

No. 671,139.

Patented Apr. 2, 1901.

A. R. LEASK.
ELECTRIC HEATER.

(Application filed Dec. 13, 1900.)

(No Model.)

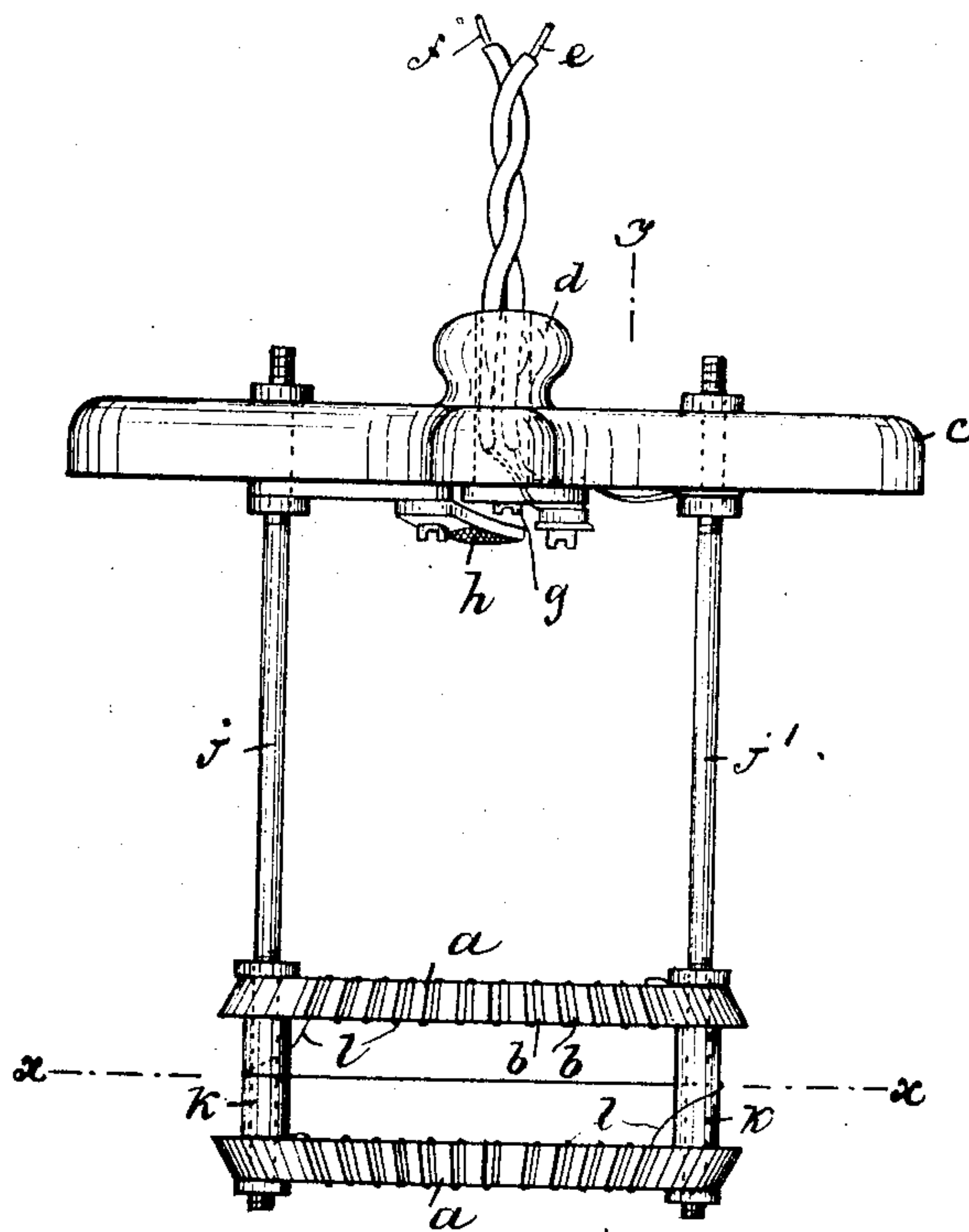


Fig. 1.

