

T. YATES.
VAPOR TORCH.
APPLICATION FILED MAY 28, 1909.

957,292.

Patented May 10, 1910.

2 SHEETS—SHEET 1.

Fig. 1

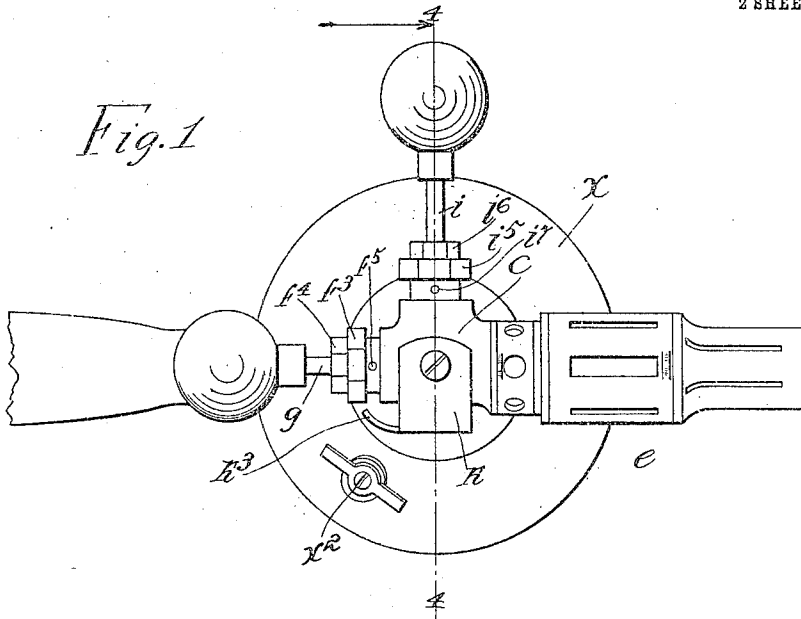
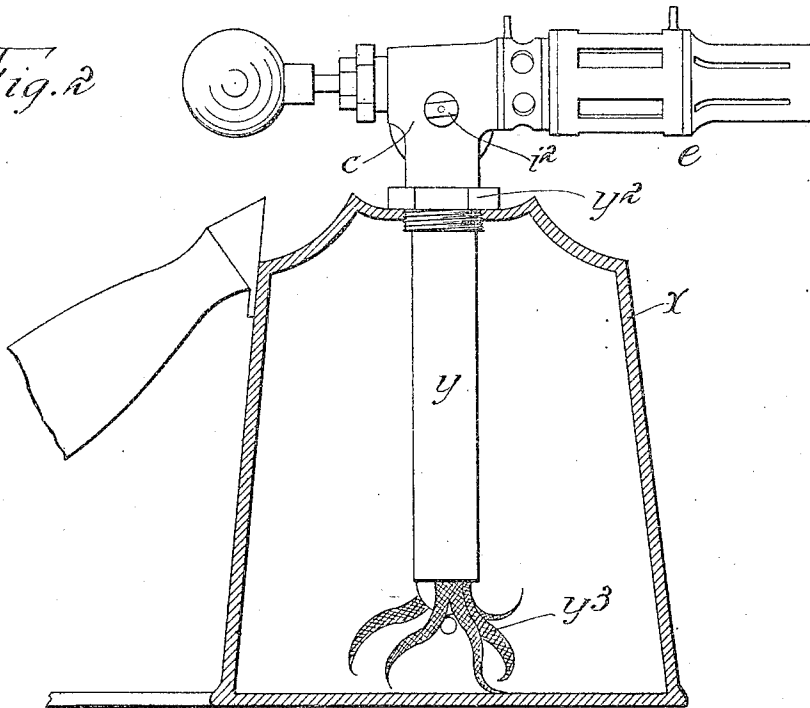


Fig. 2



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2 SHEETS—SHEET 2.

