

**Dec. 23, 1941.**

P. E. ASHTON

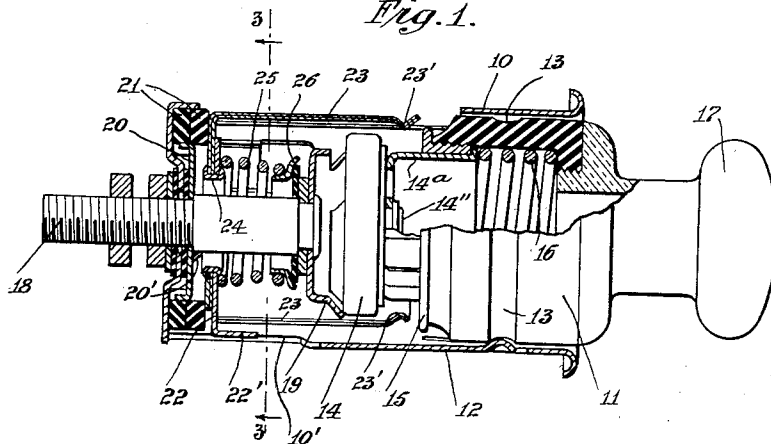
**2,267,011**

ELECTRIC CIGAR LIGHTER

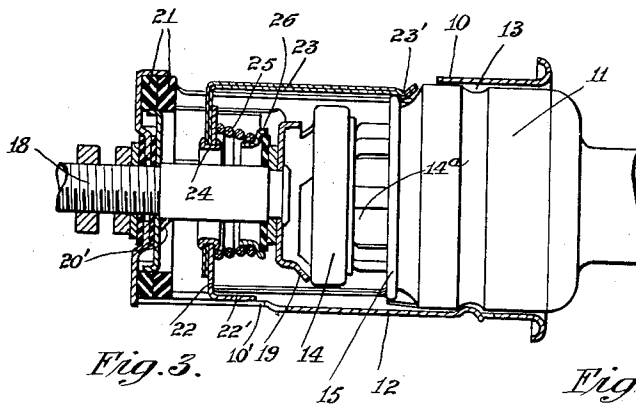
Filed April 7, 1938

2 Sheets-Sheet 1

*Fig. 1.*

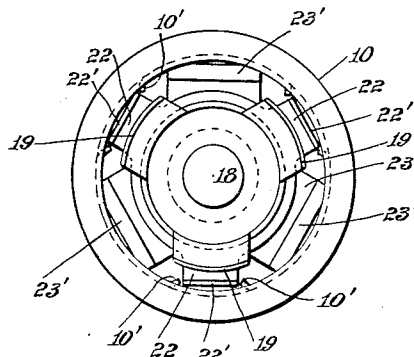
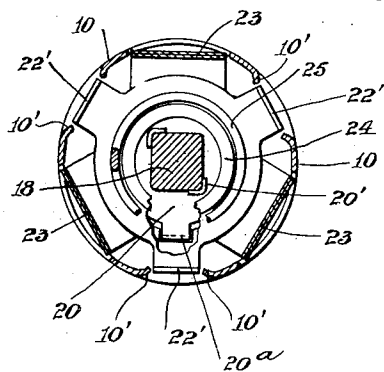


