March 27, 1951 A. F. REILLY 2,546,615

LIGHTER

Filed Sept. 26, 1947 2 Sheets-Sheet 1

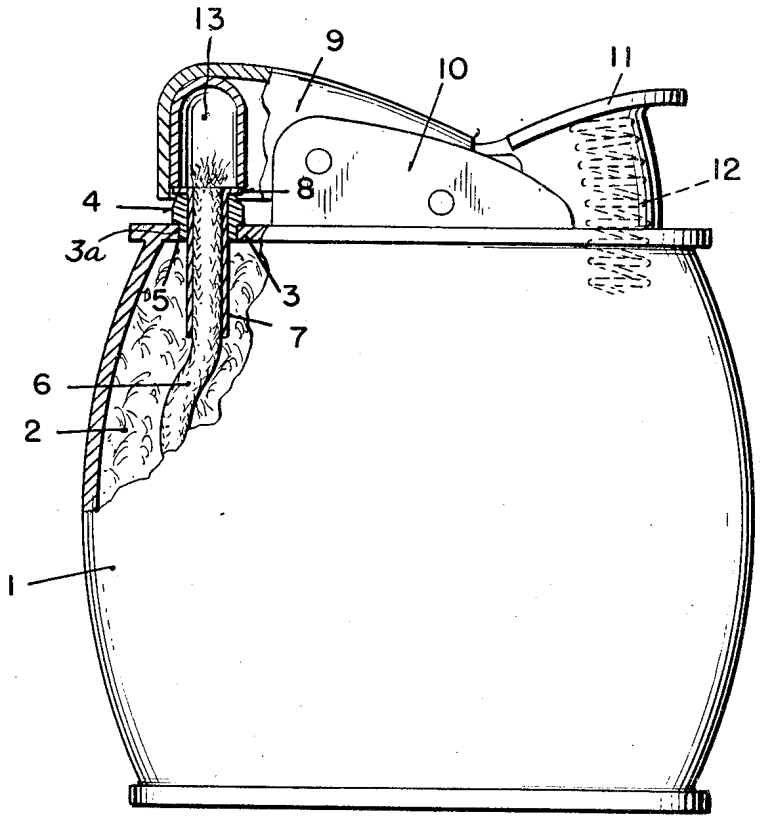


Fig. 1

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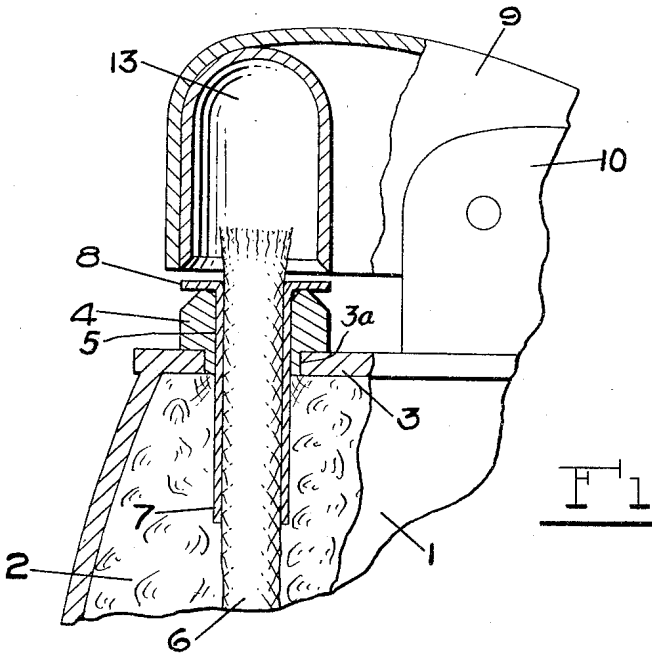


