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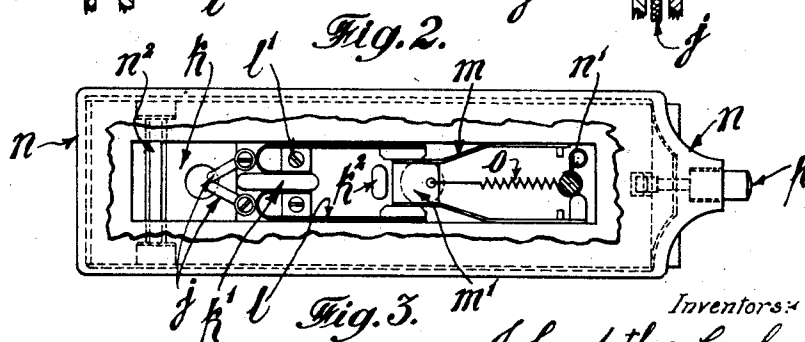
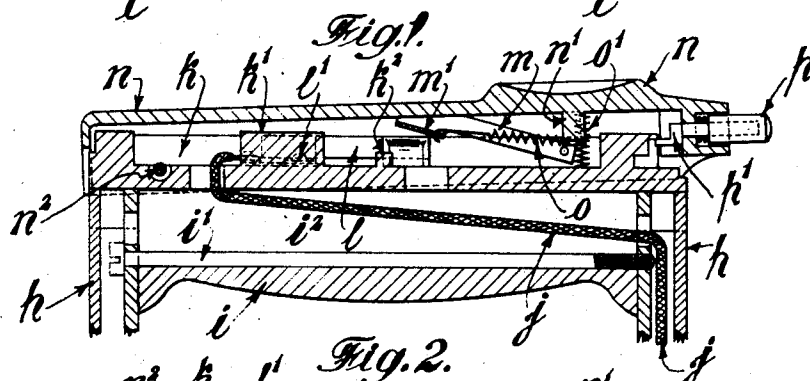
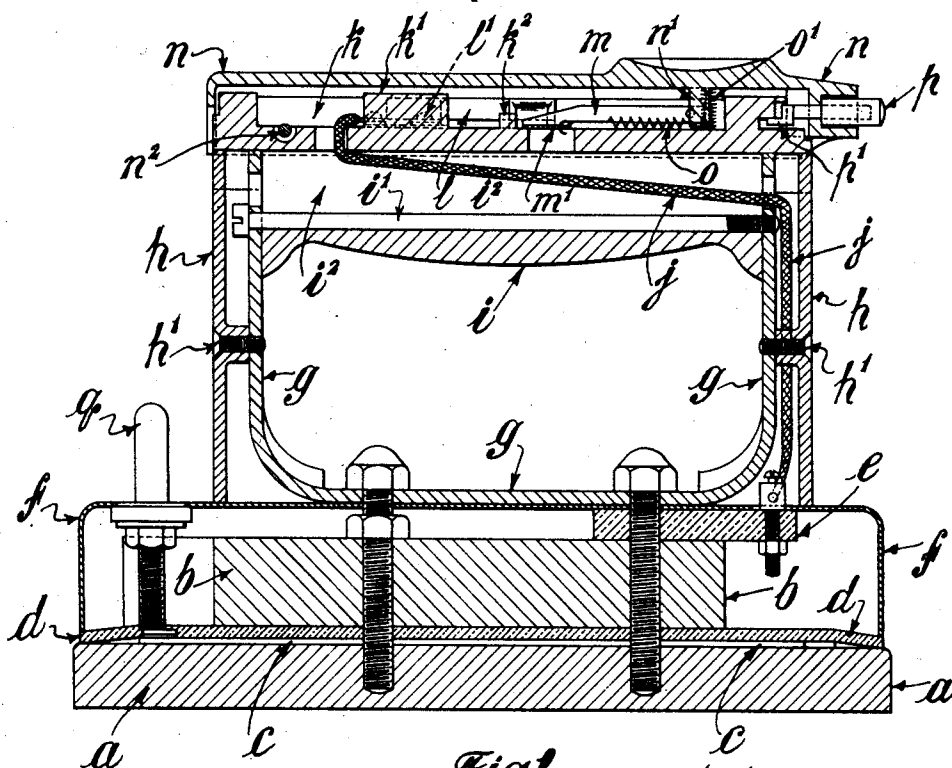
J. A. CROSSLAND ET AL