*Fig. 2.*



*Fig. 3.*

*Fig. 4.*



INVENTOR  
*Philip E. Ashton*  
BY *P. E. Ashton*  
ATTORNEY

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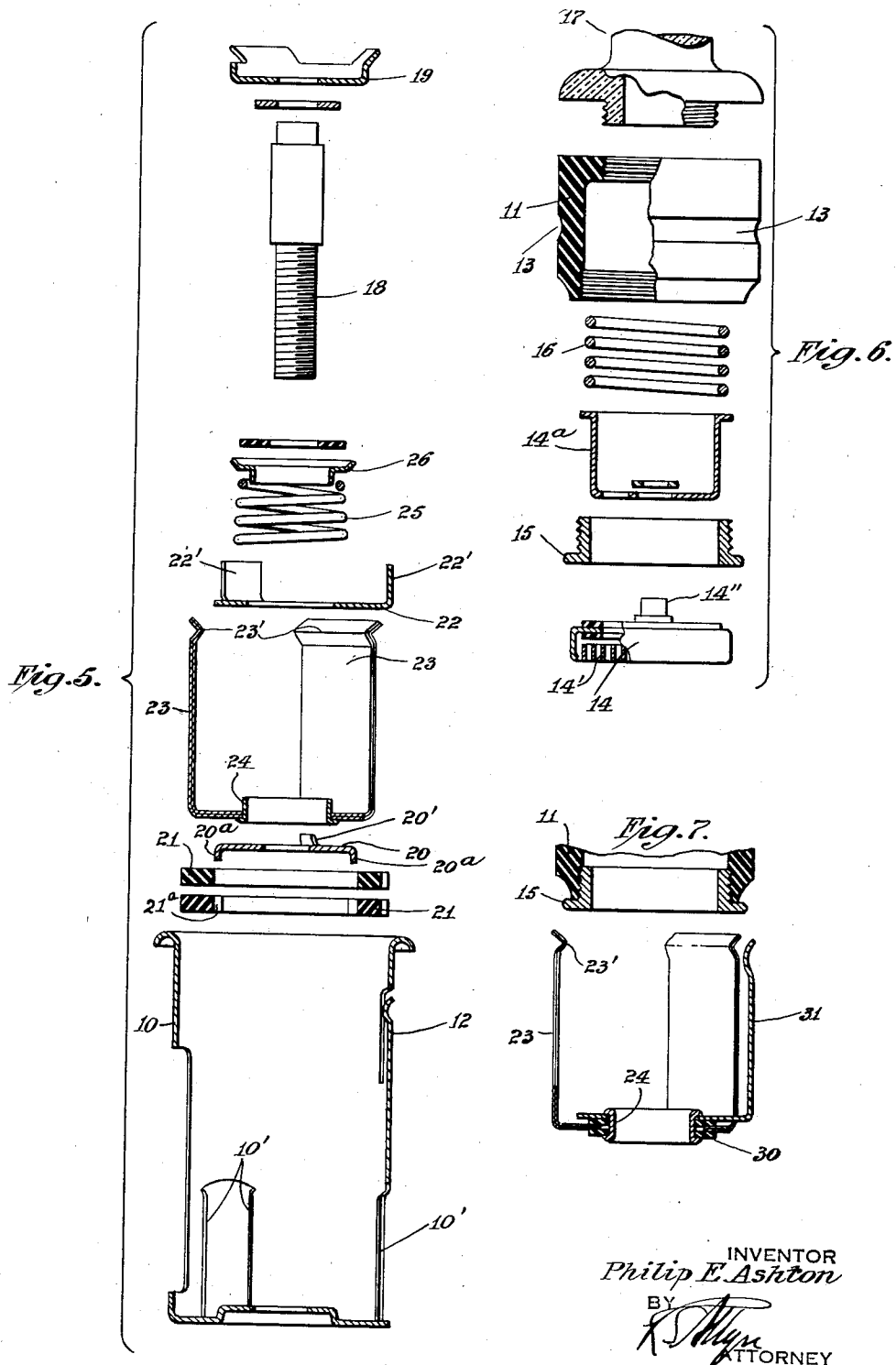
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## UNITED STATES PATENT OFFICE

2,267,011

## ELECTRIC CIGAR LIGHTER

Philip E. Ashton, Meriden, Conn.

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7 Claims. (Cl. 219—32)

My invention relates to the so-called "cordless" or "wireless" cigar lighters and particularly the automatic release type in which the plug or igniter element is normally held in the socket in the "off" position but which will be held in the "on" or energizing position automatically when so set until such time as the igniter is hot enough to use whereupon it is automatically released.

One object is to provide a simple and reliable device for the foregoing purposes.

