Sept. 6, 1938. A. A. JOHNSON 2,129,374

ELECTRIC CIGAR LIGHTER

Filed Aug. 17, 1934

Fig. 1

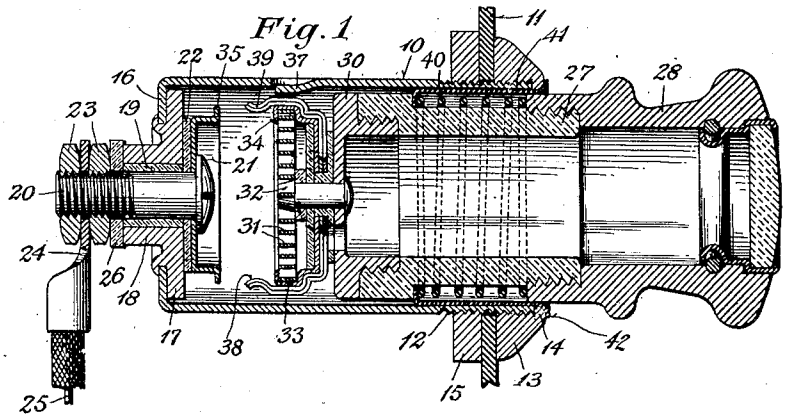


Fig. 2

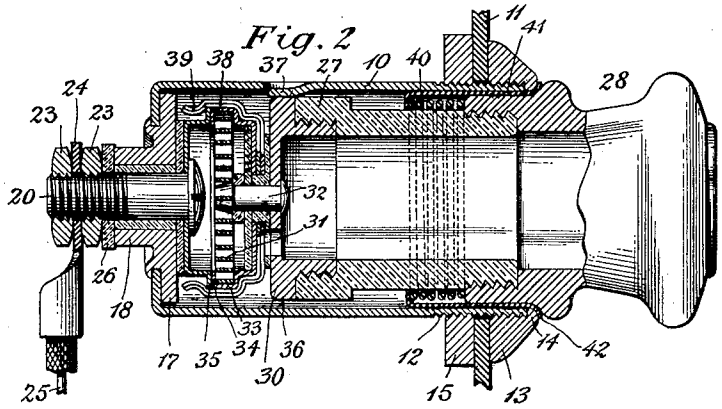


Fig. 3

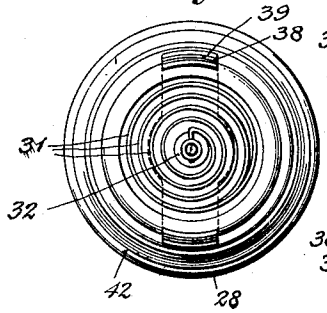
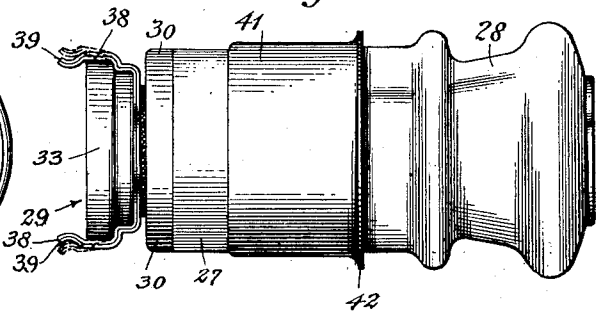
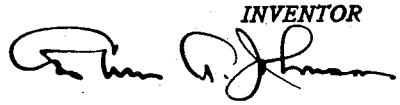


Fig. 4



INVENTOR



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UNITED STATES PATENT OFFICE

2,129,374

ELECTRIC CIGAR LIGHTER

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8 Claims. (Cl. 219—32)

This invention relates to electric cigar-lighters, and is concerned particularly with the type of cigar-lighter in which the igniting unit is completely separable and removable from a holding device or base for use.

With such cigar-lighters, the igniting unit is mounted in or on a holding device and has a normal position thereon, wherein an electric circuit including the heating element is interrupted. To bring the igniting unit to incandescence for use, it is moved relatively to the holding device to close the circuit, and upon becoming incandescent the igniting unit is removed and the incandescent heating element is applied to the end of a cigar or cigarette to ignite the same.

Heretofore, it has been proposed to latch the igniting unit in energizing position and retain it so until the heating element is ready for use. For this purpose, a bimetallic latch was employed on the holding device and in heat-conducting relation with the heating element so as to become inoperative when the heating element became hot enough for use, at which time means, usually spring means, became effective to move the igniting unit out of energizing position.

An object of the present invention is to improve this type of cigar-lighter to make it more accurately responsive to the temperature of the heating element, and to this end the present invention provides the bimetallic and thermal responsive latch on the igniting unit rather than on the holding device, so that heat from the latter is more quickly and accurately transmitted to the bimetallic latch than was possible with the latter mounted on the holding device.

