Feb. 8, 1955 S. PAVENICK 2,701,836

AUTOMOBILE CIGARETTE LIGHTER

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Fig. 4.

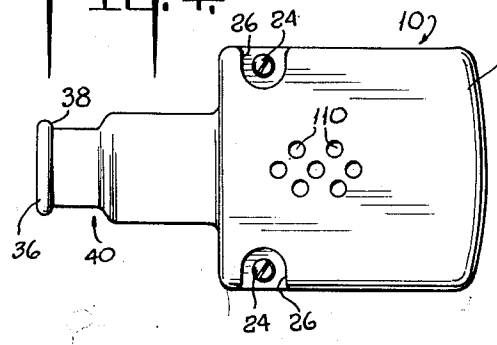


Fig. 1.

Fig. 2.

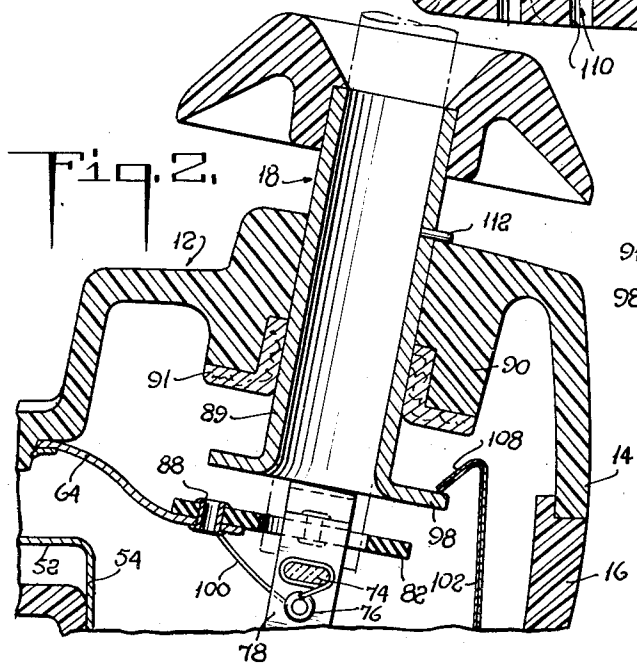
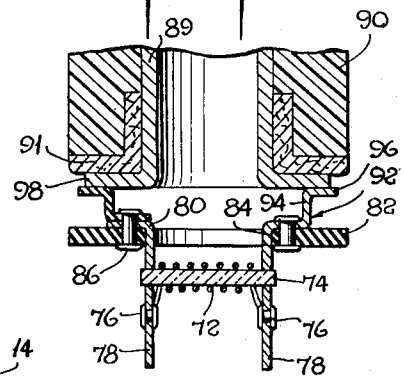


Fig. 3.



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AUTOMOBILE CIGARETTE LIGHTER

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3 Claims. (Cl. 219—32)

This invention relates to an automobile cigarette lighter, being particularly concerned with a lighter that is adapted to be inserted in a standard plug-in lighter socket, such for example as is usually provided in the dashboard of an automobile. More specifically the invention pertains to a lighter of the character described which will inspirate air through a cigarette during lighting so as to make certain that sufficient oxygen is supplied to the cigarette for it to light and stay lit until taken up by the smoker.

It is an object of the present invention to provide a lighter of the character described in which the inspirating mechanism is extremely simple and has no parts that move during lighting.

It is another object of the present invention to provide a lighter of the character described which comprises relatively few parts and is inexpensive to manufacture and easy to use.

It is another object of the present invention to provide a lighter of the character described which is rugged and foolproof.

Other objects of the invention will in part be obvious and in part will be pointed out hereinafter.

The invention accordingly consists in the features of construction, combinations of elements and arrangements of parts which will be exemplified in the device hereinafter described and of which the scope of application will be indicated in the appended claims.

In the accompanying drawings in which is shown one of the various possible embodiments of the invention,

Fig. 1 is a longitudinal central sectional view through a cigarette lighter constructed in accordance with the present invention, the same being illustrated in idle position;

Fig. 2 is a fragmentary view similar to Fig. 1 but illustrating the parts of the lighter in operation;

Fig. 3 is a fragmentary sectional view taken substantially along the line 3—3 of Fig. 1; and

Fig. 4 is a reduced bottom view of the lighter.

Referring now in detail to the drawings, the reference numeral **10** denotes a cigarette lighter embodying the present invention and of the type which is adapted to be plugged into a standard automobile dashboard outlet for a conventional pull-out cigarette lighter.

The lighter **10** comprises a box-like housing **12** which for convenience is fabricated in two halves—an upper half **14** and a lower half **16**. The lighter also includes a substantially vertical cigarette chimney **18**.

