

H. C. WRIGHT.  
VAPOR LAMP.  
APPLICATION FILED MAR. 25, 1909.

960,475.

Patented June 7, 1910.

Fig. 1.

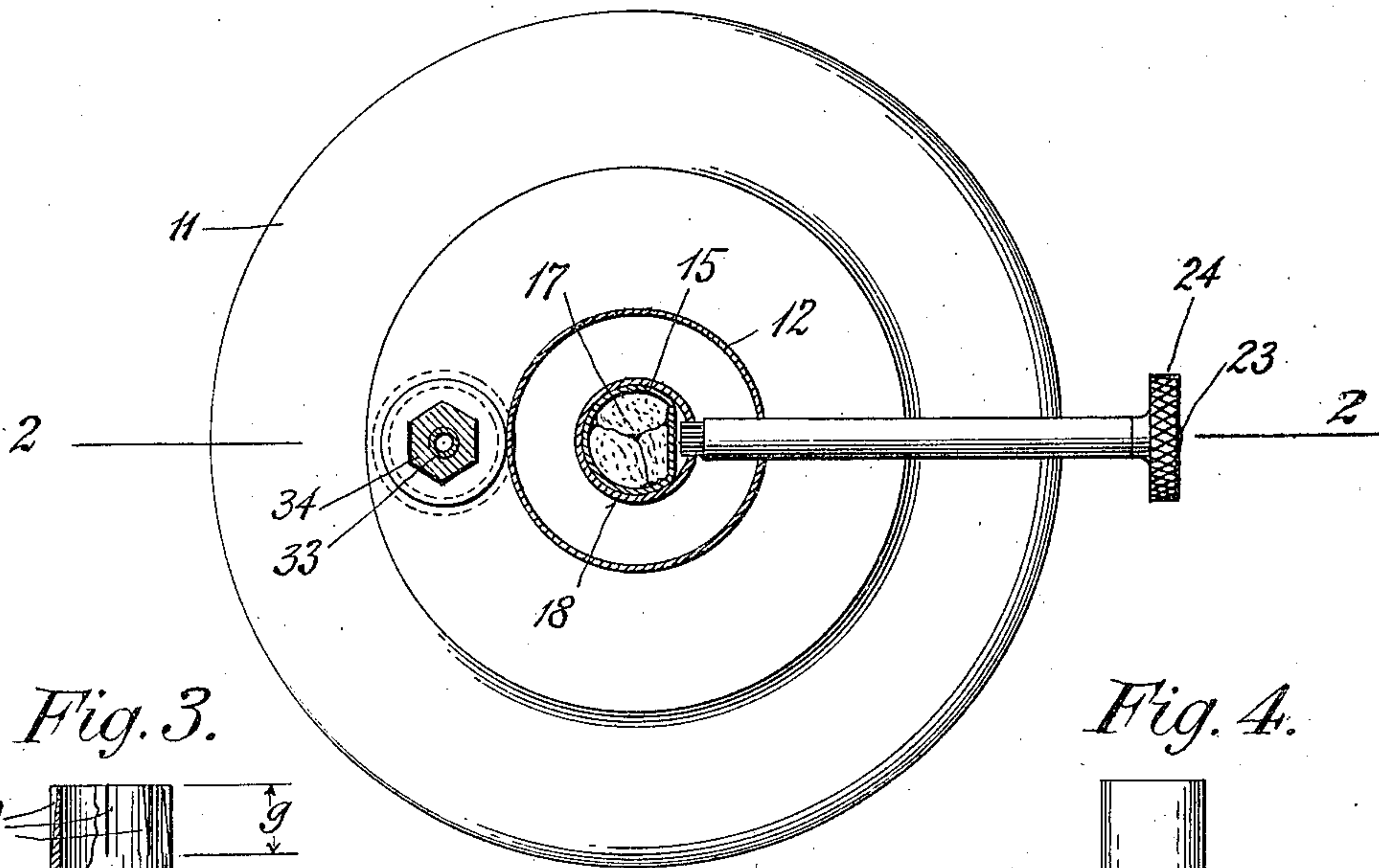


Fig. 3.

