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PATENT SPECIFICATION

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COMPLETE SPECIFICATION

Improvements in and relating to Electric Cigarette Lighters and Lighters for Domestic Purposes

I, BENJAMIN DANIEL LIFSCHITZ, a Palestinian Citizen, of No. 13 Nachmani Street, Tel Aviv, Palestine, 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:—

The present invention relates to electric cigarette lighters or lighters for domestic purposes in which a wick soaked with petrol, alcohol or the like is ignited by means of an electric spark, and in particular to lighters of this kind in which the source of current is an ordinary dry battery. Such lighters have two contact members connected to the battery which can be bridged by a tubular metallic wick holder to close the circuit. On moving the wick holder towards and away from one of the contact members, while maintaining contact with the other, sparks are produced between the end of the wick holder and the contact member breaking contact with it and the wick is ignited by these sparks. By making one of these contact members in the form of a bundle of thin wires a succession of makes and breaks is obtained on drawing the wick holder across it so causing a plurality of sparks and ensuring ignition of the wick.

But hitherto in lighters of this type the wires of the bundle have had a short life. The straight wires are inevitably bent to and fro each time the lighter is used and are prematurely broken. According to the invention a socket is provided for them, which is conical and may be made of a helically wound wire. The wires are firmly clamped together or united by solder only at their lower end and this lies in the lowermost turn of the coned helix or in the tip of a conical socket. At their upper end they can spread apart like a brush. The wires project from the socket and do not touch the guide which forms the other contact member. Thus the flexible wires can bend throughout their length within the limits allowed by the socket, and the stress of them is not localised at one point.

The other contact member is constructed as a guide for the wick holder and

extends over and across the brush-like contact member. This guide may be formed by a slotted metal plate or by two parallel rails or rods, the slot or rod being arranged above and extending across the brush-like contact member and the width of the slot or the distance between the rods being less than the diameter of the wick holder. The wick holder has a pointed tip projecting sufficiently into the slot or the gap between the rods, to touch the free ends of the wires of the brush-like contact member, so that when drawn across the circuit between the two contact members is made and broken several times causing several sparks. The slots or gap extends for a considerable length beyond the wire brush on each side so as both to guide the wick holder to the brush and to keep it away from the lighter after it has passed the brush and before it is lifted away. No particular care is called for from the user; if the wick holder is drawn firmly along the guide momentary contact is obtained and no undue stress is put on the wires of the brush.

An electric igniter has already been described in which a metal wick holder is moved along a slotted plate or parallel contact blades over a spring contact to produce sparks for igniting the wick; the spring contact is formed by a row of teeth and the slot of the plate is as long as the row of the teeth. In another similar igniter, the spring contact is a blade spring extending in spaced relation within a U-shaped contact blade.

To obviate impairment of the electric contact through the metallic wick holder becoming covered with oily deposit from the petrol flame means have now been provided to keep the wick holder bright and clean. The wick holder is ordinarily accommodated—when not actually in use—in the petrol tank. The cleaning means consists in a perforated disc or ring of felt or the like stiff fabric, arranged in the petrol tank above a tube into which the wick holder is inserted. The opening in the felt through which the wick holder must pass each time it is removed or replaced is slightly smaller than the thickness of the wick holder, which therefore

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[Price 1/-]

must be forced through, and so is wiped clean after each use.

A preferred embodiment of the invention is shown in the annexed drawing.

5 Fig. 1 is a sectional elevation of the lighter;

Fig. 2 is a plan view of it;

Fig. 3 shows on a larger scale the bridging of the contact members by the wick holder; and

Fig. 4 is a section on a larger scale through the petrol tank.

