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C. HAMMER.
CLOSURE FOR CONTAINERS.
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Fig. 1.

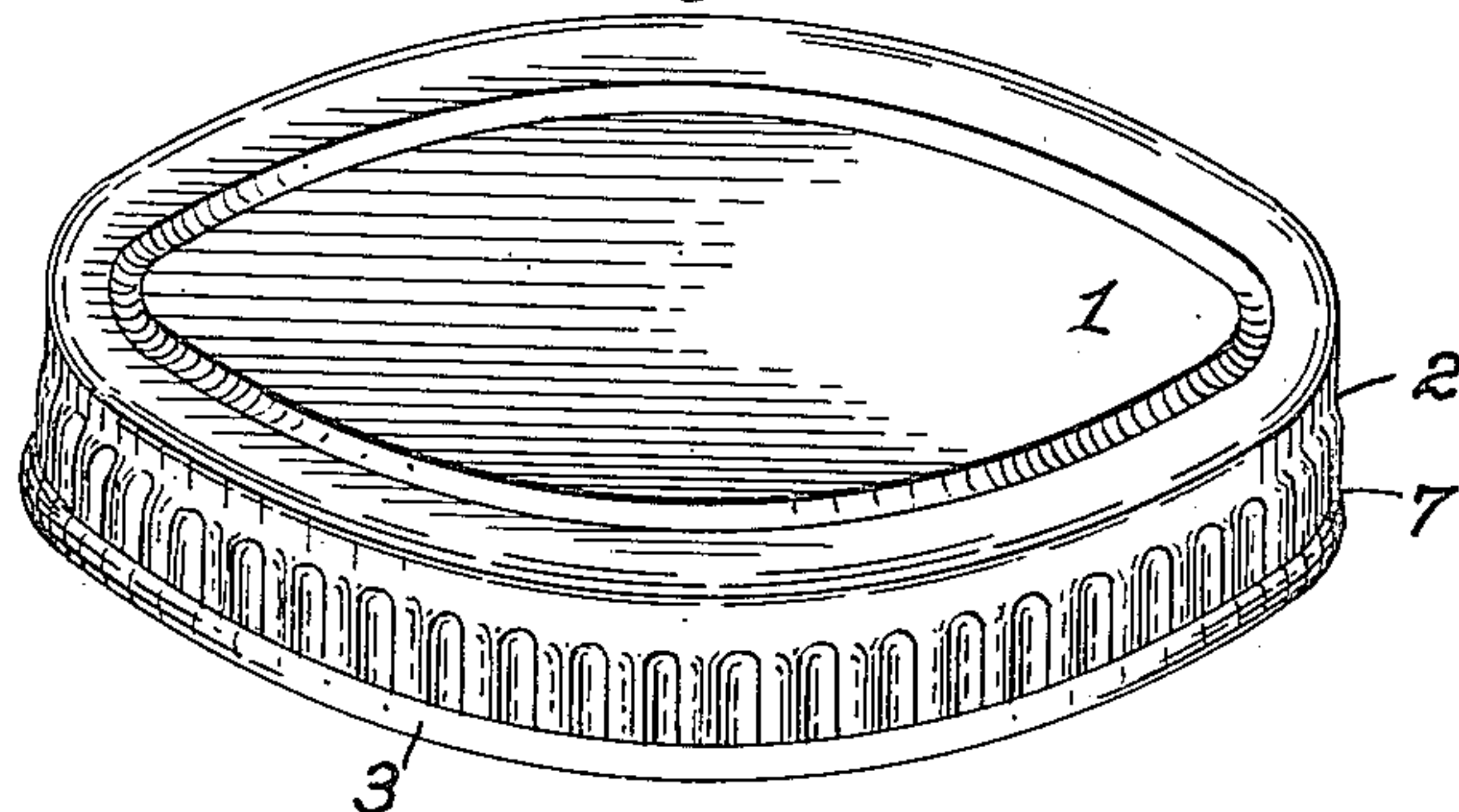


Fig. 2.

