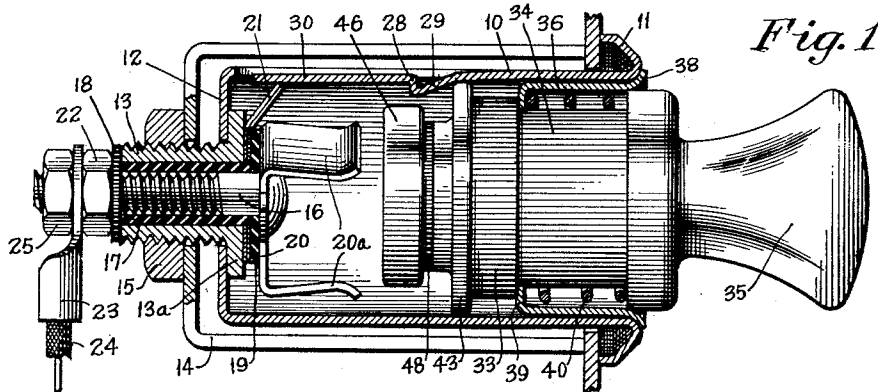
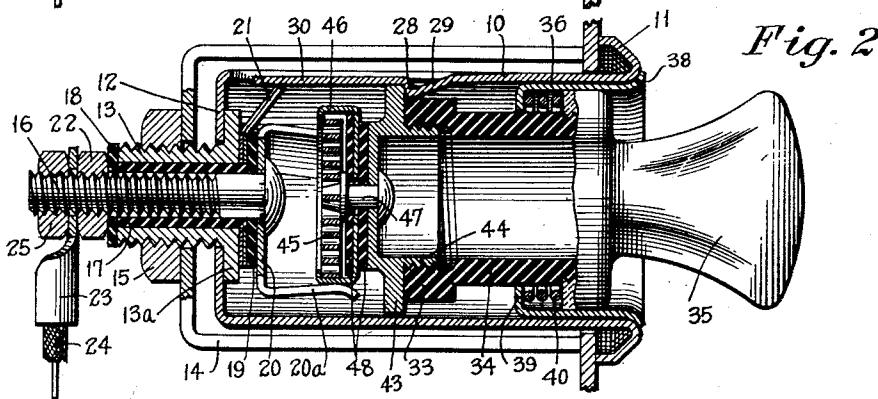
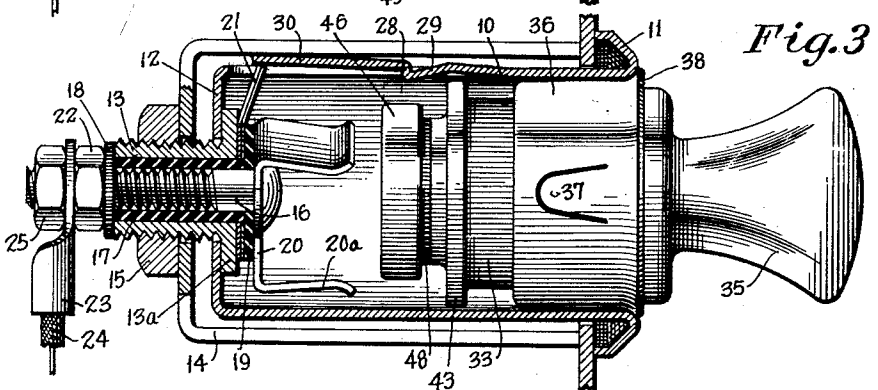


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CIGAR LIGHTER

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The invention relates to an electric cigar lighter and, more particularly, to an automatic cigar lighter adapted to be mounted in an automobile on the dashboard or the like.

In some of the current cigar lighters which are automatically controlled, the heat-responsive means is formed by bending a bimetallic strip sharply so as to extend into the holder and have a latch thereon to hold the heating element in closed-circuit position and release the same upon the heating element attaining its predetermined heat.

This construction, in some instances, has been objectionable because of the sharp bend in the bimetallic member. Also, a strain would be placed on the heat-responsive members due to their holding action on the heating element.

