediate portion tapered towards the inner end portion. The inner end portion and the intermediate portion constitute the inserting part of the stopper body.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:

A stopper for bottles, jars, vessels and the like containers comprising a rubber body, having cylindrical end portions with the inner end portion slightly smaller in diameter than the outer end portion and having an intermediate portion tapered slightly from the outer end portion to the inner end portion and provided with annular stepped projections also tapered toward the inner end portion, the inner end portion and the intermediate portion being longitudinally and concentrically bored to the outer closed end portion so as to provide a cavity which opens within the container, the peripheral surface of the cavity being scooped lengthwise at suitable intervals to provide the desired number of grooves having a V-shaped section whereby to permit of a uniform compressing of the inner end portion and the intermediate portion when the stopper body is inserted in the mouth of a container.

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