C. S. JONES.

TELEGRAPHIC SWITCHBOARD.

No. 90,270. Patented May 18, 1869.

Fig. 1.

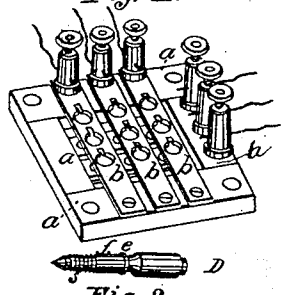


Fig. 2.

Fig1.

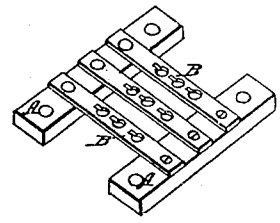


Fig. 2

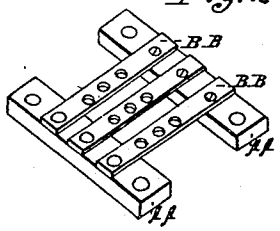
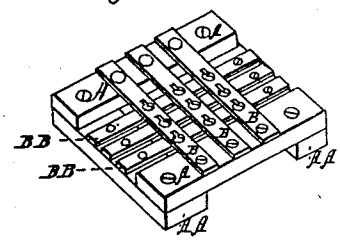


Fig. 3.



Witnesses,

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CHARLES S. JONES, OF ALBANY, NEW YORK

Letters Patent No. 90,270, *dated May* 18, 1869

IMPROVEMENT IN TELEGRAPHIC SWITCH-BOARDS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, CHARLES S. JONES, of the city and county of Albany, and State of New York, have invented a new and improved Electrical Switch for quickly and reliably turning the course of electric currents; and I do hereby declare that the following is a full and exact description of the same, reference being made to the accompanying drawings, of which—

Figure 1 represents a perspective view of the switch-straps as united together with their frame and connecting-screws, and

Figure 2 represents a view of the plug which is employed to unite these straps together.

When many wires are used, each carrying a different electric current, it is often desirable to change the course of these currents, by uniting a portion of one wire with another portion of another wire.

It is highly important, in telegraph-business, to make these changes quickly and certainly, and to bring all the wires safely in a compact space.

In the most approved switches hitherto made, in some cases the boards containing the devices for this purpose are many feet in size, and are subject, therefore, to constant changes from heat and cold. These changes often cause failure in electric connection.

The object of my device is to obviate the difficulties arising from the old methods of construction, and for this purpose I make my apparatus as follows:

I provide a wooden frame, *a a a a*, made of four pieces of wood cut lengthwise, so that heat and cold will not perceptibly affect its shape and size.

Upon the top of this frame I place vertically three or more straps of brass, *b b b*, terminated at their one extremity with binding-screws for wire attachments. On the lower side of the frame I place, horizontally, three or more straps, also letting one end of each terminate with a binding-screw, which appears on the right-hand side of the frame. These two sets of straps, of course, cross each other at right angles, but are in different planes. Holes are drilled in both sets of straps so that a rod may pass through and connect each and every vertical upper strap with each and every horizontal lower strap; but for security I file out a recess in the holes of the upper straps, leaving the holes in the lower straps circular and smaller in size, for these reasons:

The pin or plug D, has a handle and a metal rod fastened to it, pointed at the end; it also has a shoulder, *e*, and a pin, *f*, projecting at right angles to the rod; also, a spiral spring, *s*, fitting on the rod, which is turned down smaller to receive it, in order that the outside of the spring may not have a larger diameter than the upper part of the rod.

The relations of these various parts are as follows: The rod or plug, when the pin *f* is inserted, is about the size of the holes in the upper straps. The pin *f* is of such a size as easily to pass through the recesses from those holes. The shoulder *e* prevents the plug from going in too far.

The spiral spring is of such a size that it passes easily through the holes in the upper straps, but not through those in the lower straps, but the lower pointed part of the plug does pass through those holes; hence, when the shoulder *e* presses against the upper straps, the spring is compressed strongly between the inside of the lower strap and the shoulder of the metallic plug against which it rests, and to which it is solidly fastened. After the pin *f* passes through the recess, by turning the plug a little right or left, the pin slips under the strap and cannot escape. Thus the plug is locked in its place until released by again turning it to let the pin slip back through the recess.

By these means I secure a switch which will not warp, which is most compact, and which makes contact by a spring which must rub against the connections in the act of locking, removing dust, and which, when once placed, will remain firm and sure until released.

Electrical or telegraphic switches are used for making changes of wires and instruments in an office, and for doing it rapidly and reliably.

To the best of my knowledge and belief, all switches heretofore have been composed of strips or wires or rods of brass or other metal, fastened to a slab of wood, stone, or other non-conducting material, but almost entirely of wood.

Experience has shown that the shrinking, swelling, and warping of the wood upon which the strips, bars, or rods are fastened, render the connections unreliable, the manipulation laborious, and often the whole apparatus useless.

The use of stone slabs or slabs of other non-conducting material, although not obnoxious to the same objection, is in the one case too cumbrous, and in the other too expensive, and in either seldom used.

To overcome this objection, and to make switches which will be comparatively unaffected in all temperatures, not only holding their original shape, but allowing connections to be made which will be permanent and reliable, I have devised the following form:

Strips of wood or other non-conducting material, of the requisite size and length, upon two of which are fastened at each end, longitudinally, strips of metal, representing the line or other wires, as per fig. 1, the strips of wood being lettered A, and the metal strips B.

Upon two other strips of wood or other non-conducting material of like requisite size and length, are fastened, at each end, laterally, other metal stips, representing instrument or other wires, as per fig. 2, the strips of wood being lettered A A, and the metal strips B B

Now, by joining the wooden strips of fig. 1 to the wooden strips of fig. 2, at their ends, so that they shall assume the position of right angles, and bringing every longitudinal metal strip to cross every lateral metal strip, and every lateral metal strip to cross every longitudinal metal strip, the equivalent of a frame is formed, as per fig. 3, the wooden strips being lettered A A A, and the metal strips B B B; and the use of four or more strips of wood or other non-conducting substance, in the place of slabs of wood or other material to support metal strips for the purpose aforesaid, so joined in the shape of a frame, as to bring the longitudinal metallic strips and the lateral metallic strips across each other for the purpose of making connections between them, is what I claim as my invention.

What I claim, therefore, and desire to secure by Letters Patent, is—

1. The improved switch-board, constructed of strips of metal and wood, arranged transversely to each other, in the manner and for the purpose as set forth.

2. The upper and lower straps insulated from each other by the frame, combined with the metallic plug-pin and spring, by which any two straps are locked together, substantially as described.

CHARLES S. JONES.

Witnesses:
JAMES H. RUGG,
HENRY V. SHELLEY.