According to the present invention, a latch is struck out from the body of the holding device and is adapted to engage the igniting unit when the heating element is moved into closed-circuit position to hold the heating element in said position. The latch is provided with a long arm extending toward the base of the holder into a position to be engaged by a heat-responsive means which serves merely the function of releasing the latch.

According to the present invention, the heat-responsive means may be of any form, but, in the present preferred embodiment, it comprises a thermostatic strip having a slight bend or deflection at one end thereof adapted to engage the long arm of the latch. The heat-responsive means is in heat-receiving relation with the heating element and when the heating element is brought to the desired heat the heat-responsive means or bimetallic strip will flex or straighten out, moving the long arm of the latch so as to move the latch into release position.

In this invention, the bimetallic strip is mounted in the base of the holder and is electrically insulated from the electrical circuit for energizing the heating element so that its action is directly in response to the heat of the heating element and is not affected by any current passing through the same. Since it merely functions to move the arm outwardly to release the latch, it does not have any great strain placed upon it and does not have to be bent to such a degree as to put objectionable stresses in the material thereof.

Also, with this arrangement of parts, the latch can be formed very readily by a simple lancing-out process so that it is integral with the body of the holder and, due to the fact that the holder

is made of resilient material, it will readily flex in its operation to latch and release the heating element in and from closed-circuit position. This reduces the number of operations necessary in manufacturing and thus reduces the cost of the same.

Other features and advantages will be apparent from the specification, when taken in connection with the drawing, in which:

Figure 1 shows a view of the invention partly in section with the igniting unit in normal inoperative position.

Fig. 2 shows a longitudinal section of the device with the igniting unit in circuit-closing position.

Fig. 3 shows a view similar to Fig. 1, after the heating element has acquired the desired heat and the latch has been released.

According to the present invention, a holder 10 is provided at its outer end with an outturned flange 11 adapted to engage the front face of a dashboard or other support when the holder is positioned in an aperture therein. The other end of the holder is closed by a transverse end wall 12 having a sleeve 13 passing therethrough.

The sleeve is provided with an outwardly extending flange 13a which is secured by welding or otherwise to the end wall to lock the sleeve in place. A stirrup or U-shaped bracket 14 is provided with an aperture in the transverse part thereof and is adapted to be positioned over the sleeve and locks it in place with its forward end against the back of the dashboard or other support by means of a nut 15 threaded on the sleeve. This arrangement greatly facilitates the mounting of the holder in position on the dashboard or other support.

A bolt 16 is mounted in the sleeve 13 and insulated therefrom by an insulating sleeve 17 and a pair of washers 18 and 19. A contact 20 is positioned under the head of the bolt so as to be clamped against the insulating washer 19 and is provided with outwardly projecting spring fingers 20a, which extend into the holder. Clamped between the washer 19 and the flange of the sleeve is a heat-responsive member, preferably a bimetallic element 21 shaped as in Fig. 1. It will be noted that this bimetallic element has only one slight bend in contradistinction to the thermostatic latches in current use which have a pronounced bend therein so that they can extend into latching relation with the heating element. The sharp bends thus formed in the bimetallic elements are objectionable and, in some cases, the strain put on the bimetallic element by the action of the same as a latch for holding the

heating element in normal position tends to throw them out of adjustment so that they will not function accurately in response to the heat of the heating element. The bolt, insulation, contact and bimetallic element are locked in position in the holder by a nut 22.

The contact is connected to a source of energy by means of a connector lug 23 mounted on the bolt and secured to a conductor 24, which is connected to the battery or other source of energy of the automobile. The lug 23 is locked in place on the bolt by means of a nut 25.

According to the present invention, a latch 28 is struck out from the body of the holder and is disposed on the holder, as shown in Fig. 1, so as to extend into the holder. This will be resiliently mounted due to the sheet metal from which the holder is made and will of course be integral with the holder. The side of the latch facing the front end of the holder is provided with a camming face 29. The latch is also provided with an arm 30 which extends toward the closed end of the holder and into a position to be engaged by the bimetallic element as will be later explained.

