

No. 633,297.

Patented Sept. 19, 1899.

M. WANNER.

CLOSURE FOR JARS, BOTTLES, OR SIMILAR VESSELS.

(Application filed June 9, 1898.)

(No Model.)

Fig. 1.

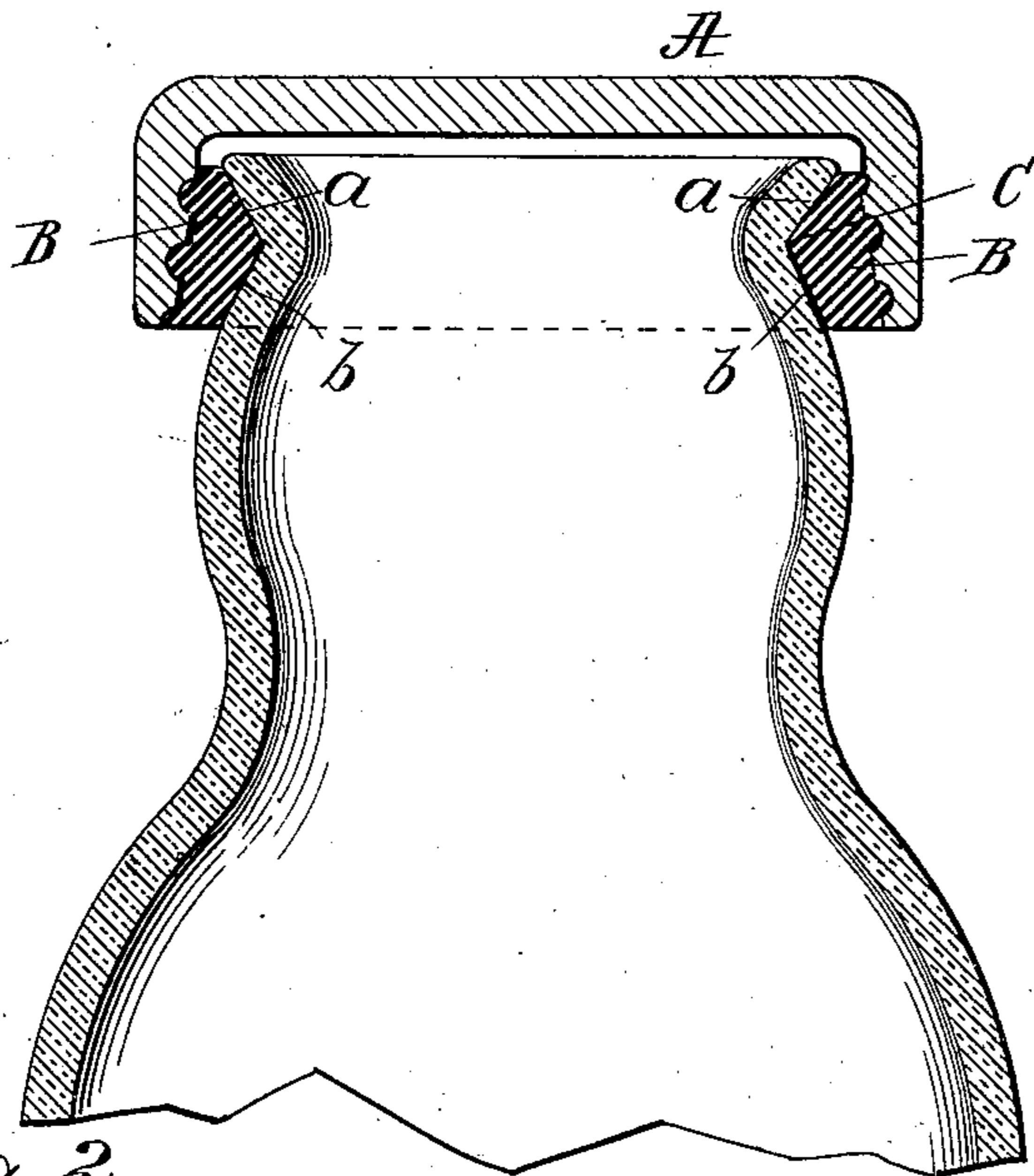


Fig. 2.

