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J. I. AYER.

DANGER SIGNAL FOR PORTABLE ELECTRIC TOOLS.

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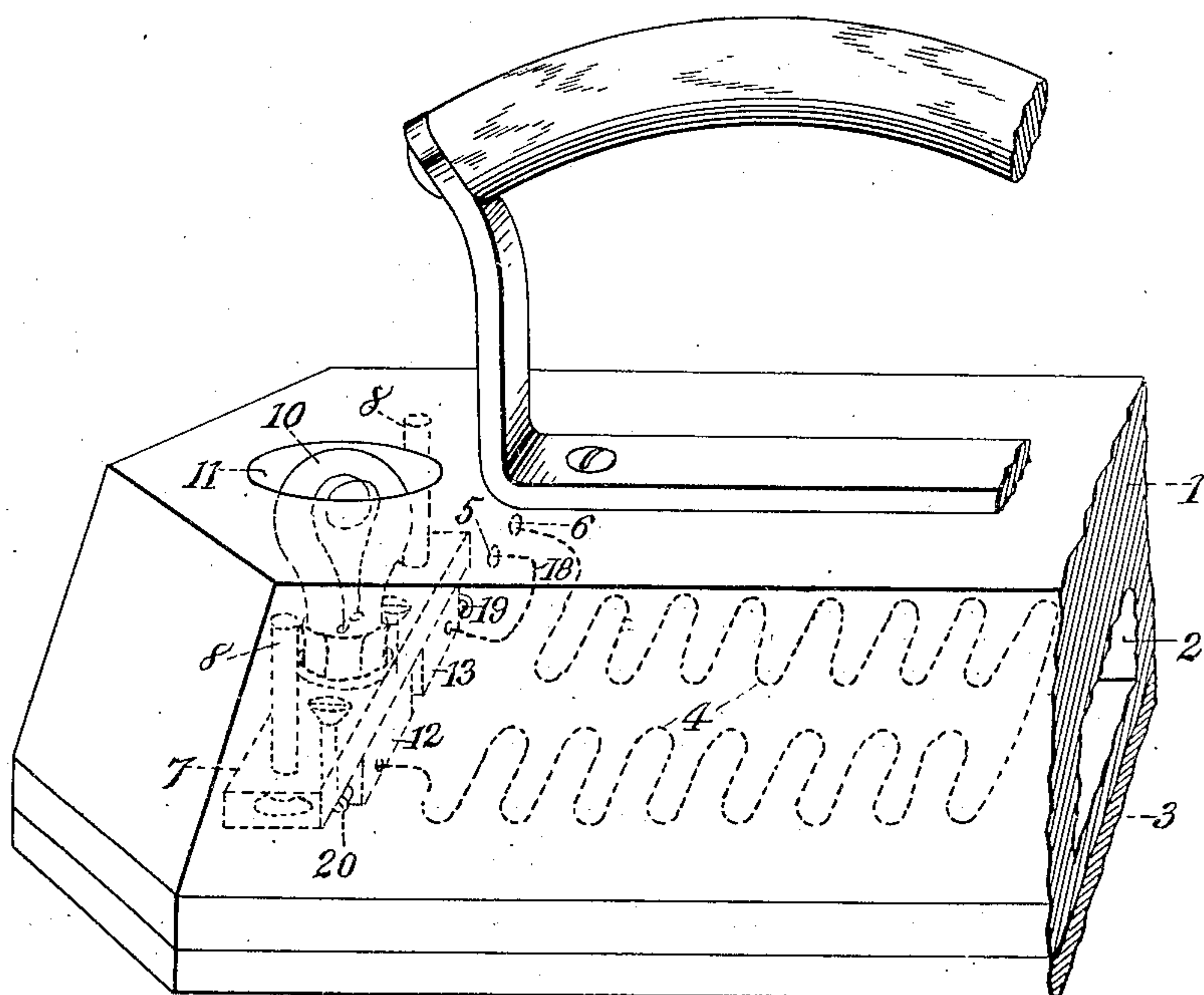