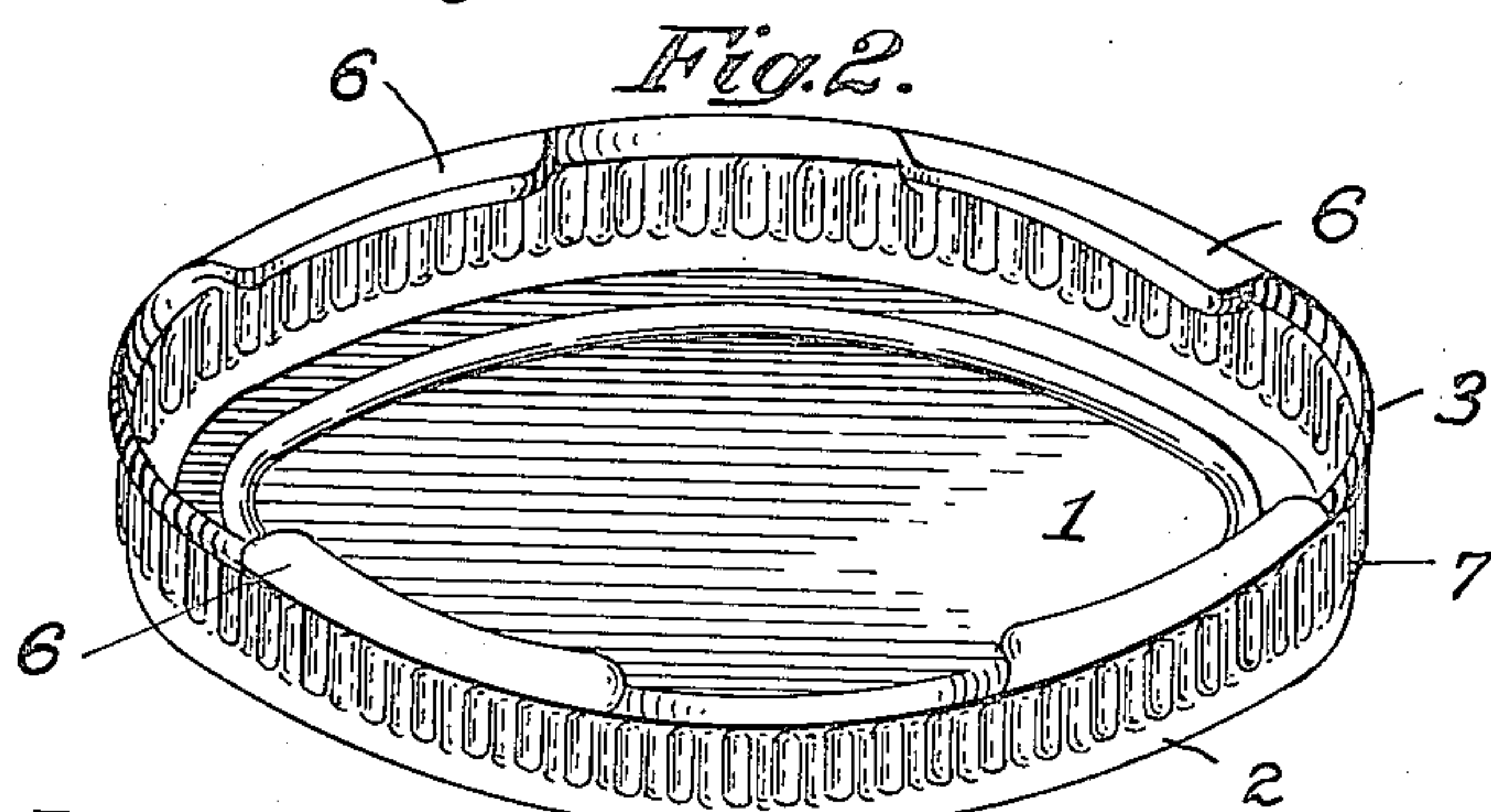


Fig. 3.

