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ELECTRIC LIGHTER

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Fig. 1

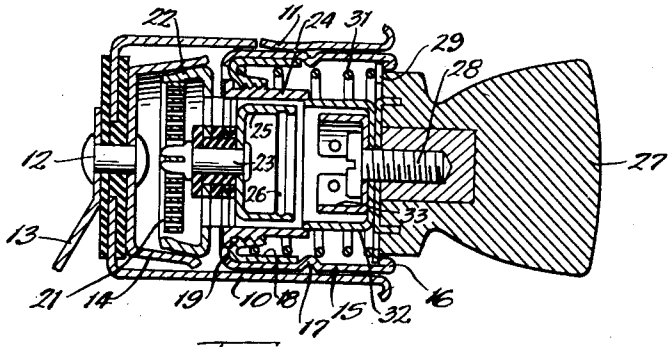


Fig. 2

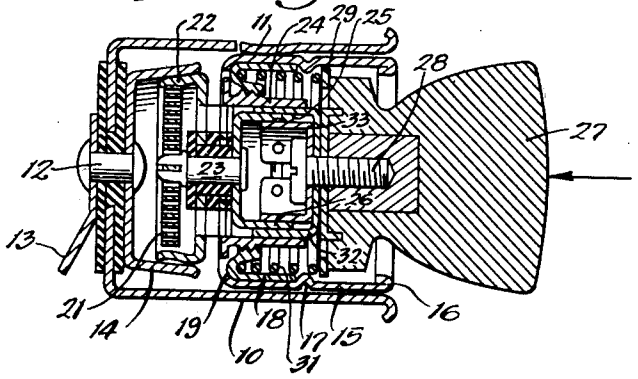
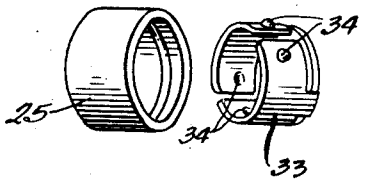


Fig. 3



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ELECTRIC LIGHTER

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2 Claims. (Cl. 219—32)

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This invention relates to electric lighters and more particularly to electric cigar and cigarette lighters of the so called "wireless" type as used in automobiles and the like.

Lighters of this type as heretofore constructed have commonly employed a thermostatic latch either in the socket or in the removable plug connected to the heating element. When the thermostatic latch is in the socket it cools slowly upon removal of the plug since it is substantially enclosed in the socket. When the latch is in the plug is also cools slowly due to its connection to the heating element. In either case the element cannot be reheated until the plug has been out of the socket a substantial period of time to allow the thermostat to cool, the time required in many instances being much greater than that required for the heating element to cool to the point where it will not ignite a cigar or cigarette.

One of the objects of the present invention is to provide an electric lighter which can be relighted quickly after removal of the plug from the socket. The lighter of the present invention is always in condition to be relighted by the time the heating element has cooled below the ignition temperature of a cigar or cigarette.

Another object is to provide an electric lighter in which the thermostat is physically separate from the socket and the heating element, whereby it will cool quickly when the plug is removed from the socket. The thermostat is preferably so connected to the plug body that the full heat radiating surface of the body is available to assist in cooling the thermostat.

Still another object is to provide an electric lighter in which a large area contact is made when the lighter is in heating position. According to one feature of the invention, interfitting elements other than the thermostat engage each other to complete the circuit through the heating element.

The above and other objects and advantages of the invention will be more readily apparent from the following description when read in connection with the accompanying drawing, in which:

Figure 1 is a sectional view of a lighter embodying the invention with the circuit through the heating element interrupted;

Figure 2 is a view similar to Figure 1 showing the lighter in heating position; and

Figure 3 is a partial perspective view of the thermostatic latch parts.

As shown in Figures 1 and 2, the complete lighter assembly includes a tubular socket 10 which may be of metal and which is adapted to fit into an opening in the dashboard of an automobile, or the like. The socket 10 may be formed with one or more pressed out spring fingers as indicated at 11 to form electrical contact with the lighter plug body, it being understood that the socket body is connected to one side of a source of current such as the vehicle battery through the dashboard. The socket carries a base contact shown as a rivet 12 insulated from the socket body 10 and connected to the other side of the current source through a terminal 13. On the interior of the socket, the rivet 12 is secured to a cup shaped contact member 14 adapted to engage the plug as described hereinafter.

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The lighter is completed by a removable plug having a cylindrical body portion 15 of metal turned over at one end as indicated at 16 to form a stop shoulder. The body 15 may have an inwardly struck groove intermediate its ends to form a stop for an internally threaded connector part 18. The connector part 18 is rigidly held in the body by rolling the end of the body thereover as shown at 19.

