(No Model.)

E. M. HEWLETT.

ELECTRIC SWITCH.

No. 537,533. Patented Apr. 16, 1895.

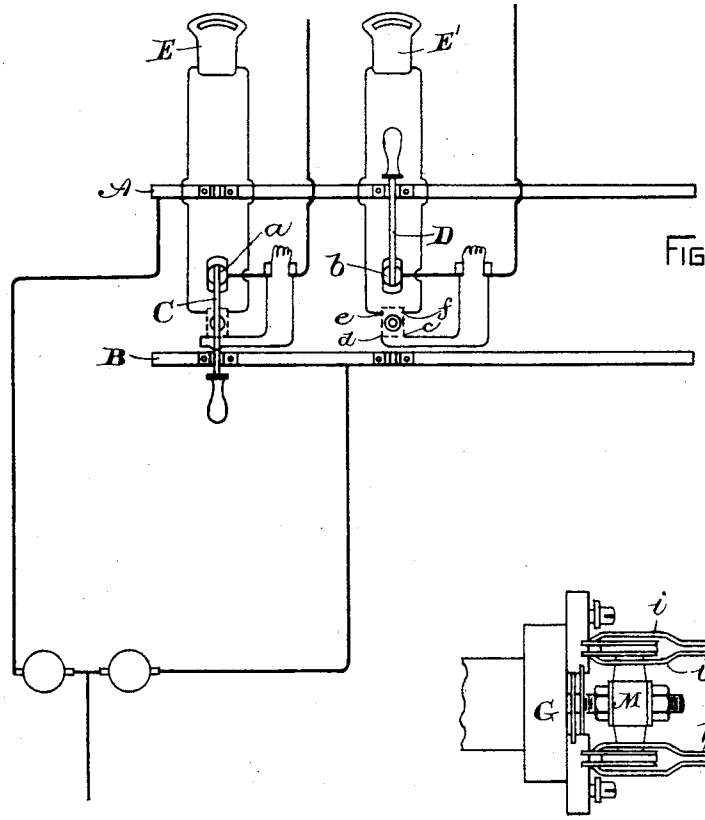
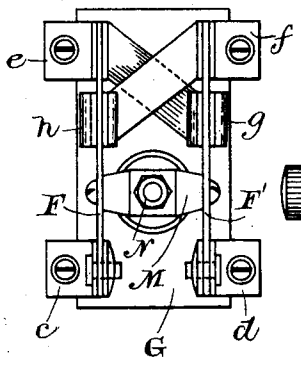


FIG. 1.

FIG. 4.

FIG. 2.



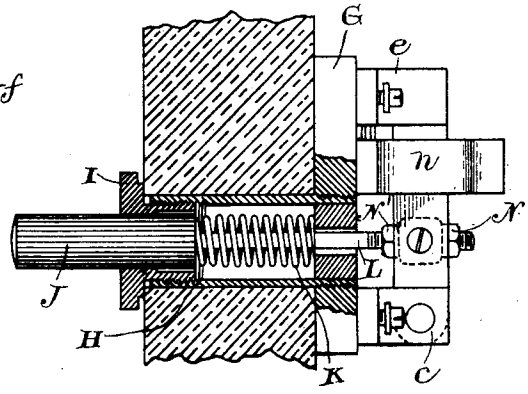


FIG. 3.

WITNESSES.

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INVENTOR.

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UNITED STATES PATENT OFFICE.

EDWARD M. HEWLETT, OF SCHENECTADY, NEW YORK, ASSIGNOR TO THE THOMSON-HOUSTON ELECTRIC COMPANY, OF BOSTON, MASSACHUSETTS.

ELECTRIC SWITCH.

SPECIFICATION forming part of Letters Patent No. 537,533, dated April 16, 1895.

Application filed December 22, 1894. Serial No. 532,634. (No model.)

To all whom it may concern:

Be it known that I, EDWARD M. HEWLETT, a citizen of the United States, residing at Schenectady, in the county of Schenectady, State of New York, have invented certain new and useful Improvements in Electric Switches, of which the following is a specification.

The object of my invention is to automatically reverse the leads to a current indicator, at the instant the feeder switch is thrown from the negative bus-bar to the positive or vice versa; it being necessary in instruments of the well known Weston type, to always have the currunt flow in the same direction, or otherwise there will be no indications.

