

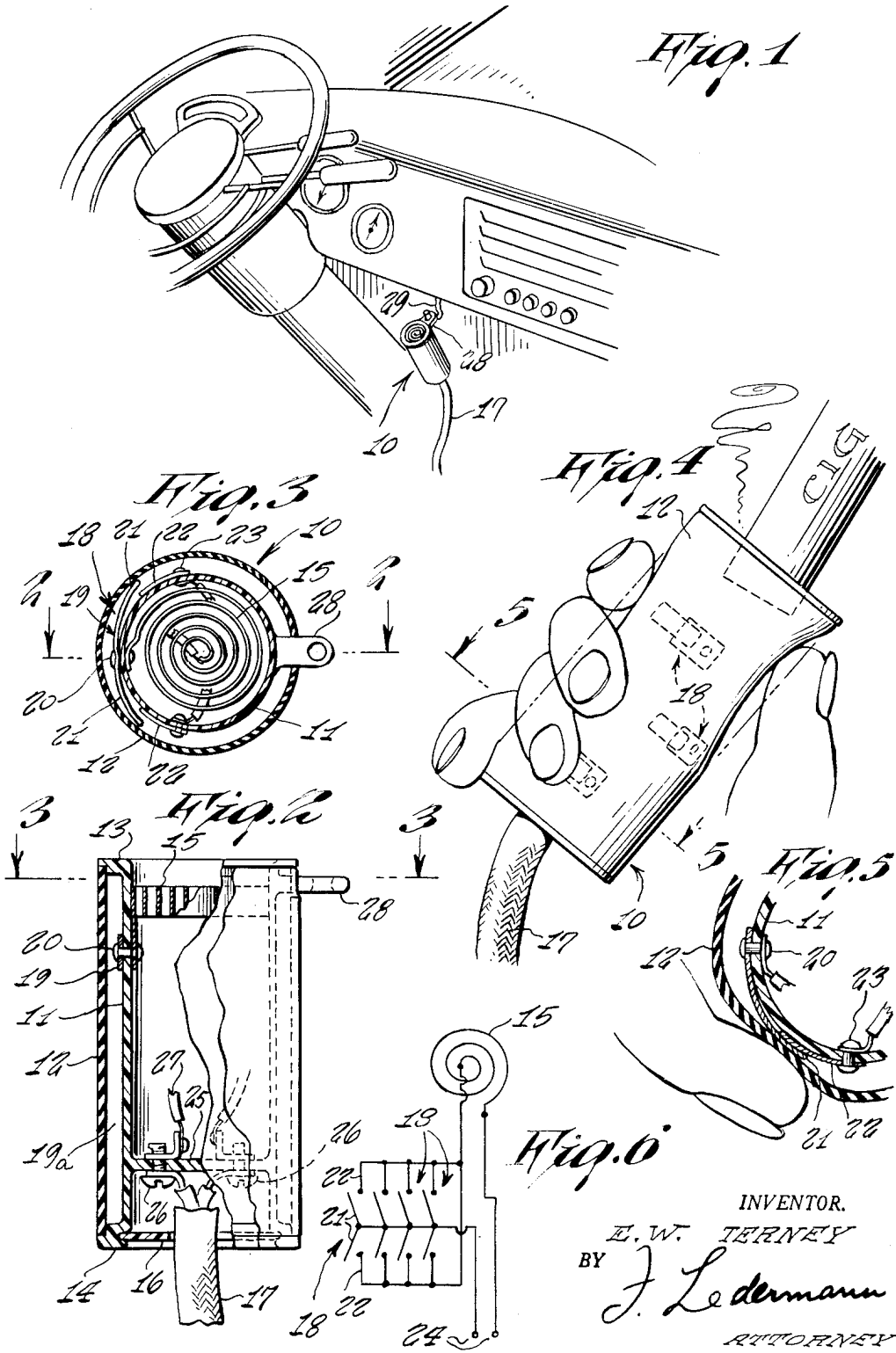
Dec. 27, 1955

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2,728,844

HAND-GRIP ENERGIZED ELECTRIC CIGARETTE LIGHTER

Filed Feb. 25, 1954



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2,728,844

## HAND-GRIP ENERGIZED ELECTRIC CIGARETTE LIGHTER

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Application February 25, 1954, Serial No. 412,423

6 Claims. (Cl. 219—32)

This invention relates to electric cigarette lighters, and more particularly to that class of lighters wherein a coiled heating element is energized to red heat upon the closing of a switch.

