

(No Model.)

F. BLAKE.

SWITCH BOARD FOR ELECTRIC CIRCUITS.

No. 249,574.

Patented Nov. 15, 1881.

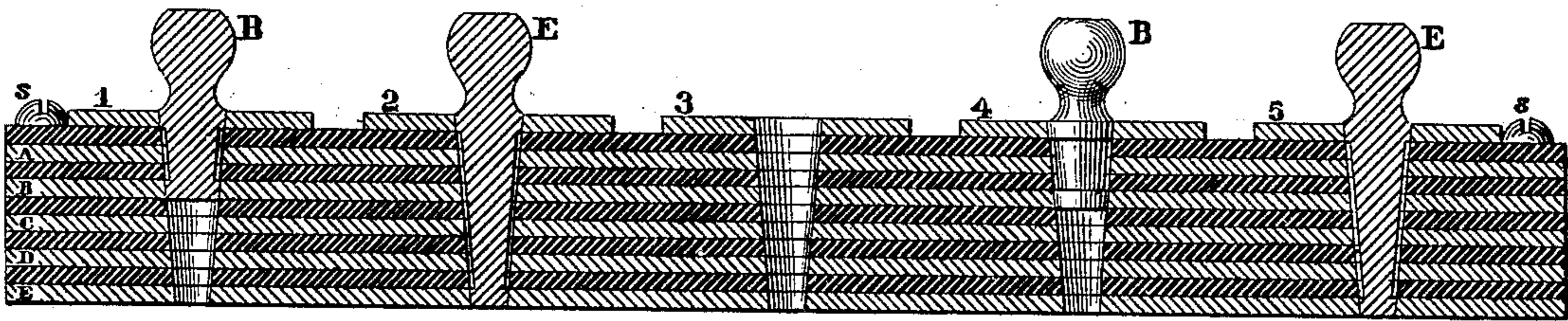


Fig. 2.

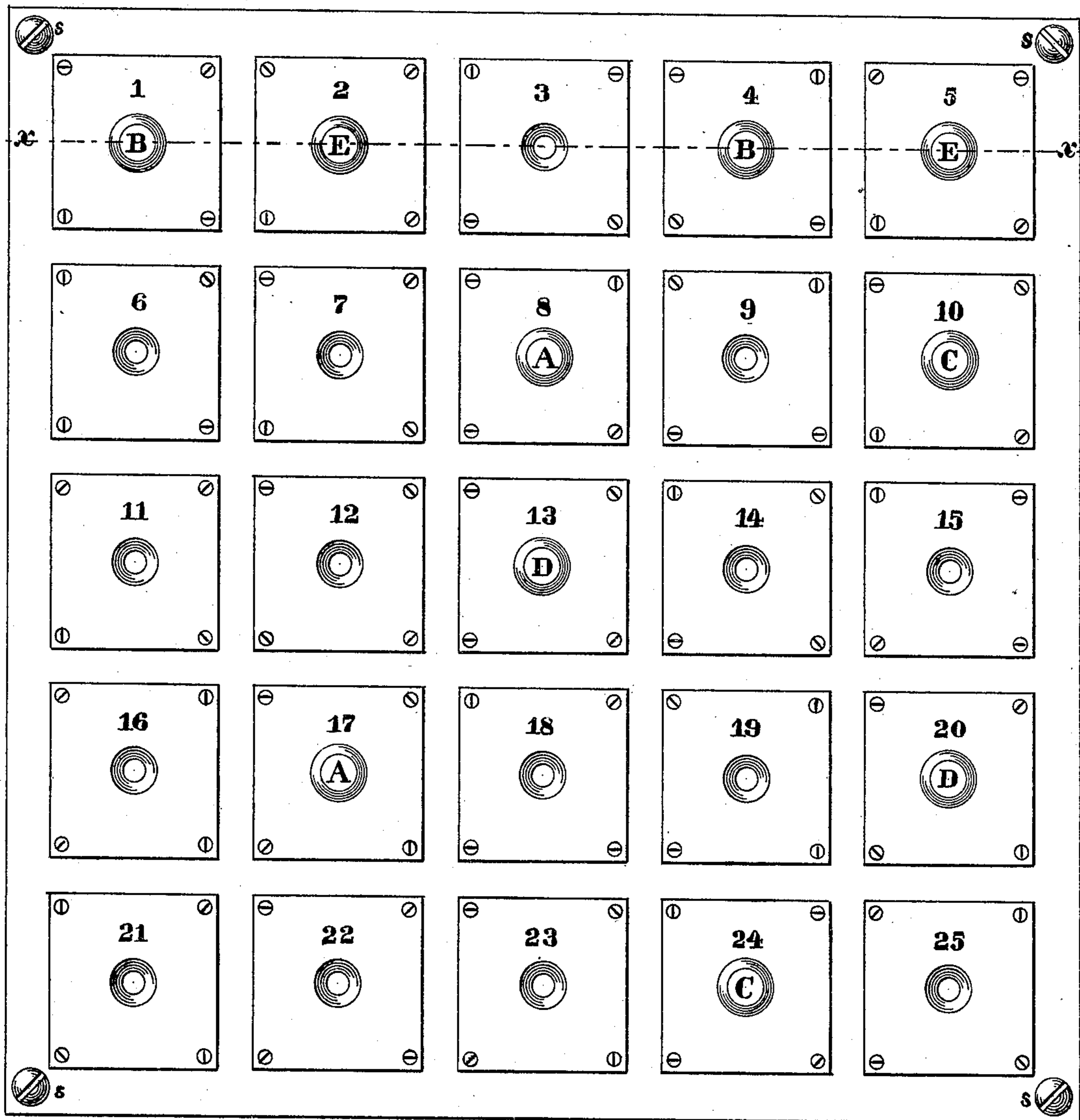


Fig. 1.

