

(No Model.)

J. N. ADAMS & W. F. JENKINS.
BOTTLE.

No. 550,934.

Patented Dec. 3, 1895.

Fig. 1.

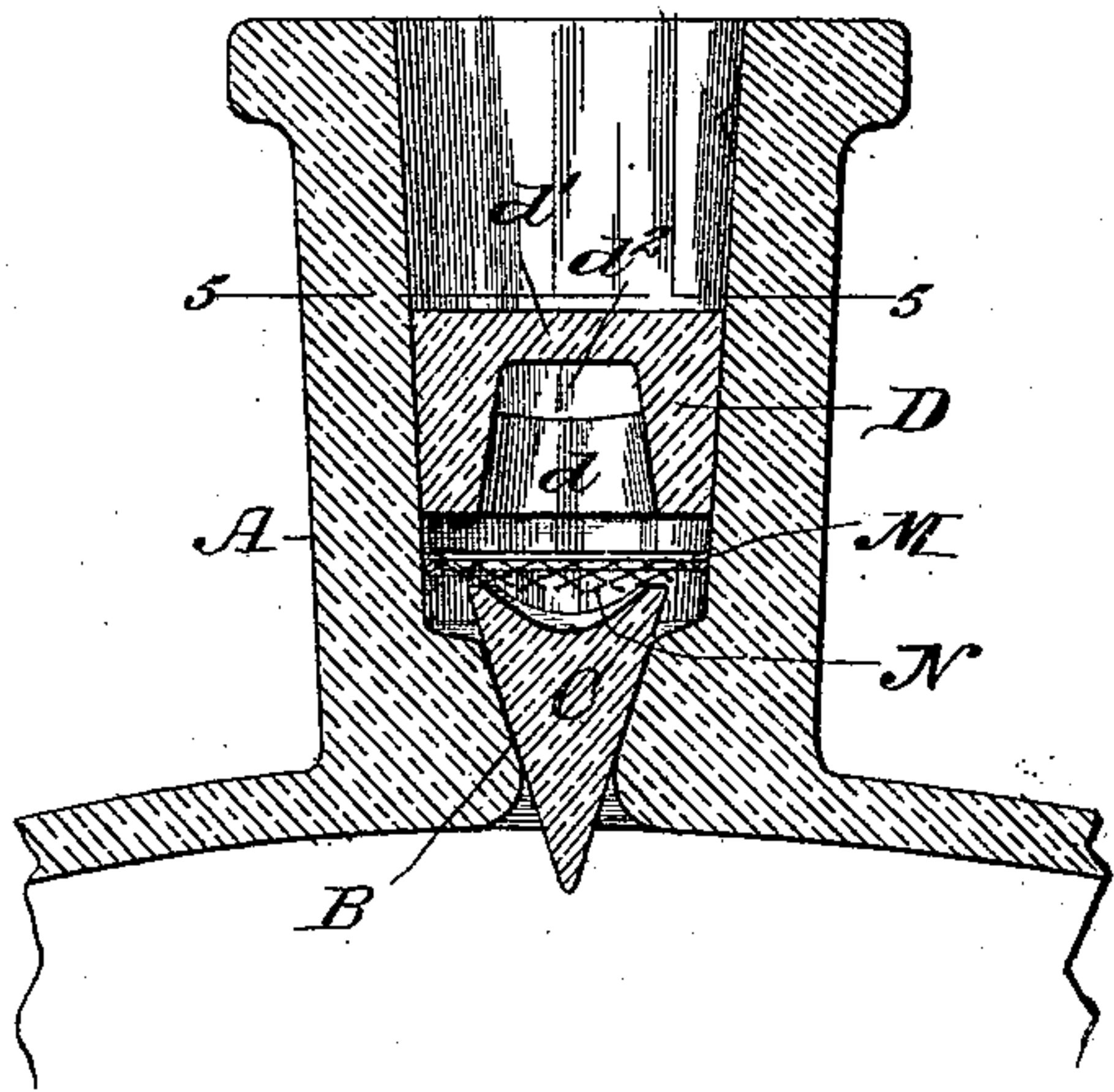


Fig. 2.

