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Jannello

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[54] **DEVICE FOR LIGHTING CIGARETTES, FOR SPECIAL APPLICATION IN AUTOMOTORS**

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[30] **Foreign Application Priority Data**

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[52] **U.S. Cl.** **219/261;** 219/265

[51] **Int. Cl.** **F23g 7/00**

[58] **Field of Search** 219/261, 264, 265, 266, 219/267, 269

[56] **References Cited**

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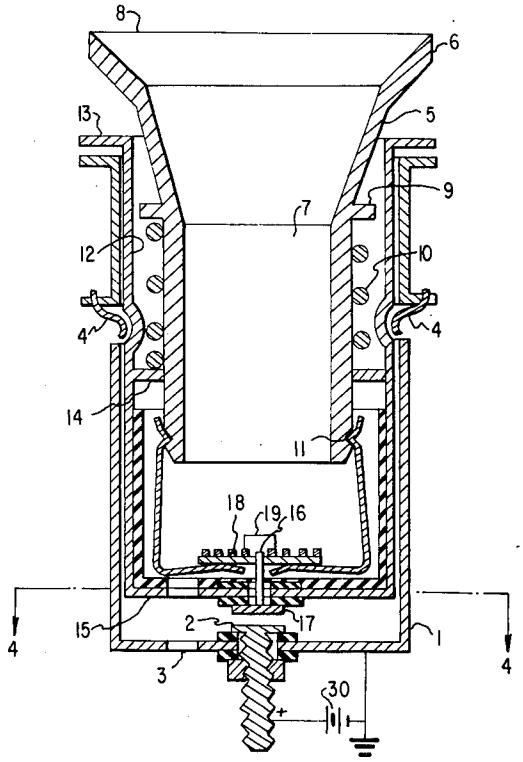
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Primary Examiner—Volodymyr Y. Mayewsky
Attorney, Agent, or Firm—Otto John Munz

[57] **ABSTRACT**

An electric cigarette lighter for use in an automobile in which an electrically heated grid is placed thermally insulated in an enclosed removable housing. Heater elements and bimetallic elements which are subject to damage through long use are in the removable element to allow easy repair of most damaged units. A funnel-shaped handle allows easier use of the device.