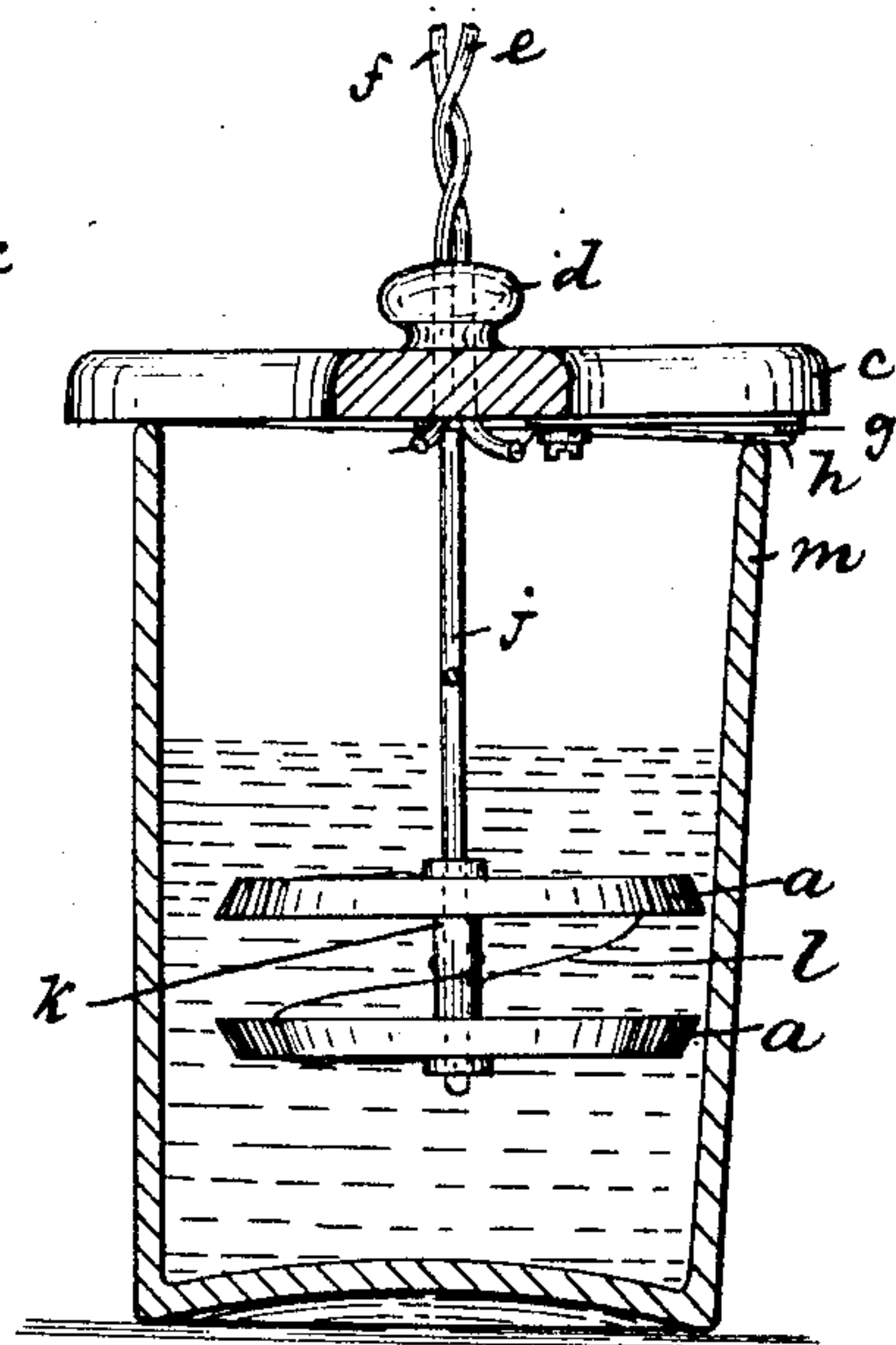


Fig. 2.

