March 18, 1941. G. J. PISTEY 2,235,750

CIGAR LIGHTER

Filed July 10, 1937

Fig. 1

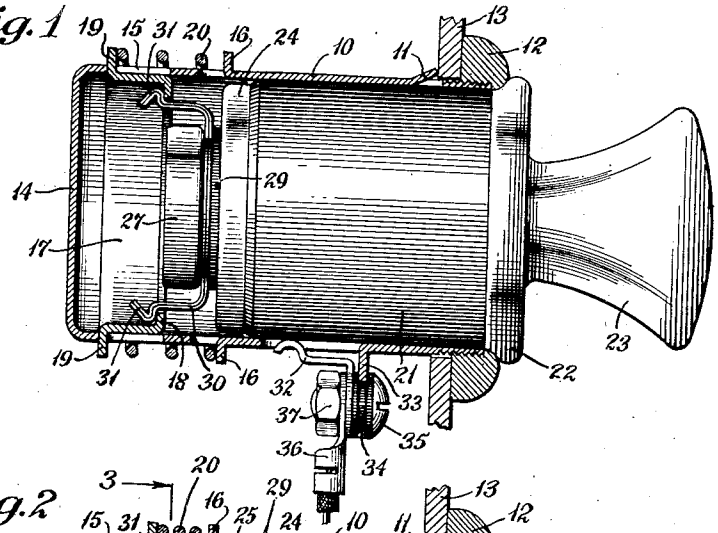


Fig. 2

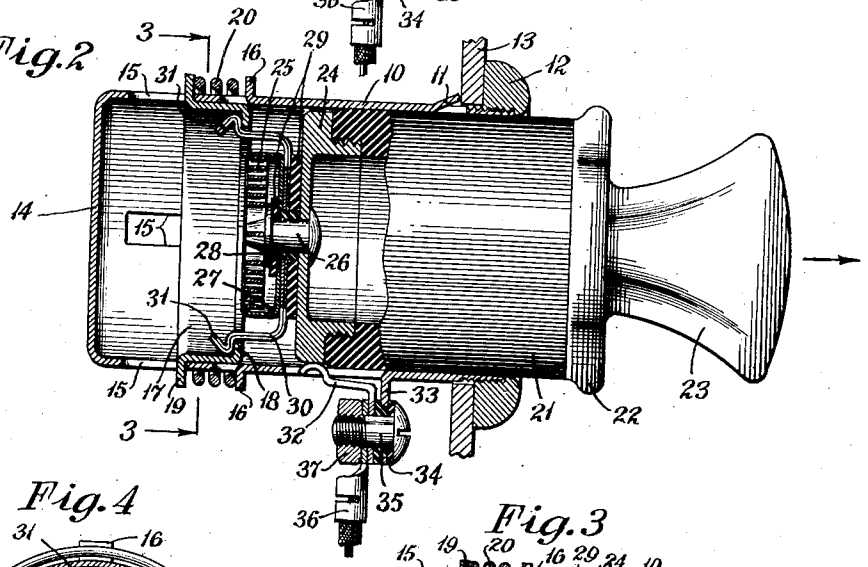


Fig. 4

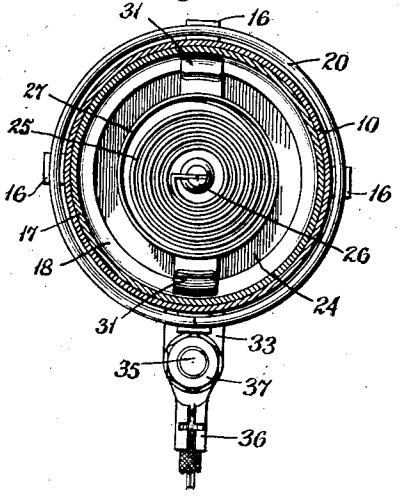
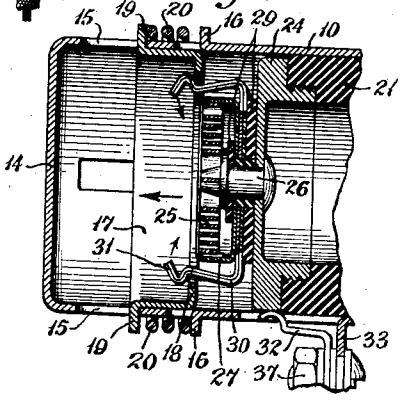


Fig. 3



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CIGAR LIGHTER

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18 Claims. (Cl. 219—32)

The invention relates to cigar lighters, and more particularly to cigar lighters adapted to be mounted on a dashboard of an automobile.

