May 24, 1938. O. G. NILSON 2,118,222

COMBINED CAP AND SPOUT FOR LIQUID DISPENSING CONTAINERS

Filed Feb. 17, 1936 2 Sheets-Sheet 1

Fig. 1

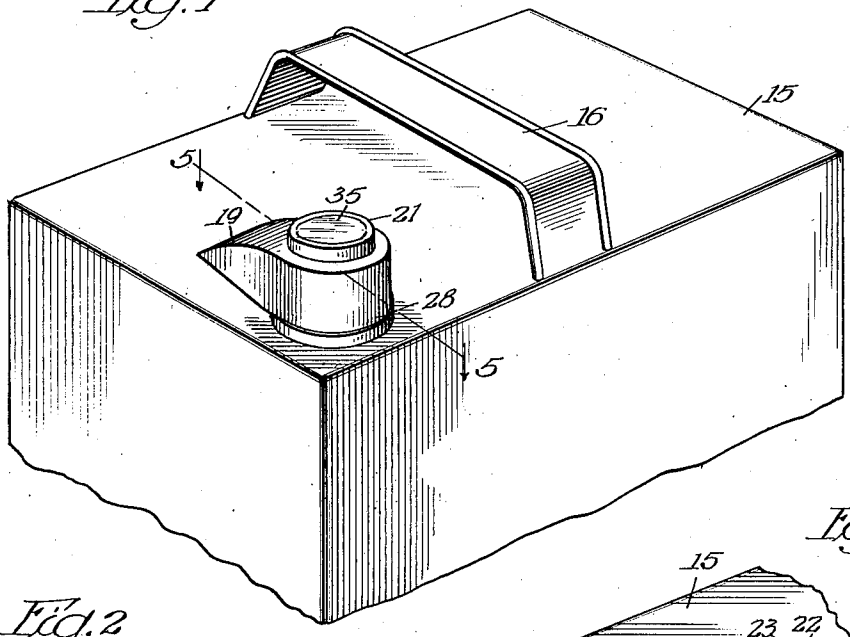


Fig. 3

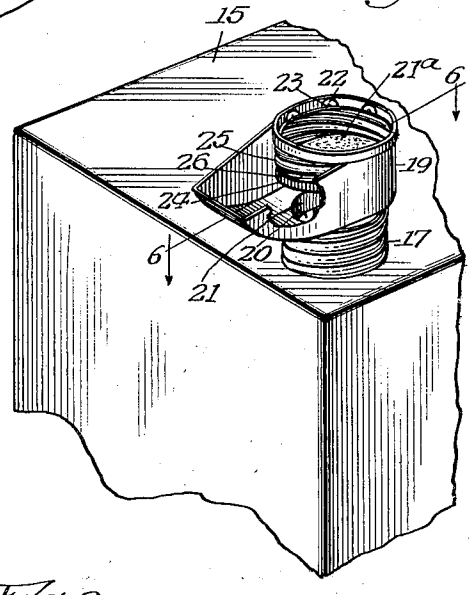


Fig. 2

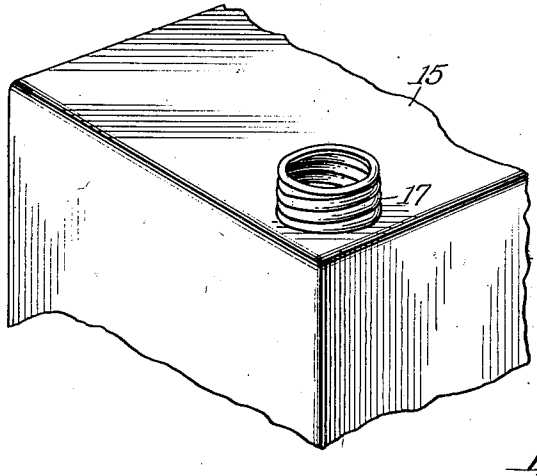
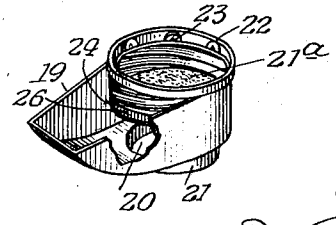


