Jan. 16, 1934. T. E. BARNES ET AL 1,944,058

POURING SPOUT FOR CONTAINERS

Filed March 6, 1933

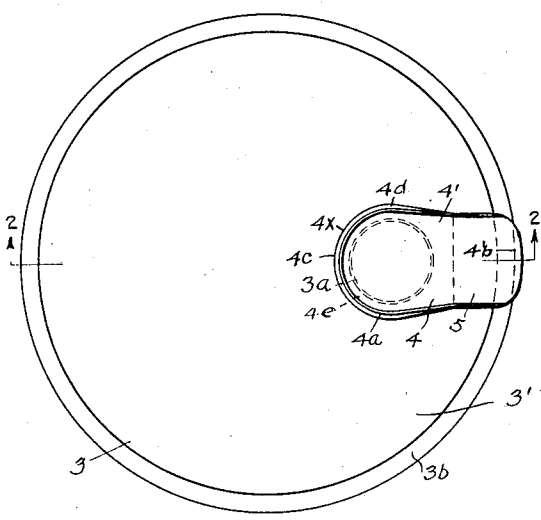


FIG-1

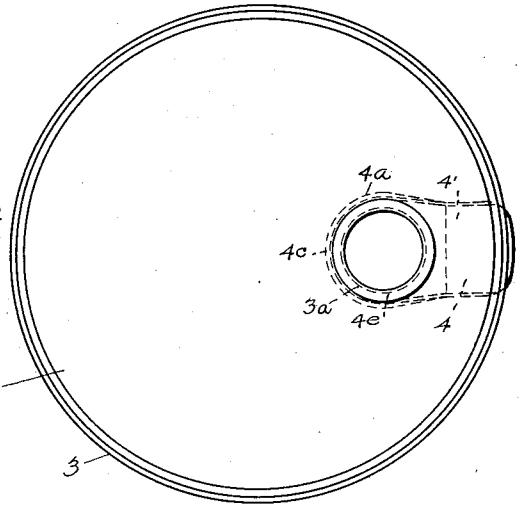


FIG-3

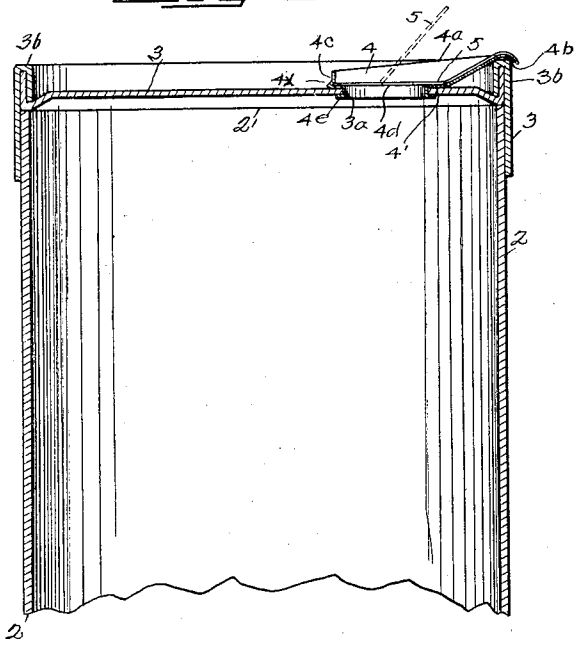


FIG-2

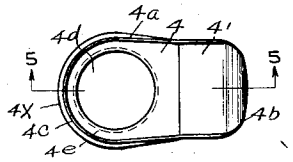


FIG-4

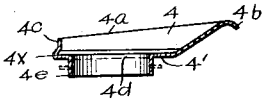


FIG-5



FIG-6

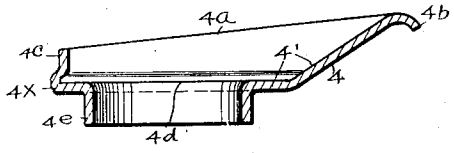


FIG-7

Inventor
THOMAS E. BARNES
WILLIAM F. COBB
By Harry B. Wallace
Attorney

Patented Jan. 16, 1934

1,944,058

UNITED STATES PATENT OFFICE

1,944,058

POURING SPOUT FOR CONTAINERS

Thomas E. Barnes and William F. Cobb,
Utica, N. Y.

