

PATENT SPECIFICATION

444,670

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COMPLETE SPECIFICATION

Improvements in or relating to Cigarette Lighters

I, IRVING FLORMAN, of 800, Riverside Drive, New York, in the County of New York, and State of New York, United States of America, a citizen of the United States of America, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

10 My invention relates to cigarette lighters of the catalytic type.

The fuel now almost universally used in lighters of the type having a catalytic pill which is heated by the contact of fuel vapours to ignite a cigarette is methanol alcohol. This is usually stored in an absorbent such as cotton wool or felt. In the past, considerable difficulty has been experienced with such lighters because, although for a limited time they operate very satisfactorily, after a certain period of use, the catalyst apparently becomes "poisoned" or, in other words, inactive.

25 I have now discovered that this poisoning of the pill can be avoided by using for the wick the type of material used in the formation of dental rolls, such as are ordinarily used by dentists for absorbing the saliva and for spacing the gums from the teeth during the treatment of teeth. These rolls consist of a thin sheet of sterilised and purified cotton which is rolled up into a rod-like body of about one-quarter of an inch in diameter, with an outside covering layer of thin, absorbent paper. This paper gives additional absorbitive power and also serves to hold the cotton roll in shape.

40 I have found that when a wick of such material is used, poisoning of the catalyst is avoided and the life of the lighter is greatly extended. The primary object of my invention is the provision of a wick of this type in a catalytic lighter, so that poisoning is done away with.

45 Furthermore, some of the lighters of this type on the market to-day are arranged to cut off the catalytic pill from the fuel chamber except when the lighter is in use. In such lighters, it is known to provide a cup in which the catalyst is placed with a tube rigidly secured to this cup and extending downwardly to the

bottom of the lighter. The cup is mounted in a sleeve which slides, and the closing of the lighter moves the sleeve downwardly and causes the end of the tube to engage a washer on the bottom of the lighter. The catalyst is thus sealed off. In this type of lighter as heretofore produced, the tube has been of uniform diameter throughout and has entered a hole in the bottom of the catalyst cup, where it is soldered in place. As there is a certain amount of strain on this connection, because of the pressure exerted on the tube when the lighter is closed, the solder is likely to become weakened. In many instances, this pressure will cause the tube to slide upward through the hole, which practically renders the lighter useless if it does not actually break through and destroy the catalytic pill or mass.

75 The second object of my invention is to provide a construction in which such a breaking of the lighter mechanism cannot occur. In other words, I have an arrangement in which the tube cannot slide upwardly through the hole into the cup. This I accomplish by providing a shoulder on the tube which engages the lower face of the cup and a reduced section which extends into the hole. No amount of pressure can then drive the tube up into the cup.

85 Still another object of my invention is to provide a lighter of this type which can be manufactured and produced very inexpensively. This I accomplish by forming the lighter casing of two exactly similar parts, and then arranging a threaded connection between the parts composed of two elements each of which has a friction fit in one of the parts. The cost of manufacture of the device can be considerably reduced by this construction.

95 Still another object is to provide a novel type of catalyst arrangement which is particularly satisfactory for a cigarette lighter of this nature.

100 Further objects and advantages will appear more fully from the following description, particularly when taken in conjunction with the accompanying drawings which form a part thereof.

In the drawings:

Fig. 1 is a vertical cross section through a lighter according to my invention in closed position.

5 Fig. 2 is an elevation partly in section with the cover removed and the lighter in operative position.

Fig. 3 is a cross section on the line 3—3 of Fig. 1.

10 Fig. 4 is a plan view of the lighter with the cover removed.

Fig. 5 is an exploded perspective view of the casing parts and the connecting members therefor.

15 As shown in the drawings, the lighter comprises a base 10 and a cover 12. These members are arranged to have a threaded connection with one another by means of elements 14 and 16. Element 14 has a cylindrical portion 18, the lower part of which is provided with an internal shoulder 20. The outer face 22 of the lower section of member 14 is adapted to have a friction tight fit in the base member 10. The upper part 24 of member 14 is of reduced diameter and is externally threaded. The intermediate part 26 of member 14 extends out over the upper edge of member 10 as shown in

30 Fig. 1. Member 16 consists of an internally threaded ring adapted to thread on the external threads of portion 24 and has a friction tight fit within the cover member 12. Both the cover 12 and the base 10 are provided with rubber washers 28.