Fig. 4



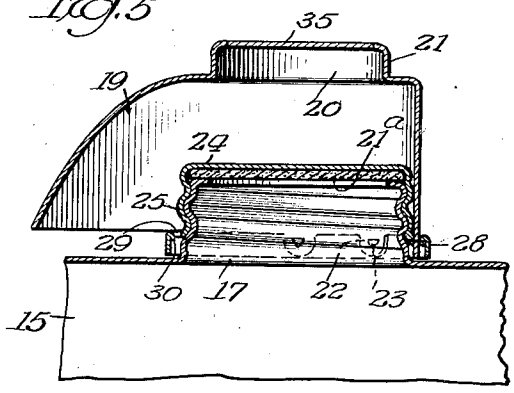
Inventor
Olof G. Nilson
By [signature]
Atty.

May 24, 1938. O. G. NILSON 2,118,222

COMBINED CAP AND SPOUT FOR LIQUID DISPENSING CONTAINERS

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Fig. 5



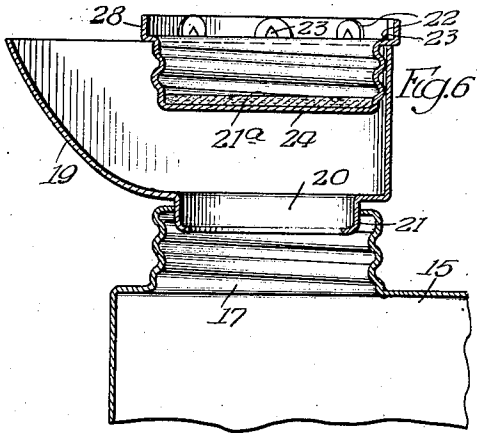


Fig. 8

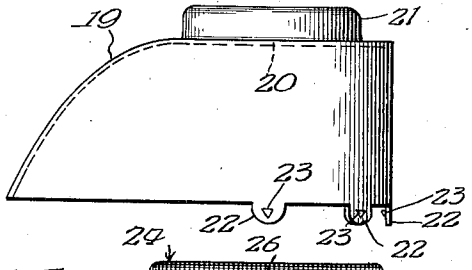


Fig. 9

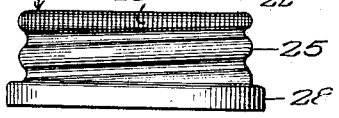


Fig. 7

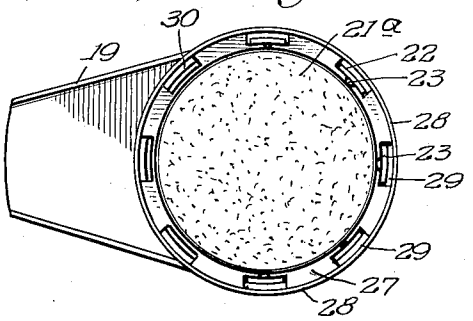


Fig. 11

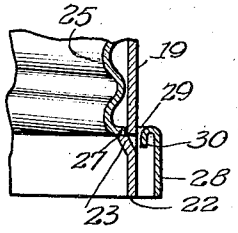


Fig. 10

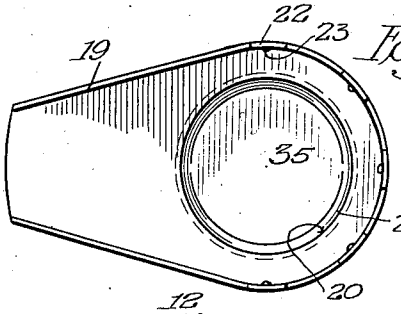


Fig. 12

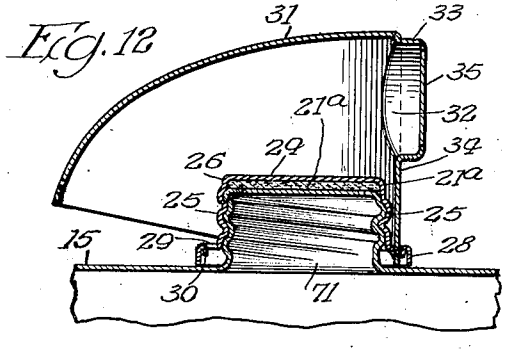
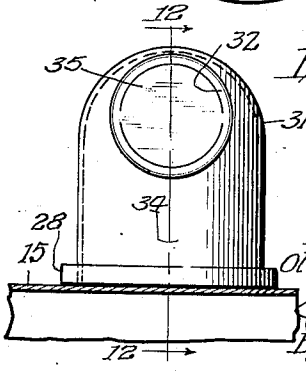


Fig. 13



Inventor
Olof G. Nilson
By Schumacher
Atty

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UNITED STATES PATENT OFFICE

2,118,222

COMBINED CAP AND SPOUT FOR LIQUID DISPENSING CONTAINERS

Olof G. Nilson, Chicago, Ill.

Application February 17, 1936, Serial No. 64,323

11 Claims. (Cl. 221—23)

This invention relates to improvements in combined cap and spout for liquid dispensing containers, and one of the objects of the invention is to provide an improved device of this character which may be readily converted from one use to the other, and which will be of a simple, durable, rigid and compact construction and effective and efficient in operation.

A further object is to provide an improved device of this character having the parts so arranged, that when the same is applied in one position to the nozzle of a dispensing container for sealing the same against delivery of liquid therefrom, the spout will at all times be disposed within the confines or within the plane of the periphery of the container, thereby insuring that the spout will be protected, and furthermore there will be no projecting spout, with the result that the containers may be closely packed for shipment or storage purposes.

A further object is to provide an improved device of this character in which the spout which is connected with the sealing cap will serve as a means for assisting in unscrewing or removing the cap.

A further object is to provide an improved device of this character in which the cap and the spout are separately constructed and may be separately packed for shipment, thus rendering it possible that the cap may be applied to the nozzle and completely seated to close the same, before the spout is attached, after which the spout may be attached to the cap at any desired position with respect thereto, so that the spout will be entirely disposed within the confines of the container walls, the two being independently secured together without the use of solder, brazing or welding.