1,981,309

ELECTRIC IRON AND SWITCH THEREFOR

Filed Sept. 27, 1933

2 Sheets-Sheet 1



By their Attorney:-

Inventors:-
John Arthur Crossland
Ernest Milling Crossland
Walker Gurnon

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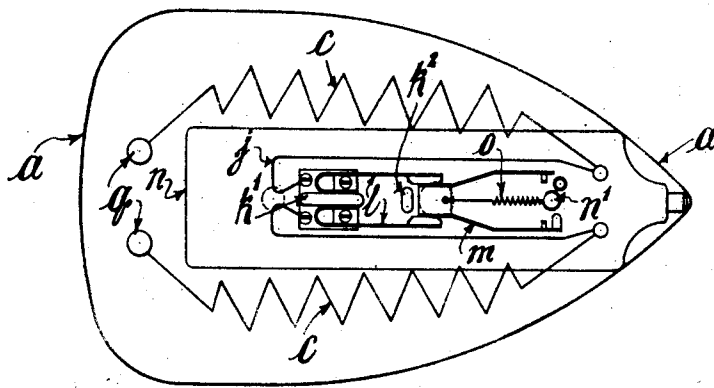
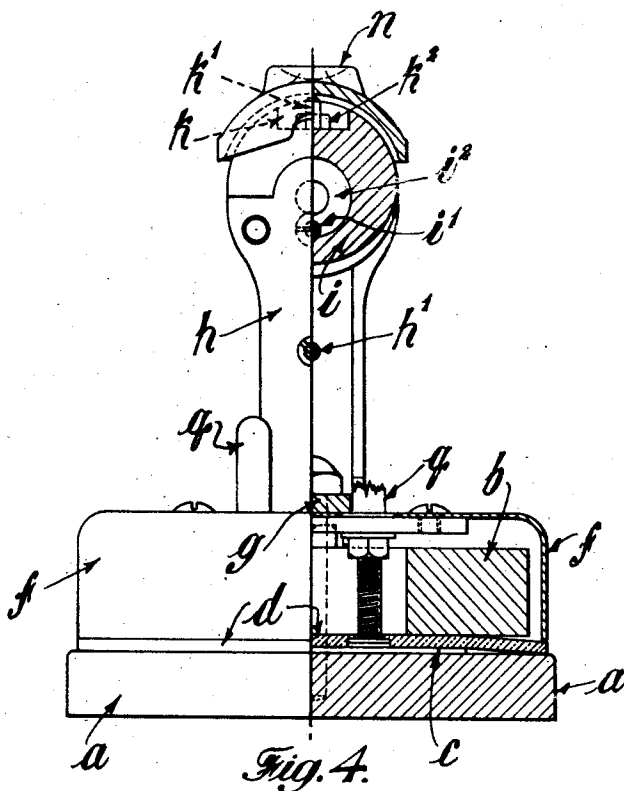
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ELECTRIC IRON AND SWITCH THEREFOR

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Ernest Milling Crossland.
By their Attorney: Walter Gurnon.

UNITED STATES PATENT OFFICE

1,981,309

ELECTRIC IRON AND SWITCH THEREFOR

John Arthur Crossland and Ernest Milling Crossland, Strangeways, Manchester, England

Application September 27, 1933, Serial No. 691,222

4 Claims. (Cl. 219—25)

This invention relates to electric irons as used for domestic and laundry purposes, and has for its object to provide an improved iron in which there is incorporated a switch, so placed that the grasping of the iron for use automatically completes the circuit of the current to the heating elements, and by which when the iron is released by the user, the current circuit is automatically broken, means also being provided for retaining the switch in the closed position when desired, say for initial heating up.

The invention comprises both an improved iron, and also the improved switch mechanism for attachment thereto.

One embodiment of the invention is illustrated in the accompanying drawings wherein:—

Fig. 1 is a longitudinal sectional elevation with the switch held in the closed position;

Fig. 2 is a like view, of the handle part of the iron, but showing the switch in the open position;

Fig. 3 is a plan of the switch with a portion of the outer member broken away to show the interior contacts;

Fig. 4 is a part sectional end elevation of the iron shown in Fig. 1; and

Fig. 5 is a wiring diagram.

As shown, the body of the iron comprises the base member *a* and the weight member *b*, between which are the heating elements *c* and an insulating cover *d* of asbestos or the like. Above the weight member *b* is a further insulating member *e*, whilst a polished metal or like shroud *f* encloses those parts above the base member *a*.

The handle of the iron comprises a U shaped part *g* of metal, to the outer end parts of which are secured by screws *h*¹ insulating covers *h* of synthetic resin or like material, whilst between the extreme ends of the part *g* is a tubular handle *i* of similar insulating material, the handle being shouldered down below each end to overlie the parts *g* and *h*, and being held in position thereon by means of a long screw *i*¹ lying in the through hole *i*² of the handle. The parts *h* are hollow on the inner side, so as to provide between themselves and the member *g*, conduits for the wires *j*. In the upper face of the handle *i* is a recess *k*, to the floor of which are secured by screws *l*¹ long spring contacts *l*, to which the wires *j* are connected, the contacts being separated at *k*¹ by an upstanding part of the handle, to prevent a short circuit, and being limited in their approach towards each other by a further upstanding part *k*². The contacts *l* are rounded over at their free ends.

