(No Model.) 2 Sheets—Sheet 1.

# J. J. WOOD.

## SWITCHBOARD FOR HIGH TENSION CIRCUITS.

No. 520,128. Patented May 22, 1894.

FIG. 2.

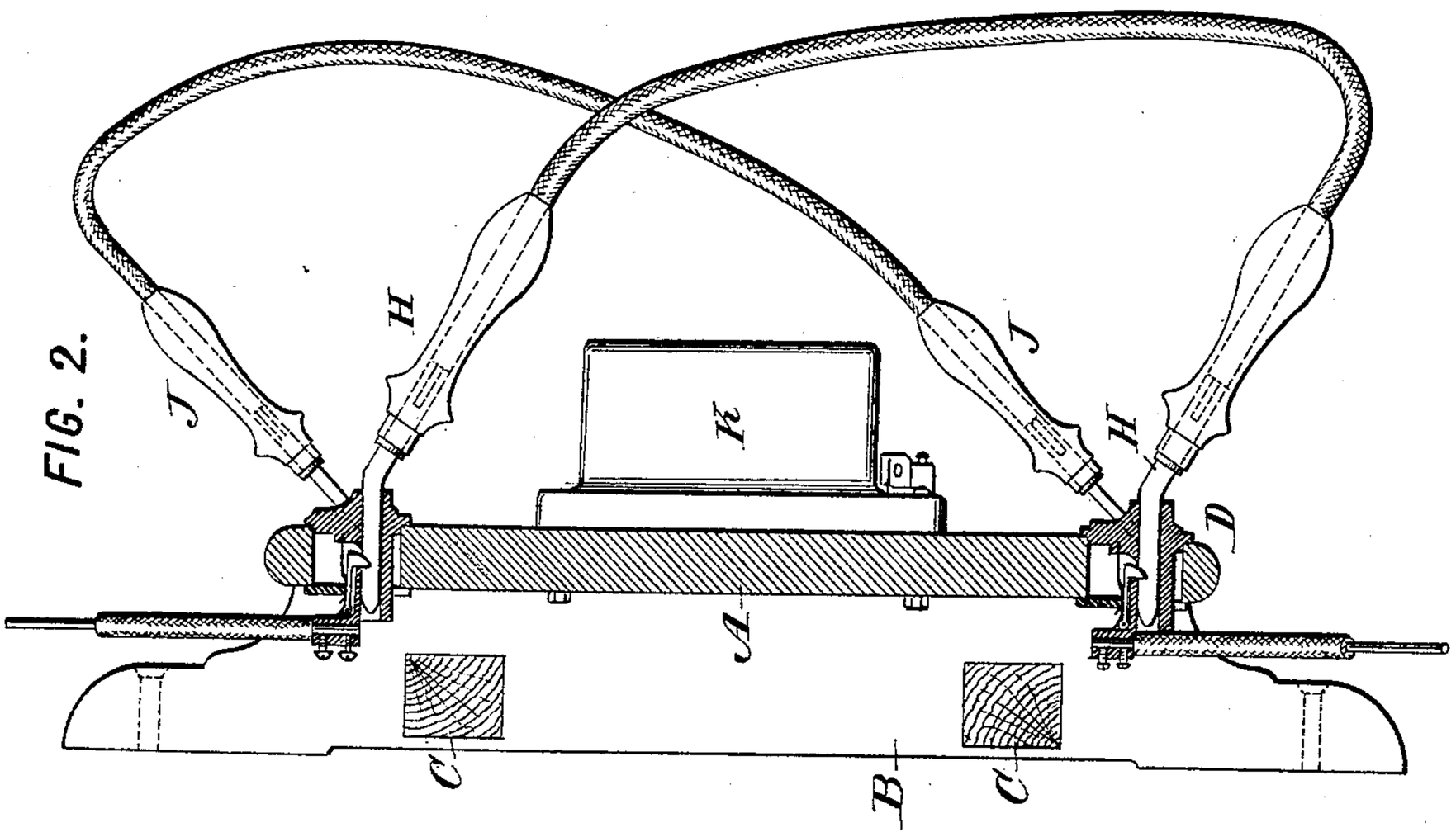
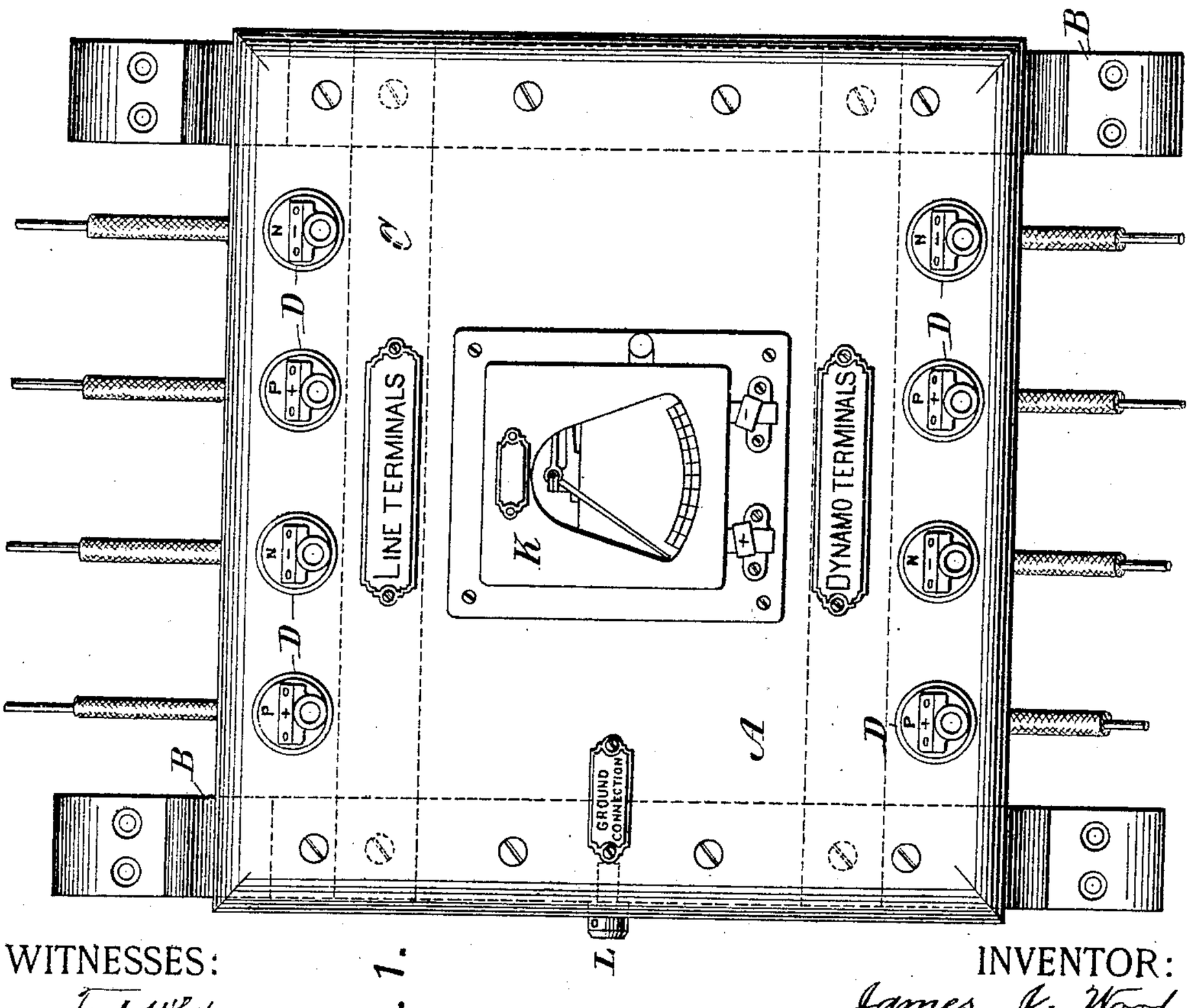