The catalyst is mounted in a cup carried at the upper end of a sleeve 30 which has a sliding fit in section 18 of member 14, and is thus mounted in base 10. A lug 32 limits the outward sliding movement of the sleeve. Openings 34 are provided in the upper part of the sleeve to admit air to the interior thereof.

45 The catalyst is held in a cup consisting of a member 36 of substantially the same diameter as the sleeve 30, a reduced portion 38 which fits friction tight in the upper end of sleeve 30, and a bottom 40 provided with a central opening 42. A tube 44 is provided with a reduced upper end 46 which fits into the opening 42, thus providing a shoulder 48 which engages the lower face of the bottom wall 40 of the cup. The reduced section 46 is held in position in the hole 42 by soldering or in some other suitable manner. Threaded on the lower end of the tube 44 is a disc 50 provided with 60 perforations 52.

The catalyst consists of a pill 54 composed of some suitable porous material with which is mixed platinum black or some other catalytic material. The central portion of this pill is provided with

three openings 56. The pill 54 rests in the cup portion 38, and is held in position by a metal washer 58 having a central opening 60 above the holes 56. A split spring ring 62 fits frictionally in the portion 36 of the cup and thus holds the washer 58 on the pill 54 to secure it in the cup.

A helically coiled spring 64 surrounds the lower end of the tube 44 resting on the lower washer 28 and engaging the disc 50. This spring will obviously push the sleeve 30 upwardly.

The wick 66 fits within the sleeve 30 and is held in position around the tube 44 by the disc 50. This wick, as shown in Fig. 3, consists of a central portion 68 comprising a thin sheet of cotton which has been rolled upon itself to form a tube or rod-like section, and a covering sheet 70 of thin, absorbent paper or other suitable material. The cotton is thoroughly purified and sterilised so as to be entirely free from oils, greases or other impurities. The paper covering is likewise purified and sterilised and serves to hold the cotton rod in shape. This material preferably corresponds to the ordinary dental roll having a paper covering.

The operation of the device is as follows:

When the lighter is in the closed position shown in Fig. 1, the sleeve is depressed by the contact between the upper washer 28 and the upper end 36 of the cup, until the lower end of tube 44 engages the lower washer 28. The catalyst is thus sealed off from the wick 66 and the surrounding space both at the bottom and at the top by the washers 28. No fuel can reach the catalyst. When the cover 12 is removed, spring 64 pushes the sleeve 30 upward until member 32 strikes the shoulder 20. At this point, as shown in Fig. 2, the bottom of tube 44 is raised off the washer 28. When a cigarette is placed on the upper surface of disc 58 and suction applied thereto, air will be drawn through openings 34 and from the wick up through tube 44 to the pill 54. The fuel picked up by this air will cause the catalyst in the pill to become hot and the cigarette will be lighted. Because of the absence of any impurities in the cotton, no oil or grease will be carried to the pill and the same will remain fresh almost indefinitely.

In producing the lighter, it is obvious that the construction of the same out of the parts shown in Fig. 5 is both simple and inexpensive. The top and bottom 125 and 12 are exactly similar, and therefore may be produced by a single machine. All that is necessary is to insert the members 14 and 16 in the members 10 and 130

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12 in which they are held by friction, and the lighter casing is then complete. Furthermore, the washers 28 can be introduced before the members 14 and 16 5 are in position, and the whole device is thus easy to assemble.

While I have described herein one embodiment of my invention, I wish it to be understood that I do not intend to 10 limit myself thereby except within the scope of the appended claims.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to 15 be performed, I declare that what I claim is:—

1. A cigarette lighter of the catalytic type comprising in combination: a catalytic body which is heated by contact of 20 fuel vapours for lighting a cigarette directly; a wick member for holding fuel consisting of a thin sheet of sterilized and purified cotton which has been rolled upon itself to form a tube or rod-like 25 section; and means providing communication between said wick member and said catalytic body.