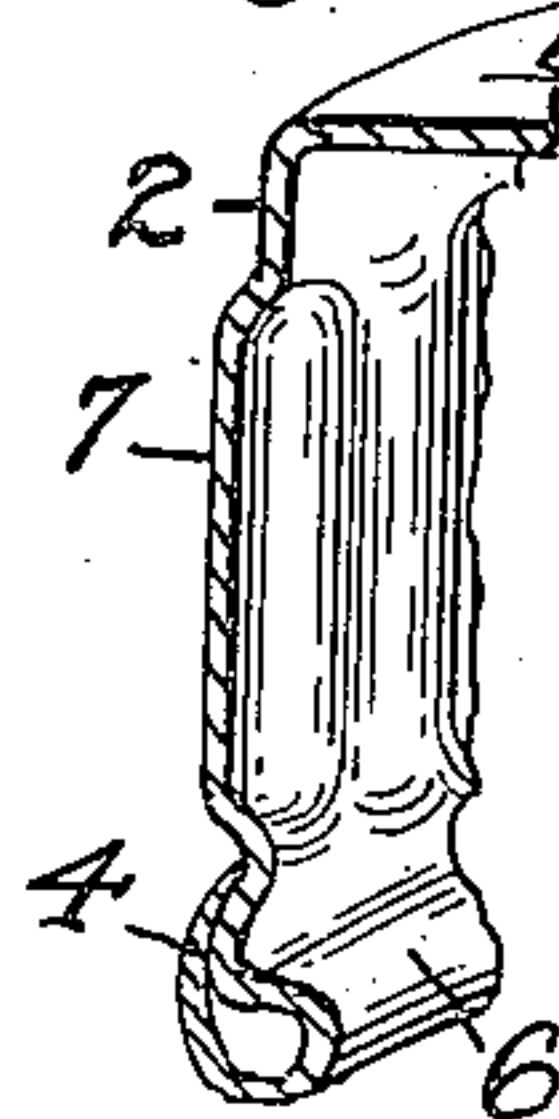


Fig. 4.

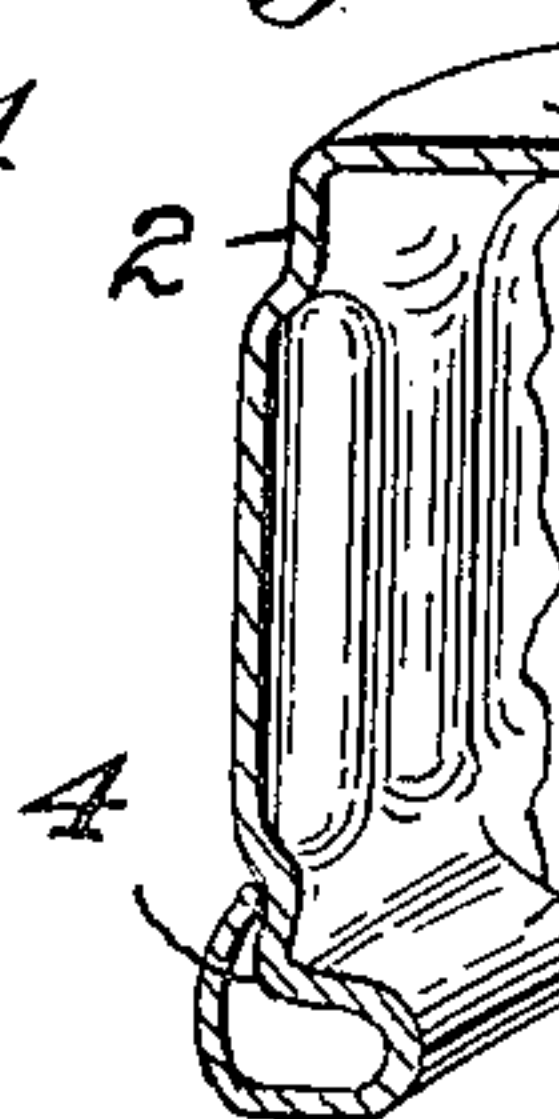


Fig. 5.

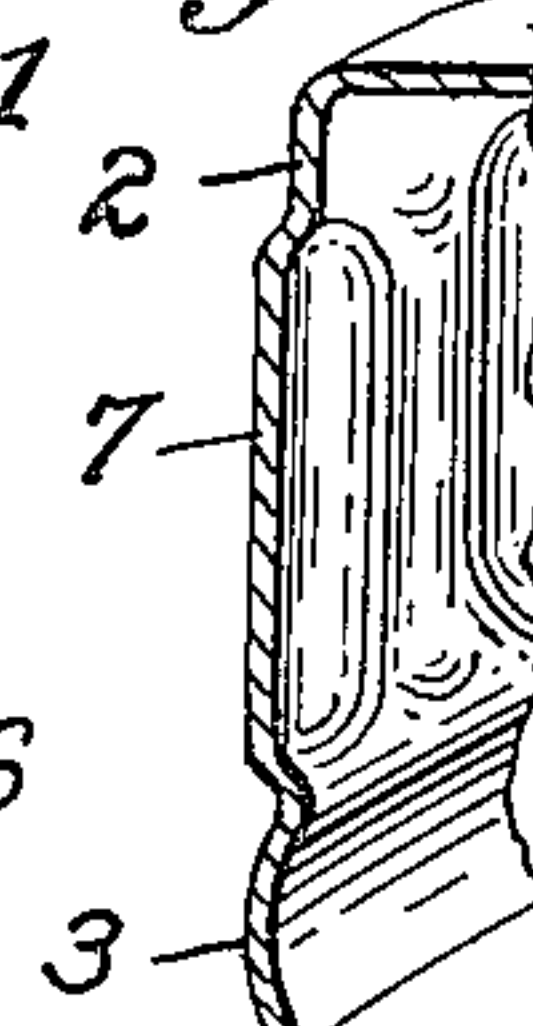


Fig. 7.

