April 30, 1957 I. A. HALPERN 2,790,582

POURING SPOUT

Filed Dec. 20, 1954

Fig. 1.

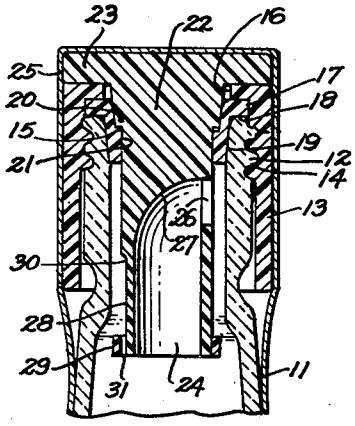


Fig. 2.

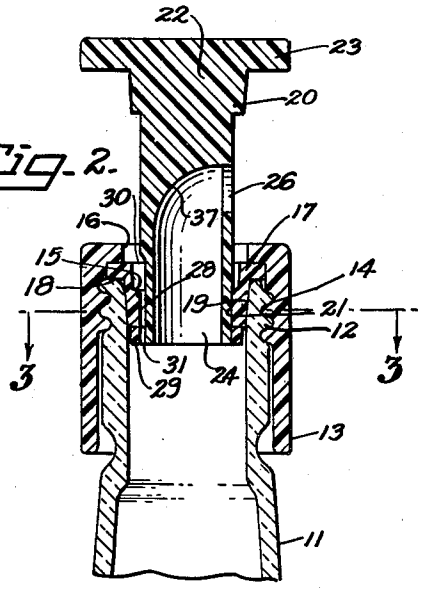


Fig. 3.

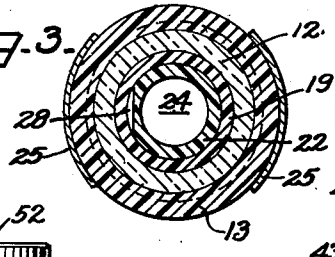


Fig. 4.

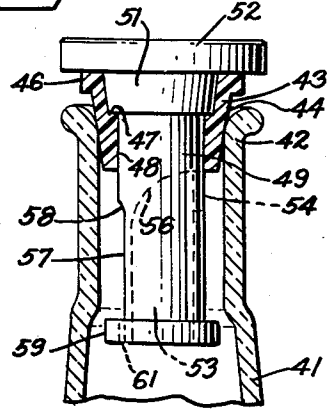
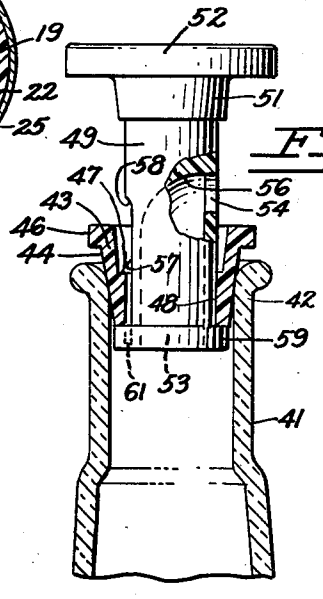


Fig. 5.



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United States Patent Office

2,790,582

Patented Apr. 30, 1957

2,790,582

POURING SPOUT

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Application December 20, 1954, Serial No. 476,149

8 Claims. (Cl. 222—481.5)

This invention relates to a new and improved pouring spout for containers, such as glass bottles, containing liquids. Typical examples of such liquids are liquors, salad oils, vinegar, etc.

The principal object of the invention is to seal and prevent evaporation of the contents of the bottle when the pouring spout is closed and to facilitate pouring of the liquid from the bottle when the pouring spout is open. The invention is used as a substitute or a replacement for conventional closures, and is characterized by the fact that the container may be of conventional construction so that it might be used with conventional closures. The pouring spout which is the subject of this invention may be installed as the original closure for the container. Alternatively the pouring spout may be installed after the original closure has been removed.

One of the features of the invention is the fact that the pouring spout may be readily adjusted from closed to pouring position by a simple manual operation and may be repeatedly opened and closed, as desired. When in closed position, leakage of the liquid contents is prevented, inasmuch as both the main hole through which the liquid is poured is closed and, further, the breather hole which admits air into the bottle is likewise closed.

Another feature of the invention is the fact that revenue stamps which are conventionally employed on certain containers, such as liquor bottles, may be installed over the instant pouring spout and when so installed the revenue stamp must be destroyed before the pouring spout can be removed or before any liquid can be poured from the pouring spout. This feature is of importance in compliance with the revenue requirements.

Other objects of the present invention will become apparent upon reading the following specification and referring to the accompanying drawings in which similar characters of reference represent corresponding parts in each of the several views.

In the drawings:

Fig. 1 is a vertical section through a portion of a container with the pouring closure installed thereon and in closed position;

Fig. 2 is a view similar to Fig. 1 with the pouring spout in pouring position;

Fig. 3 is a transverse horizontal section taken substantially along the line 3—3 of Fig. 2;

Fig. 4 is a view similar to Fig. 1 of a modified construction; and

Fig. 5 is a view similar to Fig. 2 of the structure shown in Fig. 4.

