Oct. 27, 1953 A. A. JOHNSON 2,657,297

CIGAR LIGHTER

Filed Oct. 19, 1949

Fig. 1

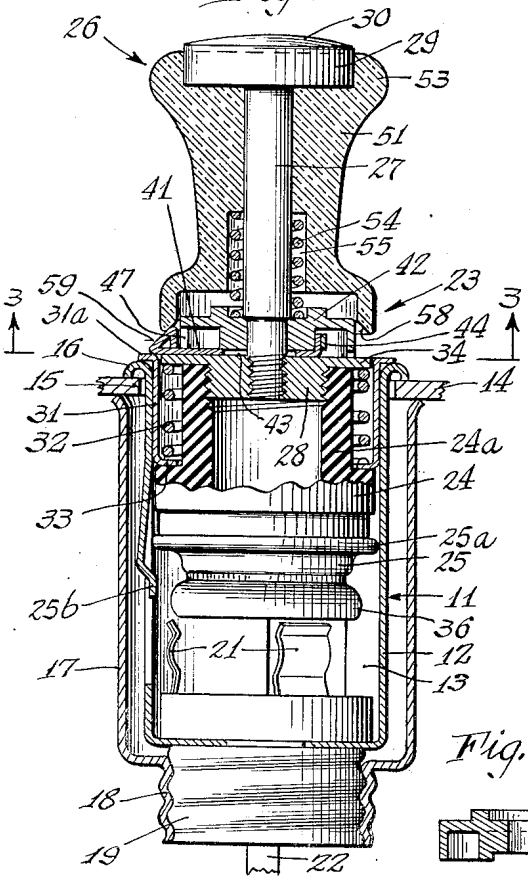


Fig. 2

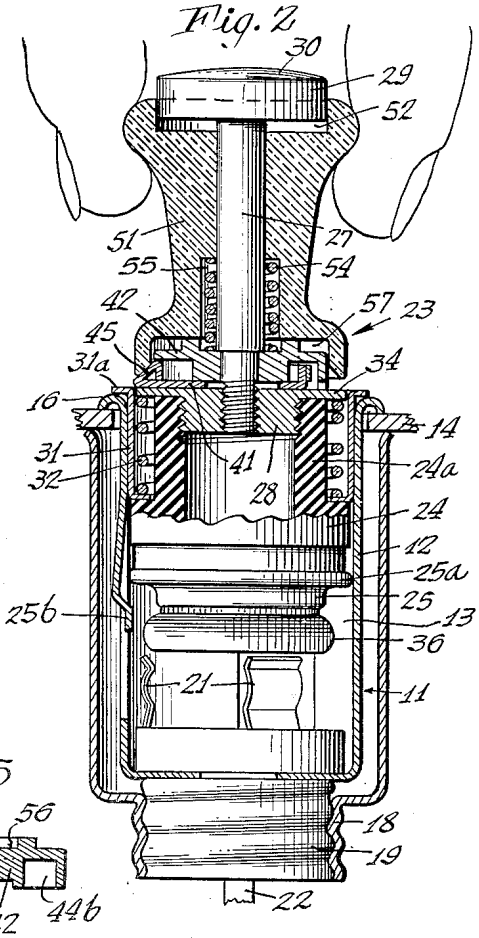


Fig. 5

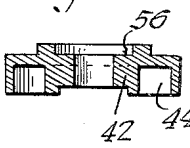


Fig. 6

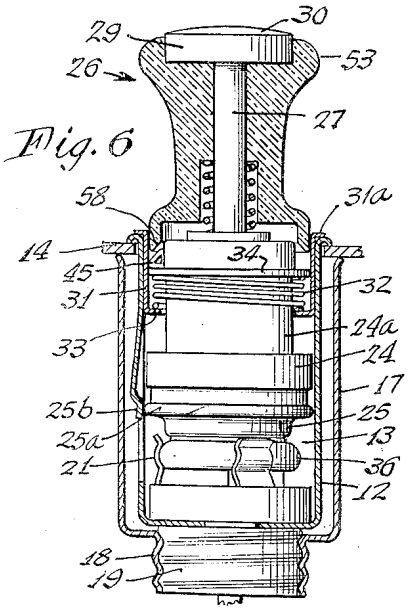


Fig. 3

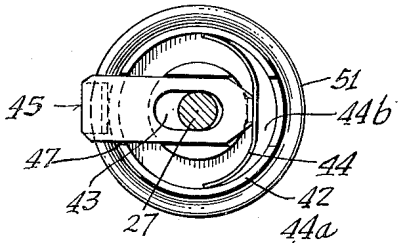
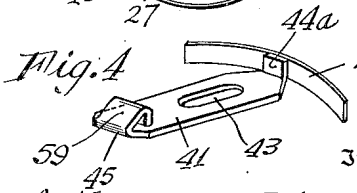


Fig. 4



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CIGAR LIGHTER

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Application October 19, 1949, Serial No. 122,199

13 Claims. (Cl. 219—32)

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This invention relates to electric cigar lighters of the automatic so-called pop-out type generally used in motor cars, although equally adapted to home and office use.