Cigar lighters currently used must be pushed in and held in circuit-closing position until the heating elements attain the desired heat. They, therefore, require considerable handling by the driver of an automobile in order to operate them. This, consequently, diverts his attention from the road and constitutes a hazard in driving. It is, therefore, desired to have a lighter which requires a minimum amount of attention from the operator.

According to the present invention, a lighter is provided which merely requires the operator to pull it out of the holder and is designed to be operated very quickly. Obviously this requires a minimum amount of attention from the operator. The device, while operating very quickly, is safeguarded from burning out should the operator fail to properly use the device.

The igniting unit, according to the present invention, engages the retaining means positioned in the holding means, which retaining means holds the igniting unit in deep position in the holder while inoperative and which limits the outward movement of the igniting unit in an intermediate position. When the operator moves the igniting unit to the intermediate position, a circuit is made to the heating element to cause the same to become incandescent. After the heating element has acquired this desired heat, the igniting unit is released from engagement with the retaining means. Upon the release of the retaining means, the operator can withdraw the igniting unit for use.

As a safeguard for the device, the present invention provides that at the instant the engaging means releases the retaining means, the latter snaps into deep position and permanently opens the circuit to the heating element so that if, for any reason, the operator should hold the igniting unit in intermediate position too long, the circuit will be broken so that the heating element will not burn out.

The heating element of the present device is designed to heat rapidly and therefore the time during which the withdrawal of the igniting unit from the holder is interrupted is very brief—the period being about two or three seconds.

Other features and advantages of the invention appear from the specification taken in connection with the drawing, in which:

Figure 1 is a section of the holding means showing the retaining means in deep position.

Fig. 2 is a section of the holder showing the retaining means and the igniting unit in intermediate position, the igniting unit being partially in section.

Fig. 3 is similar to Fig. 2 and shows the retaining means in intermediate position with the engaging means being released therefrom.

Fig. 4 is a section of the device taken along the lines 3—3 of Fig. 2.

According to the present invention, a tubular holder 10 is provided for the igniting unit. Adjacent one end of the holder, one or more tongues 11 are lanced outwardly and are adapted to engage the back of a dashboard or the like 13. A cap 12 is threaded on the outer end of the tubular holder and is adapted to be threaded up against the front of the dashboard to clamp the latter between the tongues and the cap. In this manner, the holding device is rigidly secured in place.

The opposite end of the holder is closed as shown at 14. Adjacent the closed end a plurality of longitudinally-extending slots 15 are formed in the holder 10. Intermediate these slots and the threaded end of the holder, a plurality of tabs 16 are lanced from the body of the holder and are extended outwardly for a purpose to be described.

A retainer, according to the present invention, comprises a sleeve 17 adapted to slide within the barrel. The sleeve is mounted adjacent the closed end of the holder and has an inturned flange 18 at one end and at the other end has a plurality of outwardly-extending tabs 19. The tabs are arranged to extend through the slots 15 and limit the sliding movement of the retainer. The retainer is positioned in the holder and the tabs bent outwardly so as to engage a spring 20 which has been slipped over the outside of the holder. The spring is positioned so as to be in engagement with the tabs 16 at one end and with the tabs 19 at the other end. This spring normally urges the retaining means into deep position in the holder.

The igniting unit comprises a tubular sleeve 21 of insulating material mounted to slide in the holder. The unit has a bead 22 at one end, shaped to engage and cooperate with the cap 12 on the holding device, and has a handle 23 projecting therefrom by which the operator may grasp the same to withdraw it from the holder.

At the other end of the igniting unit, a conducting cap 24 of smaller diameter is threaded thereon. A heating element 25 is mounted on the cap 24 through the medium of a stud 26. A cup

27 for the heating element is mounted on an insulating bushing 28 surrounding the stud. A pair of bimetallic elements 30 are positioned in engagement with the undersurface of the cup. The cup and bimetallic elements are mounted between a pair of insulating washers 29 and the whole assembly is secured to the cap by the stud 26 and insulated therefrom, as shown in Fig. 2. The end of each bimetallic element is formed into a hook 31 normally biased outwardly into a position to engage flange 18 when the igniting unit is inserted into the holder. The retaining means will, therefore, hold the igniting unit normally in deep position in the holder.

It will be obvious that any heat-controlled hook member can be used in place of the bimetallic member described herein to hold the igniting unit and retainer together.

The heating element, according to the present invention, is one having a low resistance. When the normal voltage is impressed on the heating element a high current will flow due to the low resistance of the element. This causes it to heat up very quickly, the desired heat being reached in a few seconds. The heating element is mounted on the igniting unit by having one end secured to the cup and the other end secured to the slot in the central stud 26.