A special object is to provide such an automatic lighter with means to prevent injury to the person or property by accidental displacement of the ignited plug member.

Another object is to provide such an automatic lighter with a thermostatic latch member unaffected by the friction developed between the movable plug member and its supporting member so that the timing of the circuit will not be influenced by any change in such friction.

A still further object is to provide such an automatic lighter in which the effort necessary to overcome the friction desirably encountered when replacing the plug after use does not tend to cause reengagement of the igniter circuit closing means.

Yet another object is to provide such an automatic lighter with a plug member which is adapted to be used with known commercial automatic lighters.

Fig. 1 is a longitudinal sectional view and partial side elevation showing a socket and plug of my invention, the parts being in the open circuit or "off" position.

Fig. 2 is a similar view showing the parts in the closed or "on" position.

Fig. 3 is a transverse sectional view on the plane of the line 3—3 of Fig. 1.

Fig. 4 is an end view of the socket member alone.

Fig. 5 is an exploded view showing the parts of the socket.

Fig. 6 is an exploded view showing parts of the igniter plug.

Fig. 7 is a view showing a modified form of switch contact.

The socket 10 may be of metal or other suitable material. The plug body 11 is partly of insulation and may be held resiliently in place by a spring tongue 12 fitting a groove 13. The igniter element may be of suitable type such as a cup-like contact 14 with a spiral 14' of resistance wire and a rivet 14'' fastened to the

tubular member 14a. A second contact 15 is in the form of a flanged ring screwed into the body 11 in which tube 14a is slidable in the body 11. Tube 14a and attached igniter unit are pressed rearwardly by spring 16. A knob 17, translucent if desired, may be provided.

A shaft or stud 18 is suitably secured in but preferably insulated from the bottom of the socket and supports a contact 19 in the socket to be engaged by contact 14 of the igniter. A disc 20 in the base of the socket has lugs 20' embracing the stud 18 to prevent turning and is insulated. One or more lugs 20a bent down from the edge of disc 20 interlock with recesses 21a in one or more insulating rings 21 in the base of the socket which in turn are interlocked with lugs 10' against rotation in the socket. A slide 22 has lugs 22' guided between the lugs 10' in the sides of the socket.

A latch member having arms 23 formed of bi-metallic thermostatic metal is carried by the slide 22 for instance by being secured by the eyelet 24. The tips of the arms are provided with cam-like lugs 23' to be interlocked with the edge of the flange 15 when the plug is pressed inwardly. A spring 25 is interposed between the disc or slide 22 and the washer 26 on the stud beneath the igniter contact 19 so that the spring tends to force the slide and the attached thermostatic members toward the bottom of the socket. This spring and washer 26 are suitably insulated from the central stud 18.

When it is desired to heat the igniter the knob 17 is forced inwardly, compressing the spring 16 until contact flange 15 interlocks with the tips 23' of the latches 23. When pressure is released the spring 16 returns the flanged contact ring to the position of Figs. 1 and 2 and pulls with it the thermostatic arms and the slide to the position of Fig. 2. When the heat from the igniter or from the passage of current through the thermostatic arms warps the arms they are bowed away from the flange 15 of the igniter slide. The spring 25 then snaps the slide 22 and attached parts to the "off" position thus audibly indicating that the igniter is ready to use.

When the knob 17 is pressed inwardly, the circuit is completed from the stud 18 through socket contact 19, igniter contact 14, spiral 14', rivet 14'', tube 14a, flange 15, tips 23', latches 23, eyelet 24, slide 22 to shell or socket 10 and ground. When the tips 23' of latches 23 are released the circuit is broken.

Although the form shown contemplates the passage of current through the thermostatic

latch, it is possible within the broad scope of this invention to arrange the contacts so that the circuit will be opened and closed through other parts.

By reason of the fact that the spring release action does not move the plug or any of its attached parts, there is no danger of the plug being jarred loose or jumping out of the socket. The sound of the thermostatic slide snapping back in the socket also serves as an audible warning that the igniter has been released and is ready for use. It will be understood of course that the plug may be withdrawn by hand at any time.

