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AUTOMATIC ELECTRIC CIGARETTE LIGHTER FOR AUTOMOBILES

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Fig. 1

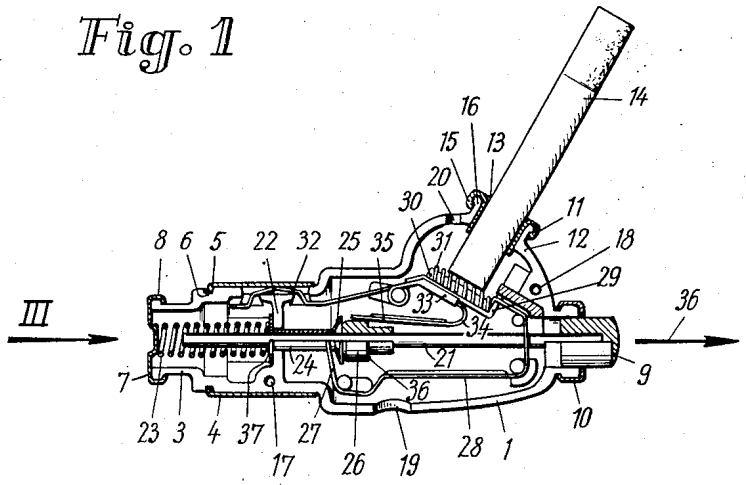
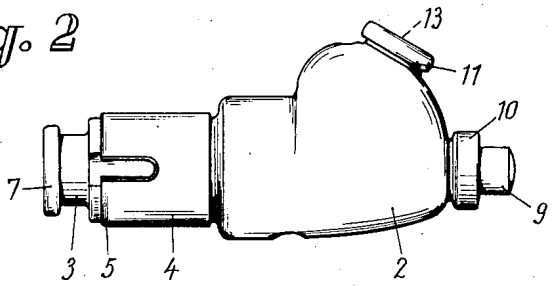


Fig. 2



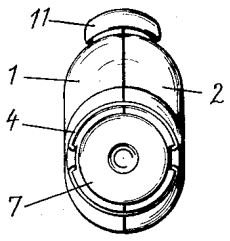


Fig. 3

INVENTOR
Werner Fülle

BY Dicke and Craig

ATTORNEYS

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AUTOMATIC ELECTRIC CIGARETTE LIGHTER FOR AUTOMOBILES

Werner Siegfried Otto Fülle, Bissingen/Enz, Germany, assignor to Robert Scheuffele & Co., Bissingen-Bietigheim, Germany

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5 Claims. (Cl. 219—32)

The present invention relates to improvements in automatic electric cigarette lighters for automobiles.

The automatic cigarette lighters of known designs generally consist of a pluglike member with a heating coil thereon, which is normally retained in a socket on the dashboard and may be pressed further into the socket to heat the coil. When the coil is red-hot, the lighter may be removed from its socket. However, as has been experienced by most drivers, the action of taking the lighter out of its socket, touching it to the cigarette, and then trying to find the socket to reinsert the lighter while driving necessarily diverts the driver's attention from the road. This is particularly true at night when it is especially difficult to find the socket in the almost total dark of the car's interior, and when such attempts to light a cigarette and return the lighter may constitute a dangerous hazard. Also, particularly at night, the light of the heated cigarette lighter close to the eyes of the driver dangerously diverts his attention.

It is an object of the present invention to provide an automatic cigarette lighter which avoids these disadvantages and allows the driver to keep his eyes fully on the road while lighting his cigarette.

A further object of the present invention is to provide an automatic cigarette lighter which avoids these disadvantages and allows the driver to keep his eyes fully on the road while lighting his cigarette.

A further object of the present invention is to provide an automatic cigarette lighter which does not have to be removed from its socket on the dashboard of the car in order to light a cigarette or cigar, and which will remain in such socket at all times. For this purpose, a cigarette is inserted into the lighter, and the latter is designed to hold the cigarette of its own accord in a position ready to be lit whenever the driver wishes to smoke. Unless the driver is familiar with the exact location of the cigarette lighter on the dashboard so that he can insert the cigarette without taking his eyes off the road, he may do so when the car is at a stop or whenever the traffic conditions are quite safe. Then, whenever he wishes to smoke, he merely needs to push the button, whereupon the cigarette lights automatically. When the cigarette is properly lit, the button again pops out automatically and thereby cuts off the current. Such popping then tells the driver that he may withdraw the properly lit cigarette. Thus, while the insertion of the cigarette into the lighter might possibly require slight attention, the actual lighting and the removal of the cigarette may be done while driving in daytime or night without requiring the driver to take his eyes off the road even for an instant.