Application March 6, 1933. Serial No. 659,601

3 Claims. (Cl. 221—11)

This invention relates to improvements in pouring spouts for fibrous and other containers, designed for dispensing various liquids without requiring the covers of the containers to be removed.

The object of the invention is to provide a novel and simple attachable spout which may be quickly, easily and permanently applied externally to the cover of a container, the spout being formed from relatively thin-gauge sheet tin, aluminum, and the like, and having a drawn flange that is inserted downwardly through a perforation in the web of the cover, the said spout comprising an upwardly facing tapering trough that lies entirely below the plane of the usual upstanding peripheral bead of the cover, and the free tip of said spout preferably permanently resting upon the said bead, in order to discharge the contents of the container clear of the cover and container. A further object is to provide novel and simple valve-like means for sealing the opening in the bottom of the spout to prevent the inflow of air as well as the accidental escape of the liquid via said spout; said valve comprising a relatively thin flexible sheet of fiber which intimately overlies the entire bottom of the spout, the enlarged inner end of said valve being permanently gripped and held by a concentric bead or fold that partially encircles the coinciding perforations of the cover and spout; the free end of said valve projecting slightly beyond the tip of the spout to enable the operator to grip said end and flex the valve upwardly to uncover the said openings for dispensing the liquid; said sealing member adapted to be flexed repeatedly for opening and closing the dispensing openings of the cover and spout until the container is emptied. It is a particular object of the invention to so locate and regulate the size of the dispensing openings of the cover and spout as to eliminate the well known venting openings heretofore commonly practiced. And a further object is to provide a pouring spout of the character described which may be produced by a minimum of labor and at extremely low cost.

We attain these objects by the means set forth in the detailed description which follows, and as illustrated by the accompanying drawing, in which—

Figure 1 is a top plan view of the cap of the container showing the location and top plan of the pouring spout and the flexible seal. Fig. 2 is a central vertical section taken on line 2—2 of Fig. 1, showing the method of securing the spout to the web of the container cover; also showing in elevation the sealing member in the sealing, as well as in the open position; also showing the simple means for permanently securing the inner end of the sealing member. Fig. 3 is a bottom plan view of the cover showing the dispensing opening and the clinching of the drawn flange of the spout that pierces said opening. Fig. 4 is a top plan of the spout without the valve. Fig. 5 is a central vertical section of the spout alone on line 5—5 of Fig. 4. Fig. 6 is a plan view of the valve. And Fig. 7 is an enlargement of the central vertical section of the spout shown in Fig. 2.

In the drawing, 2 represents the body of a fibrous or like container, and 3 the circular cap which telescopes the normally open top 2′ of the body. The web 3′ of the cap is preferably perforated, as at 3*a*, relatively close to the usual upstanding annular bead 3*b* which insures practically the complete emptying of the container. 4 represents the pouring spout or dispensing nozzle, which is preferably made of relatively thin-gauge tin or aluminum in one part, having a substantially flat bottom 4′, that engages the web 3′ for the greater portion of its length, and is surrounded by a continuous upturned flange 4*a* of substantially horseshoe shape that extends from one side of the tip 4*b* inwardly and around the enlarged end 4*c*, thence outwardly and terminates at the opposite side of the tip. The free top edge of the flange 4*a* preferably lies slightly below the plane of the rib 3*b*, so as not to interfere with the stacking of the empty containers. The end 4*c* of the spout is formed with a concentric opening 4*d*, the metal surrounding said opening being drawn downwardly in the shape of a tubular flange 4*e* which extends through the opening 3*a* and is thereafter folded and clinched against the bottom of the web 3′ for rigidly holding the spout in place, with its relatively thin lip 4*b* resting firmly upon the top of the bead 3*b* in such way as to discharge the contents of the container clear of the cap. In practice, the coinciding openings of the spout 4 and web 3′ are preferably sealed, so as to normally exclude air from the container, as well as to prevent the liquid contents from accidentally spilling while the container is being carried or carelessly handled. To this end, we provide a relatively thin-gauge valve which is preferably made of sheet fiber or other non-metallic material, as 5; the said valve preferably being exactly the same area and shape as the bottom 4′ of the spout, so that when the valve is pressed downwardly into the spout with the fingers, it will remain closed until it is again lifted manually (see dotted lines in Fig. 2) to uncover the