Fig. 1

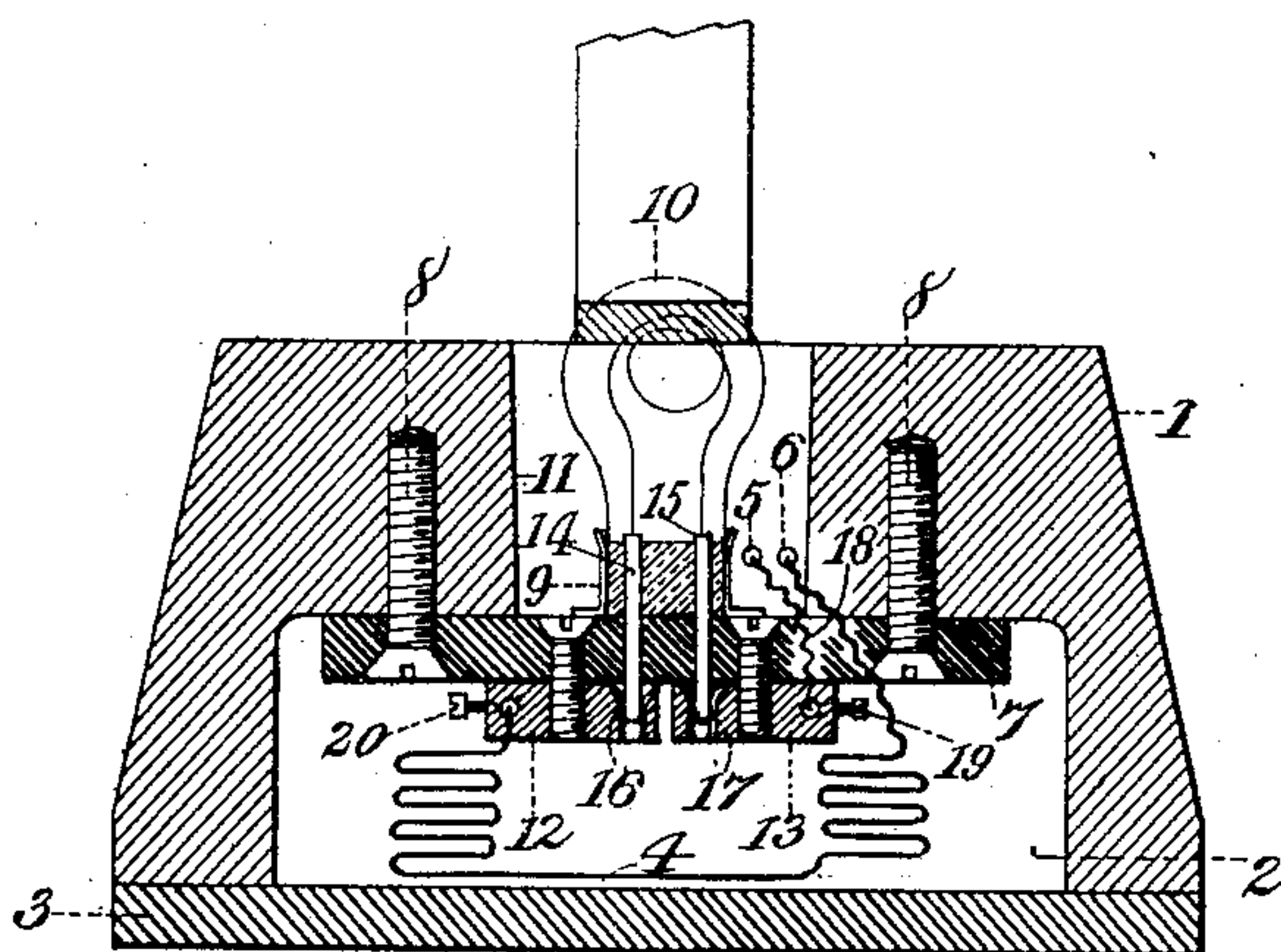


Fig. 2

Witnesses:  
Edward Maxwell.  
M. J. Spalding.

Inventor:  
James I. Ayer,  
By Geo. H. Maxwell,  
Attorney.



# UNITED STATES PATENT OFFICE.

JAMES I. AYER, OF CAMBRIDGEPORT, MASSACHUSETTS, ASSIGNOR TO SIMPLEX ELECTRIC HEATING COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

## DANGER-SIGNAL FOR PORTABLE ELECTRIC TOOLS.

No. 854,013.

Specification of Letters Patent.

Patented May 21, 1907.

Application filed January 14, 1907. Serial No. 352,148.

*To all whom it may concern:*

Be it known that I, JAMES I. AYER, a citizen of the United States, residing at Cambridgeport, in the county of Middlesex and State of Massachusetts, have invented an Improvement in Danger-Signals for Portable Electric Tools, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

The introduction of electricity for general use in the kitchen and elsewhere for heating almost all kinds of tools and utensils has developed a wide variety of difficulties from the practical standpoint, and among the most serious and common is the liability of having the tool overheated and ruined by the carelessness or ignorance of the user.

While my invention is intended for general application to electrically heated tools, I will use by way of illustration an electrically heated flatiron, as this will enable me to present the matter in all its phases.

The average servant girl cannot tell as a rule whether she has the current turned on or not, and in fact the position of the switch-key does not usually indicate, except as a matter of memory, whether it is in on-position or off-position. As therefore the current is silent and cannot be seen, considerable danger results in the application of electricity to domestic uses. A flatiron for instance heats more or less slowly and hence the servant cannot be sure that she has the current on without waiting a few moments to see if the flatiron is becoming heated, and on the other hand as the iron will remain hot after the current is cut off, she is still uncertain whether she has turned the current off or not. Damage to the clothes being ironed and waste of current frequently results. Accordingly I have devised a visible signal for electrically heated tools, by which the user is notified visually at all times, whether the current is on or off and whether it is working properly, my invention consisting in locating in the tool itself, and preferably in series with the current passing through the tool, an incandescent lamp, so that it compels the notice of the user whenever the current is turned on. By having the lamp in

series with the tool or unit and in the unit itself, the current must necessarily be off if the lamp is out, and the lamp must necessarily glow if the tool or unit is being heated by the presence of current.