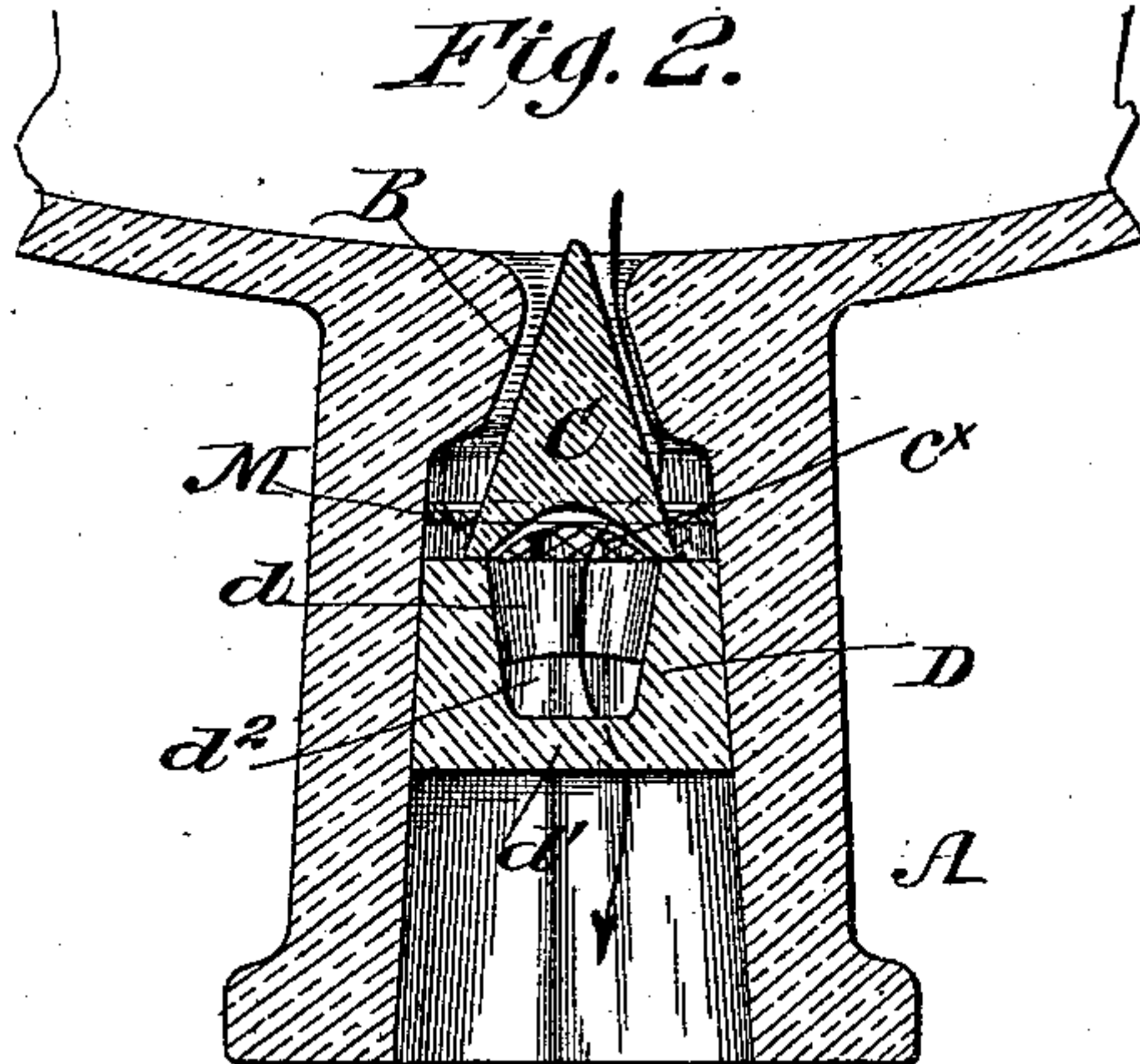


Fig. 3.