When it is desired to use the lighter, the operator merely withdraws the igniting unit from the deep position in the holder. The spring 20 will be compressed as the tabs 19 move along the longitudinally-extending slots 15 until the igniting unit is in an intermediate position, at which time further outward movement is prevented by the tabs contacting the ends of the slots. In this intermediate position, a contact 32 engages the conducting cap 24 and closes a circuit from a source of energy through the cap 24, stud 26, heating element 25, cup 27, bimetallic elements 30, through the retainer 17, and through the holder to ground.

The contact 32 is carried by an outwardly lanced contact carrying element 33 having an aperture therein through which extends an insulating bushing 34. A bolt 35 extends through the bushing and carries the contact 32 and an electrical connector 36. These elements are locked together by a nut 37 on bolt 35. The electrical connector connects the device to the battery or source of energy in the automobile.

As shown in Fig. 2, the contact 32 extends through the aperture formed in the holder as the result of the lancing out of the element 33.

The igniting unit will be manually held in this intermediate position, and, as previously described, the heating element will quickly come up to the desired heat. When the heating element has acquired the desired heat, the bimetallic elements will flex inwardly, thereby releasing the hooked ends from the inturned flange. The retainer upon being released from the igniting unit will move instantly to the end of the holding means under the urge of spring 20.

Movement of the hooked elements, therefore, opens the circuit to the heating element and at the same time releases the igniting unit from the retaining means so that the igniting unit may be withdrawn from the holding device for use. Since the heating element acts quickly, the igniting unit will be held in this intermediate position momentarily. If, for any reason, the operator should release the igniting unit before it has acquired its predetermined temperature, the retainer device will draw the igniting unit into its normally deep inoperative position and break the circuit to contact 32. If the operator should hold the igniting unit in intermediate position until it has acquired its predetermined heat, but then fails to remove it, the retainer will have moved to deep position and permanently open the circuit so that the bimetallic elements, when they cool off and return to normal position, will be unable to close the circuit to ground. The circuit under these conditions cannot be closed to the heating element until the igniting unit is again restored to its initial inoperative position. This safeguards the quick-acting heating element from being burned out through failure of the operator to properly use the device.

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 a cigar lighter, a holding device; an igniting unit carried by and completely removable from the holding device for use; a heating element carried by the igniting unit; means for normally retaining the igniting unit in deep position in the holding device; means whereby the igniting unit and retaining means may be withdrawn to an intermediate position, said retaining means holding the igniting unit against further outward movement; means for energizing the heating element in the intermediate position; and means for releasing the retaining means upon the heating means attaining a predetermined temperature.

2. In a cigar lighter, a holding device; retaining means mounted for limited sliding movement in the holding device and normally urged into deep postion; an igniting unit carried by and completely removable from the holding device for use; a heating element carried by the igniting unit; means on the igniting unit for engaging the retaining means so that the latter normally holds the igniting unit in deep position; means whereby the igniting unit and retaining means may be withdrawn to an intermediate position, said retaining means holding the igniting unit against further outward movement; means for energizing the heating element in the intermediate position; and means for releasing the engaging means from the retaining means whereby the igniting unit may be withdrawn from the holding device for use.

3. In a cigar lighter, a holding device; retaining means mounted for limited sliding movement in the holding device, and normally urged into deep position; an igniting unit carried by and completely removable from the holding device for use; a heating element carried by the igniting unit; means on the igniting unit for engaging the retaining means so that the latter normally holds the igniting unit in deep position; means whereby the igniting unit and retaining means may be withdrawn to an intermediate position, said retaining means holding the igniting unit against further outward movement; means for closing the circuit to energize the heating element in the intermediate position; and means for opening the circuit to the heating unit including means for releasing said retaining means when the heating unit attains a predetermined temperature.

4. In a cigar lighter, a holding device; retaining means mounted in the holding device for limited sliding movement, and normally urged into deep position in the holding device; an igniting unit carried by and completely removable

from the holding device for use; a heating element carried by the igniting unit; means on the igniting unit for engaging the retaining means so that the latter normally holds the igniting unit in deep position; means whereby the igniting unit and retaining means may be withdrawn to an intermediate position, said retaining means holding the igniting unit against further outward movement; means for closing a circuit to energize the heating element when the igniting unit is in the intermediate position; and means for opening the circuit to the heating unit and releasing the retaining means whereby the igniting unit may be withdrawn from the holding device for use.

