

No. 871,697.

PATENTED NOV. 19, 1907.

M. HOFHEIMER.
CLOSURE FOR BOTTLES, JARS, &c.
APPLICATION FILED DEC. 14, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

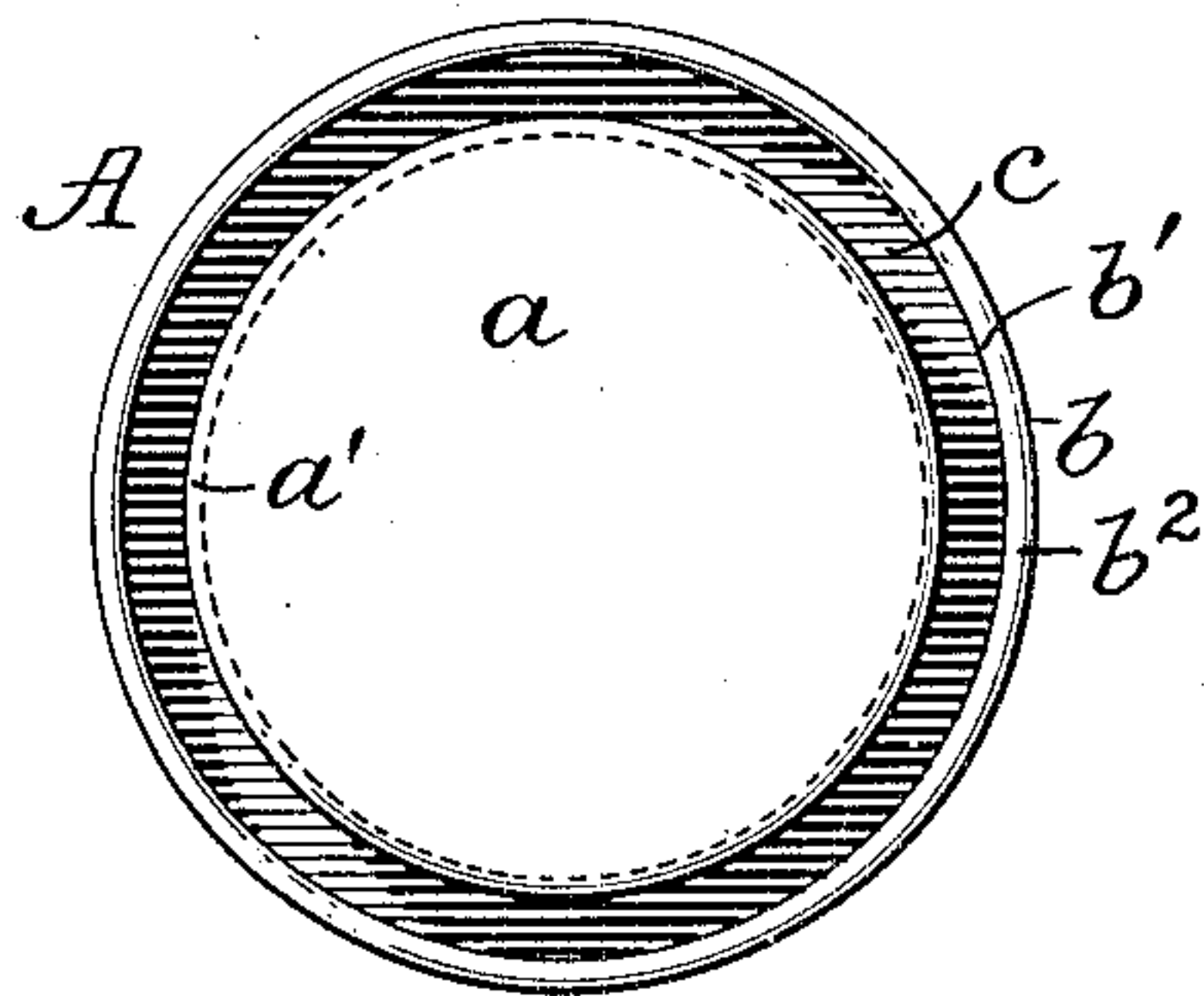


Fig. 4.

