

No. 894,633.

PATENTED JULY 28, 1908.

C. HAMMER.  
BOTTLE CLOSURE.  
APPLICATION FILED MAR. 25, 1908.

Fig. 1.

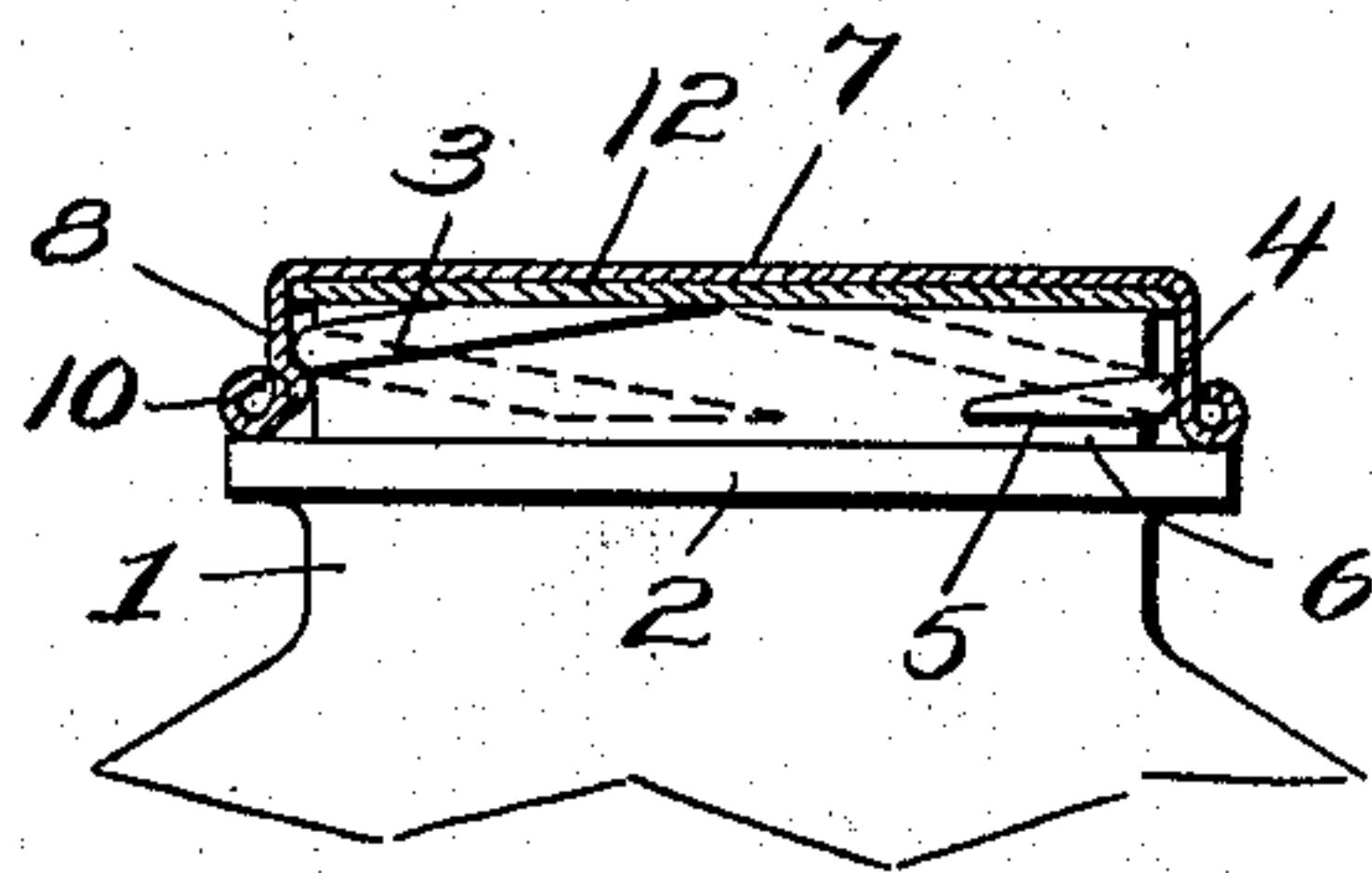


Fig. 2.

