

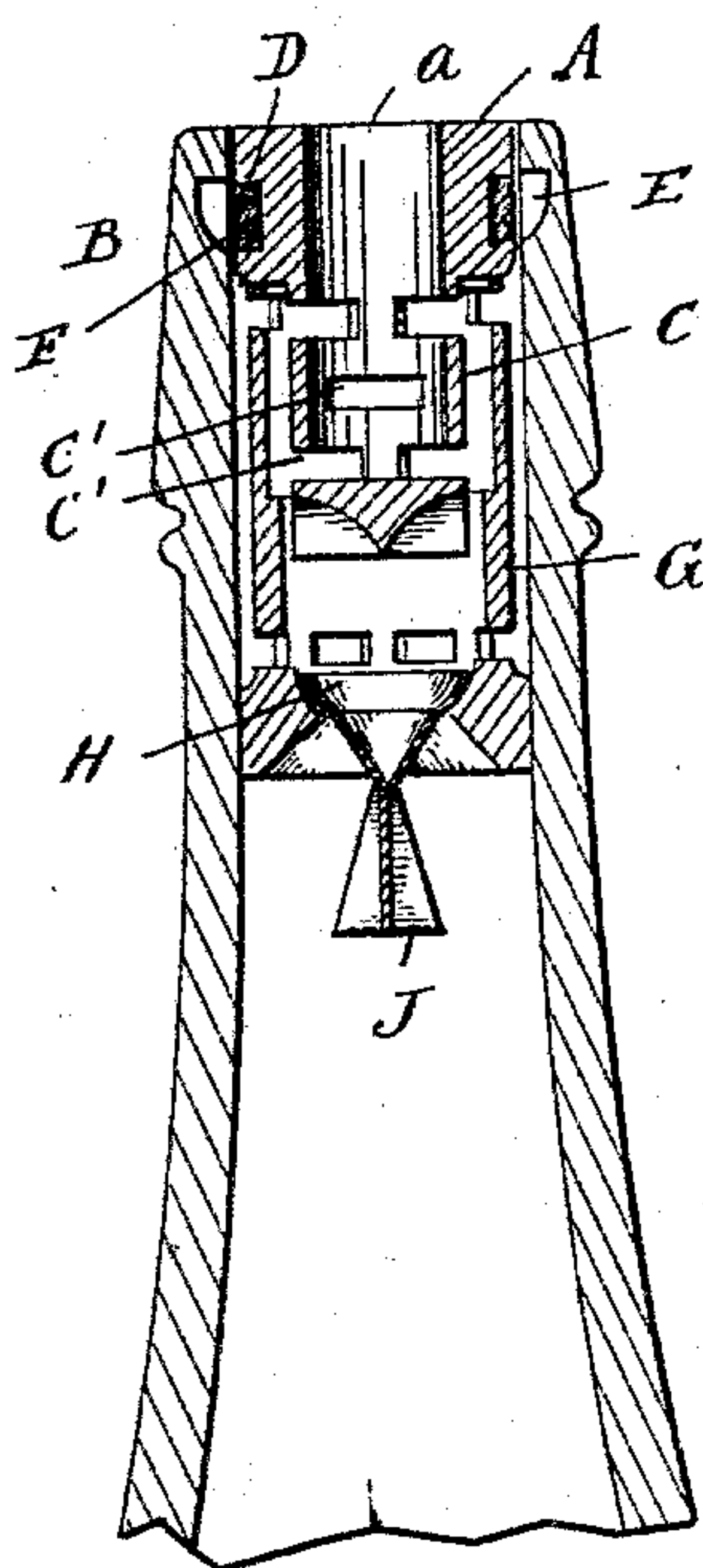
(No Model.)

