

No. 627,829.

Patented June 27, 1899.

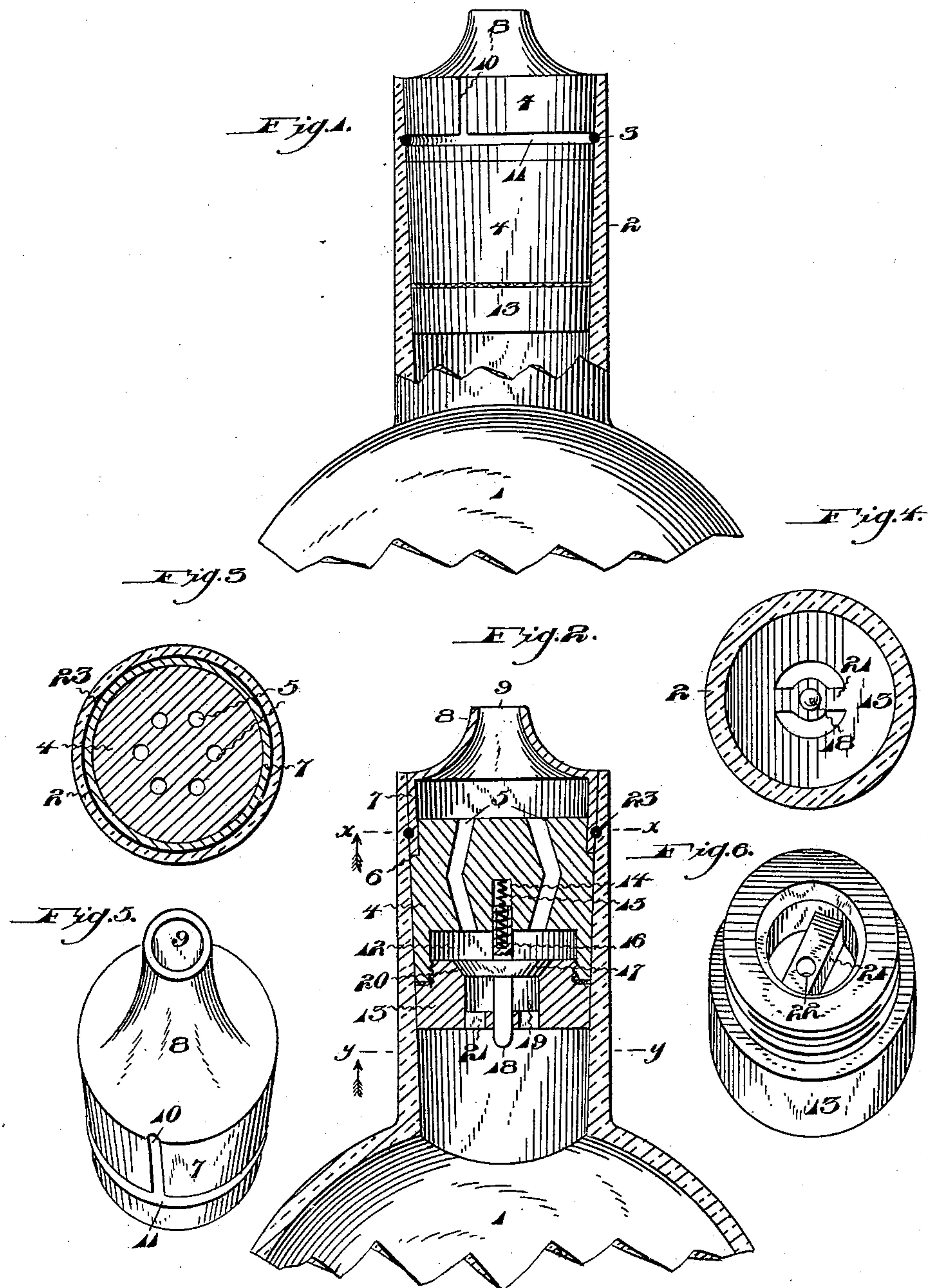
J. J. RHINELANDER & C. MOYER.

BOTTLE STOPPER.

(Application filed Feb. 16, 1899.)

(No Model.)

2 Sheets—Sheet 1.



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2 Sheets—Sheet 2.

Fig. 1.