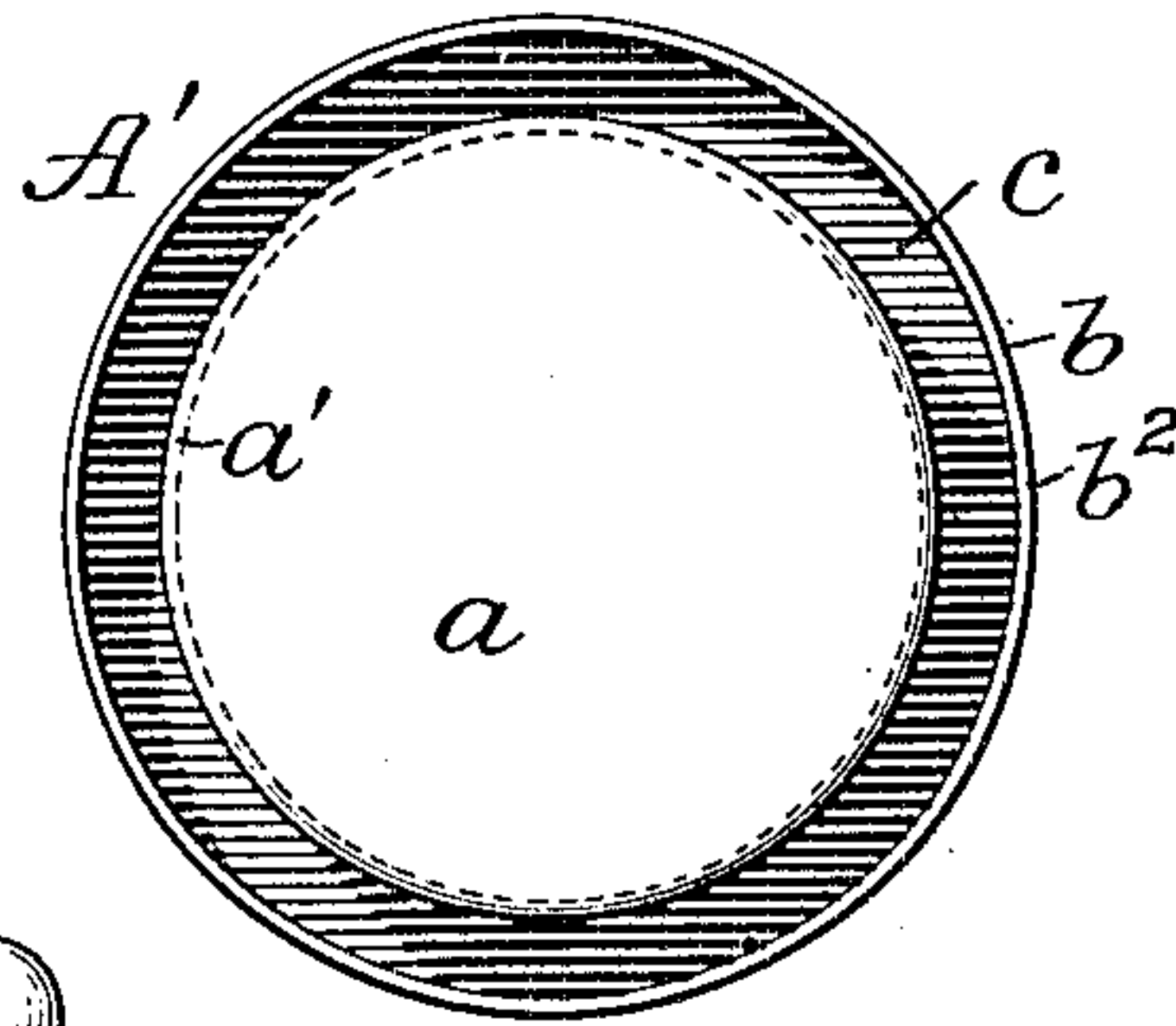


Fig. 2.

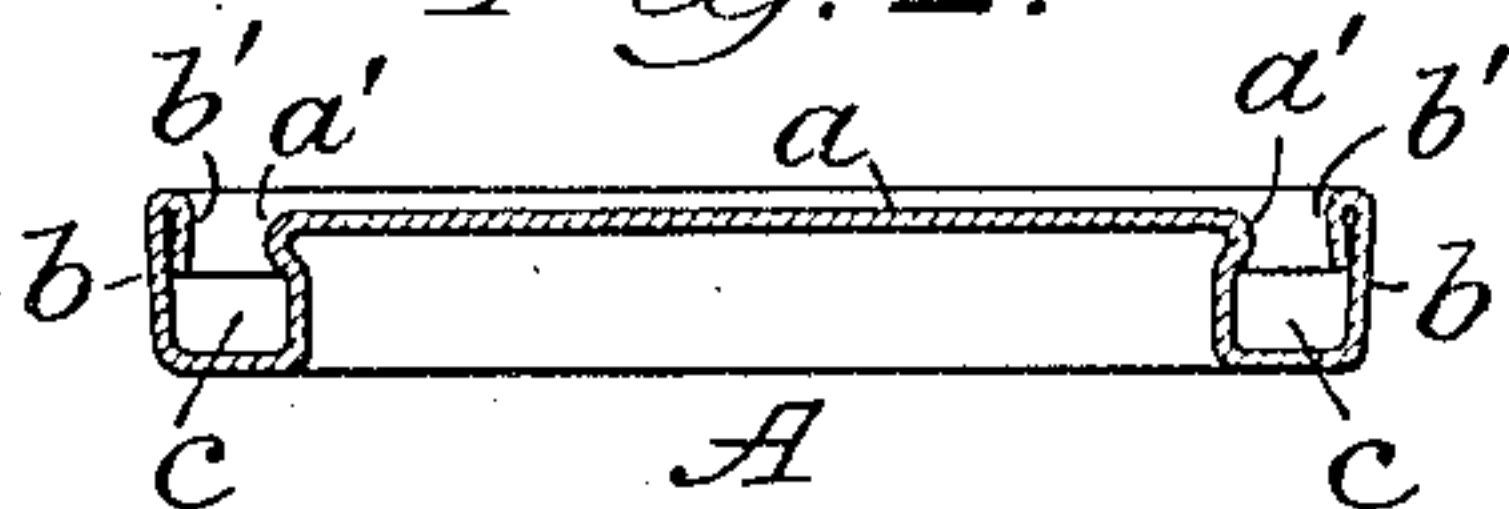


Fig. 5.