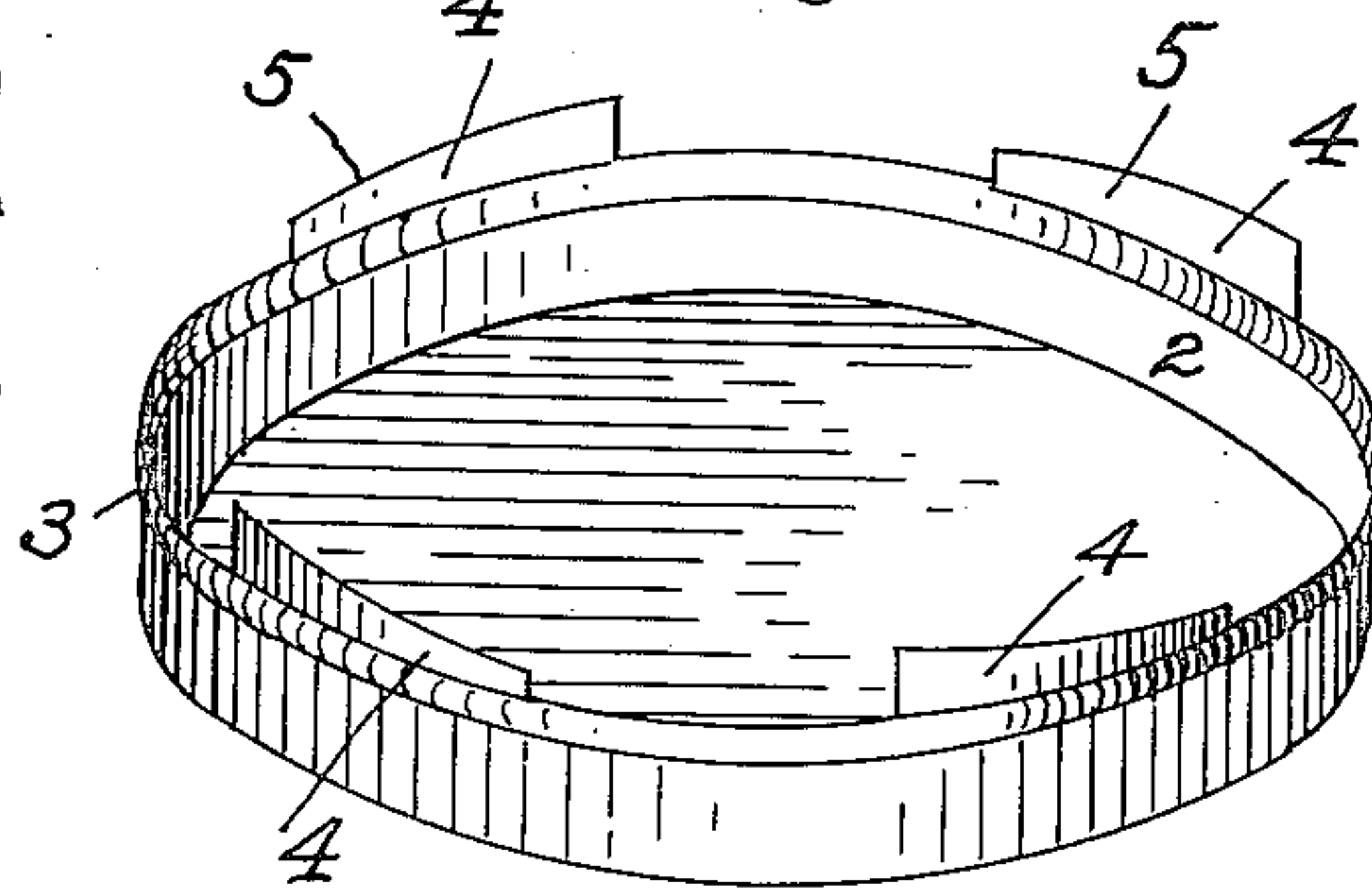


Fig. 6.