Fig. 3

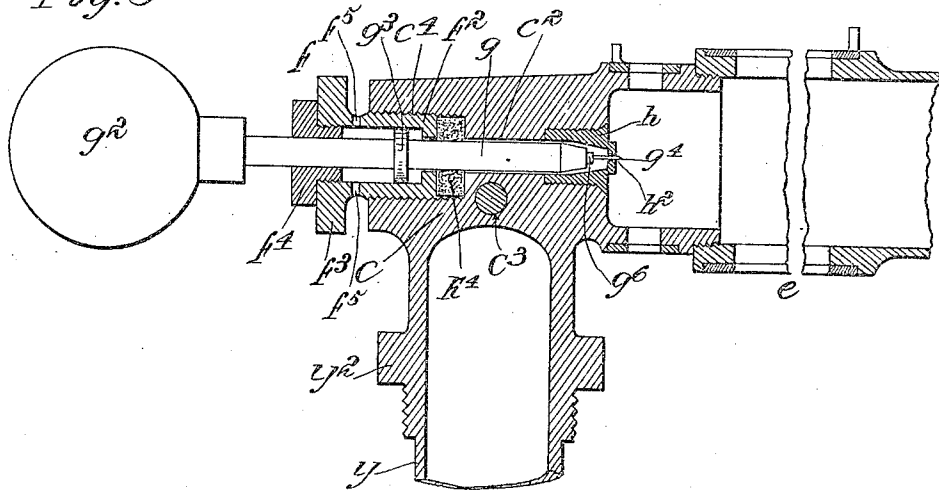


Fig. 4

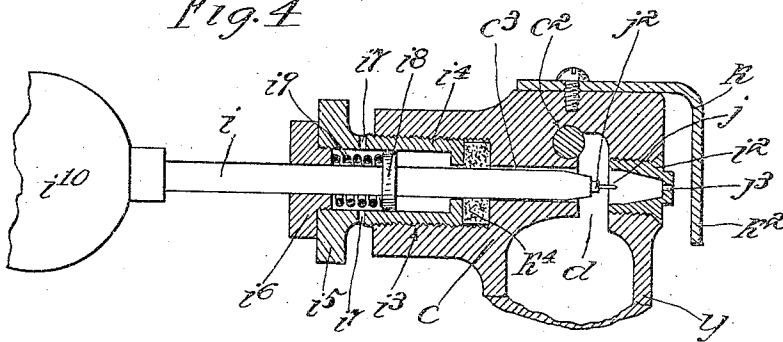
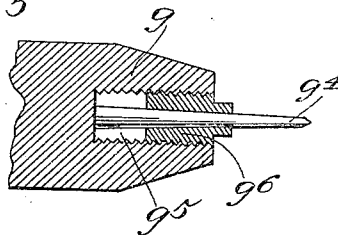


Fig. 5



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THOMAS YATES, OF SUNNYHURST, DARWEN, ENGLAND.

VAPOR-TORCH.

957,292.

Specification of Letters Patent.

Patented May 10, 1910.

Application filed May 28, 1909. Serial No. 498,863.

To all whom it may concern:

Be it known that I, THOMAS YATES, a subject of the King of Great Britain, and residing at Sunnyhurst, Darwen, in the county of Lancaster, England, have invented certain new and useful Improvements in Vapor-Torches, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to what are known as blow lamps, vapor torches and like devices; and the object thereof is to provide an improved device of this class which shall be safe in use and which employs a wick and is provided with facilities for inspection and replacement of the wick; a further object being to provide a device of the class specified which is so constructed that a small quantity of the volatile liquid employed is, in the operation of the device, withdrawn from the upper end of the wick and burnt in such manner as to heat the body of the device so that the spirit contained in the reservoir will be vaporized in order to start the flame or ignite the burner after which the production of vapor proceeds automatically in the ordinary way.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which—

Figure 1 is a plan view of a vapor lamp or torch involving my invention, Fig. 2 a side view of the device as shown in Fig. 1 but showing the reservoir in section, Fig. 3 a sectional side view of the body of the burner, Fig. 4 a section of the burner on the line 4—4 of Fig. 1, and Fig. 5 a sectional detail of a part of the construction shown in Figs. 3 and 4 and on an enlarged scale.