3 Claims, 6 Drawing Figures



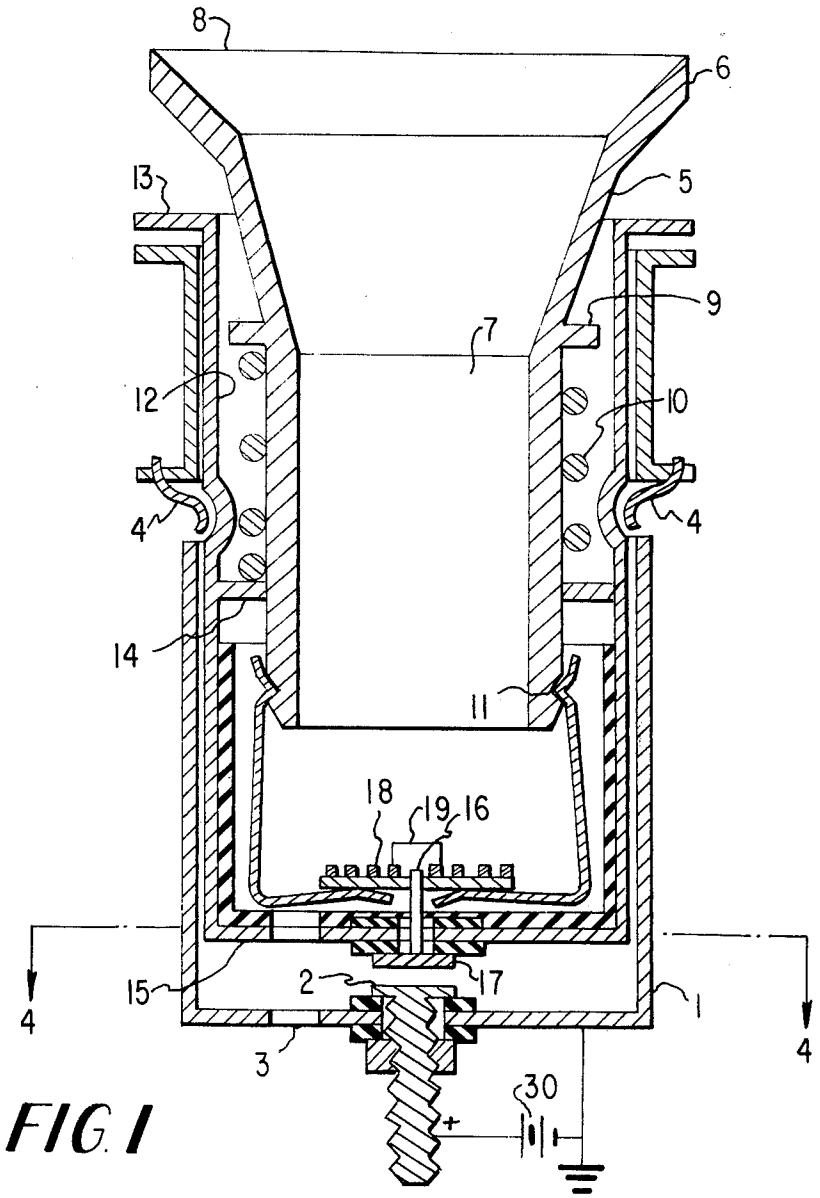


FIG. 1

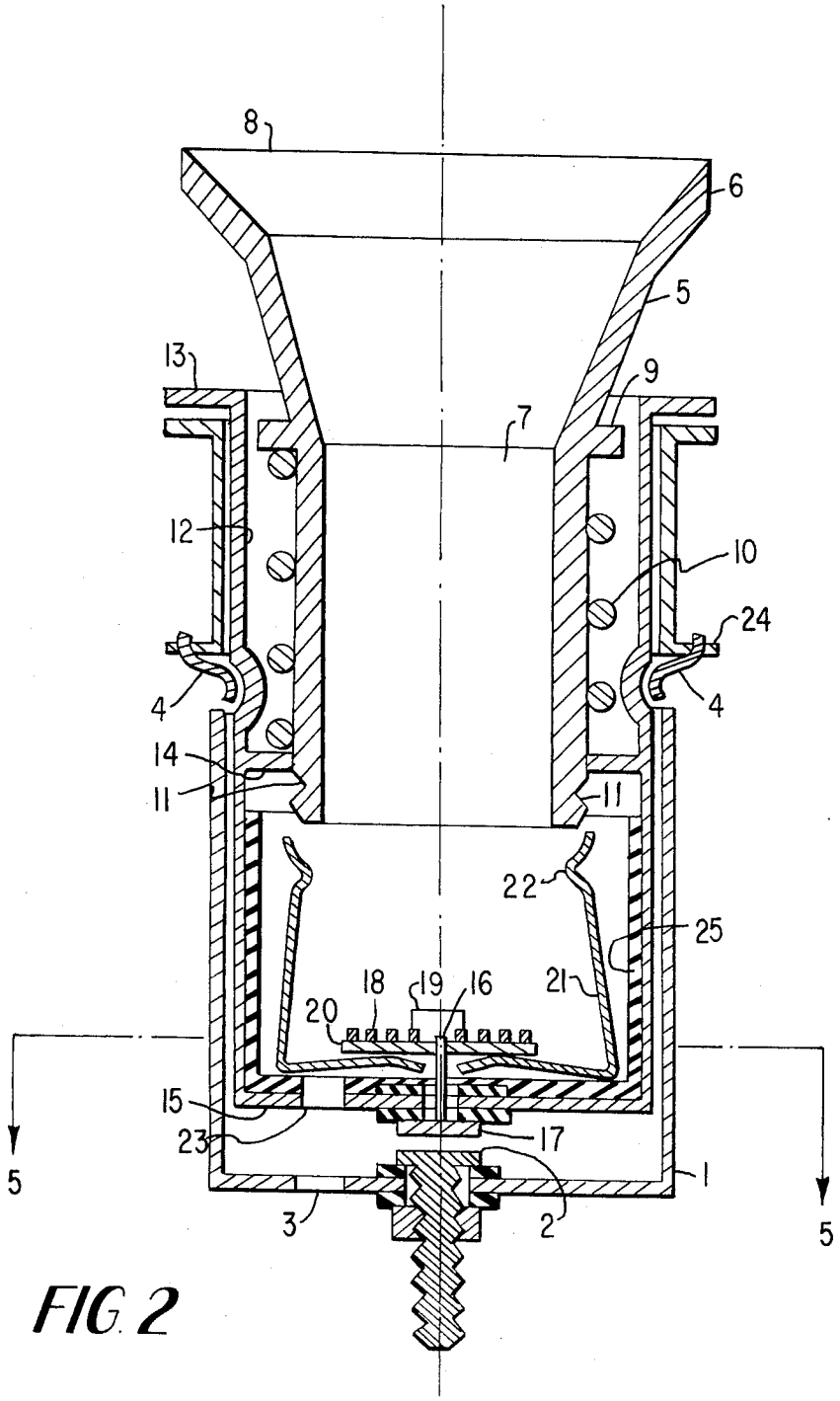


FIG. 2

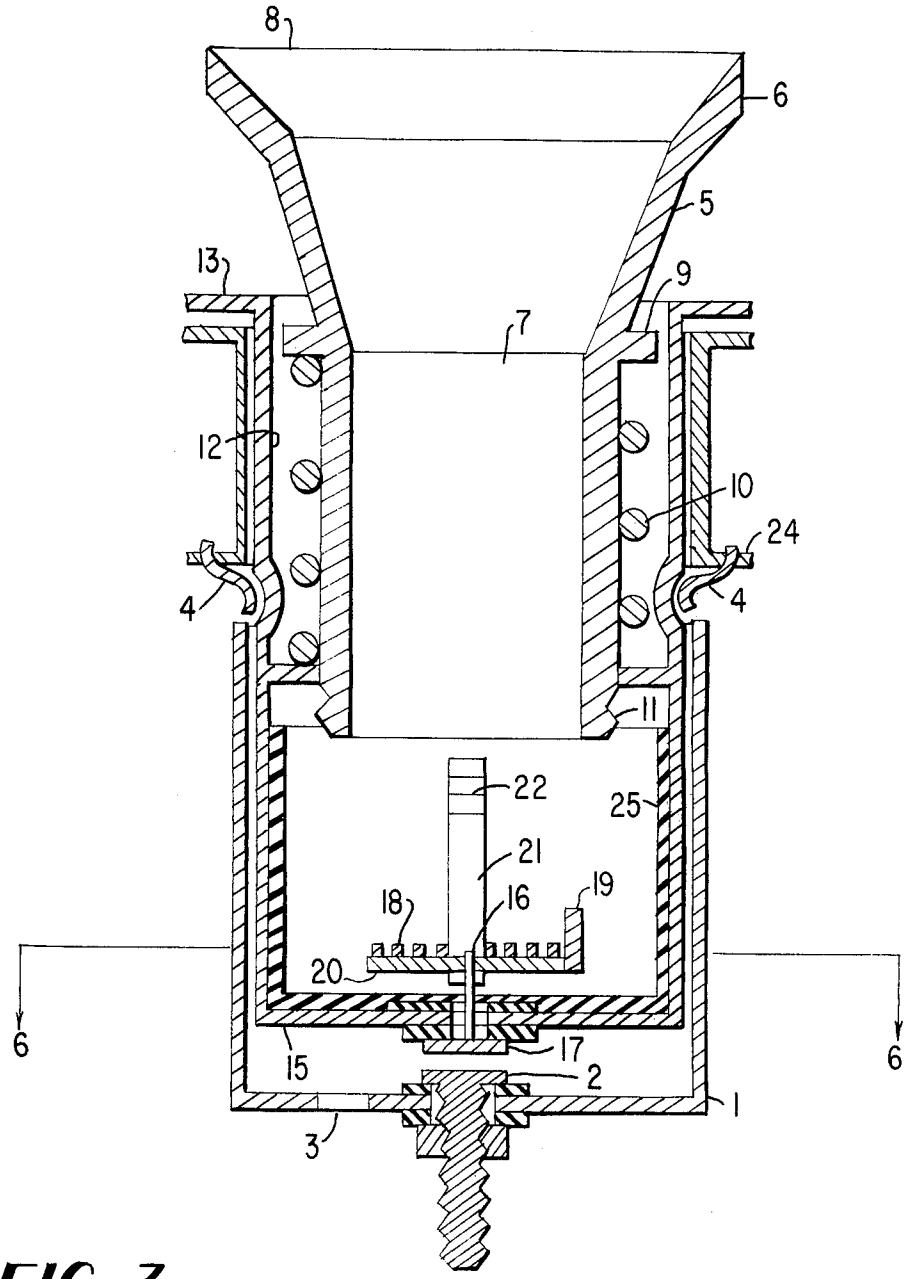


FIG 3