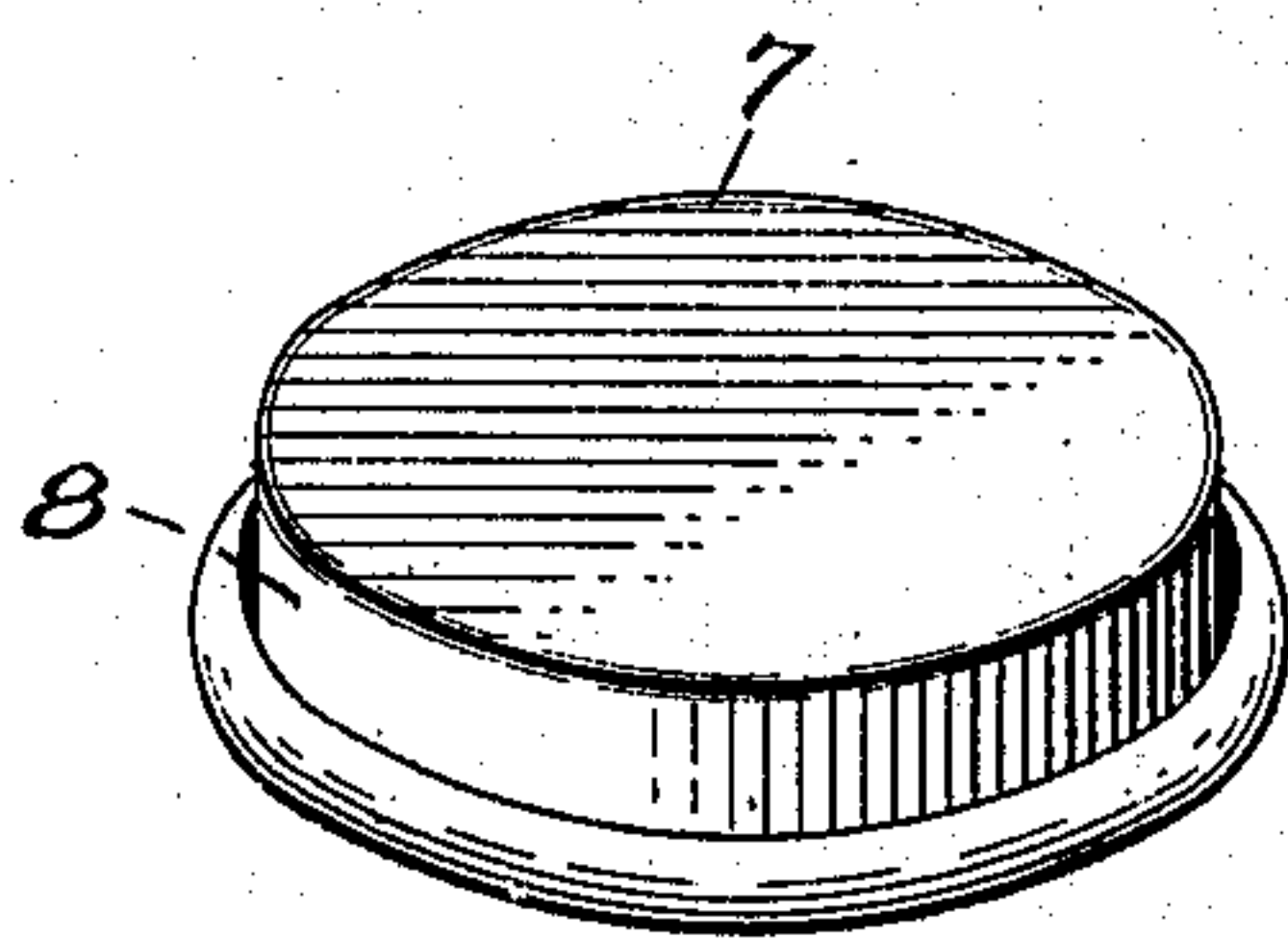


Fig. 3.