One object of the invention is the provision of an electric cigarette lighter containing a glow element, having means whereby a circuit through the element is automatically energized when the lighter is grasped in the hand. A lighter embodying the features of this invention may be used in an automobile, in the home, or in any other suitable situation, either in portable or stationary form.

Another object of the invention is the provision of an electric cigarette lighter enclosed in a flexible housing or body having means within the housing whereby a circuit through the glow element of the lighter is automatically closed when the lighter is grasped in the hand, and is automatically opened upon release of the lighter.

The above broad as well as additional and more specific objects will be clarified in the following description wherein characters of reference refer to like-numbered parts in the accompanying drawing. It is to be noted that the drawing is intended solely for the purpose of illustration and that it is therefore neither desired nor intended to limit the invention necessarily to any or all of the exact details of construction shown or described except insofar as they may be deemed essential to the invention.

Referring briefly to the drawing,

Fig. 1 is a perspective view of a cigarette lighter constructed along the lines of this invention, showing the same as it may be applied for use in an automobile.

Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1.

Fig. 3 is a section view taken on the line 3—3 of Fig. 2.

Fig. 4 is a perspective view of the lighter showing how the outer shell or housing is pressed inward, to close a circuit through the glow element, upon grasping the lighter.

Fig. 5 is a sectional view taken on the line 5—5 of Fig. 4.

Fig. 6 is a wiring diagram.

Referring in detail to the drawing, the numeral 10 indicates the electric lighter as a whole, comprising two shells 11 and 12, preferably cylindrical and concentric. The inner shell or tube 11 is of relatively rigid insulating material, and the outer shell or housing 12 is of relatively yieldable or flexible insulating material. Flanges at the ends of the inner shell, shown at 13 and 14, serve to space the outer shell at a distance from the inner.

At or near the top of the inner shell 11 a glow element, of standard construction, shown at 15, is mounted, in the usual manner. At the bottom of the shell 11 a closure disc 16 is provided, having an opening for the passage therethrough of a two-conductor cord 17.

At least one, and preferably two or more, circuit-closing members, or switches, 18, are mounted in longitudinally as well as circumferentially spaced positions within the cylindrical space 19a between the two shells. In Fig. 2 but one such switch member 18 is shown; how-

ever, three additional ones are shown in broken lines in Fig. 4. The exact number of such switch members to be used is optional so long as the object of the invention is attained.

Each switch unit 18 comprises a relatively long resilient strip 19 secured at its midpoint by a screw or the like 20 against the inner shell 11, the screw passing through the shell, and with the strip lying in a plane at right angles to the axis of the shell. Thus each strip provides two resilient arms 21 which are arched outward so that their free extremities are very close to or in contact with the outer shell 12. At each end of the strip 19, in the same plane as the strip, a stationary contact 22 is secured against the shell 11 by a screw or the like 23 also passing through the shell, with the contact underlying the extremities of the arms 21. Thus when either arm 21 is pressed inward toward the shell 11, it will engage the adjacent contact 22. However, in order that closure of the circuit through the glow element be effected whenever the lighter is grasped, and since the pressure of the fingers or the palm of the hand may be applied to the outer shell 12 at different points or areas at different times, it is desirable that at least one additional switch member 18 be provided, situated in the same manner as that just described, between the two shells, but at a distance longitudinally as well as circumferentially from the former, as exemplified in Fig. 4. Assuming that four such units 18 are provided, it is apparent from the wiring diagram of Fig. 6, that the closing of any single switch end or pair 21—22 of any switch unit 18 will close the circuit through the element 15 from a source of supply delivered at the terminals 24.

A partition 25 may be provided near the lower end of the shell 11, with binding posts 26 extending therethrough, for attachment on the lower side, of the ends of the wires of the conductor 17 and on the upper side, of the leads such as that shown at 27, from the various switches and the element 15, all as indicated in the wiring diagram.

The conductor 17 may be permanently plugged into a socket, not shown, in or near the dashboard when used in an automobile, or it may be wound on a self-winding reel, not shown, of any standard type, connected to the electric supply source. An eyelet 28 is preferably secured to the rigid shell 11, to extend diametrically through the shell 12, to serve as a means for hanging the lighter on a hook, as indicated at 29 in Fig. 1.

Further, the lighter might be used indoors, similarly hooked up to an electric supply source and adapted to be supported on a hook positioned at any convenient place, as, for instance, on a wall, on the edge of a desk or table, etc. And finally, the lighter might also be mounted on a stand or upright, not shown, and thus be movably seated on a table, desk or the like.