5. In a cigar lighter, a holding device; retaining means mounted in the holding device for limited sliding movement and normally urged into deep position; an igniting unit having a heating element thereon carried by and completely removable from the holding device for use; means on the igniting unit for engaging the retaining means so that the latter holds the igniting unit normally inoperative in deep position; means for energizing the heating element only upon movement of the igniting unit and retaining means to an intermediate position on said holding device within the limits of sliding movement of said retaining means; and means for detaining said igniting unit and retaining means in said intermediate or energizing position until the heating element has attained its desired heat.

6. In a cigar lighter, a holding device having apertures adjacent the base thereof; a retaining device mounted for sliding movement in the holding device and having tabs extending therefrom and positioned in the apertures in the holding device to limit the sliding movement; yielding means normally urging the retaining means to deep position; an igniting unit having a heating element mounted thereon carried by and completely removable from the holding device for use; means on the igniting unit for engaging the retaining means to hold the igniting unit thereto for movement therewith, said retaining means normally holding the igniting unit in inoperative deep position; means for closing an energizing circuit to the heating element upon movement of the igniting unit and retaining device from deep position to the limit of the sliding movement of the retaining device; and means for releasing the igniting unit from the retaining device upon the heating element attaining a predetermined desired heat.

7. In a cigar lighter, a holding device having longitudinally extending apertures adjacent the base thereof; a plurality of tabs projecting outwardly from the holder intermediate its ends; retaining means mounted for sliding movement in the holding device and having tabs extending therefrom and positioned in the apertures in the holding device to limit its sliding movement; yielding means positioned between the tabs on the holding device and the tabs on the retaining means for normally urging the retaining means to deep position; an igniting unit having a heating element thereon carried by and completely removable from the holding device for use; means on the igniting unit for engaging the retaining means so that the latter holds the igniting unit normally in deep position; means for energizing the heating element only upon movement of the igniting unit and retaining means to an intermediate position on the holding device corresponding to the limit of the sliding movement of said retaining means; and means for stopping said igniting unit in said intermediate position, said means being heat-responsive and releasing the igniting unit for removal upon the heating element attaining a desired usable heat.

8. In a cigar lighter, a holding device; retaining means mounted in the holding device for limited sliding movement and normally urged into a deep position on the holding device; an igniting unit having a heating element mounted thereon carried by and completely removable from the holding device for use; means on the igniting unit including bimetallic hook elements for engaging the retaining means so that the igniting unit is held thereto; and means for closing a circuit to the heating element for energizing the same only upon movement of the igniting unit to an intermediate position on the holding device as determined by the limited movement of the retaining means, said bimetallic hook elements releasing the retaining means upon the heating element attaining a desired usable heat.

9. In a cigar lighter, a holding device; retaining means mounted for limited sliding movement in the holding device and normally urged into deep position; an igniting unit carried by and completely removable from the holding device for use; a heating element of low resistance adapted when energized to be quickly brought up to incandescence mounted on the igniting unit; means on the igniting unit for engaging the retaining means so that the latter holds the igniting unit in deep position; means whereby the igniting unit and retaining means may be withdrawn to an intermediate position, said retaining means holding the igniting unit against further outward movement; means for closing a circuit to energize the heating element in the intermediate position; and means for opening the circuit to the heating unit including means for releasing said retaining means when the heating unit attains a predetermined temperature.

10. In a cigar lighter, a holding device; retaining means mounted for limited sliding movement in the holding device and normally urged into deep position; an igniting unit carried by and completely removable from the holding device for use; a heating element carried by the igniting unit; a plurality of bimetallic elements mounted on the igniting unit adjacent the heating element and formed with hooks on their ends for engaging the retaining means so that the latter normally holds the igniting unit in deep position; means whereby the igniting unit and retaining means may be withdrawn to an intermediate position, said retaining means holding the igniting unit against further outward movement; means for closing the circuit to energize the heating element in intermediate position, the bimetallic elements flexing when heated to open the circuit to the heating element.

11. In a cigar lighter, a holding device; retaining means mounted for limited sliding movement in the holding device and normally urged to deep position; an igniting unit carried by and completely removable from a holding device for use; a heating element carried by the igniting unit; a bimetallic element mounted on the igniting unit adjacent the heating element and formed with a hook on the end thereof for engaging the retaining means so that the latter normally holds the igniting unit in deep position; means whereby the igniting unit and retaining means may be withdrawn to an intermediate position, said retaining means holding the igniting unit against

further outward movement; means for closing the circuit to energize the heating element in intermediate position, the bimetallic element flexing when heated and releasing the retaining means whereby the igniting unit may be completely removed from the holding means.

