

H. C. WRIGHT.
VAPOR BURNER.
APPLICATION FILED NOV. 1, 1909.

990,327.

Patented Apr. 25, 1911.

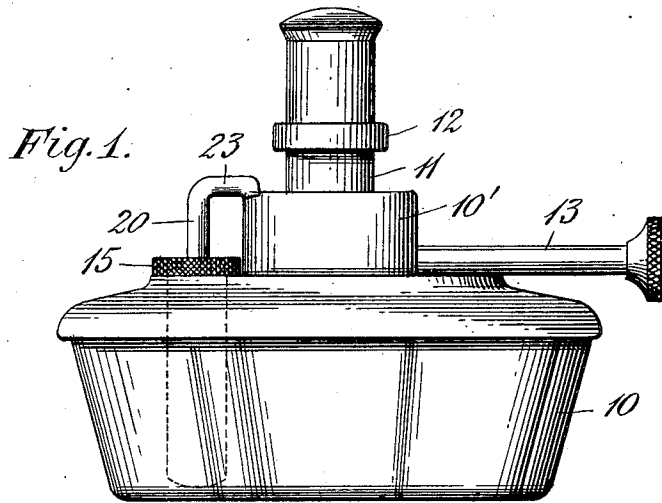


Fig. 3.

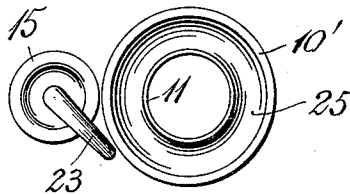
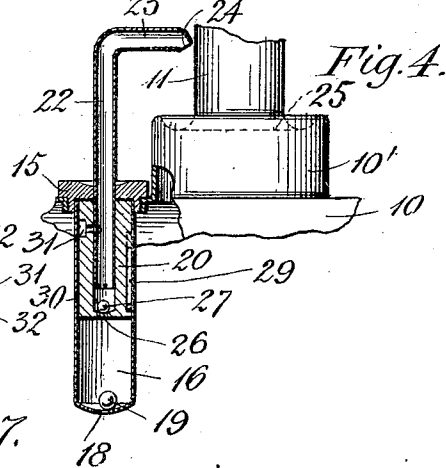
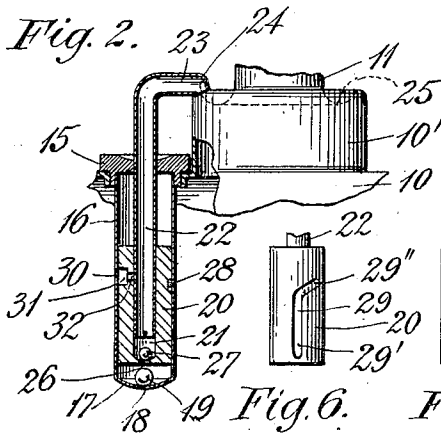
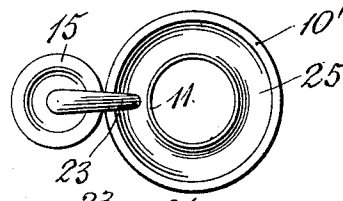


Fig. 5.



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VAPOR-BURNER.

990,327.

Specification of Letters Patent.

Patented Apr. 25, 1911.

Application filed November 1, 1909. Serial No. 525,630.

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 burners, and more especially to that class thereof which are used for the purpose of heating coffee-percolators, tea-machines, chafing dishes, etc., and in which alcohol constitutes the fuel.

The present invention has for one of its objects, the provision of improved priming means, by which term is meant a mechanism for bringing a small quantity of the fuel liquid from the reservoir, or font, into what is generally known as the priming groove which surrounds the burner tube proper, said alcohol being ignited to generate heat so as to vaporize the alcohol in the burner tube sufficiently to start the burner into automatic gas-generating action.