With the heat-controlled cigar-lighters heretofore suggested, should the bimetallic latches become inoperative or otherwise fail to perform their intended functions, it was necessary to remove the holding device which is usually mounted in a permanent position, as, for instance, on the dashboard of an automobile, and substitute a new holding device with a properly functioning thermostatic catch.

With the device of the present invention, wherein the thermostatic catch is carried by the igniting unit, should the catch fail to function properly, a new igniting unit may be substituted for the old.

According to the present invention, the thermostatic catch may be mounted on any convenient or suitable portion of the igniting unit, but preferably it is mounted on the heating element itself, and since the heating element is removably mounted on the body of the igniting unit, should the thermostatic catch become out of order, it is merely necessary to discard the old heating element and substitute a new one, thus saving the replacement of the igniting unit as a whole.

Other features and advantages will hereinafter appear.

In the accompanying drawing—

Figure 1 is a longitudinal sectional view of one form of the cigar-lighter of the present invention, showing the igniting unit supported in its normal non-energizing position.

Fig. 2 is a similar view, showing the igniting unit in energizing position.

Fig. 3 is an end view of the igniting unit shown in Figs. 1 and 2.

Fig. 4 is a side elevation of the igniting unit.

The type of cigar-lighter shown in the accompanying drawing is that having a tube-like holding device or base member 10 adapted to extend through an aperture in a support, as, for instance, the instrument board 11 of an automobile. The end of the tube 10 has threads 12, and on the portion thereof which extends beyond the instrument board 11 there is provided a threaded disk 13 having a flange 14 for engaging the end of the shell 10. On the rear side of the instrument board the threaded portion 12 carries a nut 15 which, upon being tightened, clamps the instrument board between itself and the threaded disk 13. At its rear end, the holder-tube 10 has an inwardly extending flange 16 on which is secured a disk 17 having a boss 18. The boss 18 has an insulator sleeve 19 through which extends a screw 20, the head of which holds a contact disk 21 in place within the shell 10. The contact disk 21 is insulated from the disk 17 by an insulating washer 22. The outer end of the screw 20 carries nuts 23 between which a terminal 24 of a current supply wire 25 is secured. The inner nut 23 is insulated from the end of the boss 18 by an insulating washer 26.

Thus it will be seen that the shell 10 is mechanically and electrically connected to the instrument board 11 which is usually connected to one side of a current supply battery by a ground and that the contact disk 21 is insulated from the shell 10 and is normally alive, being connected with the current supply wire 25.

As in this type of cigar-lighter, the igniting unit of the present invention fits the shell 10 and is slid into the shell to be supported thereby in normal inactive position. In the form of the invention herein shown, the igniting unit comprises a body portion made up of a tubular portion 27 and a knob portion 28, either of which may be

made of metal or insulating material, as desired—the portion 27 being shown as made of nonmetallic material while the portion 28 is shown as made of metal.

At the inner end of the body of the igniting unit, there is removably mounted a heating element 29. This comprises a plug-like portion 30 which is screw-threaded into the inner end of the tubular portion 27, and mounted on the portion 30 is a resistance coil 31, which, upon being brought to incandescence, is applied to the end of a cigar or cigarette to ignite the same. As indicated in Fig. 3, the heating coil is in the form of a ribbon spirally wound and has its inner end secured to a stud 32, while its outer end is fastened to a cupped disk 33 and is in metallic and electrical contact therewith and secured to the portion 30 by the stud 32 but insulated therefrom. The inner end of the cupped disk 33 has a flange 34 located in alignment with a flange 35 of the contact disk 21. Hence, when the igniting unit is moved from the position shown in Fig. 1 to that shown in Fig. 2, the flange 34 engages the flange 35 and current is conducted through the part 33 to the outer end of the heating coil, and from thence through the coil to the stud 32 and plug-like portion 30 of the heating element.

Normally, the portion 30 is out of electrical engagement with the shell 10, but when the igniting unit is moved from the position shown in Fig. 1 to that shown in Fig. 2, the periphery 36 of the portion 30 moves into contact with a tongue 37 lanced from the shell 10 and bent inwardly into position to engage it, and thus the circuit is completed through the heating element and the ground.

According to the present invention, the igniting unit and heating element are held in the position shown in Fig. 2, that is to say, in energizing position, until the coil becomes incandescent and ready for use, by a thermostatically-controlled latch mounted on and carried by the igniting unit.

In the form of the invention shown herein, this is accomplished by providing on the heating element 29 a bimetallic strip 38, the ends of which are bent so as to form detents 39. The strip 38 is provided with a central apertured portion through which the stud 32 extends and is held in place in contact with the cupped disk 33 which carries the heating element.

When the igniting unit is moved from the position shown in Fig. 1 to that shown in Fig. 2, the detent portions 39 of the strip 38 snap over the flange 35 on the contact disk 21 and thus retain the heating element and igniting unit in the position shown in Fig. 2, against the tendency of a spring 40 engaging a flange on a sleeve 41 on the other side to return the igniting unit to non-energizing position. The sleeve 41 has a flange 42 engaging the disk 43 so that when the igniting unit is pushed into the position shown in Fig. 2, the spring 40 is compressed.

