(No Model.)

E. G. WATERS & R. G. SWEENY.

ELECTRICAL SWITCH.

No. 346,183. Patented July 27, 1886.

Fig. 1.

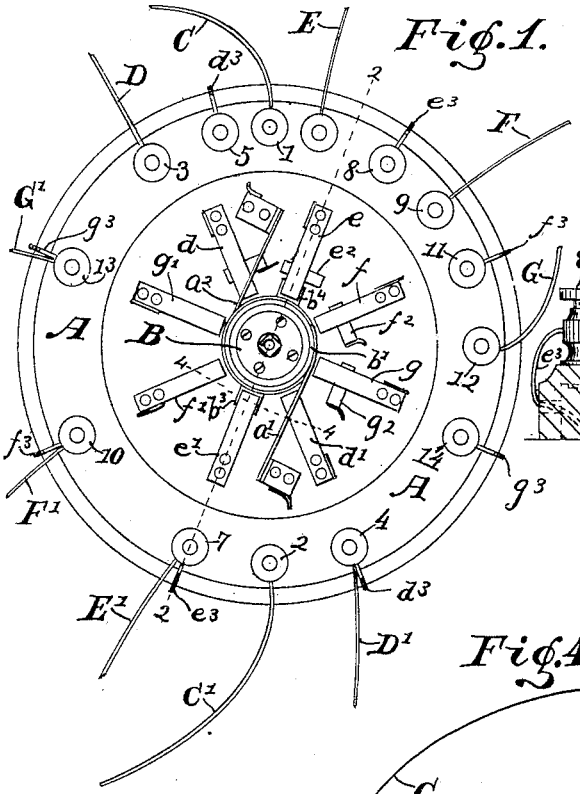


Fig. 2.

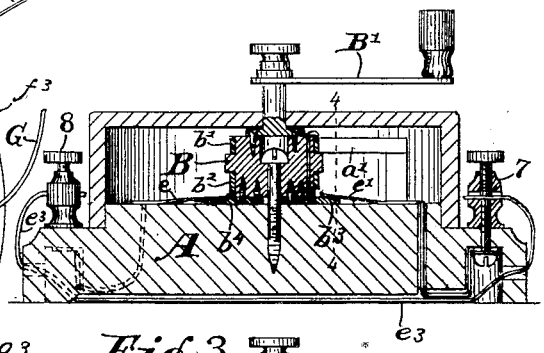


Fig. 3.

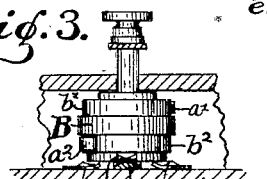
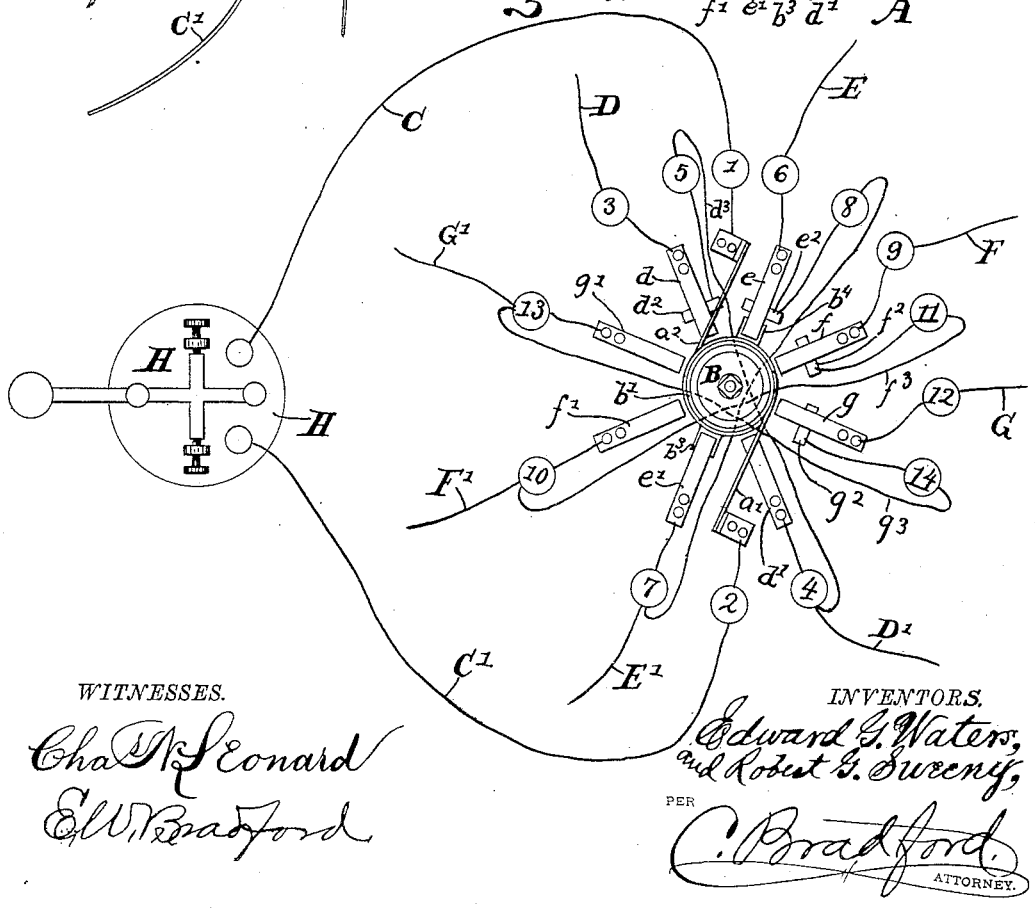