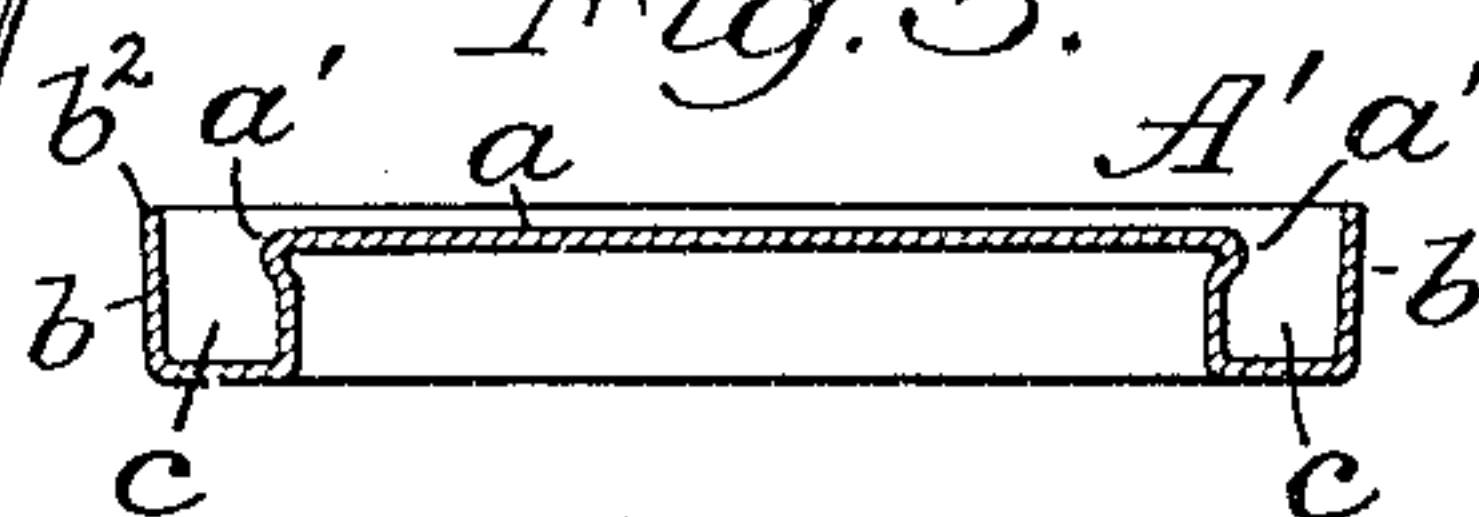


Fig. 6.

