

Aug. 11, 1931.

I. NEWMAN

1,818,574

CLOSURE FOR RECEPTACLES

Filed Oct. 1, 1929

Fig. 1.

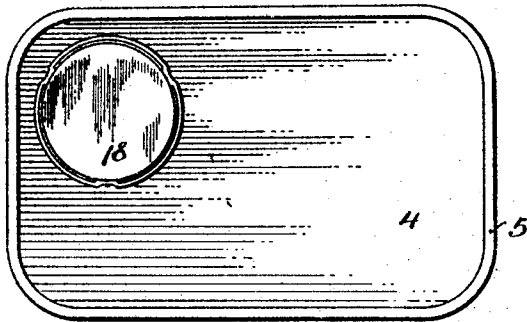


Fig. 3.

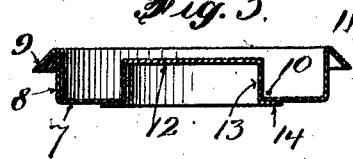


Fig. 4.

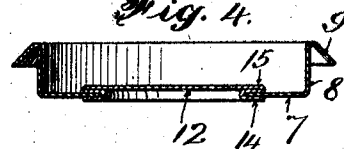


Fig. 2.

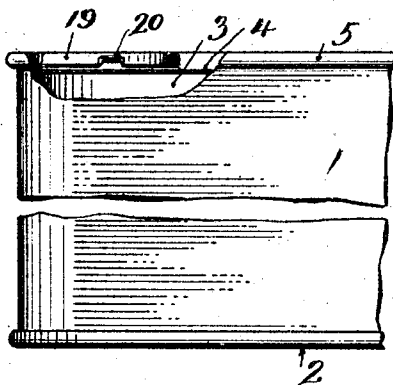


Fig. 5.

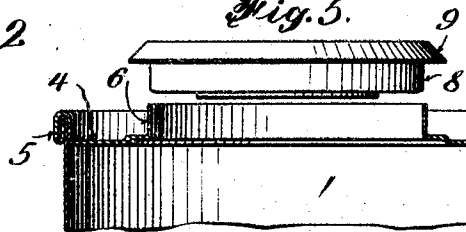


Fig. 6.

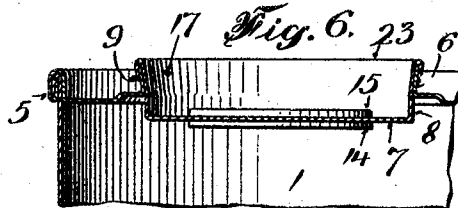


Fig. 8.

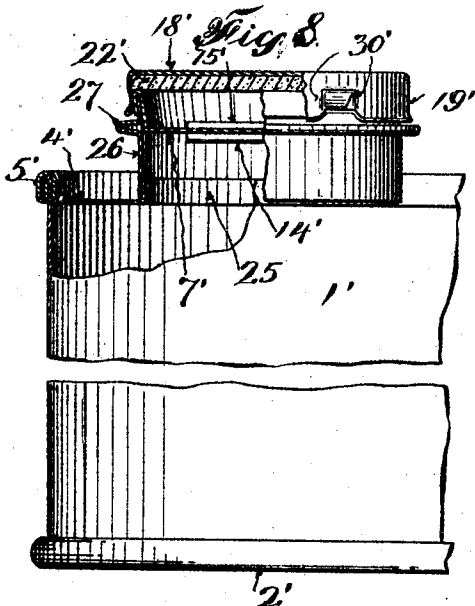


Fig. 7.

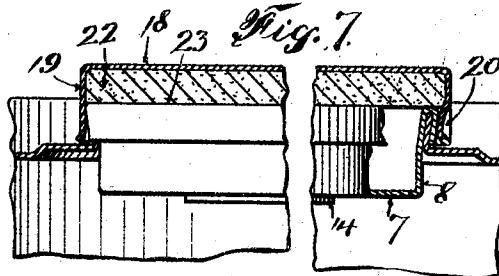


Fig. 9.



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CLOSURE FOR RECEPTACLES

Application filed October 1, 1929. Serial No. 396,598.

My invention relates to improvements in closures for receptacles or containers and it relates more particularly to metal containers or so-called tin cans in which various food products, oils, varnishes and other materials may be shipped and in which they may be contained until they are consumed. The principal object of the invention is to provide a simple and inexpensive detachable cover or cap for the spout portion or neck of the receptacle, which cover may be detachably secured to this receptacle to be shipped with it and which will serve as a closure for the spout or neck of the receptacle after the latter has been opened so that the removable cover or cap will protect the contents from time to time until the same has been entirely consumed or used. Preferably, the can closure includes a frangible seal which can be broken open when the contents of the can are to be used but which will retain the can hermetically sealed until that time.

One method of closing and sealing metal containers or cans is to form separately the body of the can and a cover for closing the entire top of the body, then filling the body of the can with whatever product is to be shipped in it and afterwards applying the cover to the body by a can seaming operation.