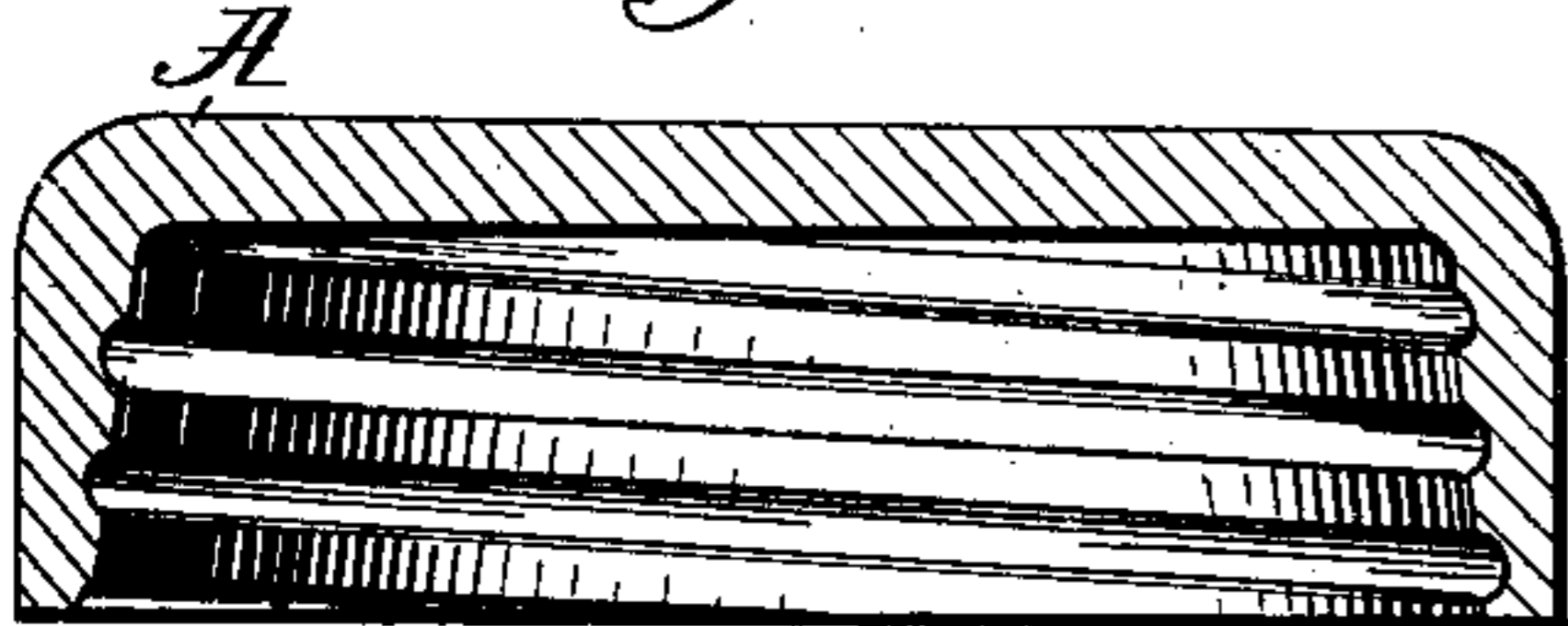


Fig. 3.