The igniting unit, which is removably mounted in the holder and movably mounted on the holder for movement into a deep circuit-closing position, comprises a tubular body 33 of insulating material having a maximum diameter which is less than the internal diameter of the holder. The tubular body has a portion 34 of reduced diameter to which is threaded a handle 35.

A friction sleeve 36 is adapted to be mounted on the igniting unit and is provided with a plurality of friction fingers 37 which are lanced therefrom and are adapted to engage the inner surface of the holder to hold the igniting unit in place against accidental removal. The friction sleeve has an outwardly flared end 38 which is adapted to engage the end of the holder to limit inward movement of the same in the holder and is provided at its other end with an intumed flange 39 which is adapted to engage and slide upon the reduced portion of the tubular body.

A coil spring 40 is adapted to surround the reduced portion of the tubular body and have one end in engagement with the intumed flange 39 and the other end abutting against the handle threaded to the end of the tubular body. With this construction, it will be seen that the igniting unit is normally held in a shallow position in the holder but can be moved inwardly to a circuit-closing position by compressing the spring, as shown in Fig. 2.

The other end of the tubular body has a conducting cap 43, secured thereto by means of an outwardly extending neck 44, which is threaded into the end of the tubular body. The conducting cap is of a diameter which slidably fits the internal diameter of the holder so that the edge of the same extends beyond the outer surface of the tubular body and forms an abutment on the igniting unit.

A heating element 45 has one end secured to a contact cup 46 and the other end secured in a slot in the central stud 47. The contact cup and heating element are mechanically connected to the conducting cap by means of the central stud. The contact cup, however, is electrically insulated from the conducting cap and stud by insulation 48. The stud, however, electrically connects to the end of the heating element to the conducting cap.

The igniting unit is normally positioned in the holder, as shown in Fig. 1, in a shallow inoperative position. When it is desired to use the lighter, the handle is pressed inwardly and the heating element is moved to a position in which the spring contact fingers engage the contact cup. In moving to this position, the conducting cap will engage the camming face on the latch and flex the latch outwardly to permit the cap to pass thereby. As soon as the cap has passed from the camming face, the latch, due to the resiliency of the material in the holder, will snap into engagement with the abutment, as shown in Fig. 2, and hold the heating element in closed-circuit position.

The energizing circuit for the heating element will be from the source of energy, through the conductor 24, connector lug 23, bolt 18, contact 20, contact fingers 20a, contact cup 46, through the heating element 45, to the central stud 47, to the conducting cap 43, through the holder to ground.

When the heating element has acquired its predetermined heat, the bimetallic strip 21, which is in heat-receiving relation with the heating element, will flex and tend to straighten out. The end of the bimetallic element will bear against the arm of the latch and raise the latch out of engagement with the abutment on the igniting unit whereby the spring 40 will return the heating element to shallow open-circuit position. The heating element moves to this position and will be accompanied by an audible click to indicate to the user of the device that it has acquired its predetermined temperature. With this arrangement, the construction is simplified. This requires merely a single bimetallic strip which is not in the electrical circuit but is merely in heat-receiving relation with the heating element. It will be seen that the latch carries the strain occasioned by the ejector spring attempting to move the igniting unit to open-circuit position and the thermostat need only flex outwardly to move the latch a short distance to release the latch from latching engagement. Due to the long lever arm connected to the latch, very little strain is placed on the thermostatic element in releasing the latch.

Since no current flows through the bimetallic element, its operation is entirely dependent upon the heat of the heating element.

Variations and modifications may be made within the scope of this invention and portions of the improvements may be used without others.

I claim:

1. In an electric cigar lighter, a holder; an igniting unit mounted on the holder for complete removal for use; a heating element carried by the igniting unit; an abutment formed on the igniting unit; a latch lanced from the holder and engaging the abutment on the igniting unit to hold the heating element in circuit-closing position; and heat-responsive means for engaging and releasing the latch when the heating element has attained its predetermined heat.