Where the contents of the can are in the form of a liquid there is likelihood of part of the liquid being spilled during filling and the seaming operations and there is also the likelihood of dirt and other foreign substances getting into the contents of the can during the seaming operation. Under the present invention the main or permanent cover of the receptacle is attached to the body of the can by permanent means such as by seaming the edges or by soldering; and this cover has formed from it a neck or spout portion of considerably smaller proportions than the cover as a whole. This neck or spout portion is provided with a permanent cap or closure which may be attached after the contents have been placed in the can, and this permanent closure is provided with a sealing member if desired,

having a frangible portion which may be readily broken by the consumer when the contents or part of the contents of the can are to be removed. In addition, there is a detachable cap for the neck or spout portion which will serve to protect the contents of the can after the frangible seal has been broken and this is adapted to serve in cases where the entire contents of the can are not to be used at one time. In the present case the frangible seal member is of simple construction, is liquid-proof without the use of compressible packing, and it may be inexpensively made and inexpensively applied. The detachable cap referred to is provided with simple and effective means for detachably securing it to the top edge of the spout or neck of the can so that it may be pried off easily and as quickly returned to protect any unused contents of the receptacle. Other features and advantages of the invention will be set forth in the following detailed description of my invention.

In the drawings forming part of this application,

Figure 1 is a plan view of a receptacle in finished or assembled condition and embodying my invention,

Figure 2 is an elevation thereof with a portion broken away to show the position of the closing members,

Figure 3 is a sectional view showing the permanent cap together with the frangible seal member in position to be applied to the former,

Figure 4 is a similar view showing the frangible seal compressed in liquid-tight relation to the permanent cap,

Figure 5 is a sectional view of a portion of the receptacle showing the permanent cap with the frangible seal attached about to be assembled on the neck or spout portion of the receptacle,

Figure 6 is a similar view showing the permanent cap attached to the receptacle top,

Figure 7 is a sectional view showing not only the permanent parts of the receptacle assembled, but it also shows the detachable cap applied to the spout or neck portion,

Figure 8 is an elevation, with parts in section, showing a modified form of neck or spout portion for the receptacle, and

Figure 9 is a perspective view in detail showing the parallel cuts and projection.

As shown in Figures 1 and 2 the body of the receptacle or can consists of the vertical walls 1 with a bottom 2 forming a chamber 3 to hold whatever product is to be shipped in the container. In addition, there is a main cover 4 which is preferably applied to the body of the receptacle before the contents have been placed in the receptacle for shipment. This main cover may be attached to the body portion in any desired manner but I have shown the top edge of the body and the outer edge of the cover secured by the double seam 5 extending around these members.

The cover is provided with an upstanding neck or spout 6 which is formed preferably perpendicular to the plane of the cover and integral with the latter and it may be drawn from the cover material at the time the cover is being made in suitable dies. This flange or neck 6 is preferably circular in form, as shown in the drawings, and is of much smaller diameter than the cover itself and it may be suitably disposed eccentrically of the cover, or near one corner as shown in Figure 1. This flange or neck serves to receive the permanent cap as will be set forth hereinafter. When first formed the neck 6 does not taper but is made cylindrical.

As shown in Figure 3 the permanent cap comprises a flat or disc portion 7 having a cylindrical portion 8 extending at right angles thereto and from the upper edge of this cylindrical portion there is an outwardly and downwardly extending flange or skirt 9. The disc portion 7 of the permanent cap is provided with a preferably central aperture 10 to receive the frangible seal. The frangible seal is applied to this cap 11 prior to the attachment of the latter to the receptacle cover 4 and the steps of applying the frangible seal are illustrated in Figures 3 and 4. The frangible seal member comprises a disc portion 12 having a cylindrical portion 13 extending therefrom and at the bottom edge of this cylindrical portion there is an outwardly extending flange or skirt member 14. This is the condition of the frangible seal at the time it is formed in suitable stamping or drawing dies. The outer diameter of the cylindrical portion 13 of the frangible seal is such as to permit the seal to be inserted into the central aperture 10 of the permanent cap 11 until the flange or skirt 14 rests against the under surface of the disc portion 7 of the permanent cap, as shown in Figure 3.

Pressure is then applied to the top and bottom of the flange of the seal by suitable dies or stamping members to cause the cy-

lindrical portion 13 of the seal to be crushed or pressed downwardly so that it projects around its edge in the form of a locking member 15, as shown in Figure 4. The skirt or flange 14 and the flattened projection 15 of the seal clamp against opposite surfaces of the disc portion 7 of the cap around the central aperture 10 of the latter, so that the seal is attached by this simple operation to the permanent cap by a liquid-tight connection without requiring any packing between these members. The disc portion 12 or at least a part thereof is of sufficiently thin material to permit it to be pierced when the contents of the receptacle are to be removed, as will be pointed out hereinafter.

