Nov. 14, 1939. J. SINKO 2,180,069

ELECTRIC CIGAR LIGHTER

Filed Sept. 22, 1938

Fig. 1.

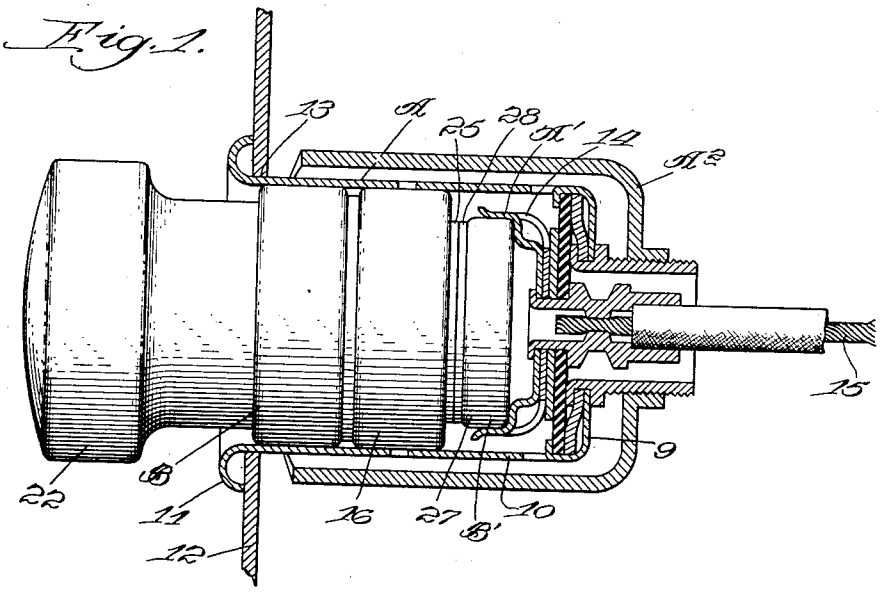

Fig. 2.

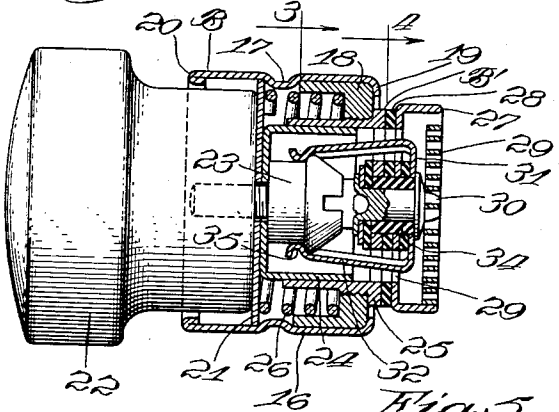

Fig. 3.

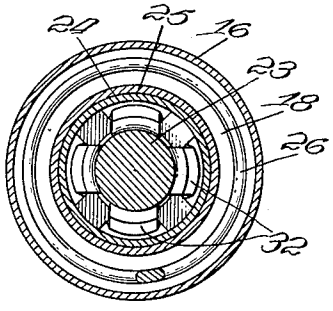

Fig. 5.

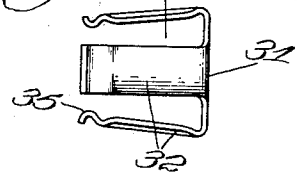

Fig. 6.

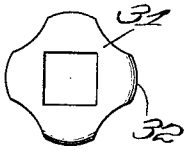

Fig. 4.

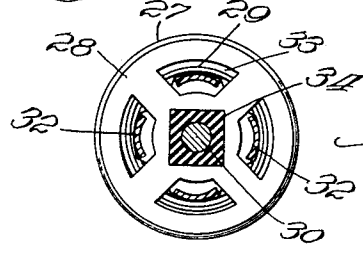

Fig. 7.

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ELECTRIC CIGAR LIGHTER

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Application September 22, 1938, Serial No. 231,241

7 Claims. (Cl. 219—32)

This invention relates to electric cigar lighters of the type used in automobiles, and more particularly to cigar lighters provided with a thermostatic switch.

The primary object of the present invention is to provide an improved mounting for a thermostat whereby the action of the switch will be more responsive to the temperature of the heating element and provide more reliable thermostatic control.

Heretofore the thermostat has been mounted within the body of the plug member and accordingly has been spaced a considerable distance from the resistance element. This resulted in lack of sensitivity on the part of the thermostat and not only would delay opening the switch after the resistance element had attained a desired temperature but would also leave the thermostatic switch open for a considerable period after the switch had opened so that automatic control could not be resumed for several minutes after the device had been operated. In the present device the thermostat may be placed as close to the heating element as desired but sufficient clearance should be provided to prevent a short circuit. As the thermostat is rigidly mounted with respect to the heating element, it may be placed closer than the clearance allowed in other types of cigar lighters where the thermostat is mounted on the base terminal of the socket member or around the cup-shaped contact member on the plug.

The invention is illustrated in a preferred embodiment in the accompanying drawing, in which—

Figure 1 is a broken longitudinal sectional view of a socket member showing the withdrawable plug in normal deenergized position; Fig. 2, a sectional view of the removable plug member in collapsed or energized position; Fig. 3, a sectional view, taken as indicated at line 3 of Fig. 2; Fig. 4, a sectional view, taken as indicated at line 4 of Fig. 2; Fig. 5, an elevational view of the improved thermostat; Fig. 6, an end view of the same; and Fig. 7, a sectional view, taken as indicated at line 7 of Fig. 5.