Witnesses:

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FRANCIS BLAKE, OF WESTON, MASSACHUSETTS.

SWITCH-BOARD FOR ELECTRIC CIRCUITS.

SPECIFICATION forming part of Letters Patent No. 249,574, dated November 15, 1881.

Application filed August 22, 1881. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS BLAKE, of Weston, in the State of Massachusetts, have invented an Improvement in Commutators for Electric Circuits, of which the following is a specification.

The invention consists in the combination, with a pile of plates of metal and hard rubber or other insulating material put together alternately, of a number of smaller metallic plates, one for each of the electric circuits between which connections are to be made, the smaller plates secured to one of the large insulating-plates, and a peg-hole in and through each smaller plate extending also through all the large plates.

The invention consists, further, in a peg adapted to make connections between two of several insulated metallic plates placed in a pile, and two only.

The invention consists, further, in the combination, with the commutator herein described, of several pairs of pegs, also herein described, each pair of pegs adapted to be used with any and all the line-plates of the commutator, but with only one and the same connecting-plate.

In the drawings, Figure 1 is a plan of a commutator constructed according to my invention, showing also several pegs inserted therein. Fig. 2 is a section taken on line *xx* of Fig. 1, and accordingly showing two pairs of pegs adapted to be used in the commutator, each pair to make a connection between any two line-plates by means of a particular connecting-plate, as will hereinafter be described.

In the commutator shown the smaller metallic plates are numbered from 1 to 25, the latter number being the number of electric circuits for which the commutator shown is adapted, and in the practical operation of the commutator each of these smaller plates thus numbered is connected in any suitable manner with a line or circuit designated by the same number. These smaller plates are known as "line-plates."

The larger metallic plates are lettered A, B, C, D, and E, there being five of them in the commutator shown. They are placed one above another, as shown, alternating with insulating-plates of the same dimensions. They are fastened together by clamping-screws *s* at their

corners, these screws passing through insulating-sleeves. (Not shown.) The large metallic plates A, B, C, D, and E are used for and known as "connecting-plates," since any one of them may be used to make electrical connection between any two line-plates, it being only necessary to connect both line-plates between which a connection is desired with the same connecting-plate.

A hole bored through each line-plate and extending through all the insulated connecting-plates beneath allows a connection to be made between any line-plate and any connecting-plate by means of a wire or peg of suitable length and shape inserted in the hole.

A peg adapted to connect any one of the line-plates with the connecting-plate B is shown in section at Fig. 2. The peg, as well as the plate, is marked B, to facilitate the practical operation, as will hereinafter appear. A peg suitable for making the same connection is also shown in elevation at Fig. 2, and bears the same mark, B. These pegs B have each, as shown, a flange near the head, which, when the peg is fully inserted in a hole in the commutator, is in contact with the line-plate, and they have also, as shown, a flange at the entering end, which comes in contact with the connecting-plate B when the peg is fully inserted in a hole.

Both the holes and the pegs are tapered for the more easy insertion of the pegs in the holes. The flanges of the pegs are of the thickness of the connecting-plates. The insulating-plates may be of any suitable thickness and of any suitable material, and, as is obvious, air may be used, in part, as an insulator. The small line-plates are screwed to the outer insulating-plate, as shown. At Fig. 2 two other pegs (marked E) are shown, which are adapted to be used for making connection between two line-plates by means of connecting-plate E; and it is obvious that suitable pegs may be used with any of the connecting-plates for making connection between any two line-plates, and, further, that pegs adapted to be used with one connecting-plate can be used with no other connecting-plate. In practice, accordingly, the operator will have a single pair of pegs for each connecting-plate. Keeping each pair in a place by itself, he can readily make a connec-

tion between any two line-plates by inserting any pair of pegs not in use in the holes which pass through the said two line-plates.

I have devised means by which this commu-
5 tator can be used in connection with signaling apparatus located at a central station and operated from a distance at the same time it is used for making connections between different electric circuits; but such devices will form
10 the subject-matter of an application for a separate patent.

I here claim—

1. A number of metallic plates and a number of insulating-plates of substantially the
15 same dimensions, alternating in a pile, in combination with a number of smaller plates, one for each of the electric circuits between which connections are to be made, substantially as described, a peg-hole in and through each
20 smaller metallic plate extending also through all the large plates, whether metallic or insulating, for the purpose specified.

2. A metallic peg with two flanges, substantially as described, whereby it is adapted to make connections between two of several in-
25 sulated metallic plates placed in a pile, and two only, for the purpose specified.

3. The combination, with large insulated connecting-plates and smaller line-plates, perforated, as described, of several pairs of con-
30 tact-pegs, the contact portions of the said pegs being at equal distances apart in pegs of the same pair, but at unequal distances apart in pegs of different pairs, whereby each pair of
35 pegs may be used with any and all the line-plates, but with only one and the same connecting-plate, all substantially as described, for the purpose specified.

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Witnesses:

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