United States Patent

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[54] **FILLER MOUTH**
12 Claims, 6 Drawing Figs.

[52] **U.S. Cl.** ..... **141/333**, 141/338, 220/86 R
[51] **Int. Cl.** **B67c 11/00**
[50] **Field of Search** ..... 141/331, 333, 334, 337, 338, 379; 220/31 R, 31 SR, 85 F, 86 R; 222/533–537, 547, 556

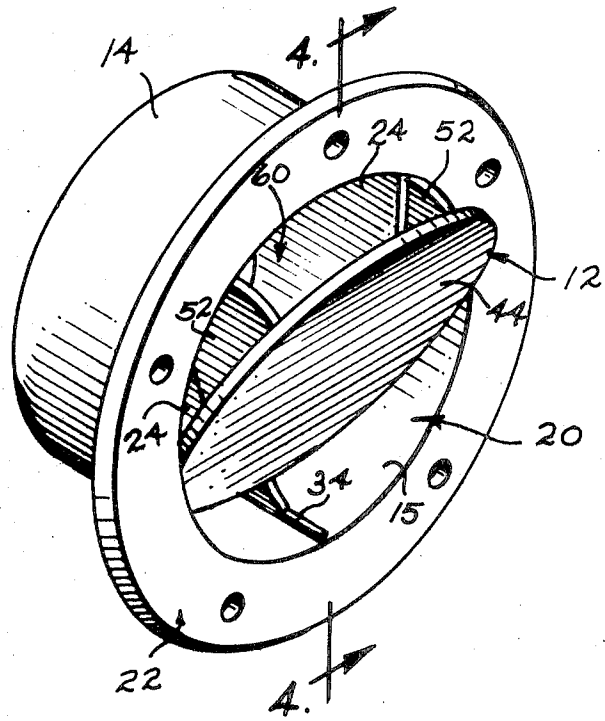
[56] **References Cited**

UNITED STATES PATENTS

1,243,138	10/1917	Carroll	220/86
1,662,820	3/1928	Condupa	220/86
3,048,309	8/1962	Albiani	222/536 X
3,451,589	6/1924	Lee	220/86

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ABSTRACT: A mouth through which a receptacle for liquid, granular or similar material may be filled including a housing having an open-ended chamber therein and an orifice located opposite to the chamber opening which is adapted for connection to the receptacle. A closure is pivotally connected about a horizontal axis to the housing and is adapted to span and seal the chamber opening when shifted into a first position. The closure is also shiftable into a second position in which the upper margin of the closure is spaced outwardly from the housing and the lower margin of the closure projects into the housing chamber, abutting and cooperating with portions of the housing to define a funnellike structure which communicates with the orifice in the housing and into which material may be poured for filling the receptacle connected to the housing orifice.



