United States Patent

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[72] Inventor **Robert D. Kahn**
Rockville Centre, N.Y.

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[73] Assignee **Fedtro, Inc.**
Rockville Centre, N.Y.

[54] **CIGARETTE LIGHTER**
2 Claims, 5 Drawing Figs.

[52] **U.S. Cl.** **219/267,** 219/266, 219/270
[51] **Int. Cl.** **F23g 7/22**
[50] **Field of Search** 219/266–268, 260–263, 270

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Primary Examiner—Volodymyr Y. Mayewsky
Attorney—Amster & Rothstein

ABSTRACT: A cigarette lighter is disclosed as including a base member having upright supporting posts extending therefrom for supporting a cigarette-lighting element. The unit includes other construction features providing improved heat dissipation means. Electrical power means and electrical contact means therefor are also included with a housing to cover the entire unit. The housing exposes the cigarette-lighter element and provides a means for operating the electrical contact means.

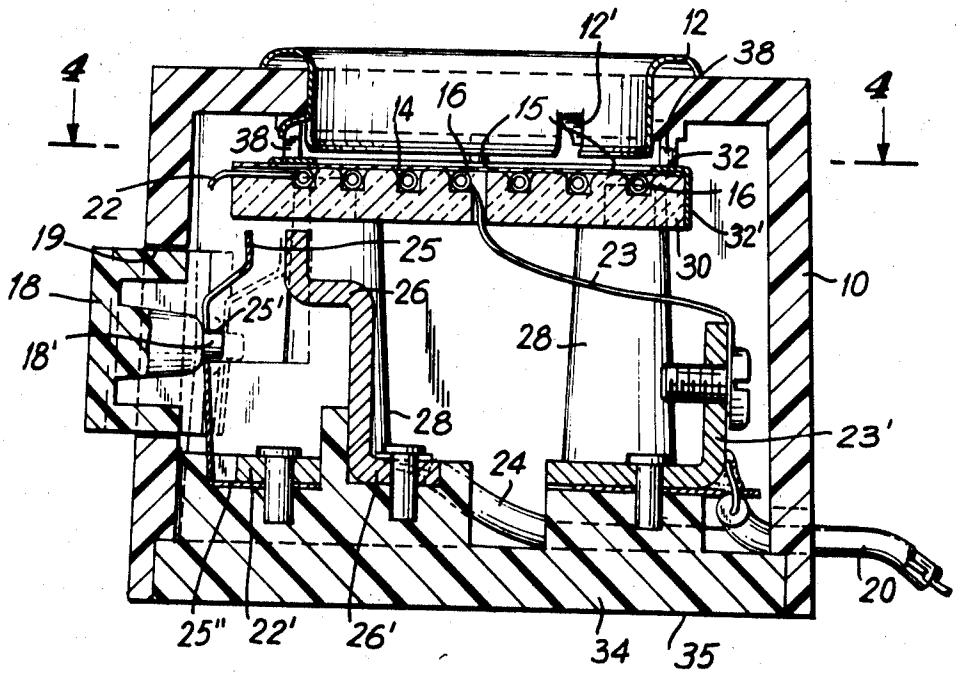


FIG. 1

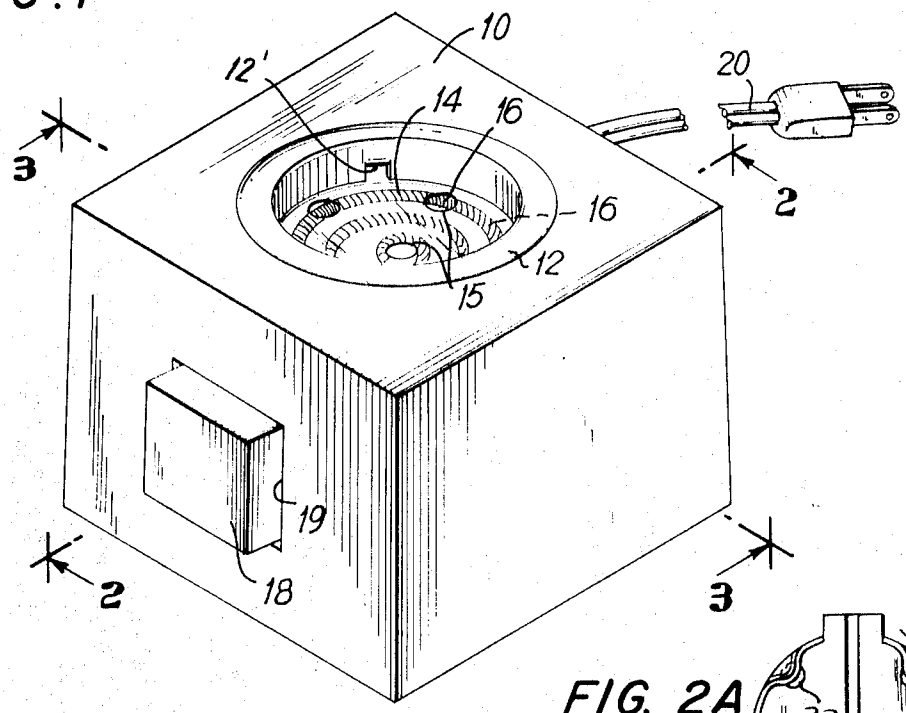


FIG. 2A

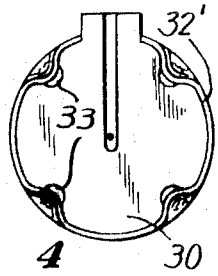
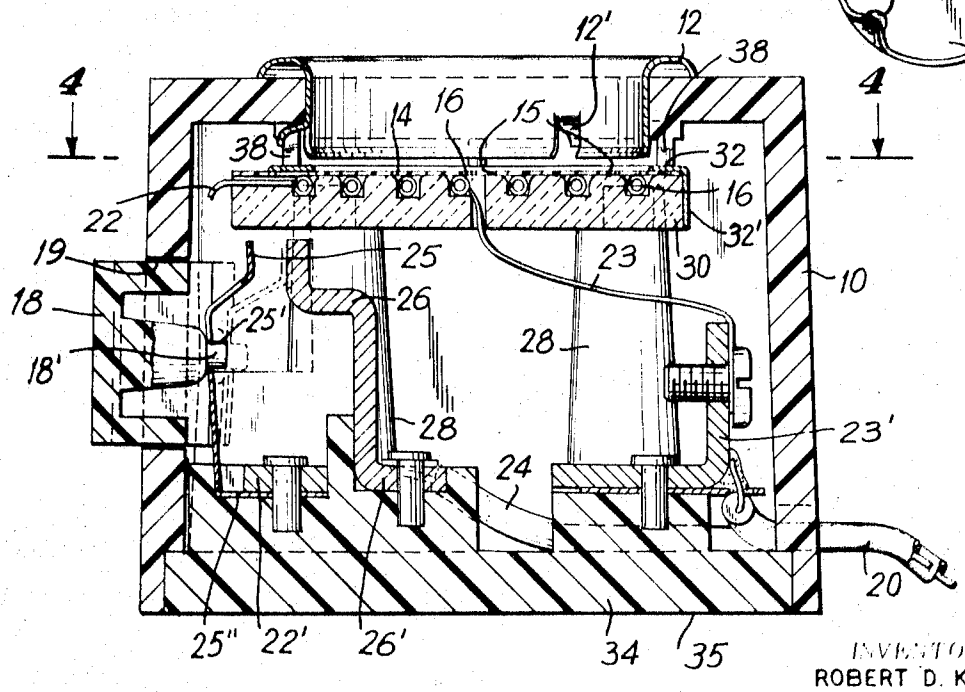


