

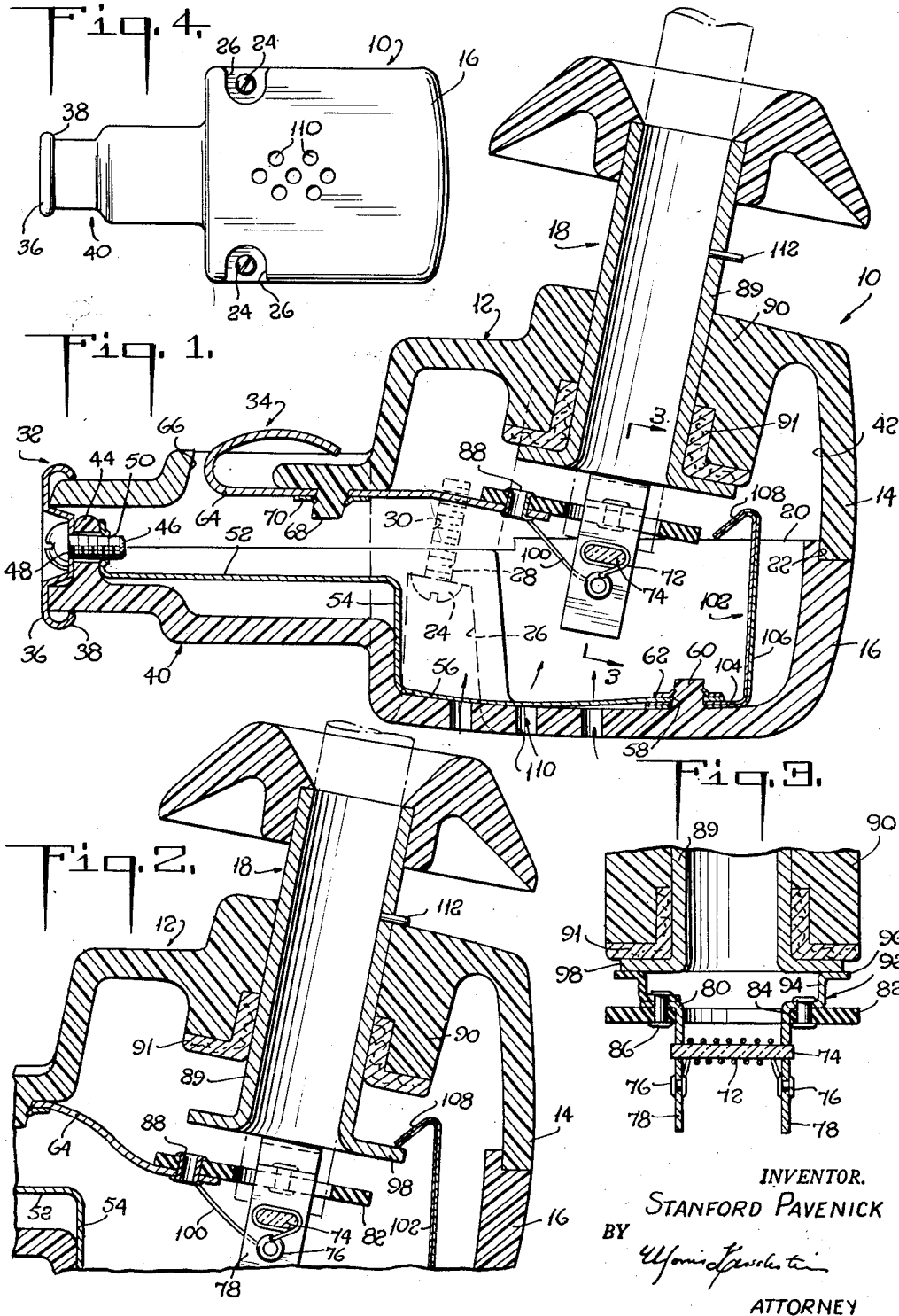
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AUTOMOBILE CIGARETTE LIGHTER

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AUTOMOBILE CIGARETTE LIGHTER

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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 inspire 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 fit-

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ted 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 reinforced 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 journaled 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 journaled 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 journaled 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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