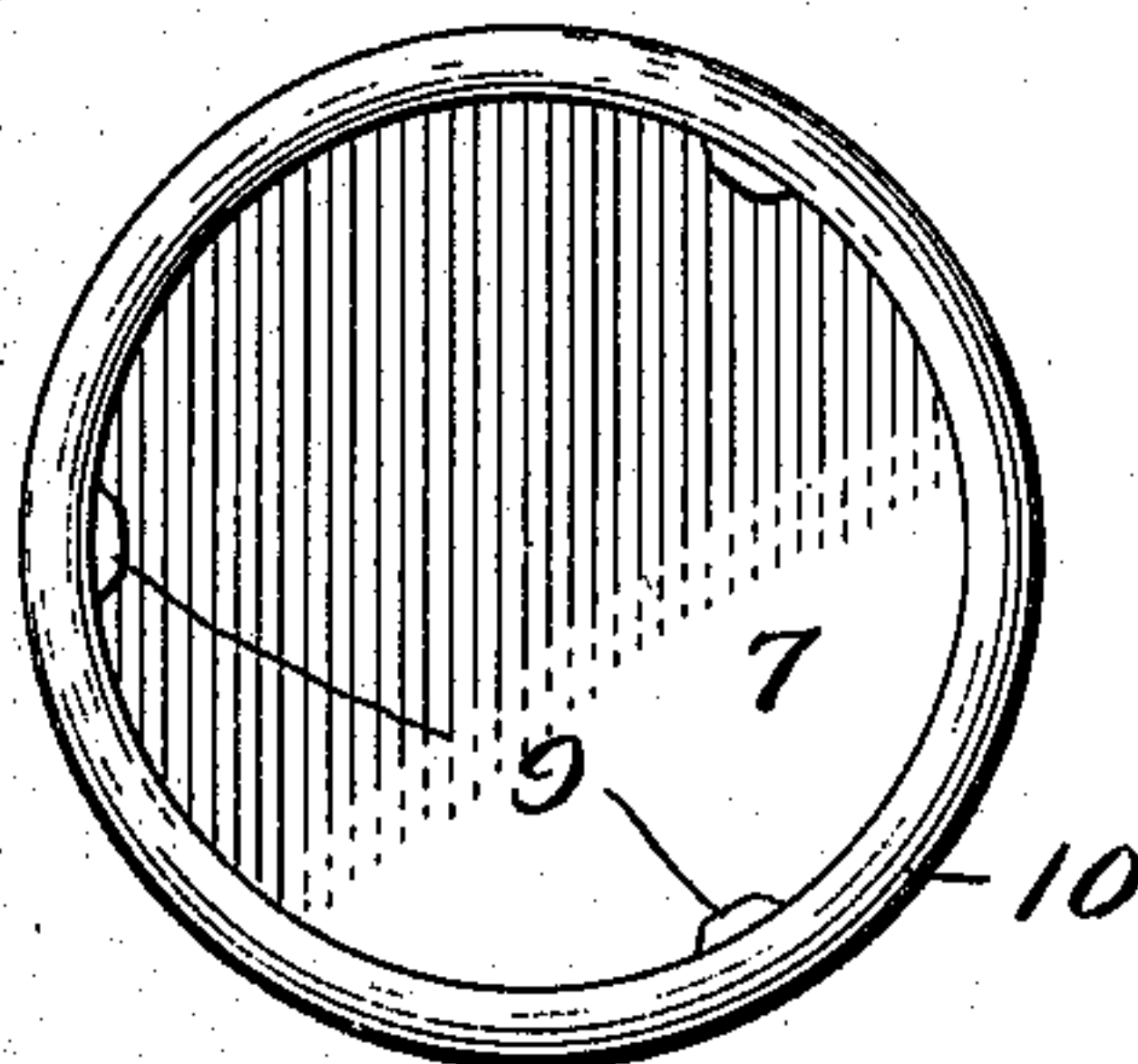


Fig. 5.