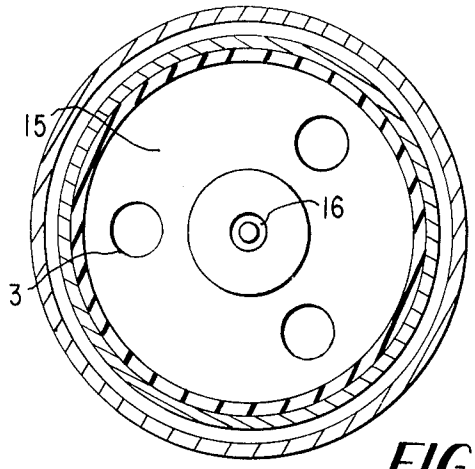


FIG. 4

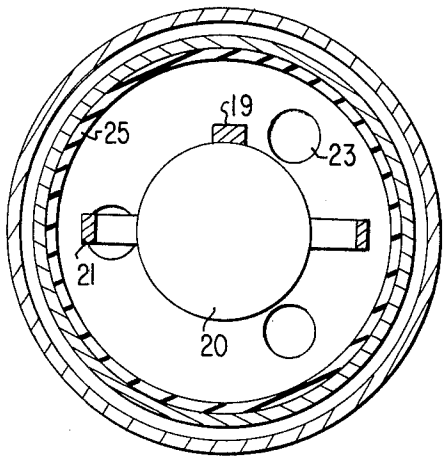


FIG. 5

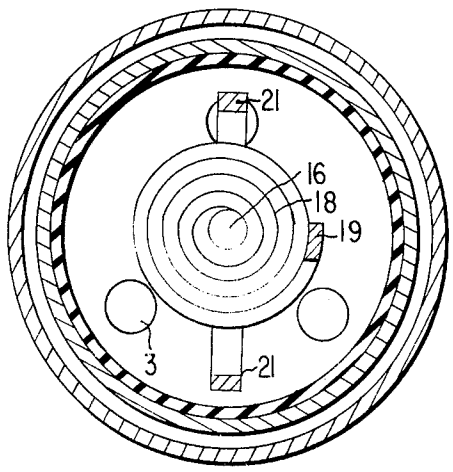


FIG. 6

DEVICE FOR LIGHTING CIGARETTES, FOR SPECIAL APPLICATION IN AUTOMOTORS

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention refers to an electric safety device for lighting cigarettes in automobiles.

