Feb. 16, 1926. 1,572,988

R. E. CAMPBELL

SAFETY DEVICE FOR ELECTRIC IRONS

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FIG. 1.

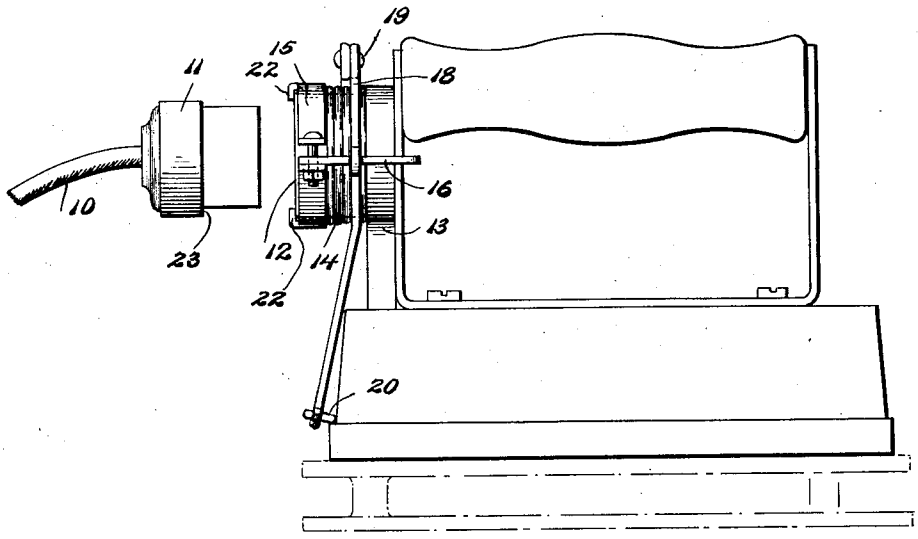
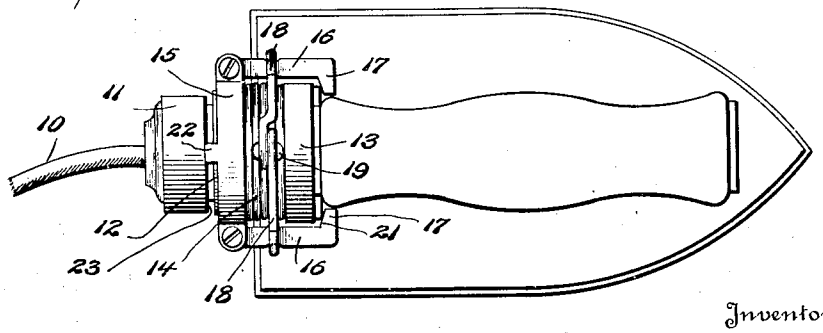



FIG. 2.




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FIG. 3.

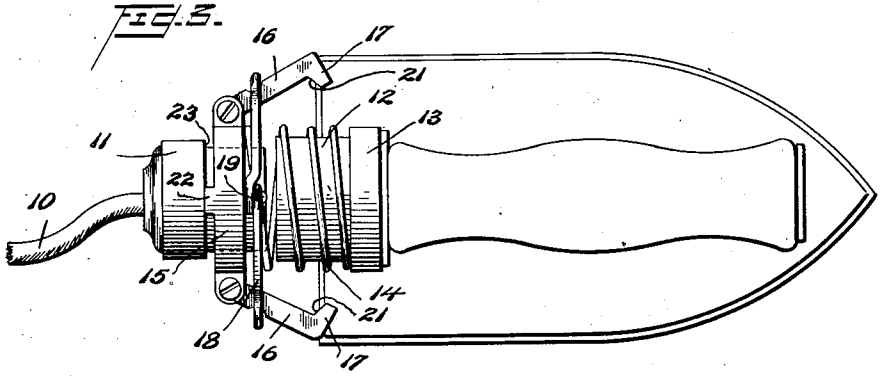



FIG. 4.