FIG. 2



INVENTOR
ROBERT D. KAHN

BY Amster & Rothstein

ATTORNEYS

FIG. 3

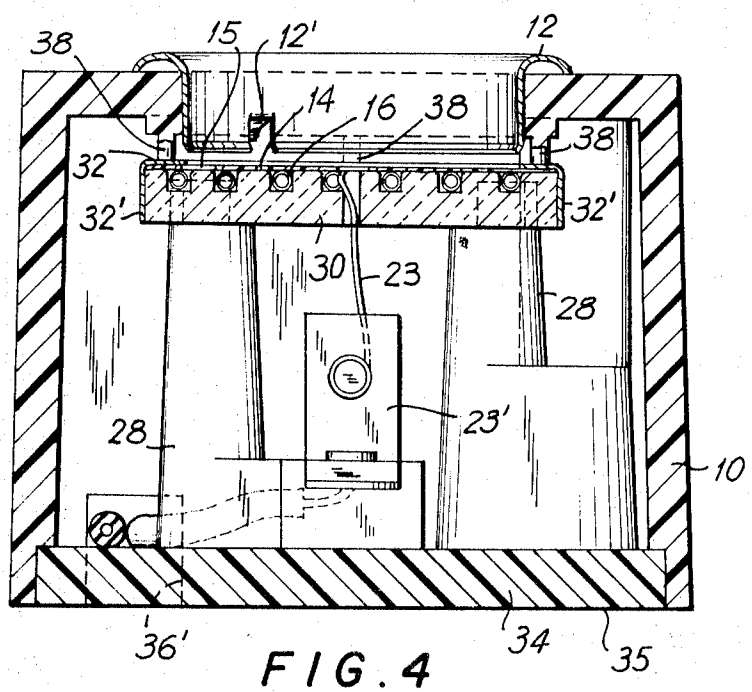
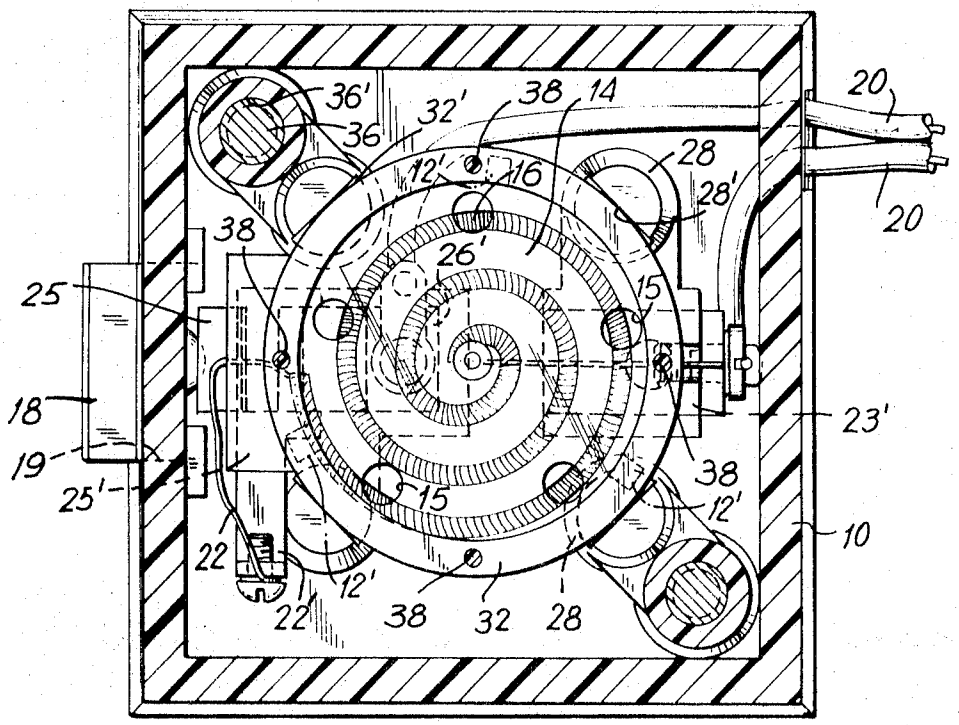


FIG. 4



INVENTOR.
ROBERT D. KAHN

BY Amster & Rothstein
ATTORNEYS

CIGARETTE LIGHTER

This invention relates primarily to cigarette lighters or the like and more particularly to cigarette lighters with improved heat dissipation means.