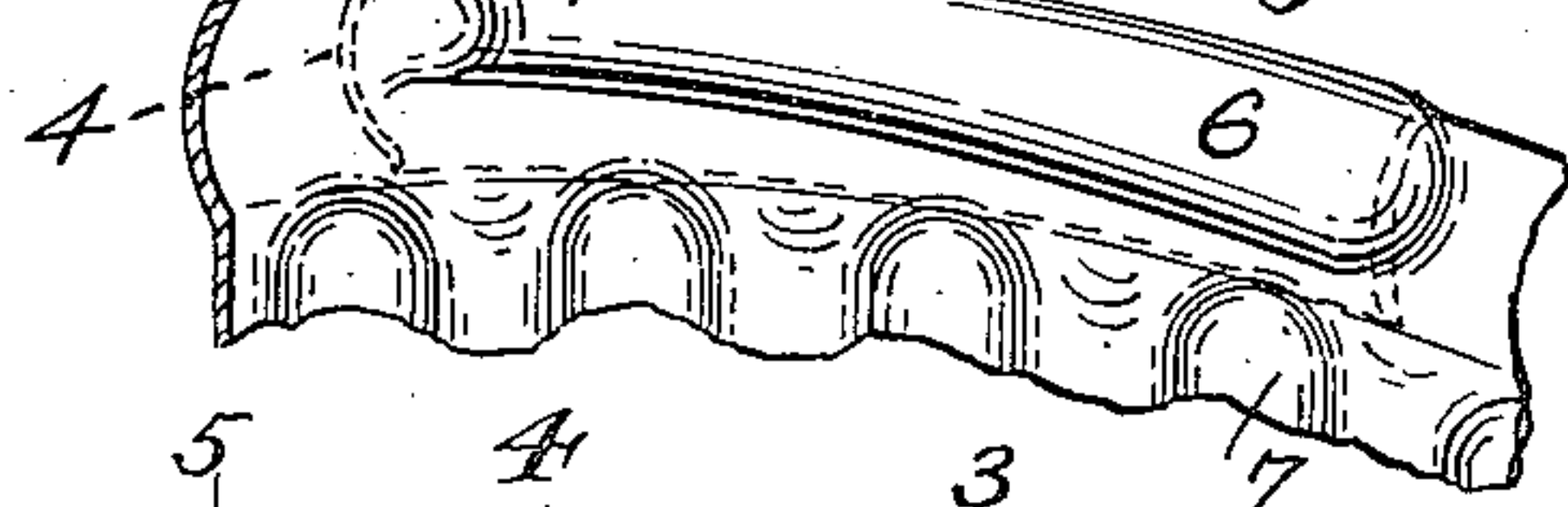
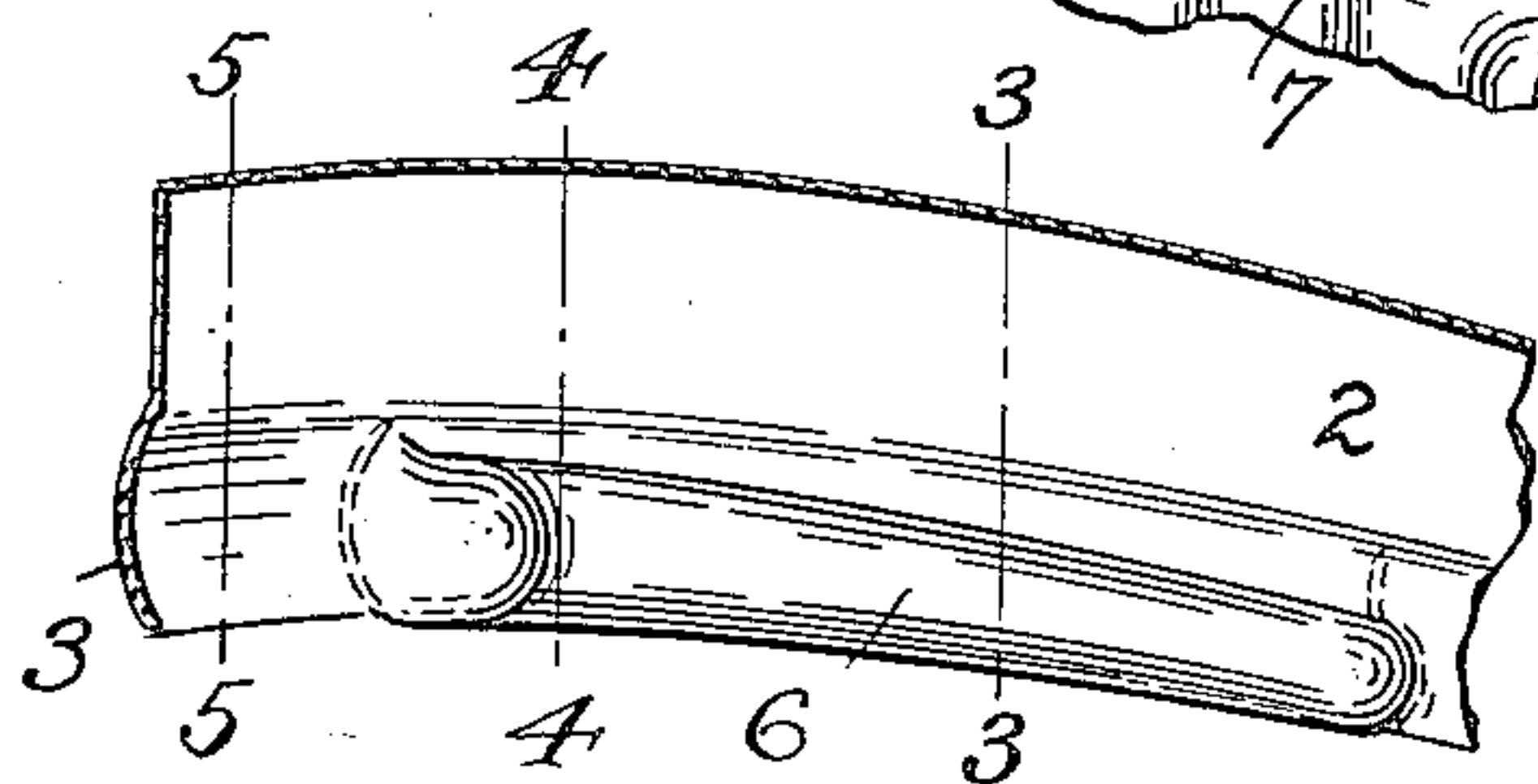


