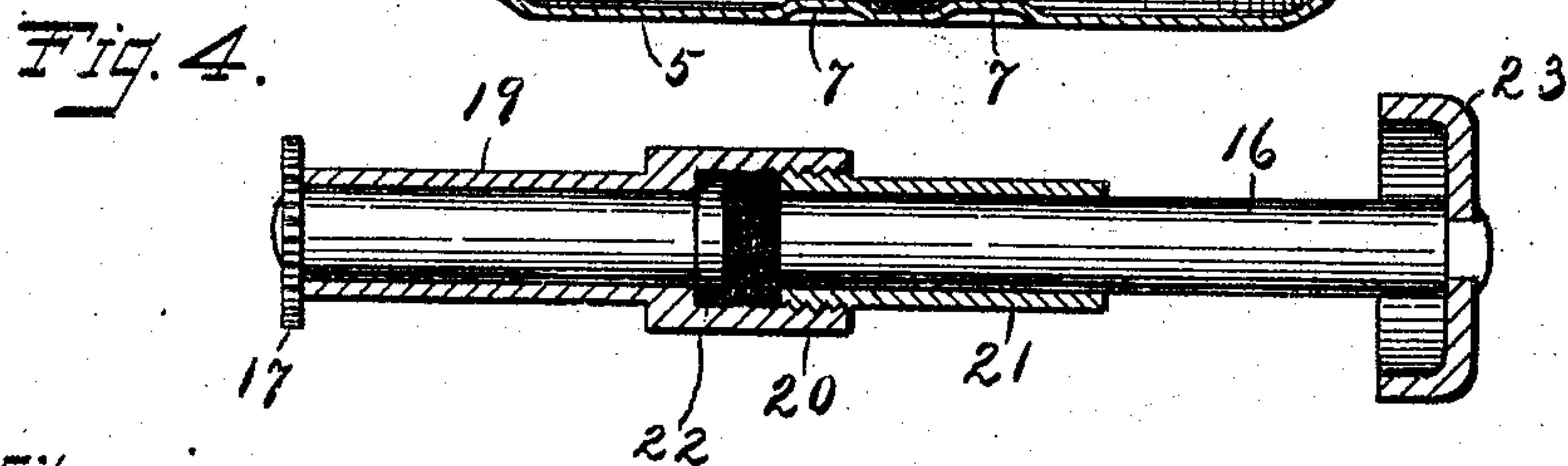
