

J. A. HICKS.
 IMPLEMENT FOR APPLYING SEALING CAPS TO VESSELS.
 APPLICATION FILED MAY 5, 1908.

953,017.

Patented Mar. 22, 1910.

Fig. 1.

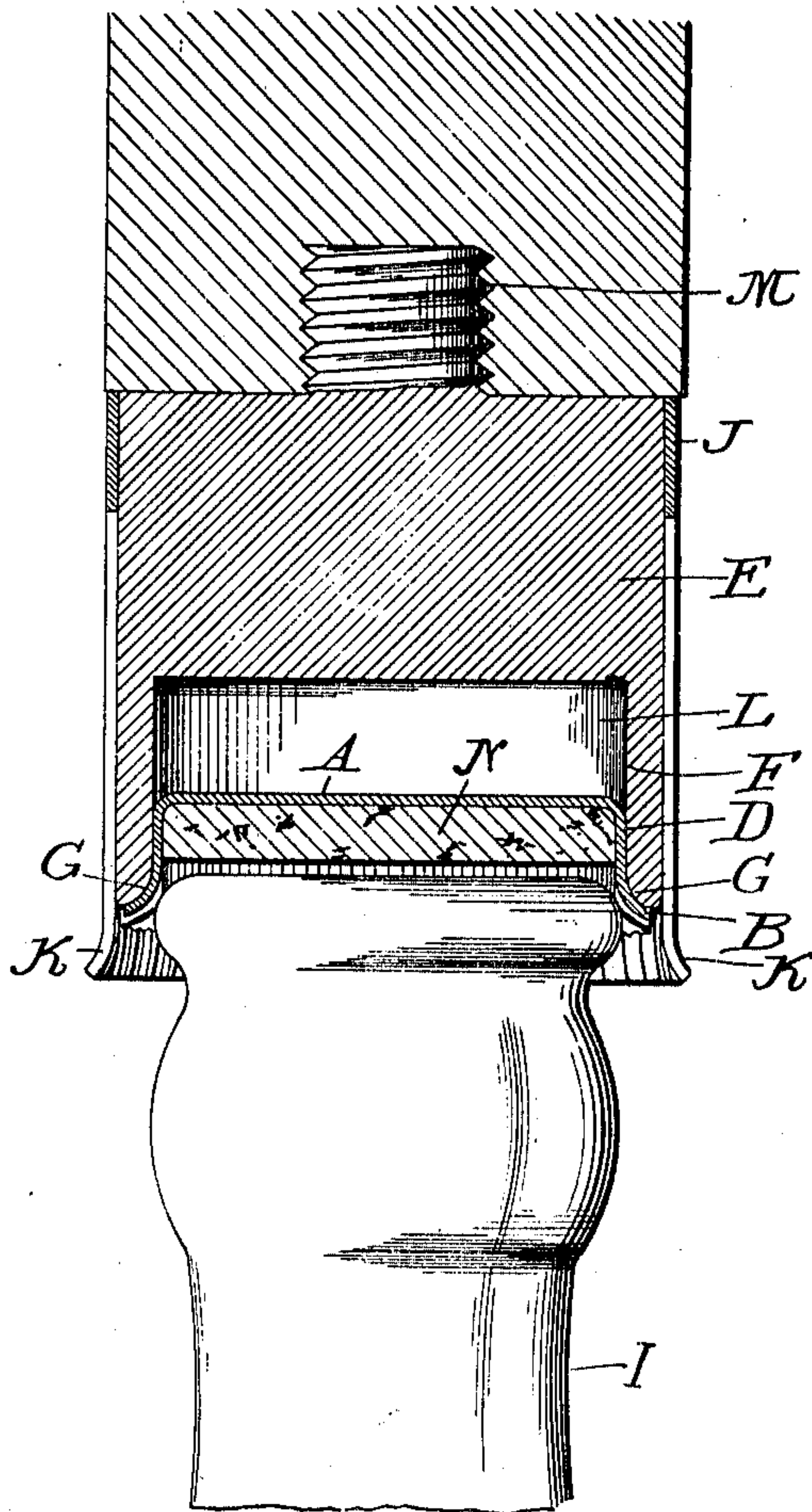


Fig. 2.