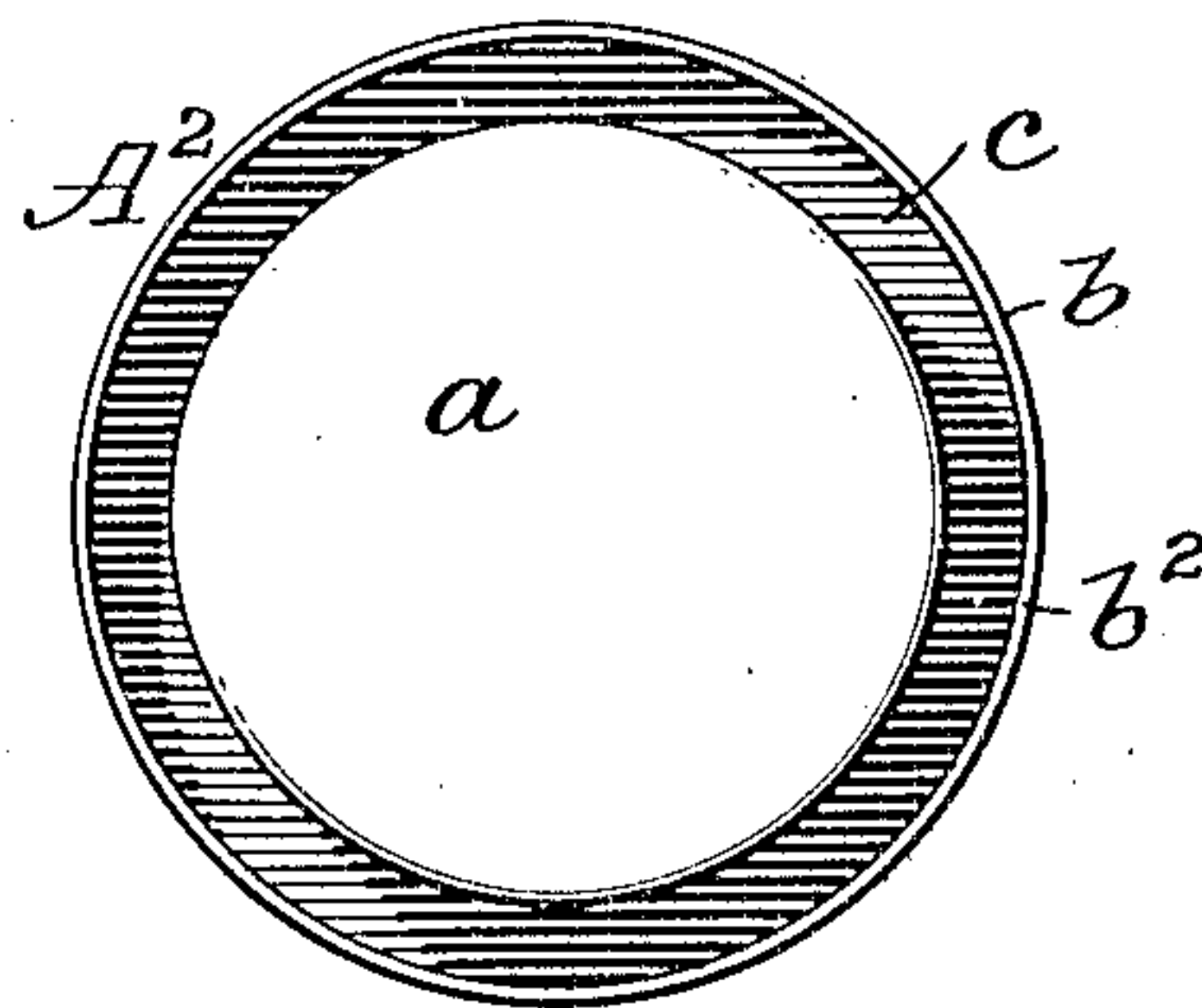


Fig. 3.