The two halves of the housing are mutually interfitted so as to insure a definite cooperate relationship. For example, the lower half is provided with a rectangular inner peripheral flange **20** that forms a shoulder **22** against which the lower edge of the upper half fits. This prevents any relative rotation of the two halves. Suitable means is employed to hold the two halves together; for example, a pair of screws **24** the heads of which are received in depressions **26** and the shanks of which extend through clear openings **28** in the lower half and are threaded in tapped openings **30** in the upper half may be used.

A standard dashboard lighter socket is provided with two terminals, a central terminal and a side terminal, the latter usually being in the shape of a ferrule. To engage these two terminals the cigarette lighter **10** includes a central contact **32** and a side contact **34**. The central contact comprises an electrically conductive disk **36** the edge of which is spun over at **38**. Said disk is fitted over a finger **40** formed by both halves of the housing and extending away from a lighting chamber **42**. The finger will be considered to be the rear of the lighter. The bottom half of the housing includes a lug **44** which projects into the finger and receives an electrically conductive screw **46** that extends through a central opening **48** in the disk contact **36**. Said screw is threaded into an opening **50** in an electrically conductive flat strip **52** that runs from the lighting chamber **42** into the finger **40**.

It will be apparent that tightening of the screw **46** serves both to hold the disk in place and to fix the strip **52**. Said strip includes a downwardly extending reach **54** which terminates in a horizontal reach **56** running along the bottom of the housing and having an opening **58** through which a post **60** fits. Said post is formed integrally with the bottom half of the housing and serves to anchor the front end of the strip **52**, i. e. the end remote from the finger. Said strip is maintained on the post by a washer **62** that is frictionally forced on the post over the strip.

The contact **34** comprises an upwardly bowed section of a resilient electrically conductive strip **64**. Said strip extends through an opening **66** into the hollow interior of the finger **40** where it is held in place by a downwardly projecting post **68**, the strip being apertured to permit the post to pass through the same. A washer **70** is frictionally forced on to the post under the strip **64** and serves thereby to hold the strip in place.

Pursuant to the instant invention the cigarette lighter includes a resistance heating element **72** in the usual form of a coil of resistance wire. Optionally said wire may be wound about a refractory mandrel **74**. The opposite ends of the wire are connected to eyelets **76** supported in metallic brackets **78** which if a mandrel **74** is employed also may be used to support the same. The brackets extend vertically and each has a horizontal flange **80** adjacent its upper end. Said flanges are seated on a disk **82** of insulating material, the brackets extending through a central aperture **84** in the disk. The heating coil **72** is located in line with the central opening of the disk and may be disposed either above or below the same, the latter form being preferred and illustrated. Any suitable means such for instance as eyelets **86**, are utilized to secure the brackets to said disk.

In accordance with a feature of the invention the disk **82** is carried by the resilient strip **64**. Referring to Fig. 1 it will be seen that this strip protrudes from the finger **40** into the center of the hollow lighting chamber **42** so that the strip serves as a resilient cantilever support for the disk **82** which is mounted on the strip in some suitable manner as for instance by an eyelet **88**. It thus will be appreciated that the disk **82** is capable of substantial vertical translation, i. e. it can be pressed downwardly with ease against the restoring force of the spring **64** which biases the disk upwardly.

The chimney **18** includes an erect cylindrical sleeve **89** which is axially slidable in a journal **90** constituting an integral part of the upper half **14**. For safety the lower end of the journal may be reenforced with asbestos packing **91**.

Each bracket **78** includes a spacer **92** integral with its flange **80**. Said spacers include upwardly extending reaches **94** terminating in outwardly extending flanges **96**. Said flanges **96** are beneath a circular outwardly extending flange **98** at the bottom of the chimney sleeve **89**. The bore in the chimney sleeve is aligned with the central aperture of the disk and thus with the resistance coil.

One end of the resistance coil is permanently connected to the strip **64** by means of a wire **100** running from the eyelet **88** to one eyelet **76**, the latter being connected to one end of the coil. The spacer of the bracket in which the aforesaid one eyelet **76** is disposed is made of electrically non-conductive material for a reason to be pointed out hereinafter. The other spacer is electrically conductive, and its bracket is connected by its eyelet **76** to the other end of the heating coil.

A bimetallic latch **102** is mounted on the post **60**. Said latch is in electrical contact with the strip **52** and includes a horizontal reach **104** integral with a perpendicular upstanding reach **106**. The latter reach extends

almost to the sleeve **98** when the chimney is in idle position. The top of reach **106** is formed into a hook **108** which faces the disk **82** and slants diagonally downwardly and rearwardly. Said hook is in the path of travel of the flange **98** which strikes it when the chimney is pushed downwardly from the idle position of Fig. 1. On heating, the latch flexes forwardly.

Pursuant to a major feature of the present invention, slots **110** are provided in the base of the bottom half of the housing.

