June 10, 1930. A. L. MEROLLE ET AL 1,762,342

CLOSURE FOR GLASS RECEPTACLES

Filed Sept. 22, 1928

Fig. 1.

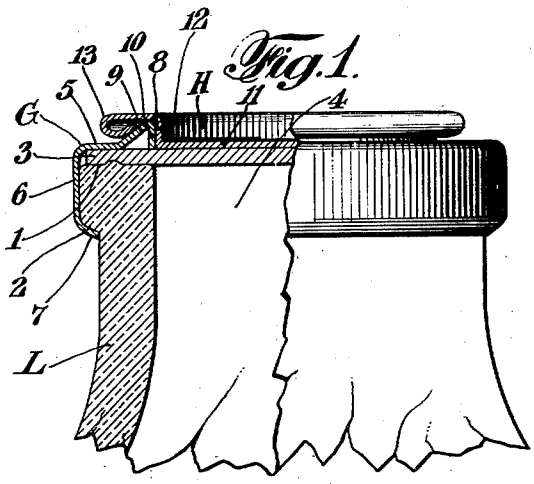


Fig. 3.

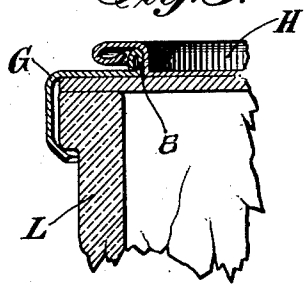


Fig. 4.

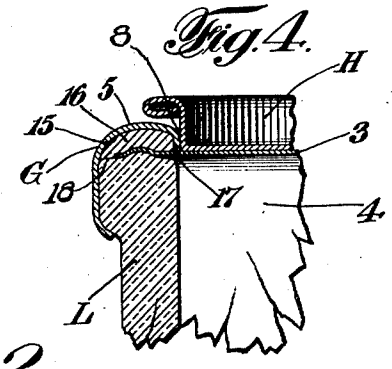


Fig. 2.

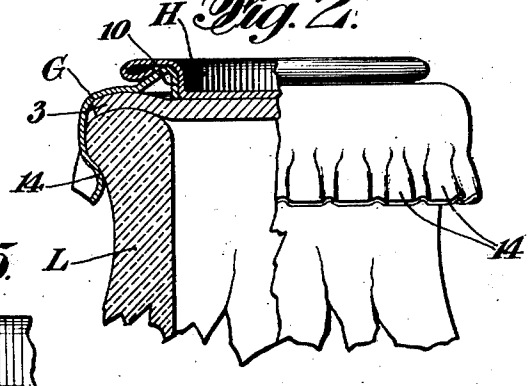
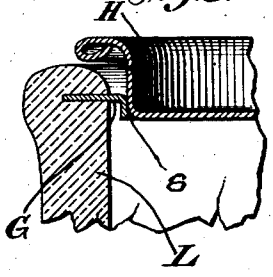


Fig. 5.



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UNITED STATES PATENT OFFICE

AUGUSTUS L. MEROLLE AND FREDERICK BOEHLE, OF BROOKLYN, NEW YORK, ASSIGNORS, BY DIRECT AND MESNE ASSIGNMENTS, OF ONE-HALF TO SAID AUGUSTUS L. MEROLLE AND ONE-HALF TO EMPIRE METAL CAP CO., INC., OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK

CLOSURE FOR GLASS RECEPTACLES

Application filed September 22, 1926. Serial No. 307,591.

This invention relates to closure for glass and like fragile moulded receptacles, and an object of the invention is to provide a closure formed preferably of sheet metal and capable of easily and efficiently resealing the receptacle as frequently as may be desired.

A further object is to so design the closure that it will definitely and positively indicate when the original seal has been broken.

A further object is to provide a closure comprising one part permanently sealed upon the relatively unyielding glass receptacle providing a relatively yielding seat cooperative with another part removably engaging within said seat.

A more detailed object is to provide a closure including a part sealed onto the glass receptacle, a second part closing the opening of the receptacle being of a character readily removable to give access to the contents of the receptacle, and a third part removably engaging the first part to protect the second part and adapted to constitute in itself a readily insertible and removable seal for the receptacle after the second part has been removed.

Other objects and aims of the invention, more or less specific than those referred to above, will be in part obvious and in part pointed out in the course of the following description of the elements, combinations, arrangements of parts and applications of principles constituting the invention; and the scope of protection contemplated will be indicated in the appended claims.

In the accompanying drawings which are to be taken as a part of this specification, and in which we have shown merely a preferred form of embodiment of the invention:—

Fig. 1 is a side elevational view of a closure constructed in accordance with this invention, the closure being shown as attached to a receptacle and a portion of the view being shown in vertical section.

Fig. 2 is a similar view illustrating a modified form of the invention.

