Nov. 8, 1955 F. KEMPLER 2,723,337

CIGARETTE LIGHTER

Original Filed June 22, 1953

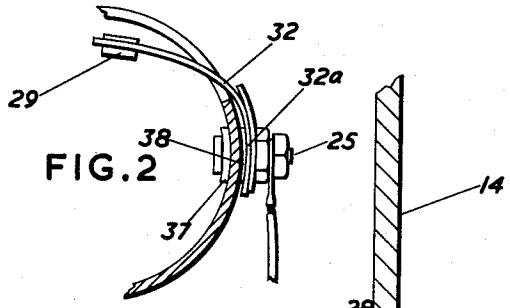


FIG. 2

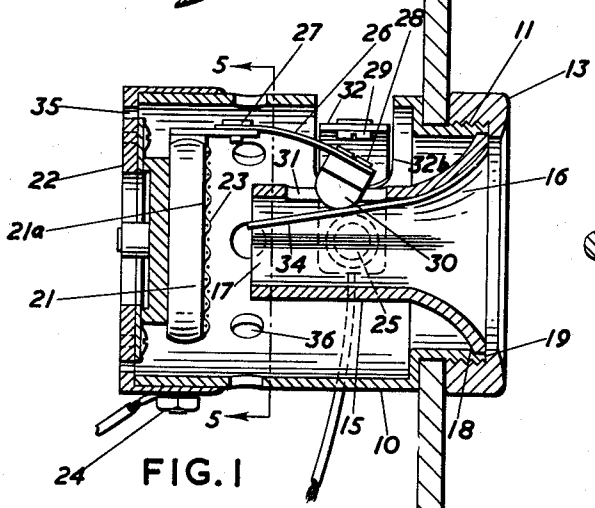


FIG. 1

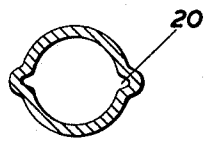


FIG. 3

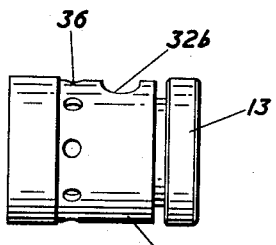


FIG. 4

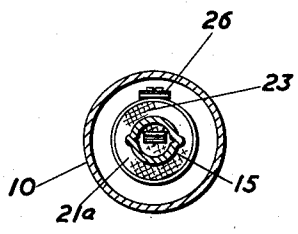


FIG. 5

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CIGARETTE LIGHTER

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1 Claim. (Cl. 219—32)

This invention relates to an electrically operated cigarette lighter that is especially suited for mounting on the dashboard of an automobile or the like.

Electrically operated cigarette lighters for mounting on dashboards of automobiles and similar places have been provided in the past. In most cases, however, it is necessary to insert the cigarette in the lighter, remove the lighter and cigarette from the dashboard, actually then draw on the cigarette while it is in the lighter. Such a manner of lighting cigarettes is inconvenient, and even dangerous when engaged in by a driver who is traveling at even a moderate speed because, to properly light the cigarette, he has to take his attention, at least momentarily, from his driving.

I have devised an electrically operated cigarette lighter that will automatically light a cigarette thrust into it in its permanent mounting position on the dashboard of an automobile. My lighter has an electric heating element that is automatically turned on as a cigarette is slid into it, and this is automatically turned off as the cigarette is withdrawn after having been lit. Should the driver or other person inserting the cigarette, forget the cigarette, there is a thermoresponsive switch incorporated in my lighter for turning the heater supply off.

My invention will be clearly understood after reading the following detailed specification in conjunction with the drawings.

In the drawings:

Figure 1 is a cross-sectional view of a cigarette lighter constructed according to my invention, illustrating the manner in which it is mounted on a surface such as the dashboard of an automobile.

Figure 2 is a sectional view illustrating the manner in which the thermoresponsive switch to the power supply is mounted.