A further object is to provide an improved device of this character having the parts so arranged and constructed that neither one will interfere with the operation of the other.

A further object is to provide an improved combined cap and spout which may be separately manufactured, and then connected together in assembled relation, the connecting means between the two being of such a nature and construction as will enable the user to cause the nozzle to assume any predetermined relation or position with respect to the cap, regardless of whether the cap is attached to the dispensing container nozzle, or not.

A further object is to provide improved means in a device of this character whereby the position of the spout can be predetermined and the operator will be assured that when the cap is seated in a sealing position, the spout will always be disposed within a predetermined area with respect to the walls or periphery of the container.

A further object is to provide in a combined cap and spout, means for temporarily forming a closure for the inlet opening of the spout, while the cap is being employed for sealing the dispensing container nozzle.

To the attainment of these ends and the accomplishment of other new and useful objects as will appear, the invention consists in the features of novelty, in substantially the construction, combination and arrangement of the several parts hereinafter more fully described and claimed and shown in the accompanying drawings illustrating this invention, and in which

Figure 1 is a perspective view of a portion of a dispensing container having a combined cap and spout applied thereto, and constructed in accordance with the principles of this invention, and with the cap in a position to seal the nozzle.

Figure 2 is a detail perspective view of a portion of the container showing the outlet nozzle.

Figure 3 is a detail perspective view of a portion of the container showing the combined cap and spout, with a portion of the spout broken away, as applied to the outlet nozzle in position to deliver liquid from the container.

Figure 4 is a detail perspective view, partially broken away, of the combined cap and spout.

