No. 724,973. PATENTED APR. 7, 1903.

W. TURES.

VAPOR BURNING LAMP.

APPLICATION FILED FEB. 15, 1902.

NO MODEL.

Fig. 1.

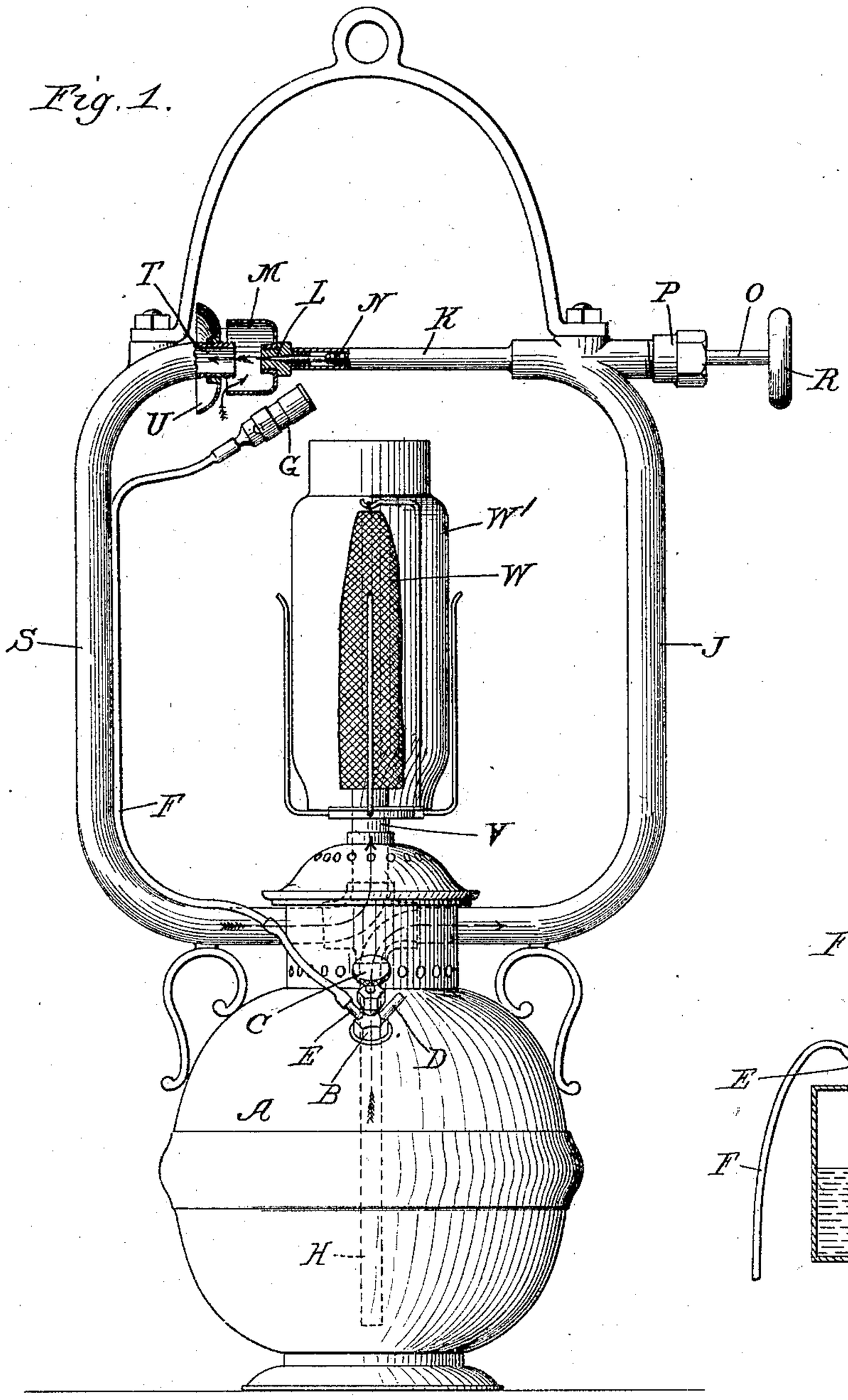


Fig. 2.