FIG. 1.

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(No Model.) 2 Sheets—Sheet 2.

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## SWITCHBOARD FOR HIGH TENSION CIRCUITS.

No. 520,128. Patented May 22, 1894.

FIG. 3.

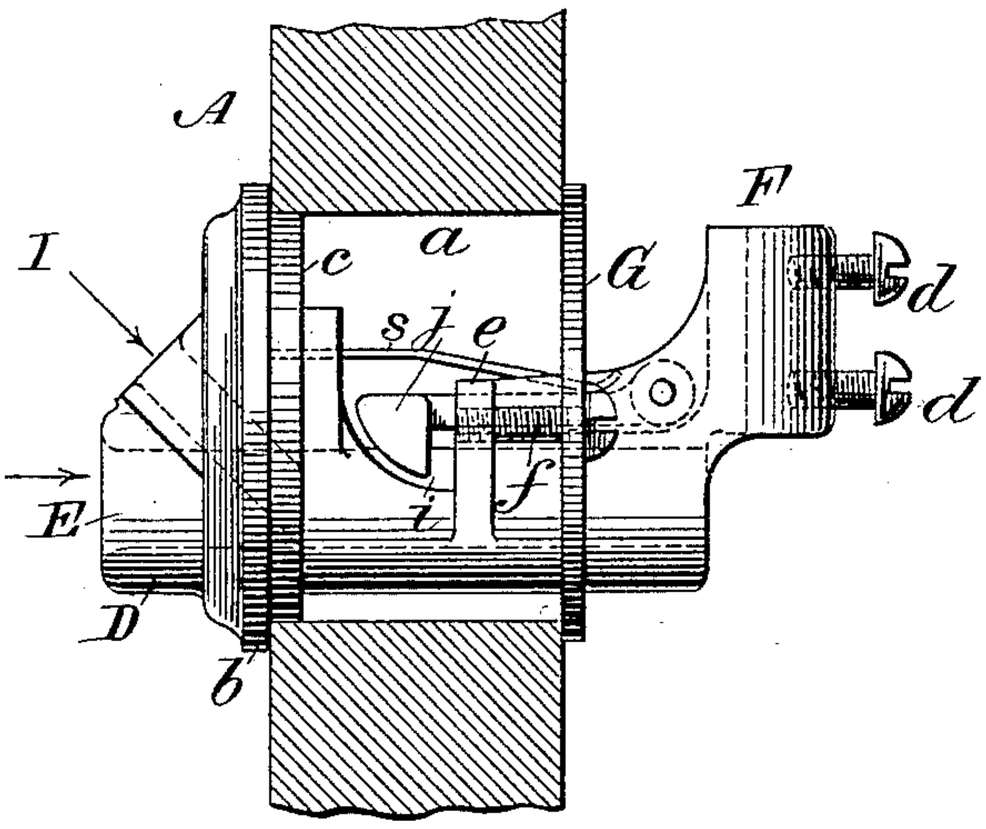



FIG. 4.

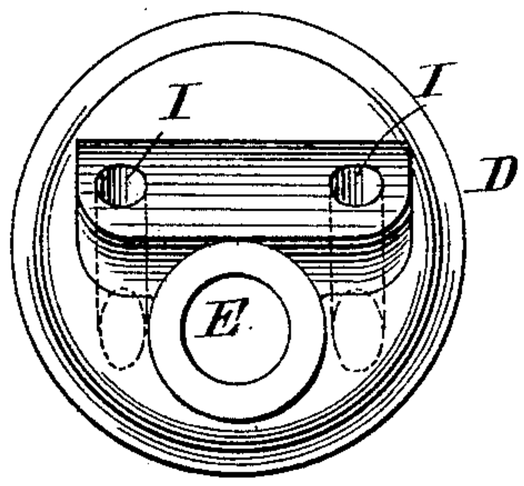



FIG. 5.

