May 4, 1943. F. L. PHILLIPS 2,318,327

JET LIGHTER

Filed Aug. 1, 1941

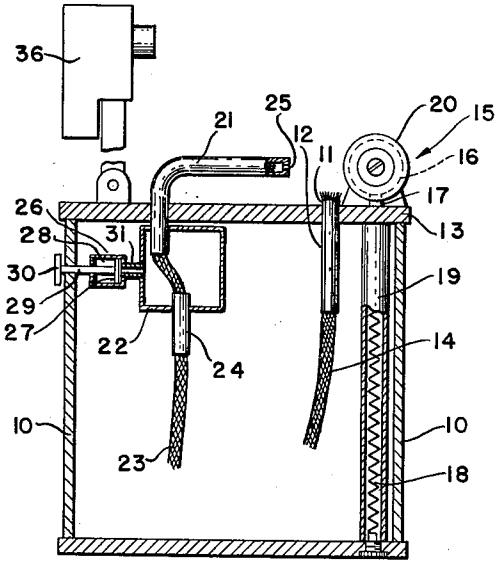


FIG. 1

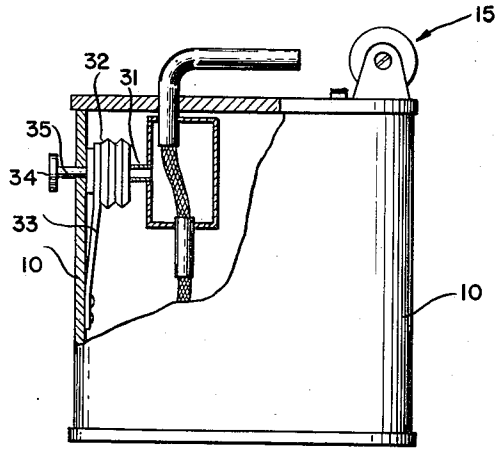


FIG. 2

FRANCIS LESLIE PHILLIPS
INVENTOR

BY
Carl E. Ring
ATTORNEY

Patented May 4, 1943

2,318,327

UNITED STATES PATENT OFFICE

2,318,327

JET LIGHTER

Francis Leslie Phillips, Beechurst, Long Island, N. Y., assignor to Beattie Products, Inc., New York, N. Y., a corporation of New York

Application August 1, 1941, Serial No. 404,959

3 Claims. (Cl. 67—7.1)

This invention relates to pocket lighters and is more particularly concerned with such lighters having both a jet flame and wick burner.

One of the objects of this invention is to provide an improved jet lighter in which means are provided for the immediate ignition of the jet flame and for the continuance of the jet flame, whether or not the wick burner continues to burn.

A further object of this invention is to provide a jet lighter in which the jet may be rotated to a position out of the path of the flame of the wick burner, and still maintain the flame of the jet.

In accordance with this invention, the jet lighter is employed on a pocket lighter of the usual construction, having a body containing a fuel storage compartment, a wick burner in communication with the fuel storage compartment and a sparking device for igniting the wick burner. A jet tube is positioned on the lighter so that one end terminates in a jet and lies within the path of the flame of the wick burner, to heat the fuel within the jet tube to cause a vapor to be forced from the jet by vaporization and expansion of the gas due to heat. A pressure compartment within the lighter and in communication with the jet tube is provided with mechanical means such as a pump or bellows to furnish immediate pressure to force vapor from the jet before and after generation of pressure due to heat. By reason of this novel pressure means a jet flame may be produced instantaneously without the usual delay of thirty seconds or more required in the lighters now in use. In addition, with the mechanical means for furnishing pressure the jet tube becomes independent of the wick burner after ignition and may be rotated to project a flame in other directions.

For a better understanding of this invention, reference is made to the drawing in which:

Figure 1 is a side elevational view partly in section showing my new jet lighter, and

Figure 2 is a side elevational view also partly in section showing a detail.

In the form of the pocket lighter shown in Figure 1, the body 10 is in the form of a hollow chamber, and as such may be employed as a fuel storage compartment. The fuel storage compartment may be filled in the usual manner.

A wick burner 11, in the form of a tube 12, connecting with the fuel storage chamber, projects from the upper wall 13 of the body. A wick 14 within the tube 12, extending from within the fuel storage chamber to the upper portion of the tube serves as a wick burner 11. The lighter is also provided with a conventional sparking device 15, which consists of a striking wheel 16, which contacts the flint 17. The flint is pressed upwardly against the striking wheel 16 by means of a spring 18 within a tube 19. The striking wheel 16 is actuated by means of a knurled wheel 20 which is adapted to be operated by the thumb in the usual manner.