Fig. 4.



WITNESSES.

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ELECTRICAL SWITCH.

SPECIFICATION forming part of Letters Patent No. 346,183, dated July 27, 1886.

Application filed March 19, 1886. Serial No. 195,782. (No model.)

To all whom it may concern:

Be it known that we, EDWARD G. WATERS and ROBERT G. SWEENY, of the city of Terre Haute, county of Vigo, and State of Indiana, have invented certain new and useful Improvements in Electrical Switches, of which the following is a specification.

The object of our said invention is to produce a switch by which any one of several telegraph or other lines may be connected with a single instrument at pleasure. This object is accomplished by connecting the several lines to a series of contact-springs which are arranged radially to a central hub carrying two points which are electrically connected with the two binding-posts of the instrument, each wire of the several lines being connected to one of said contact-springs, and the contact-springs connected to the incoming wires of each circuit being arranged to come in contact with a part or strip connected with the outgoing line-wire when not separated therefrom by the contact-points on the revolving hub.

Referring to the accompanying drawings, which are made a part hereof, and on which similar letters of reference indicate similar parts, Figure 1 is a top or plan view of a switch embodying our said invention, the casing or cover portion being removed; Fig. 2, a central vertical section on the dotted line 2 2 in Fig. 1; Fig. 3, a detail elevation of the hub as seen from the dotted line 4 4, and Fig. 4 a plan showing the electrical connections.

In said drawings, the portions marked A represent the base of the switch; B, the hub; C C′, the incoming and outgoing instrument, wires, respectively; D D′ E E′ F F′ G G′, the incoming and outgoing wires of several electrical circuits or main lines, and H the electrical instrument. The base A is formed of wood or some other non-conducting material, and carries the hub, contact-springs, binding-posts, and contact-strips, as shown. The hub B is centrally mounted on the base, and revolves thereon, a crank, B′, being provided as a means of turning it. Its body is formed of non-electrical material, and it carries two rings, b' b^2, one of which is connected to one of the instrument-wires and the other to the other by contact-springs a' a^2. These rings are also connected to the contact-points b^3 b^4, and may, by means of said contact-points, be also connected with either of the line-wires, as will be hereinafter more particularly described.

