Jan. 17, 1933. G. S. BARKER 1,894,300

POCKET LIGHTER

Filed Nov. 5, 1930

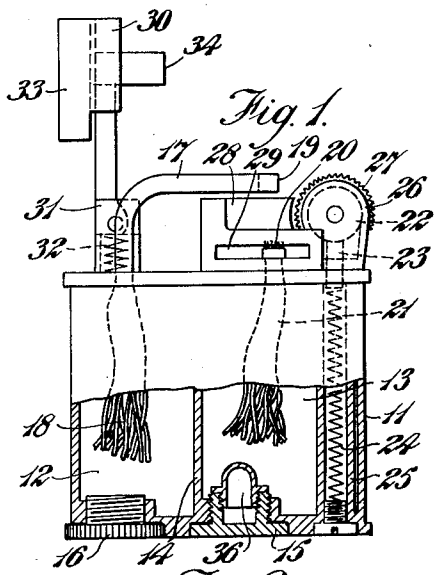


Fig. 1.

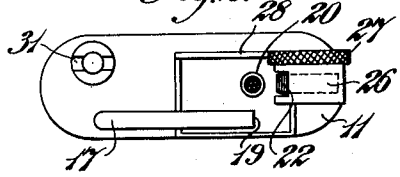


Fig. 2.

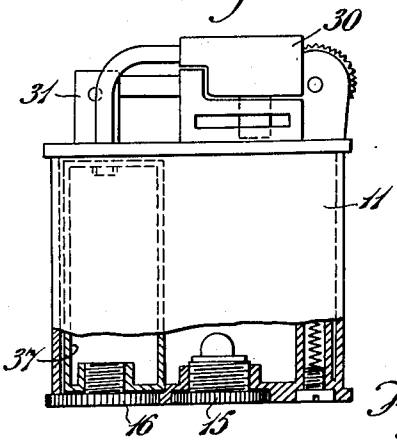


Fig. 3.

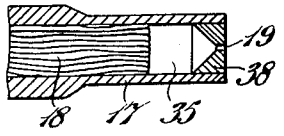


Fig. 4.

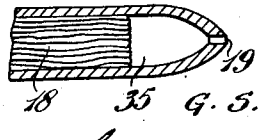


Fig. 5.

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UNITED STATES PATENT OFFICE

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POCKET LIGHTER

Application filed November 5, 1930, Serial No. 493,667, and in Great Britain December 13, 1929.

This invention relates to pocket lighters of the kind in which the vapour of petrol or other highly volatile spirit is ignited by the manipulation of spark-producing means, and it has for its object to effect an improvement, designed to increase the range of usefulness of such lighters.

According to the invention, in a pocket lighter of the kind referred to, the spirit flame which is ignited by the spark in the usual manner, is adapted to heat a hollow member containing an inflammable vaporizable substance so that fluid pressure is created in said member for the purpose of producing a projected flame.

There is provided, in communication with the hollow member, a nozzle or jet after passing through which latter the vapour is ignited so as to produce a projected flame. The body portion of the lighter is adapted to contain a supply of inflammable liquid and may be divided into two separate compartments, the one containing a supply of spirit for the usual or primary flame and the other a supply of fuel for the projected flame.

Preferably the hollow member comprises a tube communicating at one end with the interior of the other compartment, the other end of said tube being disposed adjacent to the usual or primary wick of the lighter and being formed at its end with a nozzle or jet.

If desired, the fuel for the projected flame may be fed into the hollow member by means of a wick, there being provided between the nozzle and the adjacent end of the wick a space, adapted to act as a pressure chamber for the generated gases.

The invention is illustrated in the accompanying drawing, in which:—

Figure 1 shows a part sectional elevation of one form of lighter;

Figure 2 shows a plan of the lighter shown in Figure 1, the cover having been removed;

Figure 3 shows in part sectional elevation a modified form of lighter; and

Figures 4 and 5 show two forms of nozzle or jet.

In the form of device shown in Figures 1 and 2 the body portion 11 is of hollow formation, the interior being divided into two separate compartments 12 and 13 by means of a partition 14, both of said compartments 12 and 13 being adapted to contain a supply of spirit or other liquid fuel, for the insertion of which the screwed filling caps 15 and 16 respectively are provided in the lower wall of the body portion 11.