In Fig. 7 I have shown a switch arrangement in which the bimetallic latch 23 is electrically insulated from its support by washers 30 and a spring contact arm 31 is provided to be engaged by the contact flange 15 with which the slide 14a is connected so that the switch action is electrically independent of the latch which serves simply to hold the parts in the closed circuit relation when the knob is pressed inwardly. Arm 31 takes the place of a lug 22', Fig. 1. With this construction the circuit—when the plug knob is pressed inward—would be through stud 18, contact 19, contact 14, spiral 14', rivet 14'', tube 14a, flange 15, contact arm 31 to shell or socket 10 and ground.

I claim:

1. A cigar lighter comprising a socket having an abutment contact fixed adjacent the base of the socket, a bimetallic contact mounted between the base of said socket and the front end of said abutment contact, one of said contacts being grounded to the socket and the other insulated therefrom, a plug for reception in said socket and provided with an igniter unit on the inner end thereof, said igniter unit including a resistance wire within a contact rim around said wire, said rim being adapted for cooperation with said abutment contact in the socket, another plug contact in front of said rim, longitudinally slidable relative to said rim and adapted for engagement by said bimetallic contact, a spring carried by said plug for cooperation with and tending to separate said plug contacts, said bimetallic contact having a mounting portion substantially transverse of the socket and another portion extending forwardly from the mounting portion, substantially parallel to the socket axis, a tip portion on the forward end of the longitudinal portion of said bimetallic contact, said tip being shaped to engage said second mentioned plug contact when said plug spring has been compressed, said bimetallic contact being adapted to become heated as said resistance wire becomes heated, and also adapted to flex enough to disengage said second mentioned plug contact opening the circuit through said resistance wire, said bimetallic contact being slidable longitudinally with respect to said socket, a spring between said abutment contact and the transverse portion of said bimetallic contact, said spring cooperating with said socket and said bimetallic contact, the spring carried by said plug being stronger than the socket spring and adapted after engagement of said bimetallic contact with said plug contact to move said plug contact and bimetallic contact forwardly upon release of pressure on the plug spring, thereby compressing said socket spring, said bimetallic contact being moved rearwardly by said socket spring upon opening the circuit through said resistance wire.

2. A cigar lighter comprising a socket having

a fixed abutment contact adjacent the base thereof, a bimetallic latch mounted for longitudinal movement between the front of said abutment contact and the base of said socket, a portion of said bimetallic latch extending forwardly from said mounting portion to engage a contact portion of the plug, a spring carried by said socket and cooperating with said socket and bimetallic latch for movement of the latch rearwardly after release of pressure on said spring when compressed, a plug carried by the socket, a heater rim contact on the rear end portion of said plug for cooperation with said abutment contact, a second contact carried by the plug in front of said rim contact for cooperation with said bimetallic latch to hold said spring compressed, said contact portion of the plug being movable with respect to said heater rim to effect its engagement by the latch, and means for moving said plug contact portion forwardly of the socket to compress the spring in the socket, and means for holding said socket spring compressed until the latch releases its contact portion of the plug.

3. A cigar lighter having a socket provided with a pair of contacts, a plug for reception in said socket and also provided with a pair of contacts adapted for cooperation with the socket contacts, a heater carried by the plug on the rear thereof and adapted to be electrically heated when the circuit therethrough has been completed by the engagement of the plug and socket contacts, a contact rim around said heater adapted for engagement with one of said socket contacts, the second of said plug contacts being in front of said rim and adapted for cooperation with the other of said socket contacts, a spring carried by said plug for effecting relative longitudinal movement between the first and second mentioned plug contacts upon release of said spring after being compressed, at least one of said socket contacts being constituted by a bimetallic latch, a handle on said plug by means of which one of the plug contacts may be moved rearwardly with respect to the other plug contact and the plug spring compressed for effecting engagement between the bimetallic latch and its cooperative plug contact, after release of said handle and engagement of the latch with its contact, a socket spring cooperating with said socket and latch for effecting rearward movement of the latch upon its release after the socket spring has been compressed, said plug spring being stronger than said socket spring, and adapted to expand and compress the socket spring.