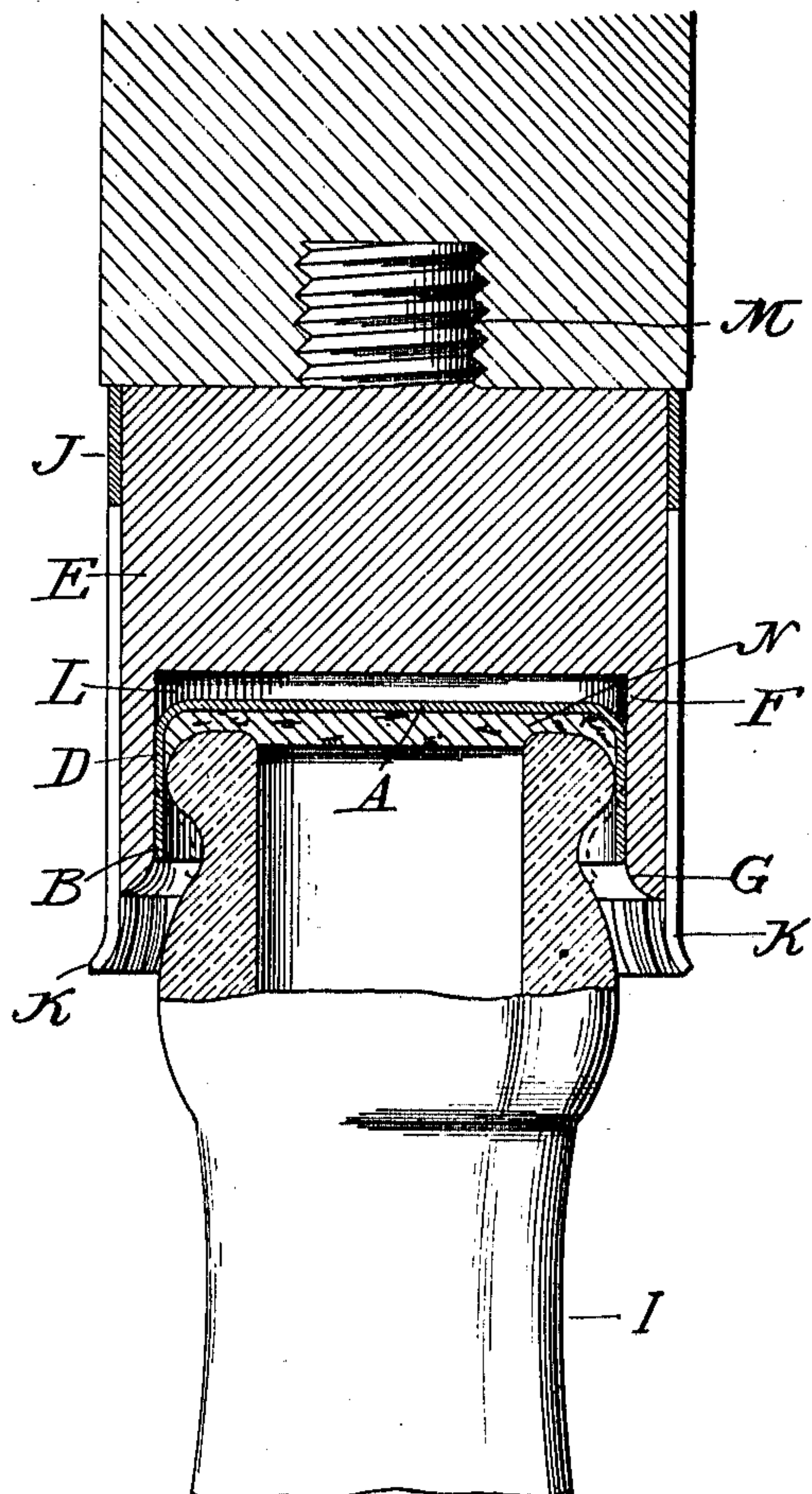


Fig. 3.

