

(No Model.)

F. T. VILES & N. YOUNG.  
SWITCH BOARD FOR TELEGRAPH LINES.

No. 454,584.

Patented June 23, 1891.

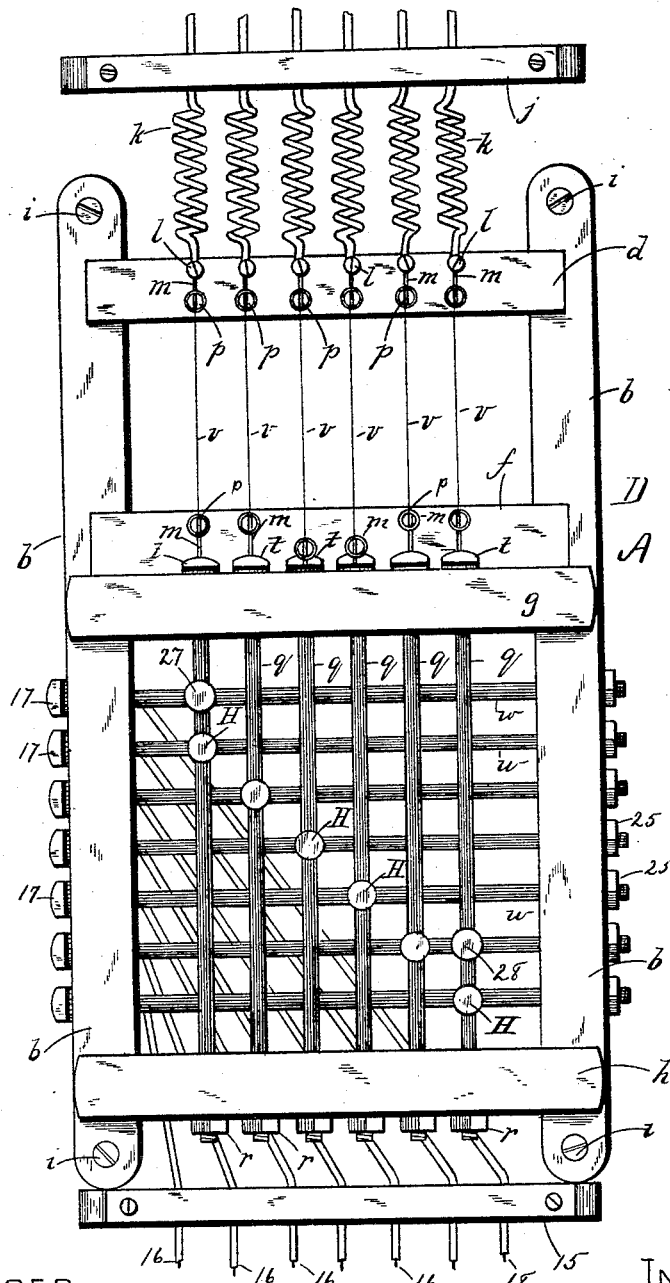


Fig. 1.

WITNESSES

*W. D. Lupton*  
*E. H. Day*

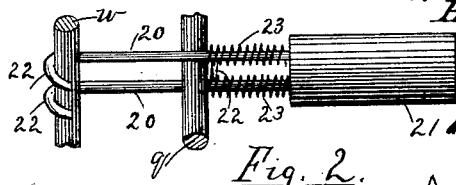


Fig. 2.

INVENTORS

*H. Frank O. Viles*

*Nicholas Young*

*By R. Shandley,*

ATTORNEYS

# UNITED STATES PATENT OFFICE.

FRANK T. VILES, OF HYDE PARK, AND NICHOLAS YOUNG, OF BOSTON,  
MASSACHUSETTS.

## SWITCH-BOARD FOR TELEGRAPH-LINES.

SPECIFICATION forming part of Letters Patent No. 454,584, dated June 23, 1891.

Application filed January 13, 1891. Serial No. 377,683. (No model.)

*To all whom it may concern:*

Be it known that we, FRANK T. VILES, of Hyde Park, in the county of Norfolk, State of Massachusetts, and NICHOLAS YOUNG, of Boston, in the county of Suffolk, State of Massachusetts, have invented certain new and useful Improvements in Switch-Boards for Telegraph-Lines, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an elevation of our improved switch-board; Fig. 2, a perspective view showing the method of attaching the switch-hooks.

Like letters and figures of reference indicate corresponding parts in the different figures of the drawings.