The present invention provides an incandescent grid conventional lighter that overcomes the difficulties of the lighter used at present which are generally known.

2. Description of the Prior Art

The conventional lighter has two principal parts a fixed housing or socket and a removable cylindrical assembly.

The fixed housing or socket is a metal cylindrical housing with its walls connected to electrical ground, that is usually to say, the negative pole of the battery, while the bottom has two bimetallic plated hooks, the hooks being insulated from the housing and connected to the positive pole of the battery.

The removable cylindrical assembly placed in the fixed housing has an electrical resistance grid (nichrome type) and an internal displacement device with a reactive spring. The grid is arranged within a metal semi-housing which is coupled to the bimetallic hooks and is interposed in the closed electric circuit. The heat of the grid, upon reaching incandescence, opens the hooks, and thus, by the operation of the compressed spring, the housing is separated from the hooks and opens the electric circuit. The removable body can therefore be withdrawn, since the thermal inertia of the grid maintains the heat during the period necessary for its external use.

However, the lighter has several drawbacks.

The grid is located in an open end, which may cause accidental burns in the case of a sudden movement in driving or should it fall onto the floor, on the clothes or onto the seat. Furthermore, the grid, even when it is no longer incandescent, can also cause burns, if it is inadvertently touched while it is still sufficiently hot.

Two elements are subject to wear, the grid and the bimetallic elements. In case the grid should fail, the replacement of the removal element correctly solves the failure. In case the bimetallic element breakdown, as happens in continuous use, the repair is costly because it is necessary to disassemble the panel in order to replace the socket.

In order to light a cigarette the position of the grid in the open end compels the driver to effect the operation visually so as to obtain the necessary grid-cigarette coincidence.

SUMMARY OF THE INVENTION

In the present invention, as may be observed below, the cited drawbacks have been overcome, as follows.

The grid is located in a closed housing which is thermally isolated; therefore the is no danger of burns or of ignition of combustible parts by accidental contact.

All the elements subject to wear, that is all grids and bimetallic elements, are placed within the removable element. In case of damage, reconditioning of the lighter is effected by substitution of the replacable element without disassembly.

The grid-cigarette coincidence for lighting is obtained without need to see the operation, as the cigarette is guided by a funnel and a tube up to the grid,

thereby effecting contact in a plane perpendicular to the axis of the cigarette.

A device according to the present invention uses only 15 pieces as opposed to 28 pieces used by a conventional lighter.

The location of the grid within a closed housing thermally insulated as in the present invention, permits the thermal inertia to last longer, whereby it maintains a good lighting condition during a longer period.

BRIEF DESCRIPTION OF THE DRAWINGS

For a better understanding of this specification, the following drawings are attached.

FIG. 1 represents a sectional view of the device on its axis in the hooked position;

FIG. 2 represents a similar sectional view of the device in an unhooked position after heating;

FIG. 3 represents an axis sectional view in a plane perpendicular to the plane of sections 1 and 2, of the device in an unhooked position;

FIGS. 4, 5 and 6 are plan sectional views perpendicular to the axis at sectional lines indicated in respectively FIGS. 1, 2 and 3.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The device which produces ignition is described below.

A cylindrical housing 1 houses a central contact terminal 2 at the bottom, electrically isolated from the housing and connected to the positive pole of the battery.

The lower portion of housing 1 has air inlet orifices 3. The top part has spring plates 4 fastening a removable body in position.

The removable body 5 has a hollow axial body of revolution 6, with a tube 7 whose diameter is slightly larger than that of a conventional cigarette, that is to say, from 10 to 11 mm, the tube ending in a funnel 8. The body 6 has an outer annular expansion or flange 9 operating as an upper guide and supporting a spring 10 with an annular groove or chute 11 in its lower portion. The body 6 is housed within another cylindrical axial body of revolution 12 which forms a removable housing, with an annular locking edge 13 on the upper part and a ring 14 in the middle, that supports spring 10 and guides body 6. A thermally resistant dielectric gasket 15 with a central orifice is housed at the bottom. A bolt 16 passes through the orifice, ending externally in an electrically insulated contact border 17 of housing 1.