Prior to the filling of the receptacle the body of the latter and its permanent cover 4 will have been assembled and the permanent cap 11, together with the frangible seal will have been assembled, to form the two units illustrated in Figure 5. The product is placed in the receptacle through the opening in the spout or neck portion 6 after which the final closing operation is performed to unite the permanent cap and the receptacle. This operation consists in inserting the permanent cap 11 with its attached seal into the opening of the neck member 6 so that the outer surface of the cylindrical portion 8 slides downwardly into the neck portion 6 until the flange or skirt 9 rests on the top portion of the neck member, as shown in Figure 6. The permanent cap 11 and the neck 6 may be assembled in the manner shown in my U. S. Patent No. 1,266,519.

In such case the cylindrical portion 8 of the permanent cap and the neck member 6 are forced outwardly or flared, as shown in Figure 6, and the skirt or flange 9 is simultaneously pressed or rolled inwardly so that the upper and flared edge of the neck member 6 is clamped between the flared portion 17 of the permanent cap and the outer skirt 9 to form a liquid-tight connection. The device as shown in Figure 6 is completely finished except for the attachment of the removable cap, or in other words, the contents are hermetically sealed in the container.

The removable cap consists of a disc portion 18 having a cylindrical portion 19 extending downwardly therefrom and this cylindrical portion is provided with several indentations 20 formed by stamping the metal inwardly to provide locking projections 21 preferably three in number, around the circumference of the cap. The parallel cuts 30 are made right through the metal of the flange 19 and the metal between these cuts is forced inwardly to form the projections 21, but the latter remain connected at top and bottom with the flange 19. These projections 21 are adapted to snap over the

flared portion 17 of the permanent cap for the purpose of closing the receptacle. If desired, a suitable packing or washer 22 of rubber, cork, or other suitable material may be disposed inside the disc portion 18 of the removable cap to act as an airtight seal or packing against the top edge of the part 17. The receptacle is shipped in the condition shown in Figure 7 in which the product is hermetically sealed but at this time the detachable cap is attached but it is not serving any immediate purpose.

When the consumer desires to use part or all of the contents of the receptacle, the cap 18 is removed and the disc portion 12 is broken by forcing any convenient instrument through the thin metal for the purpose of permitting the contents of the receptacle to be poured out through the broken seal. If only part of the contents is consumed at one time, the removable cap may be applied as shown in Figure 7 by pressing it onto the flared portion 17 of the permanent cap until the projections 21 snap or lock in place, with the packing 22 under pressure against the top edge 23. While the contents of the container may now pass through the fractured seal, it is still retained by the detachable cap. The latter may be removed by simply prying it off the receptacle as often as desired. By providing a limited number of projections 21 for locking the detachable cap in place rather than having a locking member engaging circumferentially entirely around the member 19 the detachable cap may be more rapidly applied to and detached from the receptacle.

In Figure 8 I have shown a modified form of the device in which the neck portion is made separately from and permanently attached to the cover, permitting the neck portion to be made higher than in the first described form to serve more readily as a pouring spout for the contents of the receptacle. In this form the body of the receptacle comprises the parts 1', 2' corresponding with the unprimed similar numerals in the first form. There is a flange 25 preferably of cylindrical form, which is formed or drawn from the permanent cover 4'. A cylindrical member or spout 26 fits over the flange 25 and is hermetically attached to the cover, preferably by providing solder around the lower edge of the member 26. The upper portion of the cylindrical spout 26 is formed with an outwardly extending bead 27 if desired, to provide a shoulder for the insertion of an instrument between it and the detachable cap for prying off the latter.

Above the bead 27 the several parts are constructed the same as in the first form of the device so that the previous description applied to these parts except that in Figure 8 the numerals are primed and cor-

respond with similar unprimed numerals in Figures 1 to 7.

From the above it will be apparent that I have provided a receptacle all parts of which may be inexpensively blanked and stamped from sheet metal. The permanent cover may be applied to the cover of the receptacle and sealed thereto before the receptacle is filled, leaving the neck or spout member as the open portion of the receptacle to receive the product. The frangible seal assembled as a complete unit may be quickly applied and sealed on the permanent cover after the receptacle has been filled so that the product will not be spilled during the sealing of the receptacle, and the tendency of foreign material to enter the receptacle between the filling and sealing operations is materially reduced. The frangible seal herein described is inexpensive to make and to apply to the permanent cap by a liquid-tight joint without the use of packing.

Having described my invention, what I claim is:

1. A receptacle having a body and a top therefor, said top having a projecting flange or spout, a cover extending into said flange or spout and having an edge folded over the top edge of said flange or spout and bent outwardly, together with said flange or spout, to provide a frusto-conical portion, and a removable cap adapted to close said flange or spout comprising a top portion having a depending flange, said latter flange being provided with a plurality of indentations adapted to snap over said frusto-conical portion of said spout.

2. A receptacle having a flange or spout portion, and a detachable cap therefor, said cap comprising a top and a depending flange, said latter flange having a plurality of spaced cuts extending therethrough and the metal between said cuts being bent inwardly to form engaging projections for detachably engaging the can, said projections remaining connected at opposite ends with the flange of said cap.

Signed at the city, county, and State of New York, this 27th day of August, 1929.

ISIDOR NEWMAN.