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SHEET 1 OF 2

Fig. 1

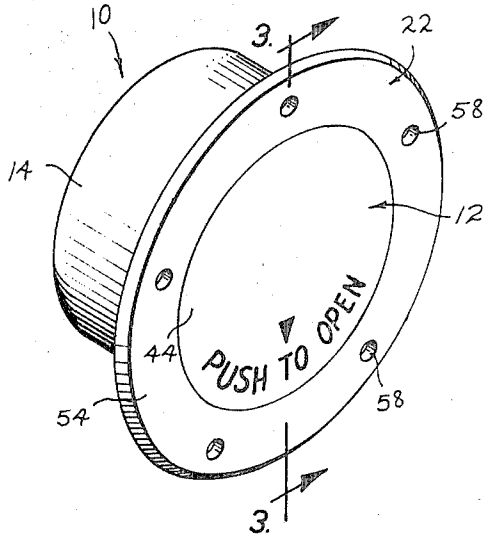


Fig. 2

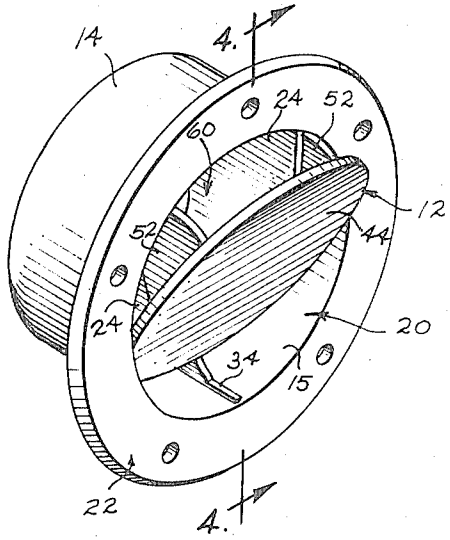


Fig. 3

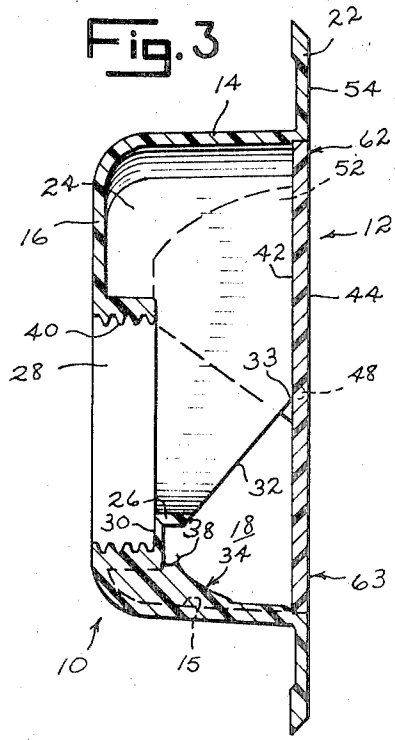
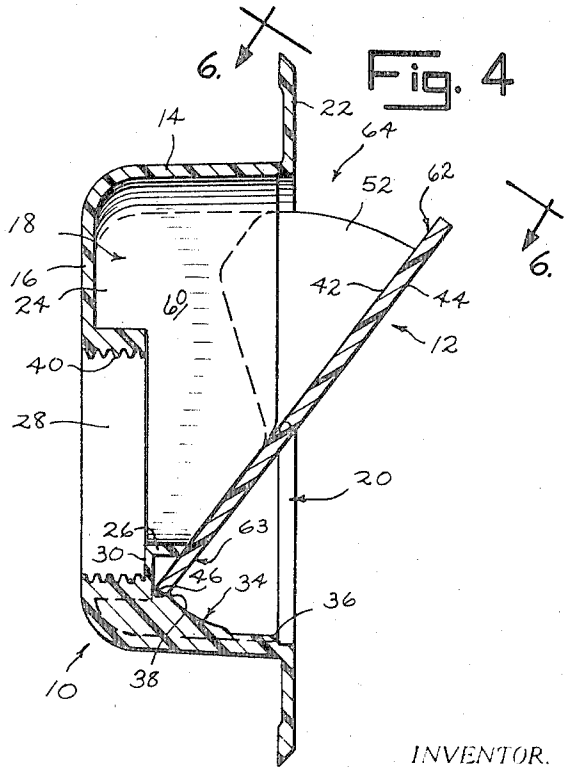


Fig. 4



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Fig. 5

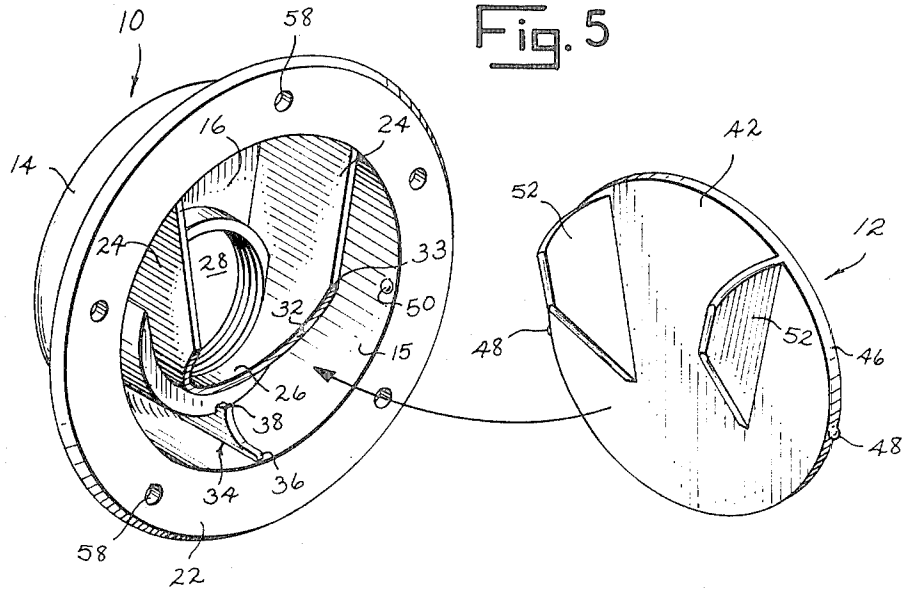
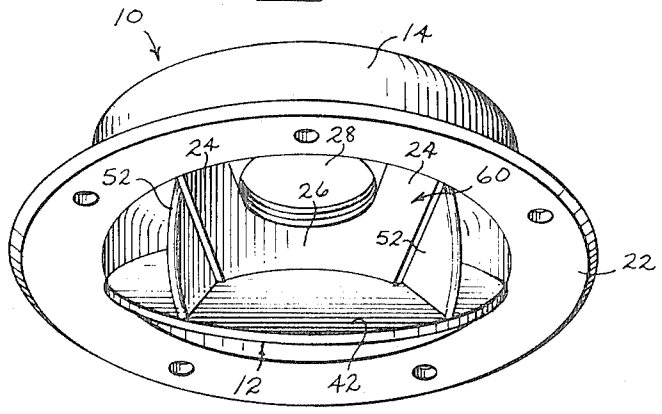