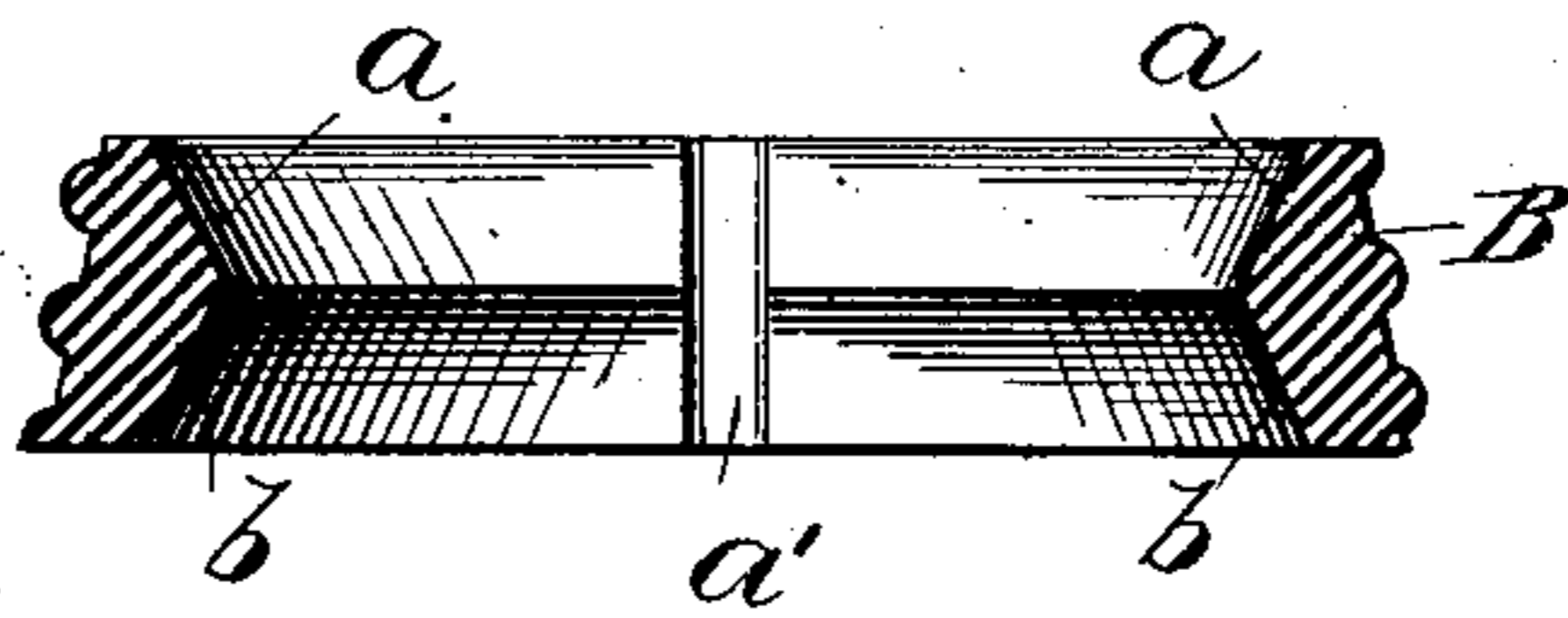
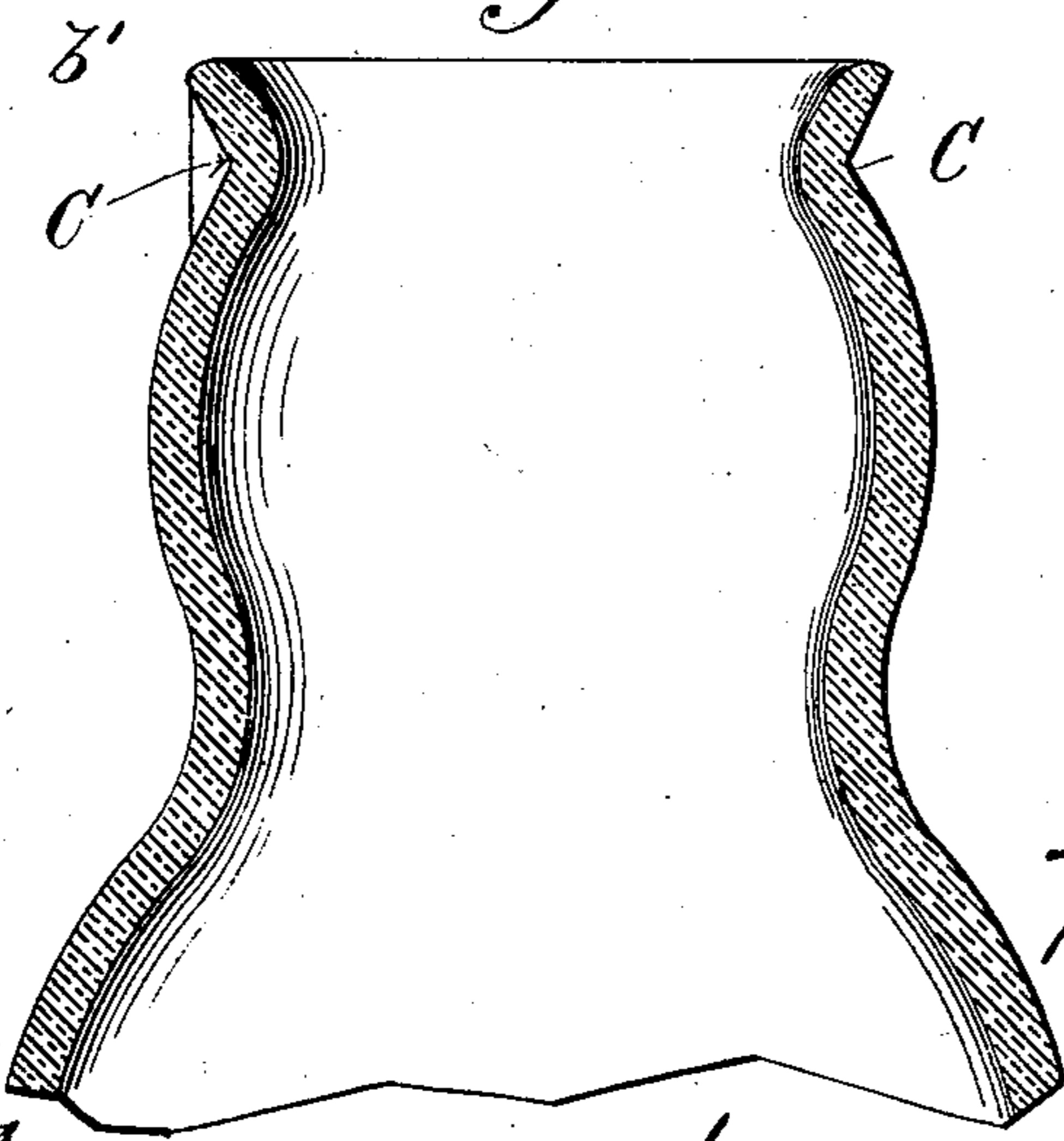


