

H. W. BRECKENRIDGE.
ELECTRIC SWITCH BOARD.

No. 290,845.

Fig. 1 Patented Dec. 25, 1883.

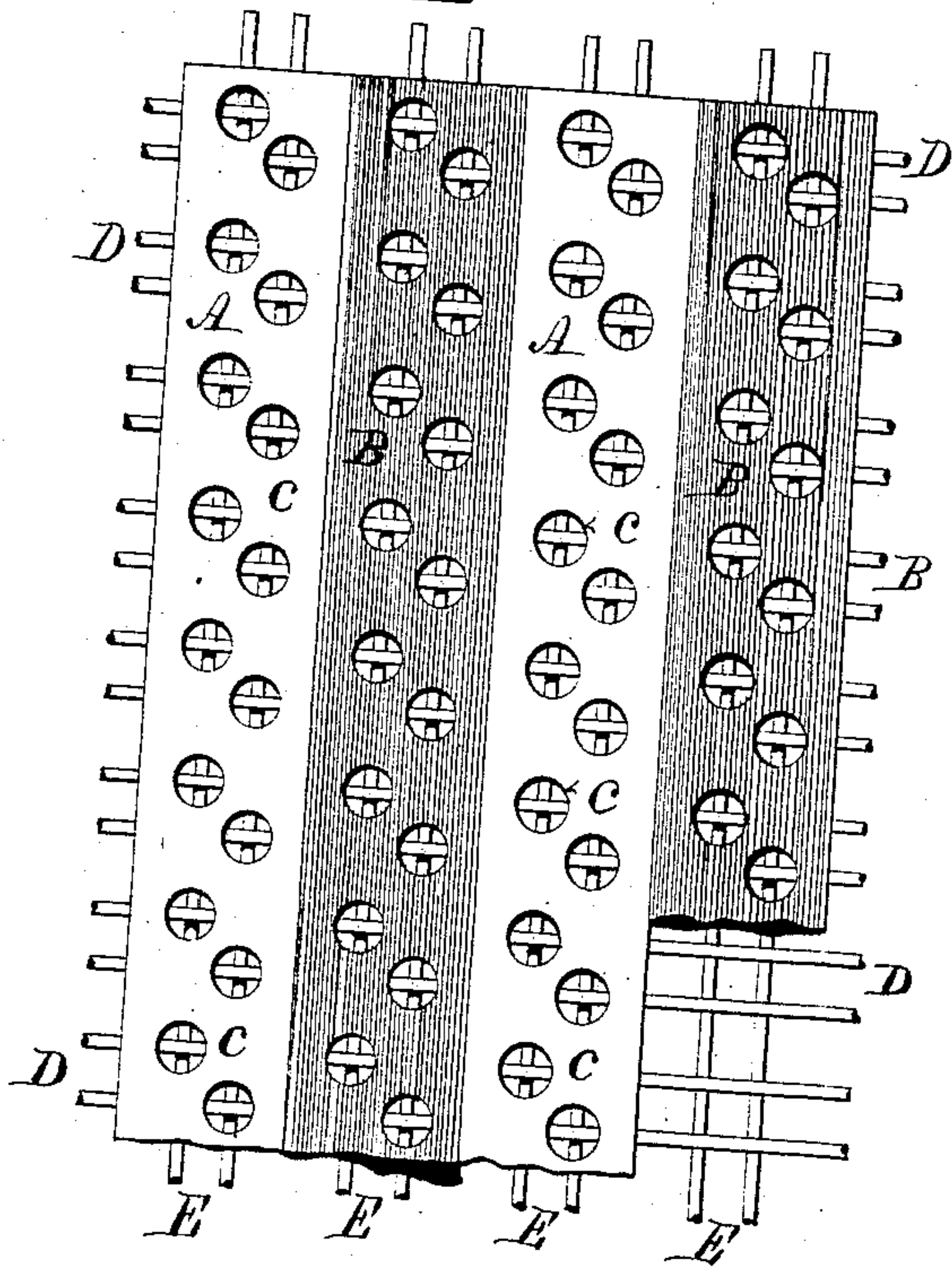


Fig. 2 -

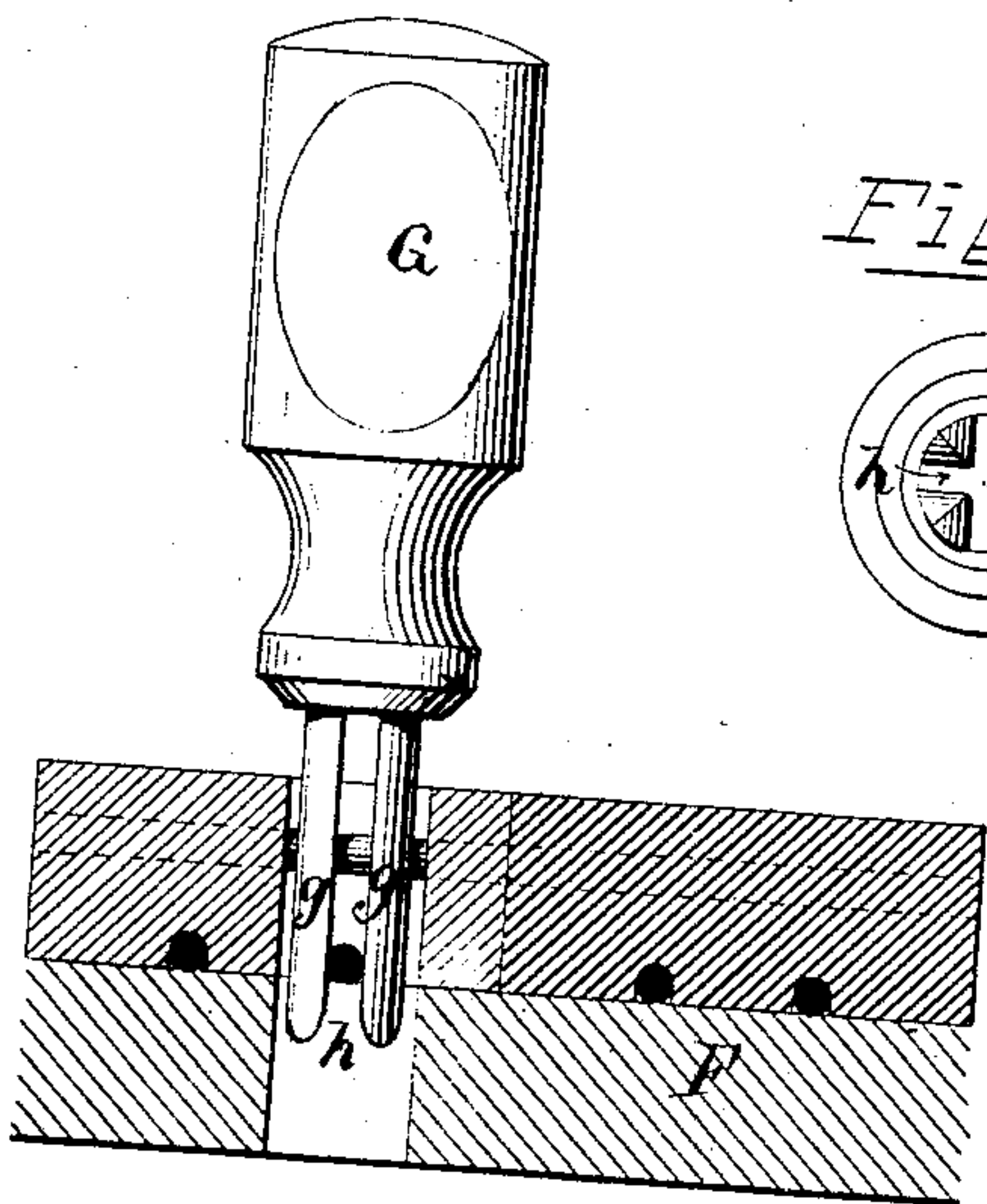


Fig. 3 -

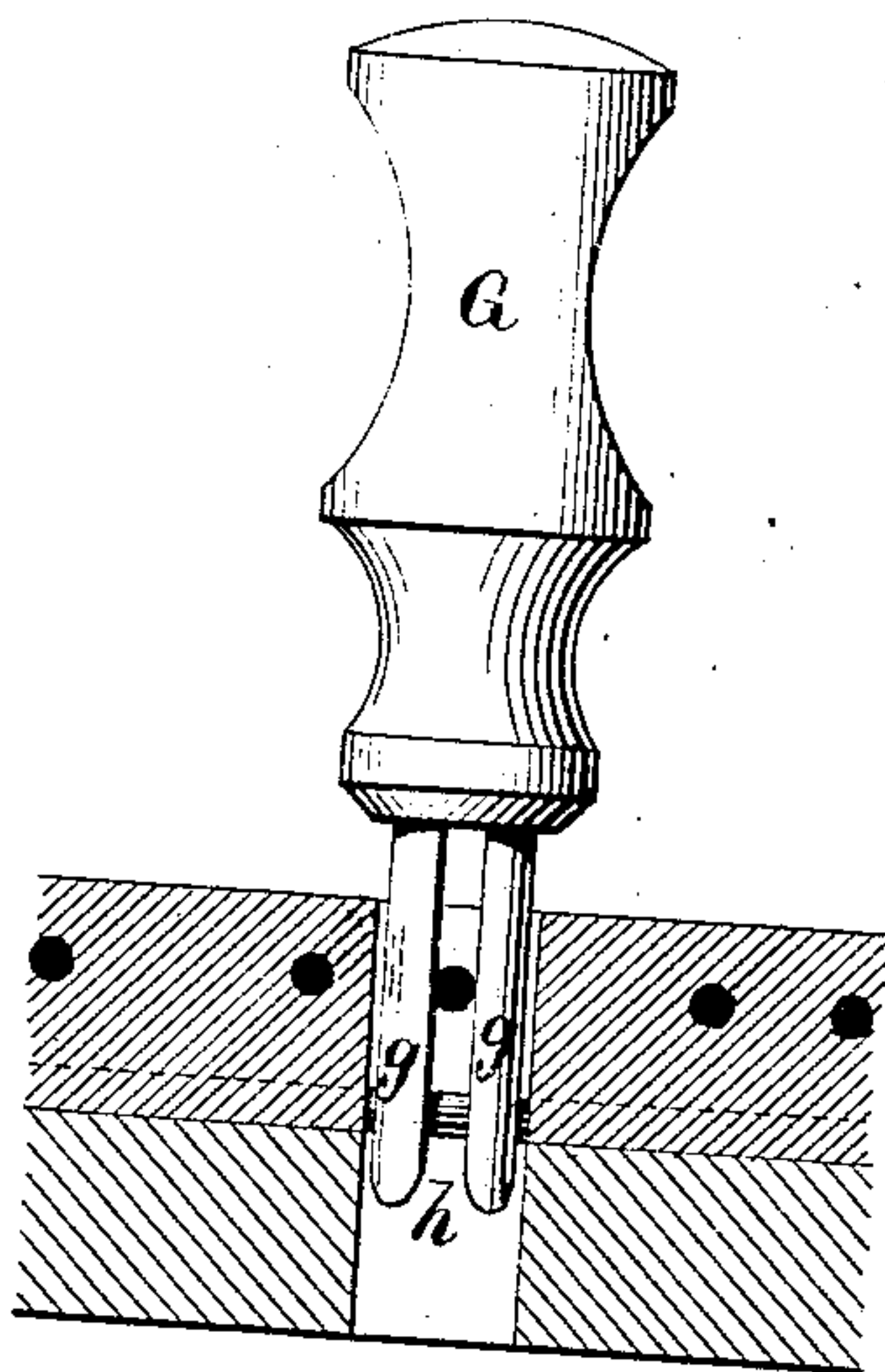
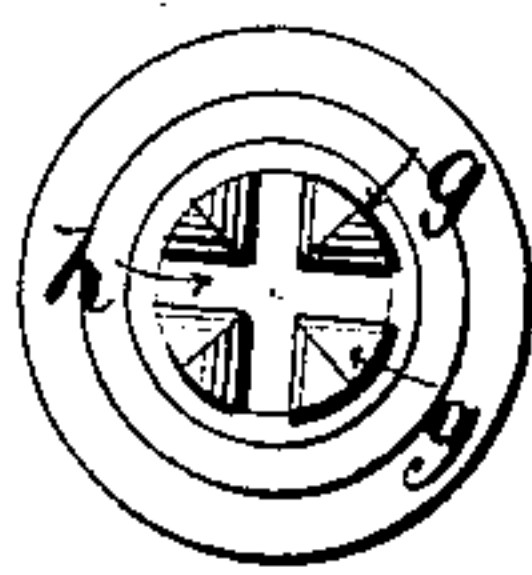


Fig. 4



WITNESSES

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INVENTOR

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by Joseph A. Miller & Co. Attys

UNITED STATES PATENT OFFICE.

HENRY W. BRECKENRIDGE, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR, BY
MESNE ASSIGNMENTS, TO THE RHODE ISLAND TELEPHONE AND ELEC-
TRIC COMPANY, OF SAME PLACE.

ELECTRIC SWITCH-BOARD.

SPECIFICATION forming part of Letters Patent No. 290,845, dated December 25, 1883.

Application filed January 2, 1883. (No model.)