For automatically disconnecting the current when the cigarette is properly lit, the invention provides a bimetallic switch within the lighter. This switch preferably consists of a bimetallic spring which normally rests on an insulating member which is secured to a control rod which carries the push-button on its outer end. When

the push-button is depressed, the control rod moves inwardly, the insulating member thereby slides along the bimetallic spring until the latter snaps into engagement with a shoulder on the insulating member. In this position, the control rod also automatically closes the electric circuit leading from the socket in the dashboard to the heating coil of the lighter so that this coil is heated. Since the tip of the cigarette rests upon the heating coil or the supporting member thereof, it will then be lit. Such lighting will be facilitated and insured by the passage of an air current through the lighter which for this purpose is provided with suitable apertures. Since the bimetallic spring is also connected to the heating coil or its supporting element, it will gradually also become heated. When the heating coil has been glowing for a sufficient length of time to assure a proper lighting of the cigarette, the bimetallic spring will bend and thereby disengage from the shoulder of the insulating member on the control rod so that the latter under the action of a compression spring will return together with the push-button to its normal position and thereby also interrupt the electric circuit of the heating coil.

Another feature of the invention consists in designing the opening of the lighter into which the cigarette is inserted so as preferably to extend upwardly and at an acute angle to the direction of the axis of the control rod so that the cigarette will rest by its own weight upon the heating coil. The opening for the cigarette may be of a size only slightly larger than the diameter of the cigarette. As an additional feature, the new lighter may also be designed for lighting either cigars or cigarettes. For this purpose, the opening in the lighter may be made of a size so as to permit the insertion of a cigar, and the lighter may be furnished with a reducing sleeve so that, if the driver is a cigarette smoker, he can insert this sleeve into the opening so that it will retain a cigarette.

In order to facilitate the assembly of the new cigarette lighter and thus reduce its cost, it is preferably made of two longitudinally divided half-shells, which after the assembly of the various parts therein, are secured to each other by suitable rings, sleeves, or caps, which at least partly may also serve as contact members for connecting the lighter to the current. One of these securing rings may also be made in the form of a sleeve which is mounted in the opening of the lighter and serves as a cigarette-retaining member, and one end of which is beaded over so as to grip the two shell-parts and hold them together. Another securing ring may also be provided to hold the two half-shells together at the front end of the lighter and at the same time surround the push-button and serve as a guide member thereof.

Further objects, features, and advantages of the present invention will be apparent from the following detailed description, particularly when read with reference to the accompanying drawings, in which—

Fig. 1 shows a longitudinal section through a cigarette lighter according to the invention;

Fig. 2 shows a side view thereof; while

Fig. 3 shows an end view thereof as seen in the direction shown by arrow III in Fig. 1.

Referring to the drawings, the automatic electric cigarette lighter according to the invention consists essentially of a casing which is composed of two longitudinally divided half-shells 1 and 2 which are held together by a metal contact sleeve 4 which is slipped over the usual cylindrical plug-portion 3 and has an inwardly-drawn edge 5 engaging into an annular groove 6 extending around both half-shells 1 and 2. These two parts are also held together by a metal contact cap 7 which is drawn over the end of plug portion 3 and has

an outer edge 8 which is likewise drawn inwardly, further by a metal cap 10 at the opposite end with an aperture for a push-button 9, and finally by a metal sleeve 11 in the cigarette-receiving portion 12 of casing 1, 2, which forms a lining of the inclined opening 13 into which a cigarette 14 may be inserted. The outer edge 15 of sleeve 14 is beaded over the tubular end 16 of the casing. Locating pins 17 and 18 in one half-shell 2 fit into corresponding bores in the other half-shell 1 and insure the proper position of the two half-shells relative to each other during the time when the metal sleeves and caps 4, 7, 10, and 11 are secured thereto. Casing 1, 2 is further provided at the lower side with an air opening 19 at the separating line of the two parts thereof and with another opening 20 near the cigarette opening 13.

Push-button 9 consists of a suitable insulating material and is secured to a control rod 21 which is slidably mounted in a portion 22 and extends centrally through casing 1, 2 to a point near contact cap 7 on the plug portion 3. A compression spring 23 rests at one end on contact cap 7 and acts at the other end upon a flange on a sleeve 24 which is slipped over control rod 21. At its other end, sleeve 24 carries a second flange 25 of conical shape which abuts against a shouldered insulating member 26 which is secured to control rod 21. When the lighter is inserted in the usual electric socket on the dashboard of a car, and push-button 9 is then depressed, control rod 21 is moved so as to compress spring 23 and to place flange 25 into engagement with a contact spring 27. The current supplied to contact cap 7 then flows through spring 23 to sleeve 24 and flange 25 and then through contact spring 27 and a wire 28 to a heating coil 31 which is wound on a flat member 30 of ceramic material which extends at a right angle to and in line with cigarette opening 13 and, in turn, is mounted on a bridgelike member 29 likewise of ceramic material. The current then flows through another contact spring 32 to contact sleeve 4 so that the circuit will then be closed and heating coil 31 be heated to incandescence. The connecting member 33 underenath heating coil 31 on which the end of spring 32 is mounted also supports a bimetallic spring 34. When push-button 9 is depressed, the free end 35 of spring 34 engages behind the shoulder 36 of insulating member 26 and maintains the electric connection between flange 25 and contact spring 27. As soon as heating coil 31 glows and cigarette 14 has become lit, particularly also through the passage of air through opening 19, the bi-metallic spring 34 by being heated from coil 31 bends upwardly and disengages from shoulder 36 of insulating member 26. Spring 23 then acts upon sleeve 24 so that flange 25 thereon presses upon insulating member 26 and returns control rod 21 and push-button 9 in the direction shown by arrow 36 to its released position as shown in Fig. 1, and thereby disconnects flange 25 from spring 27 so that the current is interrupted and heating coil 31 cools down. Bimetallic spring 35 then also cools and its free end comes to rest upon the thicker portion of insulating member 26. A spring ring 37 or the like prevents control rod 21 with push-button 9 from being withdrawn from casing 1, 2.