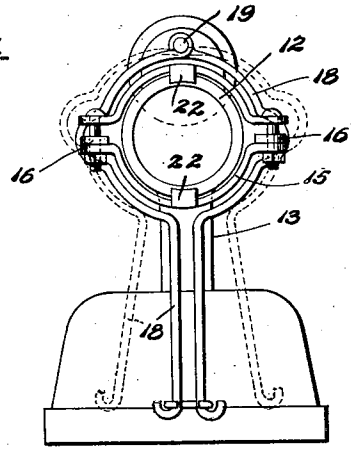



FIG. 5.

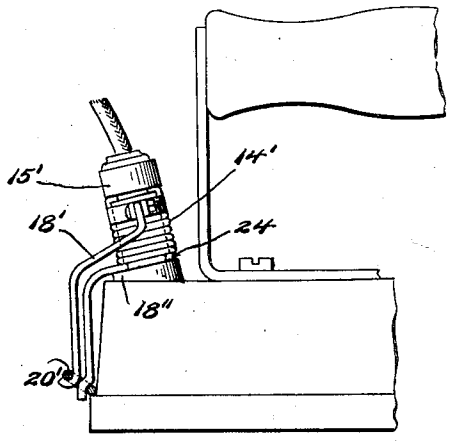
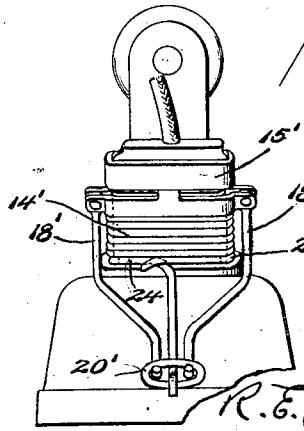



FIG. 6.




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# UNITED STATES PATENT OFFICE.

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## SAFETY DEVICE FOR ELECTRIC IRONS.

Application filed December 16, 1920. Serial No. 431,079.

*To all whom it may concern:*

Be it known that I, RONALD E. CAMPBELL, a citizen of the United States, and residing at Columbia, Richland County, State of South Carolina, have invented certain new and useful Improvements in Safety Devices for Electric Irons, of which the following is a specification.

The object of this invention is to provide a novel and convenient circuit breaking device for electrically heated irons by means of which excessive heating and fires resulting therefrom is prevented, as well as injury to the iron itself. The safety cut-out device is adapted to be attached to irons already constructed and in use as well as to irons hereafter to be manufactured, and it comprises a spring device adapted to be positioned on the iron adjacent its separable electrical connection to the electric supply mains, and is arranged to break the separable connection when the temperature of the iron has become such that a fusible link which comprises an element thereof and is located adjacent the heating surface of the iron melts, thereby releasing the spring and permitting it to separate the members of the electrical connection.

The device is simple in character, inexpensive to manufacture, easy to install in position on an electric iron and does not in any manner interfere with the ordinary manipulation of the iron. Two modifications of the invention will be fully disclosed in the following description taken in connection with the drawings in which:

Figure 1 is a side elevation of an electric iron having a plug and socket connection with a source of electric power showing one form of the circuit breaking device attached thereto, the members of the separable connection being separated;

Figure 2 is a top view of the same but showing the plug inserted in the socket;

Figure 3 is a similar view but showing the position of the circuit breaking device after it has forced the plug from the socket;

Figure 4 is a rear view of the iron and attachment, the plug being omitted;

Figure 5 is a side view of a portion of an iron having a slightly modified form of separable connection with the mains and showing a different form of circuit breaker;

Figure 6 is a rear view of the same.

The invention may be made in a number of different forms for attachment to different irons and it will be understood that the two modifications herein described are by way of example only. In the iron illustrated in Figures 1, 2, 3 and 4, the electrical heating element encased therein is connected by means of wires contained within the insulating conduit 10, with a suitable source of electrical power through a plug and socket connection of the ordinary frictional type, the plug member 11 of which is connected to the conduit 10 and the socket member 12 of which is connected to the heating element of the iron by wires which extend downwardly through the post or pedestal 13. The structure so far disclosed is old and well known.

