July 8, 1941. P. H. KRAETCH 2,248,879

MILK BOTTLE SPOUT

Filed Aug. 1, 1939

Fig. 1.

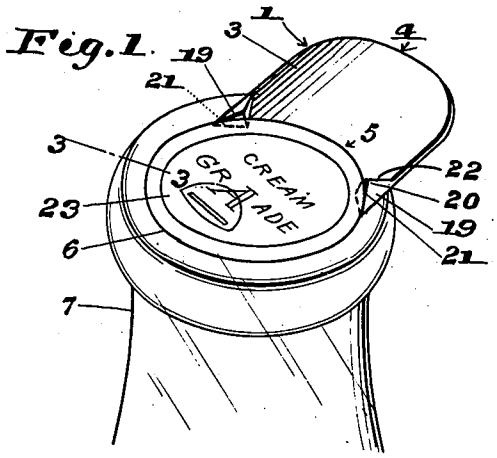


Fig. 2.

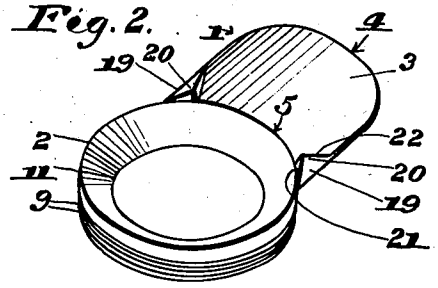


Fig. 3.

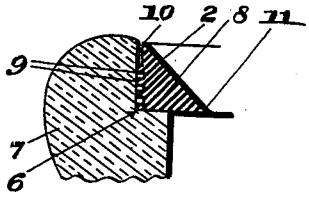


Fig. 4.

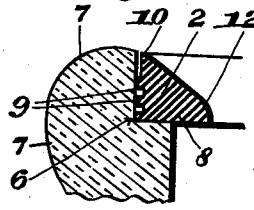


Fig. 5.

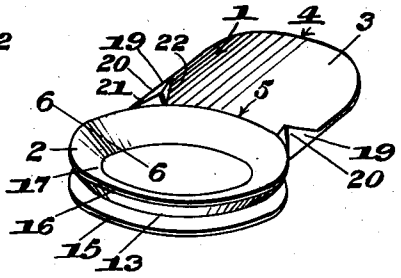


Fig. 6.

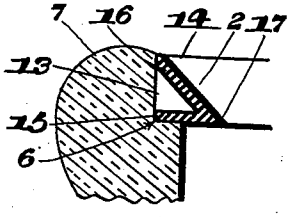


Fig. 7.

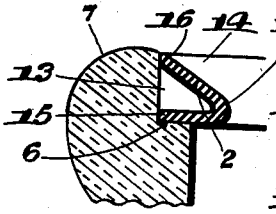
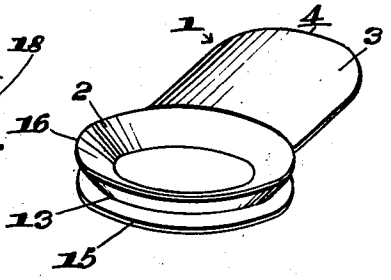


Fig. 8.



Inventor

Paul H. Kraetch

By Munn, Anderson & Liddy

Attorneys

Patented July 8, 1941

2,248,879

UNITED STATES PATENT OFFICE

2,248,879

MILK BOTTLE SPOUT

Paul H. Kraetch, Astoria, Oreg.

Application August 1, 1939, Serial No. 287,835

6 Claims. (Cl. 65—31)

This invention relates to improvements in pouring devices, being particularly well adapted for use in conjunction with milk, cream and similar bottles. Containers of these types are often chargeable with lack of cleanliness because of the handling which they have to undergo during such necessary processes as filling, loading and delivery, although comparatively recent attempts toward sanitation have been marked by the use of covers. The latter constitute an improvement, but a still further effort has been made toward the ends of sanitation in keeping the liquid away from the mouth of the bottle during pouring, thus avoiding the possibility, even though remote, of contaminating the liquid.

This further improvement comprises the instant milk bottle spout which is so made as to fit accurately and tightly in the cap seat. The spout thus becomes a bridge, so to speak, between the liquid inside of the bottle and the glass into which it is intended to be poured, keeping the liquid entirely clear of the mouth of the bottle and so delivering it in as pure a state as it is in the bottle. With this premise in mind the following objects of the invention can be understood:

First, to provide a pouring spout consisting of a base ring to frictionally fit the cap seat of a bottle, and a pouring lip extending upwardly from the ring at a slight pitch, there being upstanding lugs where the margins of the ring and lip meet for the double purpose of providing gripping points for the bottle cap and serving as guards to direct the liquid toward the central channel of the lip and thus keep it from pouring over the edge.