Projecting from the upper wall of the body portion 11 is a tube 17 the interior of which is in communication with the compartment 12 from which latter spirit or other liquid fuel is withdrawn by means of a wick 18 extending from the compartment 12 along the tube 17 to within a short distance of its outer end, at which latter point the tube 17 is closed except for a small nozzle or jet 19.

A wick burner 20 is disposed upon the upper wall of the compartment 13 from which latter it receives a supply of spirit or other liquid fuel by means of a wick 21. Means of known type are provided for igniting the latter and comprise a striking wheel 22 against the lower portion of which a flint 23 is pressed by means of a spring 24, said spring 24 being accommodated within a tube 25 which passes completely through the compartment 13.

The wheel 22 is almost completely covered in by a cover 26 and is actuated by means of a knurled wheel 27 adapted to be operated in the usual manner by means of the thumb or finger.

In order to produce a non-smoky flame and thus to prevent the deposition of soot, the wick burner 20 is surrounded by a substantially rectangular guard 28 formed at the lower portion of each side with a slot 29, the side of the guard 28 adjacent to the tube 17 being suitably cut away so as to allow the flame to surround completely said tube 17. A cover 30 is hinged to an upstanding member 31 and is influenced by means of a spring 32 contained within the latter to remain either in an open position, as indicated in Figure 1, or in a closed position, as indicated in Figure 3, said cover 30 comprising a bent portion 33 adapted, when the cover 30 is closed, to encase the end and the adjacent part of the tube 17, and

a cylindrical cap portion 34 adapted to completely cover the wick burner 20.

In order to operate the device, the cover 30 is raised to its open position and the wick burner 20 is ignited by rotating the knurled wheel 27. The flame so produced plays upon the end portion of the tube 17, and, heating the latter, causes liquid fuel contained in the end portion of the wick 18 to be vaporized, the vapour so produced being collected in the pressure chamber 35 (see Figures 4 and 5), and being expelled under pressure through the nozzle or jet 19. Upon escaping through the latter it is automatically ignited by the primary flame from the wick burner 20 and forms a long projected flame which may be directed as desired by tilting the lighter as a whole. In order to extinguish the flame it is only necessary to bring the cover 30 down to its closed position when both the primary and the projected flames are put out.

Preferably one of the caps 15, 16 is of hollow formation and is provided with a screwed plug 36 for the accommodation of spare flints (not shown) for replacing the one indicated at 23. Also the lighter may be rendered non-spillable by filling the compartments 12 and 13 with an absorbent material, such as cotton wool.

A modified form of lighter is shown in Figure 3, in which the supply of fuel for the projected flame is carried in the container 37 disposed within but quite separately from the outer case 11, the remainder of the space within the latter being used for the supply of fuel for the wick burner 20.

In order that the time which elapses between the lighting of the wick burner 20 and lighting of the projected flame from the nozzle 19 may be made as small as possible, it is desirable that the extreme end, at least, of the tube 17 should be made as thin as possible, the remainder of said tube 17 being of thicker material, if desired, in order to provide sufficient strength to avoid damage due to accidental knocking. Two preferred forms of nozzle are shown in Figures 4 and 5, the first being produced by blocking the end of the tube 17 by a piece of metal 38 drilled to form the nozzle 19, and the second by constricting the tube 17 itself to form a nozzle 19. However, any known form of jet may be used, such as those made from steatite or other heat-resisting material, and having one or more nozzles, the tube 17 being of any special cross-section or being formed with fins or other projections in order to provide a comparatively large surface for conducting to the wick 18 the heat generated by the wick burner 20.

Further, the tube 17 or equivalent may be so shaped that a flame produced by the combustion of gases formed therein may supply the heat necessary to continue the vaporization of the liquid fuel in a manner similar to that in the usual paraffin blow-lamp, in which case the primary flame from the wick burner 20 may be extinguished once the projected flame is produced.

It will be observed that the body portion 11 may be of any known or convenient shape, the various parts of the device being arranged in any desired manner.

What I claim is:—

A lighter comprising a container having a plurality of fuel compartments, a wick burner in the top of the container in communication with one compartment, a jet burner rising from the container in communication with another compartment and extending toward the wick burner and terminating in a nozzle adjacent the wick burner to be heated by a flame therefrom and directed at an angle to the path of said flame, a wick extending from the fuel compartment into said jet burner and terminating short of the nozzle whereby to define a pressure chamber upon which the flame from the wick burner plays, and a sparking device mounted on top of the container adjacent the wick burner.

GUY STRACHAN BARKER.