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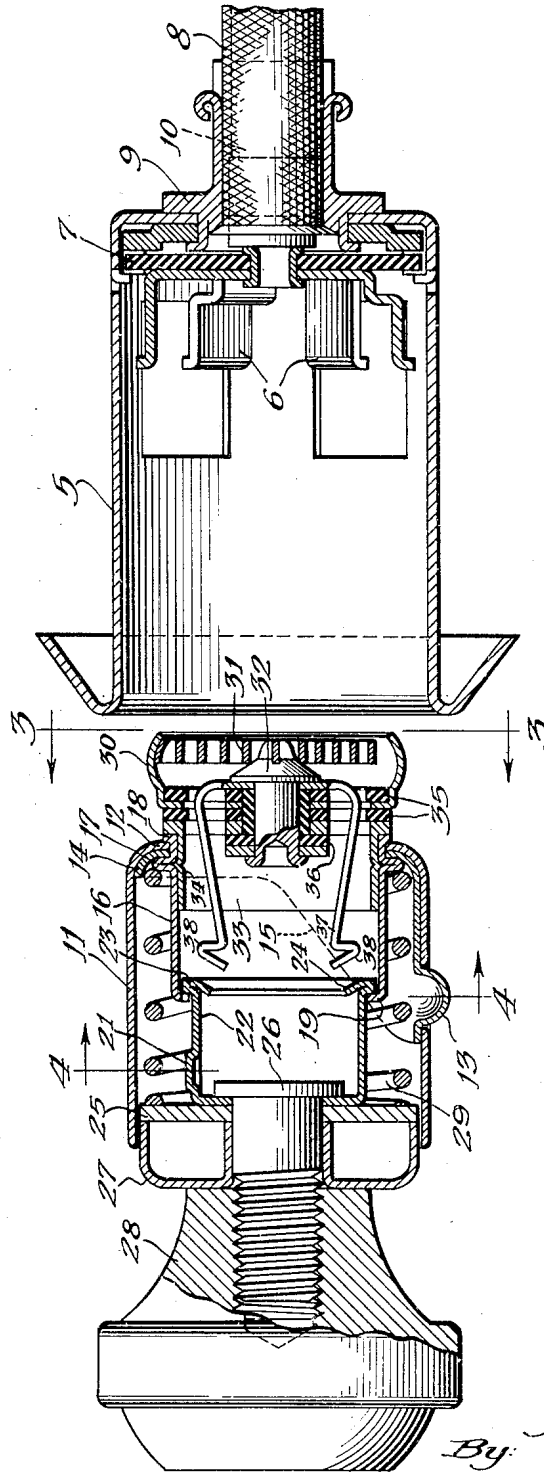
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CIGAR LIGHTER

2,498,116

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FIG. 1



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Fig. 2.

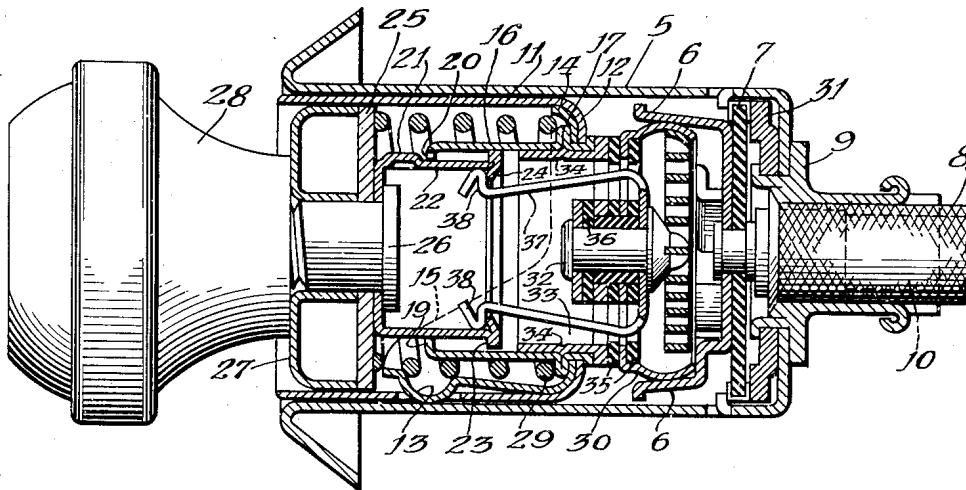


Fig. 3.