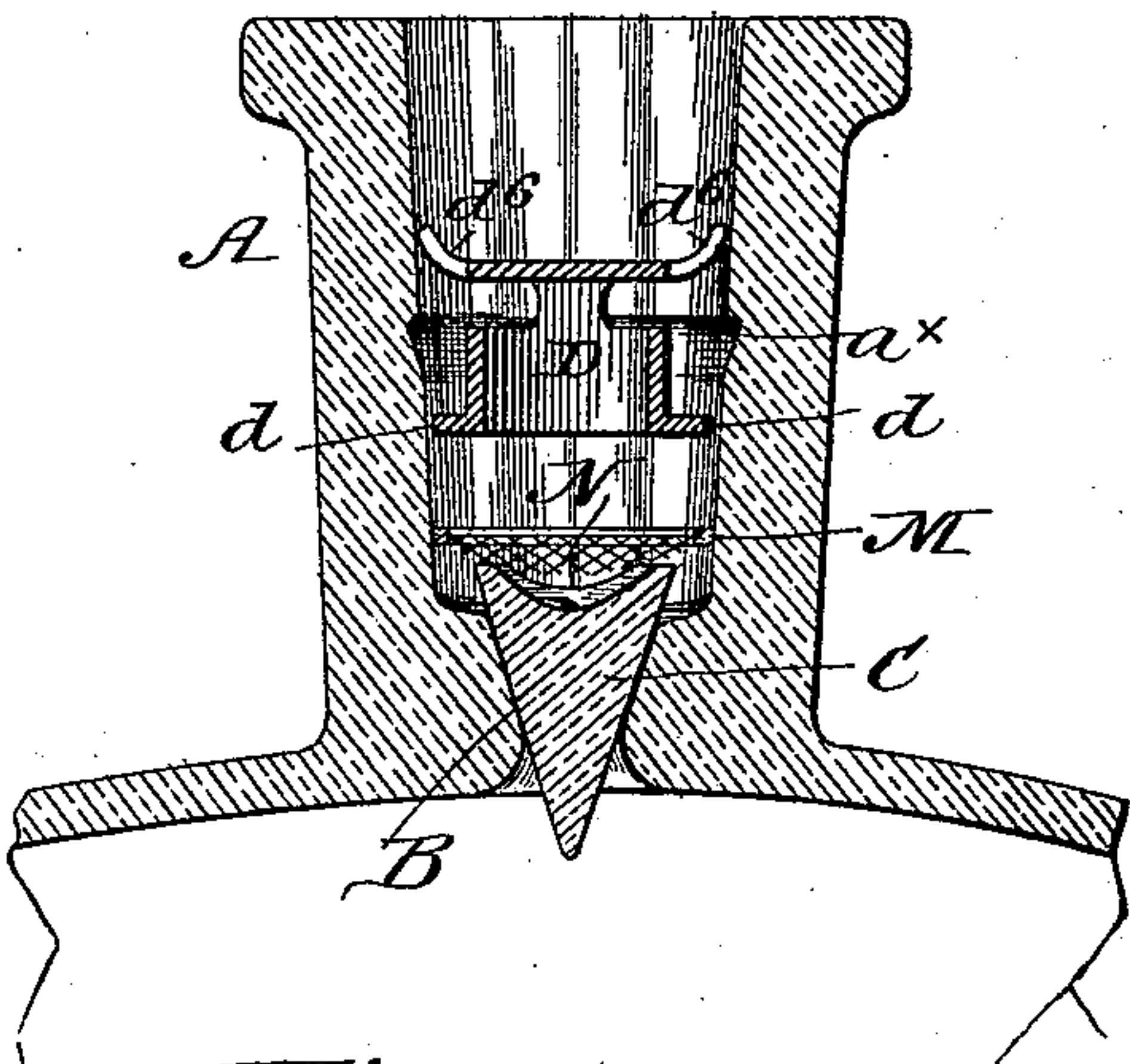


Fig. 4.