Figure 3 is a cross-sectional view of the cigarette retaining tube.

Figure 4 is a perspective view of the exterior of the lighter; and

Figure 5 is a cross-sectional view along the lines 5—5 of Figure 1.

Referring to the drawings, the lighter there shown generally comprises a cup-like casing **10** threaded at its forward and open end as at **11** to receive the mounting ring **13**. Ring **13** is provided for the purpose of mounting the casing **10** on the dashboard **14** of an automobile or the like, the dashboard being formed with a hole to receive the threaded forward end of the casing **10** and the ring being threaded over the threaded portion **11** of the casing to secure the casing on the dashboard in the manner illustrated. This is a conventional manner of mounting fittings on dashboards and further reference to it is not thought necessary in this specification.

A cigarette retaining tube **15** is mounted within the casing. The tube **15** is open at each of its ends, one end being belled as at **16**, and accessible from the exterior of the casing **15**, and the other end communicating

with the interior of the casing as at **17**. Cigarette retaining tube **15** is retained in position within the casing **10** between the shoulder **18** on the interior forward edge of the cupped casing **10** and the flanged surface **19** of the casing mounting ring **13**.

Cigarette retaining tube **15** preferably has longitudinally extending flutes **20** on the portion thereof that has a constant tubular cross-section. These flutes are for the purpose of air ventilation between the interior of the casing and the exterior of the casing when the tube has a cigarette in it. They will be referred to later in the specification. It should also perhaps be mentioned that the cigarette retaining tube **15** has a cross-section over its extent of constant cross-section that is adapted to slidaby receive the cross-section of a cigarette with the longitudinal axis of the cigarette aligned with the longitudinal axis of the cigarette retaining tube.

An electric cigarette lighting element **21** of the type having a heating surface **21***a* that becomes incandescent when connected to an electrical source of energy, is rigidly mounted within the casing on the back wall **22** thereof with the heating surface **21***a* adjacent to and diametrically opposed to the open end **17** of the cigarette retaining tube **15**. The heating surface or element that becomes incandescent when the lighting element **21** is operated, is covered with a screen **23** that spaces the end of a cigarette in use a short distance from the heating element to permit air to pass between the heating element and the cigarette. This facilitates lighting of the cigarette in use. The type of heating element shown is well known and need not be referred to in detail. It comprises an insulated base with an electrically operated resistance heater mounted on it.

Electrical terminal posts **24** and **25** are provided for connecting the heating or lighting element to a source of electrical power. Also included in the means for connecting and disconnecting the cigarette lighting element **21** to the source of electrical energy is a first switch that includes a switch operating element comprised of a metallic leaf spring **26** rigidly mounted at one end as at **27** to an electrical terminal of the lighter **21** and having a contact **28** at its other end for engagement with the contact **29**. An insulated knob or button **30** secured to the electrical contact **28** normally enters the opening **31** in tube **15** and assumes a position within the opening **31** in the cigarette retaining tube **15**. The electrical connecting and disconnecting means also includes a second thermoresponsive switch which comprises the bimetallic element **32** rigidly mounted to the side of the casing at one end as at **32***a* and free at its other end. It is to the latter mentioned end of the bimetallic element **32** that the contact **29** previously referred to is secured. Bimetallic element **32** is designed such that it moves upwardly as illustrated in Figure 1 when the heat within the casing becomes unduly high as a cigarette is being lit. Spring element **34** normally covers the insulated button **30** of the leaf switch operating element **26**.

The casing **10** is ventilated so that there will be an adequate flow of air therethrough to supply oxygen to permit a cigarette to be lit due to the heat of the heating element **21**. In the embodiment of the invention shown, the back end **22** of the casing is formed with holes **35** which extend in an annular ring therearound with holes **36** in the side thereof. Also the cigarette retaining tube has longitudinally extending flutes **20**. Further, the cutaway portion of the casing **32***b* where the bimetallic element **32** enters, also serves to ventilate the casing.

