C. HAMMER.

GLASS FINISH FOR JARS OR BOTTLES.

APPLICATION FILED MAY 16, 1914.

1,160,598. Patented Nov. 16, 1915.

Fig. 1.

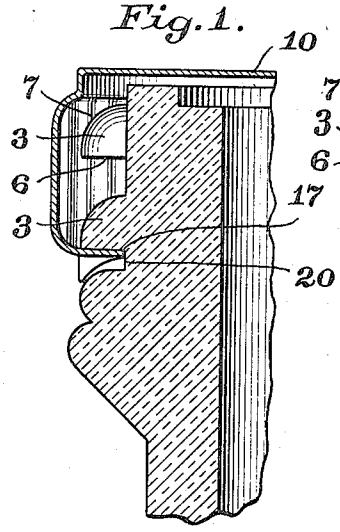


Fig. 2.

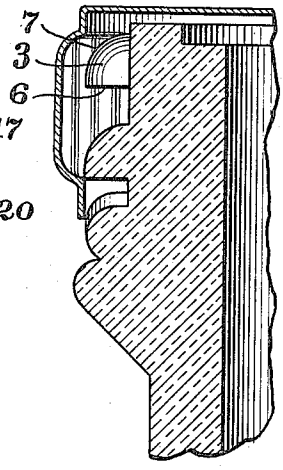


Fig. 4.

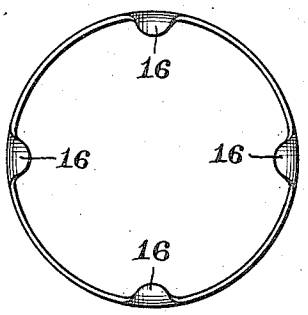


Fig. 5.

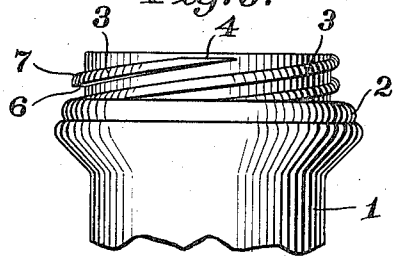
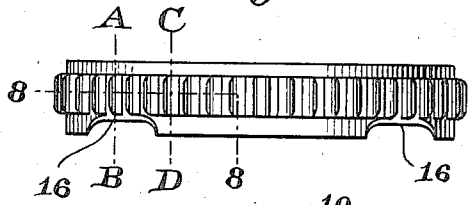


Fig. 3.



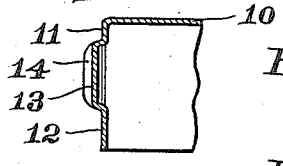


Fig. 7.

Fig. 8.

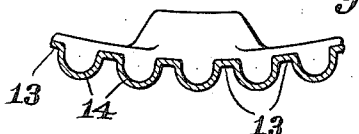


Fig. 9.

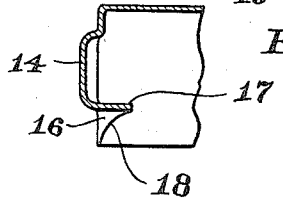
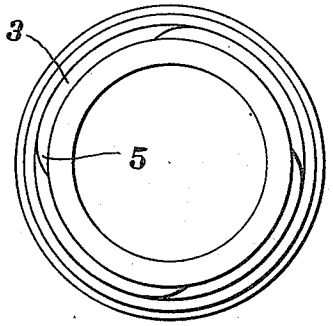


Fig. 6.



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By his Attorneys
Moore & Clarke

UNITED STATES PATENT OFFICE.

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

GLASS FINISH FOR JARS OR BOTTLES.

1,160,598. Specification of Letters Patent. Patented Nov. 16, 1915.

Original application filed July 19, 1912, Serial No. 710,442. Divided and this application filed May 16, 1914. Serial No. 839,127.

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 and State of New York, have invented a new and useful Improvement in Glass Finish for Jars or Bottles, of which the following is a specification.

This application is a division of my application Serial No. 710,442 filed July 19, 1912, on the bottle cap or closure.

