

July 26, 1966

C. J. TABOR
RECEPTACLE CLOSURES

3,262,612

Filed Aug. 20, 1964

2 Sheets-Sheet 1

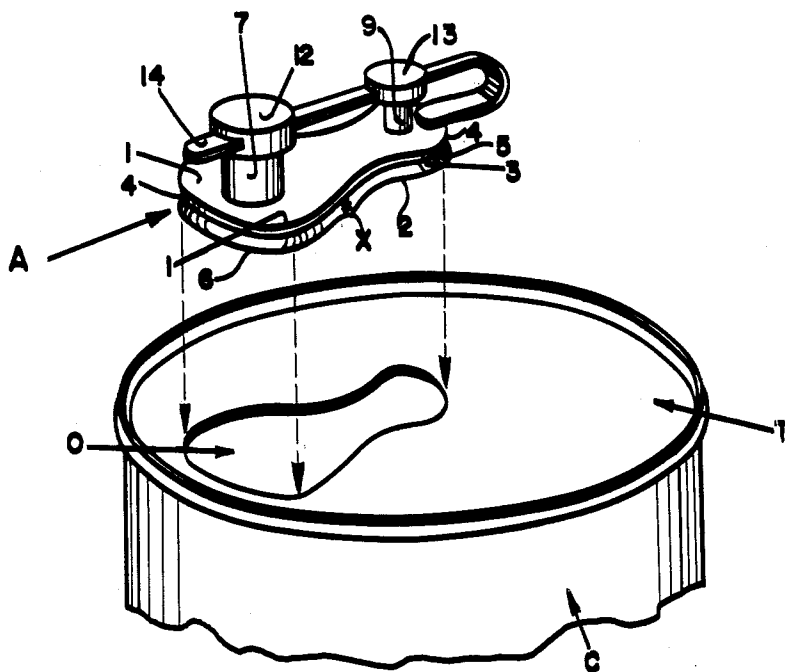


FIG. 1

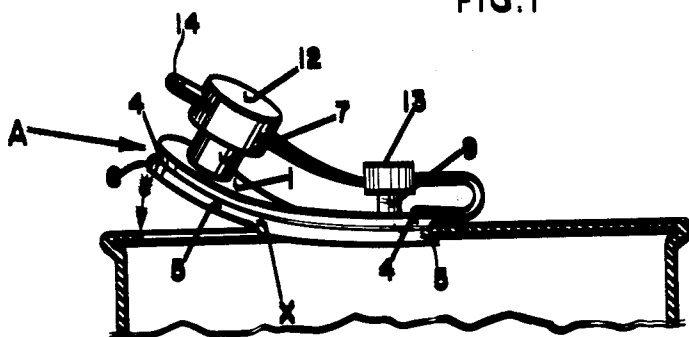


FIG. 2

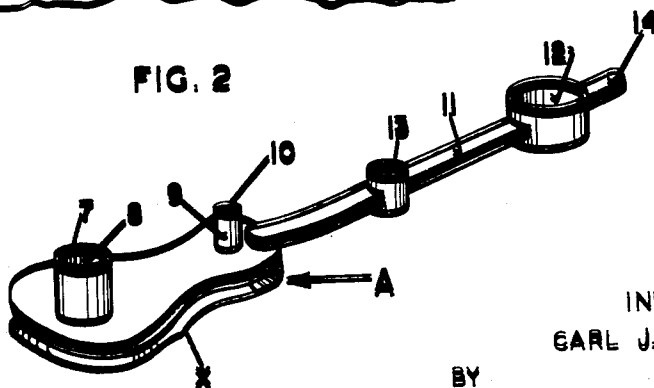


FIG. 3

INVENTOR
EARL J. TABOR
BY *Alfred P. Schacht*
ATTORNEY

July 26, 1966

C. J. TABOR

3,262,612

RECEPTACLE CLOSURES

Filed Aug. 20, 1964

2 Sheets-Sheet 2

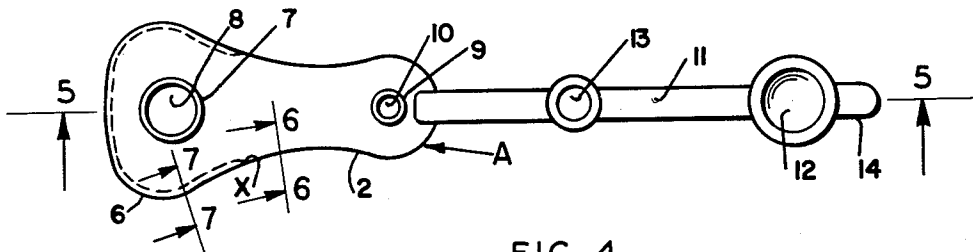


FIG. 4

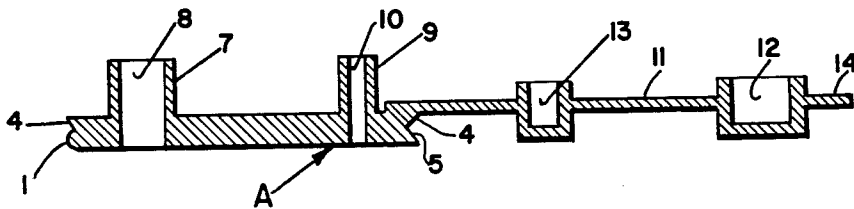


FIG. 5

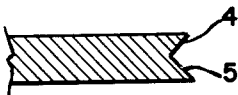


FIG. 6

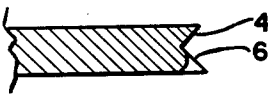


FIG. 7

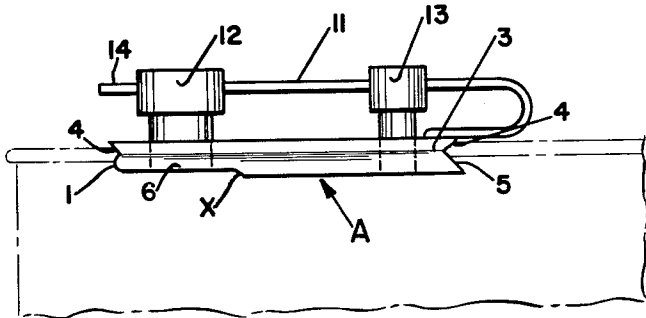


FIG. 8

INVENTOR
CARL J. TABOR
BY *Alfred W. Kersch*
ATTORNEY

1

3,262,612

RECEPTACLE CLOSURES

Carl J. Tabor, 9845 Reavis Road, Affton, Mo.

Filed Aug. 20, 1964, Ser. No. 390,966

10 Claims. (Cl. 222—484)

This invention relates in general to certain new and useful improvements in receptacle closures and, more particularly, to a closure having a pouring spout and being adapted for manual insertion into a can-top of the quick-opening type.

Recently a receptacle has been developed which has a top provided with a quickly and readily removable element. Such receptacles, in the form of a cylindrical metal can, are currently being used for beer, soft drinks, and a wide variety of other liquids, and are usually referred to as "pop-top" or "tab-opened" cans. These cans have a section of the top enclosed in a continuous somewhat annular line of weakness and the enclosed section is provided with a riveted or spot-welded tab that can be grasped manually and, when pulled, will exert a proper amount of leverage on the section so that it is broken away from the remainder of the top or "popped out," so to speak, leaving a relatively large somewhat elongated opening. Although the shape of these openings may vary somewhat, all such openings are elongated and are wider at one end than the other, having more or less the configuration of a triangle with rounded corners. Receptacles of this type have become very popular because of the ease of opening and are highly satisfactory when used for products that are entirely consumed immediately after the receptacle is opened. Thus far, however, it has been highly impractical and virtually impossible to use such receptacles or containers for liquids such as brake fluid, hydraulic transmission fluid, inks, syrups, and similar materials which are used in successive small quantities over an extended period of time after the container has been opened, because, once opened, the container cannot be reclosed. Moreover, many of these liquids, being quite viscous, cannot be effectively poured from an opening which is wholly within the plane of the can-top.

