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ELECTRIC CIGAR AND PIPE LIGHTER WITH EXCHANGEABLE INCANDESCENT BODY

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Fig. 1

Fig. 2

Fig. 3

Fig. 4

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This invention relates to electric lighters for cigars and pipes comprising an exchangeable incandescent body accommodated in a casing made from heat insulating material. The characteristic feature of the lighter consists in that the switch mechanism for closing the circuit through the incandescent wire is arranged in a chamber of the lighter-casing separated from the incandescent body.

This improved switch mechanism does away with the switch, which in the electric lighters of known type, is arranged in the mounting or in the top plate of the lighter and interferes with the artistic style of the article.

According to the invention a current conducting element is used which is movably located in the chamber separated from the incandescent body so that contact is established only if the electric lighter is brought into a certain position, either inclined or turned upside down.

Three embodiments of the invention are shown, by way of example, in the accompanying drawing in which all the four figures are vertical sections.

Figs. 1 and 2 show two forms of construction of a stopper-shaped electric lighter designed to be screwed into a base plate or into an Edison lamp-holder.

Fig. 2 shows a lighter which is connected with the base plate in another manner.

Fig. 3 shows a cigar-lighter of modified construction.

Fig. 4 shows a pipe-lighter.

In the lighter shown in Fig. 1 the switch mechanism for closing the lighting circuit is operated as soon as the lighter is brought into an inclined position. For the lighter shown in Fig. 2 mountings or bodies of such construction are used that the lighting surface is normally downwardly directed so that the lighter has to be turned upside down for use, and as at this occasion the position of the contact element is altered the circuit is closed. The lighter-body shown in Fig. 3 may be in connection with the lighter shown in Fig. 1 or with the lighter shown in Fig. 2.

In the lighters shown in Figs. 1 and 2 the incandescent body 1 is mounted in a stopper-shaped body of heat insulating material which has an Edison screw base 12 so that the shaft 2 can be screwed into any holder.

The stopper-shaped body has an enlarged head 3 comprising a cavity which serves as seat for the incandescent body 1. In the shaft 2 a hollow space 4 is provided, designed to accommodate the contact element.

This contact element consists of a metal body, for instance a ball 10, which is loosely located in said hollow space 4 and which is designed to connect two contact-surfaces if the lighter is in a certain position. In the foot end of the threaded shaft 2 of a contact plate 8 is located which forms one end of the circuit, the Edison holder 12 forming the other end of the same. In the hollow space 4 a contact ring 9 is fixed at a short distance above said contact plate 8. In the aperture in head 3 of the lighter-body the incandescent body 1 is removably fixed.

The incandescent body 1 consists of a flat piece of insulating material having in its outer surface grooves in which an incandescent wire 5 is imbedded. On the inner surface of the body 1 contact plates 6 are fixed to which the two ends of the incandescent wire are connected. On the shoulder of the stopper-shaped body, formed between the aperture in head 3 and the bore 4 in the shaft 2, two contact plates 7 are fixed opposite said contact plates 6 of the lighter body, one of said plates 7 being connected to the Edison screw base 12 and the other one to the contact spring 9. In order to protect the incandescent wire the outer surface of the incandescent body 1 is preferably covered by a plate of mica. A cap 13, having a central aperture 14, serves for securely holding the incandescent body 1 in the head 3 of the lighter. The lighting surface formed by the mica plate is accessible from the outside through a central aperture 14 of cap 13.

In the form of construction shown in Fig. 1 the bottom of the chamber 4 is formed by a concave metal plate 11. According to Fig. 2 this bottom plate 11 is convex. These plates 11 and 11 are directly connected to the contact plate 8.

In order to use the lighter shown in Fig. 1 for lighting a cigar the apparatus has to be slightly inclined so that the ball 10 adopts on the concave plate 11 the position shown in dash lines so that it is in touch with ring 9 and closes the circuit for the incandescent wire 5.

The ball 10 rolls back to the centre of the concave plate, in interrupting the circuit, as soon as the lighter is brought back into the vertical position. In the stopper-shaped
lighter shown in Fig. 2 which is designed to be used in connection with an apparatus in which the lighting surface is turned down in the position of rest, the ball 10 rests normally on the rear face of the incandescent body 1 in the chamber 4. If the apparatus is turned upside down for lighting, the ball drops upon the convex surface of the plate 11 and forms contact between the plate 11 and the contact ring 9, if it is in the position shown in dash lines.

The circuit is interrupted as soon as the lighter is turned back into the normal position.