Lighters of this type usually have an igniting unit which carries a heater coil and is movably supported in a socket member from which it can be removed for use in lighting a cigar, cigarette or the like. It is normally held in open-circuit, non-heating position in the socket member. When wanted for use it is moved into closed-circuit heating position by a pushing action which slides the unit deeper into the socket member, whereby electric contact is made through the heater coil, and in which position the unit is held until the coil reaches the desired temperature. Thereupon a thermostat causes release of the unit which is then returned by spring pressure to its normal open-circuit position in the socket member from which a user can extract it for lighting purposes.

During normal periods of non-use the igniting unit is carried in the socket member in its outer, open-circuit position and is only advanced into the socket member when it is desired to raise the heater coil to the desired temperature for use. Such movement is effected by a straight pushing action applied to a knob or the like on the unit which projects outwardly beyond the supporting socket member.

A great disadvantage of such devices has been the relative ease of inadvertently pressing the igniting unit into closed-circuit heating position when it is not intended to do so. This is done sometimes by a car occupant resting an elbow on a lighter installed in or near the arm of a back seat in a motor car, or by a person getting in or out of a car, or by a folding front seat striking an igniter installed in the front compartment of a car.

An object of this invention is to provide an improved cigar lighter constructed and arranged to prevent unintentional movement of the igniting unit into operative heating position.

A feature of the invention is the provision in an electric cigar lighter of a member arranged to block movement of the igniting unit into operative heating position in the supporting socket member as the result of pressure applied to the end face of the associated handle or knob, together with a releasing device which can be operated only by intentional action on the part of a user. A straight pushing operation will not alone advance the unit into the socket member so that such accidental movement as above described cannot occur.

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A further feature is the provision of a lock release in a position to be gripped by the fingers of a user and operated to thereby cause the locking device to release and free the unit for movement inwardly to operative closed-circuit position.

This is accomplished by so constructing and arranging the handle knob by which the igniting unit is manipulated that pressure applied to the end face only of the knob will not be effective to shift the unit into closed-circuit position. Such movement can only be accomplished by applying pressure first to the outer rim of the knob and first moving such rim inwardly to accomplish the releasing action. Such an operation normally requires a user to intentionally grip the movable rim in order to operate the release.

A still further feature is the provision of a control and operating member so constructed as to permit a user to employ one hand and substantially one movement to release the igniting unit and immediately press it into heating position.

Other features and advantages will hereinafter appear.

In the drawings:

Figure 1 is a transverse sectional view through an automatic cigar lighter constructed in accordance with one embodiment of the present invention showing the parts in normal inoperative position with the igniting unit locked against accidental movement.

Fig. 2 is a similar view showing the operation of the lock release mechanism preliminary to moving the igniting unit to operative heating position.

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

Fig. 4 is a perspective view of the locking element shown in Fig. 3.

Fig. 5 is a section through a lock retainer element, and

Fig. 6 is a view similar to Figs. 1 and 2, on a reduced scale, showing the igniting unit pushed inwardly to operative heating position in the supporting socket member.

The illustrated embodiment of the invention is shown in connection with a plug type automatic cigar lighter such as is especially adapted for use in motor cars. As illustrated, it includes a cylindrical base or socket member 11 comprising a sleeve 12 forming a deep socket 13 adapted to be mounted in a suitable opening 15 in the instrument panel 14, for example, of a motor car. The outer end of the socket member has a flange 16 engaging the panel.

The socket member is secured in place by a

sleeve 17 which may be formed at the bottom with a threaded aperture 18 threaded on a sleeve 19 secured to the bottom of the sleeve 12. Ground contact by the socket member is made both directly to the grounded panel 14 by engagement of the flange 16 therewith, or through the threaded connection 18, 19 and yoke 17 to the instrument panel which is engaged directly by the ends of the yoke.

Contact fingers 21 which are insulated from the socket member are supported in the lower end thereof and electrically connected to a conductor 22 leading to car battery, or similar source of potential.