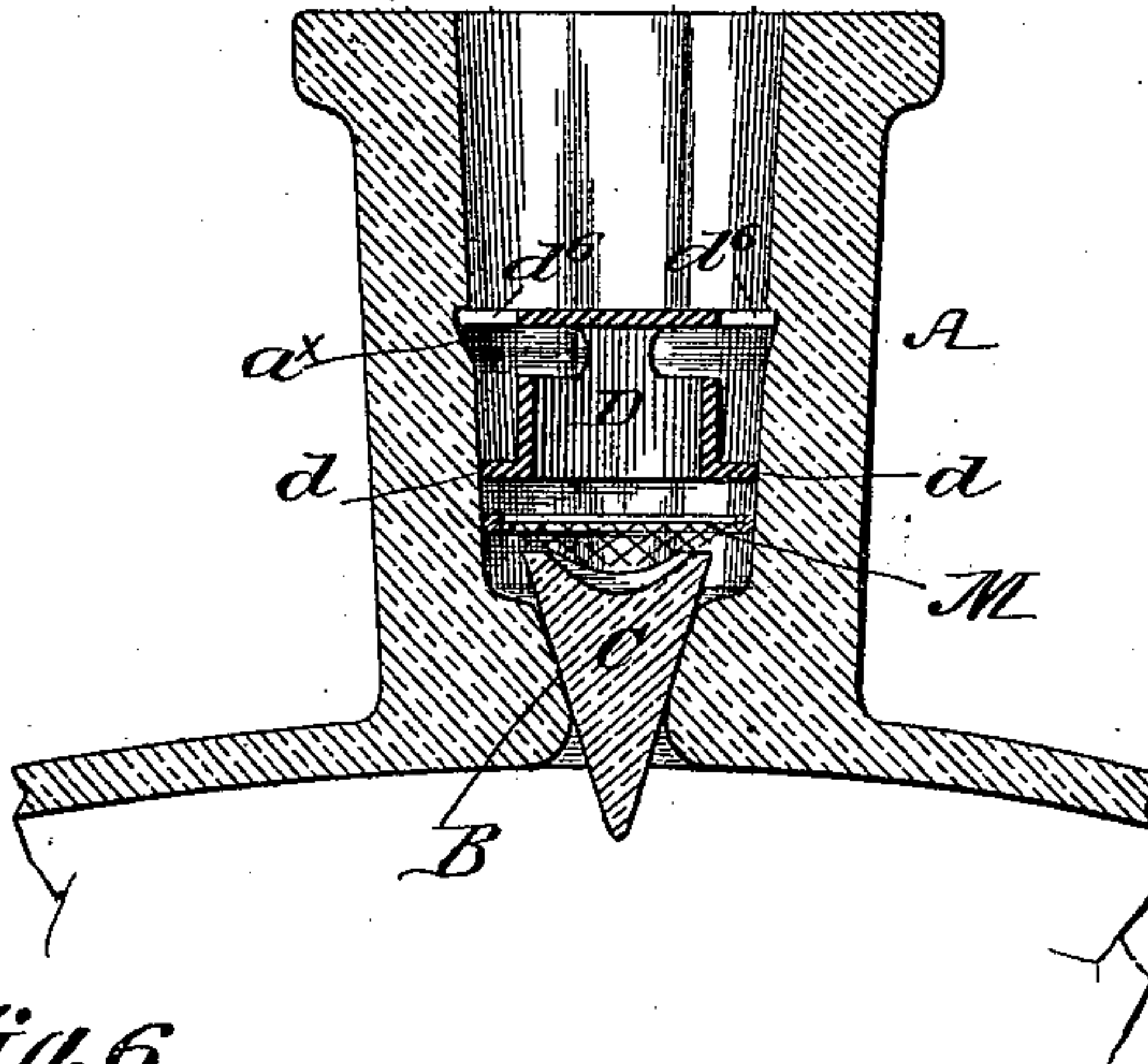


Fig. 5.