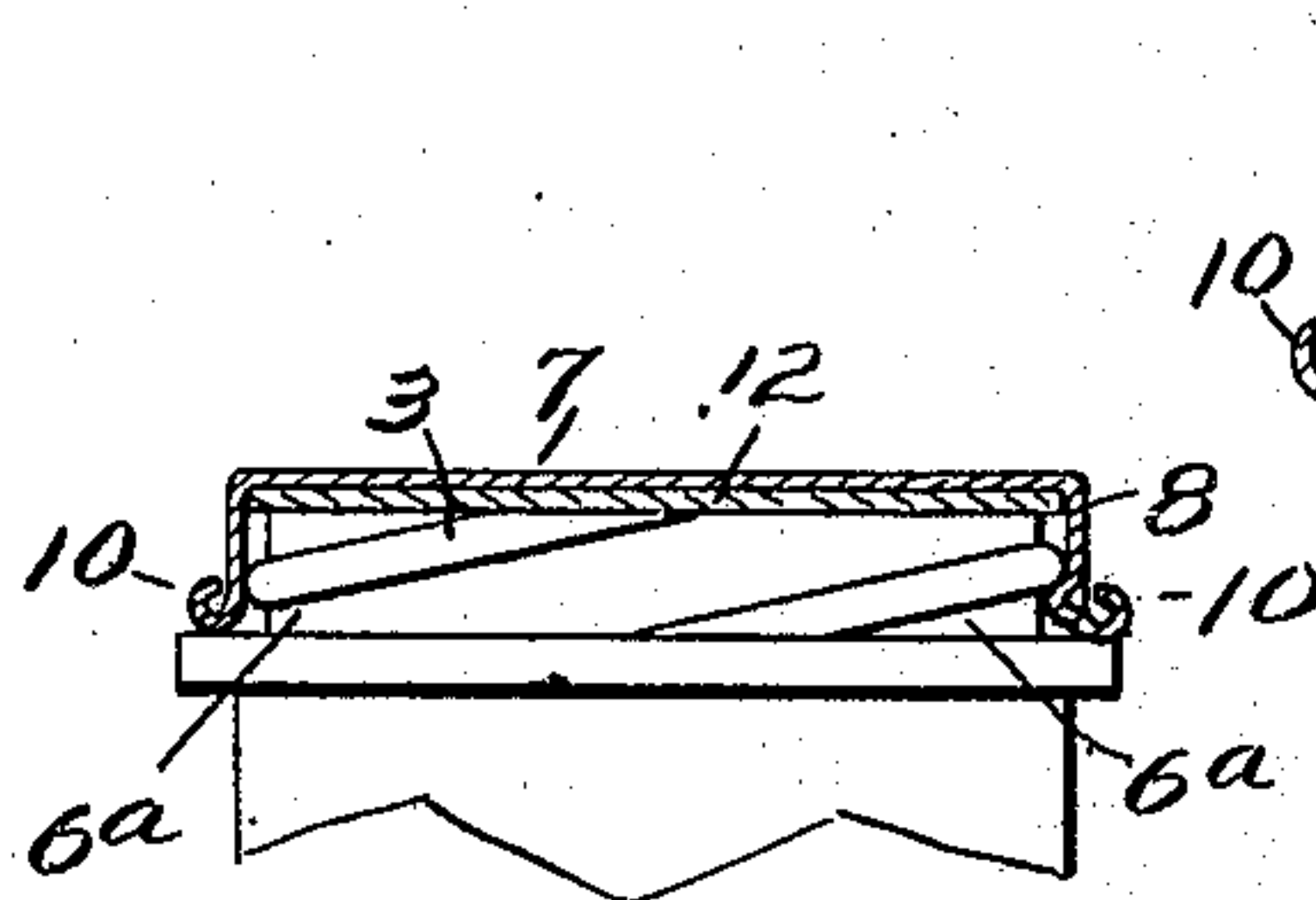


Fig. 4.