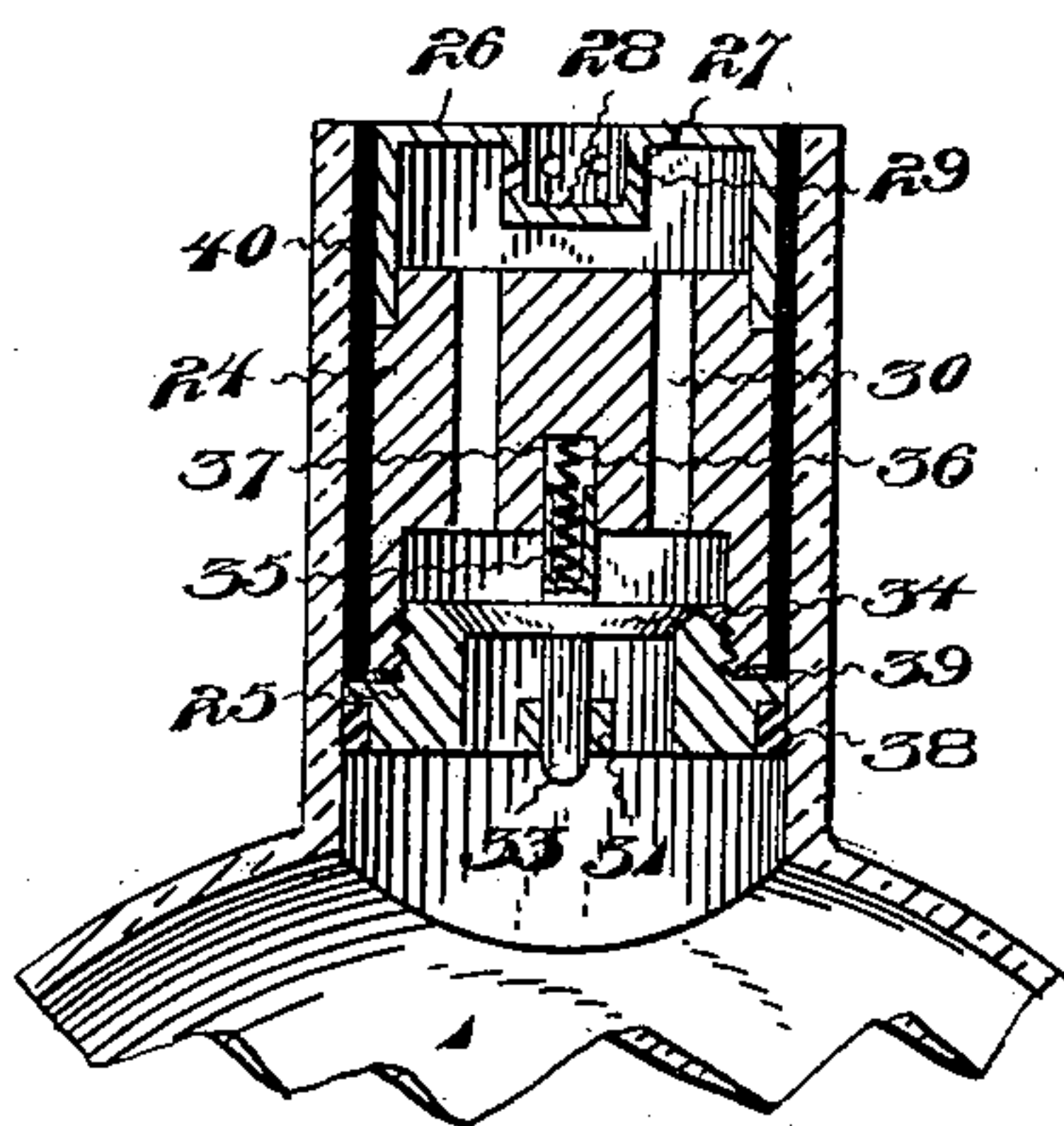


Fig. 8.