12. In a cigar lighter, a holding device; retaining means mounted for limited sliding movement in the holding device and normally urged into deep position; an igniting unit carried by and completely removable from a holding device for use; a heating element carried by the igniting unit; a plurality of bimetallic elements mounted on the igniting unit adjacent the heating element and formed with hooks on their ends for engaging the retaining means so that the latter normally holds the igniting unit in deep position; means whereby the igniting unit and retaining means may be withdrawn to an intermediate position, said retaining means holding the igniting unit against further outward movement; means for closing the circuit to energize the heating element in intermediate position, the bimetallic elements flexing when heated and releasing the retaining means which moves to its normal deep position and opens the circuit to the heating unit.

13. In a cigar lighter, a holding device; retaining means comprising a sleeve having an inturned flange at one end mounted for limited sliding movement from the holding device and normally urged into deep position; an igniting unit carried by and completely removable from the holding device for use; the heating element carried by the igniting unit; means on the igniting unit for engaging the inturned flange of the retaining means so that the latter normally holds the igniting unit in deep position; means whereby the igniting unit and retaining means may be withdrawn to an intermediate position, said retaining means holding the igniting unit against further outward movement; means for energizing the heating element in the intermediate position; and means for releasing the engaging means from the inturned flange of the retaining means whereby the igniting unit may be withdrawn from the holding device for use.

14. In a cigar lighter, a holding device; an igniting unit carried by and completely removable from the holding device for use; yielding means mounted in the holding device and normally retaining the igniting unit in a deep and inoperative position in the holding device; a heating element carried by the igniting unit; means whereby the igniting unit may be moved against the yielding means to an intermediate position where it is retained by the yielding means against further outward movement; means in the intermediate position for closing a circuit to energize the heating element carried by the igniting unit; and means responsive to the heating of the heating unit for releasing the yielding means whereby the igniting unit may be removed from the holder for use.

15. In a cigar lighter, a holding device; retaining means mounted for limited sliding movement in the holding device and normally urged into deep position; an igniting unit carried by and completely removable from the holding device for use; a heating element of low resistance adapted when energized to be brought up to incandescence mounted on the igniting unit; means on the igniting unit for engaging the retaining means so that the latter holds the igniting unit in deep position; means whereby the igniting unit and retaining means may be withdrawn to an intermediate position, said retaining means holding the igniting unit against further outward movement; means for closing a circuit to energize the heating element in the intermediate position; and means for releasing the engaging from the retaining means upon the heating element attaining its predetermined heat, the quick heating of the heating element causing the retaining means to be operative for only a few seconds in the intermediate position to prevent removal of the igniting unit from the holder.

16. In a cigar lighter, a holding device; retaining means mounted for limited sliding movement in the holding device and normally urged into deep position; an igniting unit carried by and completely removable from the holding device for use, a heating element carried by the igniting unit; a plurality of hooked members mounted on the igniting unit and adapted to engage the retaining means to hold the igniting unit thereto; means whereby the igniting unit and retaining means may be withdrawn to an intermediate position, said retaining means holding the igniting unit against further outward movement; means for closing the circuit to energize the heating element in intermediate position; and heat-responsive means for releasing the hooked elements from engagement with the retaining means upon the heating element attaining its predetermined heat whereby the igniting unit may be withdrawn from the holder for use.

17. In a cigar lighter, a holding device; retaining means mounted for limited sliding movement on the holding device and normally urged into deep position; an igniting unit mounted in the holding device and having mounted thereon a heating element of low resistance which when energized is adapted to attain incandescence very quickly; means whereby the igniting unit may be withdrawn to an intermediate position; means for energizing the heating element in the intermediate position, the retaining means preventing the igniting unit from being withdrawn from the holder in the intermediate position; heat-responsive means for releasing the retaining means upon the heating element attaining its predetermined heat, the quick heating of the heat element causing the retaining means to be operative for only a short period of time in the intermediate position to temporarily prevent the removal of the igniting unit from the holder.

18. In a cigar lighter, a holding device; an igniting unit carried by and completely removable from the holding device for use; a heating element adapted to quickly attain its normal heat carried by the igniting unit; means for normally retaining the igniting unit in deep position on the holding device, said retaining means being movable within limits on the holding device; means whereby the igniting unit and retaining means may be withdrawn to an intermediate position and restrained from further outward movement; means for energizing said heating element incident to movement of the igniting unit and retaining means to said intermediate position; and heat-responsive means for releasing the restraining means upon the heating element attaining its desired heat so that the igniting unit is free to be withdrawn from the holding device and the retaining means is free to return to its original deep position.

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