Fig. 2

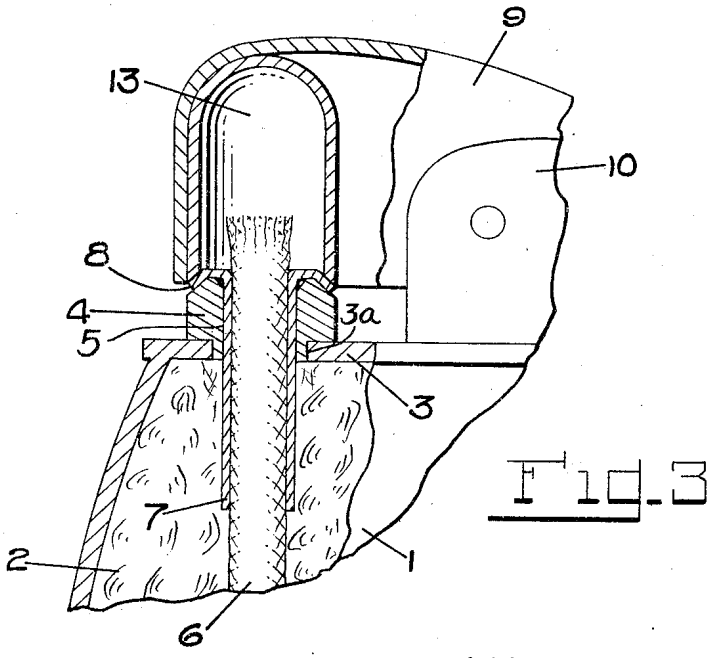


Fig. 3

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# UNITED STATES PATENT OFFICE

2,546,615

## LIGHTER

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2 Claims. (Cl. 67—7)

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The invention relates to pyrophoric lighters and is particularly adapted to so-called pocket lighters which are ordinarily carried in the pocket or handbag, etc. Lighters have a fuel tank into which extends a wick, the end of which projects from the lighter casing for ignition. A purpose of the present invention is to provide a wick support which will properly position and control the wick and provide a tight seal so that the fuel may not leak in whatever position the lighter may be carried or manipulated. The arrangement is especially advantageous in that it facilitates and makes simpler the operations involved in the manufacture of the device.

In order to illustrate the invention, one embodiment of it is shown in the accompanying drawings of which: Fig. 1 is a side elevation of a typical lighter, portions being broken away to better show the construction and relative arrangement of parts. Fig. 2 is a broken away fragmentary detail of Fig. 1 showing the parts in an uncompleted condition. Fig. 3 is a view similar to Fig. 2 showing the parts in a finally completed condition.

The main body of the lighter is marked 1. In the body 1 is a fuel tank 2 having a top 3 which may be relatively flat. Through an aperture 3a in the top may be mounted a wick supporting member 4. The member 4 is held in place in any suitable manner so that it is leakproof at its edges. The member 4 is provided with a central perforation 5 forming a passage to receive the wick 6. It may be of any suitable shape, such as circular, square or the like. As shown, it extends through the top 3, but its lower end is substantially in a line with the inner or lower face of the top plate 3. This is particularly important since after the wick supporting member is put in place the lighter may go through the necessary steps in manufacture and finishing the surface in the usual ornamental manner well known in the art. During such manufacturing and finishing activities, the lighter may be passed through baths of various chemicals to produce desired results. During such procedures, the liquids used will pass through the central aperture 5. It is essential to the proper operation of the finished lighter that the liquids employed in manufacture be eliminated from the fuel tank. Some of the manufacturing operations are performed with the lighter in inverted position so that all the liquids must drain out through the aperture 5 in the member 4. In the construction illustrated, this is facilitated by having the inner end of the member 4 substantially level or even

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with the inner surface of the top member 3 so that no impediment to drainage is provided.

In order to properly operate, the lighter must have the wick supported through a considerable length and it should be held well into, and toward the center of, the fuel tank so as to be in a position to be properly fed with fuel in the tank. This has been accomplished heretofore by having the wick supporting member like 4 extend well beyond or inwardly of the top member 3. Such arrangement, however, obviously impedes the drainage of the fuel tank and tends to keep in the fuel tank a remnant of the fluids used in manufacture to mix with and dilute the fuel when finally put in the tank to the detriment of the lighter.

