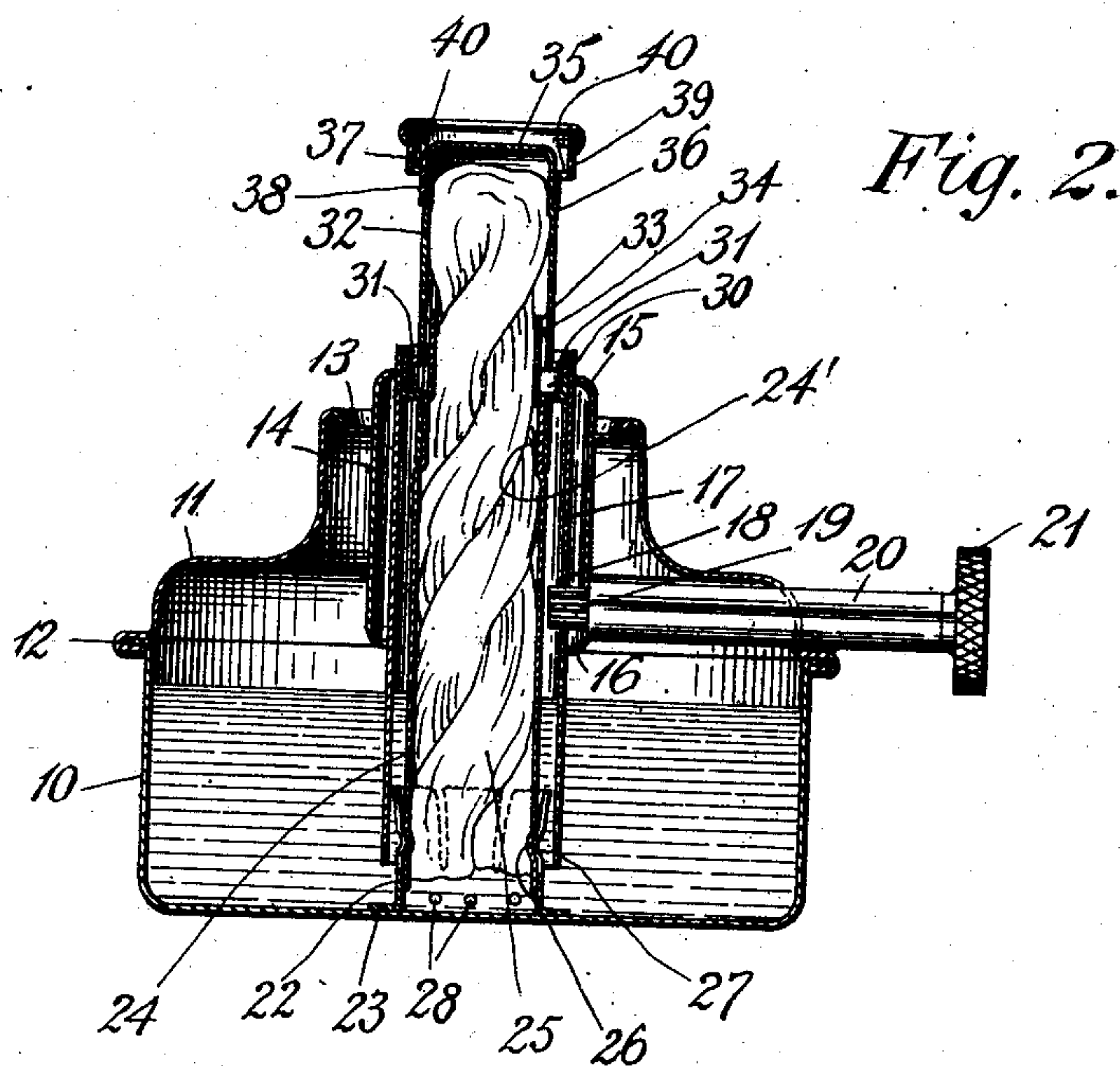
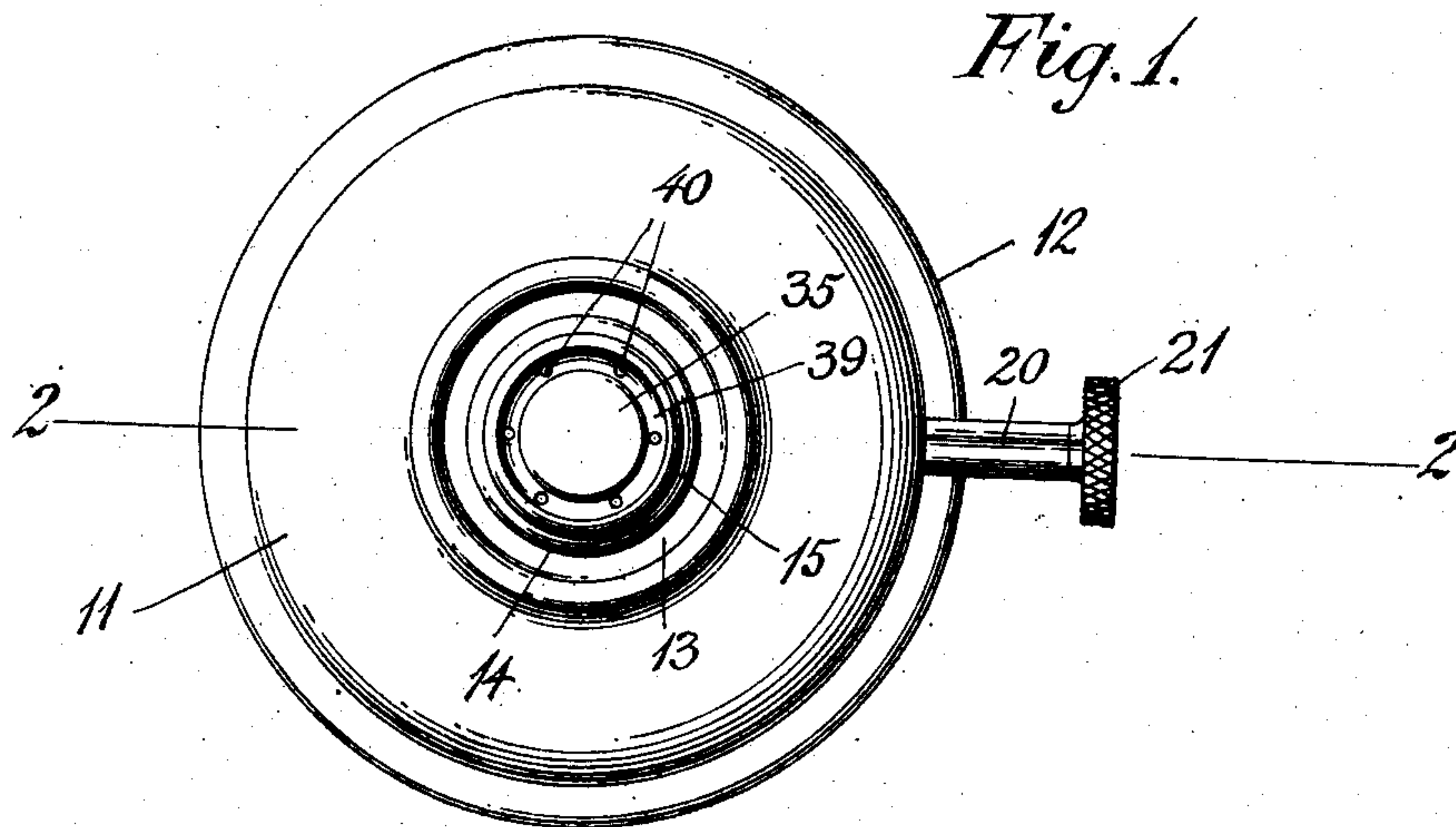