Fig. 8.



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UNITED STATES PATENT OFFICE.

CHARLES HAMMER, OF QUEENS, NEW YORK, ASSIGNOR TO AMERICAN METAL CAP COMPANY, OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

CLOSURE FOR CONTAINERS.

Application filed June 7, 1920, Serial No. 387,037. Renewed May 20, 1922. Serial No. 562,530.

To all whom it may concern:

Be it known that I, CHARLES HAMMER, a citizen of the United States, and resident of Queens, county of Queens, State of New York, have invented certain new and useful Improvements in Closures for Containers, of which the following is a specification.

This invention relates to metal caps or closures for glass containers or receptacles, and to that form commonly designated in the trade as "screw caps," and more particularly to that variety commonly known as "divided thread caps" particularly adapted for use on glass jars or bottles having divided threads or multiple projections, whereby on the turning of the cap it will be securely locked on the container, the object of the invention being to provide an improved cap or closure having a closed and preferably tubular threadlike projection formed at the lower edge of the skirt of the cap by pressing inwardly the metal of the skirt.

A further object of this invention is the provision of an improved cap of thin sheet metal provided with ribs or projections of an improved form adapted to engage similar projections or lugs on a container to secure the closure or cap on the container.

An object of this invention is the provision of an improved form of such closure in which a strong and rigid rib or projection is formed at several places on the lower edge of the flange of the cap, and which will preferably have its upper edge inclined relative to the top wall, to form a kind of screw thread for engagement with lugs or projections of a glass container.

A further object of the invention is to provide projections of this nature that will project inwardly from the flange above its lower edge and not extend below such edge, but will preferably be flush with this lower edge.

A further object is to provide a set of extensions extending beyond the lower edge of the closure, adjacent which the projections are formed from the flange, and which extensions are caused to cover the depressions formed by the lugs on the outer wall of the flange.

In the accompanying drawing showing

one embodiment of my invention, Fig. 1 is a perspective view of the closure.

Fig. 2 shows the closure inverted.

Fig. 3 is a vertical section enlarged on the line 3—3 of Fig. 8.

Fig. 4 is a vertical section on the line 4—4 of Fig. 8.

Fig. 5 is a vertical section on the line 5—5 of Fig. 8.

Fig. 6 is an enlarged view of one of the projections and adjacent portions.

Fig. 7 is a view of the closure showing the flange and extensions, before the projections are formed and the extensions bent.