Fig. 4.



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UNITED STATES PATENT OFFICE.

MARTIN WANNER, OF NEW YORK, N. Y.

CLOSURE FOR JARS, BOTTLES, OR SIMILAR VESSELS.

SPECIFICATION forming part of Letters Patent No. 633,297, dated September 19, 1899.

Application filed June 9, 1898. Serial No. 683,001. (No model.)

To all whom it may concern:

Be it known that I, MARTIN WANNER, a citizen of the United States, and a resident of Brooklyn borough, New York, in the county of Kings and State of New York, have invented certain new and useful Improvements in Closures for Jars, Bottles, or Similar Vessels, of which the following is a specification.

My invention relates to improvements in stoppers or closures for jars, bottles, and similar vessels, and because of the peculiar construction and method of operation of its several parts it affords a more perfect seal against both internal and external pressure than any heretofore known to me, its superiority being due, in part at least, to a certain flexibility of the joint.

To more particularly point out the advantages resulting from the flexibility of the closure-joint, I call attention to the fact that liquids containing dissolved gases, which are kept in bottles provided with rigid joints, (such as those made by the junction of two flat surfaces with an interposed gasket,) will, after a time, lose the greater part of the gases, especially if the vessels are subjected to variable temperatures, this loss being due to the variations of pressure consequent on the inconstant temperatures within the vessel. The attempt has been made to remedy this evil by using metallic retaining devices, more or less elastic, to compensate for the said variations. These, however, have proven effective only so long as the elasticity of the interposed gasket, cork, or similar device responded to the yielding of the metallic retaining devices, or vice versa. Just as soon as the metallic wires or bands constituting the metallic retaining devices get strained from any cause beyond the elastic limit of the gasket, cork, or its equivalent the closure is rendered ineffective. This is the reason why none of the so-called "patent stoppers" known to me can be relied upon for the permanent preservation of material that has to be sterilized after bottling by steaming, cooking, or the like. The stopper or closure which is the subject of this invention is intended to remedy these defects, and in the drawings hereof—

Figure 1 illustrates the invention in use. Fig. 2 illustrates the exterior cap. Fig. 3 illus-

trates the elastic ring-like sealing and retaining device. Fig. 4 illustrates the neck of the vessel, showing the seat thereon for the elastic sealing device.

The closure or stopper consists of three elements—viz., the cap A, Fig. 1, which is threaded interiorly, as shown, the elastic ring B, provided exteriorly with threads which correspond to those upon the interior of the cap A, and a recess or seat for the ring B (marked C) on the exterior of the neck of the bottle or other vessel.