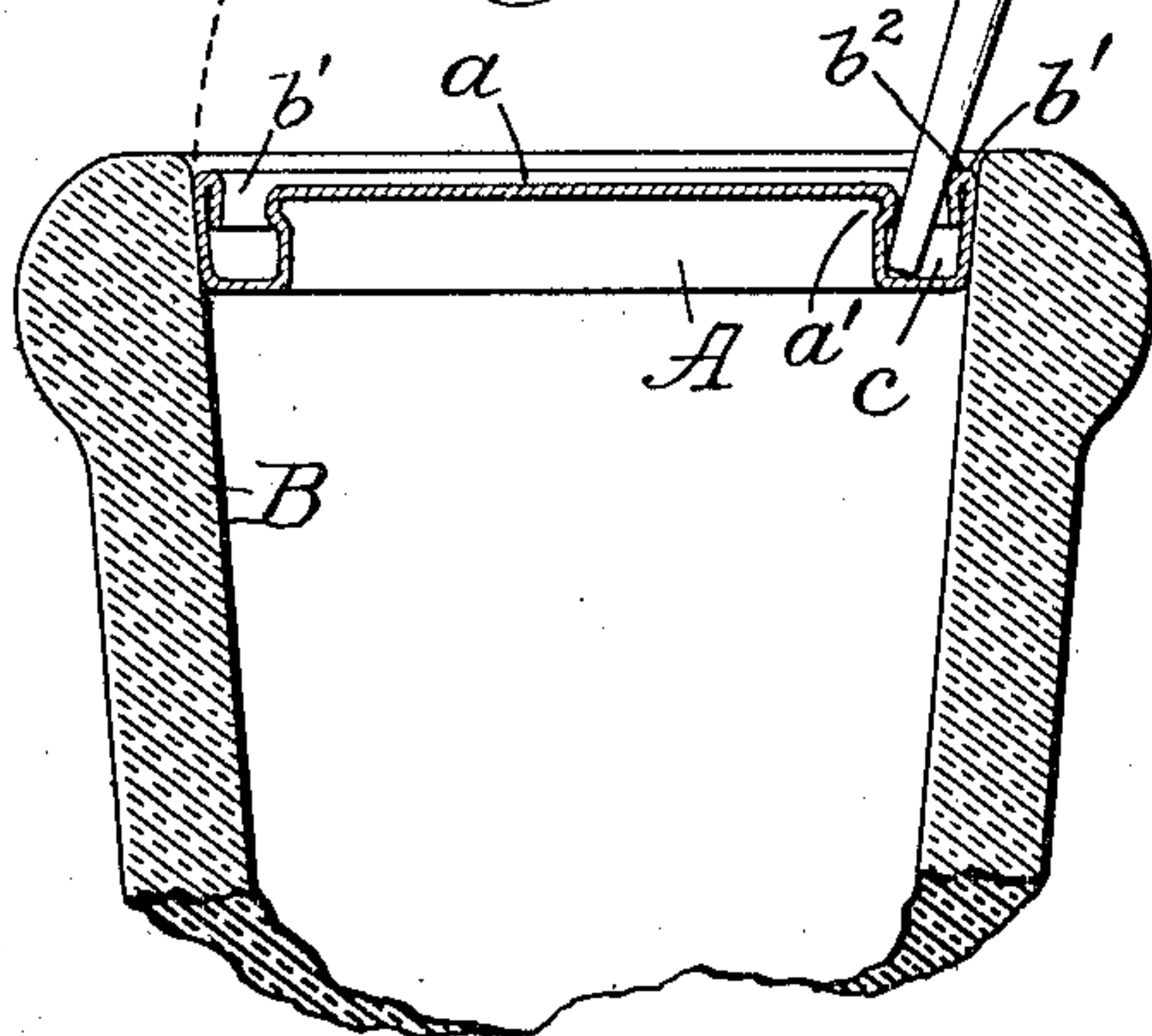
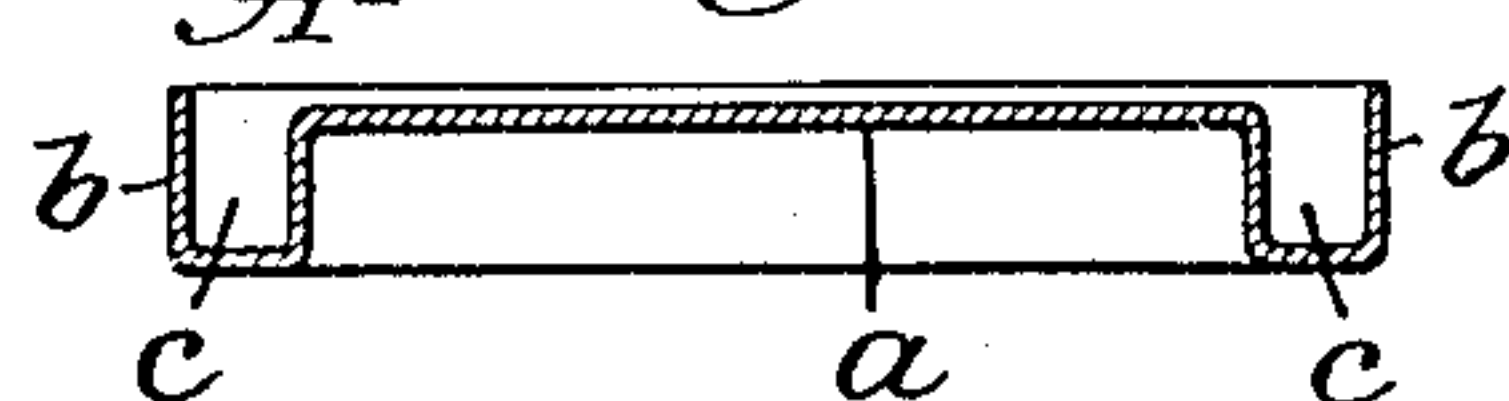