The operation of our said invention may be described as follows: Supposing that the operator desires to use the line E E′, he will first turn the hub B until the contact-points b^3 b^4 have passed underneath and are in contact with the contact-springs e e', which form terminals for said wires, which at the same time raises the contact-spring e away from the strip e^2 and breaks the independent circuit outside of the instrument. The course of the current is then in from the line-wire E, through its binding-post 6, to the contact-spring e, thence, by the contact-point b^4, the ring b^2, and the contact-spring a^2, through the binding-post 1 to the wire C, over the wire through the electrical instrument H, and back over the wire C′ to the binding-post 2; thence to the contact-spring a', to the ring b', and to the contact-point b^3; thence, by the contact-spring e', to the binding-post 7 and out over the outgoing line-wire E′. Meantime each of the other electrical circuits or main lines are uninterrupted, and the course of the current is as follows: A current comes in over the main line D to the binding-post 3; thence to the contact-spring d, to the contact-strip d^2; thence to the binding-post 5; thence across underneath the switch, by the loop d^3, to the binding-post 4, and out over the wire D′. A current comes in similarly over the wire F to the binding-post 9; thence to the contact-spring f, to the contact-strip f^2; thence to the binding-post 11; thence across underneath the switch by the loop f^3 to the binding-post 10 and out over the wire F′. A current comes in similarly over the wire G to the binding-post 12; thence to the contact-spring g to the contact-strip g^2; thence to the binding-post 14; thence across underneath the switch by the loop g^3 to the binding-post 13, and out over the wire G′.

When the operator desires to use another line, the hub is turned to bring the contact-points b^3 b^4 into contact with the contact-springs of the line desired, and the current then passes over the line E E′, similarly to the course above described, bringing the binding-

post 8 and loop e^3 into service, as will be readily understood. It will also be readily seen that the contact-springs d', g', and f' will perform similar service, when their respective main lines are brought into use, to that described in connection with the description of the course of the current over the line E E', as performed by the contact-spring e'. It will be understood of course where we refer to the contact-springs, contact-strips, and contact-points in this specification that these may be any ordinary means of contact which will accomplish our result, springs, points, and strips being shown and described merely as the preferable or more convenient construction.

In order to cut out the instrument from all the circuits, it is only necessary to so turn the hub that the contact-points will be between some of the several contact-springs, without touching either, when all of the circuits will be similar to that just described.

As will be readily seen, by the use of our invention a single telegraphic or other electrical instrument may at will be put in circuit with either one of any number of lines, and thus the expense of separate instruments for each line can be saved, as well as the room which they would occupy if used.

This invention is especially valuable for such places as a superintendent's office of a railroad, which officer usually desire to have a telegraphic instrument on his desk, with which he can communicate with either of several officers or places at pleasure, but which it has not been practicable to do where the complete telegraphic outfit was used with each line.

When our invention is used, a relay can be used with each of the several lines which will permit calls to be heard, while the key and sounder only need be placed on the desk of the operator.

Having thus fully described our said invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination of several main-line circuits the wires of which terminate in contact-springs, an instrument-circuit the wires of which terminate in contact-springs, a revolving hub having rings with which the contact-springs of the instrument-circuit come in contact, and contact-points connected to said rings, said contact-points being adapted to come in contact with the contact-springs of either of said main lines at the pleasure of the operator.

2. The combination of several main lines or circuits the wires of each of which terminate in contact-springs arranged radially to a revoluble hub, an instrument-circuit terminating in contact-springs arranged to bear upon said hub, contact-points connected with the bearing-surfaces for said last-mentioned contact-springs, and adapted to come in contact with the contact-springs of the line-wires, and means for revolving said hub to make the connection desired.

3. The combination of several main line circuits the wires of each of which terminate in contact-springs, an instrument-circuit terminating also in contact-springs, a revoluble hub having contact-surfaces against which the contact-springs of the instrument-circuit bear, and contact-points electrically connected with said contact-surfaces and adapted to be brought into contact with the contact-springs of either of the main circuits at pleasure, strips upon which the contact-springs of one of the line-wires will rest when out of engagement with said contact-points, and loop-wires connecting said strips with the outgoing line-wires, whereby, by means of the switch described, an electrical instrument may be set into either of several electrical circuits at pleasure, and the remainder of said circuits be left uninterrupted, substantially as set forth.

In witness whereof we have hereunto set our hands and seals, at Terre Haute, Indiana, this 15th day of March, A. D. 1886.

EDWARD G. WATERS. [L. S.]
ROBT. G. SWEENY. [L. S.]

In presence of—
ROBERT A. TAYLOR,
RICHARD DAHLEN.