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

Figure 1 represents a side view of a vapor burner embodying my invention. Fig. 2 represents a vertical sectional view of a portion of the device, and particularly of the priming mechanism, the latter being shown in its lowermost position. Fig. 3 is a top view of the parts shown in Fig. 2. Figs. 4 and 5 represent, respectively, views similar to Figs. 2 and 3, the parts, however, being in their raised position. Fig. 6 is a side view of the piston of the priming device, and Fig. 7 is a view representing the other side thereof.

Briefly stated, my present invention comprises a device which may be bodily attached to the font of the burner so as to be removed therefrom when desired. The device itself includes a piston having an upwardly projecting tube through which, when the piston descends, fuel liquid will be forced into the priming groove, while at the same time during the last portion of its downward movement said piston and tube will be deflected so as to leave the priming groove entirely free and unobstructed. From the forego-

ing, it will be understood that when the alcohol in the groove is ignited all liability of the feed tube becoming heated will be naturally avoided.

Referring to the drawings, the numeral 10 denotes the font of a burner which may be of any desired construction.

11 represents the burner tube with the usual jet ring 12, and 13 denotes the stem whereby the flame may be regulated either by means of shutter or by a valve as is common in devices of this nature.

Secured in the shell 10 and preferably in screw threaded engagement therewith is a thimble 15 (see Fig. 2) which carries at its underside and projecting into the font a cylindrical tube 16 having a bottom plate 17 provided with an aperture 18 through which liquid may rise into said tube. Under ordinary conditions, said aperture 18 is closed by a ball-valve 19.

Mounted for vertical movement in the tube 16, is a piston 20 having a central longitudinal channel 21 into which projects a feed tube 22, the upper end of which is bent, as shown at 23, and has an outlet 24 which, when the piston is in its highest position as shown in Fig. 4, will be adjacent the burner tube 11 and over the priming groove 25 in the mouth-member 10'. The lower end of the piston 20 is provided with an aperture 26 which is normally closed by a ball-valve 27, so that, when the piston is raised from the position shown in Fig. 2 to that shown in Fig. 4, said ball-valve 27 will act as a check valve, and the piston can, therefore, suck in fuel liquid through the aperture 18 past the ball-valve 19 which will naturally yield to the intruding liquid and permit the lower portion of the cylinder to be filled. The piston 20 is preferably gravitative so that when it is desired to put fuel liquid into the priming groove 25, all that will be necessary for the operator will be to raise the piston by grasping the upper portion of the feed tube 22 until the position shown in Fig. 4 has been reached. When now, said tube is released, the piston will gravitate, the ball-valve 19 will close the aperture 18, therefore, preventing the fuel liquid below the piston and in the lower end of the cylinder 16 from escaping back into the font, while the ball-valve 27 will be pushed from its seat and out of the way of the liquid

which tries to force its way into the feed tube 22. Now, inasmuch as the area of the feed tube 22 is comparatively small when compared with the area of the cylinder, it follows that the liquid displaced by the descent of the piston 20 will more than fill the feed tube 22 and project a sufficient quantity of liquid through the opening 24 and against the burner tube 11, so that all spattering will be avoided.

Experience has demonstrated the fact that it is very desirable to prevent the transmission of heat on to the font as far as possible. With this end in view, it is one of the objects of the present invention to bring the feed tube out of reach of the burning alcohol in the priming groove, and I accomplish this result preferably by imparting to the feed tube, or more particularly speaking, to the uppermost bent portion thereof, a rotative or turning movement whereby said bent projection will be turned sidewise to leave the priming groove entirely free and unobstructed, and consequently to expose the burner tube to the full benefit of the heat generated by the burning alcohol.

