

June 10, 1930.

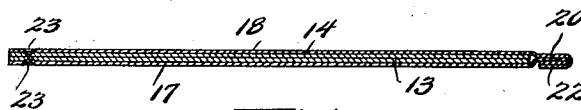
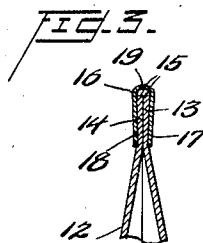
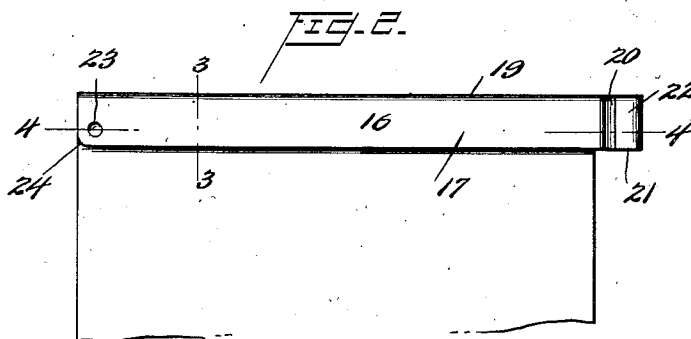
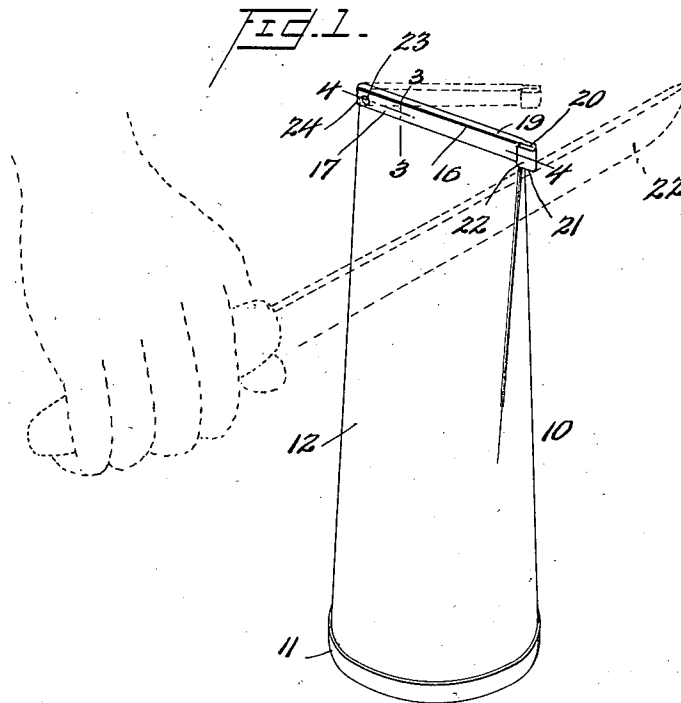
K. KOHN

1,762,689

REMOVABLE RECEPTACLE CLOSURE

Filed Aug. 2, 1926

2 Sheets-Sheet 1



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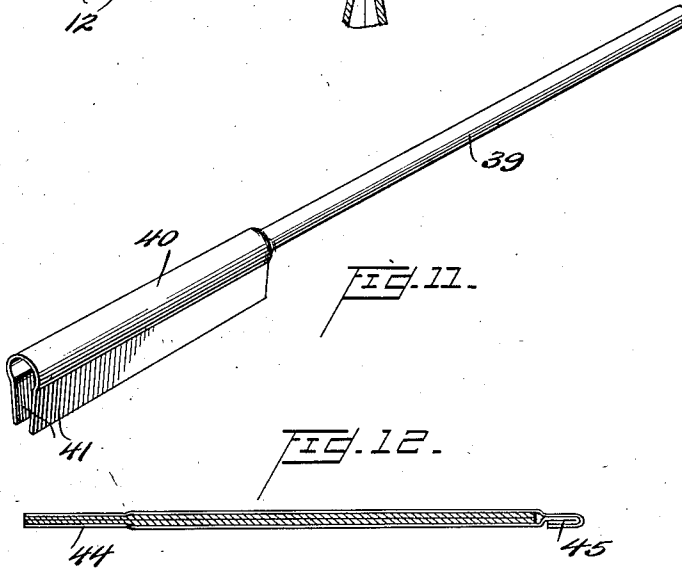
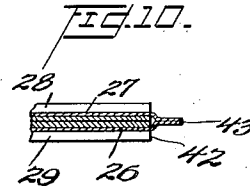
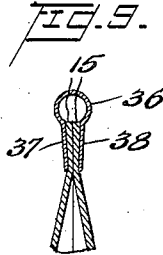
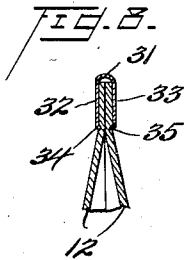
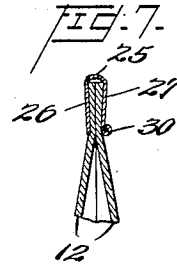
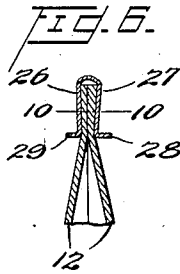
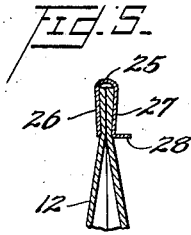
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REMOVABLE RECEPTACLE CLOSURE