W. B. STEVENS.  
BOTTLE STOPPER.

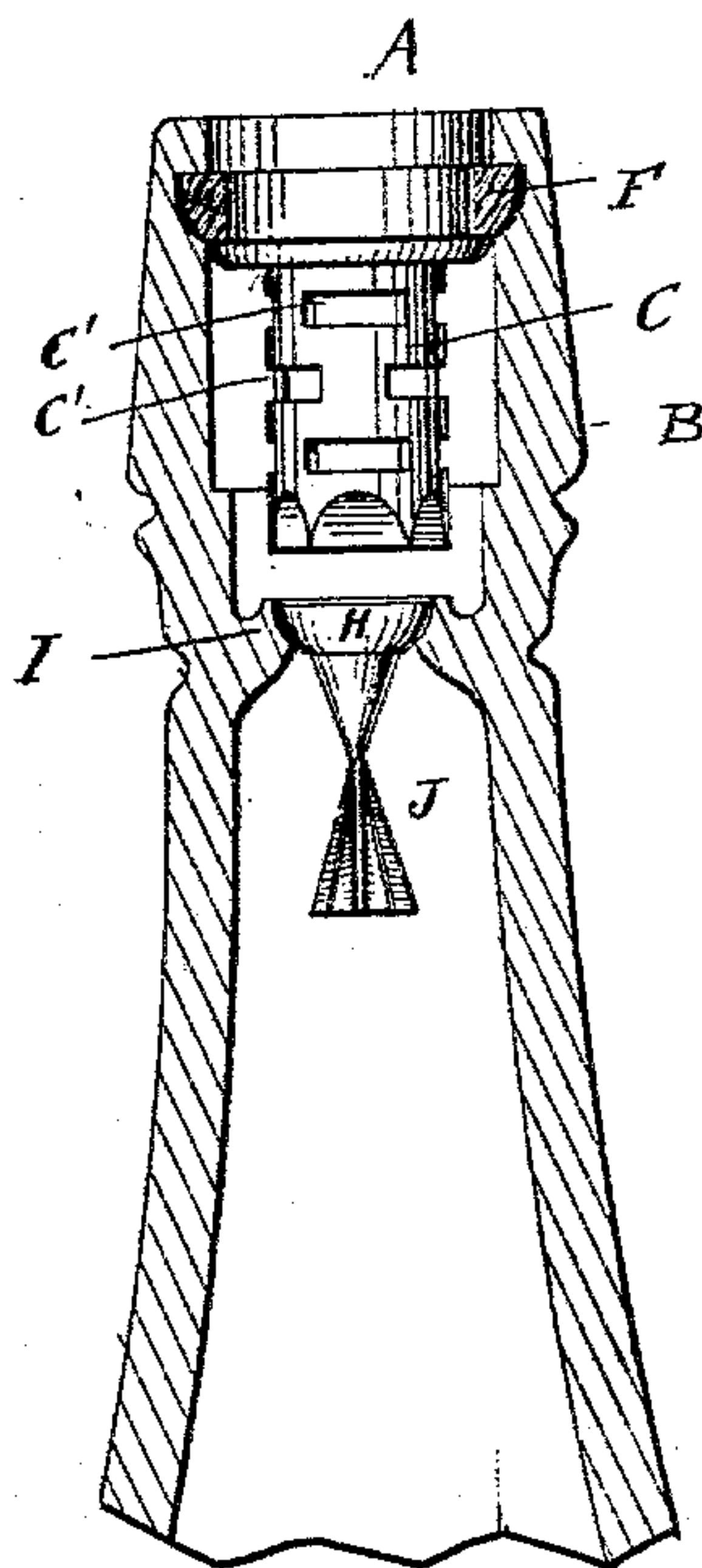
No. 551,413.

Patented Dec. 17, 1895.