As illustrated in Figs. 1–3, inclusive, the pouring spout which is the subject of this invention is installed on a conventional glass bottle having neck 11 provided with external threads 12 on the upper end. The pouring spout preferably is provided with a metal or plastic cap 13 having internal threads 14 which mate with the threads 12 so that the cap can be screwed tightly on the neck of the container. A central aperture 16 in the top of the cap 13 provides the principal distinction betweeen the cap

13 and conventional caps employed with screw type closures.

Underneath the cap 13 and inside the neck 11 is a sleeve 17 of a liquid-impervious, plastic material, such as polyethylene resin. The upper end of sleeve 17 is formed with an external collar 18, the shoulder of which seats on the lip of neck 11. Sleeve 17 below collar 18 is formed with an externally tapered portion 19 which fits tightly inside the neck 11. The interior of sleeve 17 is of greater diameter at the top than at the bottom, there being an internal shoulder 15 approximately midway of the length of sleeve 17. Below the shoulder 15, sleeve 17 has an internal tapered portion 21.

Slidably fitting inside sleeve 17 is a plug 22 which seals tightly against internally tapered portion 21. A slightly enlarged shoulder 20 is formed on the plug 22 which seats against the shoulder 15 of sleeve 17 and seals thereagainst. In addition, an enlarged head 23 is formed at the top of the plug 22 and this head 23 seats against the top of the cap 13. Thus, as shown in Fig. 1, when the pouring spout is in closed position, the head 23 seals against the cap 13, the shoulder 20 seals against the shoulder 15 of the sleeve 17, and the plug 22 also seals against the tapered portion 21 of the sleeve 17. In addition, the tapered portion 19 of the sleeve 17 seals against the inside of the neck of the bottle, while the cap 13 seals against the outside of the neck 11. The leakage of the contents of the bottle is prevented by the multiplicity of seals heretofore set forth. In order to insure against removal of the contents, a revenue stamp 25 may be affixed to the neck of the bottle 11 and pass up over the cap 13. Removal of the contents of the bottle is impossible without destroying the revenue stamp 25.

The plug 22 is provided with a pouring hole 24 extending upwardly from the bottom and, partway upwardly from the bottom curving outwardly in the region designated by reference numeral 27 and terminating in an aperture 26 in the side of the central part of the plug 22. In closed position, as illustrated in Fig. 1, the aperture 26 is below the sleeve 17 and is hence ineffective in pouring contents. However, when the plug 22 is raised to the position of Fig. 2, the pouring aperture 26 is elevated well above the cap 13. Hence, when the bottle is turned on its side, the liquid flows upwardly through the neck 11, pouring hole 24 and out the aperture 26 into a suitable receptacle.

In order to provide for entry of air into the neck 11 to replace the liquid withdrawn, the cylindrical side of the plug 22 is flattened in a breather duct 28 as shown in Fig. 3, there being a space between the tapered portion 21 of the sleeve 17 and the plug 22 in the region of the duct 28 to permit air to enter. When the plug 22 is in closed position, as shown in Fig. 1, the duct 28 is well below the sleeve 17, inasmuch as the upper terminus 30 of the duct 28 is only partway up the plug 22. When the plug 22 is raised to the position shown in Fig. 2, the terminus 30 of the duct 28 is above the level of the sleeve 17 so that air may enter through the hole 16 in the cap 13, thence downwardly through the duct 28 and into the neck 11. The duct 28 is formed on the side of the plug 22 opposite pouring aperture 26 so that the flow of liquid out of the bottle will not normally plug the duct 28.

In order to prevent the plug 22 from being withdrawn from the sleeve 17, a retainer 29 is placed around the outside of the lower end of the plug 22, which retainer, contacting the bottom of the sleeve 17, limits upward movement of the plug 22. There is a passageway 31 under the retaining collar 29 communicating with the duct 28 so that air may pass inside the neck 11 through the passageway 31.

In the modifications shown in Figs. 4 and 5, the neck

41 of a container of a different type from the container neck 11 is shown. There being no threads 12 on the outside of the neck 41, the use of the cap 13 is eliminated. Sleeve 43 is provided having an external taper 44 which fits tightly inside the neck 41 adjacent the upper lip 42 thereof. External shoulder 46 on the upper part of the sleeve 43 limits downward movement of the sleeve and may seat against the lip 42 when the relative diameters of the parts permit. However, as shown in Fig. 4, it is not essential that the shoulder 46 seat against the lip 42. An internal shoulder 47 is formed in the sleeve 43 approximately half the depth thereof and below the shoulder 47 an internal taper 48 is formed on the sleeve 43.