The lighter is operated as follows: a cigarette is inserted into the chimney, the lower end of the cigarette resting on the heating coil. The chimney is then manually pushed downwardly so that flange **98** will depress the disk **82**. When the chimney is depressed far enough, flange **98** will strike hook **108** of the bimetallic latch thereby completing the electrical circuit. As the chimney is depressed further, the hook is forced forwardly by flange **98** until said hook is passed by the flange **98** and snaps into place above the same thereby holding the chimney depressed against the restoring bias of the disk which is disposed on resilient strip **64** (see Fig. 2). Stop **112** on sleeve **89** above the housing serves to prevent depression of the chimney beyond the distance necessary for flange **98** to pass hook **108**.

When the circuit is completed by abutment of hook **108** and flange **98**, the coil becomes red hot and lights the cigarette. The hot air rises drawing fresh air through the slots **110** at the bottom of the lighter forcing air through the cigarette so that it stays lit.

The completed circuit is as follows: current runs from the central contact **32** along strip **52** through element **102** to flange **98**, through the electrically conductive spacer, through the coil, to the strip **64** by way of wire **100**, and thence to the side contact **34**. It is apparent that unless the spacer contacting the bracket connected to the end of the coil which is connected to strip **64** is insulated, there would be a short circuit since current would pass from flange **98** through that spacer and over to the strip **64** without passing through the coil.

The bimetallic strip from which the latch is made is so designed that within a short time after the coil lights the cigarette the latch will have flexed away from the flange **98** far enough to release the flange whereupon the chimney is snapped upwardly by the disk and strip **64**. The electrical circuit is broken as soon as the hook is out of contact with the flange **98**. As the element cools it returns to its original position beneath the flange **98**, and the lighter is ready to be operated again.

As soon as the chimney snaps up, the smoker will know the cigarette is lit.

It thus will be seen that there is provided a device which achieves all the objects of the invention and is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein described, or shown in the accompanying drawings, is to be interpreted as illustrative and not in a limiting sense.

Having thus described the invention, there is claimed as new and desired to be secured by Letters Patent:

1. An automobile cigarette lighter comprising a housing having a contact finger and a hollow lighting chamber, said finger having a central contact and a side contact, a heating element disposed in said lighting chamber, said heating element having two terminals, vertically translatable mounting means for said element, means biasing the element upwardly, flexible means permanently connecting one terminal of said element to one of the contacts, a vertically translatable upright chimney journalled in the top of said housing above the heating chamber, chimney contact means on the bottom of the chimney, said chimney being aligned with said heating element, whereby the end of a cigarette disposed in the chimney will gravitate to abut the heating element, a second contact means movable with the heating element and connected to the other terminal thereof, said second contact means being in line with the chimney contact means, connecting means in line with the chimney contact means, said connecting means being connected to the other contact, whereby when the chimney is depressed the chimney contact means and connecting means abut and the chimney contact means and the second contact means abut completing the circuit in the lighter and activating the heating element, said connecting means including a latch holding the chimney in depressed position and releasing the same when a cigarette is lit.

2. An automobile cigarette lighter comprising a housing having a contact finger and a hollow lighting chamber, said finger having a central contact and a side contact, a heating element disposed in said lighting chamber, said heating element having two terminals, vertically translatable mounting means for said element, means biasing the element upwardly, flexible means permanently connecting one terminal of said element to one of the contacts, a vertically translatable upright chimney journalled in the top of said housing above the heating chamber, chimney contact means on the bottom of the chimney, said chimney being aligned with said heating element, whereby the end of a cigarette disposed in the chimney will gravitate to abut the heating element, a second contact means movable with the heating element and connected to the other terminal thereof, said second contact means being in line with the chimney contact means, connecting means in line with the chimney contact means, said connecting means being connected to the other contact, whereby when the chimney is depressed the chimney contact means and connecting means abut and the chimney contact means and the second contact means abut completing the circuit in the lighter and activating the heating element, said connecting means including a latch holding the chimney in depressed position and releasing the same when a cigarette is lit, the base of the lighting chamber having slots for admission of ambient air into said chamber.

3. An automobile cigarette lighter comprising a housing having a contact finger and a hollow lighting chamber, said finger having a central contact and a side contact, a heating element disposed in said lighting chamber, said heating element having two terminals, vertically translatable mounting means for said element, said mounting means constituting a spring biasing the element upwardly and permanently connecting one terminal of said element to one of the contacts, a vertically translatable upright chimney journalled in the top of said housing above the heating chamber, an electrically conductive circular flange on the bottom of the chimney, said chimney being aligned with said heating element, whereby the end of a cigarette disposed in the chimney will gravitate to abut the heating element, electrically conductive spacing means movable with the heating element and connected to the other terminal thereof, said spacing means being in line with the flange, a bimetallic electrically conductive latch in line with the flange, said latch being connected to the other contact and detaining the chimney in depressed position and releasing the same when a cigarette is lit, whereby when the chimney is depressed the flange and latch abut and the flange and spacing means abut completing the circuit in the lighter and activating the heating element, the base of the lighting chamber having slots for admission of ambient air into said chamber.

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