Figure 5 is a detail sectional view, on an enlarged scale, as taken on line 5—5, Figure 1.

Figure 6 is a detail sectional view, on an enlarged scale, as taken on line 6—6, Figure 3.

Figure 7 is a bottom plan view of the cap and spout.

Figure 8 is a side elevation of the spout detached from the cap.

Figure 9 is an elevation of the cap.

Figure 10 is a bottom plan view of Figure 8.

Figure 11 is a detail, vertical sectional view of a portion of the nozzle and spout and showing the manner of securing the two together.

Figure 12 is a vertical sectional view taken on line 12—12, Figure 13, of another form of the invention.

Figure 13 is a left hand end elevation of Figure 12.

Referring more particularly to the drawings, the numeral 15 designates an ordinary dispensing container provided with a handle 16 and having a discharge outlet nozzle 17, which latter is preferably provided with screw threads 18 in the ordinary and well known manner.

The numeral 19 designates a delivery spout of any desired size and configuration and is constructed of any suitable material, but is preferably of a channel formation.

In one wall of the spout there is provided an inlet opening 20 encompassed by an outwardly projecting flange 21 formed in any suitable manner and projecting from the end of the wall of the spout are lugs or projections 22, any number of which may be provided and which may be arranged in any suitable position. Each of the projections 22 is provided with a laterally projecting lug 23 formed in any suitable manner, preferably by striking up a portion of the material of the projection.

The numeral 24 designates a closure cap of any suitable configuration, but is preferably provided with a body portion having threads 25 and a knurled portion 26 to facilitate in the operation of the cap.

The cap is preferably provided at its base with a laterally projecting flange 27 surrounded by a depending skirt 28, and in the flange 27 apertures or openings 29 are provided. These openings are formed in any suitable manner, preferably by piercing the material and deflecting a portion thereof downwardly as at 30, to stand within the skirt 28, and this portion 30 serves as a means for assisting in locking the parts together.

In assembling the parts, the projections 22 are inserted into the respective openings 29 in the flange 28 of the cap 24, so that the upper edge of the lugs 23 will pass below the bottom of the flange 27, and by reason of the resiliency of the material from which the spout is formed, the lugs 23 will spring or assume positions under a portion of the flange 27 adjacent the openings 29. The deflected portion 30 of the cap also assists, by reason of its resilient nature, in positioning the lug 23 beneath the flange 27, thereby locking the cap and spout together.

The spout 19 may be of any desired depth so that the cap 24 will extend into the spout for any desired distance, but only sufficiently so as not to restrict to any great extent the interior of the spout 19.

In the form of the invention shown in Figures 5 and 6, the top of the cap 24 is arranged in alinement with the inlet opening 20 of the spout, and the opening 20 is preferably of a diameter substantially less than the diameter of the top of the cap 24.

If desired, and in order to insure a perfect sealing of the discharge nozzle 17 by the cap 24, a filling material 21a, such as cork or the like, may be arranged within the cap, as shown in Figure 5.

When the parts are thus locked together, the device may be used in the position shown in Figure 5, that is, so that the cap will form a closure for the discharge nozzle of the container, and in this instance the spout 19 will not interfere with the operation of the cap.

When, however, it is desired to dispense the contents of the container 15, the cap 24 may be removed, and the spout 19 will form a handle to assist in unscrewing or detaching the cap from the discharge nozzle.

The device is then inverted and the flange 21 may then be inserted into the discharge nozzle 17, as shown in Figure 6, so that the contents of the container may be poured out through the spout.

In this form of the invention the top of the cap 24 will serve as a baffle or deflector for the liquid from the container and will direct it through the spout.

When the device is used as a spout, sufficient air will be admitted into the container through the openings 29 in the cap and also through the spout to permit the liquid to flow out of the container and thereby obviate the necessity of perforating the wall of the container.