The wick supporting member 4 extends beyond the outer surface of the top member 3 and spreads on all sides of the aperture 5. After the lighter is finished and all manufacturing liquids have been drained from the fuel tank, a wick holding tube 7 of considerable length may be installed by being suitably mounted in the aperture 5 extending into the fuel tank 2 a sufficient length to properly hold the wick 6 inserted through it and to insure the wick extending toward the center of the fuel tank. The joint between the tube 7 and the supporting member 4 will be made leakproof in any suitable way as by making it a drive fit or cementing it in the hole 5 thus facilitating quick and easy installation of the tube 7 after the liquids used in manufacture have been drained from the tank. The tube 7 will preferably be made with a spreading head or outward end so that it extends flared or flanged as at 8 over the supporting member 4. The portion 8 may be installed slightly out of contact with the top of the member 4. Mounted on the top member 3 is the usual snuffer 9 pivoted in bearings 10 and provided with a thumb piece 11 for manipulation. The snuffer 9 rises against the pressure of a spring 12 to expose the wick. When the thumb piece 11 is released the snuffer 9 is returned by the spring to cover the wick. An inner cap 13 is carried by the snuffer 9 so that as it is closed by the spring 12 the cap 13 comes by a hammer blow against the malleable top 8 of the wick tube 7. This will cause the snuffer to make its own, sure, properly formed seat to bring the end of the cap 13 in close contact about its entire circumference with the portion 8. It is important that the top 8 be capable of being formed into a seat as shown in Fig. 3 by the hammer blow descent of the cap 13 during one of the first several operations of the snuffer after the tube 7 is installed. This

will produce a liquidtight seal between them and insure against leakage of the fuel from the fuel tank when the lighter is carried or rests in haphazard positions in the pocket or handbag, etc.

The details illustrated and described may be varied as desired within the scope of the invention which may be embodied in other forms of lighter apparatus.

I claim as my invention:

1. In a pyrophoric lighter and in combination, said lighter including a wick and means to ignite said wick, a fuel tank supplying fuel to said wick, a top for the tank having an aperture, a wick supporting member in said aperture having a wick passage and a radially enlarged top protruding upwardly out of said tank, a wick tube disposed in said passage surrounding said wick and with a leak-proof fit between said tube and wick supporting member, said tube extending for a distance into the tank which is sufficient to present the bottom of the wick to the fuel in the tank, said wick tube having a flared out top portion which is first positioned slightly above the top of the wick supporting member, a snuffer pivotally mounted on the top of the tank having a lower edge adapted to descend around the wick upon said flared out portion of the tube and over said enlarged top when the snuffer is closed, said snuffer operating when closing during one of the first several operations of the lighter to make an impression on said flared out top portion of the wick tube and to cause it to conform substantially to the contour of the lower edge of said snuffer and said enlarged top of the wick supporting member, thereby forming a substantially leak-proof joint between the said parts when the snuffer is seated thereon, the top of said wick tube being sufficiently soft to be thus shaped against the enlarged top of the supporting member by said operation of the snuffer, and the snuffer and its seat formed by the said parts acting as a liquid closure between operations of the lighter.

2. In a pyrophoric lighter and in combination, said lighter including a wick and means to ignite said wick, a fuel tank supplying fuel to said wick, a top for the tank having an aperture, a wick supporting member in said aperture having a wick passage and a bevelled top protruding upwardly out of said tank, the bottom of said wick supporting member being substantially flush with the underside of the bottom of said tank top, a wick tube disposed in said passage surrounding said wick and with a leak-proof fit between said tube and wick supporting member, said tube extending for a distance into the tank which is sufficient to present the bottom of the wick to the fuel in the tank, said wick tube having a flared out top portion which is first positioned slightly above the top of the wick supporting member, a snuffer pivotally mounted on the top of the tank having a lower edge adapted to descend around the wick upon said flared out top portion and over said bevelled top when the snuffer is closed, said snuffer operating when closing during one of the first several operations of the lighter to make an impression on said flared out top portion of the wick tube and to cause it to conform substantially to the contour of the lower edge of said snuffer and said bevelled top of the wick supporting member, thereby forming a substantially leak-proof joint between the said parts when the snuffer is seated thereon, the top of said wick tube being sufficiently malleable to be thus shaped against the bevelled top of the supporting member by said operation of the snuffer, and the snuffer and its seat formed by the said parts acting as a liquid closure between operations of the lighter.



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