As illustrated, the removable igniting unit 23 comprises a plunger section 24 on the end of which is carried a holder 25 for the heater coil (not shown). The holder 25 has an annular ridge 25*a* for engagement with resilient contact portions 25*b* formed in the wall of the socket member to insure a good ground contact when the unit is in closed-circuit heating position.

A handle knob 26 for manipulating the igniter unit projects outwardly in position to be readily grasped by a user. The knob includes a stem 27 threaded at its lower end into a plug 28 which is in turn threaded to the upper end of the plunger section 24. The stem 27 has a knob head 29 forming an end face 30 on the extreme outer end of the knob.

The upper end 24*a* of the plunger section 24 is of reduced diameter and a sleeve 31 slidably surrounds the reduced end. A coil spring 32 is interposed between a flange 33 on the lower end of the sleeve and a radial flange 34 on the plug 28. By this arrangement the igniting unit is normally yieldingly pressed by the spring 32 so as to hold the igniting unit in the open-circuit position illustrated in Figs. 1 and 2. By pushing the igniting unit inwardly in the socket member 12, the spring contacts 21 yieldingly engage and hold a rounded contact surface 35 on the heater coil holder 25, as shown in Fig. 6, whereby a heating current passes through the heater coil and raises it to the desired temperature for use, at which time the yielding contact members 21 being formed of bimetallic strips move outwardly to disengage the contact surface 35 and release the igniting unit. When thus released, the spring 32 snaps the unit back to its normal open-circuit position, this snapping operation serving to notify the user that the unit is heated and ready for use. The user then can remove the unit from the socket member for lighting purposes.

The means provided for preventing accidental movement of the igniting unit into the socket to closed-circuit heating position, as illustrated, comprises a latch member 41 mounted for radial sliding movement on the plug 28. The latch member is mounted below a retaining element 42 and has a slot 43 receiving the stem 27 of the knob 26. A leaf spring 44 is secured to an inner flange 44*a* on the sliding latch 41 and engages the wall of a circular recess 44*b* in the retaining element 42 to normally maintain the nose 45 of the latch in projecting position to engage the face of the radial flange 31*a* on the sleeve 31. For this purpose the latch 41 extends through a slot 47 in the side of the retainer 42. It will be apparent that when in this position the latch 41 blocks any movement of the igniting unit into the socket member 12 and no accidental pressure applied to the end face 30 of the knob 26 can produce such movement.

Such movement can only be effected by intentional action on the part of a user. The illustrated mechanism for accomplishing this includes a sleeve 51 slidably mounted on the stem 27 of the knob 26 and formed with a recess 52 receiving the knob. As a result the outer edge 53 of the sleeve 51 forms, in effect, the rim of the knob for manipulating the igniting unit. A helical spring 54 in a recess 55 in the lower end of the sleeve is compressed between the bottom of the recess and a spring seat 56 formed on the top of the latch retainer 42.

The lower end of the sleeve is formed with a recess 57 for receiving the latch retainer 42 and the lower edge of the sleeve surrounding the recess is formed with a beveled cam face 58 adapted to engage the beveled cam face 58 adapted to engage the beveled upper face 59 on the nose 45 of the latch member 41, whereby inward movement of the sleeve 51 relative to the stem 27 causes the engaging cam faces 58, 59 to shift the latch member 51 inwardly to the position shown in Fig. 2, thus freeing the igniting unit for movement into the socket member to closed-circuit, heating position as shown in Fig. 6. In this position heating current flows through the heater coil. When the latter has been raised to the desired temperature the bimetallic spring contacts 21 release the igniting unit, permitting the spring 32 to snap it back into normal open-circuit position shown in Fig. 1, from which position it can be readily removed from the socket member for lighting purposes and then returned to the open-circuit non-heating position shown in Fig. 1. In this latter position the latch 41 again definitely blocks inward movement of the igniting element and no amount of pressure applied to the end face 30 of the knob either when returning it to the socket or at any other time will cause it to move into closed-circuit heating position. Such latter movement can only be obtained by intentionally applying pressure to the rim of the knob formed by the sleeve 51 and sliding it inwardly to produce the unlatching operation above described, whereupon the igniting unit is released for inward movement to closed-circuit heating position.

Claims generic to the species of my invention illustrated herein are contained in my copending application, Serial No. 122,198, filed October 19, 1949, entitled "Cigar Lighter."

The invention can be variously modified and adapted and portions can be used without others.