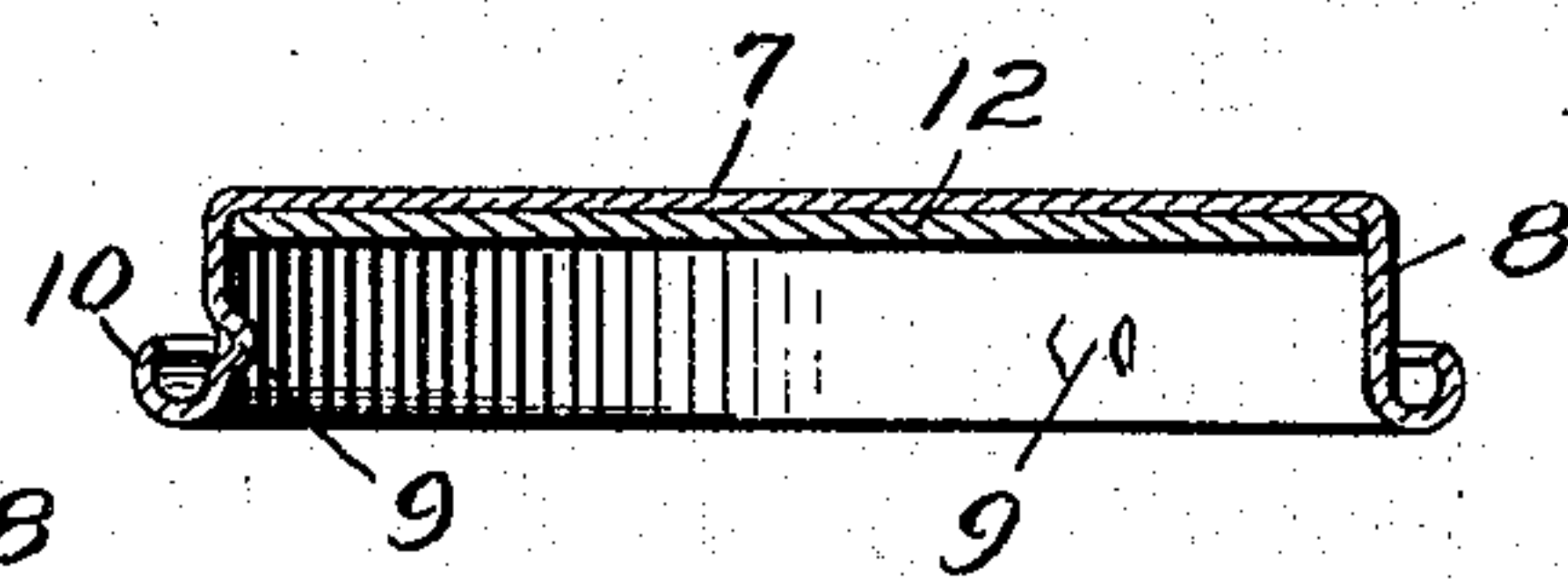
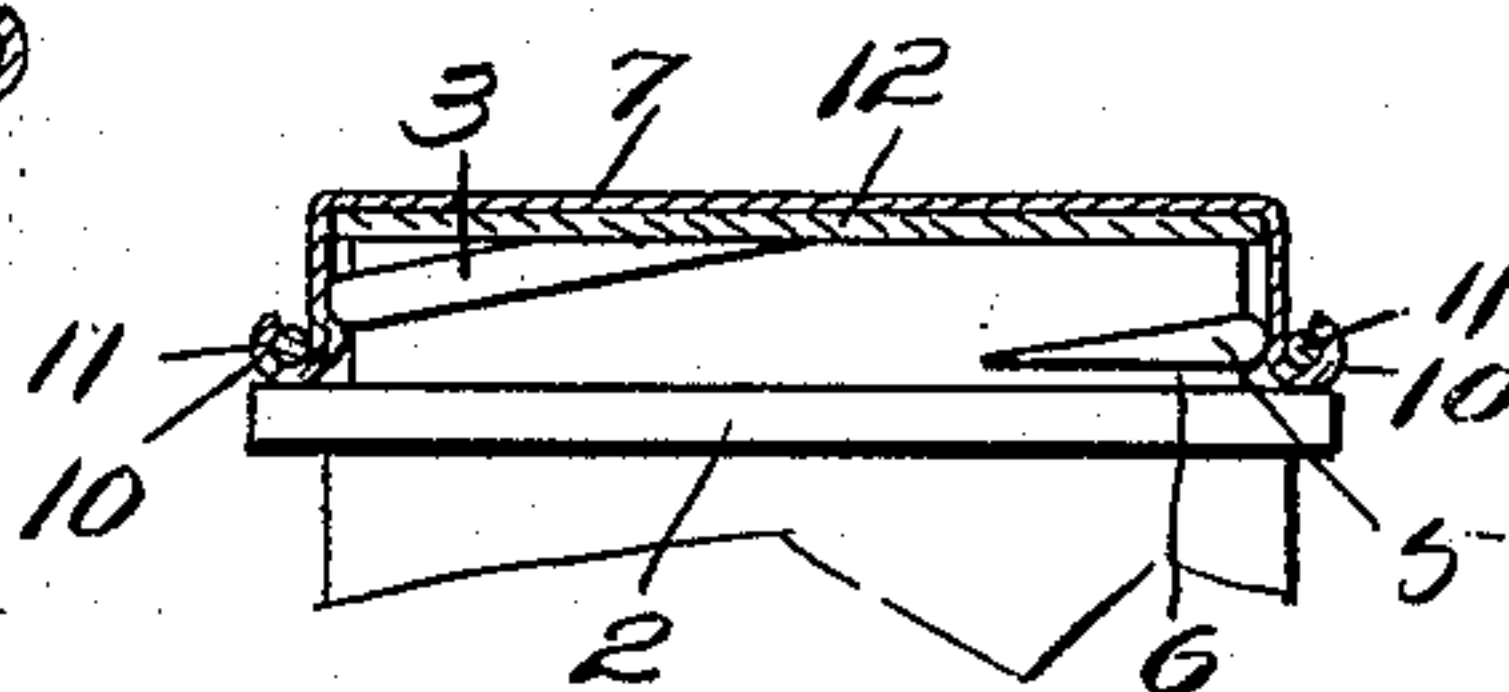