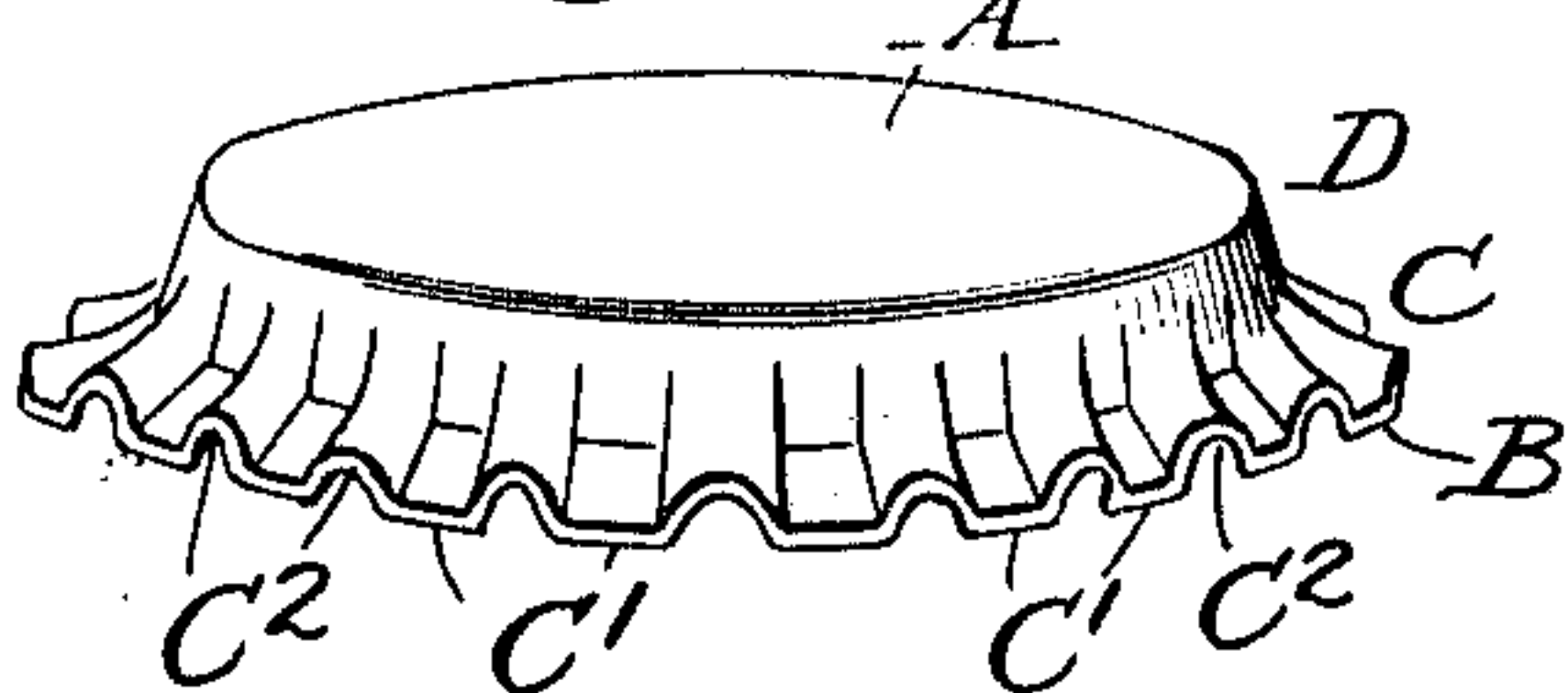
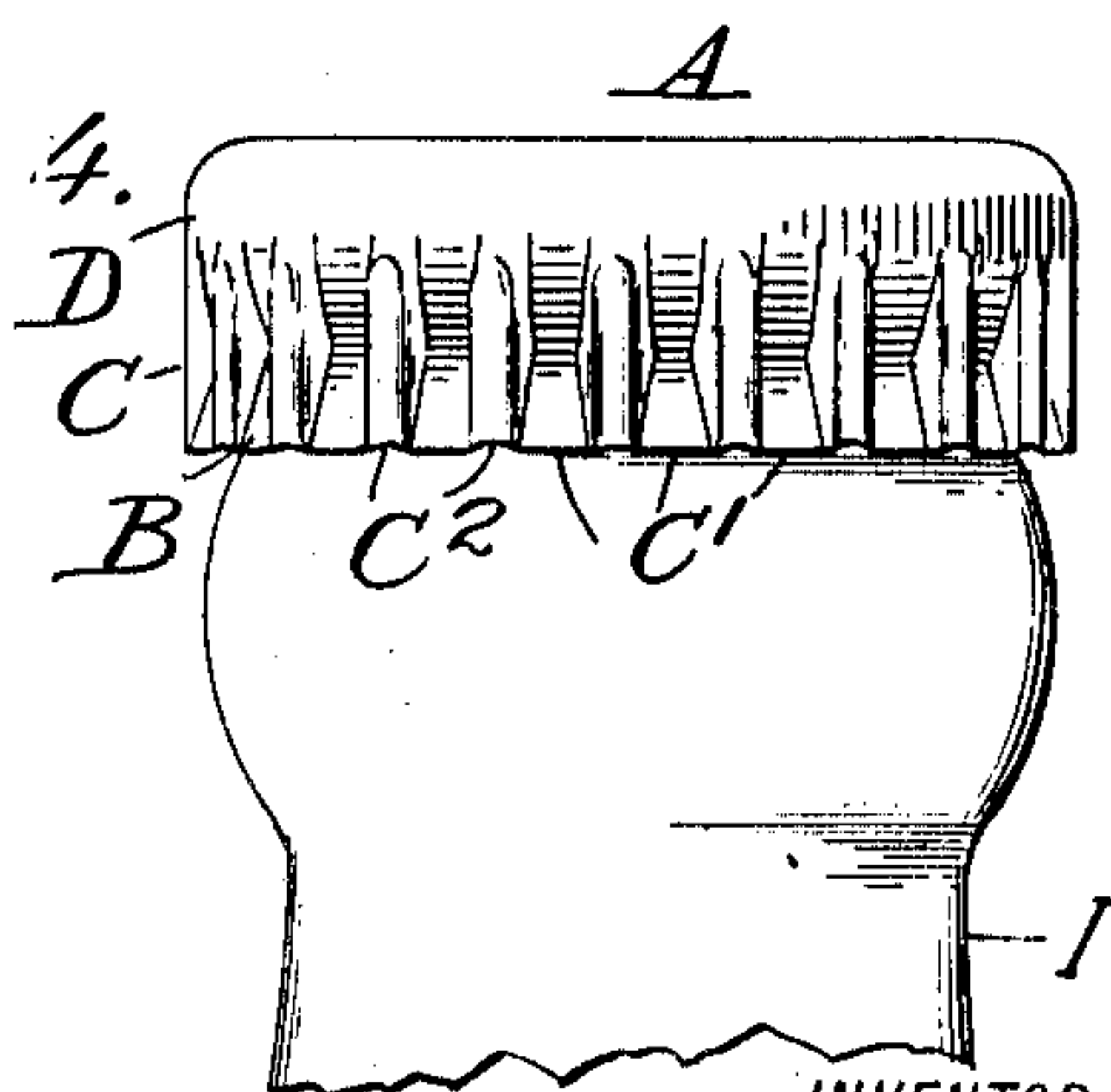