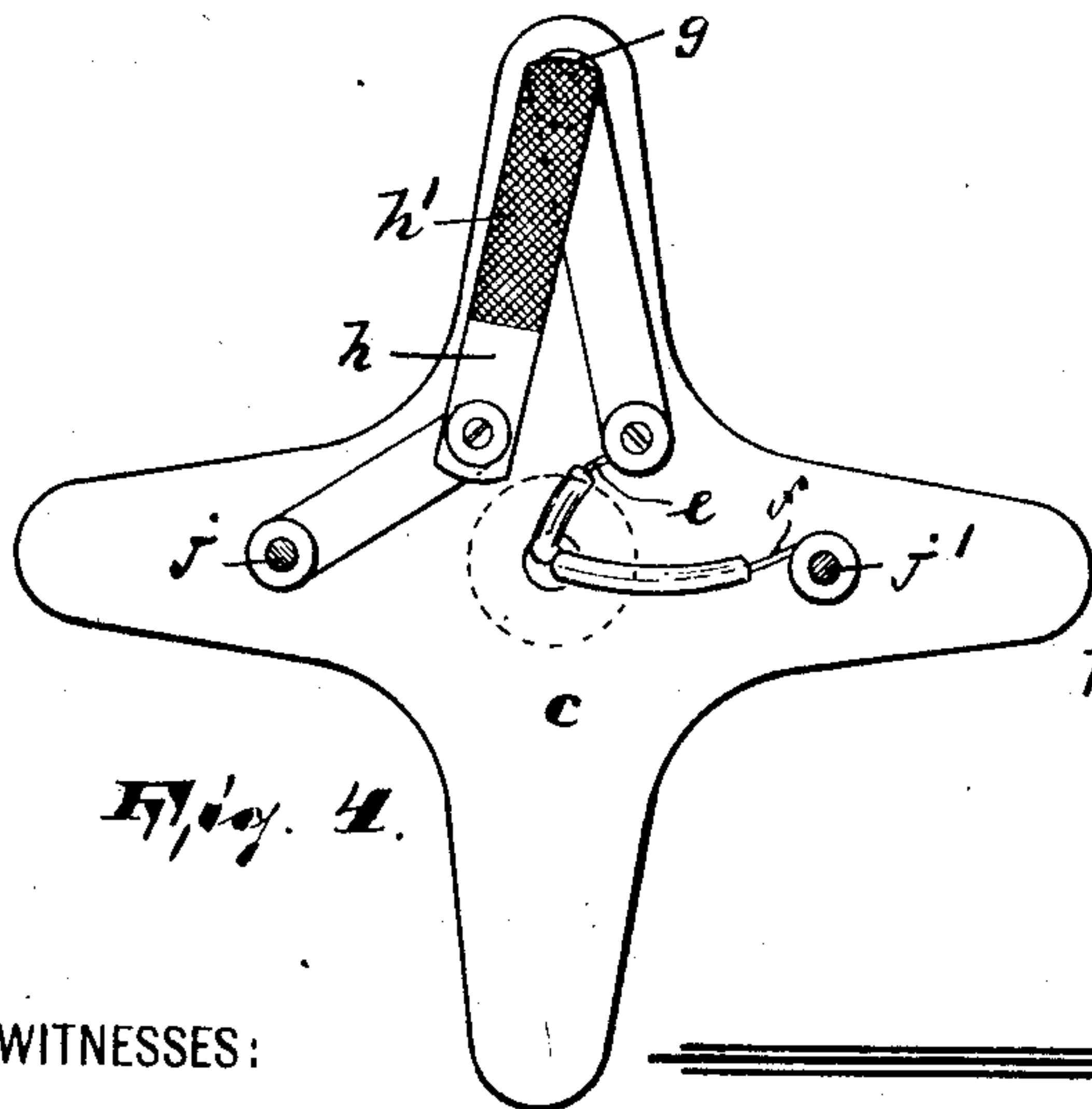


Fig. 4.

