

RESERVE COPY

PATENT SPECIFICATION

Application Date: July 13, 1938. No. 20800/38.

„ „ Jan. 31, 1939. No. 3279/39.

One Complete Specification Left: Aug. 12, 1939.

(Under Section 16 of the Patents and Designs Acts, 1907 to 1938.)

Specification Accepted: Jan. 24, 1940.

517.220



PROVISIONAL SPECIFICATION

No. 20800 A.D. 1938.

Improvements in Electrically Heated Cigar and like Lighters

We, S. SMITH & SONS (MOTOR ACCESSORIES) LIMITED, of Cricklewood Works, Cricklewood, London, N.W.2, a British Company, and VICTOR JAMES SAMUEL

5 RUSSELL of the Company's address, a British Subject, do hereby declare the nature of this invention to be as follows:—

10 This invention relates to electrically heated cigar and like lighters of the kind in which the heating element is pressed into engagement with electric contacts to complete a heating circuit and is retained in engagement with the contacts until it is automatically released

15 therefrom by a thermostatic device.

The object of the present invention is to provide an improved type of carrier for the heating element.

20 According to the present invention the carrier for the heating element comprises an inner part on which the heating element is mounted and an outer part constituting the handle by which the carrier is gripped, the two parts being

25 relatively movable against the action of a spring whereby the heating element may be moved manually into engagement with the contacts and whereby the spring will move the element out of engagement with the contacts when the heating element

30 is released by the thermostatic device.

35 According to a further feature of the invention, means are provided for visually indicating the relative position of the two parts of the carrier. For example, a part of the inner element which is visible only when the heating element is in its released position may have a distinctive colour or appearance.

40 In one construction in accordance with the invention, the outer part of the carrier is of cylindrical form and is flanged at its outer end to provide a grip to enable it to be removed from the holder. The

45 inner part comprises a rod carrying the heating element on its inner end and arranged within the outer cylindrical portion so as to slide therein to a limited extent against the action of a spring which

50 normally biases the two parts so that the outer end of the inner part, which is

formed as a push-button, projects beyond the outer end of the outer part.

The holder for the carrier comprises a hollow cylindrical casing of which the inner end is closed and is provided with a central contact surrounded by three bi-metallic tongues. The carrier slides into the open end of the holder to an extent determined by a flange on the outer portion of the carrier and it is retained therein by suitable inward projections on the holder. When the outer part of the carrier has been inserted into the holder to the fullest extent possible, the inner part can be moved further into the holder by pressure on the push-button. Such pressure moves the heating element into engagement with the contact and a circuit is completed from this contact through the heating element and through an earth return circuit including the wall of the holder.

The heating element is retained in engagement with the contact by the bi-metallic tongues which engage an annular groove formed around the heating element. When the heating element has reached an adequate temperature, the bi-metallic tongues (which are heated by the heating element) move outwards and release the heating element which moves clear of the contact under the influence of the spring.

The end of the push-button is coloured white and the sides of the push-button (which are invisible when the heating element is in engagement with its contact) are coloured red so that the appearance of the red portion of the button is an indication that the heating element has been heated to the required temperature and has been disconnected from the heating circuit. The carrier may then be withdrawn from the holder by grasping the outer flanged portion of the outer part of the carrier.

Dated this 13th day of July, 1938.

BOULT, WADE & TENNANT,
Chartered Patent Agents,
111 & 112, Hatton Garden,
London, E.C.1.

[Price 1/-]

Price 2/-

517.220

Price 75/-

PROVISIONAL SPECIFICATION

No. 3279 A.D. 1939.

Improvements in or relating to Electrically Heated Cigar and like Lighters

We, VICTOR JAMES SAMUEL RUSSELL, a British Subject, of Cricklewood Works, Cricklewood, London, N.W.2, and S. SMITH & SONS (MOTOR ACCESSORIES) LIMITED, a British Company, of Cricklewood Works, Cricklewood, London, N.W.2, do hereby declare the nature of this invention to be as follows:—

This invention relates to electrically heated cigar and like lighters in which the heating element is retained or pressed into a position closing contacts to complete a heating circuit until it is automatically released therefrom by a thermostatic device.

Usually, the release is gradual so that a contact on the heating element is gradually moved away from a co-operating fixed contact with the result that pitting of the contacts and premature interruption of the circuit may occur.

The object of the present invention is to overcome this difficulty and according to the invention at least one of the contacts comprises a bi-metallic strip so arranged that the heat from the element causes the contact to move towards the co-operating contact and thus increase or maintain contact pressure.

In carrying out the invention, the heating element having one of the contacts aforesaid may be mounted on a carrier which is inserted into a holder having the co-operating contact and means to retain the heating element in position with the

contacts closed until it is automatically released. In one construction one or more additional bi-metallic strips carrying no current are used for automatically releasing the heating element, for example by employing such additional bi-metallic strips as detents for retaining the heating element in the contact-closing position against the action of a spring and by arranging them to release the heating element when hot.