Fig. 4.



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IMPLEMENT FOR APPLYING SEALING-CAPS TO VESSELS.

953,017.

Specification of Letters Patent.

Patented Mar. 22, 1910.

Application filed May 5, 1908. Serial No. 430,988.

To all whom it may concern:

Be it known that I, JOHN AUGUSTUS HICKS, a citizen of the United States, residing at Summit, Union county, New Jersey, have invented certain new and useful Improvements in Implements for Applying Sealing-Caps to Vessels, of which the following is a specification.

This invention relates to improvements in implements for applying sealing caps to vessels, particularly to an implement for use in a bottle capping machine for applying a crimped flange sealing cap, such for example as the well known crown and seal cap, to the neck of a vessel to cover the mouth thereof, the object of the invention being to provide an improved implement for use on the resistance post of a bottle capping machine which implement during the applying stroke thereof resulting from the movement of the implement toward the bottle or the movement of the bottle toward the implement, as the case may be, initially grips the cap at the point where the ridges of the crimped flange thereof merge with the uncrimped cylindrical portion of the cap and utilizes the resistance offered by such ridges to draw the cap over the mouth of the vessel, spread the cork wafer also over the mouth of the vessel so as to cause the same to form an effective seal between the cap and the vessel mouth and subsequently during the said applying stroke traverses such ridges from their bases where they merge into the cylindrical portion of the flange to their outer, lower ends where they terminate at the edge of the flared crimped portion of the flange and in so doing bends such crimps inwardly and under the bead of the vessel neck and thereby secures the cap thereon so that the implement during its effective applying stroke or movement first draws the cap and spreads the cork sealing wafer on and about the mouth of the bottle and subsequently bends in the crimped outwardly flared flange of the cap under the bead of the vessel neck as hereinafter described and claimed.