In the accompanying drawings x represents the body or reservoir of the lamp and y a wick tube which is passed through the top of the reservoir in the usual manner, and is secured therein by a suitable nut construction y^2 or in any other way. The wick tube y is provided with a loosely woven wick y^3 which is preferably stretched on a wire so as to be easily inserted and withdrawn, and said tube y is preferably formed integrally with the body c of the burner, in the form of construction shown, and the nut construction y^2 is formed on said wick tube, but said

wick tube may be made in any desired manner, and the burner may be connected with the wick tube, or the wick tube with the burner in any preferred way. The body c 60 of the burner is provided with a longitudinal bore or passage c^2 and with a transverse bore or passage c^3 at right angles to the bore or passage c^2 , and said bores or passages c^2 and c^3 are in communication with the wick 65 tube y by means of a port or passage d which bisects the bore or passage c^3 as clearly shown in Fig. 4.

The nozzle e of the burner is connected with one side of the burner c as shown in Fig. 3 and in line with the bore or passage c^2 and incloses the corresponding end of said bore or passage, and the opposite end of the bore or passage c^2 is enlarged and interiorly threaded to form a packing box chamber 75 as shown at c^4 in Fig. 3, and placed therein is a packing box f comprising a tubular gland member f^2 having a head f^3 closed by a threaded plug f^4 , and passed through said packing box and into and approximately 80 through the bore or passage c^2 is a valve stem g the outer end of which is provided with a handle or head g^2 , and within the packing box f the valve stem g is provided with a piston-shaped collar g^3 which is movable in the gland f^2 which forms a cylinder 85 therefor, and the outer end portion of said cylinder is provided with ports or passages f^5 . The nozzle end of the bore or passage c^2 is closed by a hollow conical nozzle plug 90 h having a small port or passage h^2 , and the end of the valve stem g is conical in form and provided with a needle g^4 adapted to pass through the port or passage h^2 and the bore or passage c^2 between the packing 95 box f and the plug h , and the interior bore of the plug h is of greater transverse dimensions than the valve stem g .

The construction of the needle g^4 and its connection with the valve stem g is clearly 100 shown in Fig. 5, and in this view it will be seen that the end of the valve stem is provided with a screw threaded socket g^5 in which is inserted a threaded plug g^6 , and the needle g^4 is tapered and passes through 105 a correspondingly tapered aperture in the plug g^6 , and by means of this construction the needle g^4 may be rigidly secured in the valve stem g or removed therefrom and replaced by a new one whenever desired, and 110 the needle g^4 may serve simply for the cleaning of said port or passage, or as a valve for

controlling the same. Passing through the bore or passage c^3 in the burner or burner body c is another valve stem i similar in all respects to the valve stem g . The bore or passage c^3 is closed at one end by a nozzle plug i^2 similar to the nozzle plug h , and the other end of said bore or passage is enlarged and interiorly threaded as shown at i^3 to form a packing box chamber and in which is placed a packing box consisting of a gland member i^4 having a head i^5 and the outer end of which is closed by a threaded plug i^6 , and the outer end portion of the gland member i^4 is provided with ports or passages i^7 , and the gland member i^4 forms a cylinder, and the valve stem i is provided within said cylinder with a piston-shaped collar i^8 between which and the plug i^6 is placed a spiral spring i^9 which operates to hold the valve stem i in its innermost position, and a needle j is connected with the stem i by a plug j^2 . The needle j of the valve stem i is constructed in the same manner as the needle g^4 and is connected with the valve stem in a similar way.

Secured to the top of the burner or burner body c is a plate k provided with a depending shield k^2 which has a backwardly directed and inwardly curved guard k^3 as shown in Fig. 1, and the operation of which will be hereinafter described.

The reservoir x is provided at x^2 with a filling orifice closed by a suitable plug or cap in the usual manner, and said reservoir, in practice, may be provided with a handle if desired by which the lamp or torch may be manipulated.

The nozzle part e of the burner may be of any preferred construction and of any desired form, and may be provided with means for admitting air thereto adjacent to the nozzle plug h and suitable devices for controlling the admission of the air.

The valve stem i is provided with a knob or handle i^{10} and the valve stems g and i may be manipulated by means of the handles g^2 and i^{10} and said valve stems may be drawn outwardly or forced inwardly and may also be rotated in this operation, but it will be understood that the valve stem i is normally in its innermost position and is held there by the spring i^9 so as to close the port or passage j^3 in the nozzle plug i^2 , and in order to open the port or passage j^3 the valve stem i must be drawn outwardly.