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2 Sheets-Sheet 2



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REMOVABLE RECEPTACLE CLOSURE

Application filed August 2, 1926. Serial No. 126,553.

This invention relates to removable receptacle closures and more particularly to means for securing together the confronting edges and walls of the filling openings of receptacles formed of paper or other fibrous material.

It is a general object of the present invention to provide a novel and improved closure of the type described.

10 More particularly it is an object of this invention to provide a removable closure of the type described provided with means thereon adapted to be engaged for the removal of the closure from the receptacle.

15 Another object of the invention consists in the provision of a folded metal strip having a pair of members adapted to engage the outer surfaces of confronting walls of a receptacle to secure the same together in liquid-tight relation, there being means on the strip extending outwardly from the receptacle to form a surface which may be struck to assist in removing the strip from the receptacle.

25 A still further object of the present invention consists in the provision of a folded metal clamping strip adapted to engage over and press together the confronting walls of the filling opening of a receptacle formed of compressible material, certain parts of the strip being more tightly engaged with the walls than other parts.

30 A still further object of the present invention consists in the provision of a folded metal clamping strip adapted to be applied over the confronting walls of the filling opening of a receptacle formed of fibrous material, said strip being in effect hinged at one end to the receptacle and provided at the opposite end with a projecting striking surface to be used in removing the strip from the receptacle.

Other and further objects of the invention will appear to those skilled in the art as the description proceeds, particular reference being had to the accompanying drawings and following specification wherein are disclosed a plurality of exemplary embodiments of the invention, it being understood, however, that various changes may be made

therein such as fall within the scope of the appended claims.

In said drawings:

Figure 1 is a perspective view of a receptacle provided with a closure according to the present invention, an implement being indicated in position for removing the closure;

Figure 2 is a side elevation of the upper portion of the receptacle showing the closure as applied;

Figure 3 is a vertical section on lines 3—3 of Figures 1 and 2;

Figure 4 is a horizontal section on lines 4—4 of Figures 1 and 2;

Figures 5, 6, 7, 8 and 9 are vertical sections thru various modified forms of closures;

Figure 10 is a partial horizontal section on line 10—10 of Figure 6 of one end of a modified form of closure;

Figure 11 is a perspective view of a tool for use in removing the closure shown in Figure 9; and

Figure 12 is a bottom plan view with the walls of the receptacle shown in section of a further modified form of closure.

For the delivery of milk and similar liquids it has been proposed to use, in place of the customary glass milk bottles, containers or receptacles, made of paraffined paper or similar material, which can be used once and discarded. Various forms of such receptacles have been proposed and in the endeavor to provide one which can be opened and not refilled by milk wagon drivers there has been developed a receptacle in the form of a truncated cone. The smaller end of the cone is open initially to provide a filling opening. The receptacle is sealed by pinching together the walls of the filling opening so that they confront each other substantially along a plane. Over these confronting walls and their free upper edges a metal strip has been folded so that two members or wings thereof engage one on either side of the walls and press them into a liquid-tight seal. It has been customary to rivet or secure together these two wings in various ways so as to effect a tight seal, since the

material from which the folded strip is formed is usually mild steel of about ten one-thousandths thickness.