Thus, with a lighter constructed along the lines of the present invention, the circuit is at all times open except when the lighter is grasped, and whenever and during the entire time that it is grasped or held, the circuit is closed and the element energized. Thus no thought or action is required by the user other than the mere picking up of the lighter, when he wishes to use it, and the mere putting it back where he got it, when he has finished with it.

Obviously, modifications in form or structure may be made without departing from the spirit or scope of the invention.

I claim:

1. An electric cigarette lighter comprising an inner substantially rigid non-conducting shell having a glow element at one end thereof and an outer non-conducting shell of yieldable material concentric with and radially spaced from said inner shell thereby providing a space between said shells, means maintaining said shells in said

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radially spaced relationship, a switch mounted in said space comprising a fixed metallic contact on the inner shell and a resilient metallic arm having one end secured to said inner shell and spaced from said contact, said arm being flexed outward toward said outer shell and having the free end thereof positioned radially outward from said contact whereupon inward depression of the outer shell at the area thereof radially outward from said free end of the arm moves said free end into engagement with said contact, said glow element and said switch being adapted to be connected in series with a source of electric supply, and at least one additional switch identical to said first-named switch similarly mounted in said spaced but positioned longitudinally and circumferentially distant from said first-named switch, said additional switch being connected in parallel with said first-named switch.

2. An electric cigarette lighter comprising an inner substantially rigid non-conducting shell having a glow element at one end thereof and an outer non-conducting shell of yieldable material concentric with and radially spaced from said inner shell thereby providing a space between said shells, means maintaining said shells in said radially spaced relationship, a switch member mounted in said space comprising a resilient metallic strip secured intermediate its length to said inner shell thereby dividing the strip into two oppositely extending arms, said arms being flexed outward toward the outer shell, and a pair of fixed metallic contacts secured to the inner shell, each of said contacts being spaced radially inward from the free end of one of said arms whereupon inward depression of the outer shell in an area radially outward from one of said arms moves the free end of the arm into engagement with the adjacent of said contacts, said strip and said contacts being connected in parallel, said parallel connected strip and contacts being connected in series with said glow element and being adapted to be connected with a source of electric supply, and at least one additional switch member identical to said first-named switch member similarly mounted in said space and positioned longitudinally and circumferentially distant from said first-named switch member, the arms and their radially adjacent contacts of said additional switch member being connected in parallel with said arms and said contacts of said first-named switch member.

3. An electric cigarette lighter comprising an inner substantially rigid non-conducting shell having a glow element at one end thereof and an outer non-conducting shell of yieldable material concentric with and radially spaced from said inner shell thereby providing a space between said shells, means maintaining said shells in said radially spaced relationship, and a switch mounted in said space and connected in series with said glow element, said switch comprising a fixed contact and a movable contact, said movable contact being positioned between said fixed contact and said outer shell in alignment with a radius of said outer shell, and at least one additional switch identical to said first-named switch and similarly mounted

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in said space, said additional switch being positioned longitudinally and circumferentially distant from said first-named switch.

4. An electric cigarette lighter comprising an inner substantially rigid non-conducting shell having a glow element at one end thereof and an outer non-conducting shell of yieldable material concentric with and radially spaced from said inner shell thereby providing a space between said shells, and a switch mounted in said space and connected in series with said glow element, said switch comprising a contact secured to said inner shell and a movable contact positioned between said first-named contact and said outer shell in alignment with a radius of said outer shell, and at least one additional switch identical to said first-named switch and similarly mounted in said space, said additional switch being positioned longitudinally and circumferentially distant from said first-named switch.

5. An electric cigarette lighter comprising an inner substantially rigid non-conducting shell having a glow element at one end thereof and an outer non-conducting shell of yieldable material radially spaced from said inner shell thereby providing a space between said shells, means maintaining said shells in said radially spaced relationship, a switch mounted in said space and connected in series with said glow element, said switch comprising a fixed contact and a movable contact, said movable contact being positioned between said fixed contact and said outer shell in alignment with a radius of said outer shell, and at least one additional switch identical to said first-named switch and similarly mounted in said space, said additional switch being positioned circumferentially distant from said first-named switch.

6. An electric cigarette lighter comprising an inner substantially rigid non-conducting shell having a glow element at one end thereof and an outer non-conducting shell of yieldable material radially spaced from said inner shell thereby providing a space between said shells, a switch mounted in said space and connected in series with said glow element, said switch comprising a contact secured to said inner shell and a movable contact positioned between said first-named contact and said outer shell in alignment with a radius of said outer shell, and at least one additional switch identical to said first-named switch and similarly mounted in said space, said additional switch being positioned circumferentially distant from said first-named switch.

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