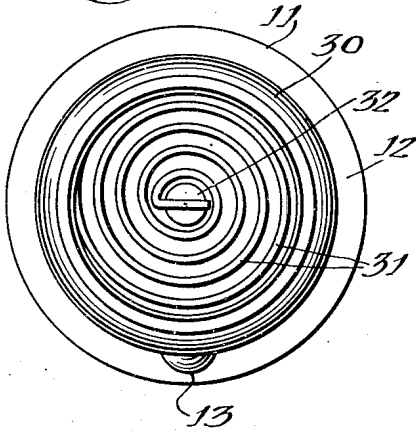
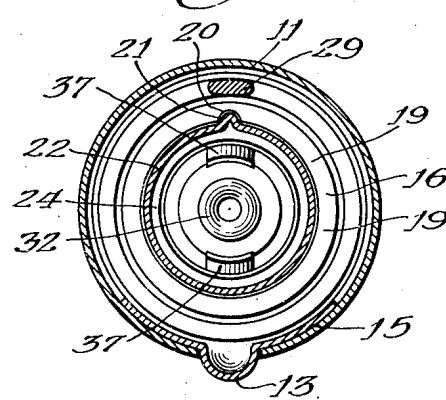


Fig. 4.



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CIGAR LIGHTER

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5 Claims. (Cl. 219—32)

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This invention relates to cordless cigar lighters of the type used in automobiles, motor-boats, and the like, and more particularly to an improved cigar lighter plug containing a thermostatic switch.

The primary object of the invention is to provide an improved thermostatic switch wherein the thermostatic arms and detents move inwardly when heated to open the circuit.

A further object of the invention is to provide an improved body member and friction contact adapted to be held firmly in a tubular socket member.

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

Figure 1 is an exploded longitudinal sectional view of the plug withdrawn from the socket member; Fig. 2, a longitudinal sectional view of the plug in the socket with the switch closed; Fig. 3, an elevational view of the front end of the plug, taken as indicated at line 3—3 of Fig. 1; and Fig. 4, a vertical sectional view, taken as indicated at line 4—4 of Fig. 1.

In the embodiment illustrated, the socket member has a tubular metal body 5 which affords a ground terminal for the plug member and may be attached to an instrument board by a suitable means, not shown. The closed front end of the socket member is provided with a plurality of spring fingers 6, which are mounted on an insulating washer 7 and form a current supply terminal for a wire extending through an insulating sheath 8 in a housing 9 which may contain a fuse 10.

The cigar lighter plug which is the subject matter of the present invention has a metal body 11 provided at its front end with an inwardly curved flange 12. A dome-shaped metal contact button 13 extends outwardly through a hole in the body 11 and has a circular base portion 14 which fits closely within the flange 12 of the body member. The supporting portion 15 for the dome is rather heavy, so that considerable pressure is required to depress the dome, and when the plug is inserted into the socket good electrical contact will be maintained and the plug will be firmly but releasably held in the socket.

A guide sleeve 16 is provided with an outwardly extending shoulder 17 which bears against the flanged base 14 and is crimped against the end flange 12 of the body by the front end portion 18 of the sleeve. The rear end portion of the guide sleeve is provided with an inturred flange 19 which is provided with a rounded notch 20.

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A movable hollow contact body 22 has an outwardly extending shoulder 23 which is adapted to slide in the sleeve member 16 and have its rearward travel limited by the flange 19. The front end of the member 22 is also provided with an inwardly and rearwardly directed contact flange 24 which forms an electrical contact for the thermostatic switch. The rear portion of the contact member 22 is turned inwardly and is gripped against a metal washer 25 by a headed screw 26 which extends through a hollow spacing washer 27 into an ornamental hand knob 28. One side of the movable contact member 22 is provided with an outwardly struck detent 21, which is adapted to engage the notch 20 when the movable contact is thrust deeply into the sleeve member, and thereby prevents rotation between the movable contact and the fixed guide sleeve, so that the knob 28 may be tightened on the screw 26 without disassembling the plug. A compression spring 29 bears against the washer 25 and the inner front end of the body member, so as to urge the movable contact rearwardly but always maintain a good electrical connection between the dome 13 and the contact flange 24.

The igniter element has a cup-shaped contact 30 which is maintained in electrical connection with the fingers 6 of the socket member when the plug is in the socket. A resistance element 31 is secured to the contact 30, and is in the form of a coil with its inner end carried by the head of a slotted stud 32. The igniter element also has a rearwardly extending neck portion 33, and makes a tight friction fit with the inner portion of the guide sleeve 16. Preferably, a small bead 34 is provided on the neck portion to engage a groove inside of the shoulder 17, so that considerable force is required to remove the igniter member from the plug. The front end of the member 33 is in the form of a spider and is secured to the cup member 30 by the crimped rear end of the stud 32, but is insulated from those parts by insulating washers 35 and 36.

