

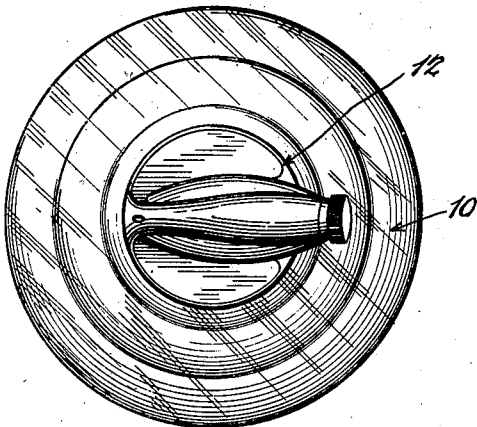
March 23, 1943.

W. A. SHEAFFER

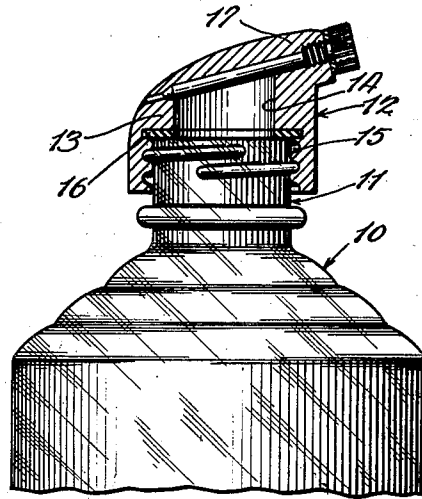
2,314,562

POUR-OUT CLOSURE

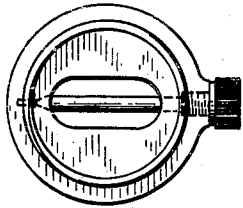
Filed Feb. 5, 1941



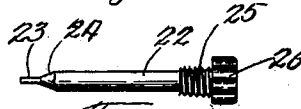
*Fig. 1.*



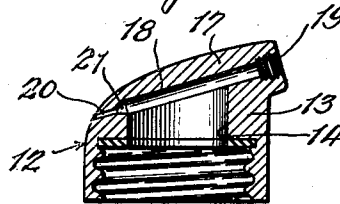
*Fig. 2.*



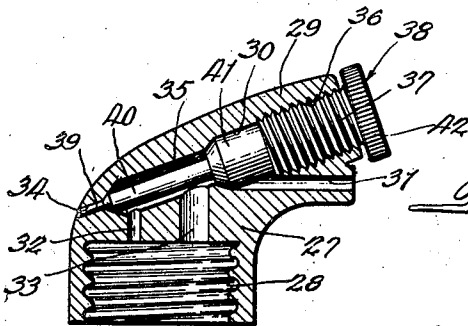
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



*Fig. 6.*

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Oct 25.

# UNITED STATES PATENT OFFICE

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## POUR-OUT CLOSURE

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10 Claims. (Cl. 221-12)

This invention relates to a pour-out closure and has special reference to a spout for directing and for controlling the flow of fluid from a container and for sealing the contents of the container when not in use.

More particularly, this invention relates to a pour-out closure for bottles or other containers comprising a main body portion having a central opening with connecting means about the opening for detachable engagement with the neck of the bottle, the main body portion having an oblique spout and an open-ended passage extending axially of the spout in communication with the central opening to form pouring and vent openings with means operable in the passage to close or to open the pouring and vent openings simultaneously.

The present invention will hereinafter be described in the association of a pour-out closure with a bottle for containing writing fluids wherein it may be desirable to fill small individual bottles of writing fluid from a supply bottle. It is essential, of course, to seal hermetically the larger supply bottle when stored and not in use while it is desirable to readily and to conveniently direct and control the flow of fluid from the bottle when supplying the individual bottles.