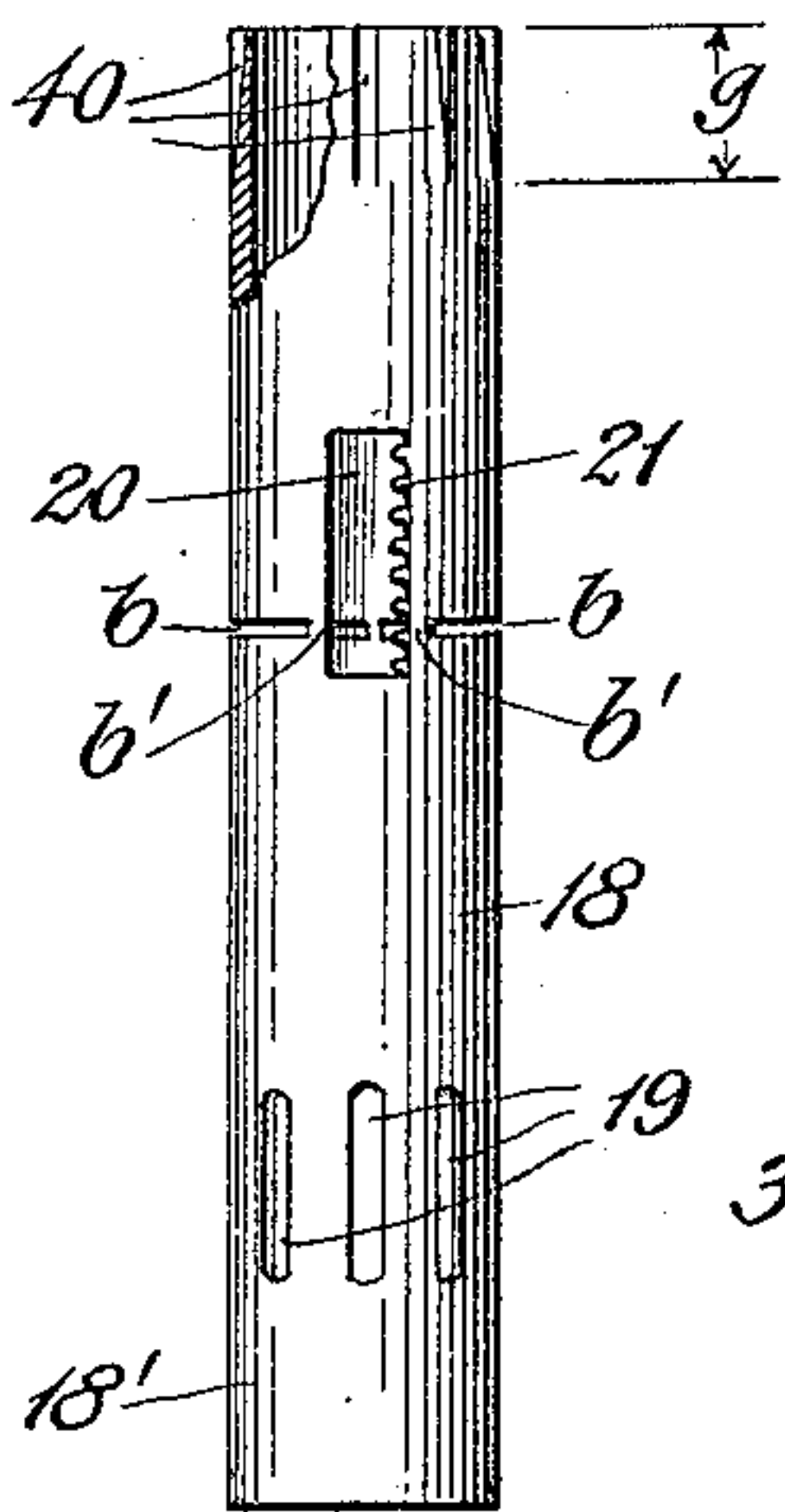


Fig. 4.