In the accompanying drawings:—Figure 1 is a longitudinal central sectional view of an implement constructed in accordance with my invention, showing the same in initial position with reference to a cap and a bottle to which the cap is to be applied, with the bases of the ridges of the crimps of the

cap engaged by the implement. Fig. 2 is a similar view showing the implement in final position after bending in the crimps of the flange of the cap and binding them under the bead of the bottle. Fig. 3 is a detail perspective view of a sealing cap such as is applied by means of my improved implement. Fig. 4 is an elevation, showing the cap as applied to a bottle.

This improved implement is adapted for use in connection with bottle capping machines such for instance as described and claimed in my copending application for Letters Patent of the United States filed November 9, 1906, the caps being of that class provided with a flange having a substantially cylindrical portion and an outwardly flared crimped lower portion, of which the cap known as the crown and seal cap is a type. One of such caps is shown in detail in Fig. 3 of the drawing, A indicating the central portion of the cap which covers the mouth of the bottle, D the cylindrical or upper portion of the flange of the cap, B the outwardly flared lower portion of the flange, which outwardly flared lower portion of the flange is crimped, the crimps being indicated at C and each comprising a depressed portion C' and a raised ridge portion C'', the said ridges of the crimps merging at their bases or inner ends in the cylindrical portion of the flange and terminating at their outer ends at the edge of the flared portion of the flange.

The body E of my improved implement is here represented as cylindrical in form and provided at its upper end with a screw threaded stem M which is adapted to be screwed in a threaded opening in the lower end of the resistance post of a bottle capping machine, this construction enabling the implement to be readily attached to or detached from the resistance post as may be desired and hence adapting tools which vary in size and shape to be used at will in connection with a single machine. In the lower side of the implement is a cylindrical recess L, the interior diameter of which is just equal to the exterior diameter of the cylindrical portion D of the cap so that the cap when placed in the recess fits snugly therein and hence the said recess owing to its restricted diameter presents an annular wall or surface F which surrounds the cy-

lindrical portion of the flange of the cap and initially engages and bears upon the bases of the ridges formed by the crimps of the cap flange. The lower edge of the wall of the recess L is rounded outwardly as at G and preferably corresponds with the flare of the crimped cap flange. The depth of the said recess is such that the bottom thereof at no time during the operation of the implement comes in contact with any portion of the cap. Around the body of the implement is a casing J which is secured thereto and is split at a number of points from its lower edge to within a suitable distance from its upper edge, the splits being parallel with each other and forming fingers K, the said casing and its fingers being made of spring material, preferably, and the lower ends of the spring fingers being slightly flared or curved outwardly and adapted when the cap is placed in the implement prior to its application to a bottle to grip the crimped flange of the cap and coact with the recess L in holding the cap in place in the implement.

The cap has on its inner side the usual wafer, gasket or seal which may be made of cork or other suitable material and is here indicated at N. The neck of a bottle is indicated at I in Figs. 1, 2, and 4, the bottle being provided immediately below the mouth with an annular circumferential bead on its outer side, this being the usual construction of bottles intended for use in connection with caps such as hereinbefore described.

In the operation of my improved implement after the cap has been placed in the lower side of the recess L and the bottle has been placed in the required position under the cap, an applying stroke is given to the implement either by forcibly causing the implement to move toward the bottle or causing the bottle to move toward the implement. Owing to the fact that the diameter of the recess L is restricted so that it corresponds with the external diameter of the cylindrical portion of the cap flange, the lower side or edge of the wall of said recess initially engages the bases of the ridges of the crimps of the outwardly flared cap flange thus centering the same and the first effect of the applying stroke of the implement, owing to the resistance offered by such ridges is to cause the cap to be drawn tightly over the mouth of the bottle, the strength of the ridges being such and the resistance they offer to the stroke of the implement being so great that in practice the cap is so forcibly drawn over the mouth of the bottle that it is caused to conform exactly to the shape thereof and the cap is fitted so intimately on the mouth of the bottle that its peripheral portion where the flange joins its disk exactly conforms to the shape of the bottle mouth. This initial drawing action of the implement on the cap also serves to effect-