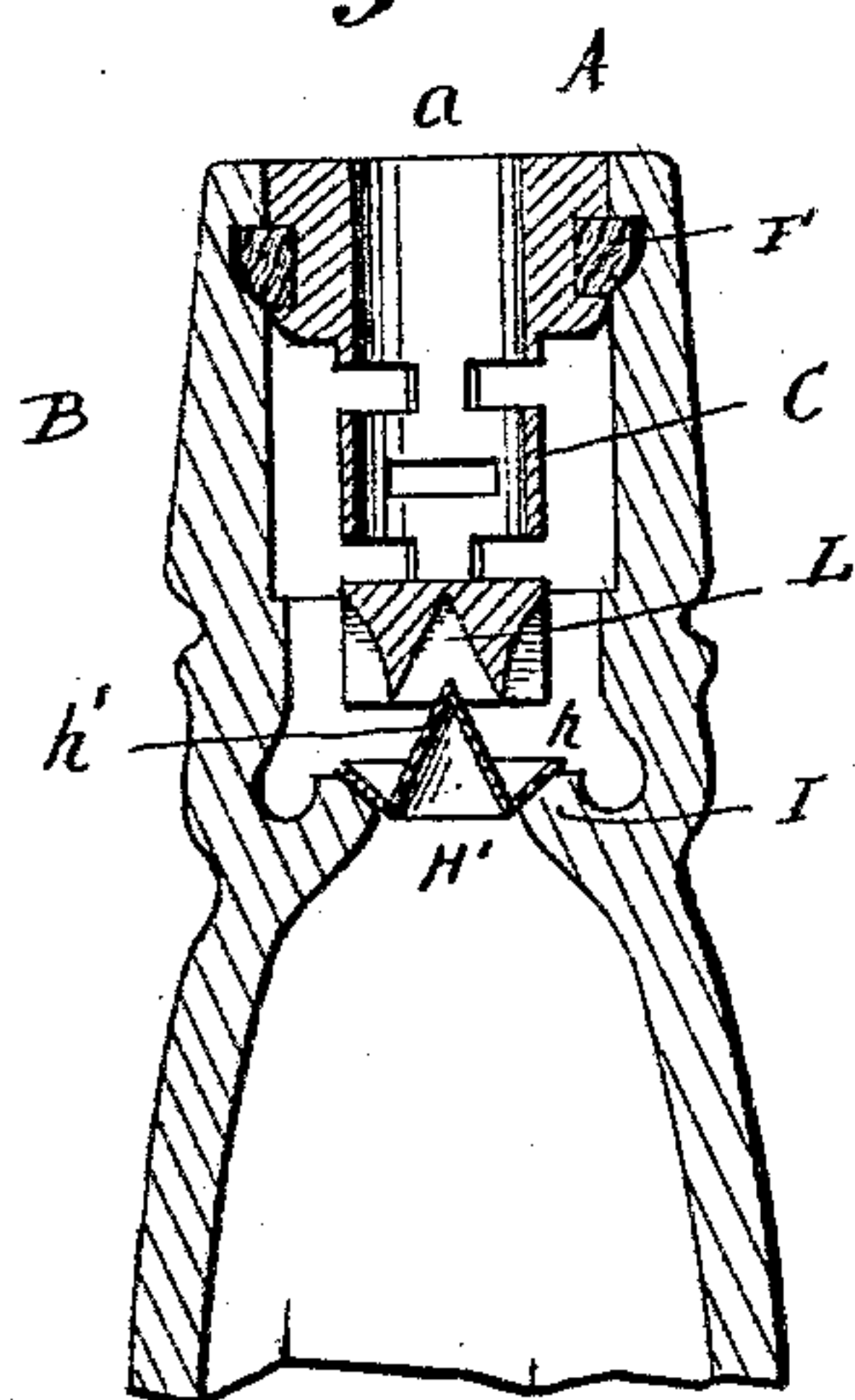
*Fig: 1.*



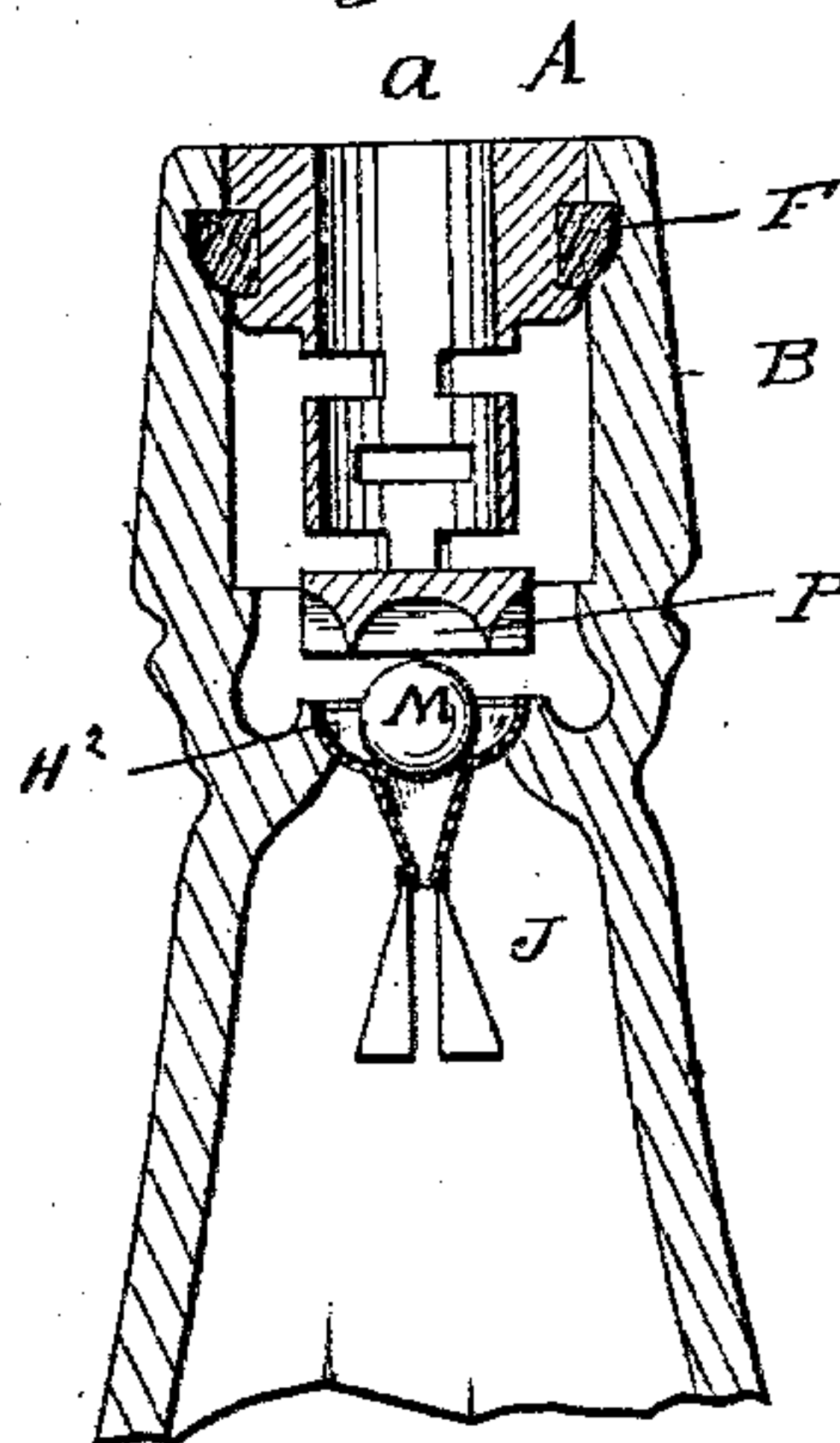
*Fig: 2.*



*Fig: 3.*



*Fig: 4.*



WITNESSES:

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# UNITED STATES PATENT OFFICE.

WILLARD B. STEVENS, OF NEW YORK, N. Y.

## BOTTLE-STOPPER.

SPECIFICATION forming part of Letters Patent No. 551,413, dated December 17, 1895.

Application filed March 2, 1895. Serial No. 540,295. (No model.)

*To all whom it may concern:*

Be it known that I, WILLARD B. STEVENS, a citizen of the United States, and a resident of the city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Bottle-Stoppers, of which the following is a specification.

This invention relates to improvements in that class of stoppers that are placed in bottle-necks to prevent the refilling of the bottles.

The object of my invention is to provide a new and improved stopper of that kind which is simple in construction, can readily be placed in a bottle-neck and firmly secured in the same and which thoroughly prevents pouring liquid into the bottle after the stopper has been inserted.

The invention consists in the construction and combination of parts and details, as will be fully described and set forth hereinafter.