In the form of the invention shown in Figures 12 and 13, the spout 31 is provided with an inlet opening 32 having a flange 33 encompassing the same, but in this form of the invention the inlet opening 32 is disposed in one of the upright walls 34 of the spout, so that the longitudinal diameter of the spout 31 passing through the inlet opening 32 will intersect the longitudinal diameter of the cap 24. The opening 32 in this form of the invention being to one side of the cap 24, so that when the cap 24 is removed and the spout attached to the discharge nozzle 17 by means of the flange 33 telescoping thereinto, there will be a direct pour of the liquid from the container and through the nozzle.

With this invention it will be manifest that the spout and the cap may be manufactured separately and shipped in a knocked-down condition.

Furthermore, the user will always be assured that no portion of the spout will project beyond the sides of the container while the cap is in a sealing position.

This is rendered possible by reason of the fact that the spout may be connected to the cap in any predetermined position so as to occupy a space within a predetermined area with respect to the periphery of the container.

One way of accomplishing this result is to first apply the cap 24 to the discharge nozzle and completely seat the same.

The spout may then be secured to the cap by positioning the spout in any desired relation with respect to the cap, then inserting the projections 22 of the spout in the predetermined openings 29 of the cap. When the spout is then pressed downwardly with respect to the cap, the lugs or projections 23 on the spout 19 will pass or spring beneath the edge of the flange 27 adjacent the respective openings 29 in the flange 27 of the cap.

Obviously, the spout 19 may be rotated on a vertical axis until the desired position of the spout with respect to the cap 24 and the container 15 is obtained before the cap and spout are secured together.

It may be desired or advisable to provide a temporary closure for the inlet opening of the spout and in that event a closure 35 may be formed from a portion of the material of the spout, which is shaped to form the flange 21. If such temporary closure 35 is provided, it may be partially severed from the flange 21 so as to enable the operator to readily remove this closure when it is desired to use the spout for dispensing the contents of the container.

Obviously and if desired, a similar closure may be provided for the inlet opening of the spout shown in Figures 12 and 13.

It will also be manifest that with the form of the invention shown in Figures 5 and 6, the end of the cap 24 being in alinement with the inlet opening 20 of the spout, will overcome pulsations of the liquid when it is being poured out of the container and thereby cause the liquid to flow out in a steady or even stream.

The usual cause of pulsations in the liquid is

that air must replace the liquid poured from the container. This, however, is not gradual, as there is a certain amount of vacuum created in the container, and air is sucked in through the liquid, causing the liquid at that moment to spurt. In the present invention this force strikes the cap which projects into the spout, causing the liquid to take a right angle turn, thereby causing the liquid to flow without pulsation.

It will also be manifest that with the present invention, the nozzle of the container may be placed at the very edge of the container, thereby eliminating waste of the liquid, by insuring that practically all of the liquid may be dispensed, as practically all of the containers which require a pouring spout have flat tops.

While the preferred forms of the invention have been herein shown and described, it is to be understood that various changes may be made in the details of construction and in the combination and arrangement of the several parts, within the scope of the claims, without departing from the spirit of this invention.

What is claimed as new is:—

1. A combined closure cap and spout, threaded means for securing the cap, and friction means for securing the spout to the nozzle of a dispensing container, said cap nested with and encompassed by the spout, and means for selectively securing the spout to the cap after the cap is seated on the nozzle and with respect to the means by which the cap is secured to the nozzle, whereby when the cap is seated on the nozzle the spout will be disposed, in its inoperative position, within the plane of the periphery of the container.

2. In combination a closure cap, means for securing the cap to a nozzle of a dispensing container, a spout, means for securing said spout to said nozzle, and means for securing the cap and spout together in predetermined relative positions after the cap is seated on the nozzle, whereby when one is secured to the said nozzle, the other will be maintained in an inactive position, the top of said cap being spaced from but in alinement with the inlet opening of said spout and extending entirely thereacross.

