B. W. RIVERS.

CLOSURE FOR CONTAINING VESSELS.

APPLICATION FILED DEC. 18, 1917

1,304,098. Patented May 20, 1919.

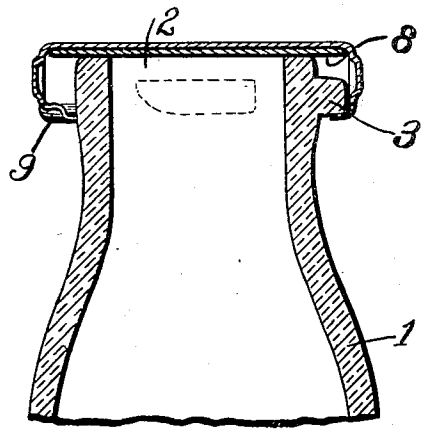


FIG. 1

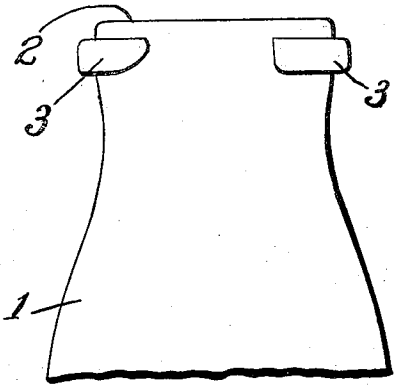


FIG. 2.

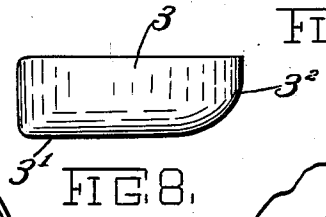


FIG. 8.

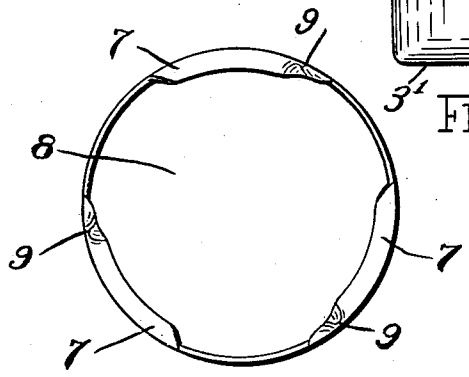


FIG. 4.

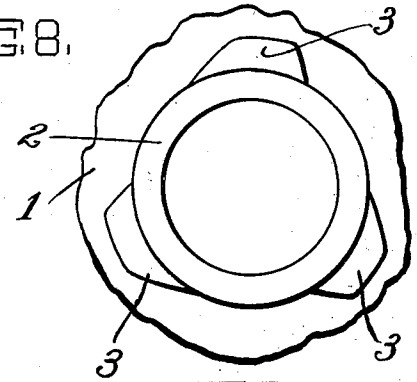


FIG. 3.

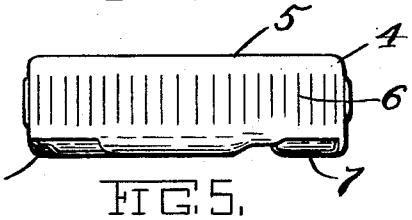


FIG. 5.

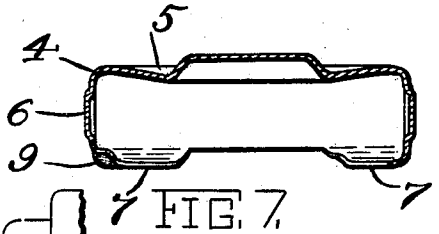


FIG. 7.

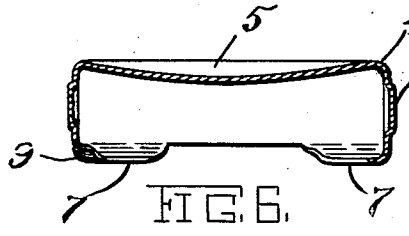


FIG. 6.

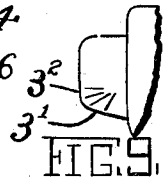


FIG. 9.

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UNITED STATES PATENT OFFICE.

BENJAMIN WENTWORTH RIVERS, OF PORTLAND, MAINE, ASSIGNOR TO NATIONAL METAL SEAL CORPORATION, OF DEERING JUNCTION, PORTLAND, MAINE, A CORPORATION OF MAINE.

CLOSURE FOR CONTAINING VESSELS.

1,304,098. Specification of Letters Patent. Patented May 20, 1919.

Application filed December 13, 1917. Serial No. 207,785.

To all whom it may concern:

Be it known that I, BENJAMIN W. RIVERS, a citizen of the United States, residing at Portland, county of Cumberland, State of Maine, have invented certain new and useful Improvements in Closures for Containing Vessels, of which the following is a specification.

This invention relates to closures for containing vessels and particularly to closures of the type of Letters Patent to John E. Doldt, #1,153,897 and #1,192,173.

It is the object of the present invention to increase the sealing contact and to produce a more perfect completeness of seal under all conditions as well as to provide additional features of advantage all of which will be more fully set forth hereinafter.

In any closure which is to be used on containers for volatile or liquid content great difficulty has been experienced both in securing perfection of seal at the time of original sealing and in permanency of that perfection under subsequent conditions, especially such as may involve any shrinkage of the compressible pack of the cap or results of opening and closing during the display of the goods as is frequently a necessity or an incident to their sale.

As illustrative of my invention I have shown in the accompanying drawings embodiments found practical in manufacture and use and which I will more fully describe and discuss in the specification which follows.