In the accompanying drawings, Figure 1 is a perspective view of an electrically heated flat iron with my invention applied thereto; and Fig. 2 is a transverse sectional view thereof.

As already stated, I do not intend to restrict my invention to any particular tool or utensil of domestic use, but for purposes of illustration I have shown and will describe my invention in connection with a flatiron. Also I wish it understood that I use the word "tool" herein and in the claims to include not only tools proper, but utensils and appliances of the kind already referred to.

The body portion or heat retaining part 1 of the flatiron shown in the drawings is provided with a chamber 2 above the bottom or smoothing part 3 of the flatiron, which contains a usual resistance or heating wire 4 whose terminals are indicated at the binding posts 5 6. In the cavity 2 I secure a plate 7 of insulation by any suitable means, as by screws 8, containing on its upper side a socket piece 9 for receiving a lamp contained in an opening or recess 11 in the top of the flatiron. On its under side the insulation plate 7 carries two metal blocks 12, 13, said lamp and blocks being provided with any suitable means for electrical connection, the lamp being herein shown as provided with pins 14, 15, passing through the insulation plate 7 into retaining sockets 16, 17 or other holding means in the metal blocks 12 and 13. From the plug 5 a wire 18 passes to the block 13 and is secured by a set-screw 19, and in the opposite end of the block 12 the adjacent end of the resistance wire 4 is secured by a set-screw 20. The circuit, then, is from the plug 5 through the wire 18, block 13, lamp 10, block 12, heating wire 4, back to the opposite terminal plug 6.

Whenever it is desired to use the flatiron the servant turns on the switch-key in usual manner and it makes no difference whether she observes carefully the position of the switch-key or not, as there is no necessity of



remembering how she turned it or in fact whether it has been turned or not, because the moment the current is actually present in the flatiron the lamp 10 will glow, and as long as the current remains active in the flat-iron the lamp indicates the fact to the user, who simply keeps on using the tool in the usual manner without any uncertainty as to the condition of the tool or as to whether the current is on or off. The lamp, being set down into the tool is protected and yet its top end is sufficiently visible to give constant notice or warning to the user whether she has the tool in her hand or is at a distance. 15 If the current should cease for any reason, the user of the tool is immediately notified by the sudden extinguishment of the lamp.

From a practical standpoint, my invention is of great importance, as one of the most frequent and serious annoyances to the users and the manufacturers of this kind of apparatus arises from the careless and ignorant handling of the tools, which I have found is largely due to the fact that the servant girl and others who use them do not know or cannot tell when the current is on or off. An electrically heated flatiron for instance as at present constructed may be left on the table with full current turned on and yet the servant may suppose she turned it off. There is nothing to notify her one way or the other until perhaps the table or the clothes on which the iron may be resting begin to smoulder or burst out in flames. Then, after the disaster has occurred, the servant learns that she unwittingly left the current turned on. One reason for the great number of accidents of this kind is due to the fact that the only way heretofore of judging as to the presence or absence of current was by the heat in the iron, and as the iron retains the heat for a considerable time after the current has been turned off, a servant is liable to think the current is still on when it has just been turned off, because the iron is warm, and therefore she turns the key again, believing that she is turning it off, when in fact she is turning it on again.

In practice I have found that my invention overcomes all these difficulties, and although exceedingly simple, it has proved itself to be of inestimable practical value, especially in connection with household appliances, although as already stated, not restricted thereto.

Having described my invention, what I

claim as new and desire to secure by Letters Patent is,

1. A portable tool, an electric heating circuit contained therein, opposite terminal 60 plugs in said portable tool connected with the heating circuit, an insulating plate and socket piece also in said tool, and an electric visual signal device removably mounted in said socket piece and operatively connected 65 with said heating circuit, said signal device being visible externally of the tool for giving visual warning of the presence of current in the tool.

2. An electrically heated tool, an electric 70 heating circuit contained therein, said tool having an internal cavity normally closed against easy access, contact blocks in said cavity insulated from each other and from the tool, the latter also having an opening in position to be readily seen and sufficiently 75 deep to contain and protect a visual signal device, an electric visual signal device mounted in said opening and externally removable therefrom, and means for automatically connecting said signal device operatively with 80 said contact blocks and in said heating circuit to enable the signal device to give visual warning of the presence of current in the tool.

3. An electrically heated tool, containing 85 a recess or chamber, a supporting plate secured in said chamber, means connected with said plate for supporting a lamp, an opening from the outer side of said tool to said supporting means, an electric lamp in said opening 90 mounted in said supporting means, and resistance heating wire in said tool connected with said lamp for giving external visual warning when the current is turned on.

4. An electrically heated tool, containing 95 a recess or chamber, a supporting plate secured in said chamber, means connected with said plate for supporting a lamp, an opening from the outer side of said tool to said supporting means, an electric lamp in said opening 100 mounted in said supporting means, contact blocks carried by said plate and independently connected with the terminals of said lamp, and a resistance heating wire in said tool connected in series with said blocks. 105

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

JAS. I. AYER.

Witnesses:

ELIZABETH M. CONLIN,  
DORA A. PROCTOR.