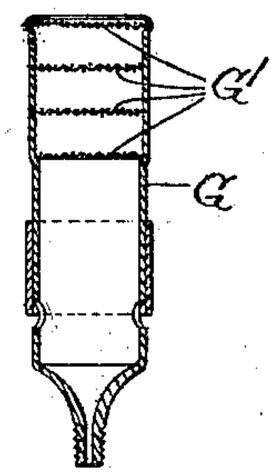
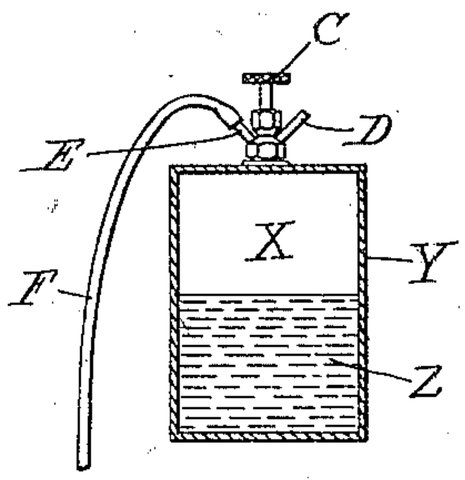


Fig. 3.



Witnesses.

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UNITED STATES PATENT OFFICE.

WILLIAM TURES, OF GRANVILLE, ILLINOIS, ASSIGNOR OF ONE-HALF TO STEPHEN B. DEXTER, OF POLO, ILLINOIS.

VAPOR-BURNING LAMP.

SPECIFICATION forming part of Letters Patent No. 724,973, dated April 7, 1903.

Application filed February 15, 1902. Serial No. 94,219. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM TURES, a citizen of the United States, residing at Granville, in the county of Putnam and State of Illinois, have invented a certain new and useful Improvement in Vapor-Burning Lamps, of which the following is a specification.

My invention relates to lamps, and particularly to means for converting a hydrocarbon liquid into a gas for burning. It relates, however, to other results and objects, as illustrated in the accompanying drawings, wherein—

Figure 1 is a side view of a lamp containing my invention, but with parts broken away. Fig. 2 is a detailed view of the nozzle, and Fig. 3 is a diagrammatic view illustrating a modification.

Like parts are indicated by the same letter in all of the figures.

A is the body of the lamp, the lower portion of which is to be filled with the liquid, and this may be done by removing the plug B. This plug preferably contains a valve C and two ways D E, connected therewith. The valve C is adapted to be operated to close or open either or both of these ways. Any sort of valve suitable for this purpose can be employed. Moreover, two valves could be employed, one to control each way.

F is a tube leading from the way E and terminating in the nozzle G, which preferably has the mesh diaphragm G′. The nozzle G also has the apertures G^2, controlled by the sliding thimble G^3, so that a variable quantity of air can be admitted therethrough.

H is a pipe, shown in dotted line as within and extending to the bottom of the lamp-body A. This pipe is shown in the same vertical plane as the plug B; but it is placed, preferably, in the middle of the lamp, so as not to interfere with said plug. It extends up and forms one side J of the frame and continues to a point above the burner K, where it finally terminates in the discharge-aperture L, surrounded by the cup M. This discharge-aperture is controlled by the valve N on the end of the valve-rod O, which passes through the stuffing-box P and is controlled by the handle R.

S is the side frame of the lamp opposite the tube J, but is preferably a similar tube, and is provided with an end T, which opens within the cup M and which is surrounded by the flange U. This flange is movable on the end T, so as to vary the distance between it and the edge of the cup M, and thus vary the amount of air drawn into the cup by the action of the gas which is discharged through the aperture L and rushes into the tube S. The tube S terminates in the burner V, preferably provided with the usual accessories, such as mantle W and chimney W′.