In a housing 1 of non-conductive material, fastened to a base plate 2 are

15 accommodated a dry battery 3, an induction coil 4 and a petrol receptacle 5. The dry battery which has to be exchanged from time to time is introduced into the housing through an opening in the base

20 plate 2 normally closed by a removable cover 6. Terminal 3¹ of the inserted battery lies against a leaf spring 7¹ fixed in the housing 1 and leading to a brush-like contact member 7 formed by a bunch

25 of springy wires, which are as a rule of a thickness of not more than .5 mm. Terminal 3¹¹ of the battery lies against a similar leaf spring 4¹ connected by a lead

30 8 to one end of the induction coil 4. The other end of coil 4 is connected to a horizontal double rail 9, fastened to the top of the housing 1 and formed of two parallel bars or of a length of thick wire

35 bent into U-form. The ends of this wire are fixed to the housing, while its bend lies in a groove in a boss 10 glued or otherwise fixed to the top of housing 1. At

40 their lower end the wires of the brush are clamped together or united by means of solder and this end fits into the lowest

45 turn of a helix 11 seated in a short tube 11¹ having flanged ends which secure spring 7¹ and nipple 12 to the top of housing 1. The upper ends of the wires are

50 free and spread apart. Their tips lie below and between the rails 9, not touching them. The petrol container 5 is stuffed with cotton wool as usual. A

55 central tube 13 is freely held in the cotton wool and extends almost to the bottom of the container. It is cut to a wedge shape at its lower end and so offers two lateral

60 openings 14 into which the cotton wool enters. Container 5 is closed by a lid 15 from which a short central tube 16 projects

65 outwardly through a hole in the top of housing 1. Below lid 15 and resting on the upper end of tube 13 is a disc 17 of felt or the like stiff fabric, which has a

central opening 17¹ of a diameter less than that of the tubes 13, 16. Through the

hole 17¹ can be inserted, and in the tube 16 is normally accommodated, a wick holder

consisting of a metal tube 18 holding a

wick 19. The diameter of the tube 18 is

greater than the distance between the rails

9. At one end of the holder the wick projects, while the other end of the holder is

70 provided with a handle or knob 20 of insulating material. When the holder is placed in the container the wick is in

75 contact with the petrol-soaked cotton wool through the apertures 14. An annular recess 21 in knob 20 around the tube 18

receives the end of the central tube 16

80 when the wick holder is placed in the container, so completely sealing the container and preventing escape of petrol vapour. This vapour fills the lower part

85 of the tube 13 and keeps the wick saturated. The container is filled with petrol through tube 16. The tube 18 of the wick holder is cut away at an angle

90 of about 45° at its free end from which the wick projects. The tip of this slanting end is filed off to afford a wider edge

95 for contact with the wires. On the side diametrically opposite the tip of the slanting end of tube 18 knob 20 carries a small

100 projection 22 (for instance the head of a small nail) to indicate even in the dark in what position the wick holder should be

held for making contact.

To use the lighter the wick holder 18

105 is taken out from container 5 and brushed along the gap between the rails 9 in the direction of the arrow shown in Fig. 3. As it passes over the brush 7 it completes a

110 circuit between the rails 9 and the brush. The circuit is repeatedly made and broken as the holder touches the several wires of

115 the bundle 7 and several sparks are produced. Thanks to the induction coil 4 the sparks are of high tension. The sparks are produced in close proximity to the end

120 of the wick projecting from the holder and ignite it. The rail offers a sure guide for the wick holder so that ignition of the wick is made easy. The wires of bunch 7

125 are not clamped at the point where they project from the housing 1 but are free to vibrate within the spiral 11 and on this

130 account are less liable to break in use. The wick holder is kept bright and clean and good contact is ensured, since it is

wiped each time it is passed through the felt ring 17.

