March 12, 1968 C. C. BERKUS 3,372,846

POURING SPOUT

Filed Aug. 29, 1966

Fig. 1

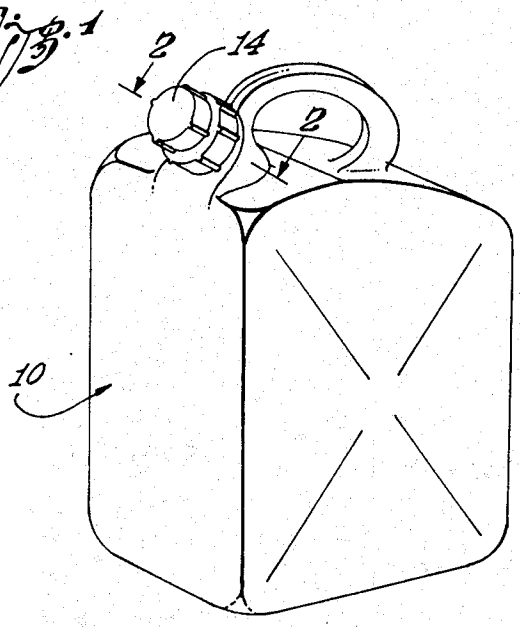


Fig. 4

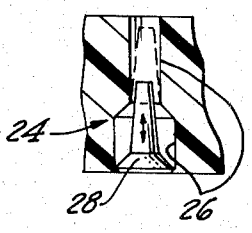


Fig. 3

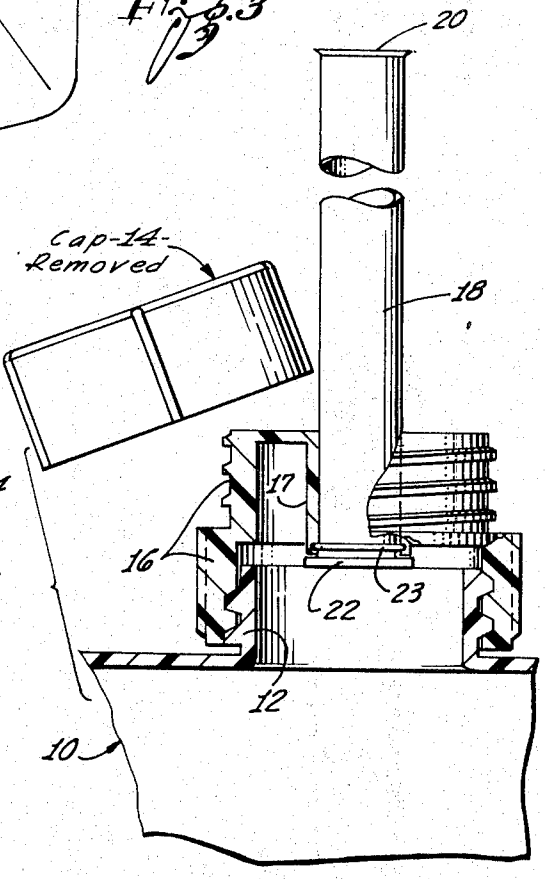
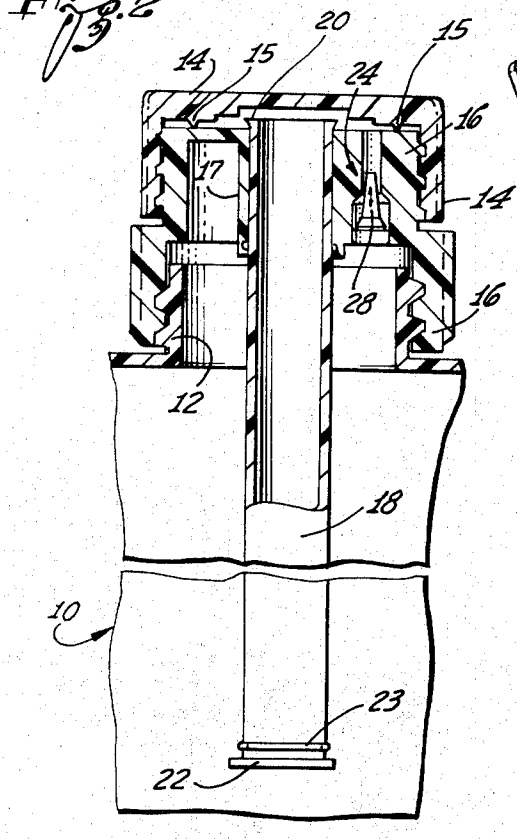