A container such as above described provides an absolutely sterilized receptacle for milk or similar liquids for in the process of manufacturing the containers they are passed thru a bath of paraffin heated to a temperature of approximately 220° F. They are immediately thereafter filled with sterilized milk and sealed. In order to open such a container it is necessary to either tear off the top portion as held together by the metal strip or to remove the seal by cutting the paper below it with a knife or scissors. The paper is too tough to be torn by the average person and hence the housewife usually resorts to a knife as being the most convenient tool in the kitchen for removing the top. By the use of an instrument of any sort for cutting off the top, the main purpose of the receptacle is defeated, for the sterilized milk contained within a sterilized receptacle is subjected to contamination. The receptacles, after filling, are subjected to shipping and handling and are delivered in open vehicles so that there may be a considerable accumulation of germs and filth around the neck of the container. The paraffin in particular offers lodgment for such contamination. The contamination being on the outside, and an instrument to open the receptacle moving of necessity from the outside to the inside in the process of cutting, must carry some of the contamination to the inner side of the receptacle and at the same time spread considerable of it over the newly formed upper edges, over which the liquid contents of the receptacle must be poured when it is removed. At the same time, with the type of paper or fibrous material used to form the receptacle a number of small particles are broken loose, particularly where a dull kitchen knife is used. Experiments have shown that from ten to one hundred particles varying from the size of dust to flakes of paper and paraffin more than an eighth of an inch long may be pushed into the container and mixed with the liquid therein.

The usual form of sealing strip cannot readily be pried loose from the receptacle. If it is riveted in place such removal is almost impossible. If rivets are omitted there is still considerable difficulty encountered. In bending the steel strip it is passed thru several dies so that the metal is tempered, at and near the bend, by the working and rendered too hard to be readily bent by prying with such an implement as usually found in the kitchen. In addition there is a possibility of injuring the hands. This possibility also confronts the user when the top is cut off.

The present invention contemplates the provision of a clip or closure for receptacles of the type described which can be readily removed to allow the pouring of the liquid from the receptacle but which will remain in place until intentionally removed. When so removed the original sharply cut and paraffined edges of the receptacle are presented to the liquid when it is poured out, and since these edges have been sterilized and have been protected by the closure member or clip they cannot contaminate the liquid; and since they have been cut by a sharp instrument in the manufacture and afterward paraffined there are no particles of paper or paraffin liable to get into the liquid.

Referring to the drawings and particularly to Figures 1 to 4 inclusive, there is disclosed at 10 a receptacle formed of paper or other fibrous material having a coating of paraffin or the like to render the same water proof. It comprises, preferably, a circular bottom disk 11 and sides walls 12 which are frustro-conical when initially formed. The side walls are usually formed of a single sheet of paper. After the filling of the desired liquid into the receptacle, the walls of the filling opening are squeezed together by a pair of parallel inwardly moving members (not shown) to form, in effect, a pair of confronting walls 13 and 14 adjacent the free edges of the side walls. These confronting walls are brought into close engagement as clearly shown in Figure 3 and there is then applied, over the free edges 15, the clip or closure 16 formed of sheet metal such as mild steel of about ten one-thousandths of an inch thickness. This clip is formed from a strip or ribbon of the steel of the proper width which is folded substantially along its longitudinal axis to form a pair of members or wings 17 and 18, one of which engages against the outer surface of each of the walls 13 and 14 and for the full length thereof. These wings are pressed toward each other by suitable rams with a pressure often exceeding 400 lbs. to the square inch, so that the paper and paraffin are compressed and the confronting walls are pressed into liquid-tight engagement.

Owing to the thinness of the strip material, it is preferred that the lower edges of the wings 17 and 18 be more tightly pressed into the paper than any other main portion of the clip. This is best shown in Figure 3 where it will be seen that the wings 17 and 18 progressively approach each other from the bend or fold 19 to the edges thereof. This insures the tight positioning of the clip, for it compresses the walls between the lower edges of the clip so that they are closer together than the same walls near their free upper edges.

In order to provide for an easy removal of the strip or clip 16, one end of the same is projected beyond the container wall as shown at 20 to provide an under striking surface 21 which can readily be tapped or struck, for instance with the back of a knife 22, as shown in Figure 1 to dislodge the clip from the walls of the receptacle. The side of the container forms a convenient guide for the striking instrument. Preferably the projecting portion 20 is folded back on itself as shown at 22, after which the two parts are tightly pressed together, thus forming the striking surface 21 of four thicknesses of the metal from which the closure clip is formed, thus strengthening it and rendering it less liable to mashing or bending when struck by an implement to remove the clip.