Fig. 8 is a view somewhat similar to Fig. 6.

In a patent granted to me No. 1,160,596 is shown a closure having projections of wedge shape increasing in vertical thickness from one end to the other, but in this closure the projection is located wholly above a reinforcing bead on the lower edge of the closure.

In the present invention the projection has its lower face or edge substantially flush with the bottom edge, and extends upwardly from such edge; and the projection is formed out of the skirt portion in close proximity to the lower edge and is moreover of materially different construction in that it is practically tubular in form instead of semi-circular or of arch formation.

As shown in the drawings the closure comprises a top portion 1 and a skirt portion 2 shown as substantially cylindrical, but its lower portion may be slightly curved or convex outwardly, as shown at 3. On the lower edge of the flange four extensions 4 are illustrated, as shown in Fig. 7, that have their lower edge 5 properly inclined to the bottom plane of the flange; obviously a greater or less number of these projections could be formed.

Adjacent to each of the extensions 4, the flange is bent or pressed inwardly to form a projection 6 which has its upper wall preferably inclined relative to the top wall of the closure, and these upper walls of all the projections are inclined upward in the same circular direction, thus forming thread-like projections around and at the lower edge of the skirt of the cap, thus forming a kind of

screw thread, that can cooperate with lugs or threads on a bottle or jar neck, that will cause the closure to be securely held on the container by engagement of its lugs with the upper wall of these projections on the cap. It will be observed that the end portions of these projections 6 are rounded off.

Each of the extensions 4 that extend downward from the projections 6, are bent outwardly and upwardly against the outer wall of the flange, 2, and serve to cover and conceal the depressions formed in the outer wall of the flange by the projections 6, as clearly shown in Figs. 3 and 4. From this it will be understood that the lower wall of each projection 6 is substantially flush with the lower edge of the flange 2 intermediate of these projections, so that a comparatively smooth lower edge is provided on the container. It will thus be seen that the projections 6 are substantially wedge shaped in the direction of their length, and it will be further seen, especially from Figs. 3 and 4, that the wedge is tapered in thickness from one end to the other in lateral dimension, that is, decreases its distance from the axis of the closure.

This form of closure does not have a head or curl at the lower edge of the skirt between the projections, but the projections together with the extensions that extend upwardly form a rounded smooth edge at these points. A closure of this kind is easily and cheaply formed and comparatively little material is needed. The wedge formation of the projection makes for considerable strength, as it is practically formed out of the body of the flange, while the bending of the extension outwardly also and upwardly reinforces the screw form of the projection and insures its rigidity.

The flange 2 above the curved portion 3 is preferably provided with corrugations 7 that serve to strengthen the flange and also the projections.

In the present improvement it will be observed that while the cap is of that form commonly known in the trade as a raw or free edge cap, nevertheless, the projections are so formed at the raw or free edge that but comparatively little of this raw or free edge at the locking projections is left to cut the hands of the user, which raw edge is a serious disadvantage in all raw or free edge caps. In other words by providing at the raw edge of the cap wedge shaped or tapered closed or tubular projections of thread-like form, it will be observed that four of such projections take up a considerable portion of the raw edge of the cap and thus lessen the danger and liability of cutting the hands of the user, and that furthermore, while the skirt adjacent to the lower edge thereof is pressed inwardly to form the threadlike projections having in-

clined or helical working faces in the direction of their length, the extensions 4 are bent outwardly and upwardly to overlap what would otherwise be cavities or depressions at the outer side of the skirt, thus concealing them and making the cap much more sanitary as well as more sightly, and also protecting what would otherwise be a raw edge of the projection. Thus in the present improvement it will be observed that the extensions 4 do not of themselves form the projections but merely act to close or cover the hollow form thereof at the outside of the cap, while the projections themselves are formed from the skirt of the cap adjacent to the margin thereof so that in co-operation with the extensions 4, closed, and shown herein as tubular, projections at the margin of the cap are formed having helical or inclined upper or working faces in the direction of the length of the projections whereby the projections are of threadlike form but are of considerable length. The lower under faces of the projections however are substantially flush or in substantially the same plane as the raw or free edge portions of the cap.

Thus very strong and rigid as well as protected and sanitary threadlike projections are formed at the free edge of the cap, the formation of which very materially lessens the amount of raw edge left in the cap, and materially strengthens the skirt of the cap while the projections are materially strengthened by the reinforcing corrugations which also strengthen the skirt of the cap, as well as have other advantages. And I believe that I am the first to form from the normal skirt of the cap adjacent to the margin thereof a closed or tubular form of threadlike projection, and the first to provide a cap, the skirt of which, adjacent to the margin thereof is inwardly pressed to form projections while metal extensions extending beyond the normal margin of the skirt are utilized to cover at the outside of the skirt, the projections formed adjacent to the margin of the skirt.