Plug 49 is formed to slide and seal against the taper portion 48 of the sleeve 43. Adjacent the upper end of plug 49 is an enlarged portion 51 which bears against the upper part of the sleeve 43 and seats on the internal shoulder 47. Above the enlarged portion 51 is a head 52 which seats on the top of the external shoulder 46 of sleeve 43 when the pouring spout is closed. As is apparent from Fig. 4, when the pouring spout is in closed position, the head 52 seats on the shoulder 46 of the sleeve 43, the external tapered portion 44 of the sleeve 43 seats against the neck 42 and the enlarged portion 51 of the plug 49 seats against the interior of the sleeve 43 with the lower portion of the plug 49 likewise seating against the tapered portion 48 of the sleeve 43.

A central pouring hole is formed extending upwardly from the bottom of the plug 49 and, partway up the length thereof, curves outwardly in a region designated by reference numeral 56 and terminates in the side wall of the plug 49 in a pouring aperture 54. Breather duct 57 is formed by flattening the cylindrical side of the plug 49 opposite the pouring hole 54. Duct 57 extends upwardly from the bottom of the plug 49 and has an upper terminus 58 partway up the side of the plug 49. A retaining collar 59 is formed on the lower end of the plug 49 limiting upward movement of the plug 49 in the sleeve 43. A passage 61 communicating with the duct 57 is formed between the collar 59 and the plug 49.

As shown in Fig. 5, when the pouring spout is in pouring position, the plug 49 is raised until the retaining collar 59 contacts the bottom of sleeve 43. In this position, the pouring hole 54 is well above the upper edge of the sleeve 43 and in convenient pouring position. At the same time, the upper terminus 58 of the duct 57 likewise communicates with the atmosphere, permitting air to enter the neck 41 as the liquid is dispensed.

Although the foregoing invention has been described in some detail by way of illustration and example for purposes of clarity of understanding, it is understood that certain changes and modifications may be practiced within the spirit of the invention and scope of the appended claims.

What is claimed is:

1. A pouring spout for a container comprising a sleeve dimensioned to fit within the mouth of a container and a plug slidable in said sleeve, said plug being formed with a pouring hole extending upwardly and in fluid communication with an aperture located in the side of said plug in such position that when said plug is elevated said aperture is open to atmosphere and when said plug is depressed said aperture is closed off from atmosphere by said sleeve, said plug being formed with a breather duct formed on the outside of said plug, said duct extending upward from the bottom of said plug and terminating part way up the length of said plug, the length of said duct being such that when said plug is elevated said duct

provides for communication between the interior of said container and the atmosphere and when said plug is depressed said duct is closed off by said sleeve.

2. A spout according to claim 1 in which said duct is formed on the side of said plug opposite said aperture.

3. A spout according to claim 2 in which said plug is formed with a retainer collar on its lower end limiting upward movement of said plug and a space is provided under said retainer collar in communication with said duct.

4. A pouring spout according to claim 1 in which the exterior of said sleeve is formed with an external downward taper.

5. A pouring spout for a container comprising a sleeve dimensioned to fit within the mouth of a container and a plug slidable in said sleeve, said plug being formed with a pouring hole extending upwardly and in fluid communication with an aperture located in the side of said plug in such position that when said plug is elevated said aperture is open to atmosphere and when said plug is depressed said aperture is closed off from atmosphere by said sleeve, said sleeve being formed with an enlarged internal diameter portion at its upper end and said plug being formed with an enlarged portion adjacent its top dimensioned to seat within said enlarged internal diameter portion of said sleeve.

6. A pouring spout for a container comprising a sleeve dimensioned to fit within the mouth of a container, a plug slidable in said sleeve, said plug being formed with a pouring hole extending upwardly and in fluid communication with an aperture located in the side of said plug in such position that when said plug is elevated said aperture is open to atmosphere and when said plug is depressed said aperture is closed off from atmosphere by said sleeve, and an apertured cap on the exterior of the mouth of the container having its top seating on the upper end of said sleeve, said plug extending out through the aperture in said cap.

7. A pouring spout according to claim 6 in which said sleeve is formed with an external collar seating on the lip of said mouth, the top of said cap seating on said external collar and in which said plug is formed with an enlarged head seating on the top of said cap.

8. A pouring spout comprising an externally tapered sleeve dimensioned to fit tightly inside the neck of a bottle, a plug slidable inside said sleeve, and means limiting upward and downward movement of said plug relative to said sleeve, said plug being of greater length than said sleeve and having a pouring hole extending upward from the lower end of said plug and terminating part way up the length of said plug, the relative lengths of said hole and sleeve being such that when said plug is depressed said hole is closed from communication with the atmosphere by said sleeve and when said plug is raised the upper end of said hole is above said sleeve, said plug being formed with a breather duct formed on the outside of said plug extending upward from the lower end of said plug and terminating part way up the length of said plug, the relative lengths of said duct and sleeve being such that when said plug is depressed said duct is closed from communication with the atmosphere by said sleeve and when said plug is raised the upper end of said duct is above said sleeve.

References Cited in the file of this patent

UNITED STATES PATENTS

2,139,289	Skoda	Dec. 6, 1938
2,424,101	Lari	July 15, 1947