2. A cigarette lighter of the catalytic type according to Claim 1, further 30 characterised in that the wick member has a covering of absorbent paper.

3. A cigarette lighter of the catalytic type according to Claim 1, comprising 35 in combination: a casing having a fuel chamber therein and a holder slidable in said casing, said holder including a cup for the reception of the catalyst having an opening in the bottom thereof and a

tube having one end secured in said opening and having its other end adjacent 40 the bottom of the casing, whereby when said holder is moved downwardly in the casing the bottom of said tube engages the bottom of the casing to close the tube and shut off the catalyst from the fuel 45 chamber, said tube having a shoulder thereon adjacent its upper end and engaging the bottom of said cup, whereby said tube is prevented from passing 50 upwardly through said cup.

4. A cigarette lighter according to Claim 1, comprising in combination: a casing comprising a base having a fuel chamber therein and a cover, said base 55 and cover being similar, co-operating threaded members, the first of which has a friction fit with the base and the second of which has a friction fit with the cover, whereby said cover and base may be 60 threadedly held together; a holder containing the catalytic body slidably mounted in the first threaded member, and means operated by downward sliding movement of said holder to shut off communication between the fuel chamber and 65 the catalyst, said cover engaging the upper edge of said holder to hold the same in the compressed position when the cover is threaded on the base.

5. A cigarette lighter, substantially as 70 described and shown in the drawings.

Dated the 11th day of February, 1935.

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[This Drawing is a reproduction of the Original on a reduced scale.]

Fig. 1.

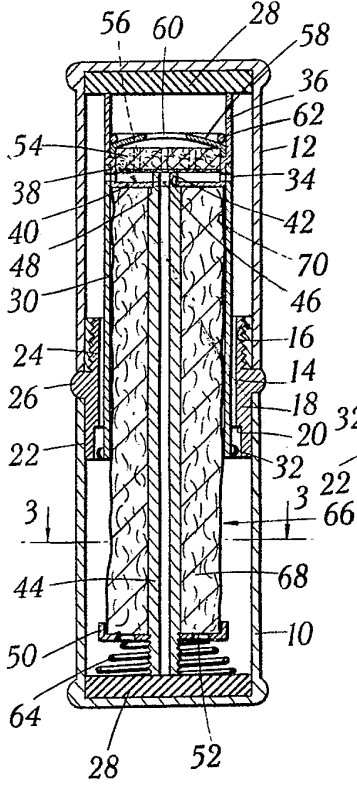


Fig. 2.

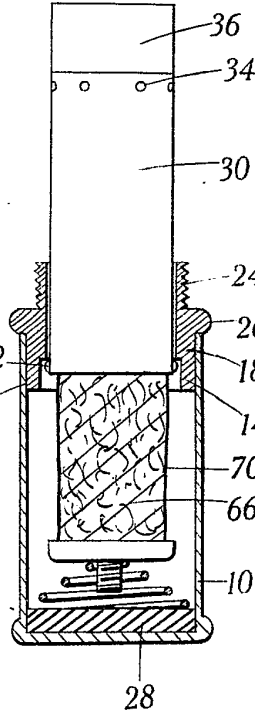


Fig. 5.

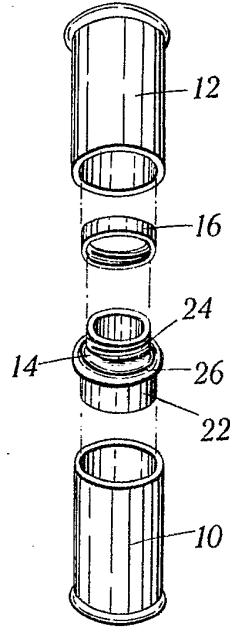


Fig. 3.

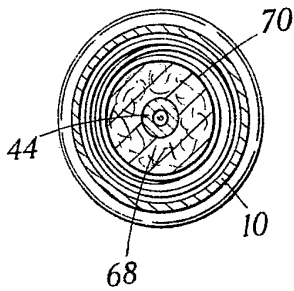


Fig. 4.