Fig. 6.



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# UNITED STATES PATENT OFFICE.

CHARLES HAMMER, OF NEW YORK, N. Y., ASSIGNOR TO AMERICAN METAL CAP COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

## BOTTLE-CLOSURE.

No. 894,633.

Specification of Letters Patent.

Patented July 28, 1908.

Application filed March 25, 1908. Serial No. 423,234.

*To all whom it may concern:*

Be it known that I, CHARLES HAMMER, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented new and useful Improvements in Bottle-Closures, of which the following is a specification.

This invention relates to improvements in closures for bottles, jars and other containers.

One of the objects of the invention is to provide an improved construction of closure of that type embodying the use of separated spiral threads upon the bottle neck and a cap having in-punched locking projections to engage such threads, wherein the cap is formed with a bead or rim at the lower edge of its flange for engagement with a shoulder upon the bottle neck below the threads, which bead or rim is of such a nature as to secure a firmer locking engagement while at the same time strengthening the cap so as to permit of the use of thinner metal and prevent possibility of mutilation of the locking projections from the pressure on the body of the cap produced in screwing the same upon the bottle.

A further object of the invention is to provide a bottle cap of the described type which is reinforced and strengthened by the use of a stiffening wire or reinforcing member inclosed within the bead or rim, thus overcoming all liability of the distention or bending of the metal from pressure and the consequent liability of the projections being distorted or otherwise mutilated and rendering the cap useless.

The invention consists of the features of construction, combination and arrangement of parts hereinafter fully described and claimed, reference being had to the accompanying drawing, in which:—

Figure 1 is a side view of the neck of a bottle closed by a cap embodying the invention, such cap being shown in section. Fig. 2 is a perspective view of the cap removed. Fig. 3 is a bottom plan view of the same. Fig. 4 is a vertical cross-section through the cap. Fig. 5 is a view similar to Fig. 1 showing a modification in the arrangement of the threads. Fig. 6 is a similar view showing a modification in the construction of the cap.

Referring to the drawings, the numeral 1 designates the neck of a bottle, jar or like container, which may be of any suitable

form, size, shape, and construction. This neck is formed adjacent to the upper end thereof with an annular rib or shoulder 2. Formed upon the neck above the rib is a plurality of separated spiral threads 3 and 4 which, as shown in Figs. 1 and 6, may extend from the upper edge of the neck and terminate adjacent the shoulder 2 in the form of portions 5 parallel with such shoulder, leaving intervening contracted passages 6, or, as shown in Fig. 5 may extend upward from the rib or shoulder and terminate at their upper ends below the upper end of the neck, so that between the shoulder and lower end of each thread a converging space 6<sup>a</sup> will be formed for a purpose hereinafter described. I do not limit myself to either of these constructions, as they may be employed with advantage in the use of the cap upon containers requiring the cap to fit with varying degrees of tightness.

The cap is formed of sheet metal and comprises a crown portion 7 having a depending flange 8, said flange being provided with a plurality of in-punched locking projections 9 to engage the threads 3 and 4. These in-punched locking projections incline to conform with the degree of inclination of the separated spiral threads, and are designed and arranged to engage the lower surfaces of such threads, from the construction and arrangement of which it will be apparent that the cap may be quickly applied to and removed from the bottle and securely fastened in position when fully applied.

In the form of the ribs shown in Figs. 1 and 6, the projections at the limit of movement of the cap in applying the same rest in the channels or recesses 6 and bear against the upper surface of the shoulder 2, thus instituting a frictional engagement by which the cap is securely confined in position. In the form of the threads shown in Fig. 5 the locking projections engage the flaring passages 6<sup>a</sup>, and thus frictionally engage the shoulder and threads for a firm and secure locking action.