I claim:

1. An electric cigar lighter comprising a supporting member; a removable igniting unit including a heater element, said unit as a whole being movable on said supporting member from open-circuit position to closed-circuit position, current supply means for said heater element including switch contacts for supplying current to said heater element when said unit is in closed-circuit position, a knob connected to the unit for moving said unit from one position to another and withdrawing the unit from said supporting member for use, said knob including relatively movable parts, one of which is movable in the direction of circuit-closing movement of the igniting unit, means positively locking said unit against movement as a whole into closed-circuit position, and means actuated by movement of the said one knob part with respect to the other knob part in said circuit-closing direction for unlocking said unit to permit movement thereof into closed-circuit position.

2. An electric cigar lighter comprising a supporting member, a removable igniting unit including a heater element, said unit as a whole being movable on said supporting member from open-circuit position to closed-circuit position, current supply means for said heater element including switch contacts for supplying current to said heater element when said unit is in closed-circuit position, a knob connected to the unit for moving said unit from one position to another and withdrawing the unit from said base member for use, said knob including relatively movable parts including a member having an outer end portion forming the end face of the knob, and a relatively movable member forming a rim surrounding said end face, means positively locking said unit against movement into closed-circuit position, and means actuated by relative movement between said rim and said end face for unlocking said unit to permit movement thereof into closed-circuit position.

3. An electric cigar lighter comprising a supporting member, a removable igniting unit including a heater element, said unit being movable on said supporting member from open-circuit position to closed-circuit position, current supply means for said heater element including switch contacts for supplying current to said heater element when said unit is in closed-circuit position, a knob connected to said unit for moving said unit from one position to another and withdrawing said unit from said base member for use, said knob including relatively movable parts including a member having an outer end portion forming the end face of the knob, and a relatively movable sleeve slidably surounding said member and forming a rim surrounding said end face, means positively locking said unit against movement into said closed-circuit position, and means actuated by relative movement between said member and said sleeve as a result of pressure applied to said rim for unlocking said unit to permit movement thereof into closed-circuit position.

4. An electric cigar lighter comprising in combination, a supporting socket member, a removable igniting unit comprising a plunger section having a heating element, said plunger section being slidably supported in said socket member for movement as a whole from open-circuit position to closed-circuit position, knob means movable on the plunger section for moving said section from one position to another and for extracting said section from said socket member for use, means for positively locking said plunger section against movement from open-circuit to closed-circuit position in said socket member, and means responsive to relative movement of said knob means in circuit-closing direction on said plunger section for releasing said locking means to permit movement of said plunger section into closed-circuit position.

5. An electric cigar lighter comprising in combination, a supporting socket member, a removable igniting unit having a heating element at one end and multi-portion knob means at the other, said unit being slidably supported in said socket member for movement as a whole into closed-circuit position or open-circuit position, said knob means moving said unit from one position to another and extracting said unit from said socket member for use, means for positively locking said unit against movement from open-circuit position to closed-circuit position, means actuated in response to relative movement of a portion of said knob means relative to another portion of said knob in circuit-closing direction for releasing said locking means to permit movement of said unit into closed-circuit position, and means whereby said locking means is returned to locking position upon return of said unit to open-circuit position.

6. An electric cigar lighter comprising in combination, a supporting socket member, a removable igniting unit having a heating element, said unit being slidably supported in said socket member for movement as a whole into closed-circuit or open-circuit position, a two part knob extending outwardly from said unit for manually shifting said unit from one position to another and for extracting said unit from said socket member for use, means for positively locking said unit against movement from open-circuit to closed-circuit position in said socket member comprising a radially movable latch, means normally pressing said latch outwardly into position to prevent movement of said igniting unit into closed-circuit position in said socket member, and means for moving said latch radially inward of said unit in response to relative movement of one of the knob parts with respect to the other in circuit-closing direction to permit movement of said unit into closed-circuit position.

7. An electric cigar lighter comprising in combination, a supporting socket member, a removable igniting unit having a heating element, said unit being slidably supported in said socket member for movement as a whole into closed-circuit or open-circuit position, a knob extending outwardly from said unit for manually shifting said unit from one position to another and for extracting said unit from said socket member for use, positive means for positively locking said unit against movement from open-circuit to closed-circuit position in said socket member comprising a radially movable latch, means normally pressing said latch outwardly into position to prevent movement of said igniting unit into closed-circuit position in said socket member, and means including a sleeve shaped to form the rim of said knob and slidably mounted on said knob for moving said latch radially inward to permit movement of said unit into closed-circuit position.

8. An electric cigar lighter having a cylindrical supporting socket member, a removable igniting unit having a heating element, said unit being slidably supported in said socket member for movement as a whole into closed-circuit or open-circuit position, means including a radially movable latch on said unit positively locking said unit against movement into closed-circuit position when the latch is in a radially extended position, and means including a movable latch releasing member relatively movable with respect to the igniting unit for moving said latch radially inward in response to relative movement of said member in circuit-closing direction when the igniting unit is locked, thereby to unlock said unit for movement into closed-circuit position, said releasing member comprising a knob part constructed to require intentional gripping by the user in order to cause said unlocking operation.