Fig. 7.



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2 SHEETS—SHEET 2.

Fig. 8.

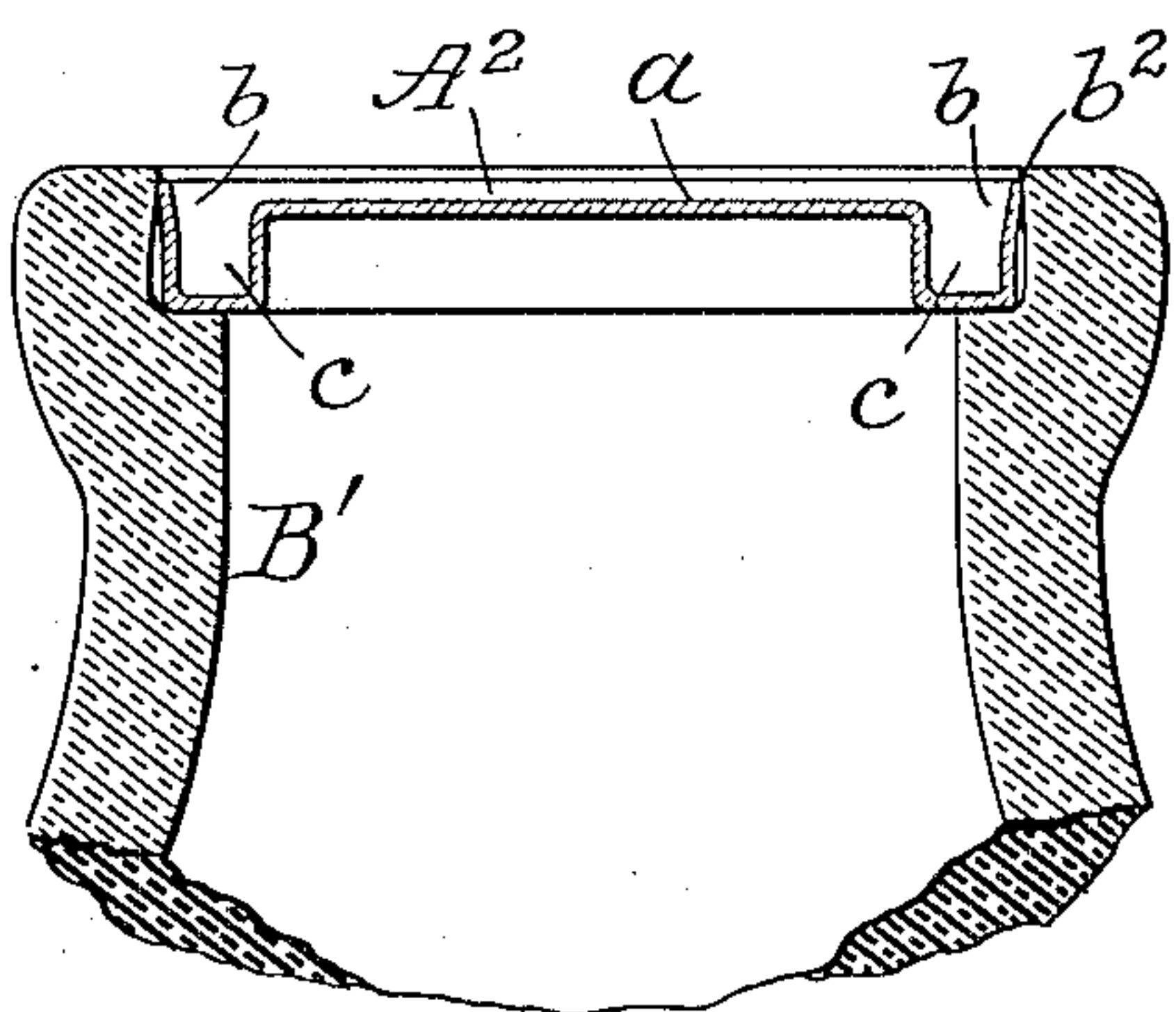
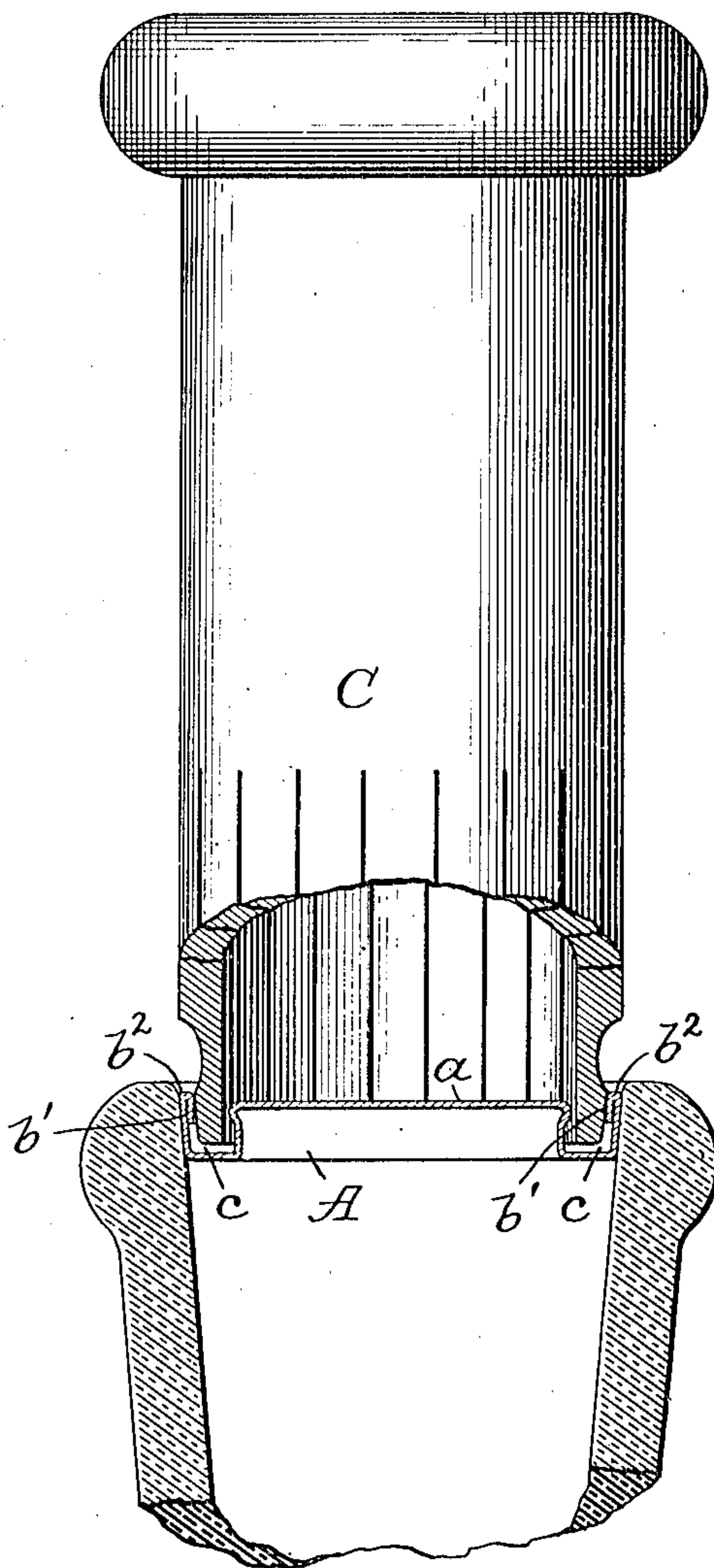


Fig. 9.