Fig. 2



INVENTOR
Clyde C. Berkus

By Keith D. Beecher

ATTORNEY

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POURING SPOUT

Clyde C. Berkus, 8560 Tujunga Blvd.,
Sun Valley, Calif. 91352

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ABSTRACT OF THE DISCLOSURE

An improved spout assembly for a plastic container, or the like, is described herein. The spout assembly of the invention is of the retractable type, and it provides a convenient combination which, in the retracted position of the spout may provide a sealing enclosure for the container, and which can be easily opened and the spout extended to facilitate pouring. A vent valve is provided in the assembly so that the liquid from the container may be poured smoothly and evenly through the extended spout.

The present invention relates generally to dispensers, and it relates more particularly to an improved retractable pouring spout assembly for use, for example, with portable containers.

The retractable pouring spout assembly of the invention may be composed, for example, of plastic. The assembly may be threaded to a boss on the container so as to form a closure for the container, and to form a pouring spout for the contents of the container when the container is opened.

The container itself may be formed of plastic, and it may be of any desired size or shape. It is contemplated that the containers with which the improved spout assembly of the invention will be used are those types which are readily portable. For example, the container may be of the type used for gasoline; or for liquid polishes, varnishes, oil, and the like.

The improved spout assembly of the invention may be threaded onto the aforesaid boss and retracted into the container, so that the assembly can receive a closure cap. Then, when it is desired to dispense the liquid from the container, the closure cap is removed, and the pouring spout is pulled out to an elongated position, for the convenient dispensing of the liquid.

It is, accordingly, an object of the present invention to provide an improved spout combination for use in conjunction with dispensing containers, and which normally forms a closure for the container and, alternately, an extendable pouring spout for dispensing the contents of the container.

Another object of the invention is to provide such an improved spout assembly which is exceedingly simple to adjust between its "closed" and "pouring" positions.

Another important object of the invention is to provide such an improved retractable spout assembly which is leak-proof, both when in the normally closed condition, or when it is being used to dispense liquid through the pouring spout.

Yet another object of the invention is to provide such an improved spout assembly which, although leak-proof, is constructed so as to permit the free and unimpeded flow of liquid through the spout, when the spout is in its extended position.

A still further object of the invention is to provide such an improved spout assembly which is simple in its concept, and which may be produced inexpensively and sold at a relatively low price.

In general, therefore, the main objective of the present invention is to provide an improved spout assembly for a container of liquids; which assembly has a dispensing

spout which may be extended to a pouring position, or retracted to a position within the container, so as to permit sealing and closing of the opening by means of a usual closure cap.

In addition, the improved assembly of the invention includes a simple flutter valve mechanism in an air vent which permits free and unimpeded flow of the liquid through the spout, and yet which prevents leakage or dripping of the liquid from other parts of the assembly.

Other objects and advantages of the invention will become apparent from a consideration of the following description, when the description is taken in conjunction with the accompanying drawing, in which:

FIGURE 1 is a perspective view of a liquid container having a retractable spout assembly mounted thereon, the spout assembly being constructed in accordance with the concepts of the invention, and being shown in its "closed" condition;

FIGURE 2 is a fragmentary view, partially in section, taken substantially along the line 2—2 of FIGURE 1, showing details of the spout assembly in its closed condition;

FIGURE 3 is a further fragmentary view, partially in section, showing the spout assembly of the invention in condition so that the liquid in the container may be readily poured through the assembly; and

FIGURE 4 is a fragmentary sectional view, slightly enlarged as compared with FIGURE 2, and showing the details of a flutter valve mechanism which is included in the assembly of the invention.

As shown in the drawings, the assembly of the invention may be used in conjunction with a container **10** of any shape or size. As is usually the case, a boss **12** is provided in the top of the container **10**, and this boss has threaded male threads so as to receive a usual closure cap **14**, the closure cap having mating female threads. The container **10**, the closure cap **14**, and the components of the spout assembly, to be described, may be formed of plastic, if so desired.

The spout assembly itself includes a tubular plug **16** which has a lower skirt section with female threads, and which is adapted to be threaded onto the boss **12** in place of the closure cap **14**. The plug **16** also has a reentrant tubular central portion **17**. An elongated tubular spout **18** is mounted in the plug **16**. The spout **18** is slidable in the tubular portion **17** of the plug **16**, and in coaxial relationship with the tubular portion.