As above stated, the closure is provided with an open-ended passage extending axially of a spout to provide pouring and vent openings. The vent opening permits air to enter the container replacing the fluid poured from the bottle. The provision of the air vent, of course, avoids the pulsating effect ordinarily obtained where a single opening is common to both the pouring and vent passages. The vent opening is of such a character as will prevent the flow of fluid out of the pouring opening when the vent opening is closed so that in tilting the bottle, if the bottle is full, the fluid will not spill before the nozzle of the pouring spout may be directed into the individual bottle and the flow of fluid from the pouring spout may be readily stopped when the latter bottle is full.

A single means is operable in the passage forming the pouring and vent openings so that such openings may be closed simultaneously. In one form of construction shown in the drawing the means for operating to close or to open the pouring and vent openings is removed entirely from the passage whereas in the other form shown in the drawing the means is merely moved in the passage to unseal the vent opening and a second communicating passage forming the pouring opening.

One of the objects of this invention is to provide a pour-out closure of the character indicated above wherein a common means is operable to close or to open pouring and vent openings simultaneously.

Another object of this invention is to provide a pour-out closure for bottles of the type hereinabove mentioned wherein the flow of fluid from the supply container into an individual container may be directed and controlled and wherein the means for directing and controlling the flow operates to seal the contents of the container when not in use.

It is also an object of this invention to provide a pour-out closure of the type indicated above which is comparatively inexpensive to manufacture, is efficient and simple in operation, and is durable.

Other objects and advantages of this invention will hereinafter be more particularly pointed out and, for a more complete understanding of the characteristic features of this invention, reference may now be had to the following description when taken together with the accompanying drawing, in which latter:

Figure 1 is a plan elevational view of a pour-out closure embodying the features of this invention, the closure being shown as applied to a bottle for containing writing fluids;

Fig. 2 is a central vertical sectional view of the pour-out closure shown in Fig. 1, the bottle being shown fragmentarily in elevation;

Fig. 3 is an underneath elevational view of the pour-out closure shown in Figs. 1 and 2;

Fig. 4 is a side elevational view of the stem for sealing the pouring and vent openings, the stem being removed from the pour-out closure;

Fig. 5 is a central longitudinal sectional view of the pour-out closure with the stem removed therefrom; and

Fig. 6 is a modified form of pour-out closure embodying the features of this invention.

Referring now to the drawing and more particularly to Figs. 1 to 5, inclusive thereof, the pour-out closure of this invention is shown as being adapted for use with a bottle 10 having an externally threaded neck portion 11. The bottle has been shown with external threads on the neck thereof merely for the purpose of indicating a connecting means which may have detachable engagement with a pour-out closure although, of course, it will be understood that other connecting means may be substituted therefor and that the pour-out closure may be

adapted to frictionally engage the bore of the neck in accordance with standard usage.

The pour-out closure 12 comprises a main body portion 13 having a central opening 14 communicating with an enlarged end opening, the latter having threaded connecting means 15 thereabout for detachable engagement with the threaded connecting means of the neck 11 of the bottle. A washer 16 is preferably disposed adjacent the shoulder formed at the juncture of the relatively enlarged and reduced openings, the end of the neck of the bottle resting against the washer when the closure is in position on the bottle.

The main body portion 13 of the closure is provided with an oblique spout 17 having an open-ended passage 18 extending axially thereof in communication with the central opening 14. The passage 18 is provided at the pouring opening thereof with internal threads 19 and is reduced at the other end thereof to form a vent opening 20. The shoulder, formed at the juncture of the relatively enlarged and reduced portions of the passage 18 at the vent opening end, is preferably tapered to form a seat 21.

Means is provided in the passage 18 operable to close or to open the pouring and vent openings simultaneously, such means being shown in the form of a stem 22 of varying cross section. A reduced portion 23 of the stem engages the vent opening 20 and a tapered portion 24 formed between the portions 22 and 23 is tapered to fit the seat 21. External threads 25 are formed at the opposite end of the stem 22 for threadedly engaging the internal threads 19 of the pouring opening of the spout. The stem 22 has an enlarged head portion 26 for externally operating the stem so that it may be removed from the passage to open the pouring and vent openings simultaneously when it is desired to remove any portion of the contents of the bottle 10, the stem being moved into place in the passage to seal the pouring and vent openings simultaneously for storage of the bottle.