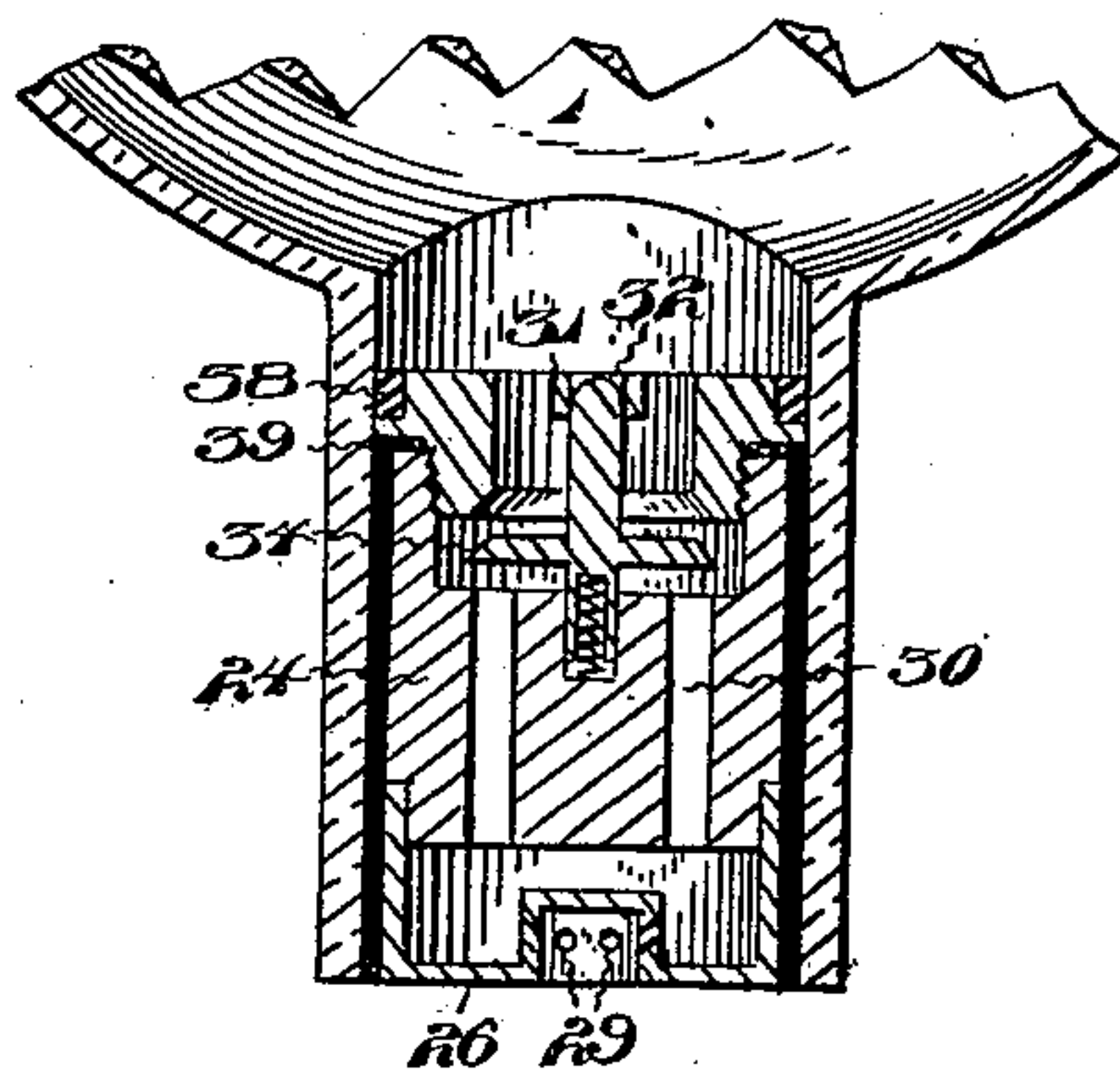


Fig. 9.

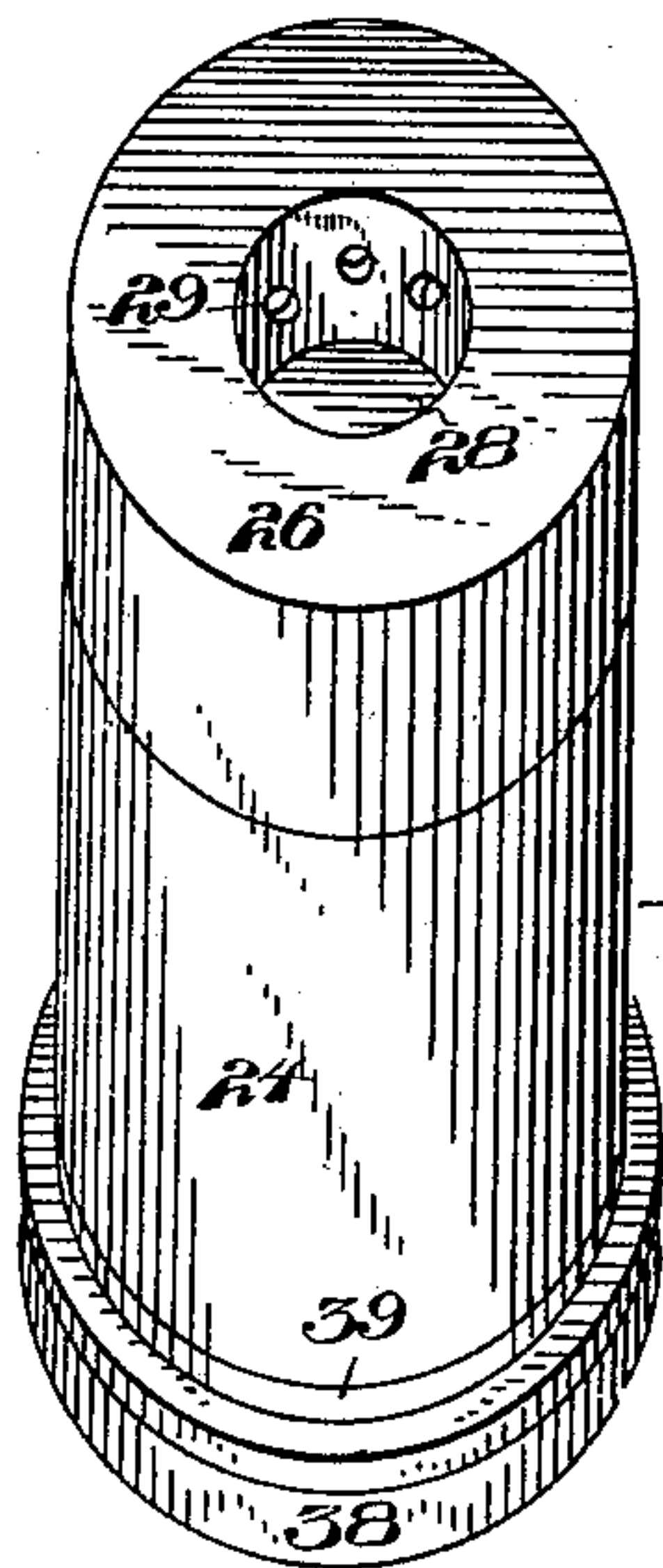


Fig. 10.