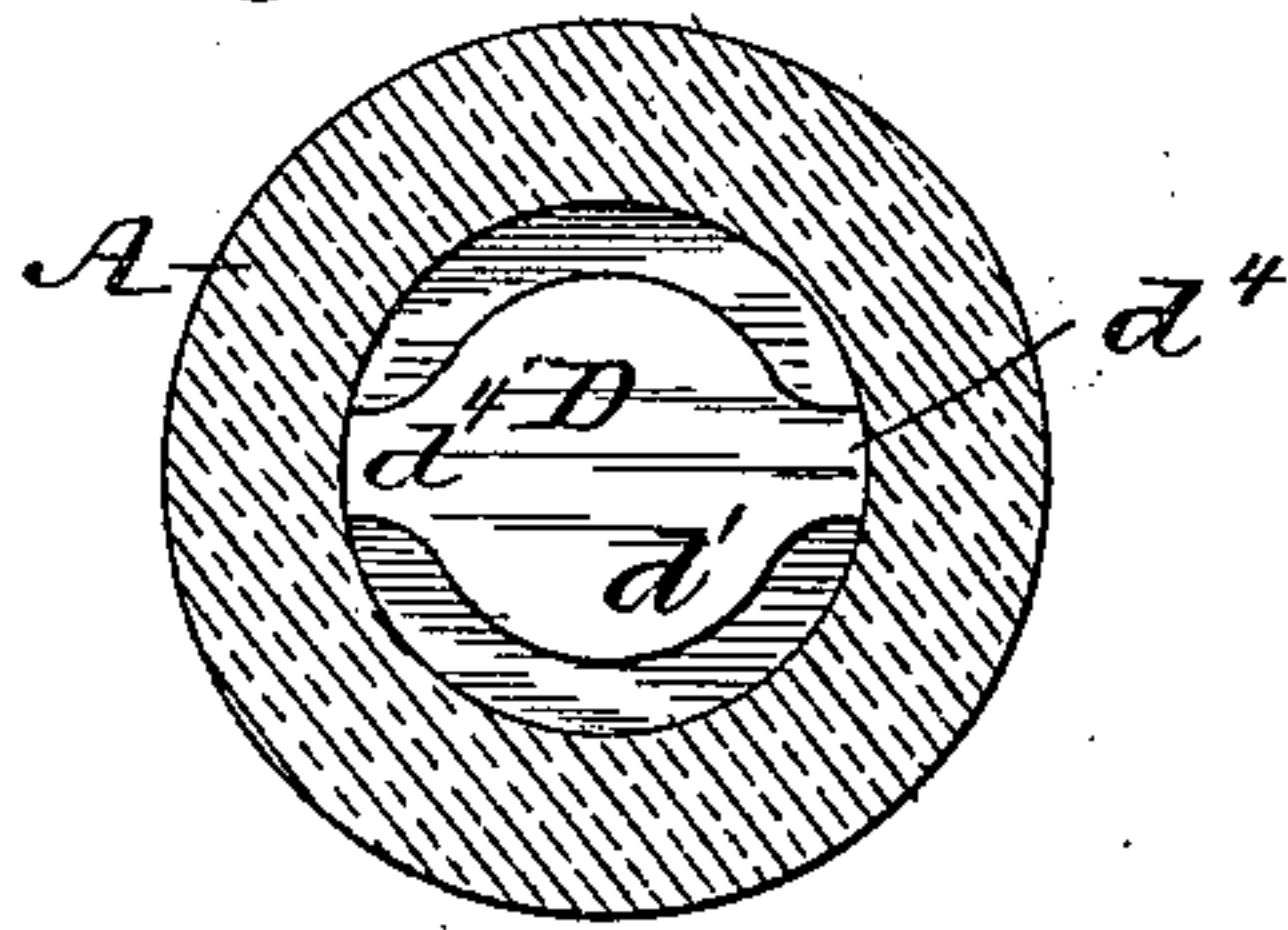


Fig. 6.

