July 29, 1947. J. J. A. JACKSON 2,424,930

LEAKPROOF STOPPER

Filed Sept. 14, 1945

Fig. 1.

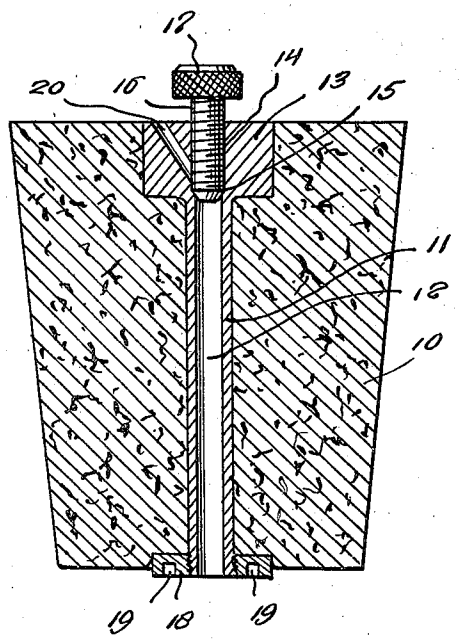
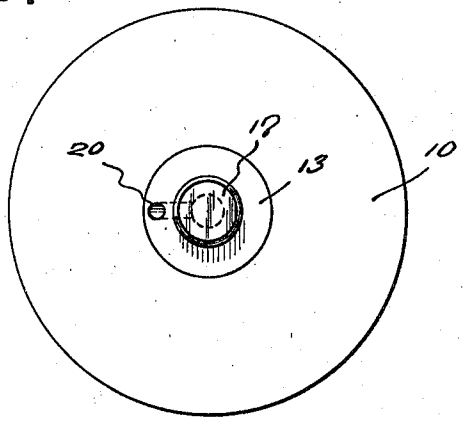


Fig. 2.



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LEAKPROOF STOPPER

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3 Claims. (Cl. 215—56)

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This invention relates to containers and the like and more particularly to a leakproof stopper for closing the mouths of jugs, bottles and other liquid containers.

It is well known that corks and other similar stoppers now in use cause compressed air to form in the bottle as they are forced inward. This compression of air sometimes causes the bottle to break and often causes the cork to pop out or to at least loosen in place after a period of time, thus allowing the contents of the bottle to leak out or the escape of a gas pressure desired to be retained. This condition is further aggravated by the excess accumulation of a gas pressure in a contained carbonated fluid or fermentation gases so often present in bottled liquids.

The objects of this invention are to prevent the compression of air or gases in a bottle or the like on insertion of the cork and to provide a vent in the cork for the release of excessive air or gas pressure that may occur in the bottle after the cork is inserted.

Other objects and advantages to be attained will hereinafter more fully appear in the following description.

The invention will be better understood from the following description and accompanying drawings, wherein:

Figure 1 is a longitudinal sectional view of a practical adaptation of the invention; and

Figure 2 is a top view thereof.

Referring now to the drawings in detail, the numeral 10 designates a bottle or jug stopper made of rubber, cork or the like and provided with a tubular insert 11 having a longitudinal passageway 12 therethrough for the escape of air or gas from a bottle, the bottle not shown.

The tubular insert 11 is preferably made of metal although plastic or other suitable material may be used. It has a headed enlargement 13 at its upper end and said enlargement has an axial threaded bore 14, at the inner end of which is a valve seat portion 15 to receive the inner end of a screw threaded valve 16 which may be turned by the operator's fingers by means of a gripping portion 17 at the outer end of the valve.

The headed enlargement 13 is countersunk into a recess in the top of the cork and the tubular insert 11 may be additionally secured at the bottom of the cork by a threaded flange or collar 18 which is detachably secured around the correspondingly threaded lower end portion of the insert 11.

The flange or collar 18, as shown, is provided with sockets 19 for the engagement of a spanner

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wrench or the like to be used in applying said part 18 and in its removal, and when applied the part may be countersunk in the lower end of the cork substantially as shown.