Pivotally mounted on the walls of the recess *k* is a movable switch arm *m*, the free end of which

has a contact *m*¹, adapted to pass between the bent over ends of the contacts *l*, the part *m*¹ being of slightly greater width than the projection *k*² so as to separate the parts *l* and thereby ensure a close contact between the parts *l* and *m*.

Pivotally mounted on the handle *i* is a cover or shroud *n* of insulating material, which is shaped so as to enclose the switch parts above described, and such cover *n* has on its inner side a projection *n*¹, to the lower end of which is connected one end of a spring *o*, the other end of the spring being connected to the part *m*¹ of the switch arm *m*. The disposition and size of the projection *n*¹ are such that when the cover *n* is depressed the end of the spring *o* which attaches to the part *n*¹ is below the pivot for the arm *m*, whereby the spring exerts itself to pull the part *m* into contact with the parts *l*, and when the cover *n* is released the lower end of the projection *n*¹ is raised above the pivot for the arm *m*, whereby the same spring operates to pull the contact *m*¹ away from contacts *l*. By arranging the pivot *n*² for the cover *n* below the level of the spring *o*, the spring always tends to lift the cover about its pivot, and break the current circuit. A further spring *o*¹ serves also to hold the cover *n* normally in the raised position, in which position the arm *m* contacts with the inner face of the cover *n* and is thereby limited in its upward movements.

In the outer end of the cover *n* is provided a plunger *p* having a stepped end *p*¹, and in the adjacent end of the handle *i* is a double-shouldered notch into which the part *p*¹ projects. Normally the part *p*¹ abuts against the outer shoulder of the notch and limits the upward movements of the cover *n* (see Fig. 2). When, however, the cover *n* is depressed the plunger *p* can be pushed in until the part *p*¹ enters the lower notch, (see Fig. 1) so that on releasing the cover with the plunger in that position, the cover is held in the down or "switch closed" position. This is convenient when it is desired to heat the iron initially ready for use. A spring is provided behind the plunger *p*, normally tending to move the plunger to the outward position so that when the desired temperature has been reached the mere grasping of the handle of the iron, which results in a depression of the part *n*, allows the spring to exert itself and push the plunger outwards, so that on again releasing the handle the switch rises and the circuit is broken.

In use, every time the handle is grasped for use, the current to the heating elements is completed, and when the handle is released the circuit is again broken. This avoids the waste of current

and moreover eliminates to a very large extent the danger of fire which follows from electric irons being left in the heating condition.

The heating elements *c* of the iron are in two sections, arranged in series as shown in Fig. 5, and the switch in the handle acts as a bridge between the two elements.

The provision of the composite handle as shown, provides a strong and relatively unbreakable construction, the inner metal parts *g* being a reinforcement to the outer insulating parts *h* and *i*, and, the metal part *g*, being connected by screws to the weight and base part of the iron, serves to take the pull and thrust. The parts *h* of the insulating material will usually be highly polished so as to give a good appearance to the iron. The current is supplied to the iron from the usual plug fittings via the pins *q*.

What we claim is:—

1. In an electric iron, a switch handle operated by the normal grasping and releasing thereof, comprising a body part of insulating material with a long recess in the upper face, two fixed contacts secured in the recess and in series with the heating element of the iron, a pivoted contact mounted in the said recess and adapted in one position to bridge the said fixed contacts, a pivoted cover overlying the whole of the body part, a spring normally tending to lift the cover about its pivot, and a further spring connecting the cover to the pivoted contact, the points of connection of the further spring being such that the pivoted contact is pulled into and out of engagement with the fixed contacts as the cover is depressed and raised respectively.

2. An electric iron with an automatic switch handle as claimed in claim 1, wherein the fixed

contacts comprise long strips of spring metal folded back at one end, a bent-over flange on the folded back portion, to be screwed to the floor of the recess, and a contact block on the other end, and wherein the pivoted contact comprises a U-shaped member having its bridge part at right angles to the arms, the arms at their ends being pivoted to the side walls of the recess.

3. In an electric iron, a switch-handle having fixed and movable parts operated by the normal grasping and releasing of the iron to close and open the current circuit, a sliding spring-pressed plunger in one of said parts, and a double-shouldered notch in the other part, the plunger and one notch holding the switch in the "closed" position and the plunger and the other notch limiting the relative movement of the parts in the "open" position.

4. An electric iron comprising a base, a weight, resistance heating elements and an enclosing shield therefor, and a U-shaped frame of flat metal to carry a handle, screws clamping all said parts together, a handle of insulating material with a large diameter through hole and stepped at each end to rest on upstanding ends of the metal frame, the stepped part being in line with the upper wall of said hole, a long screw passing through the through hole in the hollow handle to secure it to the metal frame, and hollow facings on the outer sides of the metal frame to form conduits for the conducting wires between the heating elements and the switch, such facings also concealing the said screw and through hole, and having enlarged side walls at the lower end extending inwardly beyond the metal frame.

JOHN ARTHUR CROSSLAND.
ERNEST MILLING CROSSLAND.

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