Figs. 3 to 5 are detail sectional views corresponding to a portion of Fig. 1 but illustrating further modified forms of the invention.

In the sealing of glass receptacles it has heretofore been the usual practice to provide a metallic cap or closure for covering the opening of the receptacle and to bind said cap in sealed relation directly with the receptacle, a suitable gasket being employed at some point between the glass and the metal to render the seal efficient. To gain access into the receptacle it has been customary to unscrew, tear away, or bend a part or parts of the closure to destroy the gasket seal between the metal and the glass. In many cases the gasket seal is purposely destroyed but in any event it is usually so mutilated that the closure can never be returned to its original air tight condition. By the present invention it is proposed that the gasket seal beween the metal and the glass shall at no time be disturbed, access to the contents of the receptacle being afforded by other means.

A somewhat broader aspect of the present improvement contemplates that the glass wall part surrounding the mouth or opening of the receptacle shall have fixed thereto, as a substantially integral element therewith, a seat forming part which is relatively yielding and accurate in shape as compared with the relatively fragile, unyielding and usually inaccurately shaped glass material, together with a part removably engaging in air tight friction relation within said seat to fully seal the receptacle opening.

It is further contemplated by the present improvement that the gasket element, when employed, may if desired be extended to constitute an auxiliary closure for the receptacle opening, and that it may also if desired be of such material that upon removal of the first closure the portion of the gasket overlying the receptacle opening may be cut away with the obvious result that a positive indication is given of the fact that access has been had to the receptacle contents.

In the structures illustrated in the drawings, and referring first to the structure Fig. 1, the glass or like receptacle is indicated by

the reference character L as having an upper annular edge surface 1 and a relatively downwardly facing exterior shoulder 2. A gasket member 3 overlies the receptacle opening 4 and has its marginal portion resting upon the surface 1. A ring shaped member G, formed of sheet metal or like suitable material surrounds the upper edge portion of the receptacle, having a relatively horizontal part 5 resting upon the upper surface of the gasket 3, and an annular flange 6 which depends about the receptacle wall having its lower edge as 7 forced inwardly beneath the shoulder 2 so that the portion 5 is held firmly and permanently pressed against the gasket so that the gasket is clamped between the portion 5 and the surface 1 and thus constitutes an efficient and permanent air tight seal between the glass and the member G.

The member G is shaped to provide an annular seat 8 as a part thereof, and within this seat engages a closure member H.

The seat 8 is a fixture upon the glass of the receptacle but, by reason of the material from which it is made it is relatively yielding as compared with the glass of the receptacle. By reason also of the fact that it may be accurately formed by the use of dies such as are commonly employed for the bending and forming of sheet metal and the like it is of greater accuracy than could be practically provided directly upon the glass of the receptacle which carries it. And it thereby provides an accurate and yielding seat for frictionally receiving the closure member H.

In forming the seat 8 the horizontal portion 5 of the ring G is bent first upwardly as at 9 and thence downwardly again as at 10, the seat 8 being directly formed by the inwardly facing annular surface of the portion 10. The yielding quality of the seat is thus increased.

The closure member H as illustrated consists of a central portion 11 having an upstanding annular wall 12 the outer surface of which is of proper portions to snugly fit into and against the seat 8. At the upper edge of the wall 12 there is provided an outstanding annular bead 13 projecting preferably into the space directly above the horizontal portion 5 of the member G where it may be conveniently engaged by a suitable implement to effect the removal of the closure at will.

This structure provides two air tight removable seals for the contents of the receptacle, first, the closure member H, and second, the gasket 3 which for convenience may be termed an auxiliary seal. Both of these must be broken before access can be had to the contents of the receptacle. The seal provided by the closure member H may be broken by removal of this member, as by simply lifting it out from the seat 8. This must be done in order to reach the auxiliary seal. To break the auxiliary seal it is intended that a knife or similar tool shall be used to cut away its central portion within the region of the seat 8. The portion thus cut away may of course not be again returned and hence a positive evidence is given that the contents of the receptacle has been once reached.

The closure member H may be inserted or removed as often as desired, and when inserted it will always provide an efficient and substantially air tight seal for the receptacle irrespective of whether the auxiliary seal has been broken or not.

The structure illustrated in Fig. 2 is substantially identical with that just described, the illustration Fig. 2 being given merely to evidence the fact that it is within the purview of the invention here disclosed to fasten the metallic ring member G to the fragile receptacle L by other means than by the use of the permanently bent lower edge of the annular flange of said ring member.

In Fig. 2 for instance the ring member is shown to have resilient portions as 14—14 at its lower edge for resiliently gripping the receptacle after the manner of the well known "Crown" cap now in common use.

It will be understood of course that the grip between the ring G and the receptacle in this case will be a relatively stronger grip than that between the ring G and the closure member H so that in-so-far as the operation of inserting and removing the closure member H is concerned the ring member G will be considered as permanently connected with the receptacle.

