Jan. 18, 1949. A. A. JOHNSON 2,459,650

CIGAR LIGHTER

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Fig. 1

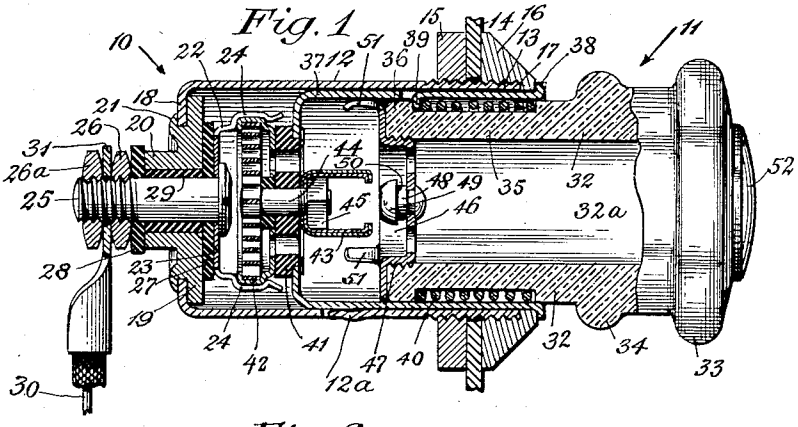


Fig. 2

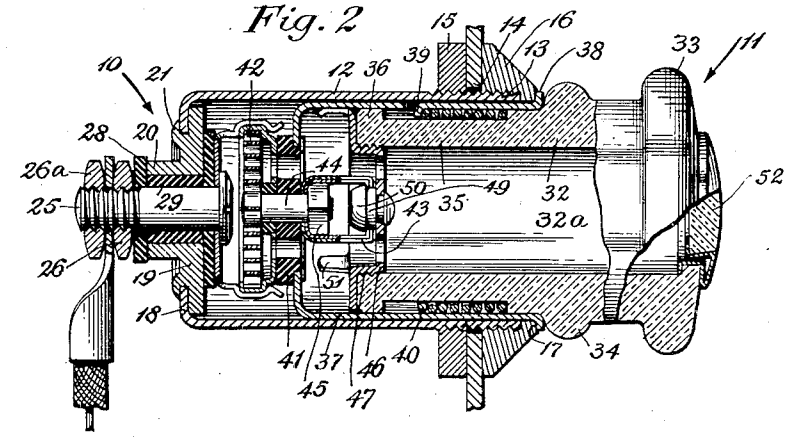


Fig. 4

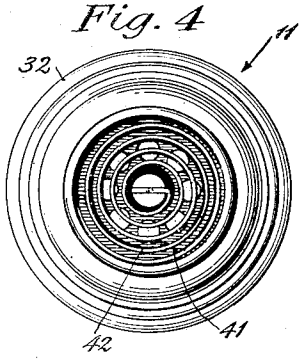
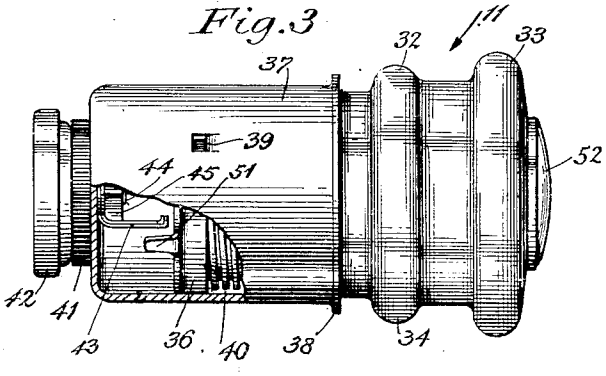
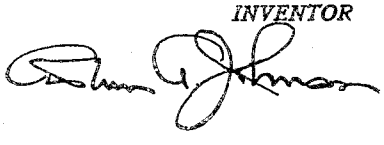


Fig. 3



INVENTOR



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CIGAR LIGHTER

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7 Claims. (Cl. 219—32)

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This invention relates to cigar lighters, and more particularly, to the type of cigar lighter in which the igniting unit is supported in or on a holding device to be removed and used after it has been brought to incandescence.