The circuit breaking attachment comprises a coiled spring 14 normally held in compression, as shown in Figure 1, between a collar or movable abutment 15 and the pedestal 13 of the iron, by means of arms 16 pivoted to the collar 15 and having lateral portions 17 at their ends which extend around the pedestal, as shown clearly in Figure 2, being held in this position by a locking member 18. This locking member comprises two parts pivotally connected together at their upper ends as at 19, and connected together at their lower ends by a fusible link 20 located adjacent that portion of the outer surface of the iron which is nearest the heating element. The edges 21 of the portions 17 of the pivoted arms are inclined, and the pressure of the spring exerted, when released, against the collar 15 and tending to move this collar away from the pedestal, causes these inclined edges 21 to act as cam surfaces throwing the arms 16 outwardly to the positions illustrated in Figure 3. This happens whenever the fusible link 12 is melted so that the two portions of the locking member may separate to assume the position indicated in dotted lines in Figure 4. The collar 15 is provided with lugs 22 which extend inwardly and are adapted to abut against an annular shoulder 23 of the plug and force the plug outwardly whenever the spring is released.

In the ordinary use of the iron the attachment occupies the position illustrated in Figures 1 and 2 and in such position the plug 21 may be readily inserted or withdrawn as desired without disturbing the automatic circuit breaking device. Whenever the iron is neglected, with the current turned on, and its temperature rises to an excessive degree,

the fusible link 20 will be melted, the arms 16 will be released by the locking member 18 and the spring will instantly act to force the plug from the socket. The device may be caused to operate at any desired temperature by varying the composition of the fusible link, and links destroyed may be quickly and easily replaced by new ones.

In the modification of the invention illustrated in Figures 5 and 6 the socket on the iron has its axis inclined instead of horizontal. To the collar 15′ are pivotally secured members 18′ having their hook shaped lower ends connected by fusible link 20′. A member 24 which extends around the socket below the spring has a downwardly extending portion with a hooked lower end engaging the lower portion of fusible link 20′. When the link melts because of excessive heating collar 15′ and members 18′ are free to move upwardly under the influence of the spring to lift the plug from the socket and thereby break the connection.

It will be obvious that the invention may be adapted to suit other types of electrical heating irons which are not provided with safety devices to prevent overheating, and the invention is not limited in its scope to the exact forms described and illustrated.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. A circuit breaking attachment for electrically heated irons having separable electric connectors, comprising a coil spring insertable between the iron and the movable member of the separable connection, and means for normally holding said spring against expansion including a spring locking device circumferentially surrouding said spring and temperature controlled means for releasing said locking device when the iron becomes overheated so that the connector is bodily separated from the iron by the action of the spring.

2. A circuit breaking attachment for electrically heated irons having separable electric connectors, comprising a coil spring insertable between the iron and the movable member of the separable connection releasable restraining means holding the spring in a compressed state including an abutment member at one end of the spring, swinging arms secured thereto and having portions extending beyond the other end of the spring and turned toward each other, and temperature controlled means for releasing said spring restraining means when the iron becomes overheated.

3. A circuit breaking attachment for electrically heated irons having separable electric connectors, comprising a coil spring insertable between the iron and the movable member of the separable connection, and means extending around the spring in two directions and holding the same compressed, which means automatically releases the spring when the iron becomes overheated.

4. A circuit breaker for an electrically heated iron having a separable electric connection adjacent the iron and a device for automatically parting said connection when the iron becomes overheated said device comprising a movable abutment member, a coil spring positioned between said movable abutment and the iron, arms pivoted to said movable abutment and provided with portions adapted to engage the iron, and a loop member surrounding the spring and said arms and normally holding said arms in locking engagement with the iron and to thereby maintain said spring in compression, said loop member having a fusible element associated therewith adapted to melt when the iron becomes overheated, releasing the loop member and causing the spring to be released.

5. A circuit breaking attachment for electrically heated irons having separable electric connectors, comprising a coil spring insertable between the iron and the movable member of the separable connection, means extending longitudinally around the spring and holding the same compressed and means surrounding said first means and including a fusible element which melts when the iron becomes overheated and automatically releases the spring.

6. A circuit breaking attachment for electrically heated irons having separable electric connectors, comprising a coil spring insertable between the iron and the movable member of the separable connection, parallel arms extending around the spring and holding the same compressed the said arms having corresponding ends hinged to a spring abutment and their other ends connected together by a fusible link.

In testimony whereof I affix my signature.

RONALD ELISON CAMPBELL.