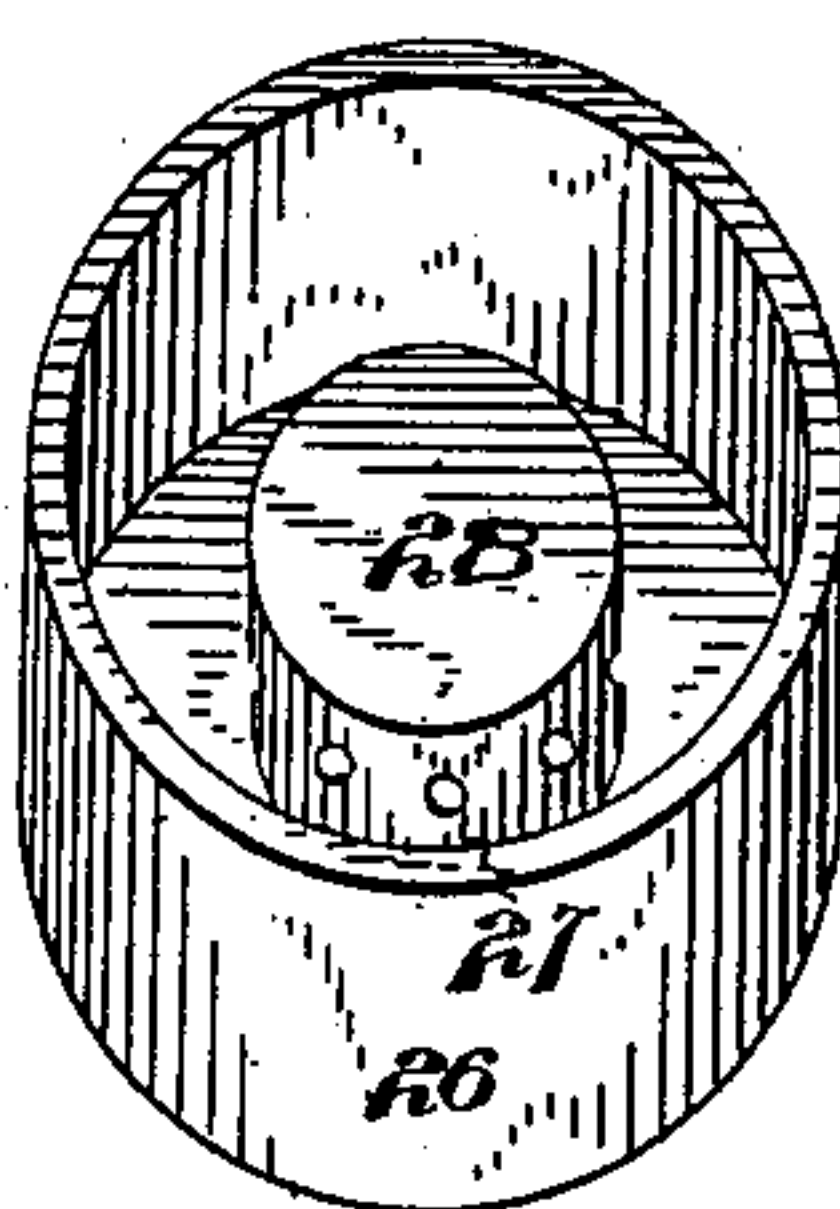


Fig. 11.

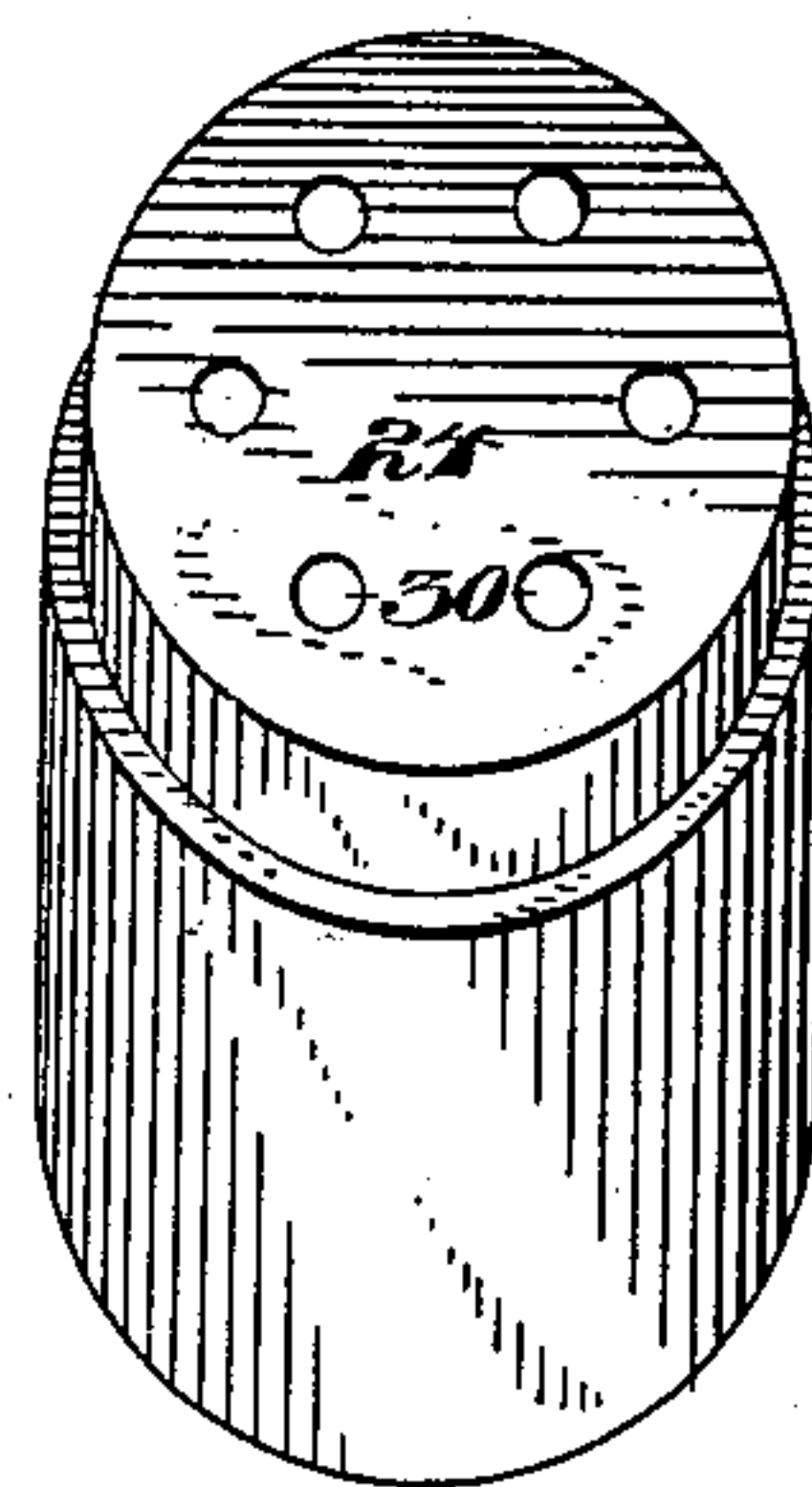


Fig. 12.

