E. M. POTTER.

RECEPTACLE AND CLOSURE THEREFOR.

APPLICATION FILED JUNE 8, 1914.

1,167,519. Patented Jan. 11, 1916.

Fig. 1.

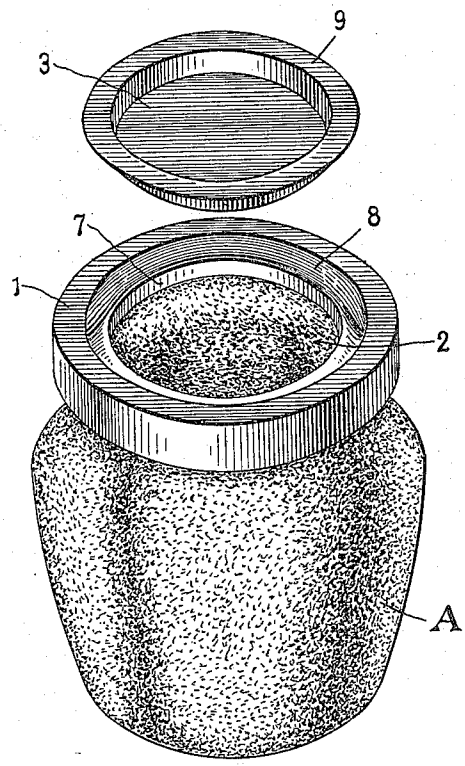



Fig. 2.

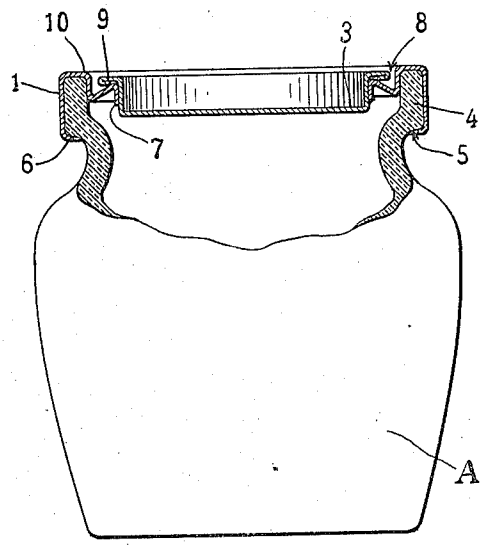



Fig. 3.

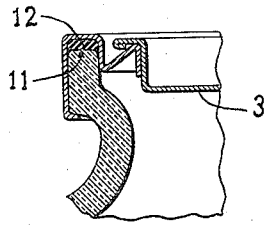



Fig. 4.

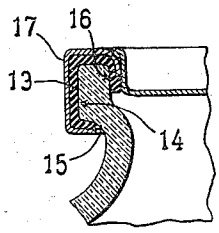



Fig. 5.

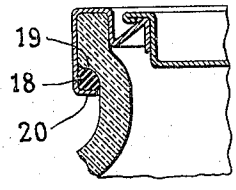
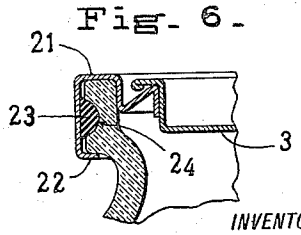



Fig. 6.




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# UNITED STATES PATENT OFFICE.

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## RECEPTACLE AND CLOSURE THEREFOR.

1,167,519. Specification of Letters Patent. Patented Jan. 11, 1916.

Application filed June 8, 1914. Serial No. 843,624.

*To all whom it may concern:*

Be it known that I, ELLIS M. POTTER, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Receptacles and Closures Therefor, of which the following is a full, clear, and exact description, whereby any one skilled in the art may make and use the same.

The invention relates to receptacles and more particularly to a closure or cover by which the contents of the receptacle or vessel may be made accessible at all times and which will positively seal the mouth of the receptacle.

The invention relates more particularly to providing a metal cap or seal for receptacles formed of frangible material, such as earthenware, glass and the like having necks and openings of irregular form.

The object of the invention is to provide a tight seal or closure of metal for a frangible receptacle with a removable portion of a spring-cap form which, while in place, provides a hermetic seal.

A further object is to provide a metal cap or seal which may be applied to a receptacle or vessel of a frangible character having an irregular conformation such as earthenware about its neck or opening without liability of fracturing the vessel during the application of the cap or closure.