An object of this invention is to provide an improved cigar lighter of the type referred to in which the circuit through the heating element is automatically broken when the heating element reaches a predetermined temperature, that sufficient to ignite a cigar or cigarette brought into contact therewith.

According to the present invention, this is accomplished by providing an igniting unit which is placed in a holding device in predetermined and definite position in which the igniting unit has two-pole engagement with the holding device and in which the circuit through the heating element is closed by operation of a button or finger-piece carried by the igniting unit.

An important feature of the present invention is the provision of means whereby light from the incandescent heating element may be viewed from the exterior of the device so that if desired the igniting unit may be electrically disconnected from the holding device and removed for use sooner than it would be electrically disconnected automatically.

Another feature of this invention is the provision of contact members which are brought into engagement to close the circuit through the heating element in such manner that the contacting surfaces thereof may be easily and conveniently cleaned without disassembling the igniting unit.

Other features and advantages will hereinafter appear.

In the accompanying drawings:

Figure 1 is a longitudinal sectional view of the present cigar lighter showing the inoperative or open circuit position of the igniting unit and holder.

Fig. 2 is a similar sectional view showing the igniting unit in operative or closed circuit position within the holder.

Fig. 3 is a side view of the igniting unit with part cut away to disclose the interior.

Fig. 4 is a rear view of the igniting unit, showing the heating element.

The cigar lighter of the present invention comprises a holder broadly designated by the numeral 10, and an igniting unit designated by the numeral 11, the latter being adapted to slidably fit within the holder 10, and to be completely removable therefrom.

The holder 10 has a cylindrical shell 12 having

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a threaded forward portion 13, fitting into an aperture in the dashboard 14 of a car, and carrying nuts 15 and 16 which clamp said dashboard between them for mounting said shell thereby. The nut 16 has an internal shoulder 17 thereon for abutment with the end of the shell 12 and has a bevelled front face for ornamentation, said nut serving as an escutcheon piece for the holder 10.

The rear end portion of the shell 12 is turned inwardly to provide an internal flange 18 which supports a disk 19 having a boss 20, said disk being held by an annular flange 21, thereon, which is spun over the flange 18.

The disk 19 insulatedly supports a metal contact clip 22 comprising a central disk 23 having spring fingers 24, said clip being held by a bolt 25 and a nut 26.

Insulation is effected by a washer 27 interposed between the clip 22 and the disk 19, a washer 28 interposed between the boss 20 and the nut 26, and a bushing 29 carried by the bolt 25 intermediate said washers.

Electrical connection is made to the holder 10 by a wire 30 having a lug 31 clamped between the nuts 26, 26*a*, current being thereby conducted through the bolt 25 to the clip 22, and also by the sleeve 12 and the metal dashboard 14 which latter is part of the ground circuit of the car.

The shell 12 has fingers 12*a* lanced therein and biased inwardly, said fingers extending longitudinally thereof, and serving to contact with a sleeve hereinafter described of the igniting unit 11.

As described above, the holder 10 provides a sleeve or shell 12 for slidably receiving the removable igniting unit of a cigar lighter, said sleeve furnishing one electrical connection for said unit, and having a spring clip disposed therein forming a second electrical connection.

The igniting unit 11 of the cigar ligher is adapted to slidably fit within the shell 12 of the holder, and make connection thereto, and said unit has disposed at its extremity a heating element adapted to contact and be held by the clip 22.

The removable igniting unit 11 of the present invention is provided with means, including thermostatic contact means, for making the operation of the cigar lighter entirely automatic, including visible and audible signaling to the operator thereof.

By the present invention there are provided also means of the removable igniting unit 11, outward parts of which are obviously easily accessible for manipulation, for conditioning and

cleaning the thermostatic contact means thereof, should these become inoperative due to arcing, dirt, dust, etc.

Also by providing the easily replaceable unit 11 with the means for making the operation of the lighter automatic, it is not necessary, should said means become permanently inoperative, to discard the entire lighter, but merely to discard the igniting unit therefor, and substitute a new unit in its place.

