

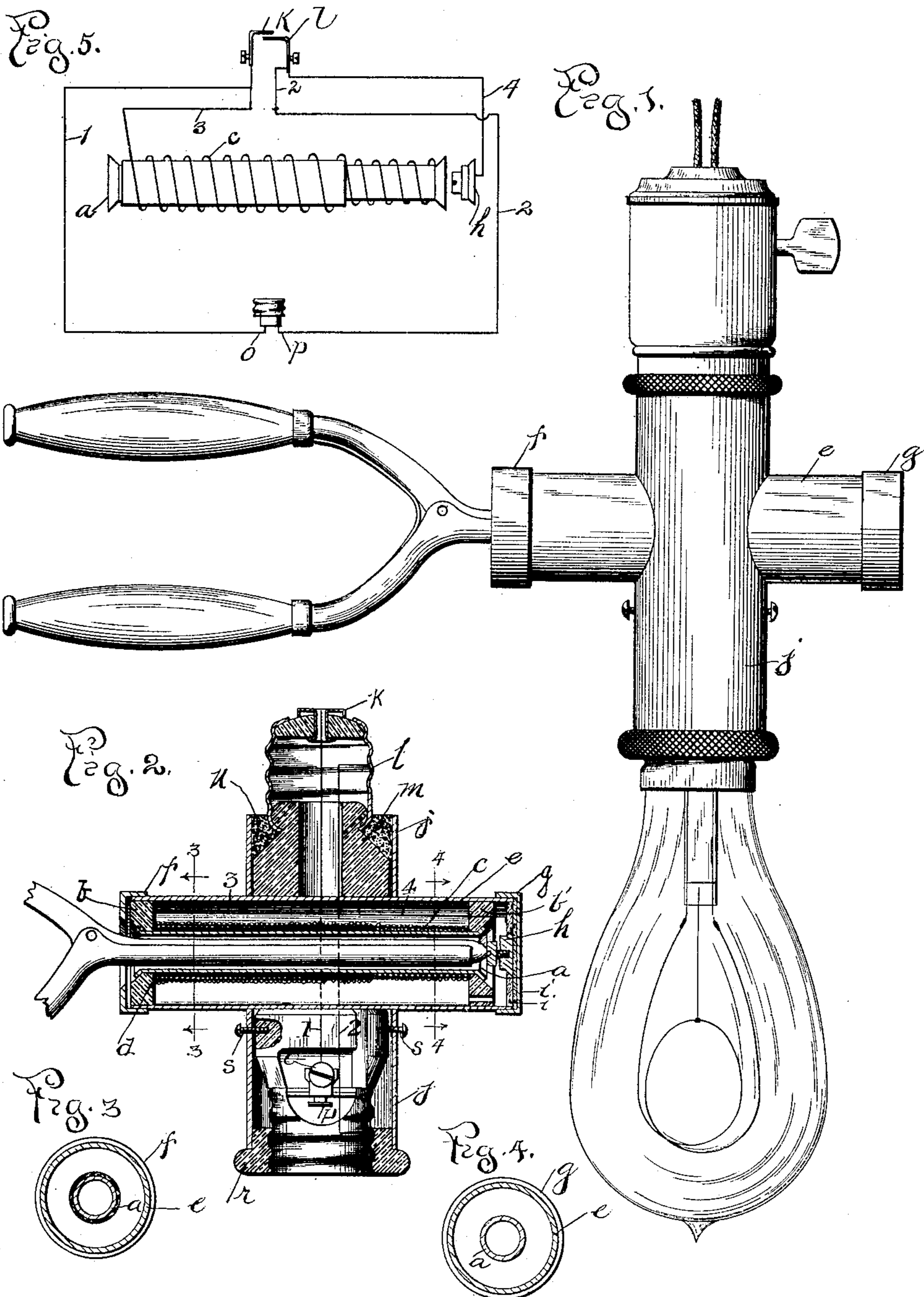
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Patented Jan. 2, 1900.