In the form of construction, shown in Fig. 3, a lighter-body 15 is used instead of the stopper-shaped body described above, this lighter-body 15 having no Edison-screw base but being made also from heat-insulating material. This lighter-body 15 is directly mounted in the support 16 which has feet 17 or a downwardly turned flange. The lighting surface is normally downwardly directed, as can be seen from Fig. 1, the apparatus having to be turned upside down for lighting, in which case the feet 17 are turned upward as indicated in dash lines in Fig. 3.

In the form of the invention disclosed in Figure 3 the incandescent body 1 is mounted in a cavity of the lighter-body 15. The incandescent wire 5, the contact plates 6, 7, the chamber 4, the contact ring 9 in this chamber, and the cap 13 for fixing the incandescent body 1 in the support, are similarly arranged as described with reference to Figs. 1 and 2.

As there is no Edison screw base, the contact plate 7 is directly connected at 18 to the leading-in wire. The leading-out wire is connected at 20 to the bottom plate 19 of chamber 4. If the lighter is in normal position of rest, its feet 17 standing on a support, the lighting surface is turned downward and the ball or sphere 10 rests upon the incandescent body 1 away from the contact plate. If the apparatus is turned upside down, the sphere 10 drops onto the bottom plate 19 in the chamber 4 without touching, however, the contact ring 9. If the apparatus is slightly inclined, the ball 10 comes in contact with the contact ring 9 and contact is established between the ring 9 and contact plate 19.

In all the apparatus described and shown, the cap 13 has to be removed if the switch mechanism gets in disorder or if the incandescent body has burnt through, so that the contact in the chamber 4 becomes accessible.

The cap 13 is put on again after the apparatus has been repaired or after a fresh incandescent body 1 has been inserted so that the lighter is again ready for use. If, in course of time, the holder 3 or 15 for the incandescent body should be damaged, it has to be replaced. In the lighter, shown in Figs. 1 and 2, a new stopper-shaped body has to be screwed in for this purpose, whilst in the lighter, shown in Fig. 3, the holding body 15 has to be pulled out of the support 16 so far that the connections at 18 and 20 can be separated, whereupon a new holder body 15 is inserted and pulled in with the aid of the cable.

If the lighter is to be used for lighting a pipe it is of the shape shown in Fig. 4, according to which figure the incandescent body has a cylindrical extension 21 in the end face of which the incandescent wire 5 is embedded. The apparatus may otherwise be of similar construction as above described and as shown in Figs. 1 and 2. As a pipe lighter must be in such a position for lighting a pipe that the lighting surface of the extension 21 of the incandescent body 1 is turned downward so that it can be pressed upon the tobacco in the pipe the contacting arrangement is as follows—

Opposite the inner wall of the incandescent body 1 in the chamber 4, in which the ball 10 is loosely located, a conical metal hood 22 is arranged which is connected to one of the contact plates 7. If the lighter is turned upside down the ball 10 drops down between the hood-shaped plate 22 and the contact ring, so that it adopts the position indicated in dash lines, closing the circuit for the incandescent wire. If the lighter is brought back into the normal position the ball drops away from the metal hood 22 so that no circuit-closing can occur.

I claim—

1. An electric lighter for cigars, comprising in combination a plug having a conductor sleeve to be threaded into an electrical socket, a concave contact plate at the inner end of the plug and forming one terminal of an electrical circuit, a contact ring in said chamber at some distance above said bottom plate and having electrical connection with the conductor sleeve, and an electricity conducting ball loosely mounted in the plug in the holder shaft so that it normally does not form contact between said contact ring and said bottom plate but is caused to move into the contact-establishing position by the rounded contact if said lighter is inclined for lighting a cigar.

2. In a circuit closer, a hollow body having a conductor sleeve thereon forming one terminal of an electric circuit, a conductor ring within the hollow body and having electrical connection with the conductor sleeve, a base contact element carried by one end of the sleeve and forming the other terminal of said electrical circuit and having an irregular inner face, and a spherical circuit closer disposed on the irregular face of the base contact and thereby normally held out of contact with the ring but caused to roll into engagement with the ring to complete
an electrical circuit upon moving the body to an angular position.

3. In a circuit closer a hollow circular body, a conductor sleeve carried thereby, a conductor ring held within the hollow body adjacent one end thereof, and having electrical connection with the conductor sleeve, a base contact member closing one end of the hollow body and disposed in close relation to the conductor ring and constituting the other terminal of said electrical circuit, the inner face of the base contact member being concave, and a spherical circuit closing element resting on the concave face and normally retained by gravity in a central position thereon where it will not contact with the conductor ring, the circuit closing element being movable to positions to engage the ring and base contact member at the same time to complete an electric circuit upon tilting the body with respect to the vertical.

In testimony whereof I affix my signature.

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