In the drawings and specification like reference characters are employed to indicate corresponding parts, and in the drawings:

Figure 1 is a central vertical section through the mouth of a container with closure in place.

Fig. 2 is an elevation of such closure mouth.

Fig. 3 is a plan view of the same.

Fig. 4 is a view of the bottom side of such a closure.

Fig. 5 is a side elevation thereof.

Fig. 6 is a central vertical section of such a closure removed.

Fig. 7 is a similar section of a slightly modified form.

Fig. 8 is an enlarged side view of a lug, and

Fig. 9 is a view of the lead end of such a lug.

In the practice of my invention a container 1 of any shape or material is provided below its mouth 2 with a suitable number of lugs 3 according to the size of the container mouth to afford suitable bearing for the cap.

The closure 4 comprises a top disk 5 which is normally slightly dished or concaved as appears in Figs. 6 and 7. Depending from the top 5 is an annular skirt 6 which is preferably knurled. This skirt 6 terminates in segmental inturned lips 7. These lips 7 are of greater length than the lugs 3 and in effect subtend an inclosing arc of the adjacent skirt 6 in somewhat of a truss arrangement. They thus have when drawn under the lugs 3 a strong drawing down action on margins of the top 5 included by or adjacent to the arcs subtended by the lips 7.

This action is an important one as tightness and uniformity of seal is important and even indispensable in preserving the usual container contents.

It will be noted in Fig. 1 that the bearing of the top 5 and that of its underlying pack 8 is on the mouth 2 somewhat within the skirt 6. In order to make the bearing of these parts as direct and complete as possible under the marginal strain of the lug engagement of the lips 7 I provide the slight dishing of the top 7 so that under the sealing strain it may yieldingly seat on the mouth 2 with completeness of contact.

The lugs 3 have preferably a somewhat extended under bearing surface 3^1 although being preferably comparatively shorter than the lips 7. The desired construction being of a length of lug which will give a slightly extended bearing on its usrface 3^1 to the engaged area of the lip 7 so that while giving full adjusting movement it will not tend to buckle the lip locally.

The end of the lug 3 is provided with a lead 3^2 with which the advancing end of the

lip 7 may progressively engage as it is guided under stress to the bearing face 3^1. Each lip 7 is furthermore provided with a stop 9 formed by an indentation in the following end of the lip 7.

The stop 9 being in the form of an indentation or embossment does not interfere with the general resiliency of the lips 7 although it does produce a proper local rigidity adjacent the end of the lip outside of the bearing portion of the lip which engages the lug 3. The stop 9 owing to its position moves in a path during the rotation of the cap which brings it against the rounded lead end of the lug 3. It therefore affords a substantially positive stop, but one with an engagement which does not tend to chip the lug which in practice is frequently of glass or other frangible material.

The lug 3 has been referred to as having a substantially flat lower bearing surface as appears in the enlarged views in Figs. 8 and 9. This surface is preferably not a truly horizontal surface but is very slightly pitched downward giving a slightly increased tension to the inner edge of the lip 7 and at the same time affording a convenient draft for the removal of the mold members. This is indicated in Figs. 8 and 9 at 3^1. The lug 3 is further provided at its forward end with a rounded lead 3^2 which affords a progressive engagement with the lip 7 and a non-chipping contact with the stop 9.

It will be noted that the dished construction as indicated in somewhat exaggerated form in Fig. 6 may be variously modified. As shown in Fig. 7 the concavity may be annular and disposed about a raised central portion as is frequently found convenient for the purposes of embossment.

Various other modifications may be made in the structure of the cap and in the container mouth all without departing from the spirit of my invention if within the limits of the appended claims.

What I therefore claim and desire to secure by Letters Patent is:

1. In combination with a container having a lug, a closure having a lip adapted to engage said lug upon rotation of the closure in one direction, said lip having a stop adapted to contact the leading end of the lug to limit the rotation of the closure in its seating direction.

2. In combination with a container having a lug, a closure having a lip adapted to engage said lug upon rotation of the closure in one direction, said lip having a stop near its following end adapted to contact the leading end of the lug to limit the rotation of the closure in its seating direction.

3. In combination with a container having a lug, a sheet metal closure having a flat lip adapted to engage said lug upon rotation of the closure in one direction, said lip having an indentation near its following end adapted to contact said leading end of the lug and limit the rotation of the closure in its seating direction, and said indentation acting as a stiffener to brace the lip against permanent distortion.

4. In combination with a container having a lug, a closure having a lip adapted to engage said lug upon rotation of the closure in one direction, said lug and lip having a stop engagement adapted to limit the rotation of the closure in its seating direction.

5. In combination with a container having a lug, a closure having a lip adapted to engage said lug upon rotation of the closure in one direction, said lug and lip having a stop engagement at the leading end of the lug to limit the phase of rotation of the closure in its seating direction.

6. In combination with a container having a plurality of spaced lugs about its mouth, a closure comprising a cap having a depending skirt provided with a plurality of spaced inturned resilient lips trussing said skirt and adapted to engage said lugs, said lips provided with stops adapted to contact the leading ends of the lugs to limit the rotation of the closure in its seating direction.

7. In combination with a container having a plurality of spaced lugs about its mouth, a closure comprising a cap having a depending skirt provided with a plurality of spaced inturned resilient lips trussing said skirt and adapted to engage said lugs, said lips having indentations near their following ends and said indentations stiffening the lips and adapted to contact the leading ends of the lugs to limit the rotation of the closure in its seating direction.

In testimony whereof I affix my signature in presence of two witnesses.

BENJAMIN WENTWORTH RIVERS.

Witnesses:
ELIZA BARNARD,
LAUREN M. SANBORN.