opening 4*d* for dispensing the contents. This valve is preferably made fast to the inner enlarged end 4*c* of the spout by upsetting or contracting and folding the flange 4*a* to form a hollow semi-circular rib 4*x*, as shown in Figs. 1, 2, 4 and 5, that receives and grips the enlarged inner end 5' of the valve to prevent its detachment from the spout. The free end 5*a* of the valve preferably projects slightly beyond the tip of the spout (see Fig. 1) to enable the operator to grasp said end and flex the valve upwardly, as shown by dotted lines in Fig. 2, to partially or wholly uncover the opening 4*d* for dispensing the liquid. By this construction and arrangement, when the container is tilted to the proper degree, the liquid contents may be freely poured without the need of the common venting opening heretofore employed. In other words, if the container is tilted initially to the extent of about 45°, the liquid will flow through the spout in a copious stream although the opening 4*d* is not entirely flooded with the liquid. This leaves a small space at the left side of the opening 4*d* through which the air may enter the top of the container to prevent a vacuum from forming therein to hinder the free pouring of the liquid. The seal effected by the valve 5, constructed and arranged as herein shown and described, is substantially equal to that of a cork. This is due mainly to the fact that the valve fits snugly in the trough of the spout, and the further fact that owing to the relatively small area of the opening 4*d*, the pressure of the body of liquid in the container, when the latter is up-ended, is not strong enough to unseat the valve. Furthermore, the ordinary handling of the filled container causes the liquid to splash and wet the under side of the valve, which, owing to its relatively great breadth and snug fitting, effects an effective water seal due mainly to capillary attraction, and since there is no venting opening in the cover, the seal cannot be broken unless the valve 5 is lifted clear of the opening 4*d*, as explained. It will be understood from the foregoing description that the valve 5 may be flexed repeatedly for dispensing portions of the contents of the container until the latter is emptied, without causing the valve to leak or otherwise fail to perform its duty.

Having thus described our invention, what we claim, is—

1. In combination with a container cover formed with a pouring opening adjacent its periphery the latter being defined by an upstanding annular bead, a pouring spout mounted on the cover having an opening in its bottom that coincides with the opening of the cover, means to rigidly secure the spout to the cover, the bottom of the spout being formed at its opposite sides and one end with a continuous upwardly facing flange, said flange adjacent the coinciding opening being formed with an external curved rib, the free end of the bottom of the spout resting upon said bead, and means to seal the coinciding openings of the spout and cover comprising a flexible non-metallic sheet whose inner end is held firmly in the grip of said rib while the remainder of the sheet is held in intimate contact with the bottom of the spout by the snug fitting of the parts, and the free end portion of said sheet adapted to be flexed upwardly to uncover said coinciding openings and dispense the contents of the container.

2. In combination with a container cover formed with a pouring opening and an upstanding annular bead defining the periphery thereof, a pouring spout mounted upon the cover having an opening formed by a drawn tubular flange that extends through the opening of the cover and is clinched rigidly thereto, the bottom of the spout being substantially surrounded by a continuous upwardly facing flange having an outwardly extending hollow rib disposed concentric to said openings, the whole of said spout except its free end lying below the plane of said bead and the free end resting upon said bead, and a valve to seal the opening in the bottom of the spout comprising a sheet of flexible material whose inner end is disposed in and firmly gripped by said hollow rib, said valve fitting snugly in the trough defined by the upwardly facing flange and being held in intimate contact with the bottom of the spout by said hollow rib and said snug fitting, and the free end portion of said valve adapted to be flexed upwardly to uncover the opening of the spout for dispensing the contents of the container.

3. In combination with a container having a cover formed with a pouring opening disposed adjacent its periphery, the latter being defined by an upstanding bead, of a pouring spout mounted on the cover having a drawn tubular portion that pierces said opening and conducts the contents of the container towards a coinciding opening of the spout, the bottom of the spout being formed at its opposite sides and one end with a continuous upwardly facing flange that together with the bottom forms the trough of the spout, the said flange adjacent the tubular portion being formed with a semi-circular rib, the tip or free end of the bottom resting upon said bead and adapted to discharge the contents of the container beyond and clear of the cover, and means to seal the coinciding openings of the spout and cover comprising a flexible sheet of fiber whose inner end is held firmly in the grip of said hollow rib while the remainder of said sheet is held in intimate contact with the bottom of the spout by the snug fitting of the parts, and the free end portion of said fibrous sheet adapted to be flexed upwardly to uncover said coinciding openings and dispense the contents of the container.

THOMAS E. BARNES.
WILLIAM F. COBB.