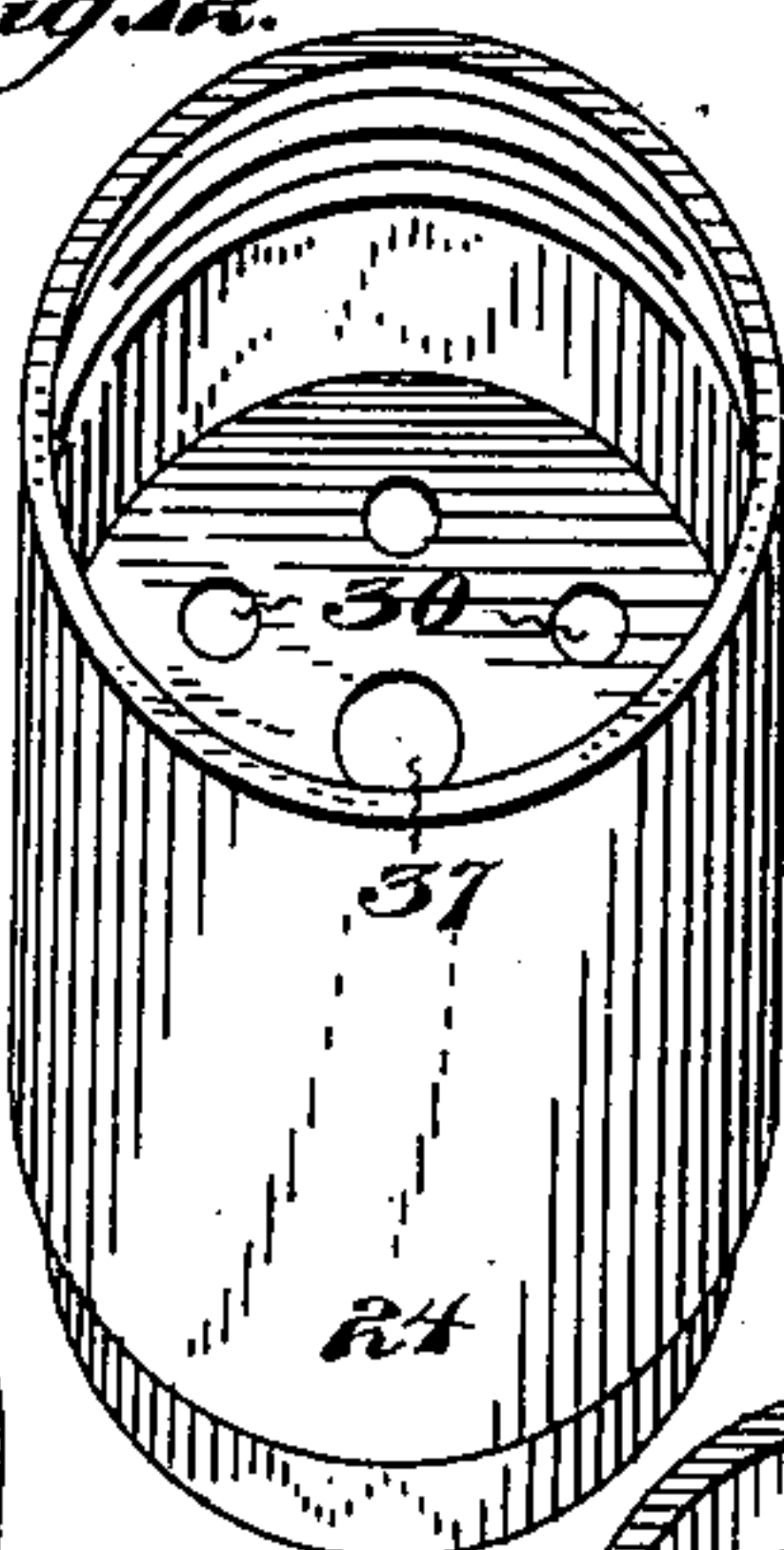


Fig. 13.