It is the primary object of the present invention to provide a manually insertable accessory closure for quick-opening containers and receptacles.

It is another object of the present invention to provide a closure of the type stated which has an integrally formed pouring spout.

It is also an object of the present invention to provide a closure of the type stated which is compact and economical in cost.

It is an additional object of the present invention to provide a closure of the type stated which will stay securely in operative position as long as any contents remain in the container and can be manually removed whenever removal may be required.

In the accompanying drawings—

FIG. 1 is a fragmentary exploded perspective view of a container and a closure constructed in accordance with and embodying the present invention;

FIG. 2 is a fragmentary sectional view of a container with a closure partially in place to illustrate the manner of installation thereof;

FIG. 3 is a perspective view of a closure constructed in accordance with and embodying the present invention;

FIG. 4 is a top plan view of the closure;

FIG. 5 is a longitudinal sectional view taken along line 5—5 of FIG. 4;

FIGS. 6 and 7 are fragmentary sectional views taken along lines 6—6 and 7—7, respectively, of FIG. 4; and

FIG. 8 is a side elevational view of the closure.

Referring now in more detail and by reference char-

2

acters to the drawings, which illustrate a preferred embodiment of the present invention, A designates a closure which is molded as a unitary one-piece structure from a semi-rigid, somewhat resilient or rubber-like synthetic resin such as polyethylene, polypropylene or the like, and integrally includes a base 1 having an annular or continuous peripheral margin 2, the contour of which is geometrically similar to, but slightly larger than, the shape of the opening *o* in the top wall *t* of a container or can *c* for which such closure A is designed. It will, of course, be understood that different can manufacturers may vary the shape of the aperture *o* and obviously the shape of the base 1 must conform thereto.

The peripheral margin 2 is provided with a groove 3 which has a V-shaped cross-section along the major portion of the elongated sides and around the narrow end of the base 1, thereby forming an upper lip 4 and a lower lip 5. Around the broad end of the base 1, the groove 3 is also somewhat V-shaped, but the lower lip 5 is rounded off in the provision of an arcuate camming surface 6, the outermost portion of which is located inwardly a short distance from the outermost edge of the upper lip 4. This camming surface 6 is faired smoothly into the sharper portions of the lower lip 5 in the regions of juncture as indicated at *x*.

Formed integrally upon, and extending upwardly from, the broad end of the base 1 is a tubular pouring spout 7 which opens at its lower end upon the under face of the base 1 and is also open at its upper end to provide a pouring mouth 8. The spout 7 may be of any selected diameter and height, but should have sufficient wall-thickness so as to be substantially rigid, strong and self-supporting. Similarly formed integrally upon, and extending upwardly from, the narrow end of the base 1 is a small-diameter tubular vent-pipe 9 which opens at its lower end upon the under face of the base 1 and is also open at its upper end to provide an air induction aperture 10. The vent-pipe 9 is parallel to, and preferably of the same height as, the spout 7 and should also have sufficient wall-thickness so as to be substantially self-supporting. The vent-pipe 9, however, need only be large enough in cross-sectional dimension and spaced laterally from the spout 7 by a sufficient distance so as to allow a free flow of air into the container *c* to prevent the formation of a partial vacuum within the container *c* during pouring.

Formed integrally upon the top face of the base 1 and projecting longitudinally outwardly therefrom above the level of the upper lip 4 is a narrow, elongated, relatively flexible ribbon 11 which is integrally provided at suitably spaced regions with upwardly opening shallow cap-forming elements 12, 13, sized to fit snugly, but removably, upon the upper ends of the spout 7 and vent-pipe 9, respectively, when the ribbon 11 is bent back upon itself, as best seen in FIG. 2. At its outer extremity, the ribbon 11 is provided with a tab 14 for manipulative convenience.