It may sometimes be found convenient to have the end of the clip, provided with the projection 20, come loose from the container easier than the remaining portion of the clip and for thus purpose the opposite end of the clip may, if desired, be provided with means to hinge the same to the container. Such means are shown best in Figures 2 and 4 in which it will be noted that near the end of the clip remote from the extension 20, are provided the two inwardly struck projections 23 opposite each other. These projections being one on either wing of the clip and just opposite each other, compress the paper of the receptacle between them and engage the same more tightly than any other portion of the clip, so that they will be the last to let go when the clip is removed. The lower corners of the hinge end of the clip may be cut to arcuate form concentric with the projections 23 in order to facilitate the hinging action. It will be seen that when the projection 20 is tapped or struck by any implement from beneath that the clip will be forced upwardly to assume a position such as shown in dotted lines in Figure 1. When this position has been reached the removal may be completed by pulling upwardly on the clip with the fingers. The clip need not be completely removed from the receptacle for by squeezing the upper end of the receptacle in the direction of the length of the closure walls, these walls may be spread apart so that the liquid can be poured out. By thus retaining the clip on the receptacle the two may be discarded as a unit.

In Figure 5 there is to be seen a modified form of the clip. In this form the ribbon or strip of metal from which the clip is to be formed is not folded along its longitudinal axis but to one side thereof to form the bend 25 and the two members 26 and 27, on the lower edge of the latter of which is provided the outwardly projecting flange or lip 28. This form of clip may or may not

project at its end or ends beyond the container. The flange 28 provides means against which an implement may be struck to remove the clip. If desired a tool may be used to hook under the flange 28 for assistance in removing the clip. This form of clip is retained in position initially in the same manner as that shown in Figure 3.

In Figure 6 is shown a clip further modified by being provided with not only the flange 28 as shown in Figure 5 but with an additional flange 29 on the opposite wing of the clip. This provides a further means for striking the clip for its removal and does not necessitate the turning about of the receptacle to find a convenient striking surface.

In Figure 7 there has been shown a clip in the form of that shown in Figure 5 except that the projecting flange has been rolled up into the form of a small cylinder 30 to further reinforce the same and prevent bending and distortion as it is being struck.

The forms shown in Figures 5, 6 and 7 in addition to providing the side flanges or striking surfaces have reinforced edges where they pinch most tightly into the material of the receptacle and these edges assist in maintaining a liquid-tight seal.

In Figure 8 is shown a modified method of retaining the clip in position. In this instance the clip is bent along its longitudinal axis to form the folded portion 31 and the wings 32 and 33 which are, in the finished clip, truly parallel to each other throughout the greatest extent of their width. The free edges 34 and 35 of these wings are bent inwardly toward each other as shown so that when the clip is positioned and pressed on the receptacle until the wings assume a parallel relation these inwardly turned flanges bite into the material of the receptacle and effect a liquid-tight seal as well as prevent a ready removal of the clip outwardly from the receptacle without preliminary tapping or striking to loosen the same.

In Figure 9 is shown a modified form of the clip in which the fold or bend instead of being made tight as shown in the previous forms takes the shape of an incomplete tube or cylinder 36 of small diameter. The wings 37 and 38 extend from the cylinder and converge toward their lower edges to provide the same form of seal as disclosed in Figure 3. It is conceivable that the metal forming this clip must be thicker than in those forms previously described in order that a sufficiently tight seal be provided, owing to the added springiness of the extra metal in the cylinder 36. The upper free edges 15 of the converging and confronting walls of the receptacle do not extend into the cylinder.

In Figure 11 is shown a tool which may be used in connection with the form of clip disclosed in Figure 9, for its removal. It com-

prises a rod 39 having such a diameter that it will readily fit within the cylinder 36. At one end of the rod is provided the enlarged cylindrical part 40 having the projecting wings 41. The cylinder and wings are of such size and configuration as to snugly fit over the clip disclosed in Figure 9 and tightly engage the same so that by lifting on the handle portion 39 of the tool the clip may be raised from the receptacle. It can also be removed by placing the handle portion 39 within the cylinder 36 and lifting on the portion 40 of the tool to effect a complete removal.