To all whom it may concern:

Be it known that I, HENRY W. BRECKEN-
RIDGE, of the city and county of Providence,
and State of Rhode Island, have invented a
5 new and useful Improvement in Electrical
Switch-Boards; and I hereby declare that the
following is a full, clear, and exact description
of the same, reference being had to the accom-
panying drawings, forming part of this speci-
10 fication.

This invention has reference to an improved
construction of a switch-board for speaking
telegraph or telephone central offices, and the
keys for connecting the line-wires with the
15 wires of the switch-board.

The invention consists, first, in the peculiar
and novel construction of the board in strips
differing in color, and wires crossing each
other at right angle.

20 It further consists in the peculiar construc-
tion of the key, by which a metallic connec-
tion is made between any two of the wires
and broken, as will be more fully set forth
hereinafter.

25 The object of the invention is to facilitate
the rapid connection of two conducting-wires,
so as to connect or disconnect subscribers with
each other or the central office.

Figure 1 is a view of a part of a switch-
30 board made up of strips differing in color.
Parts are shown broken away, so as to show
the wires crossing each other more clearly.
Fig. 2 is a sectional view of the switch-board,
showing the wires embedded in the same, and
35 a view of the key shown inserted over two
wires, so as to connect the same electrically.
Fig. 3 is also a sectional view, showing the
key inserted so as to connect two of the wires.
Fig. 4 is an end view of the key, showing the
40 shank divided into four points by a cross-cut
made longitudinal through the axis of the
shank.

In the drawings, A B are strips of any suit-
able non-conducting material, in each of which
45 two rows of holes, C C, are made. The wires
D D are inserted in these strips, crossing the
same and passing through the centers of the
holes C C. The wires E E, running length-
wise with the strips A and B, below the wires
50 D D, cross the former wires at right angle in

the center of the holes C C. The whole is se-
cured to the backing F.

As switch-boards were heretofore made,
plates perforated with holes were used in place
of the wires D D. Such plates or strips had 55
to be wider than the diameter of the holes, and
had also to be placed sufficiently apart to pre-
vent electric disturbance. By the use of two
sets of wires separated by a non-conductor,
and by forming the holes in the non-conductor, 60
a much larger number of key-holes C C can
be made and a greater number of connections
made on a switch-board of a given size than
could be made on boards as previously con-
structed, and the physical labor of the oper- 65
ator is thereby reduced, as a given number of
connections can be more conveniently reached.

To enable the operator to follow quickly
with the eye the wire passing through any set
of holes, the strips A and B are made of dif- 70
ferent color, such as white for A and red or
black for B. To connect the two wires, the
key G is provided with a round shank divided
along its axis by the cross-cut *h*, so as to pro-
duce four metallic points, *g g*, the ends of which 75
are rounded to facilitate the insertion over the
wires. The four metallic points *g g* are suffi-
ciently elastic to yield slightly as they are
pushed over the wire, and as they form two
bifurcated forks, they may be inserted quickly. 80
They will clamp the wire D by yielding in one
direction and the wire E by yielding in the op-
posite direction, thus making metallic contact
with the two wires by four bridges or metallic
connections, each of which must always be, 85
when the key is inserted, in close metallic con-
tact with both wires, making an electric contact
much superior to the metallic contact produced
by the bifurcated metallic plugs heretofore used
to connect a wire to the perforated plate. This 90
improved key cannot be inserted into any one
of the holes without making the desired con-
nection, nor is there any skill or care required
in inserting the same. As the rounded points
g g guide the key, the spring of the legs or 95
points insures the metallic contact and elec-
trical connection.

If for any purpose it should be desirable to
cross the wires at any other than a right angle,
it is obvious that the wires may be so placed in 10

the switch-board, and also that a key may be constructed with three legs or points *g g*, and produce nearly, if not quite, as good a result. I prefer, however, the construction described, as the same is simple and convenient in use.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a telephone-office switch-board, the combination, with the wires D and E, embedded in a non-conducting material provided with the holes C C, of a key constructed to produce a metallic connection with two of the wires when inserted, as described.

2. A telephone-office switch-board consisting of strips differing in color, having wires embedded at right angles to each other and crossing each other in the center of holes, in which a bifurcated key, when inserted, con-

nects two wires, as and for the purpose described.

3. The combination, with the wires D and E and the strips A and B, provided with the holes C C, of the key G, provided with the four points *g g*, constructed to pass over the wires and connect the same electrically, as described.

4. A key constructed to connect electrically two sets of wires crossing each other at right angle or nearly at right angle, provided with legs or points constructed to spring over both wires, the ends of which are formed so as to guide the key over the wires, as described.

HENRY W. BRECKENRIDGE.

Witnesses:

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