Also projecting from the upper wall of the body 10, and rotatably mounted thereon, is a jet tube 21, the lower portion of which communicates with a pressure compartment 22 located within the fuel chamber. Fuel is drawn from the fuel chamber into the pressure compartment by means of the wick 23 which extends from the fuel compartment through a tube 24 in the wall of the pressure compartment and into the jet tube, and along said tube to within a short distance of its outer end, at which point the jet tube is closed except for a small orifice or jet 25.

In order to produce pressure within the pressure compartment by reduction of volume, a manually operated pump 26 is provided as illustrated in Figure 1. This pump has a plunger 27 encased within the compression chamber 28, and mounted on a shaft 29 which may be operated manually from the outside of the body by movement of the handle 30. The compression chamber 28 is connected to the pressure compartment by means of the tube 31.

Another means for producing pressure within the pressure compartment is illustrated in Figure 2. In this form, the pressure compartment is connected to a bellows 32 by the tube 31. A spring 33 connected to the inside wall of the body 10 tends to maintain the bellows in open position. A handle 34 attached to the shaft 35 which passes through the wall of the body 10, provides for manual operation of the bellows for reducing volume of bellows and connected pressure compartment to force air into the pressure compartment and into the pressure chamber of the jet tube. Two forms of producing pressure within the pressure compartment are illustrated, but it is understood that this invention is not limited to the form or means shown, since such pressure may be provided for in any conventional manner.

A cover 36 on top of the lighter may be provided, which may be hinged to the top of the body to remain either in open or closed position. It has been found convenient to provide a cover of such a form that when it is lowered to a closed position it will fit over the wick burner and the

jet tube in such a manner as to smother the flame.

In the operation of this lighter, pressure is produced in the pressure compartment and jet tube by the operation of the pump or bellows, which pressure causes a vapor of the fuel to volatilize and to be forced through the nozzle **25**. Upon the opening of the cover the knurled wheel **20** is turned to cause the striking wheel to spark on the flint, thus to ignite the wick burner and the jet tube. The heat of the flame of the wick burner playing upon the end of the jet tube heats the fuel within said tube causing additional vapor pressure to be maintained, thus forcing the vapor out of the nozzle continuously. In order to extinguish the flame, it is only necessary to lower the cover to its closed position. If it is desired to use merely the wick burner, the jet tube which is rotatably mounted in the top may be turned so as to remain out of the path of the flame of the wick burner. On the other hand, if it is desirable to use only the jet tube, the wick burner and jet tube may be ignited as described above, and the jet tube may then be turned out of the flame of the wick burner and the cover lowered to extinguish the flame of the wick burner. The pressure means as described will maintain sufficient vapor pressure in the jet tube to provide a jet flame in the jet tube with or without operation of the wick burner.

This jet lighter is designed as an improvement over the pocket lighter shown in Patent No. 1,894,300 of January 17, 1933. It was found in the lighter made in accordance with that patent, that there is an interval of delay of thirty seconds or more between ignition of the wick burner and the heating of the jet tube sufficiently to cause the fuel to form a vapor pressure and to ignite. In the jet lighter of the present invention the construction provides means of producing the pressure within the jet tube before the ignition of the wick burner, and in this manner the wick burner and jet tube may be ignited simultaneously. An additional advantage resides in the fact that the jet tube may be rotated without losing the pressure in the jet tube and diminution in the flame by the operation of the pump, bellows or similar means for producing pressure directly within the pressure compartment and jet tube.

I claim:

1. A lighter comprising a container having a fuel storage compartment and a pressure compartment, a wick burner in the top of the fuel compartment, a jet burner rising from the pressure compartment and extending toward the wick burner, means for supplying fuel from the fuel compartment to the pressure compartment, a sparking device adjacent the wick burner, and means operable from the exterior of the container for producing pressure within the pressure compartment and an instantaneous flow of fuel vapor into the jet burner and through the nozzle.

2. A lighter comprising a container having a fuel storage compartment and a pressure compartment, a wick burner in communication with the fuel compartment, a jet burner in communication with the pressure compartment and extending toward the wick burner, the jet burner having a hollow member communicating with the pressure compartment and terminating at a nozzle to define a pressure chamber, means for supplying fuel from the fuel compartment to the pressure compartment, a sparking device adjacent the wick burner, and means for producing instantaneous pressure within the pressure compartment and an instantaneous flow of fuel vapor into the jet burner and through the nozzle.

3. A lighter comprising a container having a fuel storage compartment and a pressure compartment therein, a wick burner in the top of the container in the communication with the fuel storage compartment, a jet burner rising from the pressure compartment and extending toward the wick burner, the jet burner communicating with the pressure compartment and terminating at a nozzle at the end adjacent the wick burner to define a pressure chamber, a wick extending from the pressure compartment into the pressure chamber and terminating short of the nozzle, and means connected to the pressure compartment to produce instantaneous pressure within the pressure compartment and to force fuel vapor from the nozzle of the jet burner.

FRANCIS LESLIE PHILLIPS.