In another construction, a bi-metallic strip forming a contact is used to develop a force in the direction to move the heating element past a catch within the holder for retaining the heating element in the contact-making position, for example, against the action of a spring. Thus, the contact pressure increases under the influence of the heat from the element on the bi-metallic strip until finally it forces the heating element past the retaining catch and opens the circuit. Preferably, a plurality of bi-metallic contactstrips are symmetrically arranged within the holder so as to avoid any lateral thrust.

The invention is applicable to the cigar lighter described in our co-pending Application No. 20800/38.

Dated this 31st day of January, 1939.

BOULT, WADE & TENNANT,
Chartered Patent Agents,
111 & 112, Hatton Garden,
London, E.C.1.

COMPLETE SPECIFICATION

Improvements in or relating to Electrically Heated Cigar and like Lighters

We, S. SMITH & SONS (MOTOR ACCESSORIES) LIMITED, a British Company, and VICTOR JAMES SAMUEL RUSSELL, a British Subject, both of the Company's address, Cricklewood Works, Cricklewood, London, N.W.2, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to electrically heated cigar and like lighters of the known kind in which the heating element is placed in engagement with electric contacts to complete a heating circuit and

is retained in engagement with the contacts until it is automatically released therefrom by a thermostatic device. Usually, the release of the heating element is gradual so that a contact on the heating element is gradually moved away from a co-operating fixed contact with the result that pitting of the contacts and premature interruption of the circuit may occur. One object of the invention is to overcome this difficulty.

According to the present invention there is provided an electrically heated cigar and like lighter of the kind specified, wherein at least one of the contacts

comprises a bi-metallic element acting under the action of the heat from the heating element to increase or maintain the pressure of the contact on a co-operating contact of the heating element until the latter is automatically released. In a preferred construction, the pressure applied to the heating element through the contacts by the bi-metallic element is in a direction tending to eject the heating element.

According to a further feature of the invention the electrically heated cigar and like lighter comprises one or more additional bi-metallic elements carrying no current and arranged automatically to release the heating element when hot. In a preferred construction, such additional bi-metallic elements are formed as detents for retaining the heating element in the contact closed position.

The invention further comprises an electrically heated cigar and like lighter of the kind specified, wherein the heating element is mounted on an inner part of a carrier having an outer part constituting a handle, the two parts being relatively movable against the action of a spring serving to move the heating element out of engagement with the contact or contacts when it is released by the thermostatic means. It is convenient to provide means for visually indicating the relative position of the two parts of the carrier.

In one construction of the lighter according to this invention the heating element has a peripheral electric contact, and a plurality of co-operating bi-metallic contacts and a plurality of bi-metallic retaining detents are arranged alternately in a circle for engagement by the periphery of the heating element. The bi-metallic contacts are so arranged as to increase contact pressure as the heating element becomes hot and the bi-metallic detents are so arranged as to move away from the heating element as it becomes hot in order to release the heating element.

One specific construction of cigar and like lighter is shown by way of example in the accompanying drawings, in which:—

Figure 1 is a longitudinal section of the lighter with the heating element in a contact-closed position, and

Figure 2 is a longitudinal section partly in elevation showing the heating element in the released position.

Referring to the drawings, a hollow cylindrical metal casing 10 having a closed inner end 11 is constructed to receive at its other open end a carrier for the heating element, this carrier consisting of an outer part 12 and an inner part 13.

The outer part 12 of the carrier which comprises a handle 17 and may be formed

of a moulded insulating material, has a metal cap 14 formed with a peripheral groove 15 in which engage one or more detents 16 formed by tongues cut in the casing 10 to retain the carrier in position in the casing. The inner part 13 of the carrier which may also be formed of a moulded insulating material extends to the front of the handle 17 and carries at its inner end a metal rod 18 to which a disc-like resistance-heating element 19 is secured so that one terminal of the heating element is in electrical contact with the rod 18; a peripheral contact on the heating element constitutes the other terminal of the element. The inner part 13 of the carrier is slidable in the outer part and a compression spring 20 is interposed between the cap 14 and a metal washer 21 on the inner part 13, this washer being in contact with the rod 18. Thus, one terminal of the heating element 19 is in electrical connection with the casing 10.

In the closed end 11 of the casing there is secured a tubular member 22 carrying a plurality of detents 23 formed of bi-metallic strip. This tubular member 22 also carries a plurality of contacts 24 also formed of bi-metallic strip, and the detents and contacts are arranged alternately in a circle to receive the heating element 19.