In place of an opening 13 of a diameter substantially corresponding to that of a cigarette, the same may also be made of a larger diameter for receiving a cigar. In order to adapt such cigar-sized opening also to the size of a cigarette, it may be provided with a removable reducing sleeve. Thus, with the reducing sleeve in opening 13, the lighter will be ready to receive and hold a cigarette, while when the reducing sleeve is removed, the opening will be large enough to receive a cigar. If the electric socket in the dashboard is provided with a suitable contact spring in a position corresponding to contact spring 32, sleeve 4 may also be omitted. The plug portion 3 and the socket in the dashboard may also be provided with corresponding tongues and grooves or the like so that the lighter will be held in the socket without being able to turn therein and the cigarette opening 13 will always remain in the same position.

It will thus be understood that the new lighter also serves as a cigarette-holding device. The driver of the car may insert a cigarette into the opening 13 at a time when the car is at a stop, for example, at a traffic light, or when traffic conditions are such that he can safely do so without danger, and whenever he feels like smoking, he then merely needs to press the button 9 without taking his eyes off the road, whereupon the cigarette will light automatically. The air current passing through apertures 19 and 20 will keep the cigarette lit, and the driver may withdraw the cigarette at any time.

Although my invention has been illustrated and described with reference to the preferred embodiments thereof I wish to have it understood that it is in no way limited to the details of such embodiments, but is capable of numerous modifications within the scope of the appended claims.

Having thus fully disclosed my invention, what I claim is:

1. An electric cigarette lighter for automobiles comprising a casing having an opening for inserting and holding a cigarette therein, heating means disposed within said casing in line with said opening and extending within a plane substantially at right angles to the axis of said opening, a pair of electric contacts for plugging said lighter into an electric socket, and control means for manually connecting said heating means to said contacts and for automatically disconnecting said heating means from at least one of said contacts after they have been connected for a certain length of time, said control means comprising a control rod slidably mounted within said casing and having a push-button at one end projecting from said casing through an opening therein, a compression spring connecting one of said contacts with said control rod and tending to maintain said control rod in an outward released position, an inner electric contact connected to said heating means and adapted to be connected to said control rod when said push-button is depressed and to be disconnected therefrom when said push-button is released and said control rod is moved outwardly by said compression spring, an insulating member mounted on said control rod and having a shoulder, a bimetallic spring connected to said heating means and adapted to engage with said shoulder when said push-button and control rod are depressed so as to retain the same in the depressed position, said bimetallic spring being adapted to bend when sufficiently heated by said heating means and then to disengage from said shoulder so that said control rod and push-button can then return under the action of said compression spring to the released position and thereby disconnect said control rod from said inner electric contact.

2. An electric cigarette lighter as defined in claim 1, wherein when said control rod is released and said bimetallic spring is cooled, said bimetallic spring rests under spring pressure on top of said shoulder so as to engage with said shoulder when said push-button is depressed.

3. An electric cigarette lighter as defined in claim 1, wherein said casing comprises a pair of longitudinally divided half-shells of insulating material, and means for securing said half-shells to each other including a metal sleeve within said cigarette opening and having one end thereof beaded over so as to encircle the walls of said opening.

4. An electric cigarette lighter as defined in claim 1, wherein said casing comprises a pair of longitudinally divided half-shells of insulating material, and means for securing said half-shells to each other including complementary semi-cylindrical portions projecting at the front

end of said half-shells for surrounding and guiding said push-button, and a metal cap surrounding said projecting portions and having a bottom and a central opening in said bottom for the passage of said cap over said push-button, the wall of said last opening being adapted to guide said push-button.

5. An electric cigarette lighter as defined in claim 1, wherein said heating means comprise a flat member of ceramic material and a heating coil wound upon said member and a bridgelike member secured within said casing and supporting said flat member and heating coil as well as said bimetallic spring.

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