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LIGHTER AND FUEL FILLING FOR SAME

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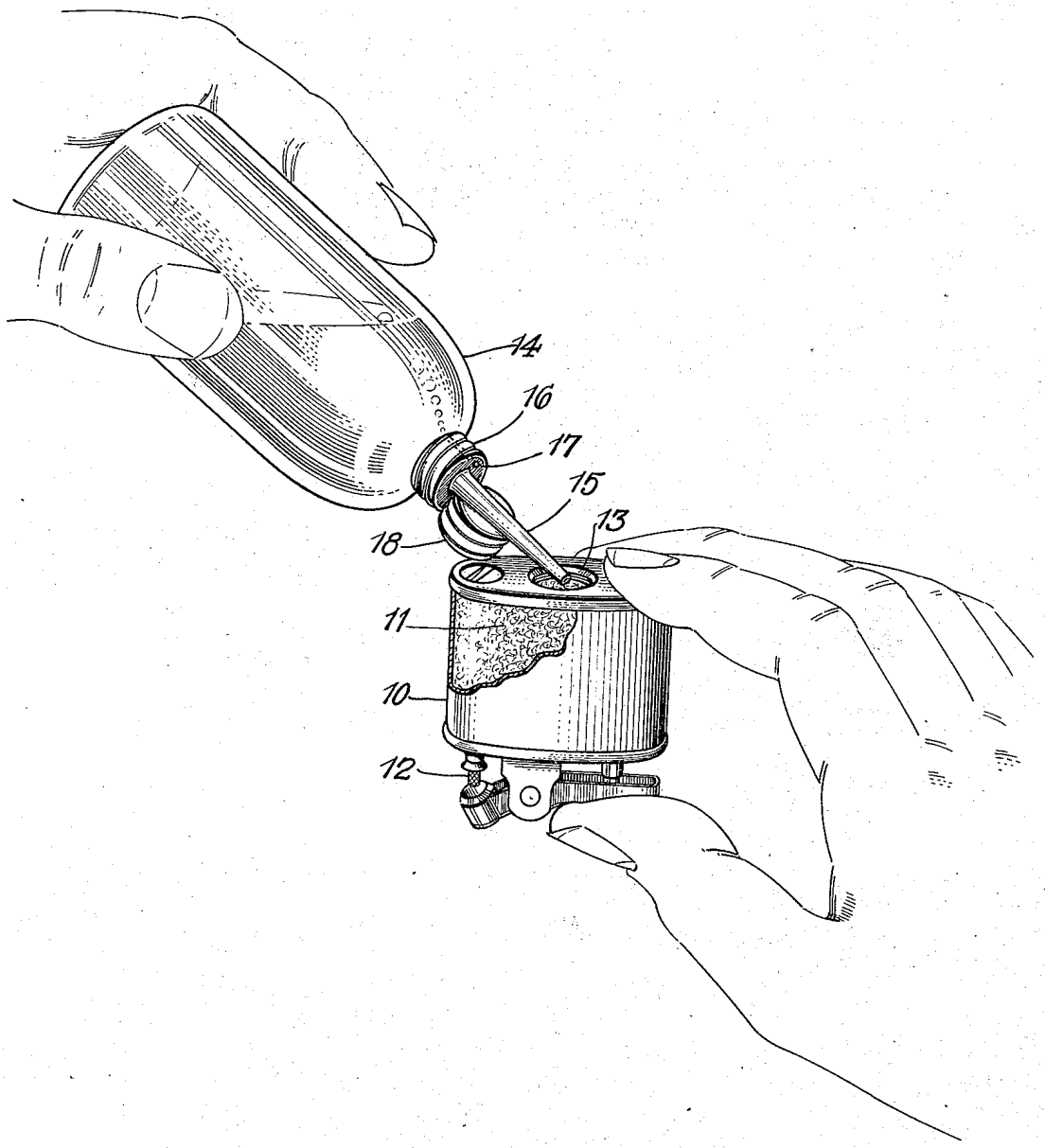


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## LIGHTER AND FUEL FILLING FOR SAME

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3 Claims. (Cl. 67—7.1)

This invention relates to cigar or cigarette lighters and a method of filling the same with fuel.