Fig. 6



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FILLER MOUTH

SUMMARY OF THE INVENTION

This invention relates to a device through which receptacles may be filled with a liquid, granular or similar fluid material.

The device of this invention, herein referred to as a filler mouth, includes a housing having an open-ended chamber and an orifice therein which is generally opposite the chamber opening and which is adapted to be connected to a receptacle. A closure is pivotally connected about a horizontal axis to the housing and is adapted to span and seal the chamber opening when shifted about its pivotal axis into a first position. The housing and closure include cooperating parts which, when the closure is shifted about its pivotal axis into a second position with the upper margin of the closure being spaced outwardly from the housing and the lower margin of the closure projecting into the housing chamber, cooperate to define a funnellike structure which communicates with the housing orifice and into which material may be poured for filling the receptacle interconnected to the filler mouth.

The housing of the filler mouth may be mounted to a vertical wall with the opening into the housing chamber being substantially flush with the wall. The closure is designed so that when shifted into its first position spanning and sealing the chamber opening the outer face of the closure is substantially flush with the vertical wall. This type of device finds application in the recreational vehicle field where it can be mounted to the side of a recreational vehicle and connected to water or other type storage containers. By being positioned flush with the wall of the vehicle, the filler mouth does not protrude from the side of the vehicle and thus create a safety hazard or an object which would be susceptible to breakage by vandals or by contacting foreign objects during parking of the vehicle. The closure may be pivoted in a simple and rapid manner so as to provide an opening through which the interconnected receptacle can be easily filled.

Accordingly, it is an object of this invention to provide a filler mouth which may be mounted flush with the side wall of a support and which can be connected to a receptacle and simply and rapidly operated to provide an opening through which the receptacle may be filled.

Another object of this invention is to provide a filler mouth which is adapted for interconnection to a receptacle and which has a minimum of moving parts of economic construction.

Other objects of this invention will become apparent upon a reading of the invention's description.

BRIEF DESCRIPTION OF THE DRAWINGS

A preferred embodiment of this invention has been chosen for purposes of illustration and description wherein:

FIG. 1 is a perspective view of the filler mouth when closed.

FIG. 2 is a perspective view of the filler mouth when open.

FIG. 3 is a sectional view taken along line 3—3 of FIG. 1.

FIG. 4 is a sectional view taken along line 4—4 of FIG. 2.

FIG. 5 is a perspective view showing the parts of the embodiment in separated form.

FIG. 6 is a view looking into the open filler mouth from line 6—6 of FIG. 4.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The preferred embodiment illustrated is not intended to be exhaustive or to limit the invention to the precise form disclosed. It is chosen and described in order to best explain the principles of the invention and its application and practical use to thereby enable others skilled in the art to best utilize the invention.

The illustrated embodiment of this invention includes a housing 10 and a connected closure 12 which are shown in separated form in FIG. 5. Housing 10 and closure 12 are preferably constructed from a plastic material, such as acrylonitrile butadiene styrene, and may be of molded construction.