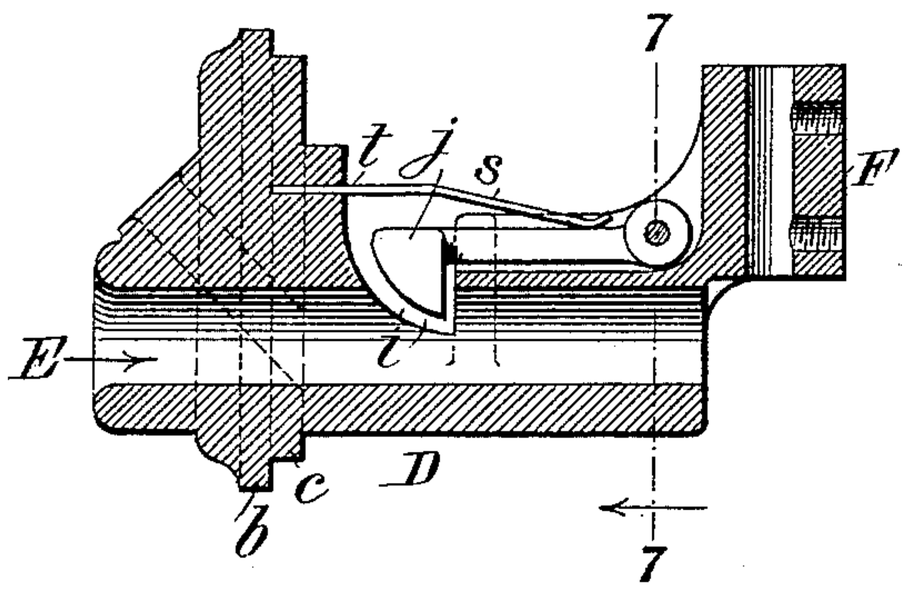



FIG. 7.

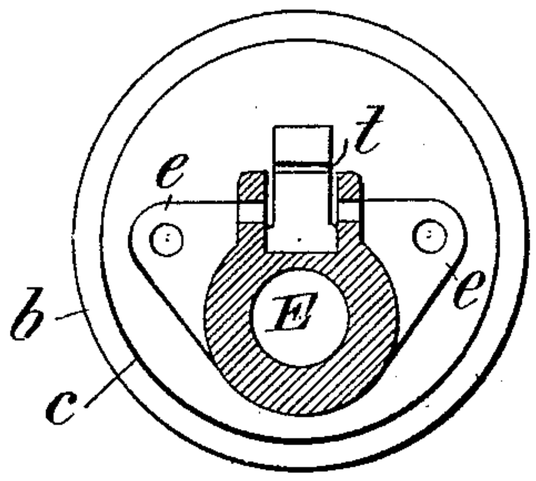



FIG. 6.

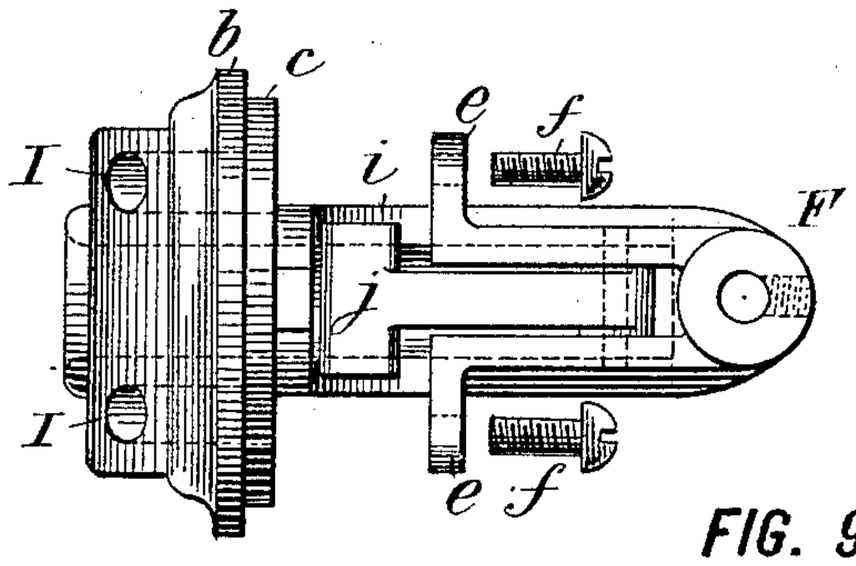



FIG. 8.

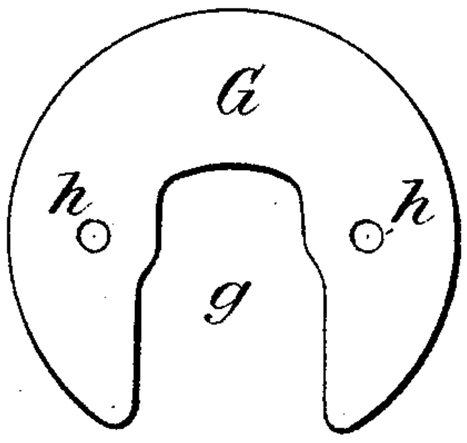
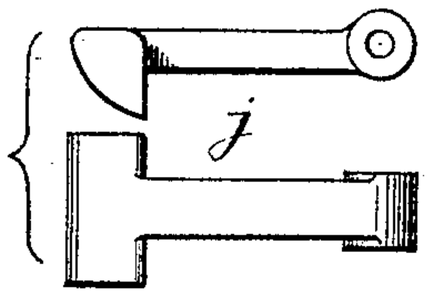



FIG. 9.