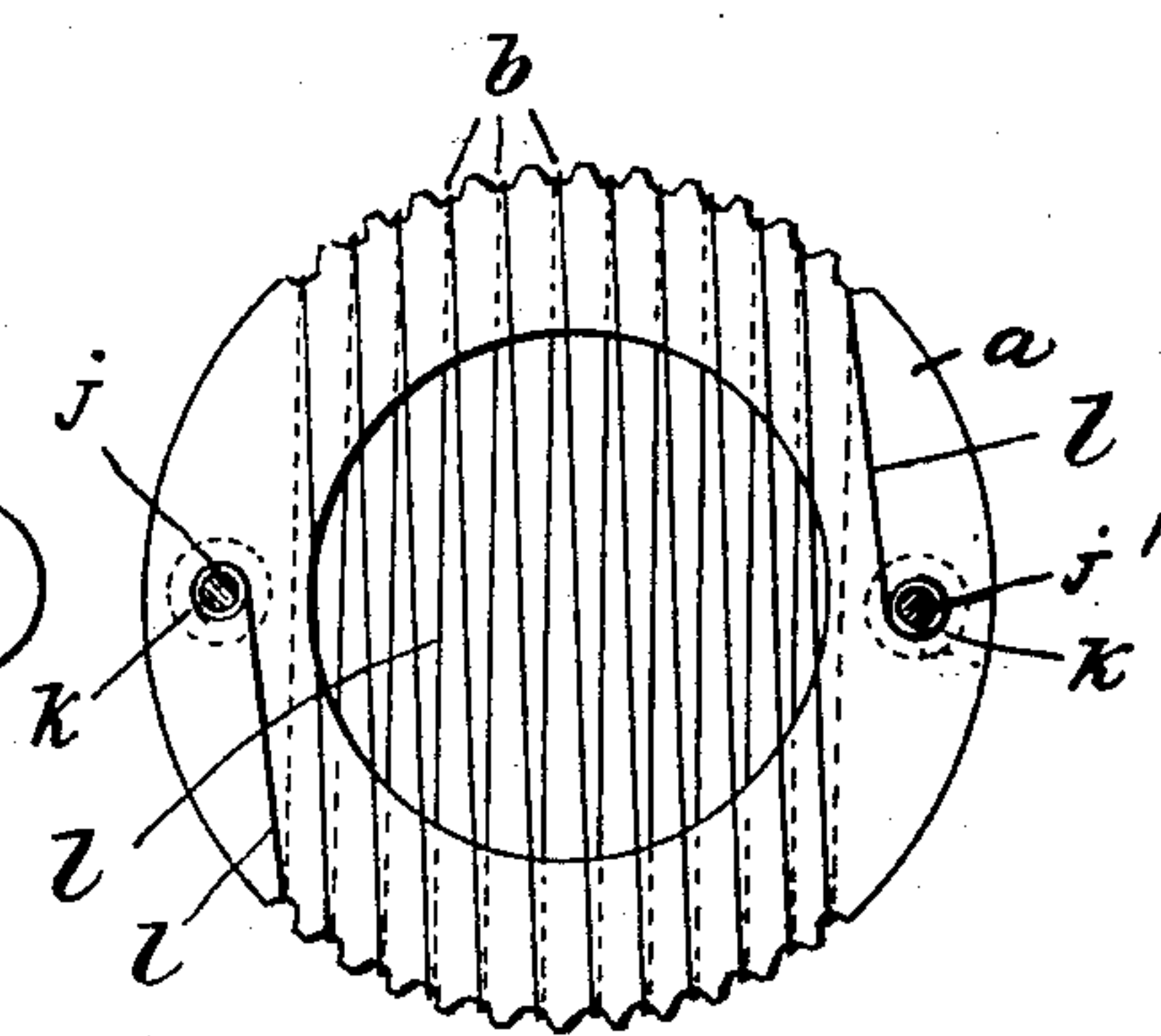


Fig. 3.

WITNESSES:

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UNITED STATES PATENT OFFICE.

ALEXANDER RITCHIE LEASK, OF LONDON, ENGLAND, ASSIGNOR OF ONE-HALF TO PERCY MORGAN BELLIS, OF SAME PLACE.

ELECTRIC HEATER.

SPECIFICATION forming part of Letters Patent No. 671,139, dated April 2, 1901.

Application filed December 13, 1900. Serial No. 39,609. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER RITCHIE LEASK, a subject of the Queen of Great Britain, residing at London, England, have invented certain new and useful Improvements in Electric Heaters, of which the following is a specification.

The object of this invention is to provide a simple, cheap, handy, and efficient device for heating comparatively small quantities of liquids by means of an electric current.

The apparatus is complete in itself, and therefore does not require to be fitted to any particular vessel, but may be indiscriminately used in any ordinary vessel or receptacle, such as a tea or coffee pot, kettle, breakfast-cup, tumbler, shaving-mug, foot-warmer, or any other vessel or receptacle of similar dimensions. The device can be quickly inserted into or withdrawn from such vessel or receptacle.

The apparatus is so constructed that it will automatically switch on the electric current when inserted in the vessel and switch the current off when withdrawn.

The invention is fully illustrated in the accompanying drawings, in which like letters of reference indicate corresponding parts in each of the several figures.

Figure 1 is a side elevation of my improved electric heating device; Fig. 2, a sectional view, on a reduced scale, on the line *y y* in Fig. 1, in addition showing a vessel in sectional view, in which the apparatus is inserted for the purpose of heating the liquid contained therein; Fig. 3, a sectional view on the line *x x* of Fig. 1; and Fig. 4, an under side plan view of the head or crown piece, showing the arrangement of contacts for switching the current on or off.