There are two types of cigarette lighters on the market today, the first using the flame principle with an oil derivative or oil-type product as the fuel, and second, commonly found in automobiles, using electrical elements for generating heat to ignite the cigarette. The first type suffers from the disadvantage of providing a substantially uncontrollable flame which might be a fire hazard, and the second suffers from the hazards of direct conduction of heat to the user, inadequate protection for the electrical cigarette-lighting element from cigarette tobacco and ashes and generally poor mechanical and utility features.

Accordingly, a primary object of the present invention is to provide a simple yet reliable electrical cigarette lighter which is both useful and attractive.

A further and more particular object is to provide a cigarette lighter using the electrical element principle of operation which presents a minimum hazard to the user.

A still further object is to provide an electrical element cigarette lighter which incorporates in its construction adequate heat dissipation means to protect the user.

These and other objects of the present invention are accomplished in accordance with one illustrative embodiment of the present invention by a cigarette lighter construction which includes a cigarette-lighting element supplied with electric power for causing the element to generate enough heat to light a cigarette, actuation means for controlling the input of the power to the element and a housing which features means for exposing the element and yet protecting the user from heat conduction through the housing. The element is mounted on pillars extending from the base of a housing such that a heat sink effect is accomplished providing a convenient means for dissipation of heat generated by the element between and around the pillars. Further features of the invention include means in the housing for exposing the element and means for separating the element from the housing to avoid unnecessary heat conduction. The element is protected by a selectively perforated protective element cover in order to prevent a deposit of cigarette tobacco or ashes onto the element during the cigarette-lighting action.

The above brief description, as well as further objects, features and advantages of the present invention will be more fully appreciated by reference to the following detailed description of the preferred, but nonetheless illustrative embodiment when taken in conjunction with the drawings, wherein:

FIG. 1 is a front perspective view of a cigarette lighter according to the present invention, showing particularly the electrical power contact actuator for the device and the construction providing exposure of the cigarette-lighting element;

FIG. 2 is a side sectional view of the cigarette lighter taken along the line 2—2 of FIG. 1 and showing particularly the cigarette-lighting element with the supporting structure therefor as well as the electrical power means and its contact actuator;

FIG. 2A is a bottom view of a ceramic support and an element ring for supporting the lighting element;

FIG. 3 is a front sectional view of a cigarette lighter according to the present invention taken along the line 3—3 of FIG. 1 and showing further features of the present invention; and,

FIG. 4 is a top sectional view of a cigarette lighter taken along the line 4—4 of FIG. 2 and showing further details of the construction.

Referring particularly to the drawings, a cigarette lighter is shown as including a housing **10** which defines a front opening **19** for receiving an electrical power contact actuator **18** and a top opening for receiving a housing ring **12**. The ring **12** is for exposing a cigarette-lighting element **16** which is covered by a protective element cover **14**. The ring **12** includes peened flaps **12'** for securing the ring to the housing **10** without a pressure fit therebetween. By avoidance of such a pressure fit, the different coefficients of heat expansion for the metal ring **12** and the plastic housing **10** do not provide a risk of cracking the plastic. Accordingly, a housing ring significantly smaller than the top opening defined by the housing **10** may be used in a construction according to the present invention. The element cover **14** may be formed of any material which has maximum heat-conducting properties and yet is virtually indestructible by heat exposure. Mica is the suggested material but other materials are also usable. The element cover **14** defines openings **15** for allowing heat dissipation from the element **16**. The element **16** is a conventional cigarette-lighting element constructed in a spiral arrangement with the element being coiled for maximum resistance and heat dissipation.