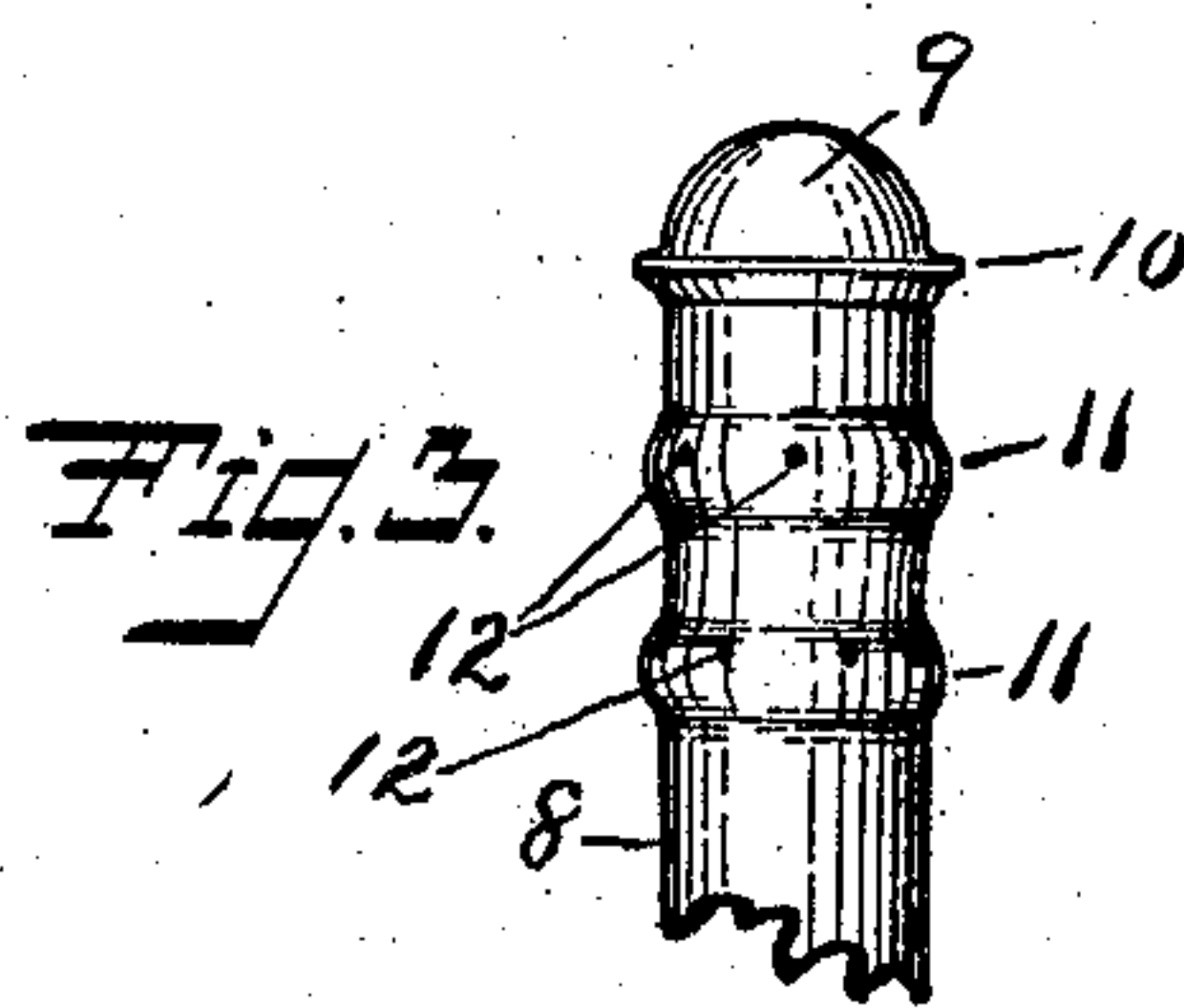
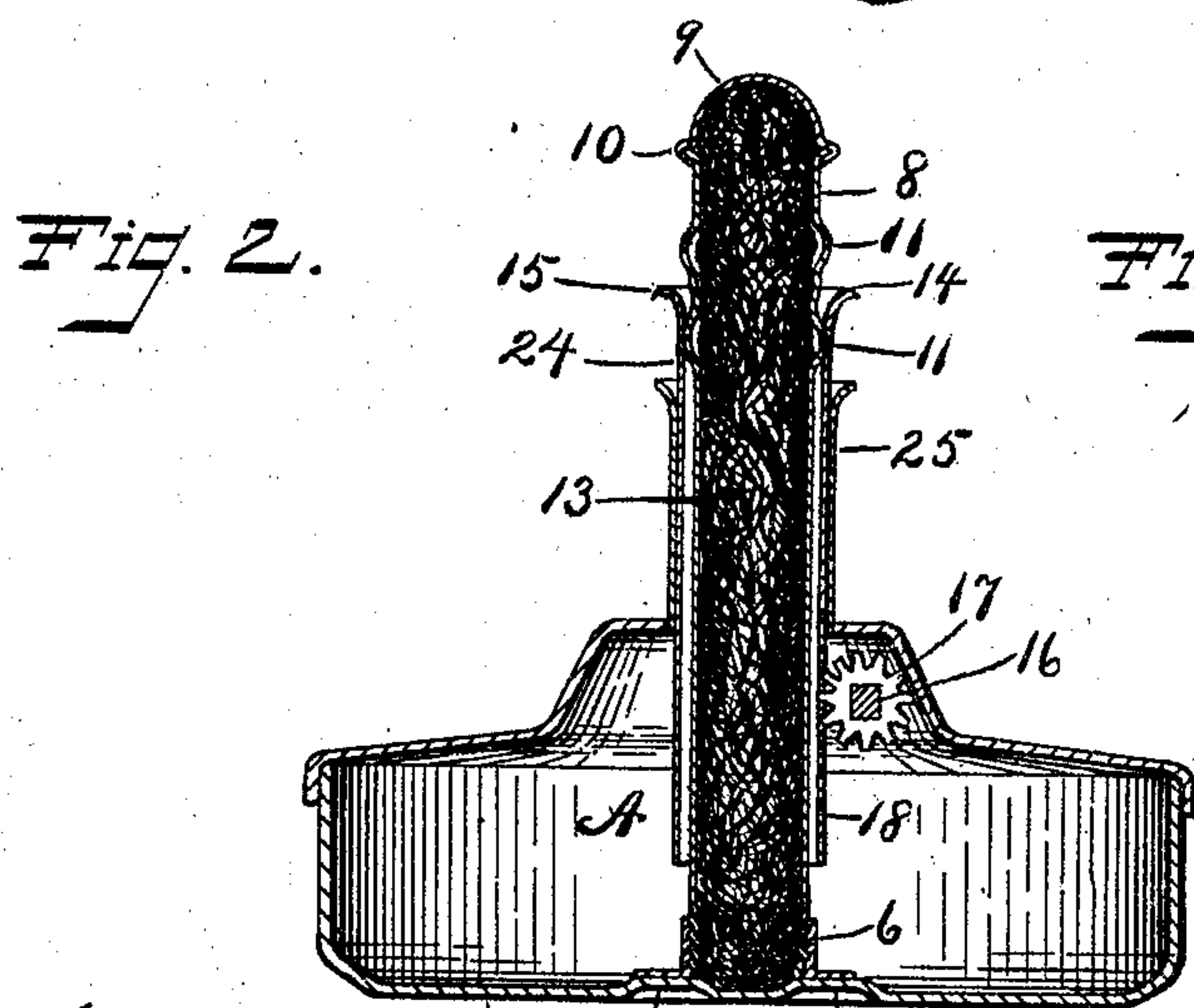