H. C. WRIGHT.
VAPOR BURNER.
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994,436.

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WITNESSES:

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VAPOR-BURNER.

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Specification of Letters Patent.

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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-Burners, 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, and it has for one of its objects, the provision of such a device in which the alcohol is automatically converted into gas which when ignited will continue the gas-forming operation.

The invention has, furthermore, for its object certain improvements in the construction and operation of the device as will hereinafter appear.

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

Figure 1 is a top view of a vapor lamp embodying my improvements, and Fig. 2 is a central vertical section thereof on line 2, 2 of Fig. 1.

Briefly stated, my improved vapor lamp comprises a fountain, or reservoir, for the reception of alcohol, or similar liquid, which is transferred into the upper part of the burner portion of the device by a wick in a tube, the upper end of which constitutes a gas-generating chamber, and which may be heated for the purpose of generating gas as long as the burner is in active operation irrespective of the degree of heat generated by the flame.

Referring to the drawings, 10 denotes a fountain base for the reception of the alcohol, or fuel. Tightly secured to the upper lamp portion of said reservoir is a cover 11 which is beaded as at 12 around the flange of said reservoir and the upper portion of which is slightly dished as at 13 to form, in connection with a guide-tube 14, an annular trough into which alcohol may be placed and lighted for the purpose of starting the generation of gas in the burner section of the device.

The guide-tube 14 is tightly sealed to the bottom of the dished portion 13 and its upper and lower ends are flanged inwardly as at 15 and 16, respectively, to serve as guiding means for a shutter 17 which is adapted

for vertical movement therein as controlled by a rack 18 and pinion 19 which latter is secured to a stem having a bearing in a tube 20 and provided at its outer end with a knurled finger piece 21.