As seen most clearly from FIGS. **2** and **3**, the cigarette lighter is supplied by electrical power means **20** which provides electrical power through contact wire **24** to a stationery contact **26** which is mounted on stationery contact base **26'**. The contact actuator **18** is provided with a contact actuator extension **18'** inserted to the moving contact extension-receiving hole **25'** defined by the moving contact **25**. The moving contact **25** is mounted on moving contact base **25''** which is electrically connected to an element input wire base **22'**. An element input wire **22** is connected directly from the element input wire base **22'** to the cigarette-lighting element **16** (FIG. **4**). The electrical return is provided by a connection from the cigarette-lighting element **16** through element return wire **23** which is connected to the electrical power means through element return wire base **23'**.

Heat dissipation in the unit is provided in part by a construction featuring heat contact separation posts **38** for separating the cigarette-lighting element **16** from the housing **10** and the housing ring **12**. Further heat dissipation is provided by a construction including pillars **28** extending from the housing base member **34** to support the ceramic element support **30**. The use of such pillars **28** and posts **38** provides excellent heat dissipation by the use of ample air spacing between and around the supporting structures. The heat contact separation posts **38** apply pressure from above to the metal element ring **32** which houses the ceramic element support **30**, the element **16** and element cover **14**, to thereby maintain the entire cigarette-lighting element construction in place on the pillars **28**. Furthermore, the cigarette-lighting element **16** is thus kept away from the housing ring **12** to prevent direct heat transmission to the metal housing ring **12** and then in turn to either the outside plastic housing **10** or the user. These plastic heat contact separation posts **38**, by providing such a space between the cigarette-lighting element **16** and the metal housing ring **12**, assure an air-providing space for heat dissipation to keep the entire unit cool. The danger of the plastic housing **10** carbonizing and decomposing is also prevented by such a construction.

The element ring **32** is designed to include element ring flap **32'** which are peened into place (FIG. **2A**) at indentations **28'** at the top of each pillar **28** (FIG. **4**). The peening of the ring flap **32'** is enabled by flap-receiving sockets **33** defined by the bottom of the ceramic element support **30**.

It should also be mentioned that the construction as described herein provides adequate support to substantially avoid the risk of breaking if the unit is dropped. For instance, the pillars **28** are constructed such that if one were to chip upon dropping of the unit, there would still be sufficient support strength to maintain the unit in usable condition.

The bottom part of the housing **10** is provided with a base member **34** for supporting the pillars **28** and the electrical means for the unit. It is recommended that the undersurface **35** defined by the base **34** can be constructed of a rubber or textured plastic finish to avoid the unit sliding on a desk or table.

In order to more clearly describe the construction of a cigarette lighter according to the present invention, a typical sequence of operations will now be described. The user places the cigarette in his mouth and lifts the entire unit toward his

fact to project the cigarette into close proximity with the cigarette-lighting element cover **14** by extending the cigarette through the opening defined by metal housing ring **12**. He then depresses the contact actuator **18** thereby forcing the movable contact **25** to touch the stationary contact **26**. The electrical power would then be provided to the cigarette-lighting element **16** and the user would hold the contact actuator **18** in depressed position until the cigarette is ignited. The user then releases the contact actuator **18** and sets the unit back on a table or desk.

In accordance with the above description, it may be seen that a cigarette-lighting accessory unit has been provided which is convenient, safe, and of simple construction with reliable structural elements and pleasing aesthetic qualities.

What is claimed is:

1. A cigarette lighter for igniting a cigarette comprising a cigarette-lighting element, a ceramic support for supporting said lighting element, electric circuit and power means and contact means for providing controlled electric power to said lighting element, a housing for said lighting element and said contact means, said housing including a base member, pillar means extending from said base member to support said lighting element, exposure means defined by said housing for exposing said lighting element, post means proximate said exposure means for separating said lighting element from said housing, said post means and said pillar means providing a heat dissipation space for said lighting element and an element-encircling ring for said lighting element, said pillar means including a plurality of spaced pillars each defining a top indentation and said element-encircling ring being attached in said indentations to structurally house and support said lighting element and its ceramic support.

2. The invention according to claim **1** wherein said ceramic support defines bottom sockets into which said lighting element-encircling ring is peened for attachment of said ring to said pillars.

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