WITNESSES:

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INVENTOR:

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THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

# UNITED STATES PATENT OFFICE.

JAMES J. WOOD, OF FORT WAYNE, INDIANA.

## SWITCHBOARD FOR HIGH-TENSION CIRCUITS.

SPECIFICATION forming part of Letters Patent No. 520,128, dated May 22, 1894.

Application filed February 6, 1894. Serial No. 499,256. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES J. WOOD, a citizen of the United States, residing in Fort Wayne, in the county of Allen and State of Indiana, have invented certain new and useful Improvements in Switchboards for High-Tension Circuits, of which the following is a specification.

This invention relates more particularly to multiple switch boards for electric light lines to be used in central stations, for coupling different outside lines with different dynamos, or with each other, in various arrangements according to circumstances.

My present invention constitutes an improvement in construction upon the switchboard shown and claimed in my Patent No. 412,818, dated October 15, 1889.

The nature of my improvements will be hereinafter set forth with reference to the accompanying drawings, wherein—

Figure 1 is a front elevation of a small switch-board constructed according to my invention. Fig. 2 is a vertical transverse section thereof. Fig. 3 is a side elevation of one of the socket-pieces, the slab in which it is seated being shown in section. Fig. 4 is a front or face view of the socket-piece. Fig. 5 is a longitudinal mid-section thereof. Fig. 6 is a plan thereof, the spring being omitted. Fig. 7 is a transverse section on the line 7—7 in Fig. 5, the spring and latch both being omitted. Fig. 8 is a face view of the rear fastening plate. Fig. 9 includes a side and top view of the latch. Figs. 3 to 9 inclusive are drawn to a larger scale than Figs. 1 and 2.

Referring first to Figs. 1 and 2, the switchboard A consists of a slab, of marble by preference, or of slate, wood, or other insulating material, which is mounted on two end cleats B B, these being preferably tied together by cross-bars C C. The cleats B B are adapted to be screwed or otherwise fastened against the wall of the station.

Holes are formed through the slab A in suitable positions, and in these holes are placed socket-pieces D D, made preferably of brass or other suitable metal. It is in the construction of these socket-pieces and the means for fastening them to the board or slab A, that my present invention resides. According to my former patent referred to, the corresponding socket-pieces were formed of two sections or parts, of which the larger passed freely through holes in the front board and were constructed with base plates by which they were attached to wooden cross-bars behind the board, these base plates forming also the sockets or binding posts for permanent connection with the circuit wires; while the smaller parts or sections constituting the outer or front portion of the socket-piece were formed as separate blocks, soldered or otherwise attached to the main or rear portions. I now form the socket-piece integrally and mount it on the slab, providing it with a simple means for attachment thereto, instead of mounting it on a wooden bar behind the slab.

Referring to Fig. 3, the slab A is formed with a simple cylindrical hole *a*. The socket-piece D is formed with an enlargement or head at its front end comprising a flange *b* adapted to seat against the front face of the slab around the margin of the hole, and a neck *c* adapted to enter and fit snugly within the hole to properly center the socket-piece therein. The rear portion of the socket-piece back of this neck is reduced in size for the sake of lightness, and no portion of the socket-piece back of the neck is larger than the neck. The socket-piece can thus be easily applied from the front by thrusting it through the hole *a* until the neck *c* and flange *b* are seated in place. The socket-piece is formed with a main socket E consisting of a bore extending horizontally through it from front to rear, or at least deeply into it. The socket piece is formed with walls of sufficient thickness around this bore, and at the rear thereof it is formed with a connection socket F consisting of a tubular portion united integrally to the walls of the socket E, and having a bore of sufficient size to admit a bared circuit wire, and formed with threaded sockets for admitting binding screws *d d* to clamp such wire in place. The connection socket F is arranged to project a sufficient distance to the rear of the marble slab A. The socket-piece is formed on opposite sides with two arms or wings *e e* having screw threaded perforations adapted to receive the threaded ends of two screws *f f*. A fastening plate or disk G, shown separately in Fig. 8, is formed with

a deep notch or slot *g* adapted to admit within it the body portion of the socket-piece, so that when the socket-piece is in place, this plate G can be slipped down over it from the top to a concentric position, in which position two holes *h h* in it stand in line with the threaded sockets in the wings *e e*. The two screws *f f* are then passed through the holes *h h*, and their ends screwed into the threaded holes in the wings *e e*, thereby drawing the fastening plate G tightly against the back of the slab, and consequently drawing back the socket-piece D so that its flange *b* is pressed tightly against the front of the slab. By this simple means the socket-piece is firmly mounted in the opening in the slab.