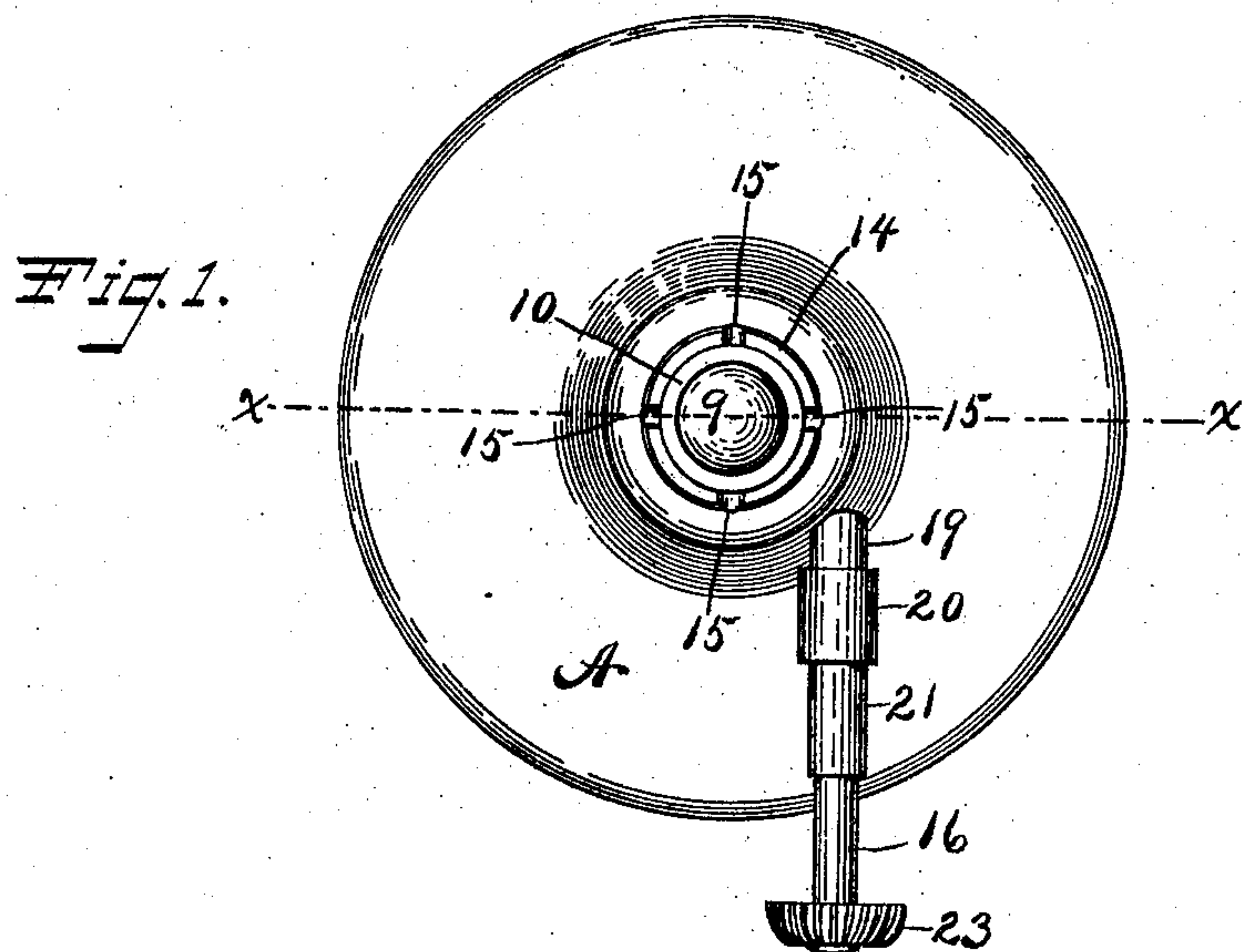