In the operation of this device, in order to ignite the burner to cause the formation of vapor in said burner sufficient to produce the required amount of heat, the valve stem i is drawn outwardly and the port or passage j^3 in the nozzle plug i^2 is opened. An ignited match is then held to the port or passage j^3 and sufficient vapor will escape from said port or passage to heat the burner or burner head when ignited.

The flame from the port or passage j^3 strikes the shield k and is deflected against the burner body and heats the same, and the volatile fluid in the reservoir and especially that part thereof which is raised to the upper end of the wick tube by the capillary action of the wick becomes heated and converted into vapor. At this time, the valve stem g is drawn outwardly and the vapor is allowed to escape from the nozzle plug h and this vapor is ignited by the flame from the nozzle plug i^2 , said flame being deflected by the guard k^3 . The valve stem i is then released and operates to close the nozzle plug i^2 and the vapor escapes through the nozzle plug h and into the nozzle e where it mingles with air in the usual manner and is ignited and burns at the end of the nozzle e the same as in other devices of this class. The bores or passages c^2 and c^3 as hereinbefore stated are larger than the valve stems g and i , and the apertures in the inner ends of the cylindrical portions of the packing boxes through which said valve stems pass are also preferably slightly larger than said valve stems, and both of said packing boxes are provided with packings k^4 so as to close the said bores or passages around said valve stems, and these packings may be compressed by screwing in the cylindrical portions of the packing boxes. It is possible however that in the operation of the device the vapor or liquid hydro-carbon may escape along the valve stems into the cylindrical portions of the packing boxes, and the ports or passages j^5 and i^7 in said cylindrical portions of said packing boxes permit of the lubrication of the pistons and the inlet and outlet of air in the operation thereof. It will also be apparent that the piston-shaped collars g^3 and i^8 on the piston stems g and i are designed to limit the longitudinal movement of said valve stems and in an addition thereto the piston-shaped collar i^8 on the valve stem i enables the spring i^9 to hold said valve stem in position to close the port or passage j^3 in the nozzle plug i^2 .

My invention is not limited to the exact details of the construction herein shown and described, and various changes therein and modifications thereof may be made, within the scope of the appended claims, without departing from the spirit of my invention or sacrificing its advantages.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a blow lamp, a burner provided with a wick tube, the body of the burner being provided with horizontal bores or passages which extend therethrough at right angles to each other and are in communication with each other and with the wick tube, said bores or passages being provided at one end with nozzle plugs, one of which is inclosed

by a nozzle tube and serves as a main burner nozzle, and the other of which serves as an initial heating nozzle, a shield plate secured to the body of the burner in front of the initial heating nozzle and adapted to deflect the flame therefrom against the body of the burner, and valve rods passed into said bores or passages and provided with needle valves adapted to control said nozzle plugs.

2. In a blow lamp, a burner provided with a wick tube, the body of the burner being provided with horizontal bores or passages which extend therethrough at right angles to each other and are in communication with each other and with the wick tube, said bores or passages being provided at one end with nozzle plugs, one of which is inclosed by a nozzle tube and serves as a main burner nozzle, and the other of which serves as an initial heating nozzle, a shield plate secured to the body of the burner in front of the initial heating nozzle and adapted to deflect the flame therefrom against the body of the burner, and valve rods passed into said bores or passages and provided with needle valves adapted to control said nozzle plugs, said valve rods being rotatable and longitudinally movable.

3. In a blow lamp, a burner provided with

a wick tube, the body of the burner being provided with horizontal bores or passages which extend therethrough at right angles to each other and are in communication with each other and with the wick tube, said bores or passages being provided at one end with nozzle plugs, one of which is inclosed by a nozzle tube and serves as a main burner nozzle, and the other of which serves as an initial heating nozzle, a shield plate secured to the body of the burner in front of the initial heating nozzle and adapted to deflect the flame therefrom against the body of the burner, and valve rods passed into said bores or passages and provided with needle valves adapted to control said nozzle plugs, said valve rods being rotatable and longitudinally movable, and the valve rod, the valve of which controls the initial heating nozzle plug being provided with a spring which holds its valve normally seated.

In testimony that I claim the foregoing as my invention I have signed my name in presence of the subscribing witnesses this seventeenth day of May 1909.

THOMAS YATES.

Witnesses:

ERNEST JAMES RILEY,
JOHN ROBERT WATSON.