Housing 10 includes a sidewall 14 and a generally vertical end wall 16 which cooperate to define a chamber 18 having an opening 20 positioned oppositely of end wall 16. The marginal edge of sidewall 14 which defines chamber opening 20 terminates in an out-turned annular flange 22. Two generally vertically oriented and spaced panels 24 extend forwardly within chamber 18 from end wall 16. Panels 24 preferably are joined at their upper edges to sidewall 14 and extend downwardly therefrom in a converging manner to a location spaced above the inner surface 15 of sidewall 14 at the bottom of chamber 18 where the panels are joined by an interconnecting web 26. An orifice 28 is formed in end wall 16 and is positioned between panels 24 and above web 26. Orifice 28 is preferably adapted for interconnection to a container (not shown) and may be threaded to facilitate connection to a tubular conduit. Orifice 28 is provided with an internal abutment shoulder 30 which prevents the tubular conduit from being turned into the interior of chamber 18 and thereby interfere with the cooperating fit between housing 10 and closure 12 which defines a funnellike structure later to be described. While the orifice-defining portion of end wall 16 of the housing 10 is illustrated as a boss so as to accommodate threads 40 utilized to interconnect the housing to a container, it is to be understood that wall 16 may be of uniform thickness.

The end face 32 of web 26 extends obliquely to the axis of housing 10 and is inclined downwardly and rearwardly from junction 33 with panels 24 of the housing. A rib 34 extends along inner surface 15 of sidewall 14 at the bottom center of chamber 18. The forward end face 36 of rib 34 is spaced slightly inwardly from chamber opening 20. Rib 34 extends rearwardly into chamber 18 where adjacently below and rearwardly spaced from the lowermost portion of web end face 32 it thickens into a raised protrusion 38.

Closure 12 is preferably of a flat-walled construction having an inner face 42, an outer face 44 and a circumferential edge 46 which is complemental in shape to opening 20 into chamber 18. Closure 12 preferably includes two oppositely extending protrusions 48 positioned along edge 46 which fit into opposed depressions 50 formed in the inner surface 15 of side wall 14 at chamber opening 20. Protrusion 48 and depressions 50 cooperate to define the pivot connection of the closure to housing 10. Closure 12 includes two generally vertically oriented and spaced panels 52 which project from its inner face 42. Panels 52 preferably extend from the upper portion of closure edge 46 downwardly in a convergent manner and have an angle of convergence substantially equal to the angle of convergence of panels 24 of housing 10.

Depressions 50 within sidewall 14 of housing 10 are so positioned that with protrusions 48 of closure 12 received therein, the closure can be swung about its pivot axis into a closed or first position in which opening 20 into chamber 18 is sealed by the closure with outer face 44 of the closure lying in the same plane as outer face 54 of flange 22 of housing 10, as shown in FIGS. 1 and 3. With opening 20 of housing 10 so sealed by closure 12, each panel 52 of the closure laps and preferably facedly engages one side of a panel 24 of housing 10. Thus the spacing between closure panels 52 may be slightly less than the distance between the outer faces of housing panels 24 so that panels 24 when inserted between panels 52 during assembly of the housing and closure will cause a slight flexing of panels 52. Panels 24 of housing 10 preferably extend forwardly within chamber 18 to the plane of inner face 42 of closure 12 when the closure is positioned in its first or closed position and serve as an abutment which prevents the upper margin 62 of the closure from being swung further into chamber 18. End face 36 of housing rib 34 is preferably beveled and yieldably engages the lower edge of closure 12 when the closure is in its closed position, as best illustrated in FIG. 3, to releasably lock the closure.

When it is desired to open the filler mouth of this invention, inwardly directed pressure is applied against outer face 44 of the closure at the lower margin 63 thereof so as to cause the lower edge of the closure to ride upwardly over end face 36 of

rib 34. Once closure 12 is free of the locking influence of rib end face 36, the lower margin 63 thereof continues to swing inwardly into chamber 18 until contact is made with end face 32 of housing web 26. The angle of bevel of web end face 32 is substantially equal to the angle of incline of closure 12 so that contact between the web and the closure takes place along the entire length of the end face. As the lower margin 63 of closure 12 is brought into abutting contact with web end face 32, the lower portion of closure edge 46 is cammed over raised protrusion 38 of housing rib 34, thus serving to lock closure 12 in its abutting relationship with rib 34. With closure 12 so interlocked with housing 10, lapped housing and closure panels 24 and 52 are in face-to-face contact, as best illustrated in FIGS. 2 and 6, so as to form in conjunction with inner face 42 of closure 12 and end wall 16 of housing 10 a funnellike structure 60 which communicates with orifice 28 in housing 10. The upper margin 62 of closure 12 is spaced outwardly from housing 10 so as to allow fluid, such as water, to be poured downwardly through the opening 64 between upper margin 62 and flange 22 of the housing into the funnellike structure 60 where it passes outwardly through orifice 28 into an interconnected receptacle.