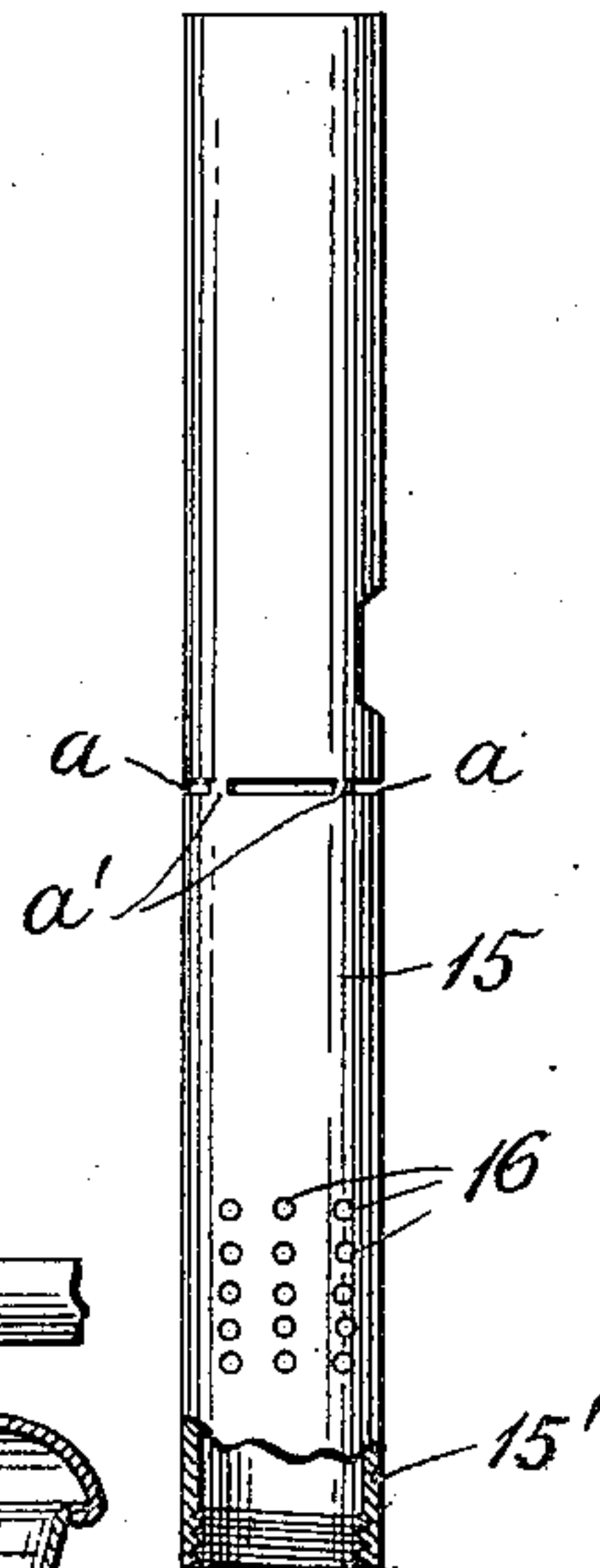
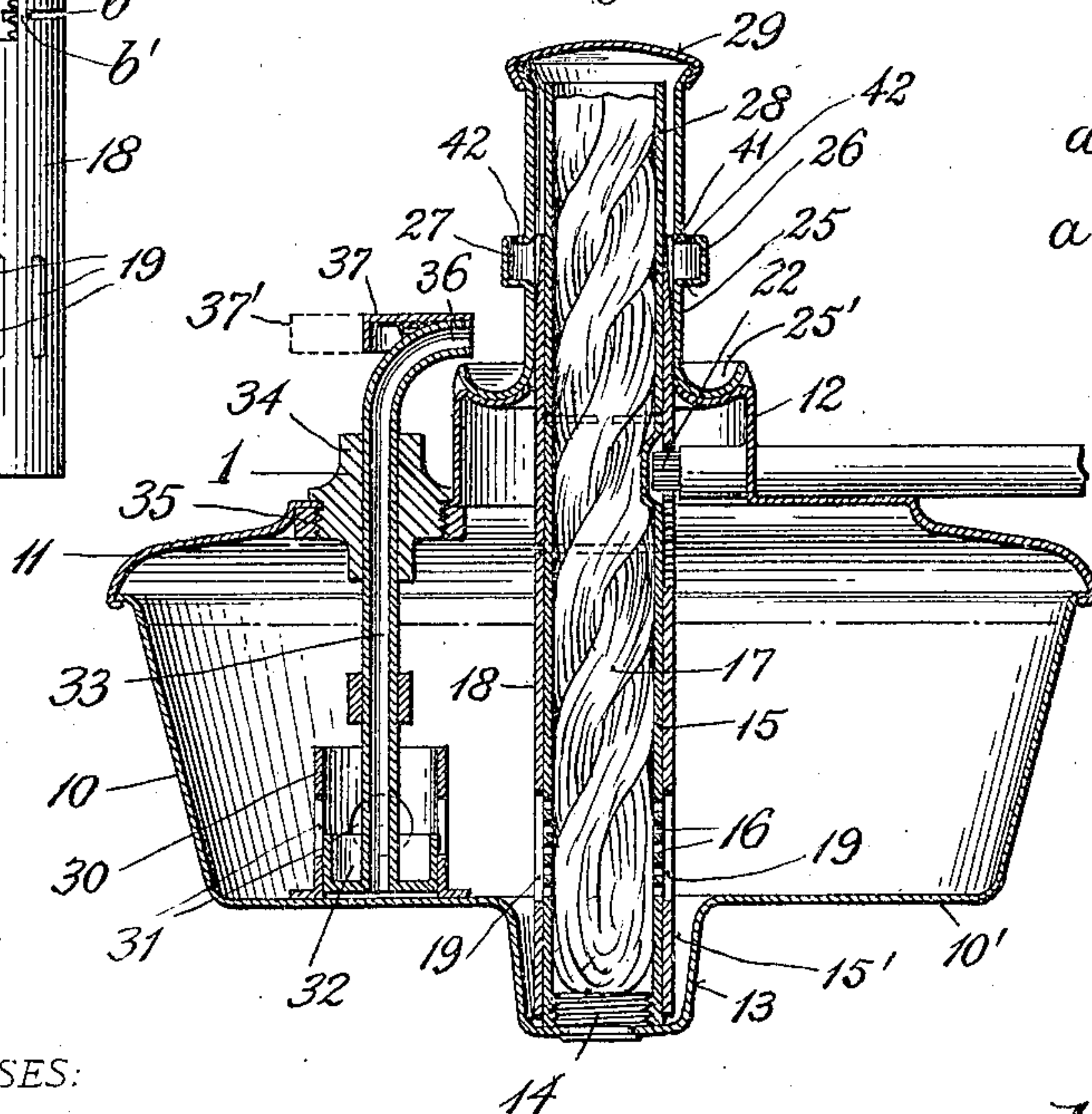