The above application is directed to the cap and to the combination of the cap with the jar or bottle, while the present application is directed to the jar or bottle.

This invention relates to a bottle cap or closure.

The objects of the invention are so to shape the bottle neck and the cap or closure as, first to permit the cap to be made of very thin sheet metal; second, to cause a coöperation between the notches of the cap and the upper and lower surfaces of the threads of the bottle, whereby the threads will prevent distortion of the notches of the cap; third, to arrange the notches and threads in such manner as to guide the cap accurately into place and prevent it from wabbling or crossing the threads while it is being screwed home; fourth, to provide for locking the cap tightly upon the threads after the cap has been screwed into closed position; and, fifth, to minimize the friction of the flange of the cap on the outer edges of the threads in screwing the cap into closed position.

With the foregoing and other objects in view, as will appear in the following description, my invention resides in the combination and arrangement of parts and in the details of the construction hereinafter set forth, and particularly defined in the appended claims. But I wish to have it understood that this specification is illustrative only and sets forth but one embodiment of my invention, and I reserve the right to make changes in the shape, size and relative location of the parts that come within the scope and spirit of my invention and are included within the general meaning of the terms in which the claims are expressed. In other words, the differences in the wording of the claims are intended to cover differences in construction; and I desire the privilege of altering the details of my invention accordingly when such alteration is necessary.

In the accompanying drawing, forming part of this specification, Figure 1 is a vertical sectional view through a portion of the upper end of the bottle neck and the outer edge of the cap, the section being taken at a point through the center of one of the notches in the lower edge of the bottle cap, as indicated by the line A—B in Fig. 3; Fig. 2 is a section similar to Fig. 1 taken through the cap at a point away from one of the notches; Fig. 3 is a side elevation of a bottle cap constructed in accordance with the present invention; Fig. 4 is a bottom plan view of the cap shown in Fig. 3 on a reduced scale; Fig. 5 is a side elevation of a bottle neck showing the separated threads having flat bottoms and rounded tops to cooperate with the notches of the cap; Fig. 6 is a plan view of the bottle neck shown in Fig. 5; Fig. 7 is a vertical section through one edge of the cap taken on a line indicated by C—D in Fig. 3, and showing the annularly and outwardly bulged portion of the flange with the outwardly extending corrugations in said bulged portion; Fig. 8 is a horizontal section taken on a line indicated by 8—8 in Fig. 3; and Fig. 9 is a view on the line A—B of Fig. 3, showing the manner in which the arched notches are extended upward far enough to permit the lower ends of some of the corrugations to be extended or merged into said notches, whereby to brace the notches.

Like reference numerals indicate corresponding parts in the different figures of the drawings.

The reference numeral 1 in Fig. 5 indicates the bottle neck; 2 an annular shoulder on said neck; and 3—3—3 are separated spiral threads extending preferably downward to the shoulder 2. The threads extend a considerable distance around the neck, so that each will overlap one or more of the other threads. The upper end of each thread 3 is preferably beveled in a horizontal plane, as indicated at 4 in Fig. 5, and is also beveled outwardly in a vertical plane, as indicated at 5 in Fig. 6.

The bottom, or working face of each of

the separated threads 3 is formed flat and is substantially normal to the adjacent outside surface of the bottle or jar, as shown at 6 in Figs. 1, 2 and 5, and the top or upper surface of each of said threads is curved upwardly and inwardly, as indicated at 7 in said figures, making each thread substantially quadrant-shaped in cross-section. As will hereinafter appear, by forming the threads 3 with flat bottoms and curved or rounded tops, said threads are caused to conform to the shape of and cooperate with the arched notches of the cap, and thereby not only guide the cap accurately into position, but also lock it in closed position, and at the same time, provide for an effective bracing or reinforcing of the notches, whereby to permit the cap to be made of thin metal.

The cap 10 is formed preferably with a flat top and a depending annular flange. As shown best in Figs. 2 and 7, the annular flange of the cap 10 is formed with an upper portion 11 and a lower portion 12, which are in the same vertical plane and said flange is also formed with an intermediate portion 13 which is rolled or bulged outwardly. This bulged portion 13 in turn, is formed with outwardly extending vertically arranged corrugations 14.