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UNITED STATES PATENT OFFICE.

MAURICE HOFHEIMER, OF BALTIMORE, MARYLAND, ASSIGNOR TO THE CROWN CORK AND SEAL COMPANY, OF BALTIMORE, MARYLAND, A CORPORATION OF MARYLAND.

CLOSURE FOR BOTTLES, JARS, &c.

No. 871,697.

Specification of Letters Patent.

Patented Nov. 19, 1907.

Application filed December 14, 1905. Serial No. 291,708.

To all whom it may concern:

Be it known that I, MAURICE HOFHEIMER, of the city of Baltimore, in the State of Maryland, have invented certain new and useful
5 Improvements in Closures for Bottles, Jars, &c.; and I do hereby declare that the following specification, taken in connection with the drawings furnished and forming a part thereof, is a clear, true, and complete de-
10 scription of the several features of my invention.

My said closures pertain to the class recognized as inside or throat sealing devices, as distinguished from the outside, or cap forms.
15 While effective as to the exclusion of air and the retention of liquids, my closures are not intended for, or capable of, resisting such high internal gaseous pressures as are incident to the use of certain well known throat
20 sealing devices.

Although embodiments of one or more of the features of my invention are widely applicable to various uses, and regardless of ordinary variations in the contour of the
25 throats of jars or bottles, their prime value will accrue in connection with the marketing of natural waters in such large bottles as are usually employed, and also in the bottled milk trade with special reference to sterilized
30 products, involving the use of quite wide mouthed jars or bottles, and requiring in their closures a practically total exclusion of air, a reliable retention of contents, and a capacity to be readily opened.

35 For securing the stated results certain conditions are imperative, and these are provided for in my closures in their simplest form, but for meeting many contingencies, the use of my closures embodying all of the
40 several features of my invention may be relied upon.

Considered structurally, my closures in their most complete form are novel in that they have an upwardly extended central cir-
45 cular boss which is enlarged at its top; and also have an upwardly extended annular flange which is provided with an inwardly turned or beaded edge; also, there is between the boss and the flange an annular re-
50 cess or space, not only for the reception of an annular tool for setting the closure in a jar or bottle, but also for the reception of the operating tip of a lever opener for removing the closure.

To more particularly describe my inven- 55 tion, I will refer to the drawings in which,

Figures 1, 2 and 3, respectively, illustrate one of my novel closures in its most complete form, in top view, in central vertical section, and as organized with a water bot- 60 tle, and, with a lever opener indicated in position for service. Figs. 4 and 5 illustrate a simpler form, respectively in top view and in central vertical section, and in which the edge of the flange is plain. Figs. 6, 7 and 8 65 illustrate my closure in its simplest form, respectively in top view, central vertical section, and as organized with a common form of milk jar. Fig. 9 illustrates in section, one of my closures, a water-bottle head and a 70 hand-setting-tool for seating the closure for service.

My closures are composed of any suitable material capable of being worked into proper contact with glass, but ductile sheet metal 75 is well adapted to the purpose, preferably aluminium, or quite light tin, and they are molded into form or struck up by means of appropriate dies.

As to the bottles or jars employed, it is to 80 be understood that it is only necessary that they should have throats of suitable size and contour to enable some portion of the metal of the closure to be tightly pressed against the glass and to be so held in that 85 condition as to secure the desired results.

The closures A, A' and A² differ only as to their embodiment of the features of my invention. As in Figs. 1, 2 and 3, all have an upwardly extended central circular boss *a*, 90 and an upwardly extended annular flange *b*, terminating at its top in a circumferential edge *b*² and the coincident surfaces of the flange and boss are separated by a properly proportioned annular space *c*. These fea- 95 tures are essential, and are often relied upon by me for assuring the main objects of my invention. The boss *a*, being central, and upwardly extended, has two functions: mainly, it affords an exterior annular surface 100 for reliable contact by the tip of a lever opener, partly overlying the flange, as indicated in Fig. 3, that closure being organized with a bottle B, so that in the act of opening it may be lifted free from its seat, or the side 105 opposite the opener may be swung upwardly as indicated in dotted lines; secondly, the interior recessed portion of the boss, serves

to divert from the junction of metal and glass, the impact of liquid when filled bottles and jars are in transit by wagon or rail and subjected to violent rocking movement, because when the contents are dashed side-
 5 wise and upwardly against the closure, they dash into the boss and then taking a downward direction, prevent undue impact at the closure joint, resulting in a minimum tendency to leakage. The annular recess or
 10 space *c* has also two functions of equal importance, first, in affording access for an annular setting tool *C* (as indicated in Fig. 9) which, when properly manipulated, bears
 15 against the flange and forces its outer surface into close engaging contact with the coincident glass surface of the throat of the jar or bottle; and secondly, said space or
 20 recess *c* affords free access to an opener, as hereinbefore indicated.