No. 815,884.

PATENTED MAR. 20, 1906.

A. A. WARNER.  
ALCOHOL LAMP.

APPLICATION FILED JULY 12, 1905.



Witnesses.

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# UNITED STATES PATENT OFFICE.

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## ALCOHOL-LAMP.

No. 815,884.

Specification of Letters Patent.

Patented March 20, 1906.

Application filed July 12, 1905. Serial No. 269,385.

*To all whom it may concern:*

Be it known that I, ALONZO ABNER WARNER, a citizen of the United States, residing at New Britain, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Alcohol-Lamps, of which the following is a specification.

My invention relates to improvements in alcohol-lamps; and the objects of my improvements are simplicity and economy in construction and convenience and efficiency in operation, particularly with reference to great heating capacity.

In the accompanying drawings, Figure 1 is a plan view of my lamp. Fig. 2 is a sectional view of the same on the line *xx* of Fig. 1. Fig. 3 is a detached side elevation of the upper end of the wick-tube. Fig. 4 is an enlarged sectional elevation of the shutter-raising devices as detached from the lamp-font.

A designates the font, which may in the main be of any ordinary construction. To the bottom 5, on the inside, I secure a nut 6, that is slightly elevated above the bottom, so that the alcohol or other vapor generating fluid in the lamp may pass under it and into its interior from the lower end. As shown, this nut is elevated by being seated on two small elevations 7 7, that are swaged or struck up in the metal that forms the bottom of the font. The wick-tube 8 is screw-threaded at its lower end, so that it may be secured in place by screwing it into the nut 6. The upper end of the wick-tube is closed in any proper manner—as, for example, by an imperforate cap 9 with a flange 10 at the junction of the tube and cap. Below this flange there are two hollow peripheral beads 11, made by an enlargement of the tube at these points, leaving the metal of the tube of a uniform thickness throughout. For convenience of illustration the thickness of the metal in the tube 8 is represented thicker than it will be in practice. In the beads, and preferably slightly above their greatest projection, there is a series of fine perforations to serve as gas-jets 12. They are best arranged with each jet in the lower series midway between the two adjoining jets in the upper series. This wick-tube, which serves as the main part of the burner, is filled from end to end with a suitable wick or wicking 13. It should be noted that the wicking extends

considerably above the uppermost series of jets or uppermost exit of the wick-tube.

The top of the font is provided with a fixed guide-tube 25, concentric with the wick-tube, and between the guide-tube and the wick-tube there is a rising-and-falling tubular shutter or flame-extinguisher 24. The body of this shutter is of a size to readily pass over the beads 11, and its upper end is provided with an outturned or funnel-shaped flange 14, with a series of swaged jet-recesses 15. The shutter is raised and lowered by an operating-shaft 16, pinion 17, and a series of perforations 18 in the shutter, which perforations act as a rack in connection with the said pinion. The operating-shaft is mounted in a bearing 19, stuffing-box 20, and nut 21, the said shaft having a bead or shoulder 22 between the shoulder in the stuffing-box and the end of the nut, which shoulder prevents the said shaft from moving longitudinally inward, while the pinion 17 on the inner end of the said shaft prevents longitudinal movement in the opposite direction. Any suitable knob or handle 23 may be provided for convenience of rotating the shaft.