The under surface of the cap **14** has a central depression which receives the upper end of the spout **18** when the cap is in place. A depending annular rim **15** is also formed on the under surface to engage and seal with the top of the plug **16**.

As shown in FIGURE 2, the spout **18** may be retracted down into the container **10**, and the closure cap **14** threaded onto a male threaded portion of the plug **16**. The rim **15** seals the cap to the plug **16** when the cap is threaded down on the plug, as shown.

Under the condition of FIGURE 2, the container **10** is in its closed condition. When it is desired to dispense the contents of the container **10**, the closure cap **14** may be removed, as shown in FIGURE 3, and the spout **18** pulled out of the tubular portion **17** to its extended position. Then, the contents of the container **10** may be conveniently poured through the spout **18**. As shown, the spout **18** has flanges **20** and **22** at its ends, so that the spout is retained within the plug **16**.

A ring **23** is formed integrally with the spout, adjacent the flange **22**. As shown in FIGURE 3, when the spout is fully extended, the ring **23** snaps into the lower end of the tubular portion **17**, so as to lock the spout in its extended position.

In order to facilitate the flow of liquid through the spout **18**, a vent including a flutter valve mechanism **24**, as best shown in FIGURE 4, is mounted in the plug **16**.

As is well known, some venting means must be provided, since when it is attempted to pour a liquid from a closed container without adequate venting, air will attempt to enter through the spout thereby producing excessive "gurgling," or the flow of liquid through the spout will be impeded completely.

The flutter valve mechanism includes a housing **26** which surrounds a vent opening in the plug **16**, and a flutter valve **28** in the housing. The valve **28** is entrapped in the housing **26**, and moves between a first position in which it seals the opening in the plug, and to a second position in which the opening is unsealed.

The flutter valve **28** moves to its sealing position whenever the pressure inside the container is greater than the external pressure, so as to prevent liquid from leaking through the assembly. However, when the pressure inside the container is less than the external pressure, the valve opens to vent the container, so that the liquid may continue to flow freely and unimpeded through the spout.

As mentioned above, all the components of the spout assembly may be formed of plastic, and the entire assembly may be fabricated simply and inexpensively. The spout **18** may be assembled within the plug **16**, merely by forcing its flanged end **20** through the tubular portion **17**.

The spout assembly of the invention is most advantageous in that it can be carried normally by the container **10**, for example, in an unobtrusive retracted configuration, with the container being closed by a usual closure cap **14**.

Then, the contents of the container may be dispensed conveniently and easily, merely by removing the closure cap **14** and drawing the spout **18** out to its extended position. During the pouring operation, the valve **24** assures free and easy flow of the liquid, and without dripping or leakage.

The invention provides, therefore, an improved spout assembly which is simple and inexpensive to construct, and easy and satisfactory to operate.

While a particular embodiment of the invention has been described, modifications may be made. It is intended in the claims to cover all modifications which come within the scope of the invention.

I claim:

1. A retractable spout assembly for use with a container, said container having an externally threaded boss surrounding an opening into the interior thereof, and having closure cap with an internally threaded skirt portion dimensioned to be normally threadably received by said threaded boss, said spout assembly including: a tubular plug member having an internally threaded lower skirt section of a diameter corresponding to that of said closure cap to be threadably received by said threaded boss in place of the aforesaid closure cap, and said plug member having a tubular central section coaxial with the aforesaid sections; an elongated tubular spout member slidably mounted in the aforesaid tubular central section of said plug member and movable between a retracted position and an extended position with respect to said plug member, said tubular spout member having flanges formed at each end thereof to retain said spout member in said plug; and venting valve means extending through said plug member on one side of said tubular central section thereof to prevent a vacuum from forming in the interior of the container during the flow of liquid through said spout member.

2. The combination defined in claim **1** in which said venting valve means includes a housing formed in said plug member, and a valve member movable in said housing to open said venting valve means when the pressure in said container is less than the external pressure, and to close said venting valve means when the pressure in said container is greater than the external pressure.

3. The combination defined in claim **1** in which said closure cap has a sealing rim formed on the under surface thereof to permit said closure cap to be threaded to said plug in sealing relationship therewith when said spout is in its retracted position.

4. The combination defined in claim **1** in which said elongated tubular spout member has an integral outer peripheral ring formed thereon adjacent the lower end thereof to be received by a mating groove in said tubular central section of said plug member when said spout member is moved to said extended position to hold said spout member in said extended position.

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ROBERT B. REEVES, *Primary Examiner.*

HADD S. LANE, *Examiner.*