The other end of bolt 16 is used as the central terminal of a spiral electric heater resistance 18. The resistance rests on a metal plate 19, and is electrically insulated by a mica plate 20 on its rest point, while in its outer end, the spiral 18 is welded to the metal plate 19. Joined with plate 19 is a U-shaped bimetallic plate 21 which ends in hooks directed towards the axis 22 in adequate position for hooking in groove 11, against which they bear pressure due to their elastic condition.

At the bottom of housing 12 are orifices 23 serving as air inlets for combustion. On the upper portion of housing 12 there is a small annular groove 24 where the spring plates 4 are inserted to fix body 6 smoothly in operative position. At the bottom of the housing there is a thermal safety insulating coating 25.

In operation, the removable body 5 is inserted in housing 1, where the plates 4 fasten it upon reaching

groove **24.** When the body **5** is pressed by means of the end **8** of piece **6,** the spring **10** becomes compressed allowing movement of piece **6** to the hooking position of bimetallic elements **21** in groove **11.** In the hooking position, the electric flow from a battery **30** passes from the positive pole of terminal **2** to terminal **17** by contact and from there through bolt **16** to the center of resistance **18.** From the other end of resistance **18,** or from the border it flows to plate **19** and from there to bimetallic elements **21,** subsequently to piece **6** and from there through **14** and **9** to housing **1** connected to ground.

The electric power heats grid **18,** and the grid heats bimetallic elements **21,** such that they become deformed and open and thus free piece **6.** The operation of the previously compressed spring **10** displaces piece **6** outwardly until it reaches the expansion **9** at the top **13.** The electric circuit is thus interrupted.

If it is desired to use the lighter in a conventional manner, at the sound of unhooking, the removable body **5** is withdrawn and used externally while grid **18** continues incandescent through thermal inertia, in a similar manner as its present use, with the sole difference that the grid is within tube **7** and not at the end of the lighter, thus the cigarette must be inserted through the tube to make contact with the grid and effect the usual suction.

I claim:

1. In a device for lighting cigarettes for installation in a panel of an automotive vehicle, including a fixed housing (**1**) securely affixed in said panel and a removable assembly (**5**) fitted into the fixed housing when electric power is supplied thereto and manually removable from the fixed housing for use in lighting cigarettes,

the improved removable assembly comprising:

A. a removable housing (**12**) sized to fit smoothly into the fixed housing and including therein an electric terminal (**17**) electrically isolated from the main body of the removable housing, wherein an electric potential may be applied between the terminal and the main body,

B. an electric heating element (**18**) including two electrical ends thereof, the heating element being fixedly mounted within the removable housing and having one of its electrical ends in good electrical contact with the electric terminal (**17**), the heating element being electrically insulated from said main body,

C. bimetallic hooking means (**21**) fixedly mounted within the removable housing and being in good electrical contact with the other electrical end of the heating element,

D. a spring-biased hollow electrically conductive element (**6**) including a groove (**11**) placed to be hooked by the hooking means, whereby the hooking means engages the grooves only when the heating element and therefore the hooking means are not heated sufficiently to deform the hooking means and release the groove, and wherein the hollow element is spring biased away from the hooking means when the hooking means release the grooves, the hollow element being in good electrical contact with the main body of the removable housing.

2. A device according to claim **1,** wherein the hollow element (**6**) comprises a funnel-shaped external orifice terminating in a cylindrical chute slightly larger in diameter than a cigarette, the heating element being placed in a perpendicular plane to the axis of the chute.

3. A device according to claim **8,** wherein the removable housing includes air inlets around the electric terminal.

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