At the same time however if occasion should demand, the ring G may be removed by the simple application of upward pressure as is well known in the use of the "Crown" cap.

If the seat 8 of a ring on a given receptacle should become injured, or the efficiency of the seal between the ring and the receptacle should for any reason become destroyed, or if it should be desired to insert a new gasket 3, the ring G may be removed and a new ring, or a new gasket etc., be readily replaced upon the receptacle.

The modification Fig. 3 proposes simply a different form for the seat 8 upon the ring G. In this instance the seat 8 is provided by simply bending or flanging upwardly an inner annular portion of the ring, the upper margin of the flange being preferably beaded downwardly again in order to provide a smoothly turned upper edge surface and to strengthen the seat.

In the modification Fig. 4, the ring G is shaped to provide an annular groove as 15 beneath its relatively horizontal portion 5 adapted to receive a rubber ring-shaped gas-

ket 16. The inner annular wall of the groove 15 is provided by a downwardly turned inner marginal portion as 17 of the material of the ring, the inwardly facing surface of said portion 17 in this event furnishing the seat 8 to receive the closure H as before.

The ring shaped gasket 16 may be clamped directly between and in contact with the receptacle and the ring G if desired and without the interposition of any other member of the auxiliary seal is not required.

In instances where the auxiliary seal is required however this may be provided in the same manner as before, namely by the use of a disc of rubber, cardboard, waxed paper, or otherwise arranged over the receptacle opening or mouth 4 with its marginal edge portions overlying the upper edge of the receptacle. The gasket 16 may engage only the upper surface of the gasket 3, or both said upper surface and a portion of the receptacle as indicated at 18.

In the modification Fig. 5 it is proposed that if desired the metallic ring member G may be made of such form as to be moulded directly into the material of the receptacle. The inner annular edge of the ring member will simply be turned to provide the seat 8 to receive the closure H as before.

It will be understood that in all of the structures illustrated the seat 8 is of a relatively yielding character as compared with the fragile moulded material from which the receptacle is formed and that it is thus capable of yielding, and is intended to yield, under the friction pressure of the closure member H not only to conform to any possible inaccuracies of the abutting portions of the closure member but to otherwise effect a tight and substantially air tight joint between itself and the closure H. In the structures Figs. 1 to 4 the metallic ring member G is hollow without any point of contact against the inner annular surface of the receptacle, and hence embodies no element of danger to injury of the receptacle under the expanding strains imposed by the presence of the closure member H or otherwise.

As many changes could be made in this construction without departing from the scope of the invention as defined in the following claims, it is intended that all matter contained in the above description, or shown in the accompanying drawing, shall be interpreted as illustrative only and not in a limiting sense.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is:—

1. The combination with a receptacle having an annular open mouth portion formed of fragile moulded material and shaped to provide an upwardly facing annular surface lying substantially in a single horizontal plane, of a substantially flat annular disc of paper lying flat over said mouth as a closure therefor said flat disc having its annular marginal portion resting flat upon said upwardly facing annular surface, a sheet metal ring-shaped member also overlying said upwardly facing annular surface resting flat against the upper annular marginal portion of said flat disc and having a portion of itself bent to provide an annular metallic closure seat, said ring-shaped member having an integral portion depending about the outer surface of the receptacle and engaging therewith operable to clamp the annular portion of the disc as a gasket between the ring-shaped member and the upwardly facing surface of the receptacle to thereby seal the mouth of the receptacle, a metallic closure removably engaging within the seat of said ring-shaped member constituting a second closure for said mouth, and said second closure and said closure seat being disposed wholly above the plane of said upwardly facing annular surface of the receptacle.

2. The combination with a receptacle having an annular mouth portion formed of fragile moulded material and shaped to provide an upwardly facing annular edge surface surrounding the mouth opening, of a disc shaped member overlying said mouth opening as a closure therefor having its annular marginal portion lying upon said upwardly facing annular surface, a sheet metal ring shaped member also overlying said upwardly facing annular edge surface and lying upon the upper annular marginal portion of said closure disc, said ring shaped member having means exteriorly of the receptacle by which it is fixed to the receptacle and by which to clamp the annular portion of the closure disc as a gasket between the ring shaped member and the upwardly facing edge surface of the receptacle to thereby seal the mouth of the receptacle, said ring shaped member having its inwardly facing annular edge portion formed to constitute a metallic closure seat for frictionally receiving a separately formed closure member forced thereinto, a separately formed metallic closure member having forced engagement within said seat and removably frictionally retained therein by its pressure tending to expand said ring shaped member, and said ring shaped member being shaped to stand free of engagement with any inwardly facing surface of the receptacle so that expansion of the ring shaped member by the metallic closure will impose no direct pressure against the inwardly facing surface of the receptacle.

In testimony whereof we affix our signatures.

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FREDERICK BOEHLE.