Accordingly there is provided a cylindrical body 32 made preferably of moldable insulating material, having a shoulder 33 at its forward end to serve as a knob, a bead 34 rearwardly disposed of said shoulder and spaced therefrom, to serve as an abutment, and a neck portion 35 intermediate said bead and the rear end of said body, and terminating in a shoulder 36.

A cylindrical longitudinal bore 32*a* is provided in the body 32, for the purpose of permitting light to traverse said body, as hereinafter described.

The body 32 fits slidably within a metallic sleeve 37 which has its forward edge turned outward to form a flange 38 adapted to abut the bead 34 of said body, and the sleeve 37 in turn slidably fits within the shell 12 of the holder 10, the flange 38 serving to abut the escutcheon nut 16 of the holder.

The sleeve 37 has inwardly extending fingers 39 lanced therein intermediate its ends, said fingers extending toward the neck portion 35 of the body 34, and serving to abut the shoulder 36, thereby preventing said sleeve from being withdrawn from the body 32.

A helical compression spring 40 is disposed on the neck 35, one end of said spring resting against the fingers 39 of the sleeve 37 and thereby yieldingly urging the latter rearwardly of the body 32.

The sleeve 37 has the edge of its rearward end turned inward to form an internal flange, and supported thereon is an insulating disk 41 carrying a heating element 42 having a cup contact member adapted to engage and be held by the clip 22.

According to the present invention thermally-responsive switch means are employed in the igniting unit 11, said means being also cooperative with the telescoping body 32 and sleeve 37 of said unit to provide for automatic operation thereof.

There is, therefore, provided a thermostatic contact clip 43 made preferably of bimetallic structure and supported in the sleeve 37 on the insulating disk 41, said clip being in heat-conducting relation to the element 42 by virtue of a stud 44 and nut 45 which fasten said clip.

The stud 44 and nut 45 are of particular importance aside from their function of fastening the clip 43 to the disk 41, said stud and nut serving to conduct heat from the incandescent element 42 to the thermostatic contact clip 43, and therefore said stud is preferably of solid and substantial cross section, and of relatively short length, and is preferably made of a metal which conducts heat readily.

It should be noted that the face of the nut 45 fits closely against the clip 43, providing a substantial contact surface therebetween, and increasing the heat conductivity to said clip from the stud 44, and consequently the element 42.

Attached to the end of the body 32 is a contact adapted to engage and be held by the clip 43, and for this purpose there is mounted in the bore 32*a* a cup 46 having external threads 47 which engage threads in said bore, and having a contact stud 48 attached thereto, in alignment with the thermostatic clip 43, and for engagement therewith.

The stud 48 has a head 49 having a tapered surface disposed toward the clip 43, and forming a shoulder 50 adapted to be retained by the clip 43.

The cup 46 has spring fingers 51 which bear against the sleeve 37 for the purpose of forming electrical connection thereto.

When the igniting unit is placed in the holding device the clip 22 will spread to receive and hold the heating element, it being understood that the compression spring 40 is sufficiently strong so that it compresses only slightly under the pressure required to spread the clip.

It is evident that considering Fig. 2 when the body 32 is pressed inwardly further, the stud 48 will spread the clip 43, and said clip will snap againt the shoulder 50, retaining the stud therein, as shown in Fig. 2.

The electrical circuit will be completed, and current will flow through the wire 30, the bolt 25, contact clip 22, heating element 42, stud 44, bimetallic clip 43, stud 48, cup 46, sleeve 37, shell 12, and through the dashboard 14.

The element 42 will be heated, and heat will be conducted by the stud 44 to the clip 43. When a sufficient degree of heat is experienced by the clip 43 it will spread, and release the stud 48 thereby breaking the circuit, since said stud and the body 32 will spring forwardly under the tension of the spring 40.

The degree of heat required to spread the clip 43 is attained after the heating element 42 is sufficiently incandescent to be ready for use. The igniting unit is then withdrawn for igniting of cigarettes, cigars, etc.

It should be noted that the construction of the clip 43 and the stud 48 and cup 46 is such that energization of the heating element 42 may be continued beyond the shut off point by holding the body 32 inwardly, even though the clip has spread apart under the action of heat for the release of the stud 48; contact is made in this case from the clip 43 directly to the cup 46. It is, therefore, possible to energize the heating element after the lighter has automatically snapped to "off" position, should this become desirable.