In said drawings, *a a* represent rings, made of slate, porcelain, clay, or other suitable non-conductor of heat and electricity and which is capable of withstanding the continuous action of heat and moisture. Said rings are made of a size suited to the vessels in which the apparatus is to be used, and their section may be circular, rectangular, triangular, elliptical; or any other regular or irregular figure. In the outer edges of said rings are formed a series of notches *b b*, the size and pitch of

which may be regulated by the size and quantity of the wire that is to be used, as hereinafter set forth.

c is a crown or head piece, also made of non-conducting material and preferably larger in diameter than the aforesaid ring. Said crown or head piece may be in the form of a cross with four arms, as shown in the drawings, or it may be a straight bar, or star-shaped, or a circular plate with an open-work center. This crown or head piece is furnished with a central knob or handle *d*, whereby it can be readily lifted without the hand coming in contact with the electric conductors *e* and *f*, by which latter the current is conveyed to the heater, or with the vessel in which the apparatus may be used.

g is a terminal connected to the conductor *e*, and *h* is a spring-contact strip on the lower side of the headpiece, so arranged that one end of it stands out clear of the crown or head piece, but when pressed it makes contact with the terminal *g*. The lower face of this contact-strip is covered with insulating material *h'*, so that it cannot convey the electric current to any metal vessel in which the apparatus may be used.

j and *j'* are two metal rods which connect the rings to the headpiece, the same being secured therein by nuts, as clearly shown. The rod *j* is in electrical connection with the spring-contact *h*, and the rod *j'* is in direct electrical connection with the conductor *f*.

k k are insulating distance pieces or tubes separating the rings *a a*.

l is a fine wire wound many times around the rings, as shown, and entering the notches *b*, which prevent contact and short-circuiting of the individual coils. One end of this wire is connected to the rod *j* and the other to the rod *j'*. So long as the apparatus is not in use current cannot pass through the coil *l*, because the spring-contact *h* will be clear of the terminal *g*; but when the apparatus is inserted in a vessel and the headpiece allowed to rest on the rim of said vessel the weight of the apparatus suspended from the headpiece operates to press the spring-contact *h* against the terminal *g*, and so closes the circuit, whereupon current will flow through the coil of wire *l* and produce the heat required. When the

apparatus is lifted out of the vessel, the spring-contact is immediately released and breaks the circuit, thus stopping the flow of current, as will be manifest.

5 The conductors *e* and *f* may receive their current from any suitable source.

I do not intend to limit myself to the precise construction shown and described, as various alterations can be made without changing the scope of my invention; but

10 What I claim as new, and desire to secure by Letters Patent, is—

1. In an electric heater, the combination with a ring formed of a non-conductor of heat and electricity, of a thin wire coil wound around said ring, a headpiece, metal rods connecting said ring with the headpiece, electric conductors for communicating current to said wire coil, and a spring-contact underneath the headpiece and adapted to be actuated to close the circuit through the heater by a portion of the vessel into which the apparatus is placed, substantially as described.

2. In an electric heater, the combination with a ring formed of a non-conductor of heat and electricity and provided with notches or corrugations in its edge or periphery, of a thin wire coil wound around said ring and having its individual coils separated by said notches, a headpiece, metal rods connecting said ring to the headpiece, electric conductors for communicating current to said wire coil, and a spring-contact underneath the headpiece and adapted to be actuated to close the circuit through the heater by a portion of the vessel into which the apparatus is placed, substantially as described.

3. In an electric heater, the combination with a ring formed of a non-conductor of heat

and electricity, of a thin wire coil wound around said ring, a headpiece, metal rods suspending said ring from the headpiece and electrically connected with the wire coil, a terminal on the under side of the headpiece, a spring-contact likewise arranged on the under side of the headpiece and electrically connected with one of the metal rods and in close proximity to the terminal, and electric conductors connected with the other metal rod and the terminal respectively, said spring-contact being adapted to be actuated to close the circuit through the heater by a portion of the vessel into which the apparatus is placed, substantially as described.

4. In an electric heater, the combination with a ring formed of a non-conductor of heat and electricity, of a thin wire coil wound around said ring, electric conductors for communicating current to said wire coil, means for suspending said ring and coil from a vessel into which they are placed, and a spring-contact adapted to be actuated to close the circuit through the heater by a portion of said vessel, substantially as described.

5. In an electric heater, the combination with a thin wire coil, electric conductors for communicating current to said wire coil, means for suspending said wire coil from a vessel into which it is adapted to be placed, and a spring-contact to be actuated to close the circuit through the heater by a portion of said vessel, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

ALEXANDER RITCHIE LEASK.

Witnesses:

HERBERT STEWART,
ERNST LAPPERT.