Fig. 2.



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# UNITED STATES PATENT OFFICE.

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## VAPOR-LAMP.

960,475.

Specification of Letters Patent.

Patented June 7, 1910.

Application filed March 25, 1909. Serial No. 485,583.

*To all whom it may concern:*

Be it known that I, HENRY C. WRIGHT, a citizen of the United States, and resident of Bristol, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Vapor-Lamps, of which the following is a full, clear, and exact specification.

This invention relates to vapor lamps, and more especially to that class thereof in which alcohol constitutes the fuel, this alcohol being first vaporized by the application of heat which is generated by the flame of the gas just generated in an automatic manner, and it has for its object an improved construction of the burner portion of the lamp, and also the provision of a shutter for regulating the flame, in such a manner as to gradually reduce the volume thereof, this mechanism acting in the capacity of a valve rather than a shutter inasmuch as the valve comes into direct coöperation with a gas receiver from which the flow of gas emanates.

The invention has been clearly illustrated in the accompanying drawings, in which similar characters denote similar parts, and in which—

Figure 1 is a sectional plan of a lamp embodying my invention, substantially on line indicated by 1 in Fig. 2. Fig. 2 is a central vertical section thereof on line 2, 2 of Fig. 1. Fig. 3 is a side view partially broken away of the valve tube employed in my improved lamp and constituting one feature of the invention, and Fig. 4 is a side view of the wick tube of the device.

Briefly stated, my improved vapor lamp comprises a font near the center of which the wick tube is supported, this tube being surrounded at its upper end with the jet ring in such a manner as to form a gas receiving chamber, and also what may be termed a valve which in the present instance is made in tubular cylindrical form interposed between the wick tube and the jet ring so as to gradually shut off and control the flow of gas from the generating chamber, or the gas receiver through the apertures in the jet ring.

Referring to the drawings 10 denotes the font having a cover 11 which is provided with a central boss 12 on which the burner portion of the device is supported.