When a receptacle such as the container *c* has been opened by removal of a section of the top, thereby creating the aperture *o*, the closure A may be flexed slightly along its longitudinal axis, as shown in FIG. 7, and the narrow end shoved down into, and along the aperture *o*, so that the sharp-edged portion of the lower lip 5 will fit snugly against the under surface of the can-top *t* and the corresponding portion of the upper lip 4 will similarly fit down upon the upper surface of the can-top *t*. The closure A is pushed inwardly until the narrow end of the base 1 is firmly seated in the narrow end of the aperture *o* and then the broad end of the base 1 is pushed downwardly in a more or less vertical direction, forcing the camming surface 6 of the lower lip 5 across the edge of the aperture *o* and causing sufficient deformation of the adjacent portions of the lower lip 5, so that it will snap retentively into place. Thus, the entire edge of the

aperture *o* will be seated snugly within the bottom of the groove 3 and will be securely embraced between the upper lip 4 and lower lip 5 around its entire periphery so as to form a tight, closure-retentive, substantially leak-proof seal. It will, of course, be obvious that the cap-forming elements 12, 13, can be removed from, or returned to, capping position, as desired, by manually snapping them off or onto the upper ends of the spout 7 and vent-pipe 9, respectively.

It should be understood that changes and modifications in the form, construction, arrangement, and combination of the several parts of the receptacle closures may be made and substituted for those herein shown and described without departing from the nature and principle of my invention.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A manually insertable closure adapted for cooperation with an aperture in a receptacle wall; said closure comprising a base lips integrally formed on said base and projecting outwardly to form the margin thereof, said lips having inwardly inclined substantially planar intersecting surfaces defining an inwardly indented lateral groove which is sized and shaped to snugly engage the marginal edge of the aperture whereby to form a tight seal therewith, a portion of one of said lips being rounded in the provision of an arcuate camming surface, and an upstanding tubular pouring spout formed integrally with the base.

2. A manually insertable closure adapted for cooperation with an aperture in a receptacle wall; said closure comprising a substantially disk-like base continuous upper and lower lips integrally formed on said base and projecting outwardly to form the margin thereof, said lips having inwardly inclined substantially planar intersecting surfaces defining an inwardly indented lateral groove which is sized and shaped to snugly engage the marginal edge of the aperture whereby to form a tight seal therewith, a portion of said lower lip being rounded off in the provision of an arcuate camming surface, and an upstanding tubular pouring spout formed integrally with the base.

3. A manually insertable closure according to claim 2 and further characterized by an upstanding tubular vent means formed integrally with the base.

4. A manually insertable closure adapted for cooperation with an aperture in a receptacle wall said aperture being delineated by and including an elongated end portion which opens into a broad end portion; said closure comprising a base formed from a resilient material and having a thickness somewhat greater than the thickness of the receptacle wall, said base including an elongated end portion which is geometrically similar to but slightly larger than the elongated portion of said aperture and is integrally joined to a broad end portion which is geometrically similar to but slightly larger than the broad end portion of said aperture, continuous upper and lower lips integrally formed on said base and projecting outwardly to form the margin of said base, said lips having inwardly inclined surfaces which intersect in the formation of a peripheral groove, said groove being sized and shaped to snugly engage the margins of said aperture in such a manner that said upper and lower lips are presented respectively above and below the receptacle wall beyond the margins of the aperture, the portion of the lower lip projecting from the broad end of said base being rounded in the provision of an arcuate camming surface whereby said base can be inserted in said aperture by sliding the narrow end portion of the base into the narrow end portion of the aperture through the broad end portion of the aperture and when fully inserted pressing down on the broad end portion of the base thereby camming the arcuate camming surface over the margin of the broad end of the aperture until said groove engages the margin, and an upstanding tubular pouring spout formed integrally with the base.