Second, to provide a pouring spout for milk bottles and the like, use being made of the usual cap seat as a rest for the ring of the spout, the specific structure of said ring insuring the retention of the spout especially during pouring.

Third, to provide a pouring spout in which the pouring lip extends off from the margin of a base which comprises a complete ring, said ring being adapted to rest tightly in the cap seat of a bottle and in order to aid this purpose the ring is right triangular in cross section, the thickest part exercising the greatest tension against said seat, the corner of which is occupied by the ring.

Fourth, to provide a pouring spout which includes a circumferentially ribbed ring, the advantage of the ribs being a secure grip of the ring upon the cap seat into which the ring is adapted to be pressed.

Fifth, to provide a pouring spout wherein the ribbing of the base ring consists of at least two well defined flanges that are produced by a peripheral, wedge-shaped recess, the advantage of the resultant flange arrangement being the facility with which the ring can still be inserted in the possible event of its having swollen by the absorption of liquid.

Sixth, to provide a pouring spout as above, wherein the upper flange stands at a sharp angle in reference to the lower flange and by that formation acts as a brace exerting pressure against the lower flange when the latter is rested in the cap seat of the bottle.

Other objects and advantages will appear in the following specification, reference being had to the accompanying drawing, in which:

Figure 1 is a perspective view of a portion of a milk bottle illustrating the application of the improved pouring spout.

Figure 2 is a detail perspective view of the pouring spout.

Figure 3 is a cross section taken substantially on the line 3—3 of Fig. 1, and illustrating one cross sectional configuration of the ring.

Figure 4 is a similar view illustrating a modification in the cross sectional configuration of the ring.

Figure 5 is a perspective view of the pouring spout illustrating a further modification.

Figure 6 is a cross section as though taken on the line 6—6 of Fig. 5, showing the ring in place in a bottle cap seat.

Figure 7 is a cross section similar to Fig. 6, illustrating a modification in the shape of the ring illustrated in the latter.

Figure 8 is a perspective view of a bottle spout of the type shown in Fig. 5, the lugs being omitted.

This invention is an improvement on the milk bottle spout disclosed in the copending application for patent filed by Paul H. Kraetch Nov. 22, 1938, Serial No. 241,848. The underlying principle of the two inventions is the same. In other words, each of the pouring spouts is adapted for frictional affixation to the cap seat of a milk or similar bottle preparatory to pouring out the liquid in a sanitary manner. The instant invention, however, embodies improvements which are fully and clearly disclosed below.

The spout is generally designated 1 in all forms of the invention. It commonly comprises a ring 2, whatever its particular cross sectional

form might be, from which a pouring lip 3 extends at a slight pitch. This pouring lip is dished in cross section, thereby defining a very effective pouring channel. To this end the dishing is inward so as to appropriately merge into the inside of the ring.

A further provision in the pouring lip 3 comprises a sharpening at 4. The sharpening is usually done by tapering the cross sectional dimension of the lip 3 from its base 5 where it springs from the ring to its terminal edge 4. The sharpening tends to prevent dripping.

In the first form of the invention (Figs. 1, 2 and 3) the ring 2 is right triangular in cross section. This ring is adapted to have a fairly tight fit in the cap seat 6 of the bottle 7. Because of this cross sectional configuration of the ring its base or widest part 8 is located contiguously to the cap seat, exercising the greatest tension against the corner of said seat because of the predominating thickness of material. The latter, incidentally, generally comprises rubber, and being such exerts an appreciable expansive effort against the walls of the cap seat, especially the vertical wall, thus to maintain a seal which is ordinarily secure enough to prevent the leakage of liquid around the ring.

This seal is augmented by a series or ribs 9 which may be as deep and numerous as may be desired. The showing in Fig. 3 is largely illustrative. In actual practice the ribs need not be as deep as suggested and may be fewer in number. These ribs stop short of the apex 10 of the ring. Said ribs are therefore made to cooperate directly with the thick part of the ring in exercising the desired frictional grip on the vertical wall of the cap seat.

It is noted in Fig. 3 that the inner edge 11 of the ring is sharp. Whether or not to maintain this sharpness in all forms of the invention is optional, because as seen in Fig. 4 said inner edge which is now defined as the inside margin 12, is rounded so as to present an annular convexity. This cross sectional form facilitates the flow of liquid inasmuch as the available inside ring area is increased slightly.

Figure 4 illustrates a slight modification in the arrangement of the ribs 9, these being shown of a fewer number as previously suggested. The base 8 has the same function as before.