F. BAIN.
ELECTRIC HEATER.

(Application filed Sept. 30, 1898.)

(No Model.)



Witnesses:
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UNITED STATES PATENT OFFICE.

FORÉE BAIN, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE GEORGE L. THOMPSON MANUFACTURING COMPANY, OF COOK COUNTY, ILLINOIS.

ELECTRIC HEATER.

SPECIFICATION forming part of Letters Patent No. 640,258, dated January 2, 1900.

Application filed September 30, 1898. Serial No. 692,265. (No model.)

To all whom it may concern:

Be it known that I, FORÉE BAIN, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Electric Heaters, of which the following is a specification.

My invention relates to improvements in electric heaters, and more especially to that class of heaters that are designed for the purpose of heating curling-irons and the like.

In the use of electric heaters for curling-irons it is very desirable that the lamp with which the curling-iron heater is associated should remain lighted during the time that the curling-iron is being heated and used, so that the manipulator thereof may be furnished with the proper illumination during the time when she is using the iron. It is also very convenient to have the heater constructed so that it will be self-contained, and for the purpose of economy it is essential that the heater should be turned on only during the time when the curling-iron is inserted therein. In order that this last function should be positively and invariably performed, it is necessary that the act of inserting the iron shall be instrumental in operating the switching mechanism by which the heating-coil is included in circuit. In order that such a heater may be practical in all places, it is essential that it should be simple, durable, and contain few, if any, moving parts. To meet these requirements, I have constructed a heater as illustrated in the accompanying drawings, which form part of this specification, and in which—

Figure 1 is a vertical elevation of my heater inserted in the ordinary incandescent-lamp circuit, having a lamp inserted in the socket of the heater and showing the manner of placing the heating-iron within the heater for the purpose of heating the same. Fig. 2 is a vertical section showing the iron inserted and making contact with the terminals within the heater-coil. Fig. 3 is a cross-section through the line 3. Fig. 4 is a cross-section through the line 4. Fig. 5 is a diagrammatic view of the connections.

Similar letters refer to like parts in the various figures.

Fig. 1 shows my heater as it appears when in use. The heater is attached to the ordinary socket by removing the lamp and screwing the heater in the place thereof. The lamp is then screwed into the terminal of the heater, as shown. The socket-key which controls the ordinary connections of the lamp also controls the connections for the heater; but the current through the heater is not completed until the heating-iron is placed therein, as shown in the drawings, and the circuit may be opened and closed by the manipulation of the iron without interfering with the circuit through the lamp, as will be hereinafter more fully explained.

In Fig. 2, *a* is a brass tube flanged at both ends. *b* and *b'* are insulating-washers made of some refractory material, such as porcelain or the like. These washers are chamfered on one side, so as to be held in place by the flanged tube *a*, and they form heads for the spool around which the heating-wire is wound. The heating-coil *c*, preferably of German silver, is wound around the tube *a* directly in contact therewith for about one-half a lineal inch, so as to make connection with the said tube. The other portion of the tube *a* is insulated by having mica or the like wound thereon, (shown at *d*,) after which each succeeding layer of wire is in the same manner insulated by mica or other refractory insulating material. After the spool has been completely wound the outer terminal thereof is connected to one of the lamp-terminals, as shown in diagrammatic connections, Fig. 5. When the spool just described has been finished, it is placed within the shell *e*, which is provided with caps *f* and *g*, the former being perforated concentrically to admit of the insertion of the curling-iron within the tube *a*. The small button *h* is made of iron or other magnetic material and is insulated by means of two mica disks *i* or by any convenient manner within the cap *g*. This button *h* is connected to the other terminal of the lamp, as shown in the diagram of connections. The shell *e* is then inserted in the perforation contained in shell *j*, into which it may be brazed or attached in any suitable manner known to the art. The upper end of the shell *j* shows the ordinary Edison lamp-terminals *k* and *l*.

being spun around a piece of porcelain *m*, the latter being perforated through the center to permit the connecting-wires to pass through to the contacts. The porcelain *m* is held
 5 within the shell *j* by means of the application of plaster-of-paris *n* or other plastic material, as shown. The lower end of the shell *j* shows the internal construction of an ordinary key-
 10 less lamp-socket provided with the usual terminals *o* and *p*, all of which are held in the shell *j* by means of the screw-washer *r* and the screws *s s*.