By the provision of the headed enlargement 13 at the outer end of the tubular insert 11 and the detachable flange-like collar 18 at the inner end of the insert, and especially by the countersinking of said enlargement 13 and said collar 18 into the adjacent ends of the stopper body portion 10, the tightening of the collar 18 effects a leak-tight fitting of the insert 11 throughout substantially the entire extent thereof in the stopper body portion 10.

A vent opening 20 is provided in the headed enlargement 13 of the insert 11, extending from the passageway 12 at a point above the valve seat 15 and diagonally upward to the top face of said enlargement 13. With the vent opening 20 thus provided it is obvious that the same may be cut off from communication with the passageway 12 of the insert 11 by tightening the valve 16 with its inner end against the valve seat 15. By the same token, communication is established between the passageway 12 and the vent opening 20 by moving the valve member 16 out of engagement with the seat 15.

In use of the stopper or cork, the valve 16 is adjusted to an upward position above the seat 15 and the cork is placed in a bottle, and as it is entered the air or gas within the bottle and above the liquid contents passes through the vent 20. Thus, on inward movement of the cork, compressed air or gas does not form because the excess air or gas in the bottle escapes through said opening 20. After the cork is placed the valve 16 is tightened against the seat 15, thus holding the contained liquid and air or gas and preventing leakage of the same. When contained fermenting or carbonated beverages and the like become agitated during transportation of bottled liquids or when the same are subjected to a high degree of temperature sufficient to cause excessive expansion, the valve 16 may be opened from time to time so as to allow such excess pressure air or gases to escape. The valve 16 is then again closed.

It is readily seen that the improved stopper or cork can be used so that it will not be caused to pop out or loosen in place by pressure of air or gases as is the case with stoppers or corks of conventional design. It is further noted that the invention is capable of some modification within the spirit and scope of the appended claims.

Having thus described the invention, what is claimed is:

1. A stopper to be used in a container, comprising a body portion, a tubular insert in said body portion, said insert having a longitudinal passageway therethrough and the insert extending entirely through the body portion from end to end thereof for the escape of air and gases from the container, said insert having an enlargement at its upper end with an axially threaded bore, a valve seat at the inner end of the threaded bore, a valve axially adjustable in the threaded bore within the enlargement for opening and closing said longitudinal passageway, said valve being in the form of a screw threaded into the bore, and said enlargement having a vent communicating with the bore and adapted to be controlled by the valve.

2. A stopper to be used in a container, comprising a body portion, a tubular insert in said body portion, said insert having a longitudinal passageway therethrough and the insert extending entirely through the body portion from end to end thereof for the escape of air and gases from the container, said insert having an enlargement at its upper end with an axially threaded bore, a valve seat at the inner end of the threaded bore, a valve axially adjustable in the threaded bore within the enlargement for opening and closing said longitudinal passageway, said valve being in the form of a screw threaded into the bore, and said enlargement having a vent communicating with the bore and adapted to be controlled by the valve, said enlargement being wholly countersunk into the outer end of the body portion and said enlargement also containing the vent opening and valve seat and carrying the valve, said enlargement further having a top face flush with the top of the stopper, said vent extending from the bore to the top face of the enlargement.

3. A stopper to be used in a container, comprising a body portion, a tubular insert in said body portion, said insert having a longitudinal passageway therethrough and the insert extending entirely through the body portion from end to end thereof for the escape of air and gases from the container, said insert having an enlargement at its upper end with an axially threaded bore, a valve seat at the inner end of the threaded bore, a valve axially adjustable in the threaded bore within the enlargement for opening and closing said longitudinal passageway, said valve being in the form of a screw threaded into the bore, and said enlargement having a vent communicating with the bore and adapted to be controlled by the valve, said enlargement being wholly countersunk into the outer end of the body portion and said enlargement also containing the vent opening and valve seat and carrying the valve, said enlargement further having a top face flush with the top of the stopper, said vent extending from the bore to the top face of the enlargement, the inner end of the tubular insert being externally threaded, a correspondingly axially threaded collar detachably secured to the inner end of the insert to hold the tubular insert with leak-tight fitting in the body portion.

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