At its inner end, the plug body carries a heater element 21 which may be in the form of a spiral strip of metal. The strip is enclosed in a cup shaped housing 22 to which one end of the strip 21 is secured by welding, or the like. The opposite end of the strip is secured to a central post 23 which is insulated from the housing 22. The housing 22 is connected through insulators, as shown, to a guide sleeve 24 threaded on its exterior to be threaded to the support connector part 18 rigidly to secure the heating element to the inner end of the body. The rivet 23 carries within the body a cup shaped contact and latch member 25 which is spaced from the guide sleeve 24 and which is formed on its interior with an annular groove 26 providing a latch shoulder.

The opposite end of the body 15 slidably receives a handle member having an outwardly extending handle part 27 of plastic, or like material. To the inner end of the handle part 27, there is secured, as by means of the threaded stud 28, a disc 29 which slidably fits in the interior of the body 15 and engages the shoulder 16 to prevent removal of the handle member from the body. A spring 31 engaging the disc 29 and the connector part 18 urges the handle member away from the heating element to the position shown in Figure 1.

At its inner end, the handle part 27 rigidly carries a cup shaped guide member 32 which slidably fits within the guide sleeve 24. Inside the guide member 32 and spaced from the walls thereof is a generally cup shaped thermostatic

latch member 33 which is adapted slidably to fit into the contact member 25. As best seen in Figure 3, the thermostatic member 33 is formed on its exterior with outwardly extending projections 34 to engage the groove 26 to hold the lighter parts in heating position. The thermostatic member is so arranged that when heated, it contracts to move the projections 34 out of the groove.

In using the lighter, the plug is inserted into the socket so that the plug body 15 will engage the socket to establish contact therewith and so that the housing par 22 will engage the base contact 14 in the socket. When the handle part 27 is pressed in, as shown in Figure 2, the guide sleeve 32 will engage the exterior of the contact 25 to complete a circuit between the contact 25 and the plug body directly from the contact 25 through the guide member 32 and to the guide sleeve 24. This arrangement provides a relatively large contact area so that a good low resistance contact is insured.

At the same time, the thermostatic member 33 will enter the cup shaped contact 25 until the projections 34 engage the groove 26. The contact 25 and thermostatic member 33 at this time function as a latch to hold the plug parts in the position shown in Figure 2 in which a circuit through the heating element is established.

As the heating element heats the thermostat will become heated and will contract inward until the projections 34 move out of the groove 26. At this time the spring 31 will return the handle member to the position shown in Figure 1 indicating to the user that the lighter is in heated condition for use. The entire plug may thereupon be removed from the socket and used for lighting cigars or cigarettes in the usual manner.

Upon removal of the plug from the socket, the heating element starts to cool and at the same time the other parts of the plug cool. Since the thermostatic member 33 is disconnected from the heating element and is in relatively intimate contact with the plug body, it will cool rapidly. Therefore, by the time the heating element has reached a temperature below the ignition point of a cigar or cigarette, the thermostatic member will have again expanded substantially to its original position and will be ready to reengage the groove 26 upon reinsertion of the plug into the socket. It has been found that a lighter constructed according to the present invention can be relighted with any degree of frequency reasonably required by use and certainly within the interval required for the heating element to cool below the ignition temperature of tobacco. Furthermore, due to the large contact area provided by the guide members, as well as by the thermostat, when the parts are in lighting position, the heating element will heat rapidly and positively on each operation.

While one embodiment of the invention has been shown and described in detail it is to be understood that this is illustrative only and is not to be taken as a definition of the scope of the invention, reference being had for this purpose to the appended claims.

What is claimed is:

1. An electric lighter for use with a socket having a side wall current supply terminal and a central base current supply terminal insulated from the side wall, said lighter comprising a hollow body to fit in the socket and establish contact with the side wall terminal, an electrical heating element carried by the front end of the hollow body and insulated therefrom, one end of the electrical heating element being formed for contact with the base terminal, a handle member slidable in the body, a spring in the body urging the handle member away from the heating element, a guide sleeve in the body electrically connected thereto, a cup shaped guide member on the handle member slidably fitting in the guide sleeve, a contact member connected to the other end of the heating element slidably to fit into the guide member and to establish electrical contact therewith when the handle member is pressed toward the heating element and to disengage the guide member when the handle member is moved away from the heating element, and a thermostatic latch in the body separate from the contact to hold the handle toward the heating element and to release when heated so the spring can move the handle away from the heating element.

2. An electric lighter for use with a socket having a side wall current supply terminal and a central base current supply terminal insulated from the side wall, said lighter comprising a hollow body to fit in the socket and establish contact with the side wall terminal, an electrical heating element carried by the front end of the hollow body and insulated therefrom, one end of the electrical heating element being formed for contact with the base terminal, a handle member slidable in the body, a spring in the body urging the handle member away from the heating element, a guide sleeve in the body electrically connected thereto, a cup shaped guide member on the handle member slidably fitting in the guide sleeve, a contact member connected to the other end of the heating element slidably to fit into the guide member when the handle member is pressed toward the heating element and to disengage the guide member when the handle member is moved away from the heating element and a thermostatic latch carried by the handle member and engageable with the contact member to hold the handle member toward the heating element and to disengage when heated whereby the spring can move the handle member away from the heating element.

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