The bottom plate 10' has a depression 13 which in its bottom carries a stud 14 in screw

threaded engagement with the lower end of the wick tube 15 which may thus be readily placed in position or removed therefrom, as desired. The wick tube 15 is provided with a series of apertures 16 through which alcohol is admitted into the interior thereof from the font 10, and an imperforate or "dead space" 15' is provided on the extreme bottom of the tube for purposes to be hereinafter described.

Closely surrounding the wick tube 15 in which the wick 17 is disposed for the purpose of carrying the alcohol into the uppermost portion thereof, is a shutter 18 having a series of elongated openings 19 which register with the aperture 16 of the wick tube, when the valve tube is in its lowermost or wide open position so that the alcohol can thus freely enter into the wick tube. The valve 18 is vertically movable on the wick tube 15 and has a slot 20, one edge of which is formed into a rack 21 to be engaged by a pinion 22, the operating shaft 23 of which carries a finger piece 24, the rotation of which will result in raising and lowering the valve tube 18, as will be readily understood. It will therefore be seen that when the valve tube 18 is raised from the position shown in Fig. 2, the dead space 18' disposed below the openings 19 of the valve tube, will gradually shut off the apertures 16 of the wick tube, commencing with the lowermost thereof, and until all of said openings have been closed and consequently further admission of alcohol into the interior of the wick tube is prevented.

Referring now to the upper end, or burner portion of the device, and referring to Fig. 2, it will be seen that the central boss carries a jet ring 25 closely fitting the outside of the valve tube 18 and having at a point intermediate its ends an enlarged portion 26 to form an annular chamber 27 which is normally in communication with an annular gas receiving chamber or space 28 inclosed at the top by a cap 29 and of a width substantially equal to the thickness of the valve tube 18.

The generation of gas in the receiving chamber 28 takes place primarily, or in other words, when the lamp is first started, as follows: The lower end of the jet ring 25 is shaped to form an annular trough 25' to receive a small quantity of alcohol which may be projected thereinto by a pump mech-



anism comprising a cylinder 30 having side openings 31 and containing a piston 32 from which a tubular piston rod 33 extends upward and passes through a bearing 34 which  
 5 is in screw threaded engagement with a nut 35 secured to the cover 11, and which may be unscrewed so as to leave an opening at this point for the purpose of filling the font. The piston 32 and tubular rod 33 may be  
 10 rotated in the cylinder 30 and bearing 34, respectively, and the upper end of the tube 33 is bent outwardly from the center so that when the tube is in the position shown in Fig. 2 the outlet 36 of said tube will project  
 15 over the trough 25', and alcohol will therefore be thrown into said trough by the downward movement of the piston and its tube. A button 37 is provided at the top of the tube for its manipulation and, as previously  
 20 stated said tube and piston may be rotated to bring the button into position shown by dotted lines 37' to remove the button 37 and outlet 36 from its position above the trough so that the alcohol in the trough may  
 25 be ignited without injuring said button or the tube.

When the alcohol in the trough 25' is ignited, it will naturally heat the lower portion of the jet ring 25, and the heat thus  
 30 generated will be transmitted through the valve tube 18, to the wick tube 15, and in order to prevent the heat of both of these tubes from traveling downward and into the font, means are provided whereby the  
 35 full continuation of the tubes longitudinally into the font will be interrupted. For this reason the wick tube 15 is cut as indicated at *a* (see Fig. 4) so as to leave only very small connecting walls *a'* which unite the upper  
 40 and lower sections of the tube 15, it being evident that in this manner the lower portion of the tube 15 will be preserved comparatively cool compared with the upper portion thereof. In a like manner the valve  
 45 tube 18 is cut at *b* to leave comparatively small connecting portions *b'* so that in this manner the heat will be prevented from traveling from the upper portion of the tube 18 into the lower portion thereof.