As in my former construction the socket-piece is formed with a notch *i* entering into the socket E, and with a pivoted latch *j* (Fig. 9) having its free end pressed into this notch, so that the beveled head of the latch enters the socket E in order to drop into a notch in the bent switch-pin H, which enters this socket in the manner shown in Fig. 2. The latch is pressed down by a spring *s*. The construction of these parts, however, is somewhat improved as compared with my former switch-board. The latch *j* is pivoted in similar manner between ears on the socket-piece, but the spring *s* instead of being fixed in a right angle tail on the latch, and extending vertically behind the slab is fixed in a notch or recess *t* formed in the rear side of the head or front part of the socket-piece, as shown best in Figs. 5 and 7, and extends backward, within the hole in the slab its free rear end overlying and pressing down upon the latch. The construction is thus more compact than formerly. Furthermore, by my former construction the latch of the upper series of socket-pieces for the line was on the upper side, while that for the lower series of socket-pieces connected to the dynamos was on the lower side, which necessitated that the switch-pins H should be formed with notches at opposite sides, in order that any switch-pin might be caught by the latch when inserted in either socket-piece. This was due in my former construction to the necessity of relatively inverting the upper and lower series of socket-pieces, in order that the connection sockets of the upper series might project upwardly and those of the lower series project downwardly. My present invention avoids this defect by the construction of the connection socket F to stand vertically back of the socket E, and so that free access can be gained to it from either above or below for the insertion of the circuit wire, so that these wires may be connected to the sockets in the manner shown in Fig. 2, the wire entering the connection socket F of the upper series of socket-pieces at the top and entering those of the lower series at the bottom.

As in my former construction the socket-piece is formed with inclined side sockets I (Figs. 3, 4 and 6) into which may be inserted the transfer or testing switch-pins J J, in the manner shown in Fig. 2. The middle of the switch-board affords a convenient place for mounting an ammeter K, which is also formed with sockets for receiving the pins J. A ground connection L is also provided with a similar socket for receiving one of these pins, so that any of the circuits can be tested for ground leakage.

I claim as my invention the following-defined novel features, substantially as hereinbefore specified, namely:

1. In a switch-board, the combination with a slab having a hole through it, of a socket-piece entering said hole formed with a flange to seat against the front face of the slab, a fastening plate adapted to be placed against the rear face of the slab, and clamping screws engaging said plate and the socket-piece respectively to draw them together and clamp the socket-piece to the slab.

2. In a switch-board, the combination with a slab having a hole through it, of a socket-piece D entering said hole having a front flange *b* to seat against the front face of the slab, and a neck *c* for centering it in said hole, a fastening plate G adapted to be placed against the rear face of the slab, and clamping screws engaging said plate and the socket piece respectively to draw them together, and clamp the socket-piece to the slab.

3. In a switch-board, the combination with a slab having a hole through it, of a socket-piece D having a front flange *b* and opposite ears *e e*, a fastening plate G, and screws *f f* passing through said plate and screwing into said ears to clamp the socket-piece to the slab.

4. In a switch-board, the combination with a slab having a hole through it, of a socket-piece passing through said hole from the front, and means for clamping it to the slab, said socket-piece formed with an integral connection socket F at its rear end small enough to pass through said hole and adapted to receive a circuit wire into it either from above or below.

5. In a switch-board, the combination with a slab having a hole through it, of a socket-piece passing through said hole, and having a head at its front end filling said hole and means for fastening it to the slab, a latch *j* having its beveled head entering through a notch into the socket, and a separate spring *s* lying within said hole seated in the rear of the front portion or head of the socket-piece, and projecting thence rearwardly with its free end pressing upon the latch.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JAMES J. WOOD.

Witnesses:
ARTHUR C. FRASER,
GEORGE H. FRASER.