Referring to the drawings: Figure 1 is a perspective view of a receptacle having a metal closure and a cap which fits an opening in the closure. Fig. 2 is a sectional view on enlarged scale. Fig. 3 is a detail fragmentary view, illustrating the manner of applying the metal cap and sealing the vessel. Fig. 4 illustrates a modified form of closure. Fig. 5 illustrates the sealing gasket below the lip of the receptacle. Fig. 6 illustrates the gasket applied to the side of the neck of the receptacle.

It has long been a practice to employ what is commonly known as a spring cap for tin and metallic receptacles. In such devices, the head of the can or receptacle is provided with an opening having a downturned flange thereabout and within said opening, fits a dish-like cap which is inserted through the opening of the head and is provided with a flange extending outwardly over the head so that it may be removed. The very conformation of a metallic receptacle gives resiliency enough throughout the body of the receptacle to maintain the head without distortion so that the spring cap will always fit therein and effectively close the top of the can.

The present invention is directed toward providing a frangible body-part of inert character without "give" or spring to which may be applied a permanent metallic cap so arranged and disposed and applied that a spring cap may be utilized in conjunction therewith.

It has also been a common practice in the art to provide receptacles with a cover and a gasket member underlying the cover which, in conjunction with a clamping means of some sort, securely seals the mouth of the receptacle.

Where metal receptacles are employed, the metal spring cap may be very effectively used and with glass or earthenware receptacles, the cover and gasket, with the removable clamping device has been found effective.

The present invention is directed to securing all of the advantages of caps heretofore enumerated and obviating objections thereof by providing a receptacle of frangible character having a permanent metallic cap so set and sealed that a spring cap may be employed therewith.

Glass or earthenware receptacles, of necessity, have irregularities in their conformation and it has been found to be practically impossible to provide a permanent metal cover for such receptacles with a removable cap portion of the spring type such as above first referred to.

The difficulty of providing metal covers on frangible receptacles is almost entirely due to the irregular conformation and the inertness and frangibility of a material of the receptacle and where tools are employed to swage a metallic cap upon the vessel, a prohibitive breakage occurs.

It is the object of the present invention to provide a closure which embodies a metallic member swaged into intimate contact with the mouth or neck of the receptacle and provided with a removable spring cap. There is thus provided in effect, a complete metal closure and as hereinafter defined, a closure which may be applied to receptacles of the frangible type without great danger of breakage in manufacture. The advantages of such a device are apparent.

Referring to Fig. 1, there is illustrated a receptacle A which, as herein shown, is of the type suitable for extracts or preserves and is preferably formed of earthenware. To the upper end of this receptacle, there is permanently secured a metallic cap 1 having a central orifice 2 within which fits a spring cap 3.

As illustrated in Fig. 2, the upper end of the receptacle A is provided with a neck 4 of substantial proportions and having a shoulder 5. The metal cap 1 is stamped out and struck up into a suitable form to be passed down over the sides of the neck 4 and swaged under the shoulder 5, as illustrated at 6. This metal cap section 1 is preferably provided with a central orifice 2 having a down-turned edge 7 and with one or more depressions 8 which will give a spring action to the edge of the orifice 2. Within the orifice 2 may be inserted the metallic spring cap member 3 which, as illustrated, is of dished form and provided with a flange 9 by which it may be removed and which prevents the cap being inserted to too great a depth in the opening 2. To remove the spring cap 3, any convenient device may be inserted over the edge 10 of the metallic cap 1 and under the flange 9 of the removable cap member 3. By prying against the cap it may be readily loosened. It thus forms a removable spring cover of hermetic sealing type for the receptacle.

In Figs. 3 to 6 inclusive, there are illustrated various types of gaskets which in conjunction with the metallic spring cap, serve to hermetically seal the receptacle. In Fig. 3, the cap 1 has between it and the upper edge 11 of the receptacle, a gasket 12 which may be of a metal softer than that of the metallic cap or of any other suitable material.

By employing a gasket as illustrated, a sufficient pressure may be exerted by suitable tools upon the metallic cap 1 to bring it down firmly and securely into contact with the sides and under shoulders 5 of the neck of the receptacle without destroying the conformation of the cap and without distorting the spring edge of its perforation within which is to be fitted the spring cap. There will be sufficient "give" in the gasket to permit the cap to be firmly swaged into place and this elasticity will prevent breaking of the receptacle as the cap is applied and will prevent distortion thereof although the body-part of the receptacle is of inelastic and inert character.