The circuit completed by the holder is

135 from terminal 3¹¹ over leaf spring 4¹ to coil 4 and thence to the contact member formed by rails 9, through the holder 18,

brush 7 and leaf spring 7¹ to terminal 3¹.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to

140 be performed, I declare that what I claim is:—

1. An electric cigarette lighter or lighter for domestic purposes, comprising

145 a dry battery, an induction coil, and two

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- contact members adapted to be bridged by a metallic wick holder, in which one of the contact members is formed by a brush-like bundle of wires held in a conical socket, such as a helix of wire, which leaves the wires, or bristles space to bend freely, the wires or bristles being held or clamped together at the lower end of the socket only, and in which a slotted plate or pair of rails or rods above the bundle of wires, forming the second contact member extends for a considerable length beyond the bundle on each side, so as both to guide the wick holder to the wire brush and to keep it away from the lighter after it has passed the wire brush.
2. An electric cigarette lighter or lighter for domestic purposes according to Claim 1, in which the petrol container in which the wick holder is accommodated has a perforated disc of felt or the like through which the wick holder is passed when inserted into the container the diameter of the perforation being slightly smaller than the diameter of the wick holder.
3. The electric cigarette lighter or lighter for domestic purposes described hereinbefore and shown in the accompanying drawing.

Dated this 18th day of May, 1943.

SEFTON-JONES, O'DELL
& STEPHENS,

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2, Gate Street, Lincoln's Inn Fields,
London, W.C.2,
Agents for the Applicant.

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

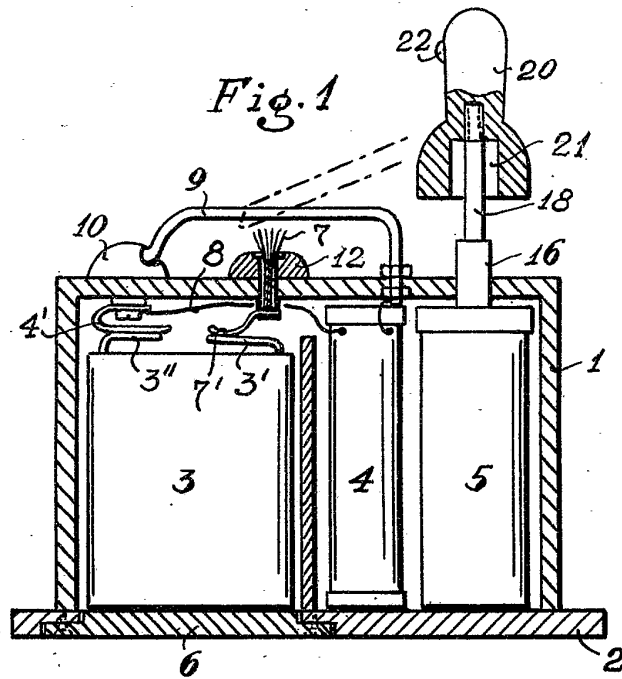


Fig. 2

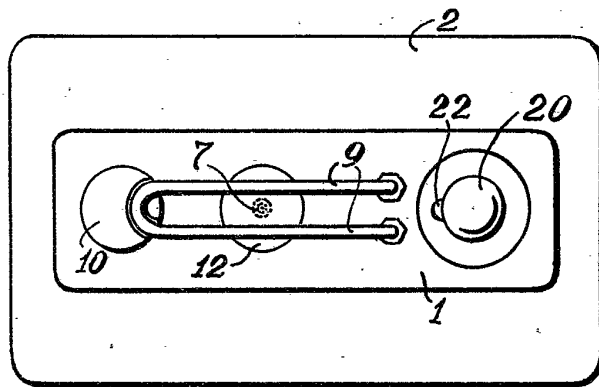


Fig. 3

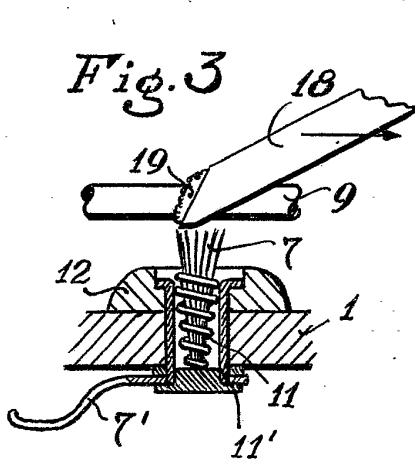


Fig. 4