50 As above stated, the upper part of the jet ring tube 15 constitutes a receiving chamber for the gas which is generated by the application of heat in the upper end of the wick tube 15, and one of the essential features of  
 55 my present invention consists in the improved construction of the shutter or valve tube 18 whereby the flow of gas from said generating chamber to the jet openings may be regulated as desired and so as to increase  
 60 or decrease the flame somewhat after the manner of an ordinary gas stove or burner. Particular attention is also invited at this time to the fact that contrary to the general construction of vapor lamps in common use,  
 65 the valve tube is disposed between the gas

supply and the jet openings so that the amount of gas admitted to said openings can be regulated. In order to produce this result I preferably provide at the upper end  
 70 of the valve tube 18 a series of recesses which are gradually increasing in depth as they approach the upper end of the tube. This construction is particularly illustrated in Fig. 3 in which said recesses are denoted by  
 75 the numeral 40 and have their greatest depth at the end of the tube while they gradually grow shallower until the bottoms of the recesses join the outer periphery of the valve tube, these recesses being coöperative for permitting the entrance of gas  
 80 therethrough, with the edge 41 of the jet ring chamber 26 so that in the device shown in the drawings a vertical movement of the valve tube 18 for an amount equal to that indicated by *g* in Fig. 3 will result in re-  
 85 ducing the flow of gas through said recess from a free and full amount to its entire shut off.

It will, of course, be understood that when the parts are in the position shown in Fig.  
 90 2 and the gas passing through the apertures or jet openings 42 is ignited, then the jet ring tube 25 will naturally be heated by the flames, and the heat thus generated will be transmitted through the valve tube 18 to  
 95 the upper end of the wick tube 15, so that a continuous generation of gas will take place in proportion to the size of the flame issuing from the jet openings which, as above stated, will be entirely controlled by  
 100 the position of the valve tube which at the same time controls the admission of alcohol into the bottom of the wick tube, as previously described.

Many changes may be made in the construction and organization of the several  
 105 parts without departing from the spirit of the invention.

I claim:

1. The combination with a font, a wick  
 110 tube carried thereby, and a jet ring having jet-openings and surrounding the upper portion of said wick tube to leave an annular space for the accumulation of gas, of a tube interposed between said wick tube and said  
 115 jet ring for controlling the admission of gas from said space to said jet-openings.

2. The combination with a font, a wick tube carried thereby, and a jet ring having  
 120 jet-openings and surrounding the upper portion of said wick tube to leave an annular space for the accumulation of gas, of a tube having at its top a recess gradually increasing in depth toward the end of said tube for controlling the admission of gas from said  
 125 space to said jet-openings.

3. The combination with a font, a wick tube carried thereby, and a jet ring having  
 130 jet-openings and surrounding the upper portion of said wick tube to leave an annular



space for the accumulation of gas, of a tube interposed between said wick tube and said jet ring for controlling the admission of gas from said space to said jet-openings, and means for actuating said tube.

4. The combination with a font, a wick tube carried thereby and having an aperture to permit the passage of fuel from the font into said wick tube, and a jet ring having jet-openings and surrounding the upper portion of said wick tube to leave a space for the accumulation of gas, of a valve tube co-operative with said wick tube and the jet ring and for controlling the admission of gas from said space to said jet-openings and also for opening and closing said aperture.

5. The combination with a font, a wick tube carried thereby and having an aperture disposed intermediate its ends to permit the passage of fuel from the font into the interior of the wick tube, and a jet ring having jet-openings and surrounding the upper portion of said wick tube to leave a space for the accumulation of gas, of a valve tube surrounding said wick tube and having near its end a slot for uncovering said aperture, and means for moving said valve tube for shutting off the supply of gas to said jet-openings and simultaneously closing the aperture in the wick tube.

6. The combination with a font, a wick tube carried thereby and having a series of superposed apertures to permit the passage of fuel from the font into said wick tube,

and also having a dead space below said apertures, and a jet ring having jet-openings and surrounding the upper portion of said wick tube to leave a space for the accumulation of gas, of a valve tube interposed between and contacting with said jet ring and the wick tube and having near its bottom a slot uncovering the apertures in the wick tube, and means for moving said valve tube relatively to the wick tube and the jet ring for gradually closing the apertures in the wick tube and simultaneously gradually shutting off the supply of gas to said jet-openings.

7. The combination with a font, a wick tube carried thereby, and comprising a fuel receiving portion and a gas generating portion, means for reducing the transmission of heat from the gas generating portion to the fuel receiving portion, and a jet ring surrounding the upper portion of said wick tube to leave a space for the accumulation of gas, of a valve tube interposed between the wick tube and the jet ring and closely contacting with said tube and said jet ring to transmit heat from the jet ring to the upper portion of said wick tube, and means for reducing the transmission of heat from the upper portion of said valve tube to the lower portion thereof.

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Witnesses:

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