In Fig. 2 I have indicated that the pipe F instead of passing upwardly from the gas-chamber in the upper part of the lamp-body A may pass downwardly from the gas-chamber X in the upper part of the reservoir Y, the lower part of which forms the fluid-chamber Z.

I have simply shown the application of my invention to a somewhat familiar form of lamp; but it may be applied to many kinds of lamps or to burners intended for heating and not for illuminating purposes. I have also endeavored by the diagram of Fig. 3 to suggest that the arrangement of the parts may be varied, though I think the operation will be more efficient where the gas is passed through the pipe F under pressure, as in the case of the device of Fig. 1. I have shown here the means for taking the gas generated in the body of the lamp or the air charged with combustibles directly to the point where the combustion thereof is to take place; but it will be equally evident that this result might be accomplished by any direction. The point is that the products of the commingled air and gas in the lamp-reservoir are used to effect the heating of the liquid which is intended to effect the lighting of the lamp when this gas begins to flow therethrough.

The use and operation of my invention are as follows: If the lamp is constructed as shown in Fig. 1, the plug will be removed and the reservoir will be filled approximately half-full of hydrocarbon—as, for example, gasolene. The plug will now be screwed in and the valve C will be manipulated so as to open the way D only. An air-pump is now applied to the way D and the reservoir is charged with air to any desired and the proper pres-

sure. The valve C is now manipulated to close the way D and the lamp is ready for use. When it is desired to use the lamp, the valve C is manipulated so as to open the connection from the way E through the pipe F to the nozzle G. The air charged with the vapors of the hydrocarbon rushes to the nozzle G because of the pressure, and as it rushes out it can be lighted by a match. The cross-piece K is directly beyond the nozzle G, and the effect of the heat from the flame is to heat the contents of the pipe K, thus converting the same into gas. By now manipulating valve R the aperture L may be opened, and the gas formed from the gasolene will rush through (in the manner indicated by the arrows) the pipe S and up to the burner V, where it is lighted by the flame at the nozzle G. The heat from the lamp proper now serves to continue the formation of the necessary gas in the pipe K. The valve C may now be manipulated to cut off the supply of charged air passing out the nozzle G.

As previously suggested, it would be desirable in certain cases and in any event would be practicable to draw the gas through by other means, and the pressure could be dispensed with, the reservoir being placed above the burner, as suggested by Fig. 3.

It will be observed that where I provide for the application of pressure to the gas-chamber such pressure is intermittently applied and is therefore variable. Thus the pressure is applied by pumping the air into the lamp chamber or body until a certain pressure (sometimes as high as sixty pounds) has been obtained. Then as the lamp is used this pressure of course diminishes. Moreover, when the air is first pumped in such air is comparatively lightly charged with hydrocarbons; but as it remains longer in the lamp it becomes more richly charged; hence the necessity of the apertures G^2 and the controlling-thimble G^3 of the nozzle G, and hence also the need of the series of diaphragms in such nozzle. The thimble G^3 will be adjusted to limit the supply of air in such nozzle so as to make it properly adjust itself to the varying conditions of pressure and richness of hydrocarbons in the gas which passes into the nozzle. The nozzle is also provided with a relatively minute opening for the supply of gas.

I claim—

In a vapor-lamp having a reservoir adapted to contain air and a liquid hydrocarbon under variable pressure and variable quantities of hydrocarbon in the gas, the combination of a pipe leading from the liquid hydrocarbon to a point above the burner, a gas-generating chamber therein, a pipe leading thence to the burner, a starter-pipe leading from the air-chamber of the reservoir to a point near the burner and the gas-generating chamber, and a discharge-nozzle for the pipe, provided with first a minute supply-opening at one end, second a retarding device in the discharge end of such nozzle, and third air-inlets for such nozzle between the retarding device and the supply-inlet, and means for adjusting the area of such inlets so as to adapt the nozzle for the performance of its work without regard to the pressure in the lamp or the richness of the hydrocarbon in the air within the lamp.

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Witnesses:
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