In use, the posts **24** and **25** are connected across an electrical source of energy. Post **24** is electrically connected to the metal casing **10**. Post **25**, however, is electrically insulated from the casing by means of washers **37** and **38** but is electrically connected to the bimetallic

strip 32 and, of course, contact element 29 on the free end thereof. One end of the heating element of heater 21 is electrically connected to the casing which is of metal construction, and the other end is electrically connected to the metal switch operating element 26 that carries the contact 28 at one free end thereof.

In operation, a cigarette is thrust longitudinally into the open end 16 of the cigarette retaining tube 15 to cause the inserted end thereof to abut the screen 23 over the heating element of the heater 21. As the cigarette is so thrust into the cigarette retaining tube it deflects the leaf member 34 upwardly to cause the switch operating element 26 to move in an upward direction and the contact 28 to engage with the contact 29. When this occurs, it will be apparent that an electrical circuit is completed across the source of supply and through the lighter. The current path is from post 25 through the bimetallic member 32, through contacts 29 and 28, through switch operating element 26, through the heater, through the casing of the lighter, and then to post 24. (The heater is electrically connected to the casing at one side thereof.) The electrical circuit being so completed to the source of power, the element of the heater becomes incandescent, and as air flows through the casing the end of the cigarette in the cigarette retaining tube that abuts the heating element becomes lit. If heating goes on to the extent that the interior of the casing becomes unduly overheated, the bimetallic element 32 will flex in an upward direction as illustrated in Figures 1 and 2, to break the electrical contact between the contact members 28 and 29.

The user withdraws the cigarette after it has been lit. As he withdraws the cigarette, the switch operating element 26 which is spring loaded will cause the contact between the members 28 and 29 to break if they have not already been broken by the operation of the bimetallic element. The lighter then remains inoperative until another cigarette is inserted.

The flow of air through the lighter casing could be improved by mounting a small electrically operated fan within the casing behind the element. The fan would be operated by the same switch means that operates the cigarette lighting element.

It is noted that this application is a substitute for abandoned application Serial No. 363,223 filed June 22, 1953.

What I claim as my invention is:

A cigarette lighter comprising a casing, a cigarette retaining tube mounted in the casing, said cigarette retaining tube being open at each end, one open end being accessible from the exterior of said casing, the other open end communicating with the interior of said casing, said tube having a cross-section to slidably receive a cigarette with the longitudinal axis of the cigarette aligned with the longitudinal axis of the tube, an electric cigarette lighting element mounted in the casing having a lighting surface adjacent to and diametrically opposed to said latter mentioned open end of said cigarette retaining tube, means for connecting and disconnecting said cigarette lighting element to a source of electrical energy including a first switch having a switch operating element mounted in said casing for operative engagement by a cigarette thrust into said cigarette retaining tube to turn said switch on whereby to supply power to said cigarette lighting element; and a second thermoresponsive switch operable by abnormally high temperatures in said casing when said first mentioned switch is closed to disconnect said cigarette lighting element from a power supply, said casing being ventilated to permit a supply of air to said lighting element, said first switch operating element comprising a leaf spring member having an electrical contact at one free end thereof and being rigidly mounted with respect to said casing at the other free end thereof, and said latter free end being electrically connected with said heater element, said first mentioned free end thereof haivng an insulated button thereon, said button being adapted for operative engagement by a cigarette thrust into said cigarette retaining tube as aforesaid to cause said spring member to be deflected and the contact thereof to engage with a second contact, said thermoresponsive switch member comprising a bimetallic leaf element rigidly mounted at one end to the casing, said second contact being adapted for operative electrical connection with said first contact when a cigarette is inserted into said cigarette retaining tube, said bimetallic element being adapted to move in response to abnormally high temperatures in the casing as aforesaid to cause said second contact to move out of contact with said first contact upon the occurrence of said unduly high operating temperatures.

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