4. A cigar lighter having a socket provided with a pair of contacts, a plug for reception in said socket and also provided with a pair of contacts adapted for cooperation with the socket contacts, a heater carried by the plug on the rear thereof and adapted to be electrically heated when the circuit therethrough has been completed by the engagement of the plug and socket contacts, a contact rim around said heater adapted for engagement with one of said socket contacts, the second of said plug contacts being in front of said rim and adapted for cooperation with the other of said socket contacts, a spring carried by said plug for effecting relative longitudinal movement between the first and second mentioned plug contacts upon release of said spring after being compressed, at least one of said socket contacts being constituted by a bimetallic latch, a handle on said plug by means of which one of the plug contacts may be moved rear-

wardly with respect to the other plug contact and the plug spring compressed for effecting engagement between the bimetallic latch and its cooperative plug contact, after release of said handle and engagement of the latch with its contact, a socket spring cooperating with said socket and latch for effecting rearward movement of the latch upon release of said spring after being compressed, said plug spring being stronger than said socket spring, and adapted to expand and compress the socket spring, the plug contact not engaged by the bimetallic latch cooperating with a socket contact which serves as a substantially fixed abutment against which the plug spring may be compressed by said handle.

5. A cigar lighter comprising a socket having a pair of contacts, one of which is fixed and the other longitudinally slidable with respect to the fixed contact, a spring between said contacts and tending when compressed to longitudinally move one of said contacts with respect to the other, a plug having a cooperative pair of contacts, a spring tending when compressed to longitudinally move one of said plug contacts with respect to the other, the plug contact engaging said fixed socket contact remaining in cooperation therewith and substantially immobile during compression and release of the plug and socket springs, the relatively movable contacts of the plug and socket being one of them a bimetallic latch and the other a catch engaged and held by said latch when the plug spring is compressed, the spring in the plug being substantially stronger than the other and adapted to compress said other after engagement of said latch and catch and release of the stronger spring.

6. A cigar lighter comprising a socket provided with a pair of contacts, one being substantially fixed to constitute an abutment and the other slidable longitudinally with respect to the fixed contact, a slide fitting within the socket in rear of said abutment contact and carrying the second mentioned socket contact, a plug for reception in

said socket and provided with a pair of contacts, one for engagement with said abutment and the other slidable relatively to the first mentioned contact and adapted for cooperation with the socket contact carried by said slide, a spring carried by each of the plug and socket and tending when compressed to longitudinally move its contacts, a bimetallic latch constituting a part of the second mentioned contact of one and engaging the second mentioned contact of the other of the plug and socket when the plug spring is compressed, the spring in the plug being stronger than the other and being capable of compressing the weaker of said springs after engagement of said second mentioned plug and socket contacts, said bimetallic latch being adapted to be heated and flex sufficiently to disengage the second mentioned contacts of the plug and socket releasing compression of the weaker spring, a heater carried by said plug at its rear end portion.

7. A cigar lighter comprising a socket member having a stud at the rear thereof, a stationary contact on one end thereof, a disc slidably mounted on the stud rearwardly of the stationary contact, a spring normally forcing said disc away from the contact, a thermostatic latch arm carried by said slidable disc and having a tip movable transversely of the socket member, a plug member insertable into said socket member, said plug member having an igniter element, a body portion movable longitudinally of the axis of the plug member, a flange member carried by said body portion, said flange being adapted to interlock with said thermostatic arm when said body portion is forced into the socket, a spring normally forcing said body portion and flange away from the igniter, said thermostatic latch arm being positioned adjacent said igniter when said latch is interlocked with the flange so as to be affected by the heat of said igniter, said first mentioned spring being adapted to function upon the release of said latch arm from the flange.

PHILIP E. ASHTON.