From the foregoing, it is evident that by virtue of the comparatively long bearing of the tube 14 above referred to, said shutter will be guided without danger of deflection.

Disposed in the center of the fountain and secured to the base thereof is a thimble 22, the lower end of which is flanged as at 23 and secured to the base of the fountain; while its upper end is preferably slitted and bent outward as illustrated in Fig. 2 to provide a series of resilient prongs adapted to engage the lower end of the wick tube 24 of the device, this tube having a wick 25 whereby the alcohol is carried into the upper part of said tube. In its preferred construction, the thimble 22 has an annular internal projection 26 adapted to engage a groove 27 formed in the lower part of the wick tube so that in this manner both of these elements will be held together, while at the same time, the wick tube may be readily removed therefrom when required. Alcohol may be admitted into the interior of the thimble 22 by means of perforations 28 disposed near the bottom thereof.

The wick tube extends upward and above the guide-tube 14, and is provided with an annular chamber, or jet ring 30 which may be formed in any desired manner and which is provided with a series of perforations which permit the gas generated within the upper portion 32 of the wick tube to escape therethrough. Inasmuch as under ordinary circumstances, the wick will, by virtue of its absorption of the alcohol, swell so as to substantially fill the interior of said wick tube, means are provided whereby this expansion, or swelling of the wick will be restricted so as to leave a clear space through which the gas formed in the upper portion of the wick tube may pass downward into the chamber of the jet ring 30. In the preferred form thereof shown, the wick tube consists of the lower section 24 which is slightly reduced in diameter as at 24' to receive on the outside thereof, the lower portion of the wick tube section 32 so that in this manner the sections 24 and 32 may be disassembled when desired. By referring to Fig. 2, it will be noted that the lower wick tube 24

is, at a point just below the jet ring 30, slightly contracted so as to be of a diameter smaller than the inner diameter of the upper wick tube section 32 so that in this manner this reduced portion 33 will leave an annular space 34 between it and the interior of the wick tube section 32, and it is this space which is in communication with the interior of the jet ring 30.

10 The upper portion of the wick tube section 32 is closed by the top plate 35 which may be secured to the tube section 32, or may form a part thereof. The uppermost portion of the tube section 32 is also slightly reduced in diameter to form what might be termed a shoulder 36 which is adapted to serve as a stop for properly positioning a cap 37 which surrounds the uppermost portion of said section and which consists of a shank 38 fitting on the reduced portion 36 and having a flanged top 39 which is provided with a series of perforations 40. The outer diameter of the flange 39 is substantially equal to the inner diameter of the shutter 17 so that when said shutter is raised, the flame resulting from the gas issuing through the ports 31, may be gradually shut off, it being evident that when said shutter is high enough to project over the flange 39, said flame will have ceased to exist, but a gas chamber will have been formed between the outer surface of the wick tube and the inner surface of the shutter, gas being permitted to enter said space through the ports 31 and out again through the ports 40, so that in this manner the gas which issues from the perforations 40 will constitute a "low flame" which, however, can only be extinguished either by being blown out, or else by other extraneous means not forming a part of the present device.

Attention is invited to the fact that the upper portion of the cap flange 39 is projecting above the upper plate 35 of the wick tube which construction has a tendency of concentrating the flame toward the center, or at least to prevent the same from spreading out as soon as it leaves the chamber.

The operation of the vapor burner is as

follows: The reservoir 10 being filled with alcohol and the shutter 17 being in its lowermost position, as shown in Fig. 2, alcohol may be introduced into the annular tray, or trough 13 and ignited. The heat generated by this alcohol flame will naturally heat the upper portion of the lamp and particularly the wick tube section 32, this heat being transferred to the interior of the tube which contains the alcohol-soaked wick, so that in this manner this alcohol will be converted into gas. Inasmuch as the top of the wick tube is closed, the gas generated therein will follow the easiest way of exit which in the present instance consists of the annular space 34, and thence enters into the jet ring 30 whence it may escape through the perforations or ports 31 where it will ignite and have a regular blast effect as practice has demonstrated. This blast effect may be gradually reduced by the upward movement of the shutter 17 until the flame may be entirely shut off below the cap 37 and the gas directed through the ports 40 of said cap which as above mentioned constitutes the "low flame" without any blast effect whatsoever.

Many changes may be made in the particular construction of some of the component elements of the device as well as in their particular mode of operation described and shown, without departing from the spirit of the invention.

I claim:—

The combination with a font, of a wick tube, means for holding said wick tube in the font, a jet ring carried by said tube, an open-top cap surrounding the uppermost portion of the wick tube and having a flange provided with perforations, and a shutter disposed on the outside of the jet ring and movable into engagement with the outside of said flange to establish a gas conduit between said jet ring and the perforations in said flange.

HENRY C. WRIGHT.

Witnesses:

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