Referring now more particularly to Fig. 6 of the drawing, a modified form of pour-out closure is shown comprising a main body portion 27 having a central threaded opening 28 for detachable engagement with external threads on the neck of a bottle. The main body portion 27 has an oblique spout 29 and an open-ended passage 30 of varying diameters extending axially of the spout and a communicating passage 31 extending angularly to the axially extending passage, both passages being in communication with the central opening 28 through apertures 32 and 33. The open-ended passage 30 of varying diameters forms a vent opening 34 in communication with an intermediate chamber 35, the latter chamber being in communication with the passage 31 which extends angularly to the axial passage 30.

The end of the passage 30 opposite to that of the vent opening 34 is provided with internal threads 36 to threadedly engage and receive a threaded end 37 of a solid stem 38, the stem being of varying diameters to provide a portion 39 for engaging the vent opening 34 extending from a relatively enlarged portion 40, the juncture between the portions 39 and 40 being tapered to seat on a similarly tapered end of the chamber 35. The diameter of the chamber 35 is of substantially greater cross section than the portion 40 of the stem 38. The intermediate portion 41 of the stem 38 is substantially greater

in diameter than the portion 40 and is provided with a taper at the juncture therebetween to seat on a similarly tapered portion of the passage 30 to close or to open the pouring opening 31 when the stem is manipulated by an external operating head 42.

When it is desired to pour a portion of the contents of the container into an individual container the operating head 42 of the stem 38 is unscrewed to a position such that the reduced end 39 clears the vent opening 34 and the tapered shoulder of the intermediate portion 41 of the stem clears the tapered seat in the passage 30 and the pouring opening 31. The thumb or forefinger may be placed over the vent opening 34 until the pouring opening overlies the opening of the individual container into which the fluid is to be poured whereafter the vent opening is unsealed so that air may pass therethrough and through aperture 32 into the bottle to replace fluid which may now be removed from the supply bottle through the aperture 33 and pouring opening 31.

The flow of fluid from the supply container is controlled and flows smoothly without any pulsating effect into the individual bottle until the amount desired has been reached when the thumb or forefinger is again placed over the vent 34 to stop the flow of fluid through the pouring opening whereafter the operating head 42 is rotated to return the solid stem into its initial position to close the pouring and vent openings, the closing of the openings being thereby done simultaneously. This operation is identically the same with that of the modification previously described except that in one instance the means operable in the passage to close or to open the pouring and vent openings simultaneously is entirely removed in one and only partially removed in the other.

While but two embodiments of this invention are herein shown and described, it is to be understood that various modifications thereof may be apparent to those skilled in the art without departing from the spirit and scope of this invention and, therefore, the same is only to be limited by the scope of the prior art and the appended claims.

I claim:

1. A pour-out closure for bottles comprising a main body portion having a central opening with connecting means about said opening for detachable engagement with the neck of a bottle, said main body portion having an oblique spout and an open-ended passage extending axially of said spout in communication with said central opening forming pouring and vent openings, and means operable in said passage and extending in the axial direction thereof to close or to open said pouring and vent openings simultaneously, said operating means being removable from said passage for pouring.

2. A pour-out closure for bottles comprising a main body portion having a central opening with connecting means about said opening for detachable engagement with the neck of a bottle, said main body portion having an oblique spout and an open-ended passage extending axially of said spout in communication with said central opening forming pouring and vent openings, and an externally operable stem in said passage in the axial direction thereof to close or to open said pouring and vent openings simultaneously, said stem being removable from said passage for pouring.