3. In combination, a closure cap, means for securing the same to the discharge nozzle of a dispensing container, a spout, means for securing the spout to said nozzle when the said cap is detached therefrom, and means for securing the spout to the cap in nested relation, after the latter is seated with respect to the nozzle, whereby the projection of the spout may be positioned within the plane of the periphery of the body of the container while the cap is in a sealing position.

4. In combination, a closure cap, means for securing the same to the discharge nozzle of a dispensing container, a spout, means for securing the spout to said nozzle when the said cap is detached therefrom, and means for securing the spout to the cap in nested relation, after the latter is seated with respect to the nozzle, whereby the projection of the spout may be positioned within the plane of the periphery of the body of the container while the cap is in a sealing position, said cap and spout being positioned with respect to each other so that neither will interfere with the operation of the other, when in use for their respective designed purposes.

5. As a unitary structure, a closure cap for the nozzle of a dispensing container, a spout having an entrance opening and a discharge outlet, said entrance opening adapted to be secured to the nozzle, and means for securing the spout to the cap, the said means embodying a projecting portion on the spout, a laterally projecting shoulder on said portion, said projection and shoulder projecting through an opening in the cap, whereby said shoulder will engage under a wall of said opening.

6. As a unitary structure, a closure cap for the nozzle of a dispensing container, a spout having an entrance opening and a discharge outlet, said entrance opening adapted to be secured to the nozzle, means for securing the spout to the cap, the said means embodying a projecting portion on the spout, a laterally projecting shoulder on said portion, said projection and shoulder projecting through an opening in the cap, whereby said shoulder will engage under a wall of said opening, and means for assisting in positioning the said shoulder under said wall.

7. As a unitary structure a sealing cap for the nozzle of a dispensing container, a delivery spout of substantial channel formation, an entrance opening in one wall of the spout, a projecting flange encompassing said opening and adapted to be frictionally telescoped with said nozzle when the cap is detached from the nozzle, means securing the cap and nozzle together in nested relation and in such position that when either is rendered active the other will be rendered inactive, and a temporary closure for normally sealing the said entrance opening in the wall of said spout.

8. As a unitary structure a sealing cap for the nozzle of a dispensing container, a delivery spout of substantial channel formation, an entrance opening in one wall of the spout, a projecting flange encompassing said opening and adapted to be frictionally telescoped with said nozzle when the cap is detached from the nozzle, and means securing the cap and nozzle together in nested relation and in such position that when either is rendered active the other will be rendered inactive, a portion of the material from which said flange is formed being shaped to normally form a temporary closure for the said entrance opening of the spout.

9. In combination, a closure cap, means for securing the cap to the nozzle of a dispensing container, a spout normally separate from the cap, means for securing the spout to the nozzle, and means for securing the spout to the cap in any selected position with respect to the cap, and against separation with relation to the cap, after the cap has been secured to the said nozzle, and in such a position with relation to the cap, that when either the cap or spout is rendered active with respect to the nozzle, the other of them will not interfere with the actively positioned one.

10. In combination, a closure cap, means for securing the cap to the nozzle of a dispensing container, a spout normally separate from the cap, means for securing the spout to the nozzle, and means for securing the spout to the cap in any selected position with respect to the cap, and against separation with relation to the cap, after the cap has been secured to the said nozzle, and in such a position with relation to the cap, that when either the cap or spout is rendered active with respect to the nozzle, the other of them will not interfere with the actively positioned one, said cap being so disposed with

respect to the spout, spaced from and extending across the container discharge opening, that the liquid poured from the container will contact and be deflected by said cap and out of the spout to maintain against pulsation the liquid being poured.

11. As a unitary structure, a spout separate from the cap, said spout having an entrance opening and a discharge outlet, said entrance opening adapted to be secured to the nozzle, means embodying interlocking portions on the cap and spout for securing them together in predetermined relation after the cap is secured to the nozzle, and against separation with respect to each other, said cap and spout being also disposed with respect to each other, that when either one is secured to the nozzle, the other will not interfere with the one that is so actively positioned.

OLOF G. NILSON.