In Fig. 4, the gasket 13 is illustrated as covering the side 14, the shoulder 15 and the inside periphery 16 of the neck of the receptacle. This form of device may be used where extremely frangible material is employed for the receptacle and it has a further advantage of forming a seal for the removable cap. As illustrated, the permanent metallic cap part 17 has an opening so that the removable cap will impinge against the gasket 13 where it projects over the inside of the mouth of the receptacle 16.

In Fig. 5, the gasket 18 is illustrated as arranged under the shoulder 19 of the neck of the receptacle and the metallic cap at 20 will swage down over the neck and over the gasket 18.

In Fig. 6, the permanent metallic cap 21, is swaged under the shoulder 22 about the mouth of the receptacle, as in Figs. 1, 2, 3, and 4. The gasket 23 for giving the necessary relief and hermetically sealing the cap with reference to the receptacle is arranged in a groove 24 which surrounds the neck of the receptacle.

It is apparent that many modifications might be devised with reference to the gasket and cap and, of course, where the vessel is to be hermetically sealed, the gasket is all important. However, in receptacles for use with materials which do not require sealing from the air, the permanent portion of the closure may be secured thereto by merely swaging the down-turned ends of the cap under the shoulder of the neck of the receptacle. It is of course, to be understood that a comparatively thin, light metal is employed for the closure and one which is ductile enough to permit swaging. It will also be observed that the central portion of the metallic cap may be depressed so that the removable spring cap 3 will always lie below the plane of the neck of the receptacle. This permits stacking of the packages without liability of disturbing the closure or removable cap.

The metallic closure is first stamped out and formed to fit loosely over the mouth of the receptacle and its dependent edges are then swaged into position under the shoulder of the neck. Where delicate and frangible receptacles are used, the gasket serves to relieve strains which would ordinarily cause breakage.

In practice, the receptacle is held in a suitable chuck and the cap is pressed down upon the neck with a suitable coöperating chuck. The parts, while in this position, are rotated and a forming tool presses the metallic cap as to its dependent edges into close contact with the shoulder of the neck. It is apparent that by using chuck members, the face of the cap may be held in its prescribed form without distorting the central spring cap after the permanent cap part is swaged to the neck of the receptacle.

The device, as a whole, presents a package and receptacle having a permanent metallic cap with a removable spring cap section which serves as a perfect seal.

The device as illustrated in the drawings shows a removable cap which is pressed into

the orifice of the permanent metallic cap. It is apparent that the permanent cap portion must be applied and present a substantially perfect conformation of spring edge for the spring closure or cap and the invention is directed mainly to the provision of a permanent metallic cap section arranged to be applied to a frangible receptacle and with a suitably formed and suitably maintained spring edged orifice into which may be inserted a spring cap. By this arrangement, the vessel may be hermetically sealed by the spring cap and it is possible to secure the permanent metallic cap section to the frangible vessel.

What I claim as my invention and desire to secure by Letters Patent is:

1. A receptacle having a closure consisting of a metallic cap swaged about the neck of the receptacle and provided with a spring-rimmed opening and a removable spring cap fitting within said opening.

2. An earthenware receptacle having a shoulder about its neck, a metallic cap fitting over the neck of the receptacle and swaged under the shoulder and provided with a central spring-rimmed orifice and a removable spring cap inserted through said orifice.

3. A receptacle having a metallic cap section adapted to be swaged into interlocking engagement with the neck of the receptacle to form a hermetically sealed cap and a gasket interposed between the metal cap and neck of the receptacle, said cap provided with a spring-rimmed opening and a removable metallic spring cap fitting within the opening.

4. An earthenware receptacle having a metallic spring cap formed of a single piece of material and having a central opening and a spring rim surrounding the opening, said cap permanently swaged into engagement with the receptacle and a removable metallic cap fitting the opening.

5. An earthenware receptacle having a metallic cap swaged about its neck, said cap having a central depressed portion and a central spring opening of annular form and a removable spring cap fitting said opening, said cap and depressed portion lying below the upper surface of the receptacle.

6. An earthenware receptacle having a metallic cap embracing the inner and outer walls of the mouth of the receptacle and swaged about the neck thereof to form a hermetically sealed cap, a gasket interposed between the metallic cap portion and neck of the receptacle, said cap provided with a spring rimmed opening and a removable metallic spring cap fitting within the opening.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."