Lighters of the pyrophoric type are customarily supplied with a rather volatile, substantially colorless liquid fuel comprising naphtha and the like materials. This fuel is applied through a filling opening, to absorbent material such as cotton contained in the fuel receptacle. A wick protruding from the receptacle is ordinarily provided with its inner end embraced by the absorbent so as to be fed with fuel from the latter. In filling such a lighter with the usual fuel, it is sometimes difficult to determine just when an adequate amount of fuel has been introduced to insure that the wick will be properly saturated, yet without unduly flooding either the wick or the absorbent in the fuel receptacle. If insufficient fuel is introduced to adequately wet the wick, particularly when the lighter is to be used for the first time, this will of course prevent proper operation of the lighter and possibly prevent purchase of the article, because the customer may assume that its operation is undependable. On the other hand, if an excess of fuel is introduced, the consequent flooding of the wick and the area around the same, may be an annoyance as well as sometimes providing a vapor mixture in the region of the wick which will be too rich for ready combustion upon operation of the pyrophoric sparking mechanism of the lighter. Also when such lighters are placed on sale, the purchasers or the salesmen sometimes attempt to operate or demonstrate the lighter before it is filled with fuel, since it is difficult, except by careful inspection of the wick or of the absorbent after removal of the filling opening cap, to determine whether the lighter has been filled with fuel or not.

The present invention provides a simple, convenient and inexpensive way of overcoming the above-noted difficulties. According to the present invention, a liquid fuel is used which incorporates a distinctively colored ingredient. This fuel is poured through the filling opening onto the absorbent material in the lighter until such time as the distinctive color appears on the protruding end of the wick. As soon as the color has thus appeared on the wick, the introduction of fuel is stopped and accordingly flooding of the wick is prevented. Also at this time, the user, by viewing the absorbent through the filling opening, will note that the absorbent has a more deeply colored appearance which reveals the fact that it has absorbed all of the fuel which it is able to retain without having an excess of free liquid in the receptacle such as would be liable to flood the wick at later times, when the lighter is in use.

Various further and more specific objects, features and advantages of the invention will appear from the detailed description given below taken in connection with the accompanying drawings which illustrate merely by way of example one form of lighter and the manner in which the same may be filled with fuel in accordance with the invention.

The particular form of lighter, as shown at 10, is of the type disclosed in the patent to Louis V. Aronson, No. 2,002,845, granted May 28, 1935, although it will be understood that the invention may be used with various other known types of cigar or cigarette lighters. In the form shown, the lighter fuel receptacle is filled with absorbent, as at 11, which surrounds the inner portions of a wick, the protruding end of which is indicated at 12. This wick is adapted to be lighted by suitable pyrophoric sparking mechanism such for example as disclosed in the above-mentioned patent. The bottom of the receptacle may be provided with a filling opening as at 13 normally provided with a suitable closure.

As shown, in filling the lighter the same may be inverted, whereupon the fuel may be poured in from a container, such as a glass bottle 14, provided with a filling spout 15 secured in place on the bottle as by a cap 16. In case the fuel supply receptacle has rigid walls, such as glass, which cannot be flexed to force out the fuel, then it is desirable to provide an air vent as at 17 through the cap 16. Another suitable cap 18, if desired, may be secured on the side of the filling spout 15. Hence when the fuel supply receptacle is not in actual use, cap 16 may be screwed off and the cap 18 applied instead, to seal the bottle or container against evaporation of the fuel.