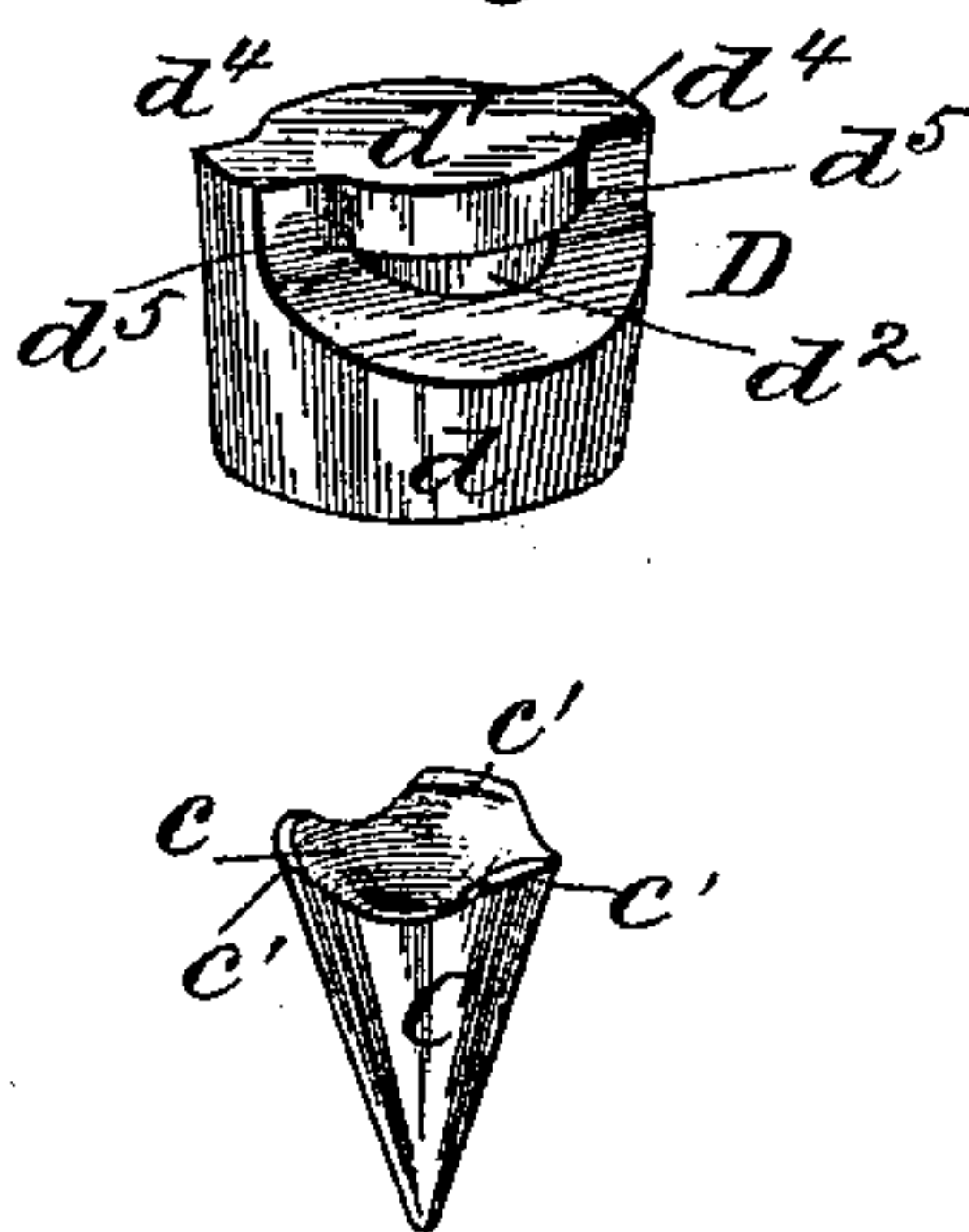
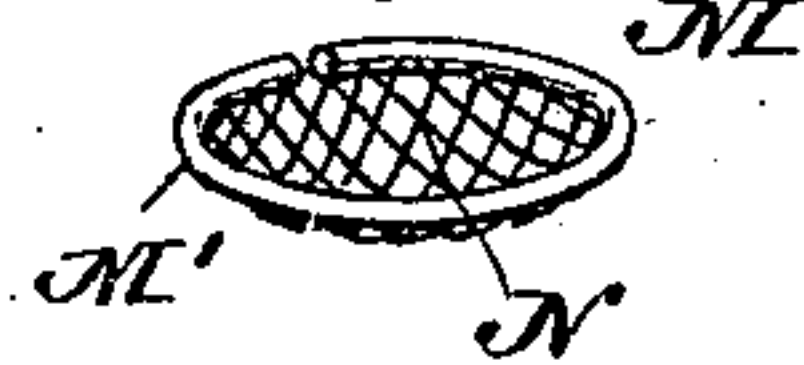


Fig. 7.