Should the electrical connection between the clip 43 and the stud 48 become impaired due to arcing and dirt, it is merely necessary, by the present invention, to grasp the igniting unit 11 in the hand and press the body 32 and shell 37 together, causing the clip 43 to grip the stud 48, and then turn the shell 37 relative to the body 32, whereby there will be effected a cleaning of said clip and stud, making these again suitable for use.

When the clip 43 releases the stud 48, the spring 40 will cause the shoulder 36 of the body 32 to strike sharply against the fingers 39, and a distinct click will be heard to give audible notice of the readiness of the lighter.

Apertures are provided in the back of the heating element cup, and in the disk 41, and in the cup 46, and said apertures are aligned and disposed so as to permit light from the incandescent element 42 to traverse the bore 32*a* of the body 32 and strike a translucent lens member 52 disposed at the end thereof, thereby apprising the operator visually that the lighter is in readiness for use.

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 holding device having a metallic shell and an electrical contact insulatedly supported in the base end thereof; an igniting unit removably supported in said holding device, and having a metallic sleeve slidably engaging the shell of the holder and a non-metallic body and a knob thereon for grasping the igniting unit, said body being slidable in the sleeve and movable longitudinally within limits relative thereto; means for yieldingly urging the body outwardly of the sleeve against one of the limits of said movements; a heating element insulatedly carried by the sleeve and having a contact surrounding the same and adapted to engage the base contact of the holding device during normal storage of said igniting unit on the holding device, said base contact extending beyond and around a portion of the heating element contact to hold the unit against inadvertent displacement; a metal plate carried by the body of the igniting unit having thereon a plurality of resilient fingers having a surface engaging the sleeve to have a wiping action therewith to provide an electrical connection between the sleeve and plate when the body is slid relative to the sleeve; a contact carried at the center of the plate; and a gripping contact connected to said heating element and positioned to engage and grip the contact on the plate when the latter is pressed inwardly so that the circuit through the heating element is completed.

2. In an electric cigar lighter, a holding device having a metallic shell and an electrical contact insulatedly supported in one end thereof; an igniting unit removably supported in said holding device, and having a metallic sleeve slidably engaging the shell of the holder and a non-metallic tubular member and a knob thereon for grasping the igniting unit, said tubular member being carried in the sleeve and movable longitudinally within limits relative thereto; means for yieldingly urging the tubular member outwardly of the sleeve against one of the limits of said movements; a heating element insulatedly carried by the sleeve and having a contact adapted to engage the contact of the holding device during the support of said igniting unit; a metal plate having a cup threaded into the bore of the inner end of the tubular member; resilient fingers connected to the plate and having a surface engaging the sleeve to have a wiping action therewith to provide an electrical connection between the sleeve and plate when the push button is moved relative to the sleeve; a shouldered stud contact disposed in the cup and electrically connected to the plate; and a latch contact connected to said heating element and adapted to engage the stud contact when the tube is pressed inwardly so that the circuit through the heating element is completed.

3. In an electric cigar lighter, a holding device having a metallic shell and an electrical contact insulatedly supported in one end thereof; an igniting unit removably supported in said holding device, and having a metallic sleeve slidably engaging the shell of the holder and an elongate non-metallic tube and a push button and knob thereon for grasping the igniting unit, said tube being slidably carried in the sleeve and movable longitudinally within limits relative thereto and having a portion of reduced diameter between the ends thereof; spring means located in the portion of reduced diameter for yieldingly urging the tube outwardly of the sleeve; a finger on the sleeve extending into the space formed by the portion of reduced diameter for limiting the outward movement of the tube; a heating element insulatedly carried by the sleeve and having a contact adapted to engage the contact of the holding device in normal storage position of the igniting unit thereon; a metal plate; spring fingers connected to the plate on the tube and having a surface engaging the sleeve to have a wiping action therewith to provide an electrical connection between the sleeve and plate when the push button is moved relative to the sleeve; a stud contact carried within the cup; and a heat-responsive latch contact connected to said heating element adapted to engage the stud contact when the tube is pressed inwardly so that the circuit through the heating element is completed.