5. A manually insertable closure adapted for coopera-

tion with an elongated aperture which is enlarged at one end and is located in a receptacle wall; said closure comprising a base having a thickness greater than the thickness of the receptacle wall and sized to conform to the shape of the aperture, continuous upper and lower lips having inwardly inclined surfaces which intersect in the formation of an inwardly indented lateral groove sized and shaped to snugly engage the margins of said aperture so that said lips extend beyond the margins whereby to form a tight seal therewith, the portion of said lower lip in juxtaposition to the margin of the enlarged end of the aperture when the closure is operatively inserted being rounded in the provision of an arcuate camming surface so that the lower lip can be cammed into position upon insertion of the closure, and an upstanding tubular pouring spout formed integrally with the base.

6. A manually insertable closure adapted for cooperation with an aperture in a receptacle wall, which aperture is elongated and is substantially broader in the transverse direction at one end than the other; said closure comprising a base which is formed from resilient material and is geometrically similar to but somewhat larger than the aperture in the receptacle wall, said base having a thickness somewhat greater than the thickness of said receptacle wall, upper and lower lips integrally formed on said base and projecting outwardly to form the margins thereof, said lips having inwardly inclined substantially planar intersecting surfaces which define a peripheral groove, said groove being sized and shaped to snugly engage the margins of said aperture whereby to form a tight seal therewith, the portion of the lower lip projecting outwardly from the broad end of said base being rounded in the provision of an arcuate camming surface whereby the narrow end of the closure can be fitted into the narrow end of the aperture through the broad end and the rounded portion of the lower lip can be cammed into position thereby firmly seating the closure in the aperture, and an upstanding tubular pouring spout formed integrally with the base.

7. A manually insertable closure adapted for cooperation with an aperture in a receptacle wall, which aperture is elongated and is substantially broader in the transverse direction at one end than the other; said closure comprising a base which is formed from resilient material and is geometrically similar to but somewhat larger than the aperture in the receptacle wall, said base having a thickness somewhat greater than the thickness of said receptacle wall, upper and lower lips integrally formed on said base and projecting outwardly to form the margins thereof, said lips having inwardly inclined substantially planar intersecting surfaces which define a peripheral groove, said groove being sized and shaped to snugly engage the margins of said aperture whereby to form a tight seal therewith, the portion of the lower lip projecting outwardly from the broad end of said base being rounded in the provision of an arcuate camming surface whereby the narrow end of the closure can be fitted into the narrow end of the aperture through the broad end and the rounded portion of the lower lip can be cammed into position thereby firmly seating the closure in the aperture, an upstanding tubular pouring spout formed integrally with the base, and an upstanding tubular vent means formed integrally with the base.

8. A manually insertable closure according to claim 7 and further characterized by closure means adapted to snugly engage said spout and vent for preventing the flow of fluid substances therethrough.

9. A manually insertable closure according to claim 7 and further characterized by cap-forming elements adapted for snug fitting engagement with said spout and vent for preventing the flow of fluid substances there-through.

10. A manually insertable closure according to claim

5

6 in which the base is formed from a resilient synthetic resin material such as polyethylene.

References Cited by the Examiner

UNITED STATES PATENTS

2,361,958 11/1944 Nyden ----- 222—556
 2,777,616 1/1957 DeShazor ----- 222—480 X
 2,954,148 9/1960 Corrinet et al. ---- 222—548 X
 3,016,168 1/1962 Larson ----- 222—545 X
 3,059,816 10/1962 Goldstein ----- 222—545 X

5

6

3,101,878 8/1963 Bee ----- 222—543 X
 3,140,019 7/1964 Barr ----- 222—556 X
 3,160,327 12/1964 Porcelli ----- 222—543 X
 3,204,829 9/1965 Song ----- 222—484 X

FOREIGN PATENTS

16,303 of 1894 Great Britain.

M. HENSON WOOD, Jr., *Primary Examiner*.

10 CHARLES R. CARTER, LOUIS J. DEMBO, *Examiners*.