When the shutter 24 is lowered to bring its flange 14 below the lowermost bead 11 of the wick-tube and the lamp filled, a flame may be started by applying an ordinary match to the outside of the wick-tube near the beads and holding it there for a few moments to heat the tube sufficiently to generate gas, which coming out through the jets will be ignited. For a powerful heat the gas may be allowed to burn from all of the jets. For a lesser heat the shutter may be turned up far enough, as shown in Fig. 2, to cut off and extinguish the flame in the lower series of jets. For a still lesser heat or a low heat the shutter may be turned up until it is stopped by the flange 10. This will extinguish the flame from the upper series of jets, but the gas will still flow through the jets up through the shutter and out at the recesses 15 in the flange 14, where it will burn in as many jets as there are recesses in the said flange.

Provision for the gas to flow upwardly and out at the jet-recesses in the shutter is had by leaving a suitable space between the shutter and wick-tube. As shown, the shutter is straight-sided and the wick-tube is beaded, so that there is ample space for the gas to flow upwardly through the shutter after it passes



the upper bead. I prefer to fit the shutter so closely to the beads as to substantially cut off the upward flow of gas from below the upper bead and to form the perforations in the said upper bead so far above the greatest diameter of the said bead as to carry them away from the inner wall of the shutter, so that gas will flow upwardly therefrom even when the shutter closes tightly on the bead. The jet-perforations in all of the beads are preferably made a little above the greatest projection or diameter of the said beads, so as to direct the flame or jet issuing therefrom slightly upward.

By having an imperforate top to the wick-tube and having the absorbent wick extend up above the highest exit in the said tube the alcohol is carried up above the said exit, where it is heated and gas generated that flows downwardly and out at the exits. This results in an ample supply of gas for a large number of jets. A priming-wick or priming-perforations for starting the flame are not necessary, but their presence or absence would not change the construction hereinbefore described. With the hollow beads in the wick-tube and only fine perforations or jets the wick is held somewhat away from the jets, as shown in Fig. 2, and the perforations are so small that the flame is substantially all on the outside of the wick-tube, whereby there is but little consumption of the wick when the font is properly supplied with alcohol.

I am aware that vapor-lamps have been made with wick-tubes supplied with wicks and fine exits forming gas-jets in or leading from the said wick-tubes and also with tubular shutters having a movement relatively to the wick-tube, and I hereby disclaim the same.

It is apparent that some changes from the specific construction herein disclosed may be made, and therefore I do not wish to be understood as limiting myself to the precise form of construction shown and described, but desire the liberty to make such changes in working my invention as may fairly come within the spirit and scope of the same.

I claim as my invention—

1. In a vapor-lamp, the combination of a font with a wick-tube having a flanged upper end, and a plurality of peripheral beads each

with a series of perforations, the said perforations in the upper one of the said beads being slightly above the greatest diameter of the said bead, and a shutter having a relative longitudinal movement with the tube and its inner diameter of a size to pass over and closely fit the said upper bead so as to substantially close the space between the wick-tube and the shutter.

2. In a vapor-lamp, the combination of a font with a wick-tube having an imperforate upper end and a series of fine perforations below the said upper end, and a tubular shutter having a flanged upper end with jet-recesses formed therein, the said wick-tube and shutter having a relative longitudinal movement for covering and uncovering the said perforations, and also having provision for gas to flow upwardly from the said perforations through the said shutter and out at the jet-recesses for burning at the said recesses when the shutter extinguishes the flame at the said perforations.

3. In a vapor-lamp, the combination of a font with a wick-tube having an imperforate upper end, a stop-flange at the said upper end, and a hollow peripheral bead with fine perforations therein at a point below the said flange, and a shutter movable longitudinally relatively to the said wick-tube and having a body for covering and uncovering the said bead, and a flanged upper end with jet-recesses formed therein, the said flanged upper end being arranged to close against the flange of the said wick-tube.

4. In a vapor-lamp, the combination of a font with a wick-tube having a flanged upper end and a peripheral bead provided with a series of jet-perforations, and a shutter having a relative longitudinal movement with the tube and its inner diameter of a size to pass over the said bead to extinguish the flame thereat, and jet-openings at the upper end of the said tube and shutter which remain open when the shutter is fully closed; the inclosing walls of the said jet-openings being formed partly by the said wick-tube and partly by the said shutter.

ALONZO ABNER WARNER.

Witnesses:

G. M. LANDERS,  
LEROY H. PAGE.