Formed in the lower edge of the flange of the bottle cap is a plurality of upwardly and inwardly arched notches 16, the number of notches 16 being equal to the number of separated threads 3. As indicated in Figs. 1 and 9, the notches 16 are extended upward from the lower edge of the cap, far enough to cause the lower ends of the adjacent corrugations 14 to be extended or merged into the highest portion or the crown of the arch. By means of this construction, it is found in practice that the corrugations lend strength to the notches. It will also be seen that the highest portion or crown of the arch extends inward in practically a horizontal plane, as shown at 17, in Figs. 1 and 9. This horizontal portion 17 lies parallel with and flat against the flat bottom 6 of the adjacent thread 3. The downwardly and outwardly curved lower edge portion 18 of each notch 16, as shown in Fig. 9, bears against and rides along the curved top or surface of the lower thread 3. The horizontal portion 17 of the notch, as shown in Fig. 1, is extended inward far enough to engage the outer wall 20 of the bottle neck at a point between the separated threads.

From the foregoing, it will be apparent that by striking the arched notches upward in the manner indicated, said notches serve to guide the cap during its turning movement on the bottle, by reason of the fact that the horizontal portion 17 at the top of each notch fits against the flat bottom of one thread 3; that the downwardly and outwardly curved lower edge 18 of said notch engages and rides upon the curved upper surface of the next lower thread, and that the inner edge of the horizontal portion 17 engages the outer face 20 of the bottle neck, and these three parts thus prevent respectively any upward, downward or inward movement of the cap on the bottle neck, and hold it at all times in proper position on said bottle neck. It will also be observed that the outwardly bulged portion 13 having the corrugations 14 therein, is spaced away from the outer portions of the threads 6, as best indicated in Fig. 2, with the result that the friction between the flange of the cap and the threads is minimized.

By so shaping the notches of the cap and the threads of the bottle that they coöperate with each other, as above described, a further important advantage is secured, in that after the bottle cap has been screwed down to a point where the flat top of the cap binds on or contacts with the top edge of the bottle neck, a continued turning movement of the cap causes the portion 17 of the notches 16 to give or distort slightly downward and this downward distortion causes the downwardly and outwardly curved edges 18 of the notches 16 to bite or bind tightly downward on the curved upper surface 7 of the next lower thread, and thus lock the cap on the bottle, at the same time bracing the notches against any further distortion than is necessary to lock the cap, as above described. This biting or binding of the edge 18 on the curved upper surface 7 of the lower thread effectually prevents the cap from working loose from the bottle or jar in transportation and the coöperation between the flat bottom and curved top threads of the bottle and the peculiarly formed notches of the cap, permits the cap to be manufactured at small expense from very thin metal, and to be easily and quickly fitted onto the bottle and screwed into closed position.

What is claimed is:

1. A storage vessel having a mouth and a plurality of distinct, separated, overlapping threads on its surface adjacent said mouth, each thread having a rear or working face substantially perpendicular to the adjacent surface of the vessel, and likewise having a rounded portion forward of said working face, the working face of each thread being designed to engage a closure for the vessel to hold the closure in place, and the rounded portion of each thread being also designed to engage the closure in order to coöperate with the working face of an adjacent thread.

2. A storage vessel having a mouth and a plurality of distinct, separated, overlapping threads on its surface adjacent said mouth, each thread having a rear or working face

substantially perpendicular to the adjacent surface of the vessel, and likewise having a rounded portion forward of said working face, the working face of each thread being designed to engage a closure for the vessel to hold the closure in place, and the rounded portion of each thread being also designed to engage the closure in order to coöperate with the working face of an adjacent thread, said threads being tapered at their forward ends in the plane of the mouth and in a plane normal thereto.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses, this 9th day of May, 1914.

CHARLES HAMMER.

Witnesses:
ROBT. RAKESTRAW,
WILLIAM H. ZOURNE.