2. In an electric cigar lighter, a holder; an igniting unit mounted on the holder for complete removal for use; a heating element carried by the igniting unit; an abutment formed on the igniting unit; a latch lanced from the holder and engaging the abutment on the igniting unit to hold the heating element in circuit-closing position; and heat-responsive means for engaging and releasing the latch when the heating element has attained its predetermined heat, said latch being

provided with a long arm extending toward the base of the holder for engagement by the heat-responsive means.

3. In an electric cigar lighter, a holder; an igniting unit mounted on the holder for complete removal for use and movable in the holder to a deep circuit-closing position; a heating element carried by the igniting unit; an abutment formed on the igniting unit; a latch on the holder adapted to engage the abutment on the igniting unit when the igniting unit has been moved to circuit-closing position for holding the heating element in said position during energization thereof; and heat-responsive means for releasing the latch when the heating element has attained its predetermined heat, said latch being lanced from the body of the holder and provided with a camming face adapted to be contacted by the abutment in its movement to circuit-closing position so that the latch is flexed from its normal position to permit the abutment to pass and then snaps into latched position with the abutment.

4. In an electric cigar lighter, a holder; an igniting unit mounted on the holder for complete removal for use and movable on the holder to a position in which a circuit is closed through the heating element; spring contacts carried by the holder and adapted to engage the igniting unit when moved into circuit-closing position; an abutment formed on the igniting unit; a latch on the holder adapted to engage the abutment on the igniting unit and hold the heating element in circuit-closing position; and heat-responsive means including a slightly bent bimetallic element disposed at substantially right angles to the plane of the latch and having a free end contacting and releasing the latch when the heating element has attained its predetermined heat.

5. In an electric cigar lighter, a holder; an igniting unit mounted on the holder for complete removal for use; a heating element carried by the igniting unit; an abutment formed on the igniting unit; a latch lanced from the holder and adapted to engage the abutment on the igniting unit and hold the heating element in circuit-closing position; and heat-responsive means for releasing the latch when the heating element has attained its predetermined heat, said heat-responsive means comprising a bimetallic strip separate from the latch and mounted in the base of the holder in heat-receiving relation with the heating element and adapted, when heated, to flex and engage the latch to release the same.

6. In an electric cigar lighter, a holder; an igniting unit mounted on the holder for complete removal for use and for movement into circuit-closing position; a heating element carried by the igniting unit; an abutment formed on the igniting unit; means for normally urging the igniting unit into open-circuit position; a latch lanced from the body of the holder and extending into the path of the abutment to engage the abutment when the heating element is in closed-circuit position and holding the heating element in said position against the means for urging it into open-circuit position; and heat-responsive means for releasing the latch when the heating element has attained its predetermined heat, whereby it moves to open-circuit position.

7. In an electric cigar lighter, a holder; an igniting unit mounted on the holder for complete removal for use and for movement into circuit-closing position; a heating element carried by the igniting unit; an abutment formed on the igniting unit; means for normally urging the igniting unit into open-circuit position; a latch lanced from the body of the holder and extending into the path of the abutment to engage the abutment when the heating element is in closed-circuit position and hold the heating element in said position against the means for urging it into open-circuit position; and heat-responsive means for releasing the latch when the heating element has attained its predetermined heat, whereby it moves into open-circuit position, the latch being formed with an arm extending toward the base of the holder and the heat-responsive means comprising a bimetallic element in heat-receiving relation with the heating element and adapted to engage the arm of the latch and move the latch into release position upon the heating element attaining its desired heat.

8. In a cigar lighter, a holder; an igniting unit supported on said holder for complete removal for use; a contact carried by the base of the holder; a second contact carried by the holder and insulated from the first contact, said contacts being adapted to engage contacts on the igniting unit to close an energizing circuit for the igniting unit; a latch member lanced from the holder and normally biased into the interior of the holder to engage an abutment on the igniting unit to hold the contacts in closed-circuit position; and heat-responsive means mounted in the holder to engage the latch lanced from the holder, said heat-responsive means being heated by the energized igniting unit and, upon reaching a predetermined temperature, moving the latch member into released position with respect to the abutment on the igniting unit.

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