While many different devices and means may be employed to accomplish this result, I prefer the organization and mechanism shown in Figs. 2, 6 and 7 in which it will be noted that the shell of the cylinder 16 is provided with an inwardly projecting pin 28 which is adapted to ride in a cam groove 29 in the piston 20. The lower portion 29' of the cam groove 29 is disposed vertically and in longitudinal alinement with the axis of the piston, so that when the latter moves from its uppermost position shown in Fig. 4 toward the lower position shown in Fig. 2, no turning movement of the feed tube 23 will result, so that consequently, the fuel liquid will be projected against the burner tube 11, and thence fall into the priming tube, as will be readily understood. When the piston has nearly arrived at its lowermost position, the pin 28 will, by virtue of the cam-slot 29'', cause said piston to turn axially, and, therefore, swing the bent portion of the feed tube sidewise and away from the priming groove, and in order to prevent any liquid from being forced through said feed tube during the last part of the downward movement of the piston, and while the extension 23 of the feed tube 22 will be swung sidewise and away from the priming groove, means are provided whereby feeding of the liquid through said tube will be stopped as soon as the piston has descended far enough to bring the pin 28 into position at the joint of the groove 29' with the lateral extension 29'' thereof. By referring to Fig. 2, it will be noticed that the cylinder 16 is provided with an aperture 30 which is adapted to communi-

cate with the recess 31 in the piston when the latter has arrived at nearly its lowest point, and said recess is connected with the interior of the feed tube 22 by means of a passage 32. Hence, it will be seen that as soon as the recess 31 and the aperture 30 come into register, the liquid passing through the bottom of the feed tube 22 will find exit through said passage 32 and recess 31, and thence through the aperture 30. Furthermore, this construction will permit the column of liquid standing in the vertical portion of the tube to drain back into the font.

Many changes may be made in the particular construction and organization of the several elements constituting the present invention, without departing from the spirit thereof.

I claim:—

1. A vapor burner comprising a font having a priming groove, a burner tube adjacent thereto, and a gravitative device secured to and projecting into the font and having an extension passing over the priming groove for transferring fuel liquid from the font into the priming groove, and means for automatically withdrawing said extension from the priming groove by the downward movement of said device.
2. The combination with a vapor burner comprising a font having a priming groove, and a burner tube adjacent thereto, of a cylinder held in said font, a piston movable therein, a feed tube secured to and movable with said piston and extending over said priming groove, a check valve in the cylinder for admitting fuel liquid from the font into the lower end of said cylinder, and means for partially rotating the piston with the feed-tube during the descent of the piston.
3. The combination with a font having a priming groove, of a cylinder projecting into and removably held in the font, an inlet opening in the bottom of said cylinder, means for normally closing said inlet opening, a piston movable in said cylinder, a feed tube carried by said piston, and having an aperture at its bottom to communicate with the interior of the cylinder, a check valve for controlling the passage of liquid from said feed tube into the cylinder, said feed tube having a bent portion projecting over said priming groove, and means for partially rotating said piston during the descent thereof.
4. The combination with a font having a priming groove, of a device removably held in the font, and comprising a cylinder, means for checking the passage of liquid between the interior of the font and the cylinder, a piston movable in said cylinder, a feed tube projecting into said cylinder and having its upper end projecting over said prim-

ing groove, and means for turning said piston with the feed-tube during the descent thereof.

5 5. The combination with a font having a priming groove, of a device for feeding liquid from the font into said priming groove, said device comprising a cylinder, a piston movable therein, and a feed tube connected with said piston and having its upper
10 end projecting over the priming groove, and means for withdrawing said feed tube away from the priming groove by the downward movement of the piston.

15 6. The combination with a font having a priming groove, of a device for transferring liquid from the font into said priming groove, said device comprising a cylinder, a piston movable therein, a feed tube connecting the lower end of said cylinder and the
20 priming groove, and means for establishing direct communication between the feed tube

and the font when said piston is in its lowermost position.

7. The combination with a font having a priming groove, of a device for transferring 25 fuel liquid from the font to said priming groove, said device comprising a vertically disposed cylinder, a gravitative piston movable therein, and a feed tube carried by said piston and movable therewith and having its 30 upper end projecting over said priming groove, a valve for controlling the passage of liquid between the font and said feed tube, and means for rotating the piston to withdraw the end of the feed-tube from the 35 priming groove near the end of the descent of the piston.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