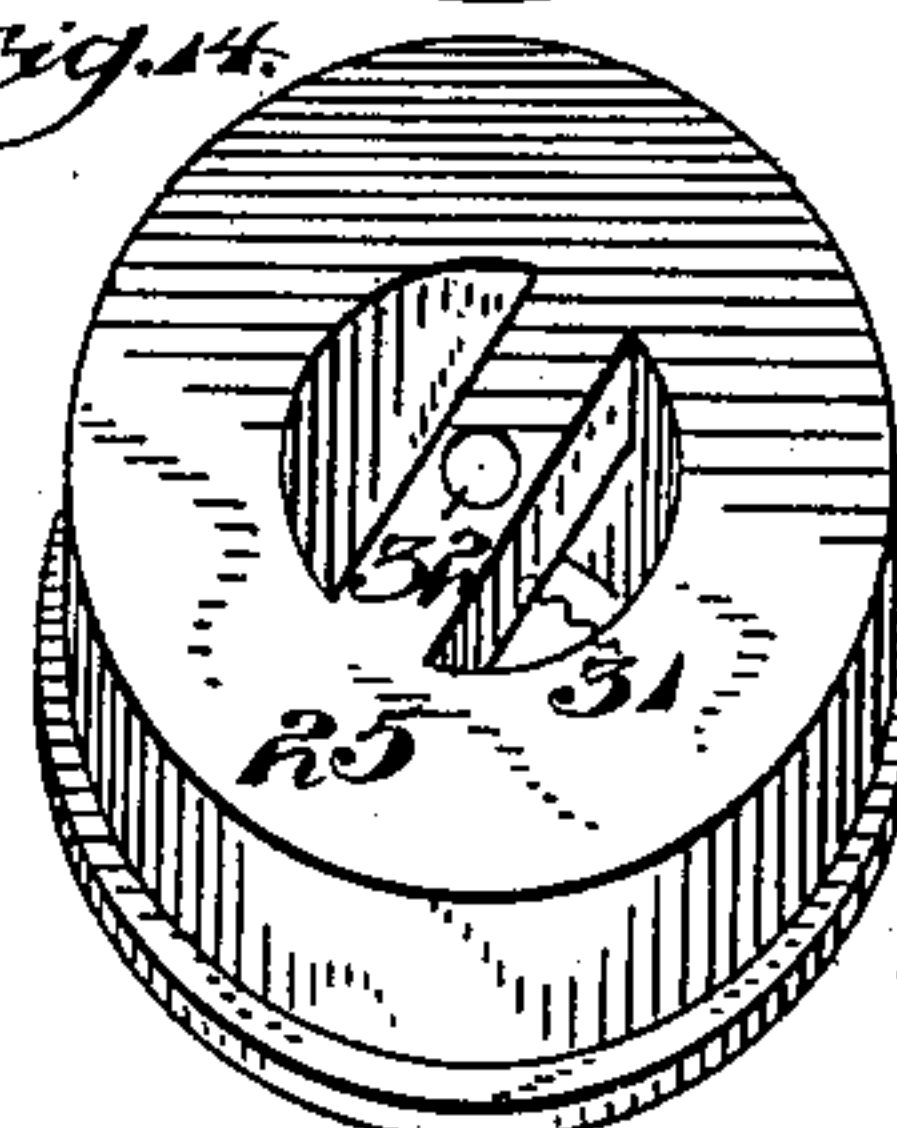


Fig. 14.

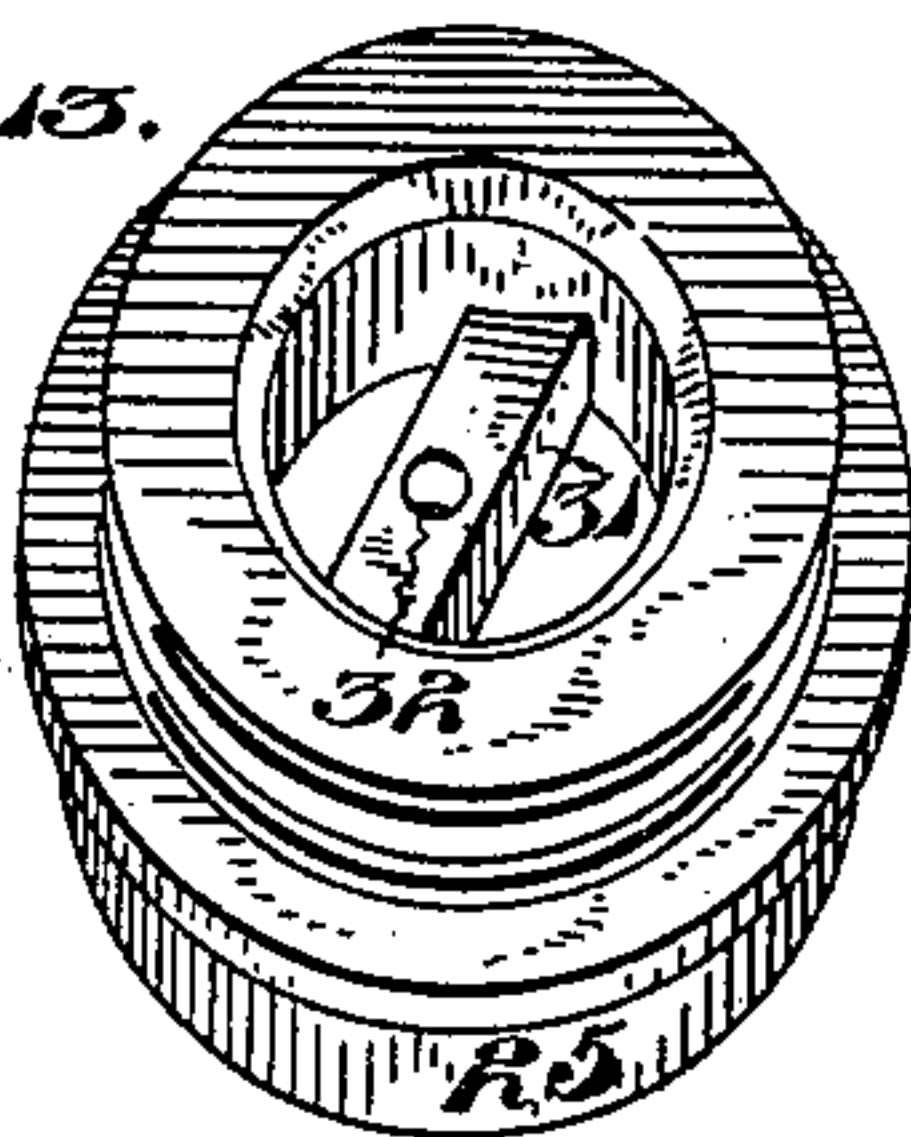
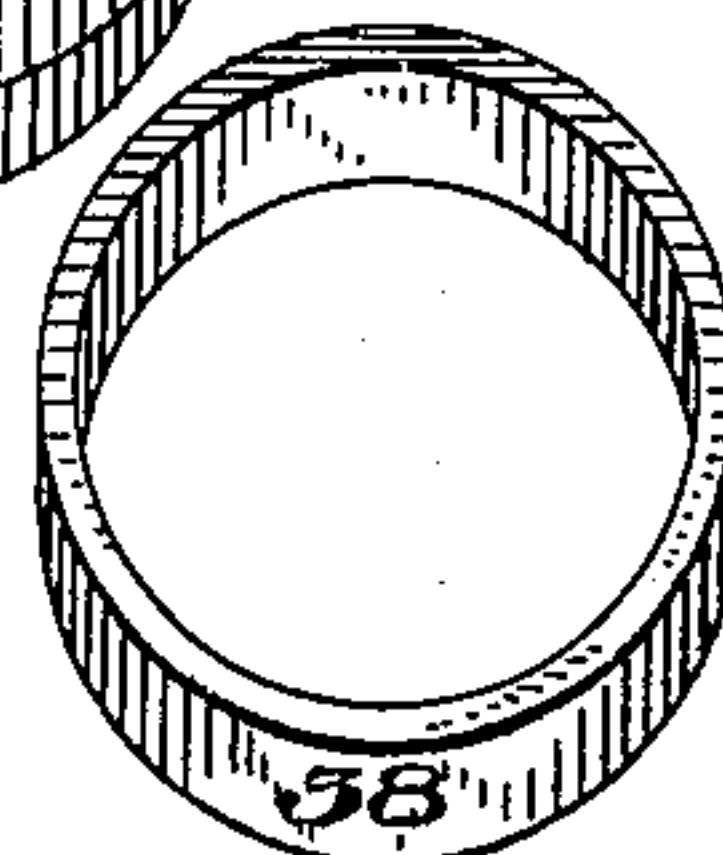