In the inoperative position of the heating element it is held in a position removed from the contacts 24 by means of the spring 20. For operation, pressure is applied to the outer end of the inner part 13 of the carrier to move the heating element against the action of the spring 20 into engagement with the contacts 24, as shown in Figure 1, and the circuit through the heating element is thus completed through a lead 25 connected to the contacts 24. In this position, the heating element 19 is also engaged and retained by the bi-metallic detents 23. These bi-metallic detents 23 are so arranged on being heated by the heating element that they move outwardly to release the element when it becomes hot. The bi-metallic contacts 24 are arranged to move inwardly by the heating element. Thus, the contact pressure is increased and as the heating element is released gradually by the detents 23 the contact pressure is maintained until the heating element finally becomes free of the detents 23 and is returned to the position shown in Figure 2 by means of the spring 20. The contacts 24 when engaged by the heating element 19 are inclined as shown in Figure 1 in the direction such that the inward movement of the contacts on being heated applies a force to the heating element in a direction to eject it from the detents. In this manner

70

75

80

85

90

95

100

105

110

115

120

125

130

it is ensured that the heating element moves rapidly from the contacts immediately it is released by the detents.

The outer end 26 of the part 13 of the carrier is coloured white and the side of the part 13 which is visible only in the retracted position of the heating element, as shown in Figure 2, is coloured red so that the appearance of the red portion is an indication that the heating element has been heated to the required temperature and has been disconnected from the heating circuit. The carrier may then be withdrawn from the holder by grasping the handle 17 of the outer part of the carrier.

It will be understood that the invention is not restricted to the specific construction hereinbefore described with reference to the drawings, which may be modified, for example, by employing ordinary spring detents instead of the bi-metallic springs 23 for retaining the heating element in the contact-closed position. Also, the contacts and detents may be differently arranged, although it is of advantage to position these members symmetrically with respect to the heating element 19 in order to avoid lateral thrust.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. An electrically heated cigar and like lighter of the kind specified, wherein at least one of the contacts comprises a bi-metallic element acting under the action of the heat from the heating element to increase or maintain the pressure of the contact on a co-operating contact of the heating element until the latter is automatically released.

2. An electrically heated cigar and like lighter as claimed in claim 1, wherein the pressure applied to the heating element through the contacts by the bi-metallic

element is in a direction tending to eject the heating element.

3. An electrically heated cigar and like lighter as claimed in claim 1 or claim 2, comprising one or more additional bi-metallic elements carrying no current and arranged automatically to release the heating element when hot.

4. An electrically heated cigar and like lighter as claimed in claim 3, wherein the additional bi-metallic elements are formed as detents for retaining the heating element in the contact-closed position.

5. An electrically heated cigar and like lighter of the kind specified, for example as claimed in any of the preceding claims, wherein the heating element is mounted on an inner part of a carrier having an outer part constituting a handle, the two parts being relatively movable against the action of a spring serving to move the heating element out of engagement with the contact or contacts when it is released by the thermostatic means.

6. An electrically heated cigar and like lighter as claimed in claim 5, wherein means is provided for visually indicating the relative position of the two parts of the carrier.

7. An electrically heated cigar and like lighter as claimed in claim 4, wherein the heating element has a peripheral electric contact and wherein a plurality of co-operating bi-metallic contacts and a plurality of bi-metallic retaining detents are arranged alternately in a circle for engagement by the periphery of the heating element for the purpose described.

8. An electrically heated cigar and like lighter substantially as herein described with reference to the accompanying drawings.

Dated this 12th day of August, 1939.

BOULT, WADE & TENNANT,
Chartered Patent Agents,
111 & 112, Hatton Garden,
London, E.C.1.

[This Drawing is a reproduction of the Original on a reduced scale.]

Fig. 1.

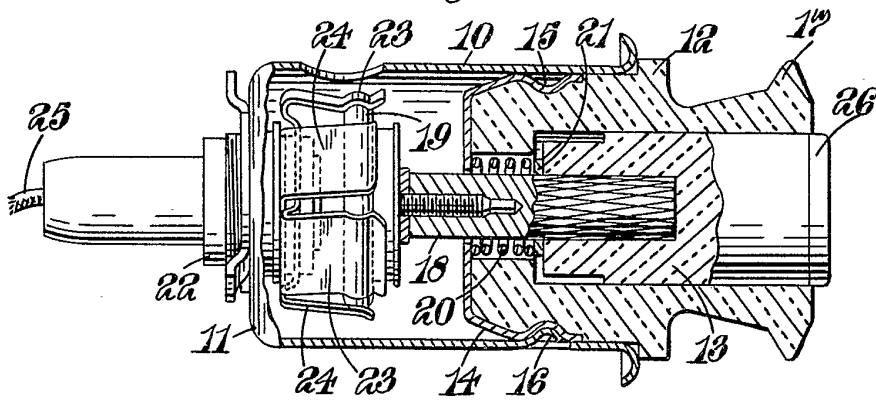


Fig. 2.