The fuel contained in the supply receptacle or bottle 14 incorporates a distinctively colored ingredient, preferred examples of which are given below. In filling the lighter, after removal of the filling opening closure, the lighter may be held in inverted position as shown in the drawings, while a stream of the fluid from the supply container 14 may be introduced through spout 15 until the user notes the appearence of the distinctive fuel color upon the exposed protruding end of the wick 12. The introduction of fuel is then preferably promptly discontinued. At the moment when an adequate amount of the col-

ored fuel has been introduced, the user will also observe through the filling opening 13, a substantially greater intensity of color on the absorbent material. This latter method of detecting when an adequate amount of fuel has been introduced, is particularly useful in cases where the lighter has been previously operated so that the wick has becomed blackened, thus interfering with easy detection of the change of color upon the wick. However, there will ordinarily be a narrow band around the base of the wick which does not become blackened or charred, but which will retain the natural color of the wicking material until or unless the wick is wetted with the colored fuel.

The wicking customarily used in such lighters is a fibrous material, such as cotton or asbestos, which is at least initially white, or only faintly colored, or slightly gray as in the case of asbestos wicking. The term "normally substantially colorless" as used in the appended claims is intended to apply to wicks of these various types, upon which the distinctive color of the fuel will be readily apparent when the wick is wetted therewith. The absorbent material in the fuel receptacle usually comprises ordinary white cotton. When the distinctively colored fuel is poured onto this material only in such quantities as will be quickly absorbed, the cotton will be somewhat colored but not deely colored. As soon as sufficient fuel has been applied to adequately saturate the cotton, the color will appear of the much deeper shade indicating that the fuel supply should be discontinued. If an excess of free fuel floods the top of the cotton in the receptacle, this will be readily apparent since the colored fuel will more or less obscure the cotton from view, and such excess should be withdrawn or shaken out before the lighter is used, to prevent danger of flooding the wick.

The use of the distinctively colored fuel has a further advantage that the color affords a means for identifying a proper safe fuel for lighters preventing confusion and unintended or accidental use of other types of liquids in filling the lighters.

While a wide variety of dyes or other coloring materials may be incorporated in the fuel for accomplishing the purposes of this invention, the following will serve as illustrative examples which have been found satisfactory:

(*a*) Dye powder known and available in the trade as "National Oil Red 0," or alternatively "National Oil Yellow 2681," in an amount comprising one-fifth of one percent by weight of the fuel mixture, is added to lighter fuel of well-known types heretofore used.

(*b*) Dye powder known and available in the trade as "National Oil Orange 2311," in an amount comprising two-fifths of one percent by weight of the fuel mixture, is added to lighter fuel of well-known types heretofore used.

In some cases, instead of using substantially colorless wicking and absorbent, the same may be distinctively colored with a color contrasting with that used in the fuel, to achieve the purposes and advantages of the invention.

While the invention has been described in detail with respect to particular preferred examples, it will be understood by those skilled in the art after understanding the invention, that various changes and further modifications may be made without departing from the spirit and scope of the invention, and it is intended therefore in the appended claims to cover all such changes and modifications.

What is claimed as new and desired to be secured by Letters Patent is:

1. In combination with a cigar or cigarette lighter having a fuel receptacle filled with absorbent and a wick of normally substantially colorless fibrous material protruding therefrom, a body of fuel incorporating a distinctively colored ingredient, said fuel substantially saturating said absorbent and wick, thereby lending a distinctive color to said wick for revealing that the lighter has been filled with such fuel.

2. In the filling of cigar or cigarette lighters of types having a fuel receptacle filled with absorbent associated with a protruding wick of normally substantially colorless fibrous material, the step comprising introducing into such absorbent at a point remote from such wick, liquid fuel incorporating a distinctively colored ingredient, until such time as the distinctive color of the liquid embodying such ingredient appears on the protruding wick, to thereby indicate when sufficient fuel has been introduced, and discontinuing the introduction of such fuel before the distinctive deeper color shade of the unabsorbed liquid appears to any substantial extent on said absorbent.

3. In combination with a cigar or cigarette lighter having a fuel receptacle filled with absorbent and a wick protruding therefrom, a body of fuel incorporating a distinctively colored ingredient contrasting when in liquid form with the color or shade of the wick when dry, said fuel substantially saturating said absorbent and wick, thereby lending a distinctive appearance to said wick for revealing that the lighter has been filled with such fuel.

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