Fig. 15.



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UNITED STATES PATENT OFFICE.

JAMES J. RHINELANDER AND CHARLES MOYER, OF HARMONY,
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BOTTLE-STOPPER.

SPECIFICATION forming part of Letters Patent No. 627,829, dated June 27, 1899.

Application filed February 16, 1899. Serial No. 705,608. (No model.)

To all whom it may concern:

Be it known that we, JAMES J. RHINELANDER and CHARLES MOYER, citizens of the United States of America, residing at Harmony, in the county of Butler and State of Pennsylvania, have invented certain new and useful Improvements in Bottle-Stoppers, of which the following is a specification, reference being had therein to the accompanying
10 drawings.

Our invention relates to certain new and useful improvements in non-refillable bottles.

The object of our invention is to construct a bottle of this character which after the contents thereof have been once used cannot be
15 refilled.

A further object of our invention is to improve the construction of bottles and to provide one adapted for holding valuable liquids and capable of not being refilled, thereby
20 avoiding any liability of the imitation of such valuable liquids being sold in the ordinary bottles.

Our invention finally consists in the novel
25 combination and arrangement of parts hereinafter more fully described, and particularly pointed out in the claims.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, wherein
30 like numerals of reference indicate corresponding parts throughout the several views thereof, and in which—

Figure 1 is a side view of a bottle, the neck thereof being in section and the body portion broken away, showing our improved stopper secured in the neck. Fig. 2 is a vertical sectional view of our improved bottle. Fig. 3 is a cross-sectional view taken on the line $x x$,
40 Fig. 2. Fig. 4 is a cross-sectional view taken on the line $y y$, Fig. 2. Fig. 5 is a perspective view of the cap. Fig. 6 is a perspective view of the lower stopper in which the valve is mounted. Fig. 7 is a vertical sectional
45 view of a modified form of bottle. Fig. 8 is a vertical sectional view showing the bottle inverted, of a modified form of bottle, and also showing the valve removed from its valve-seat. Fig. 9 is a perspective view of a
50 modified form of stopper. Fig. 10 is an inverted perspective view of the cap for this

modified form of stopper. Fig. 11 is an inverted perspective view of the upper stopper of this modified form of construction. Fig. 12 is a perspective view of the upper stopper
55 of this modified form of bottle. Fig. 13 is a perspective view of the lower stopper of this modified form. Fig. 14 is an inverted perspective view of the lower stopper. Fig. 15 is a perspective view of a washer which is
60 adapted to be mounted in the lower portion of the lower stopper.

Referring to the drawings by reference-numerals, 1 indicates the body portion, and 2 the neck portion, of a bottle. The inner face
65 of the neck inclines outwardly, as shown, and is provided with an annular groove 3 near the outer end thereof.

When the parts of our improved stopper are assembled, the same is substantially wedge-
70 shaped, as shown.