The operation of my device is as follows:
 When it is desired to apply the device to an
 15 ordinary socket which is connected with an electric current, it is not material in what position the socket is, so that the iron will not fall out of the heater when placed therein. The heater is applied by screwing it into
 20 the socket in the same manner that the lamp is inserted. The lamp is then inserted in the heater-receptacle, as shown. When the key of the socket is turned to close the circuit connections, the lamp will burn and will not
 25 be interfered with by the manipulations of the heater connections. The circuit will then be from the terminal *k*, through the wire 1, to contact *o*, through the lamp, then through contact *p*, wire 2, to terminal *l*. When the
 30 curling-iron is inserted so that the end thereof comes in contact with the button *h*, the circuit will be from contact *k*, through wire 3, then through the coil *c*, contained on the spool *a*, and finally through the spool *a* and through
 35 the curling-iron, which is in contact therewith, to contact-button *h*, thence through wire 4, to contact *l*. The curling-iron should be made in part or in whole of magnetic material, such as iron, so that it will be held in
 40 contact with the button *h* by the magnetism due to the current circuiting in coil *c*, and when the contact is broken between the curling-iron and the button *h* the magnetism developed by said coil will "blow out the arc"
 45 that might otherwise be maintained between the button *h* and the end of the curling-iron. It will be a difficult matter to establish an arc between the end of the curling-iron and the
 50 button *h* for the reason that if the iron is close enough to the button *h* so that the distance between the two contacts may be spanned by an arc the magnetic attraction will be sufficient to draw the iron into absolute contact therewith, so that the magnetic attraction existing between the button *h* and the end of
 55 the heating-iron is sufficient to cause the heating-iron to part contact quickly when pulled

away from connection therewith, and thus produce a quick-breaking switch, as when the iron is manipulated by the ordinary operator. 60
 I have found from practice that the superficial surface of the heater may be proportioned to the watts consumed therein, so that the heat produced thereby will be radiated to such a degree as to retain a definite and determined 65
 heat in the curling-iron—a result that eliminates the danger of the iron becoming too hot for immediate application, quite independent of the time it may be left in the heater.

Having described my invention, what I 70
 claim as new, and desire to secure by Letters Patent, is—

1. In a portable electric heater, a shell having at one end an incandescent-lamp socket and at the other a plug-terminal adapted to 75
 be received by an ordinary incandescent-lamp socket, a second shell mounted at right angles thereto, an electric heater in said second shell and suitable connections between the plug-terminal, the electric heater and the 80
 lamp-socket, substantially as set forth.

2. The combination in a curling-iron heater, or the like, of a tube surrounded by a heating-coil, one terminal of the said heating-coil being connected to the said tube, the other 85
 end thereof terminating in a contact composed of a material susceptible of magnetic induction, located within the magnetic field of the said heating-coil, and a metallic magnetic body to be heated, adapted to connect 90
 the two electric terminals together after passing through the said coil, substantially as shown and described.

3. The combination of a tube surrounded by a heating-coil, one terminal of the said 95
 heating-coil being connected to the said tube, the other end thereof terminating in a contact-piece composed of a material susceptible of magnetic induction, located within the magnetic field of the said heating-coil, and a metallic, magnetically-influenced body to be 100
 heated, passing through the said tube, and adapted to complete the circuit between the said terminals, substantially as shown and described. 105

In testimony whereof I have signed this specification, in the presence of two subscribing witnesses, this 20th day of September, 1898.

FORÉE BAIN.

Witnesses:

F. J. GRULEE,
 M. F. ALLEN.