ively spread and compress the sealing wafer over and about the bottle mouth so as to cause the wafer to effectually seal the cap and prevent air from entering the bottle or gas from escaping therefrom. It will be understood that this initial drawing action of the implement does not bend in the crimped and flared portion of the cap flange. After the cap has been thus drawn on the bottle mouth and the wafer has been thus spread by the initial stroke of the implement the engaged wall of the recess of the implement traverses the ridges of the crimps from their bases where they merge with the cylindrical portion of the cap flange to their outer ends which are coincident with the outer edge of the flange and in so traversing such ridges, the engaged wall of the recess forces such ridges and hence such crimps inwardly, disposing the ridges in line with the cylindrical portion of the cap flange and forcing the depressed portions of the crimps inwardly as shown in Figs. 2 and 4, thereby causing the crimps of the cap flange to be bent inwardly under and into engagement with the bead of the vessel neck so as to secure the cap in place.

My improved implement distinguishes from implements heretofore used in connection with crimp edged bottle caps in that, owing to the restricted diameter of its recess, the wall of such recess initially engages the bases of the ridges of the crimps, utilizes the strength of such ridges and the resistance they offer to cause the implement to draw the cap forcibly over the mouth of the bottle and subsequently performs the function of bending in the crimps under the bead of the bottle mouth, while the devices in common use for this purpose usually engage the crimps at or near their lower edges and only for the purpose of bending them inwardly under the bead of the bottle neck. At no time during the operation of my improved implement does the bottom of the recess come in contact with the cap, the gripping of the implement at the bases of the crimp ridges being all that is required to draw the cap over and fit the same so snugly on the bottle mouth that the cap is caused to conform exactly to the shape of the bottle mouth. Owing to this drawing action of my improved implement not only is an important advantage gained in intimately fitting and drawing the cap over the mouth of the bottle, but I am also enabled to gain an important advantage in that by thus drawing and fitting the cap on the mouth of the bottle before bending the crimps of the flange under the bead of the bottle, such drawing action on the cap also causes the wafer to be spread and to act more efficiently as a seal than heretofore. In actual practice, I have demonstrated that I can provide the caps with much thinner seals

than have been heretofore necessarily used, thus effecting a very considerable economy as will be understood.

My improved implement performs two functions, first, it draws and fits the cap over the mouth of the bottle by initially engaging the bases of the cap flange crimps. Secondly, after having thus drawn and fitted the cap on the mouth of the bottle my implement during the concluding portion of the same applying stroke bends the crimps inwardly under and engages them with the bottle bead. The last function only, so far as I am aware, has been heretofore performed by implements of this class.

Having thus described the invention, I claim:—

1. An implement for applying a cap having a crimped outwardly flaring flange to a vessel having a bead extending around its neck, said implement having a substantially cylindrical recess of a size and shape to receive and closely fit the upper portion of the flange of the cap and restricted in diameter to present a surface to initially engage the bases of the ridges formed by the crimps and by pressure thereon draw and fit the cap over the mouth of the vessel and subsequently by traversing such ridges bend the crimps inwardly and under into engagement with the bead of the vessel neck.

2. An implement for applying a cap having a crimped outwardly flaring flange to a vessel having a bead extending around its neck, said implement having a substantially cylindrical recess of a size and shape to receive and closely fit the upper portion of the

flange of the cap and restricted in diameter to present a surface to initially engage the bases of the ridges formed by the crimps and by pressure thereon draw and fit the cap over the mouth of the vessel and subsequently by traversing such ridges bend the crimps inwardly and under into engagement with the bead of the vessel neck, the depth of said recess being such that the bottom thereof is spaced from the cap at the conclusion of the applying stroke or movement of the said implement.

3. An implement for applying a gasketed cap having a crimped outwardly flaring flange to a vessel having a bead extending around its neck, said implement having a substantially cylindrical recess of a size and shape to receive and closely fit the upper portion of the flange of the cap and restricted in diameter to present a surface to initially engage the bases of the ridges formed by the crimps and by pressure thereon compress the gasket upon and about the upper portion of the vessel mouth, draw and fit the cap over the vessel mouth and subsequently by traversing such ridges bend the crimps inwardly and under into engagement with the bead of the vessel neck.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses, this 4th day of May 1908.

JOHN AUGUSTUS HICKS.

Witnesses:

LINCOLN A. STUART,
N. P. BARR.