Our improved stopper consists of an upper stopper 4, which is provided with a series of openings 5. These openings extend through the stopper in substantially V shape, as shown,
75 and as many may be provided as desired. The upper portion of the upper stopper is provided with an offset, thereby forming a shoulder 6, which supports the cap 7. This cap 7 has a contracted neck 8, having a suitable
80 opening 9 to allow of the discharge of the liquid. The cap 7 is provided on the periphery with a downwardly-extending groove 10, which connects with an annular groove 11, this annular groove being adapted to register
85 with the annular groove 3, formed on the inner face of the neck of the bottle. The lower part of the upper stopper is provided with an enlarged cut-away portion 12, the walls thereof being screw-threaded a portion of their
90 length and adapted to receive the screw-threaded portion of the lower stopper 13 and secure the same in position. The upper stopper is also provided with a recess 14, in which is mounted a coil-spring 15. This coil-spring
95 15 operates in the recess portion of the upper valve-stem 16, to which the valve 17 is attached.

18 indicates a lower valve-stem.

The lower stopper 13 is provided with an
100 enlarged opening 19 and with a valve-seat 20 on its upper face. The lower portion of the

enlarged opening 19 has arranged therein a cross-bar 21, which is apertured, as, at 22. This bar acts as a guide for the lower valve-stem 18.

5 The operation of our improved bottle is as follows: The upper and lower stoppers being secured together, the same are inserted in the neck of the bottle and the cap 7 also inserted. The cement or other substance is then poured
10 into the groove 10, which will fill the annular grooves 11 and 3, as at 23, and will securely hold the stopper in position. It will be observed that the tension of the spring 15 will always have the tendency to keep the valve
15 17 against the valve-seat 20. When the bottle is inverted, the pressure of the liquid will force the valve from its valve-seat and allow the same to percolate and be discharged from the bottle through the openings 5 and out
20 through the opening 9, arranged in the cap 7. The walls of the collar 27 are to prevent the insertion of a piece of wire therethrough to allow the same to lift the valve from its seat, so the bottle could be refilled. It will be
25 observed that as the wire is inserted through the openings the end thereof will abut against the inclined sides and prevent the same from going through.

In the modified form of construction shown
30 in Figs. 7 to 15 the same consists of an upper stopper 24 and a lower stopper 25, as well as a cap 26, the cap 26 and the upper stopper 24 being of less diameter than the lower stopper 25. The cap 26 is provided with a down-
35 wardly-extending collar 27, as well as countersunk portion 28, the walls of this countersunk portion being provided with a series of apertures 29 to allow of the discharge of the liquid from the bottle. The upper stopper 24 is sub-
40 stantially the same construction as the upper stopper 4, except that the openings 30 are vertical and that the stopper is not wedge-shaped, as the stopper 4. The upper stopper 24 is provided with an offset in a like man-
45 ner as the upper stopper 4, forming a shoulder, on which the cap 26 rests. The lower stopper 25 is substantially the same as the lower stopper 13 in the construction heretofore described and is provided with a guide-
50 bar 31, having an opening 32 arranged therein to allow the operation therethrough of the guide and lower valve-stem 33. 34 indicates a valve, and 35 indicates an upper valve-stem, which is the same construction as the upper
55 valve-stem heretofore described, having a recess portion, in which the tension-spring 36 operates, the tension-spring 36 operating in a similar recess 37, as in the manner heretofore described. The lower portion of the
60 lower stopper 25 is provided with an offset, upon which is mounted the flexible washer 38. 39 indicates a suitable packing arranged between the upper and lower stopper. Our improved stopper is secured in the neck
65 of a bottle by means of the cement 40, as shown. Owing to the lower stopper 25 being of greater diameter than the upper stopper,

the same prevents the cement from entering the bottle. This is evident by referring to the construction shown in Figs. 7 and 8. The
70 operation of this modified form is almost identical to the operation heretofore set forth.

It will be noted that various changes may be made in the details of construction without departing from the general spirit of our
75 invention.

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

1. In a non-refillable bottle, the combina-
80 tion with the neck, of a lower stopper adapted to fit within said neck, and an upper stopper engaging said lower stopper, a cap fitting upon said upper stopper and provided with a con-
85 tracted neck, said upper stopper being provided with a series of passages extending through the same and communicating with the chambers formed between the cap and the upper and lower stoppers, said lower stop-
90 per being provided with a central recess and with a valve-seat, a valve arranged on said seat and having a stem projecting from its upper and a stem projecting from its lower
95 face, said upper stopper having a recess on its underneath face to receive said upwardly-pro- jecting stem, a spring arranged in said recess and upwardly-projecting stem to hold the
100 valve normally in engagement with the valve-seat, and a guide carried by the said lower stopper for controlling the movement of the said valve, substantially as described.

2. In a non-refillable bottle, the combina-
105 tion with a bottle-neck, of an upper and a lower stopper screwed together and secured in said neck, a cap engaging said upper stop- per and provided with a contracted neck por-
110 tion, said upper stopper being provided with a series of passages extending through the same in substantially the form of a V and communicating at their upper ends with a chamber between said upper stopper and cap
115 and at their lower ends with a chamber between the upper and lower stoppers, said lower stopper being provided with a central opening and on its upper face with a valve-
120 seat, a valve arranged on said seat, a downwardly and an upwardly extending valve-stem connected to said valve, a spring engaging the upwardly-extending portion of the valve-stem and the upper stopper for holding
125 said valve normally on its seat, a guide arranged in the central opening of the lower stopper to receive the downwardly-extending portion of the valve-stem, and means within the bottle-neck engaging said upper stopper, the cap, and the bottle-neck to lock the parts in said neck, substantially as described.

In testimony whereof we affix our signatures in the presence of two witnesses.

JAMES J. RHINELANDER.
CHARLES MOYER.

Witnesses:

JOHN NOLAND,
H. H. PATTERSON.