3. A pour-out closure for bottles comprising a main body portion having a central opening with connecting means about said opening for detachable engagement with the neck of a bottle, said main body portion having an oblique spout and an open-ended passage extending axially of said spout in communication with said central opening forming pouring and vent openings, and an externally operable solid stem in said passage and extending in the axial direction thereof to close or to open said pouring and vent openings simultaneously, said stem being removable from said passage for pouring.

4. A pour-out closure for bottles comprising a main body portion having a central opening with connecting means about said opening for detachable engagement with the neck of a bottle, said main body portion having an oblique spout and an open-ended passage of varying diameters extending axially of said spout in communication with said central opening forming pouring and vent openings of relatively enlarged and reduced cross sections respectively, and an externally operable solid stem of varying cross section in said passage and extending in the axial direction thereof to close or to open said pouring and vent openings simultaneously, said stem being removable from said passage for pouring.

5. A pour-out closure for bottles comprising a main body portion having a central opening with connecting means about said opening for detachable engagement with the neck of a bottle, said main body portion having an oblique spout and an open-ended passage of varying diameters extending axially of said spout in communication with said central opening forming pouring and vent openings of relatively enlarged and reduced cross sections respectively, said enlarged and reduced portions of said passage being connected by a tapered portion forming a seat therebetween, and a stem extending in the axial direction of said passage, said stem having enlarged and reduced diameter with a tapered connecting portion for engagement with said seat and an externally accessible head to close or to open said pouring and vent openings simultaneously, said stem being removable from said passage for pouring.

6. A pour-out closure for bottles comprising a main body portion having a central opening with connecting means about said opening for detachable engagement with the neck of a bottle, said main body portion having an oblique spout and an open-ended passage extending axially of said spout in communication with said central opening forming pouring and vent openings, and a solid stem operable in said passage and extending in the axial direction thereof to close or to open said pouring and vent openings simultaneously, said stem having an enlarged head for operation externally of said closure and having threaded connecting means adjacent said head for engaging co-operating means of said passage to prevent accidental displacement of said stem, said stem being removable from said passage for pouring.

7. A pour-out closure for bottles comprising a main body portion having a central opening with connecting means about said opening for detachable engagement with the neck of a bottle, said main body portion having an oblique spout and an open-ended passage extending axially of said spout and a communicating passage extending angularly thereto both in communication with said central opening forming pouring and vent openings, and means operable in said passage of said oblique spout and extending in the axial direction thereof to close or to open said pouring and vent openings simultaneously, said means being removable from said passage for pouring.

8. A pour-out closure for bottles comprising a main body portion having a pair of central openings with connecting means about said openings for detachable engagement with the neck of a bottle, said main body portion having an oblique spout and an open-ended passage extending axially of said spout and a communicating passage extending angularly thereto both in communication with said central openings forming pouring and vent openings, and a solid stem operable in said passage of said oblique spout and extending in the axial direction thereof to close or to open said pouring and vent openings simultaneously, said means being removable from said passage for pouring.

9. A pour-out closure for bottles comprising a main body portion having a central opening with connecting means about said opening for detachable engagement with the neck of a bottle, said main body portion having an oblique spout and an open-ended passage of varying diameters extending axially of said spout and a communicating passage extending angularly thereto both in communication with said central opening forming pouring and vent openings and an intermediate chamber, and means operable in said passage and extending in the axial direction thereof to close or to open said pouring and vent openings simultaneously, said central opening being in continuous communication with said intermediate chamber, said means being removable from said passage for pouring.

10. A pour-out closure for bottles comprising a main body portion having a pair of central openings with connecting means about said opening for detachable engagement with the neck of a bottle, said main body portion having an oblique spout and an open-ended passage of varying diameters extending axially of said spout and a communicating passage extending angularly thereto both in communication with said central openings forming pouring and vent openings and an intermediate chamber, and a solid stem operable in said passage and extending in the axial direction thereof to close or to open said pouring and vent openings simultaneously, said stem being of smaller cross section than said intermediate chamber permitting continuous communication between said chamber and said central openings, said stem being removable from said passage for pouring.

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