What I claim is:—

1. A closure of thin sheet metal, comprising a top and a flange provided with a series of extensions on the lower edge, the flange above each extension being extended inwardly to form a projection, the extensions each being bent outwardly and upwardly to form a cornute bead to cover the depression of the projection on the outer face of the flange.

2. A closure of thin sheet metal, comprising a top and a flange provided with a series of extensions on the lower edge, the flange above each extension being extended inwardly to form a projection, the extensions each being bent outwardly and upwardly to form a cornute bead to cover the depression of the projection on the outer

face of the flange, each projection being tapered in a circular direction to form a screw thread for cooperation with a container lug to lock the closure on the container.

3. A closure of thin sheet metal, comprising a top and a flange provided with a series of extensions on the lower edge, the flange adjacent each extension being extended inwardly to form a projection, the extensions each being bent outwardly and upwardly to form a kind of bead to cover the depression of the projection on the outer face of the flange, each projection having its upper face inclined relative to the top of the closure to form screw threads adapted to cooperate with container lugs to lock the closure on the container.

4. A closure of thin sheet metal, comprising a top and a flange provided with a series of extensions on the lower edge, the flange adjacent each extension being extended inwardly to form a projection, the extensions each being bent outwardly and upwardly to form a kind of bead to cover the depression of the projection on the outer face of the flange, each projection being tapered in a circular direction to form a screw thread for cooperation with a container lug to lock the closure on the container with the lower face flush with the lower edge of the closure.

5. A closure of thin sheet metal, comprising a top and a flange provided with a series of extensions on the lower edge, the flange adjacent each extension being extended inwardly to form a projection, the extensions each being bent outwardly and upwardly to form a kind of bead to cover the depression of the projection on the outer face of the flange, each lug having its upper face inclined relative to the top of the closure to form screw threads adapted to cooperate with container lugs to lock the closure on the container with the lower face of the projection flush with the lower edge of the closure.

6. A closure of thin sheet metal, comprising a top and a flange provided with a series of extensions on the lower edge, the flange above each extension being extended inwardly to form a projection, the extensions each being bent outwardly and upwardly to form a cornute bead to cover the depression of the projection on the outer face of the flange, the lower portion of the flange being slightly curved convex on the outer face.

7. A closure of thin sheet metal, comprising a top and a flange provided with a series of extensions on the lower edge, the

flange adjacent each extension being extended inwardly to form a projection, the extensions each being bent outwardly and upwardly to form a kind of bead to cover the depression of the projection on the outer face of the flange, each projection having its upper face inclined relative to the top of the closure to form screw threads adapted to cooperate with container lugs to lock the closure on the container, the lower portion of the flange being slightly curved convex on the outer face.

8. A closure of thin sheet metal, comprising a top and a flange provided with a series of extensions on the lower edge, the flange adjacent each extension being extended inwardly to form a projection, the extensions each being bent outwardly and upwardly to form a kind of bead to cover the depression of the projection on the outer face of the flange, each projection having its upper face inclined relative to the top of the closure to form screw threads adapted to cooperate with container lugs to lock the closure on the container with the lower face of the projection flush with the lower edge of the closure, the lower portion of the flange being slightly curved convex on the outer face.

9. A closure for containers having a depending shallow raw edge skirt provided with a plurality of spaced closed projections pressed inwardly from the skirt above the margin thereof, each having an inclined or helical working surface in the direction of its length adapted to engage the threads or projections of a glass container.

10. A closure for containers having a depending shallow raw edge skirt provided with a plurality of spaced closed projections pressed inwardly from the skirt above the margin thereof, each having an inclined or helical working surface in the direction of its length adapted to engage the threads or projections of a glass container, the lower faces of said projections being substantially flush with the raw edge of the skirt.

11. A closure for containers having a depending shallow raw edge skirt provided with reinforcing corrugations and a plurality of spaced closed projections pressed inwardly from the skirt above the margin thereof, each having an inclined or helical working surface in the direction of its length adapted to engage the threads or projections of a glass container, the lower faces of said projections being substantially flush with the raw edge of the skirt.

Signed at New York city, N. Y., on May 12th 1920.

CHARLES HAMMER.