The peculiar shape of the elastic sealing and retaining ring B, in combination with the corresponding shape of the recess or seat C for the ring on the bottle-neck, and the tapered threaded cap A constitute the novel features of the invention.

It will be seen that the threaded exterior part of the elastic ring forms a truncated cone, which coincides with and is adapted to fit the inside threaded taper of the cap, so that when the cap is screwed home the closure will be effected by the threaded portion of the cap and the threaded part of the elastic ring only, the inclination of the surfaces causing the ring to be compressed and tightly squeezed between the inner surface of the cap and the outer surface of the neck of the vessel, and under no circumstances does the bottom of the cap come in contact with the top of the neck of the vessel. It will also be seen that the inside of the elastic ring is tapered from the center in both directions, upwardly and downwardly, as at *a b*, and that the recess or seat for this ring on the neck of the vessel is made to correspond to these tapers. This construction produces three important results: First, the superficial area of the inside of the ring is by this means made larger than that of the threaded outer surface, and owing to this enlargement the friction of the elastic ring on the bottle-neck is greater than that between the cap and the ring, and hence the cap will turn on the ring instead of the ring on the neck of the vessel; second, the closure or air-tightness of the joint is made positive under any condition, whether against inside or outside pressures, because such pressures have the effect of crowding the inner inclined surfaces of the ring more and more firmly against one or the

other of the diverging surfaces of the seat for it on the neck of the vessel, depending upon the direction in which the pressure is exerted, and, third, the weight of material of which the elastic ring is made is reduced to a minimum.

It will be observed that the peculiar construction and combination of these parts produces a joint which is more or less flexible. For example, suppose that both the vessel and the cap be made of glass. It is evident that the elastic ring, combining in itself both the sealing and the retaining devices, allows the cap, which is in contact with resilient elastic matter only, a certain freedom of motion without impairing the hermeticity of the closure and also that the greater the pressure in either direction the more secure the sealing becomes.

It will be obvious to those who are familiar with this art that modifications may be made in certain of the details of the invention and yet the substantial benefits, or at least some of them, be realized. For example, the stopper or closure for vessels designed to contain effervescent material, such as beer, may be provided with a sealing-ring, the inner inclined surface of which is in one direction only—to wit, that adapted to withstand pressure from within the vessel, and vice versa. Also I usually prefer to provide means to positively prevent the rotation of the ring upon the neck of the vessel—as, for instance, a recess, one or more, (shown at *a'*,) may be made in the inner surface of the ring, in which a corresponding projection in the material of which the vessel is made (shown at *b'*, Fig. 4) will enter, thus securing immobility between the ring and the vessel.

I claim—

1. A vessel-closing device embodying an elastic ring threaded exteriorly and having divergently-arranged surfaces on its interior, a seat for the ring on the neck of the vessel,

the surface of which embodies two diverging surfaces corresponding substantially with those on the interior of the elastic ring, and a cap threaded to correspond with the exterior threads on the elastic ring, for the purposes set forth.

2. A vessel-closing device embodying an elastic ring having exteriorly the shape of a truncated cone, threads on such exterior surface, divergently-arranged surfaces on the interior of the ring, a seat for the ring on the neck of the vessel, the surface of which embodies diverging surfaces corresponding to those on the interior of the ring, and a cap the flange whereof is interiorly threaded and shaped to correspond to the shape and threading on the exterior of the ring, for the purposes set forth.

3. In a vessel-closing device a non-rigid ring the inside whereof is in the form of divergently-arranged surfaces, and a seat for the ring on the neck of the vessel which corresponds to the interior formation of said ring, whereby pressure upon said ring, either inwardly or outwardly, will be resisted by one or the other of said opposing surfaces, for the purposes set forth.

4. In a vessel-closing device a non-rigid ring located within a recess in the exterior of the neck of the vessel, the exterior surface of the ring being in the general form of a truncated cone, screw-threads upon said exterior surface, and a cap shaped and threaded interiorly to correspond to the shape and threading of the exterior of said ring, for the purposes set forth.

Signed at New York, in the county of New York and State of New York, this 7th day of June, A. D. 1898.

MARTIN WANNER.

Witnesses:

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