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UNITED STATES PATENT OFFICE.

JOHN NEWDEGATE ADAMS AND WILTON F. JENKINS, OF RICHMOND, VIRGINIA, ASSIGNORS OF FOUR-FIFTHS TO HENRY K. TERRY, OF SAME PLACE, AND R. S. MARTIN AND J. T. DUFF, OF PITTSBURG, PENNSYLVANIA.

BOTTLE.

SPECIFICATION forming part of Letters Patent No. 550,934, dated December 3, 1895.

Application filed June 1, 1894. Serial No. 513,150. (No model.)

To all whom it may concern:

Be it known that we, JOHN NEWDEGATE ADAMS and WILTON F. JENKINS, residing at Richmond, in the county of Henrico and State of Virginia, have invented certain new and useful Improvements in Bottles, of which the following is a specification.

Our invention relates particularly to improvements in that class of bottles having non-refilling stoppers, and it primarily has for its object to provide a bottle or a similar vessel having automatic shifting valve or stopper devices which when the bottle is held with its neck uppermost will close off the outlet and which when the bottle is tilted will shift to allow the contents thereof to freely flow out.

It has also for its object to provide such valve devices which can be fitted to or formed with the bottle without materially increasing the cost of manufacture thereof.

Our invention consists in such novel construction and peculiar combination of parts as will hereinafter be first described in detail and then specifically pointed out in the appended claims, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical section of the neck portion of a bottle with our improvements applied. Fig. 2 is a similar view showing such bottle-neck inverted, the valve being in its open position. Fig. 3 is a sectional view of the neck portion of a bottle, showing the keeper or back seat for the valve formed of metal, showing the manner in which such keeper is forced in position. Fig. 4 is a similar view showing the keeper seated in its operative position. Fig. 5 is a horizontal section on the line 5 5, Fig. 1. Fig. 6 is a perspective view of the keeper and valve detached, and Fig. 7 is a detail view of the intermediate or supplemental keeper hereinafter specifically referred to.

Referring to the accompanying drawings, A indicates the neck of the bottle, which has at its throat a contracted portion formed with a tapering valve-seat B, in which is fitted a tapering preferably conical valve C, the top or base of which is hollowed or concaved, as at c,

and formed with a series of projecting portions c' c' , for a purpose presently explained.

D indicates the keeper, which, as well as the valve C, in the preferred construction is of glass and is formed in the manner most clearly shown in Figs. 1 and 6, by reference to which it will be seen the same consists of an annular ring or base portion d , of a diameter equal that of that portion of the bottle-neck to which it is fitted, and an upper cap or hood portion d' , of a less diameter than the ring d , but large enough to extend over the liquid-passage d^2 , such hood d' having a pair of diametrically oppositely projecting members d^4 , which connect with post or side members d^5 , projected up from the ring d , the outer faces forming practically extensions of the peripheral face of the said ring, such posts d^5 diverging slightly from the base upward when made to fit a tapering bottle-neck.

By making the outer faces of the posts d^5 flush with the outer face of the ring d the keeper will be held to snugly fit the bottle-neck and afford ample binding-surface against the inside of the neck of the bottle, which surface is secured by cement or otherwise to the neck at a point above the valve, as shown most clearly in Fig. 1.

By forming the cap or hood d' of a less diameter than the ring d allows for a free passage of the liquid when the bottle is turned up, as shown in Fig. 2, in which the direction of the flow of the liquid is indicated by the arrow. It will be also noticed by reference to the aforesaid figure that when the bottle is tilted the projections c' of the valve will seat against the under face of the base or ring of the keeper. By forming such valve-base as described passages c^x are provided when such valve seats against the aforesaid ring.

When the keeper is made of metal, the hood portion is formed with fingers d^6 , made of spring metal, which when inserted in place in the neck, as shown in Fig. 3, will bend back, and when forced down to the position shown in Fig. 4 will spread and seat in an annular groove a^x , formed in the neck of the bottle, and thereby lock such keeper to the bottle and prevent its being withdrawn.