It sometimes happens in stations of large capacity using the three-wire system, that it is desirable to change a certain feeder from the positive to the negative side, in order to balance up the system; in which case it would be necessary to reverse the leads to the current indicator. In stations of large size running many feeders, this becomes troublesome, for it necessitates the throwing of a separate reversing switch, whereas in my arrangement it is only necessary for the operator to throw the feeder switch and the ammeter switch is automatically operated.

To carry out my invention I mount a switch having an inner and outer set of contacts, on the back of the switch board, and have a plunger project through on to the front side of the board, where it can engage with the blade of the feeder switch when it is thrown down. A suitable spring is mounted between the switch blade and the plunger, which normally tends to keep the switch blades closed on the inner contacts; but when the feeder switch is thrown, the pressure on the plunger is sufficient to overcome that of the spring, and the blades of the reversing switch are thrown outward, thereby engaging with the outer contacts, which are cross-connected relatively to the inner ones, and thereby reversing the current, which is now of the opposite sign, due to the throwing of the feeder switch.

In the accompanying drawings, Figure 1 illustrates diagrammatically the method of using my invention. Fig. 2 is a rear elevation of the switch. Fig. 3 is a side elevation partly in section; and Fig. 4 is a plan view.

A and B are bus-bars mounted on any suitable insulating material, and switches C, D are double-throw, single-pole switches adapted to connect the feeder terminals *a*, *b* with either A or B.. The current indicators E, E′ are mounted on the board carrying the bus-bars, and are placed in any suitable position where they may be easily read.

The terminals *c*, *d* are connected in shunt to a definite resistance for the purpose of measuring a certain portion of the current, in a way well understood in the art, and terminals *e*, *f* are connected to the current indicator. Terminal *e* is cross-connected to *g* by means of a flat strip of copper, and *f* is similarly connected to *h* by the same means, but insulated therefrom. The blades F, F′ are pivoted respectively in terminals *c*, *d*, and are adapted to make contact with either the inner or outer contacts. The terminals are mounted on a piece of fiber or other insulating material G, into which is screwed a tube H provided with a nut I engaging with internal threads on tube H, and adapted to clamp the switch in position. The center of the nut I is bored out so as to admit the plunger J, which is forced outward by means of the spring K. A rod L is connected between the plunger J and the switch blades F, F′, and operates to throw the switch blades into engagement with contact terminals *g*, *h* when the blade of the feeder switch is thrown down on to the plunger J.

The end of the rod L is provided with an insulating piece M which connects both switch blades rigidly together.

The U-shaped terminals *h*, *g* are made with offsets *i*, *i′* to allow them to pass around the switch blades when they are down in their inner position.

Nuts N, N′ are provided to adjust the switch blades to the desired position.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination, in a switch board for electric circuits, of a switch for automatically reversing the leads of a current indicator, with a switch adapted to change the circuit from positive to negative, or vice versa.

2. The combination in a three-wire system, of a switch board provided with feeder switches and a reversing switch for a current indicator adapted to be operated by a feeder switch at the time the circuit is changed from positive to negative or vice versa.

3. In a reversing switch, the combination of a spring normally acting to close the circuit on one set of contacts, and a plunger adapted to be operated by a circuit closing switch acting to close the circuit on another set of contacts, as described.

4. The combination in a reversing switch, of a set of contacts, switch blades normally held in contact therewith by means of a spring, and a second set of contacts adapted to engage said switch blades when the feeder switch is thrown, as described.

5. In a reversing switch for electric currents, the combination of switch blades adapted to be closed by a spring on an inner set of contacts, and positive means for closing them on the outer contacts, said contacts lying in the same planes as the first, but provided with offsets so that they do not engage with the switch blades in the inner position.

6. The combination in a reversing switch, of inner and outer contacts, both lying in the same plane, the outer ones being provided with offsets, said outer contacts being cross-connected with the inner ones, as described.

7. The combination in a reversing switch of two sets of U-shaped terminals, one set being provided with an offset, and an adjustable switch blade adapted to be operated by a spring in one direction and a plunger in the other.

8. The combination in a reversing switch, of two sets of U-shaped terminals, one set being provided with an offset encircling the switch blade, said switch blade being adjustable and adapted to be operated by a spring in one direction and a plunger in the other.

9. The combination in a reversing switch, of two sets of U-shaped terminals, one set being provided with an offset and an adjustable switch lever adapted to co-operate therewith.

In witness whereof I have hereunto set my hand this 19th day of December, 1894.

EDWARD M. HEWLETT.

Witnesses:

B. B. HULL,

A. F. MACDONALD.