In the accompanying drawings, forming a part of this specification, and in which like letters of reference indicate like parts in all the views, Figure 1 is a side view of my improved stopper in the bottle-neck, showing the wooden fastening-ring before the same has been expanded. Figs. 2, 3, and 4 show modified constructions of the stopper in a bottle-neck.

The stopper is constructed with a head A, fitting snugly in the neck B of the bottle and having a central aperture *a*, through which the liquid can be poured out of the bottle. A guard-cup C, made integral with the head and provided with a series of apertures or slots C', extends downward from the under side of said head, as shown.

The bottom annular edge of the head A is rounded or beveled, as shown, and a short distance above said rounded edge the head is provided with the exterior annular groove D, which when the head is placed in the bottle-neck registers with an interior annular groove E in the bottle-neck, the bottom of said groove being rounded or beveled off, as shown.

A ring F of compressed wood is sprung into the groove D in the head A, the thickness of said ring being such that it does not project beyond the periphery of said head, as shown in Fig. 1, so as not to interfere with inserting the head into the bottle-neck B.

After the head has been inserted in such a manner that the grooves D and E register, and the liquid contained in the bottle saturates the ring F of compressed wood, the latter swells and expands and fills both grooves D and E, thereby securely holding the stopper in the bottle-neck, as shown in Fig. 2.

The bottom of the groove E is rounded off in the manner shown and described for the purpose of guiding the wooden ring F when it expands into said groove, for if the bottom of the groove were not rounded off the ring might be jammed against the inside of the neck and in that case would not pass into the groove.

The head may be provided with a cage G, extending downward from the same and which, with the head, is inserted into the bottle, as shown in Fig. 1, or the head may be constructed without said cage, as shown in the remaining figures. At the bottom of said head a seat for a valve H is formed or said seat may be formed by an annular interior projection I of the bottle-neck. The valve H is approximately in the shape of an inverted cone exteriorly rounded off at the wider end, so as to have a ball-bearing on its seat. From the bottom of said valve H a series of radial wings J project, which increase in width from their upper to their lower ends, the weight of said wings being greater than that of the valve, so as to hold the valve on its seat.

When the bottle is tilted to pour out its contents, the valve H is lifted from its seat and the wings J serve to seat the valve when the bottle is righted again. At the same time the wings J do not interfere in the least with the ready flow of the liquid, even when the edges of said wings rest against the bottom of the cage G or the bottom of the annular flange or collar I in the bottle-neck.

As shown in Fig. 3, the valve H' may have an inverted conical part *h* fitting on the valve-seat and a central upward conical projection *h'*, which, when valve opens, passes into an inverted conical recess L in the closed bottom of the guard-neck C. When the bottle is righted again the valve is guided and directed properly upon its seat by said projection *h'* and recess L. The projection *h'* also serves for guiding liquid that is poured into the bottle toward the rim or seat part of the valve



H', so that said liquid assists in holding the valve on its seat, thus absolutely preventing the passage of any liquid into the bottle.

As shown in Fig. 4, the bottom of the valve H<sup>2</sup> may be left open and an auxiliary ball-valve M placed in the valve H<sup>2</sup> to close said opening in the valve when the bottle is righted and thus prevent liquid from passing into the bottle.

When the bottle is tilted the auxiliary ball-valve M passes into the recess P in the bottom of the guard-neck C.

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

1. The combination with a bottle having an interior annular groove in its neck directly below the upper end of the same, the bottom of which groove is rounded off, of a stopper fitting in the bottle neck and provided with an exterior annular groove a short distance

below its upper end and of a wooden retaining ring located within the said two grooves.

2. The combination with a bottle of a head held in the neck of the same, which neck has a downwardly projecting guard cup, an upwardly opening valve below said guard cup, which valve is provided with downwardly projecting radial wings, increasing in width from their upper to their lower ends, the upper ends of said wings being permanently fixed directly to the bottom part of the valve, substantially as herein shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 1st day of March, 1895.

WILLARD B. STEVENS.

Witnesses:

OSCAR F. GUNZ,  
N. M. FLANNERY.