In some cases the surfaces of bottle throats are ground, so that an effective engaging contact therewith is attained with a plain edged flange as shown in Figs. 4 and
 25 5, but for use with unground surfaces I deem it wise, as a precautionary measure, to provide the circumferential edge or top of the flange with an inwardly turned or reinforced edge as at *b'*, Figs. 1, 2, 3 and 9,
 30 there being a slight space between the metal surfaces so that the setting tool, in forcibly engaging with the turned metal, can safely drive the outer adjacent portion of the flange into an intimate contact with the nor-
 35 mal glass surface, which is, of course, more or less irregular in its contour, as compared with a ground surface whether the circumferential edge *b'* or top of the flange be of a single thickness of metal or reinforced, it is
 40 susceptible of being worked into close and effective sealing contact with the glass regardless of the usual variations incident to glass blowing and molding.

In such uses as may require a specially
 45 firm setting of the closure, and involving correspondingly greater force in opening, it is of importance to provide the boss with an abutment (for contact with or by an
 50 opener) more reliable than is afforded by the plain annular exterior surface, and for meeting such contingency, I provide the top of the boss with a peripheral enlargement
 55 *a'*, thus securing an effective overhanging shoulder.

Referring now specially to Figs. 4 and 5, it will be seen that the closure *A'* is provided with the boss *a* and its enlarged top or shoulder *a'* and that it has the annular space or
 60 recess *c*.

In Figs. 6 and 7, the closure *A''* is in its simplest form, embodying the essential features hereinbefore referred to, *i. e.*, the
 65 vertically extended central boss *a*, the upwardly extended flange *b*, and the double functional annular space or recess *c*.

Now referring to the bottle heads and throats of Figs. 3 and 9, it is to be understood that they illustrate an ordinary form of water bottle having a throat surface slightly inclined inwardly from the top, enabling an
 70 effective seating of the closure as indicated. Should the throat be ground, a plain flange can be relied upon, but as hereinbefore stated, the turned edge flange is better
 75 adapted for use in an unground throat, the setting tool *C* in either case requiring a downward thrust upon the bottom of the annular recess, with or without a slight rotative movement.

The milk jar *B'*, shown in Fig. 8, has the
 80 usual throat, which, although differing from that of the water-bottle, is of suitable contour for enabling my closure to properly cooperate therewith, and, as with the water-
 85 bottle, it also assures an effective seating of a portion of the metal into close contact with the glass, but in this case the jar has the usual inner undercut, a groove below the lip, so that the flange *b* is readily engaged
 90 with the glass, the setting requiring only a slight gyratory movement of the setting tool while subjected to the thrusting action required as with the water bottle.

The setting tool *C* should have a central
 95 recess and an appropriately dimensioned annular working face adapted to snugly enter the recess or space *c* of the closure, and slightly tapered at the outer surface; it may be composed of hard wood or of metal; it
 100 may or may not be vertically slitted to provide a series of sections as indicated, in which case a slight inward yield will be afforded, and hence its normal diameter may be slightly greater than when not so
 105 slitted, and the tool in either form should be slightly rotated in the act of setting a closure, and in closing jars it should also be slightly gyrated, as hereinbefore indicated.

Should it be found desirable to provide a special setting tool for milk jar service, well
 110 known expanding devices may be embodied therein for facilitating the operation.

I am aware from actual tests that if the outside of the flange and adjacent thereto be thinly coated with an odorless varnish,
 115 or paraffin, or even very thin paper, a specially tight joint will be secured.

Having thus described my invention, I claim as new and desire to secure by Letters
 120 Patent,

1. A bottle closure for inside or throat sealing, having an upwardly extended central circular boss, peripherally enlarged at its top, and an upwardly extended annular
 125 flange provided at its top with an edge turned inwardly upon itself, substantially as and for the purposes specified.

2. A bottle closure for inside or throat sealing, having an upwardly extended circular flange, and an upwardly extended cir-
 130

cular boss peripherally enlarged at its top, substantially as described.

3. A bottle closure for inside or throat sealing, having an upwardly extended central circular boss, and an upwardly extended annular flange terminating at its top in a circumferential edge, and with the coincident surfaces of the flange and boss separated by an annular recess or space affording access for an annular setting tool, and also free access for the tip of an opener operating as a lever when overlying the edge of the flange, substantially as described.

4. A bottle closure for inside or throat sealing, having an upwardly extended circular boss, and an upwardly extended annular flange provided at its top with an inwardly and downwardly turned reinforced edge, substantially as described.

5. The combination with a jar or bottle having a throat of suitable contour, of an

inside or throat closure provided with a circular upwardly extended central boss, and an upwardly extended annular flange having its circumferential edge and outer surface in tightly closing contact with the coincident surface of the bottle and appropriately located with relation to the circular surface of the boss, to afford a recess or space for the free reception of a setting tool and for receiving the tip of a lever opener when engaged with the side of the boss with its shank overlying the flange and the lip of the bottle, substantially as described.

In testimony whereof, I have hereunto set my hand in presence of two subscribing witnesses.

MAURICE HOFHEIMER.

Witnesses:

HOWARD D. ADAMS,
ADAM W. GERLACH.