During the heating of the resistance coil, the heat is conducted through the cupped disk 33 to the bimetallic strip 38, and when the heating element becomes incandescent the expansion of the bimetallic strip is such that the detent portions 39 move from the positions shown in full lines in Fig. 4 to those shown in dotted lines, with the result that the flange 35 of the contact disk has disengaged and the spring 40 is allowed to return the heating element and igniting unit to the position shown in Fig. 1, at which time the igniting unit is removed from the holding device by the user and the heating coil can be applied to the end of a cigar or cigarette to ignite the same.

In the event that the bimetallic latches 38—39 become inoperative, it is merely necessary to remove the igniting unit from the holding device as though it were to be used, and, after unscrewing the heating unit from the portion 27 of the igniting unit body, the damaged heating element may be discarded and a new one substituted therefor.

Even in such cases where the heating element is not removable from the body portion of the igniting unit, the provision of the heat-responsive latches on the igniting unit is advantageous over the prior proposals where latches were carried by the holding device. For, in case the heat-responsive latch should become inoperative, it would not be necessary to disconnect the holding device, either electrically and mechanically, from the instrument board, but merely necessary to discard the igniting unit and substitute a new one having the thermostatic element in proper working order.

In the use of the device, it may be that due to delay in the application of the heating element to the cigar end, the former is not sufficiently incandescent to ignite the cigar; yet, the thermostatic latches 39 may not have returned to gripping or latching position. To permit the user to again cause the heating element to become incandescent or to bring it to a higher degree of incandescence than is controlled by the thermostatic latches 39, the cooperating contacts 35 on the holding device and 34 on the heating element may be made to engage independently of the thermostatic latch 39 by the operator holding the igniting unit in energizing position by hand.

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

Having thus described the invention, what is claimed as new and for which it is desired to obtain Letters-Patent, is:—

1. In a cigar-lighter, a base member; an igniting unit normally supported on but completely removable from the base member for use; a heating element mounted on the igniting unit for convenient removal and replacement; a circuit for conducting current to said heating element; manually operable means for closing said circuit to the heating element; and means carried by the removable heating element in permanent association therewith and responsive to the temperature of the heating element for opening said circuit.

2. In a device of the class described, a base member; an igniting unit supported on said base member for complete separation and removal for use; an electrical heating coil on said unit; means for moving said unit to an energizing position in which said coil is energized; means tending to withdraw said unit from said energizing position; and a thermostatic element carried by and permanently associated with the igniting unit and responsive to the heating of said coil for controlling the action of said withdrawing means.

3. In a device of the class described, a base member; a plug supported on said base member for complete removal for use; an electrical heating coil on said plug; means for moving said plug to an energizing position in which said coil is energized; means tending to withdraw said plug from said energizing position; and a thermostatic element in permanent metallic and electrical engagement with said heating coil and re-

sponsive to the heating of said coil for controlling the action of said withdrawing means.

4. In a heating element for cigar lighters having an igniting unit of the type removable from a holding device for use; a manually movable support; a resistance coil mounted on the support; and a bimetallic strip secured to and carried by the support permanently in heat-conducting relation with the resistance coil and having a latch portion formed on the end thereof.

5. In a heating element for cigar lighters having an igniting unit of the type removable from a holding device for use; a support provided with a hand grip at one end; a resistance coil mounted on the support; a bimetallic strip carried by the support and permanently secured in heat-conducting relation with the resistance coil and having a latch portion formed on the end thereof; and means carried by the support for mounting the heating element on an igniting unit and removing the same therefrom by hand without the use of tools.

6. In a cigar lighter, a base member; an igniting unit normally supported on and completely removable from the base member for use, said igniting unit being adapted to be disassociated from the base member and associated with another like base member; a heating element carried on the igniting unit; a circuit for conducting current to said heating element including a cooperating contact means on the base and igniting unit adapted to be engaged when it is desired to bring the heating element to incandescence for use; and cooperating means on the igniting unit and the base member to maintain the circuit closed until the heating element has been brought to incandescence, said last-named means including a heat-responsive latch carried by the igniting unit in permanent association with the heating element and arranged to open the circuit through the heating element when the latter attains a predetermined temperature regardless of the particular base member with which the igniting unit at that time is associated.

7. In a cigar lighter, a base member; an igniting unit normally supported on but completely removable from the base member for use; a heating element mounted on the igniting unit; a circuit for conducting current to said heating element; manually operable means for closing said circuit to the heating element; and means carried by the heating element in permanent association therewith responsive to the temperature of the heating element for opening the circuit.

8. A manually operable igniting unit comprising an elongated body having a heating element mounted on one end thereof and a bimetallic latch means clamped between the end of the body member and heating element and in heat-conducting relation with the heating element and extending forwardly thereof for engagement with a contact for completing a circuit through that element.

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