The design of the illustrated embodiment of this invention permits housing 10 to be mounted to a wall with sidewall 14 and end wall 16 thereof protruding through an aperture or opening in the wall and with flange 22 abutting the wall and fastened thereto by screws or other suitable attachment means inserted through apertures 58 in the flange. When the filler mouth is closed as shown in FIGS. 1 and 3, closure 12 thereof is flush with the flange 22 so as not to appreciably protrude from the supporting wall. To fill the receptacle interconnected to the filler mouth, pressure is applied, such as by the thumb, to the lower margin 63 of closure 12, causing the closure to be pivoted from its first or closed position illustrated in FIG. 3 into a second or the open position shown in FIG. 4. Once the filling operation is completed, inward pressure need only be applied to the upper margin 62 of closure 12, causing the lower margin 63 of the closure to be cammed over protrusion 38 of housing rib 34 and pivoted forwardly until abutment of the upper margin is made with housing panels 24 and the closure lower edge is engaged by end face 36 of the rib.

It is to be understood that the invention herein is not to be limited to the details above described, but may be modified within the scope of the appended claims.

What I claim is:

1. A filler mouth comprising a housing; said housing including a sidewall and vertical end wall defining a chamber having an opening thereinto opposite said end wall, a pair of spaced generally vertical panels extending forwardly from said end wall into said chamber; said end wall having an orifice therein located between the planes of said panels; a closure pivotally connected about a horizontal axis to said housing and adapted to span said chamber opening when shifted about its axis into a first position; said closure including an inner face and a pair of spaced generally vertical panels projecting from said inner face into said chamber; one of said closure panels lapping one of said housing panels; the other of said closure panels lapping the other of said housing panels; said closure being shiftable into a second position wherein the upper margin of said closure is spaced outwardly from said chamber opening and the lower margin of said closure projects into said housing chamber abutting portions of said housing with said lapping housing and closure panels in face engagement and cooperating with said closure inner face and housing end wall to define a funnellike structure in communication with said housing orifice.

2. The filler mouth of claim 1 wherein the lower end of said housing panels are interconnected by a web; said web projecting forwardly of said end wall; said housing orifice being located within the end wall area bounded by said housing panels and web; the lower margin of said closure abutting said web when said closure is shifted into its second position.

3. The filler mouth of claim 2 wherein said housing panels converge toward said web; each closure panel paralleling its lapped housing panel.

4. The filler mouth of claim 2 wherein said web includes an end face extending obliquely to the horizontal axis of the housing; said closure inner face being planar and abutting said web end face when said closure is shifted into its second position.

5. The filler mouth of claim 4 wherein the abutting portions of said web and closure are contiguous with said lapping housing and closure panels.

6. The filler mouth of claim 4 wherein said housing includes a catch means engageable with said closure for releasably locking said closure in its second position.

7. The filler mouth of claim 6 wherein said catch means is a protrusion projecting from the inner surface of said housing end wall and located spacedly below said housing web so as to engage the lower edge of said closure when the inner face of said closure abuts the end face of said web.

8. The filler mouth of claim 1 wherein said closure includes a disk part defined by said inner face and an outer face; said housing sidewall including an end edge defining said chamber opening; said disk part outer face being coplanar with said housing end edge when said closure is in its first position.

9. The filler mouth of claim 8 wherein said closure inner face abuts said housing panels when said closure is in its first position.

10. The filler mouth of claim 8 wherein said housing includes a catch means engageable with said closure for releasably locking said closure in its first position.

11. The filler mouth of claim 10 wherein said catch means is a protrusion projecting from the inner surface of said housing sidewall and located at the bottom center of said chamber and spaced inwardly from said housing end edge so as to engage the lower edge of said closure adjacent said inner face thereof when said closure is in its first position.

12. The filler mouth of claim 8 wherein said housing sidewall end edge terminates in an out-turned flange; said flange including means to mount said housing to a support with said housing side and end walls being received within an opening in said support and said flange facedly engaging the outer surface of said support.

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