Large openings are provided through the igniter element, so that heat from the element 31 may be transferred readily into the body of the plug. Bimetal contact arms 37 extend rearwardly through said openings and are secured in position by the head of the stud 32. The arms have outwardly extending detents 38 which are forced inwardly by the contact flange 24 when the plug member is telescoped, and hold the plug in collapsed position until the bimetal is heated sufficiently to cause the detents to swing inward-

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ly and permit the spring 29 to return the movable contact to the open circuit position shown in Fig. 1. This movement is usually accompanied by an audible click, indicating to the user that the plug is ready for use. However, the dome-shaped contact 13 has sufficient friction to prevent the plug from popping out of the socket, or opening the circuit between the contact 30 and the terminal arms 6.

The foregoing detailed description is given for clearness of understanding only, and no unnecessary limitations should be understood therefrom, for some modifications will be obvious to those skilled in the art.

I claim:

1. A cigar lighter plug comprising: a hollow body having a front end-flange; a dome-shaped button yieldingly urged outwardly through the wall of the hollow body, the base portion of said button being circular and permanently secured to the inner front end-portion of the body; an igniter member fixedly mounted on the forward end of said body and having a contact to engage a second socket contact, said igniter member having a rearwardly extending guide sleeve having a pair of inwardly presented spaced stops; bimetal arms mounted on said igniter member and extending rearwardly into the body, said arms having outwardly extending detents; a movable contact member slidably mounted in said sleeve for movement limited by said stops, said movable contact having an inwardly presented shoulder adapted to be engaged by said detents to complete an electrical circuit through the igniter member; a spring urging the movable contact outwardly to break the circuit when released by the detent; and a knob on said movable contact for handling the plug.

2. A cigar lighter plug comprising: a hollow metal body having a front end-flange; a dome-shaped contact button extending outwardly through a hole in said metal body and having a circular flanged base adjacent to the inner side of said front end-flange of the body; a rearwardly extending inner guide sleeve having an outwardly extending shoulder against which the flanged base of the contact button and end-flange of the body are crimped by the inner end portion of said sleeve; an igniter member having a neck portion engaged by said sleeve, said member having a resistance element in circuit with an end contact and with rearwardly extending detents; a movable contact slidably mounted in the sleeve and having an inwardly directed flange to be engaged by said detents; a spring urging said movable contact rearwardly; and a hand knob mounted on the rear end of the movable contact.

3. A cigar lighter plug comprising: a hollow metal body adapted to make electrical contact with a tubular socket contact, said body having an inner rearwardly extending fixed guide sleeve

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provided at its rear end with an inwardly directed stop flange and near its inner front end with a groove; an igniter member having a neck portion provided with an outer bead to engage the groove in said sleeve, said member having a resistance element in an electrical circuit with an end terminal, adapted to engage a second socket contact, and with rearwardly extending bimetal arms having outwardly extending detents; a movable contact slidably mounted in the guide sleeve and having an outwardly extending shoulder to engage said stop flange and an inwardly directed flange to be engaged by said detents; a spring urging said movable contact rearwardly against the stop flange when in normal open circuit position; and a hand knob mounted on the rear end of the movable contact.

4. A cigar lighter plug comprising: a hollow body provided with a metal contact which is yieldingly urged outwardly to engage a tubular socket contact; an igniter member mounted on the forward end of said body and having a contact to engage a second socket contact; a guide sleeve secured to the front of the body and extending rearwardly into said body, the rear portion of said sleeve having an inturned stop flange and its intermediate portion having a stop abutment, a knob-supporting base slidably mounted in the rear of said body and having a forwardly extending tubular contact body provided at its front end with an outwardly extending guide flange to engage slidably the inner portion of said guide sleeve between said stop flange and stop abutment, said guide flange also having an inturned contact flange making an electrical connection with said metal contact; a compression spring between the guide sleeve and body urging the knob-supporting base rearwardly; and a thermostat electrically connected to said igniter member and adapted to engage the inturned contact flange and close the circuit when said flange is pressed forwardly against the pressure of said spring.

5. A device as specified in claim 4, in which the rear stop flange on the guide sleeve has a notch, and the movable contact body has an outwardly extending detent near its rear portion to engage said notch when pushed into interlocking engagement by the knob.

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