4. In an electric cigar lighter, a holding device having a metallic shell and an electrical contact insulatedly supported in the base end thereof; an igniting unit removably supported in said holding device, and having a metallic sleeve slidably engaging the shell of the holder and a non-metallic tube and a push button and a knob thereon for grasping the igniting unit, said tube being slidably carried in the sleeve and movable longitudinally within limits relative thereto; means for yieldingly urging the push button outwardly of the sleeve against one of the limits of said movements, said tube having an integral projecting rib for engaging the end of the sleeve for limiting the inward movement; a heating element insulatedly carried by the sleeve and having a contact surrounding the same and adapted to be gripped by the base contact of the holding device in normal storage position of said igniting unit on the holding device, said base contact extending beyond and around a portion of the heating element contact to hold the unit against inadvertent displacement; a metal plate carried by the tube of the igniting unit; a plurality of resilient fingers connected to the plate and each having a surface engaging the sleeve to have a wiping action therewith to provide an electrical connection between the sleeve and plate when the tube is moved relative to the sleeve; a contact carried at the center of the plate; and a heat-responsive latch contact connected to said heating element and positioned to engage and grip the contact on the plate when the tube is pressed inwardly so that the rib thereon engages the end of the sleeve whereby the circuit through the heating element is completed.

5. In an electric cigar lighter, a holding device having a metallic shell and an electrical contact insulatedly supported in one end thereof; an igniting unit removably supported in said holding device, and having a metallic sleeve slidably engaging the shell of the holder and an elongate non-metallic tube and a push button and knob thereon for grasping the igniting unit, said tube being slidably carried in the sleeve and movable longitudinally within limits relative thereto and having a portion of reduced diameter between the ends thereof; spring means located in the portion of reduced diameter for yieldingly urging the tube outwardly of the sleeve against one of the limits of said movements; a heating element insulatedly carried by the sleeve and having a contact adapted to engage the contact of the holding device in normal storage position of the igniting unit thereon; a metal plate carried by the end of the tube; spring fingers connected to the plate and having a surface engaging the sleeve to have a wiping action therewith to provide an electrical connection between the sleeve

and plate when the tube is moved relative to the sleeve; a stud contact carried by the plate; and a heat-responsive latch contact connected to said heating element adapted to engage the stud contact when the tube is pressed inwardly so that the circuit through the heating element is completed.

6. In an electric cigar lighter, the combination of a holding device comprising a metallic shell having a base contact insulatedly mounted therein, a removable igniting unit supported on the holding device and movable therein to operative and inoperative positions, said igniting unit having a metallic sleeve slidably engaging the shell, a body longitudinally slidable within the sleeve between limits and having a knob thereon, and an electric heating coil insulatedly mounted on the inner end of the sleeve, a ferrule surrounding the coil and electrically connected thereto, said base contact comprising a clip adapted to snap over the ferrule and thereby lock the igniting unit in operative position; and switch means including thermostatic latch contacts within the igniting unit for closing a circuit from the heating coil to the metallic sleeve to energize the coil when the body is moved to the inner limit on the sleeve.

7. An igniting unit for an electric cigar lighter comprising a metallic sleeve adapted to be slidably received in the metallic shell of a holding device, an electric heating coil insulatedly mounted on one end of the sleeve; a body of insulating material slidably mounted for longitudinal movement between limits within and in engagement with the sleeve and having a knob thereon projecting from the other end of the sleeve; spring means normally urging the body to the outer limit; a metallic plate mounted on the inner end of the body and having three uniformly spaced resilient fingers extending therefrom into wiping engagement with the sleeve to provide electrical connection between the plate and sleeve when the body is slid on the sleeve; an electrical contact projecting from the plate and electrically connected thereto; a cooperating electrical contact connected to the heating coil and positioned within the sleeve to engage the contact on the plate when the body is moved inwardly on the sleeve to close a circuit to the heating coil; and thermostatic detent means holding the body and sleeve in closed-circuit position, said means releasing when the heating coil reaches a predetermined temperature.

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