Figures 5, 6 and 7 illustrate a further modification wherein the ring 2 is provided with a deep annular recess 13. The cross sectional shape of this recess is the same as that of the ring, namely, right triangular. The result of the recess is the conversion of the ring into the upper and lower flanges 14, 15. A ring of this formation is much more flexible than the ring in the other forms, but it retains every benefit of the thick base 8 in Figs. 3 and 4 because the horizontal dimension of the lower flange 15 agrees with the foregoing thick base, and has the advantage of exercising a predominating pressure upon the vertical wall of the cap seat.

The upper flange 14 standing at a sharp pitch to the lower flange 15, has a definite bracing action which augments the foregoing function of the flange 15. The rim 16 of the flange 14 makes contact with the cap seat wall at a place well spaced from the flange 15 and serves to brace the flange 15, keeping it in the desired relationship to the bottom of the cap seat.

The distinction between Figs. 6 and 7 is the same as that between Figs. 3 and 4. Instead of the inner edge 17 being sharp as in Fig. 6, said edge is rounded at 18 to constitute a convex inside margin. In Fig. 8 a ring of the form in either Fig. 6 or 7 is employed in conjunction with the pouring lip 3, the main distinction here being that certain lugs 19 are omitted.

These lugs constitute one of the main features of the invention. They are of the same form in each of Figs. 1 and 5, and would still be of the same form if used in conjunction with the modifications in Figs. 4 and 7.

Each of the lugs 19 is of a distorted pyramidal shape. The crest 20 constitutes its highest point. The upright walls 21, 22 spring from the surface of the pouring lip 3 and enlarge as they approach the crest 20. The walls 21 of the companion lugs comprise arc portions which are continuations of the outside circular part of the ring 2.

Said arc portions thus lend themselves to a fitting-in of the bottle cap 23, the ring 2 desirably sitting low enough in the seat 6 to permit the superimposition of the bottle cap. Usually there is just room enough in the cap seat above the ring to receive the bottle cap. The lugs 19 therefore serve an important purpose inasmuch as they grip the bottle cap at two places and aid materially in its retention.

But the lugs 19 serve another important purpose. When using the spout in pouring, the liquid obviously follows the dished pouring channel 3. The lugs 19 now serve as guards. Instead of the liquid spilling over the sides of the pouring lip 3, as might be possible, the lugs or guards 19 serve as deflectors, confining the liquid stream to the pouring channel and thus avoiding even the remote possibility of lateral spilling. This function the lugs 19 are well adapted to perform inasmuch as they are situated at the corners where the pouring lip 3 joins the ring 2.

I claim:

1. A spout comprising a ring to frictionally fit the cap seat of a bottle, a pouring lip extending off from the margin of the ring to provide a pouring channel, and portions at the junction of the margins of the ring and lip, being upstanding from the surface of the pouring channel and having inwardly directed walls to guide the liquid toward the center of said channel during pouring and thus prevent the liquid from spilling over the sides.

2. A spout comprising a pouring lip, a ring from which the lip extends, and lugs on the spout to act as stops for a cap which is adapted to be fitted on top of the ring in a bottle cap seat, said stops including arc portions in continuation of a circular part of the ring, and upstanding therefrom to provide for an actual gripping of the edge of the cap.

3. A spout comprising a pouring lip, a ring from which the lip extends, said ring being adapted to be rested in the cap seat of a bottle so that its upper margin is sunken below the rim of the bottle, and lugs on the spout to act as stops for a bottle cap, said stops including arc portions in circular continuation of said upper margin and upstanding therefrom to provide gripping points for the edge of said cap.

4. A spout comprising a pouring lip, and a ring from which the lip extends, said ring being acutely angled in cross section and being circumferentially recessed on the outside thereby to form one upper and one lower flange, the vertex of said ring being rounded.

5. A pliable mono-textured spout comprising a ring consisting of a base flange to occupy the bottom of a cap seat and an acutely related

flange circumferentially connected to the internal diameter of the base flange, the circumferential terminals of both flanges making contact with the upright wall of the cap seat, and a pouring lip integral with and extending off from the acutely related flange.

6. A pliable mono-textured spout comprising a ring consisting of a base flange to occupy the bottom of a cap seat and an acutely related flange circumferentially connected to the internal diameter of the base flange, the circumferential terminals of both flanges making contact with the upright wall of the cap seat, a pouring lip integral with and extending off from the acutely related flange, and lugs on the pouring lip, contiguous to the ring and adapted to act as stops for a bottle cap superimposed upon the ring when emplaced in a cap seat.

PAUL H. KRAETCH.