In the embodiment illustrated, A designates a socket member provided with a base terminal A′ and a panel clamping yoke A^2; and B, a removable plug member provided with an igniting unit B′.

The socket member A may comprise a cylindrical cup-like member having a closed end wall 9, a side wall 10 adapted to form one terminal for the plug member B and the edges of its open end may be rolled over, as indicated at 11, to form a flange adapted to abut against a mounting panel 12 which is perforated, as indicated at 13, to receive the socket member.

The base terminal A′ is insulated from the side wall 10 of the socket and preferably has spring fingers 14 to releasably grip the heating unit B′ and electrically connect it with the lead-in wire 15.

The removable plug member B is shown with a metallic shell 16 which serves as a hollow body member in which the switch operates. The shell is shown provided with an inwardly struck groove 17 against which a bushing 18 is gripped by spinning over the end wall, as indicated at 19. The rear end of the shell is turned inwardly, as indicated at 20, to confine a metal slide washer 21 which is secured to a suitable knob 22 by means of a headed stud 23. A cup-shaped guide-member 24 is also secured to the knob 22 by means of the stud 23 and cooperates with a guide-sleeve 25 on the removable igniting element B′ to keep the knob in axial alignment. A coil spring 26 urges the knob outwardly into extended open circuit position. This spring also serves to maintain good electrical contact between the stud 23 and the shell 16. The head of the stud 23 may be bevelled and a neck portion provided to be gripped by the contact arms.

The igniting element B′ is shown with a cup-shaped contact member 27 which is insulated from the threaded sleeve 25 by means of a mica washer 28 and is adapted to engage the base terminal A′ of the socket member. A heating element 29 has one end connected to the cup 27 and the other end is secured to the front head of a rivet 30 which holds the parts of the heating element in proper assembled relation. A thermostat 31 is shown with four rearwardly extending arms 32 which project rearwardly through openings 33 in the rear wall of the cup 27 and through registering openings in the end wall of the guide-member 25. It is important that these arms do not short circuit on the members 25 or 27 and accordingly the central portions of the members are provided with square openings to receive a square block of insulating material 34 which holds the openings in alignment and the arms 32 in proper registration. The insulating material 34 is hollow to receive the shank of the rivet 30.

In the drawing, the arms 32 are shown integrally formed with the base 31 but this is not essential as the arms 32 preferably are rigid and need not be made of bimetal. Preferably the arms are longitudinally grooved or made arcuate,

as shown in Fig. 7, and their end portions are provided with detents 35 which snap over the head of the stud 23. The structure and shape of the arms are particularly important if strong positive action is to be obtained. The arms, being substantially rigid, are adapted to grip the head of the switch member firmly when the spring 26 is compressed by the knob 22. As the heating element 29 heats up, the thermostat, being so closely adjacent to the element, will, within a few seconds, warp and swing the arms 32 outwardly so that the switch may pop open. It has been found that the thermostat will cool and return to operative condition within a few seconds after the heating element 29 is cooled too low to light a cigar. Thus, if the operator wishes to light another cigar, the device is again ready for automatic operation promptly.

The foregoing detailed description has been given for clearness of understanding only, and no unnecessary limitations should be understood therefrom, but the appended claims should be construed as broadly as permissible, in view of the prior art.

I claim:

1. An electric cigar lighter plug member, having a pair of contacts adapted to be brought into contact with a pair of electrical supply terminals on an associated holding member, comprising: a hollow body member; a handle member slidably mounted in said body member and provided with a movable switch member electrically connected to one of said contacts; an igniter member removably mounted on one end of the body member, said igniter member having a perforated cup-like member serving as a contact and electrically connected to a resistance element mounted therein, and a thermostatic switch member mounted in said cup-like member adjacent to said resistance element and electrically connected to one end thereof, said switch member having a plurality of contact fingers extending into the body of said plug through the perforations in the cup-like member and adapted to grip the movable switch member and close the circuit; and a spring urging said switch members into open circuit position.

2. An electric cigar lighter plug member comprising: a hollow body affording a ground contact; a knob having a switch contact movably mounted within said body and connected to said ground contact; a spring urging said switch contact rearwardly; and an igniter member mounted on the front end of said body having a perforate contact cup to engage a socket contact, a resistance element in said cup having one end connected thereto, and a thermostatic switch member mounted in said cup adjacent to said resistance element and electrically connected to the other end thereof, said switch member having a plurality of contact arms extending into said body through the back of said cup and adapted to grip the movable switch member releasably to close the circuit when the spring is compressed by said knob.

3. A device as specified in claim 2, in which the contact arms are integrally formed with the thermostat and are grooved longitudinally to make them less flexible.

4. A device as specified in claim 2, in which the movable switch member is in the form of a stud having a head and neck, and the contact arms are arcuate in cross-section and provided at their ends with detents to snap over said head and engage said neck.

5. A device as specified in claim 2, in which the igniter member is provided with a guide-sleeve, and said sleeve, thermostat, and back of the cup are locked against relative rotation by an insulating block.

6. A detachable igniter unit for use on the withdrawable plug member of an electric cigar lighter comprising: a sleeve adapted to be secured to a plug member, a cup-shaped contact member supported by and insulated from said sleeve, a heating member within and having one end electrically connected to said cup-shaped contact member, a thermostatic switch member mounted in said unit between the heating element and rear wall of the cup and electrically connected to the other end of said heating element, said member having arms extending rearwardly through the rear wall of said cup within said sleeve so as to be guarded thereby, and a centrally disposed rivet for clamping the assembly together.

7. A device as specified in claim 6, in which the sleeve, thermostat, and cup are locked in proper registration by means of an insulating block surrounding the shank of the rivet.

JOHN SINKO.