(No Model.)

T. H. LOVELL.

DOUBLE CONTACT SWITCH.

No. 456,493. Patented July 21, 1891.

Fig. 2.

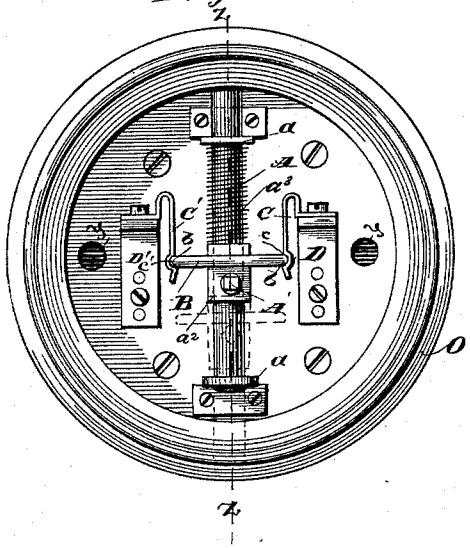


Fig. 1.

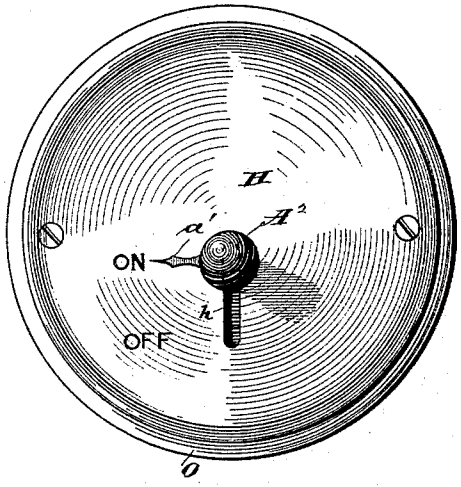


Fig. 3.

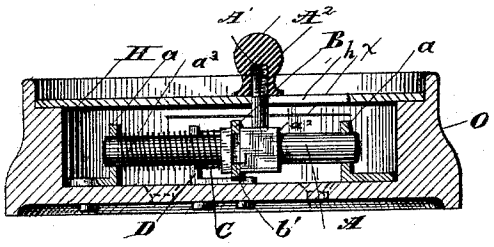
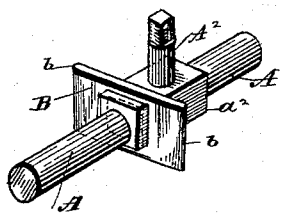


Fig. 4.



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UNITED STATES PATENT OFFICE.

THOMAS H. LOVELL, OF CLEVELAND, OHIO.

DOUBLE-CONTACT SWITCH.

SPECIFICATION forming part of Letters Patent No. 456,493, dated July 21, 1891.

Application filed December 2, 1890. Serial No. 373,374. (No model.)

To all whom it may concern:

Be it known that I, THOMAS H. LOVELL, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, State of Ohio, have invented certain new and useful Improvements in Double-Contact Switches, of which I hereby declare the following to be a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in double-contact switches; and its objects are to separate the electrodes of the broken line at the switch-point sufficiently to prevent the danger of the current crossing from one to the other when the circuit is open and to interpose the resistance of a double arc to the current.

My object is also to provide a simple and inexpensive form of device which will be adapted to all varieties of current, but especially to currents of high tension and high electro-motive force.

My invention consists in a movable integral portion of the circuit, with means for withdrawing the same and securing it so as to open or close the circuit, and in the arrangement and combination of parts and construction of details, as hereinafter described, shown in the accompanying drawings, and more specifically pointed out in the claim.

In the drawings, Figure 1 is a plan of the complete switch. Fig. 2 is a plan of the interior with the cover and index removed, the positions being shown in solid and dotted lines. Fig. 3 is a transverse section on line Z Z, Fig. 1; and Fig. 4 is a detail of spindle carrying the switch-plate.

A in all the figures represents a spindle of non-conducting material, such as fiber or vulcanite, which is vertically movable in fixed bearings *a a* at either end. This spindle is provided with a groove *b'*, into which the plate B is compressed in such a manner as to project at either side, as at *b*, the extremities of the plate being rounded for the purpose of easily passing the contact-points *c*, as will be explained hereinafter.

C and C' are contact springs or electrodes fixed rigidly at one end upon bearings D and arranged on either side of the spindle A and extremities of the plate B, so as to come into contact. A pin A' passes out through the cover H, and is provided with a knob or enlargement A^2, adapted to be grasped by the fingers in moving the plate B into or out of contact with the terminals C, a slot *h* being made in the cover for that purpose. To this pin A' is attached the pointer *a'*, which indicates, alternately, the points "on" or "off," according as the contact is made or broken. In order to retain the plate in contact with the spring-electrodes C and C', depressions *c* and *c'* are made in the springs to receive the rounded ends of the plate, before mentioned, and sustain the plate and spindle.

It will be observed that as soon as the plate B is pressed down out of the depressions *c* and *c'* in the springs its weight, with that of the accompanying spindle A, will be sufficient to drop it out of contact and to such a distance from the electrodes that the current cannot pass, while it can again easily be elevated by the knob A^2, if desired. The shoulder a^2 on the spindle acts as a stop to limit the downward movement.

The cover H is preferably made of non-conducting material, as fiber or vulcanite; but if metal is used a thin film of mica, fiber, or vulcanite can be interposed between the electrodes and the cover, as shown in the section, Fig. 3, at X.

A light spring, as a^3, may be employed to assist the action of gravity in separating the plate B from the electrodes, or if the switch be used in a horizontal position a heavier spring may be employed to accomplish this purpose.

The advantages of this device are obvious in its adaptation to high-tension current, since the distance between the electrodes is great and two arc resistances would have to be overcome before a current could cross from one electrode to the other by way of the contact-plate.

All the working parts are preferably included within a portable box, as O, openings, as *y y*, being left in the box for the passage of the line-wires.

An additional plate of mica or insulating material may be placed under the working parts.

Having thus described my invention, what

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

In a double-contact switch, a fixed plate B, mounted upon a movable insulated spindle A, having longitudinal movement in bearings *a a* at either end, and an operating-pin A′, in combination with spring-electrodes C C′, mounted on either side of the spindle A and provided with recesses *c c′*, adapted to receive and secure the rounded extremities *b b′* of the plate B, substantially as described.

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