In the modifications disclosed in Figures 5, 6, 7, 8 and 9 it should be noted that it is not necessary that one or both ends of the clip project beyond the receptacle for there are provided striking surfaces extending away from the surfaces of the receptacle which may be used in removing the clip. However, it may sometimes be desirable to provide such end extensions in which case they are formed as shown in Figure 10. This figure is a horizontal section of Figure 6 and shows the flanges 28 and 29 which stop at the edge of the receptacle as shown at 42. The wings 26 and 27, however, extend beyond the end of the receptacle and are pinched together as shown at 43 so that their under surfaces present a place to strike in removing the clip. Any of the other forms may be provided in a similar manner with an end extension.

The modifications disclosed in Figures 5 to 10 inclusive may have the hinge arrangement disclosed in connection with Figures 1 to 4 inclusive or those and the form disclosed in Figure 1 may be provided with the hinging mechanism disclosed in Figure 12, where instead of providing a pair of oppositely disposed indentations, a portion of the end of the clip as shown at 44 is more tightly squeezed, by the pressing rams, than any other portion of the clip so that it engages more tightly with the material of the receptacle and hence is the last to leave when the striking surface 45 is tapped to elevate the clip from the receptacle. As shown in Figure 12 this more tightly compressed portion 44 extends the full depth of the clip, although this is not necessary.

It will be seen from the above that the present invention provides a novel closing means for effecting a liquid-tight seal on a paper receptacle, and one which can readily be removed with any convenient instrument, which may be at hand, without introducing any contamination from the exterior of the receptacle to the interior thereof and without breaking off any small portions of the receptacle and dropping them on the interior thereof to mix with the liquid therein. Obviously the form of clip disclosed in the various modifications is adaptable for use

with other forms of receptacles than that shown in Figure 1, such for instance, as envelopes, bags, tubes, buckets and other forms of containers made of paper, cloth or other fibrous material.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. In a receptacle having a filling opening, the walls of which can be brought into confronting engagement, the combination of a metal strip folded over the free edges of the walls and pressing the walls tightly into engagement, means extending from said strip and away from the receptacle to afford a striking surface for use in removing said strip and a portion of said strip near one end engaging the receptacle more tightly than the remainder of the strip.

2. A closure for the confronting walls of a container formed of compressible material, comprising a strip of metal bent substantially along its longitudinal axis to form a pair of members adapted to engage the said walls and press them tightly together, portions of the members remote from the bend being the closest together and pressed into the material of the container, one end of said folded strip of metal extending beyond the container and being folded back on itself to afford a striking surface, beneath the strip and beyond the container, of four thicknesses of metal for use in removing the strip.

3. In a receptacle having a filling opening, the walls of which can be brought into confronting engagement, the combination of a metal strip folded over the free edges of the said walls and pressing the walls tightly into engagement, one end of said folded strip extending beyond the receptacle to afford a striking surface whereby the strip can be raised from the receptacle, and means at the opposite end of the strip to retain that end more tightly on the receptacle.

4. In a receptacle having a filling opening, the walls of which can be brought into confronting engagement, the combination of a metal strip folded over the free edges of the said walls and pressing the walls tightly into engagement, one end of said folded strip extending beyond the receptacle and folded back on itself to afford a striking surface of four thicknesses of metal overhanging the receptacle whereby the strip can be raised from the receptacle, and means at the opposite end of the strip to retain that end more tightly on the receptacle.

5. In a receptacle having a filling opening, the walls of which can be brought into intimate engagement, the combination of a strip of substantially rigid material folded over the free edges of the said walls and

pressing the walls tightly together, one end of said folded strip extending beyond the receptacle to provide a striking surface whereby the strip can be removed from the engaged walls, a single indentation in said strip near the opposite end, said indentation being pressed into the material of the receptacle to act as a hinge when the extension is struck.

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10 6. A closure for the confronting walls of a container formed of compressible material, comprising a strip of metal bent substantially along its longitudinal axis to form a pair of substantially flat members adapted to engage said walls, said members
15 converging from bend to free edges and being pressed into said material to retain the closure in position, a portion of said closure extending longitudinally beyond the
20 container and means increasing the width of the lower edge of said portion for striking to remove the closure.

7. A closure for the confronting walls of a container formed of compressible material, comprising a strip of metal bent substantially along its longitudinal axis to form a pair of substantially flat members adapted to engage said walls, said members
25 converging from bend to free edges and being retained on the container solely by the engagement of the members with the walls thereof, a portion of said closure being extended longitudinally beyond said
30 container and provided with a reinforced under portion to be struck to remove the closure from the container.

35 In testimony whereof I hereunto affix my signature.

KOBY KOHN.

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