9. An electric cigar lighter having a cylindrical supporting socket member, a removable igniting unit having a heating element, said unit being slidably supported in said socket member for movement as a whole into closed-circuit or open-circuit position, a knob for manually moving said unit from open to closed-circuit position, means including a radially movable latch on said unit, positively locking said unit against movement

into closed-circuit position, said knob including a member forming a projecting end face and a relatively movable latch releasing sleeve, and cooperating cam surfaces on said latch and said releasing sleeve whereby axial movement of said sleeve relative to said knob moves said latch radially inward to unlock said unit for movement into closed-circuit position, said releasing member being constructed to form a rim around said end face to be gripped by a user in order to cause said unlocking operation.

10. An electric cigar lighter comprising a socket member, an igniting unit having a heating element, said unit being movably housed in said socket member and removable therefrom for use, current supply means for said unit including a switch having contacts movable to closed-circuit position in response to axial movement of said unit as a whole relative to said socket member, means supporting said unit for movement in said socket member from open-circuit to closed-circuit position including a sleeve slidable on said unit and frictionally engageable with said socket member, spring means between said unit and said sleeve for yieldingly holding said unit in open-circuit position, latching means on said unit, said latching means when extended engaging the end of said sleeve to positively lock said unit against movement into closed-circuit position, and a knob for moving said unit into closed-circuit position and removing said unit from said socket member for use, said knob having means including a movably mounted member for retracting said latching means to permit movement of said unit into closed-circuit position.

11. An electric cigar lighter comprising a socket member, an igniting unit having a heating element, said unit being movably housed in said socket member and removable therefrom for use, current supply means for said unit including a switch having contacts movable to closed-circuit position in response to axial movement of said unit as a whole relative to said socket member, means supporting said unit for movement in said socket member from open-circuit to closed-circuit position including a sleeve slidable on said unit and frictionally engageable with said socket member, spring means between said unit and said sleeve for yieldingly holding said unit in open-circuit position, latching means on said unit, said latching means when extended engaging the end of said sleeve to positively lock said unit against movement into closed-circuit position, and a knob for moving said unit into closed-circuit position and removing said unit from said socket member for use, said knob being movable on the igniting unit and having means including a rim fixed thereto for retracting said latching means to permit movement of said unit into closed-circuit position.

12. An electric cigar lighter comprising a

socket member, an igniting unit having a heating element, said unit being movably housed in said socket member and removable therefrom for use, current supply means for said unit including a switch having contacts movable to closed-circuit position in response to axial movement of said unit as a whole relative to said socket member, means supporting said unit for movement in said socket member from open-circuit to closed-circuit position including a sleeve slidable on said unit and frictionally engageable with said socket member, spring means between said unit and said sleeve for yieldingly holding said unit in open-circuit position, latching means on said unit engaging the end of said sleeve to positively lock said unit against movement into closed-circuit position, and a knob for moving said unit into closed-circuit position and removing said unit from said socket member for use, said knob having an end face and including a relatively slidable outer sleeve, and means responsive to relative movement between said outer sleeve and said end face to retract said latching means and permit movement of said unit into closed-circuit position.

13. An igniting unit for an electric cigar lighter having a holder, comprising a body having a heating element to be mounted on the holder for removal and replacement and manual means for moving the body longitudinally in the holder to replace the body in the holder in an open-circuit position; means yieldably resisting further movement of the body from the open-circuit position to a closed-circuit position; a stop mounted on the body for transverse movement with respect to the body between operative and inoperative positions and cooperating with the holder in operative position to positively prevent movement of the body from open-circuit to closed-circuit position when the body is being replaced in the holder; and separate means in addition to and carried by the said named body moving means for moving the stop to inoperative position to permit movement of the body to circuit-closing position.

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References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,677,734	Smith	July 17, 1928
2,196,151	Johnson	Apr. 2, 1940
2,223,654	Ashton	Dec. 3, 1940
2,223,034	Lehmann	Dec. 3, 1940
2,247,093	Lehmann	June 24, 1941
2,267,592	Kline	Dec. 23, 1941
2,276,215	Lehmann	Mar. 10, 1942
2,288,005	Lehmann	June 30, 1942
2,301,129	Lehmann	Nov. 3, 1942
2,427,297	Modrey	Sept. 9, 1947