By constructing the valve devices as described it will be noticed that when the bottle is held with its neck upward the valve will drop into its seat, and thereby close off entrance to the bottle. By making the top or base of such valve hollowed out should the bottle be tilted and valve slightly moved sideways the liquid poured into the neck will enter against the hollow base of such valve and assist in forcing it to its seat.

To hold the valve C to its seat when the bottle is held with its neck uppermost and to prevent it being raised from the seat by jarring the bottle or tapping it from below, a supplemental keeper M is provided, which is held between the valve-seat and the keeper D and consists of a split ring M' and a flexible screen-like body N, secured thereto, as most clearly shown in Fig. 7. This keeper, it will be noticed by reference to Figs. 1 and 2, is so disposed between the valve C and keeper D that the weight of the fabric N will normally bear down on the valve and cause it to hold to its seat against any jarring action.

When the bottle is tilted to discharge the liquid, the weight of the valve, augmented by the pressure of the liquid within the bottle, will cause the fabric to bulge out, as shown in Fig. 2, and allow for a free exit of the contents of such bottle. By connecting the fabric N to a split ring it follows that such ring can be quickly fitted in place in the neck of the bottle. It will also be noticed by reference to Figs. 1 and 2 that the valve and the liquid-passage in the keeper are so arranged relatively that any liquid poured into the neck will be deflected directly onto the hollow top of such valve, and thereby further assist by the feed or impact force against such valve to hold it (the valve) against its seat.

From the foregoing it will be observed that by the construction shown a simple and effective valve device or bottle-stopper is provided, which can be added to the bottle without materially increasing the cost of its manufacture and which can be attached thereto without the use of any specially-constructed attaching mechanism.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. A bottle having a neck formed with a contracted valve seat at its lower end, a keeper having a central or liquid passage, a gravity valve fitting in the valve seat having its upper end concaved and disposed directly under the discharge end of the passage in the keeper, said keeper having a horizontal portion held above the upper end of its passage, of a less diameter than the corresponding neck portion of the bottle, but greater than the diameter of the aforesaid passage, all arranged substantially as shown whereby the liquid poured

into the neck will pass from the sides of the neck into the passage in the keeper and pass out directly against the top of the valve, as hereinbefore set forth.

2. As an improvement in bottles the combination with a bottle neck having a contracted opening at the bottom forming a valve seat, a gravity valve held on such seat, said neck having an annular groove at a point above the valve, of a keeper, having a tubular like body, and spring metal lateral fingers, adapted when the keeper is forced in the neck to spread out into engagement with the said groove, all arranged substantially as shown and for the purposes described.

3. As an improvement in non-refilling bottle stoppers, the combination with a bottle having a tapering valve seat at the lower end of the neck, and an annular groove at a point above the said seat, and a tapering gravity valve held on the said seat, hollowed out on its top face, and having projections, of a keeper having a tubular body terminating at the base in an annular ring *d*, a cap plate having radial spring metal fingers adapted to engage the annular groove said cap plate held over the tubular body, all arranged substantially as shown and described.

4. The combination with the bottle having its neck formed with a contracted valve seat, the gravity valve held therein and a stationary keeper held above the valve, of a supplemental keeper held between the valve and fixed keeper, having a flexible portion adapted to bulge outward when the bottle is tilted to discharge the liquid and to press down against the valve when the bottle is held to its normal or upright position, as and for the purposes described.

5. The combination with the bottle having its neck formed with a contracted valve seat, the gravity valve C held therein, and the keeper D all arranged as shown, of a supplemental keeper M, consisting of a spring ring member and a central flexible portion N, all arranged substantially as and for the purposes described.

6. The combination with a bottle neck having a contracted throat having a valve seat, and a gravity valve held therein, of a keeper having a central passage, an annular ring or base surrounding such passage, a cap or hood held over such passage and supporting portions connecting such hood to the ring or base, said posts having their outer faces made flush with the periphery of the ring, all substantially as shown and described.

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Witnesses:

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J. D. HERN.