In accordance with the principle of the present invention, the lower edge of the flange 8 of the cap is turned outwardly and upwardly to form a nearly circular rim or bead 10 which is designed to bear against the upper surface of the shoulder 2. This bead not only strengthens the lower edge of the cap immediately below the in-punched lock-



ing projections, but allows a desired resiliency of that portion of the cap which comes in contact with the shoulder, to prevent objectionable pressure from being thrown upon the threads from the engagement of the edge of the rim with the shoulder in screwing on the cap, thus obviating liability of distorting or otherwise mutilating the thread.

It will be observed that the rim or bead is not closed or contracted to any material extent, but, on the contrary, has its upper free edge spaced from the flange of the cap, whereby the necessary resiliency of the bead to adapt it to yield under its bearing pressure on the shoulder is permitted, and it will also be observed that the inpunched locking projections are located in line with or in a plane slightly below the plane of the free edge of the bead, by which said projections are practically concealed and protected from casual injury, the bead acting as a spring guard to protect the projections from blows or contacts with extraneous objects. As the bead is free to yield in the described manner, it is apparent that it will not only allow the cap to bind with greater force against the shoulder but will also absorb and prevent transmission of the resulting pressure and strain to that portion of the flange on which the projections are formed, thus obviating liability of buckling of the lower edge of the flange and injury to the projections when the cap is tightly screwed on the bottle neck.

In Fig. 6 I have shown a modification in the construction of the cap in which a stiffening wire 11 is inclosed within the bead 10. This wire is not tightly inclosed and does not wholly impair the resiliency of the bead but limits such resiliency and increases the strength of the cap so that the rim may bear with a high degree of frictional pressure upon the shoulder 2 without liability of the strain being transmitted to the projections and causing their mutilation or distortion in the operations of applying and removing the cap, and particularly in wedging the cap tightly where an absolutely tight closure of the neck is necessary. This construction of the cap with the rim or bead at the lower end of its flange increases the strength and durability of caps of this character, and is of peculiar importance in the use of inpunched locking projections of the type illustrated in providing a means to bear frictionally upon the shoulder for a tight locking action and yet preventing the transmission of the strain in such manner as to injure the projections and render the cap useless for further service.

The usual sealing disk 12 may be employed in conjunction with the cap to seal the bottle or jar against the access of air or escape of gases.

Having thus fully described the invention, what is claimed as new is:—

1. The combination with a bottle or receptacle provided with an annular shoulder and a plurality of separated spiral threads formed thereon above said shoulder, of a cap provided at the lower edge of its flange with an outwardly and upwardly turned rim or bead to bear upon said shoulder and formed upon said flange with inpunched locking projections to engage said spiral threads, said projections being arranged in line with or below the plane of the upper edge of said rim or bead so as to be concealed and protected thereby, and said upper edge of the bead being spaced from the flange of the cap to leave the bead free for a limited resiliency to prevent transmission of the bearing strain therefrom to the portion of the flange on which the locking projections are formed.

2. The combination with a bottle or receptacle provided with an annular shoulder and a plurality of separated spiral threads formed thereon above said shoulder, of a cap provided at the lower edge of its flange with an outwardly and upwardly turned rim or bead to bear upon said shoulder and formed upon said flange with inpunched locking projections to engage said spiral threads, said projections being arranged in line with or below the plane of the upper edge of said rim or bead so as to be concealed and protected thereby, the said upper edge of the bead being spaced from the flange of the cap to leave the bead free for resilient movement to prevent transmission of the bearing strain therefrom to the portion of the flange on which the locking projections are formed, and a reinforcing wire disposed within the bead for limiting the resiliency thereof.

3. A bottle having a neck provided with an annular shoulder and a plurality of separated spiral threads above the same, in combination with a cap having inturned locking projections to engage said threads and an outturned resilient rim or bead at its lower edge to engage said shoulder.

4. A bottle having a neck provided with an annular shoulder and a plurality of separated spiral threads above the same, in combination with a cap having inturned locking projections to engage said threads, an outturned resilient rim or bead at its lower edge to engage said shoulder, and a stiffening wire within the bead to limit the resiliency thereof.

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

CHARLES HAMMER.

Witnesses:

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JOHN M. CANTWELL.