Our invention relates to an electric switch-board which is especially adapted for use in telegraph-offices; and it consists in certain novel features hereinafter fully set forth and claimed, the object being to produce a simpler, cheaper, and more effective device of this character than is now in ordinary use.

The nature and operation of the improvement will be readily understood by all conversant with such matters from the following explanation.

In the drawings, A represents the body of the switch-board, which is preferably constructed from insulating material, and consists of two side bars *b*, connected by cross-bars *d f g h*.

The board is attached in vertical position to a wall or other convenient place by screws *i*. Above the board a cleat *j* is secured to the wall and the line-wires *k* pass through said cleat and have their ends fastened by screws *l* to the cross-bar *d*. Short wires *m* are fastened by binding-screws *l* in contact with the line-wires *k*, the free ends of said wires being helically coiled at *p*. A series of parallel brass rods *q* are mounted in the cross-bars *g h*, respectively in alignment with the line-wires *k*, said bars being held in position by their heads *t* and nuts *r*, turned onto their opposite ends. Each head *t* secures a heli-

cally-wound wire *m* in electrical contact with the body of its rod *q*. Corresponding wires *m* on the cross-bars *d f* are connected by fuse-wires *v*, of fine gage. The portion of the switch-board in which said wires are located is known as the "spider-board," and is indicated by D in the drawings. A series of parallel rods *w* are secured in the side bars *b* of the switch-board and are arranged at right angles to the rods *q* at a sufficient distance therefrom to prevent the current arcing between said rods.

A cleat 15 is secured to the wall below the board, through which line-wires 16 pass. These wires are respectively held in electrical contact with the rods *w* by means of their heads 17 and nuts 25, turned onto the opposite ends of said rods. One of said wires, as 18, forms a ground connection with one of said rods *w*, there being one more rod and wire in the lower set than in the upper.

A series of contact or switch hooks H (best shown in Fig. 2) are employed to effect contact between the rods *w* and *q*. These hooks comprise two parallel bars 20, secured in an insulating knob or handle 21 and sufficient distance apart to stride a rod *q*. The upper ends of said bars are hook-shaped at 22 to take on a corresponding rod *w*, as shown in said figure. A coiled spring 23 is wound on each bar 20 and is secured to the knob 21, the opposite ends of said springs being connected at 22 to bear against the rod *q*, so that said springs shall act expansively to retain the hook in position on said rod, and also effect a more complete electrical contact between them.

The operation of the switch is as follows: Two adjacent wires *k* connect a determined place with said board. The wires 16 connect the lower rods *w* with an operating-table in the office, two of said wires running to each table. To connect a table with a set of wires *k*, leading to such determined place, two hooks H are placed astride the rods *q*, corresponding to said wires, their hook ends 22 being respectively disposed over the rods *w*, to which the wires 16, leading to the table are connected. A circuit is thus formed through the wire *k*, rod *q*, and hook H, a rod *w*, and wire

16 to the table and back over the companion wires and rods in a manner which will be readily understood by all conversant with such matters without a more explicit description. The extra rod *q* and wire 18 are employed to ground any determined wire *k* by means of a pin (designated 27 in Fig. 1.) An extra pin (designated 28 in said figure) may be employed to "cut out" any one of said wires in the ordinary manner.

It will be seen that the switch having the series of rigid rods *q w*, disposed as described, obviates all danger of the current arcing, as frequently happens in switches of ordinary construction. The spring-tensioned hooks II, when adjusted on said rods, cannot become accidentally displaced and the circuit broken, obviating an objection incident to the use of the ordinary pin-and-socket switch, in which said pin readily becomes worn and works loose. In such switches the cross-connecting wires are concealed behind the switch-board, which has to be removed from the wall for making repairs thereto. In our improved board the parts are all exposed, so that the cross-connecting wires can be quickly and readily repaired when necessary without ren-

dering the remaining lines inoperative. By this arrangement of parts accidental cut-outs or "crosses" may readily be detected.

The fuse-wires *v* are of exceedingly fine gage and frequently break while being adjusted. By employing the wires *m* with the spirally-coiled heads *p*, into which said wires are wound, the danger of cutting the fuse-wires by the binding-screws and washers of the ordinary spider is overcome, while permitting them to be more quickly and tautly adjusted.

Having thus explained our invention, what we claim is—

A detachable switch-hook for a switch-board, consisting of an insulated handle, two bars of uniform length extending therefrom and adapted to straddle a wire of one set, both of said bars being provided with springs and with hooks at their outer ends adapted to engage a wire of the other set, substantially as described.

FRANK T. VILES.  
NICHOLAS YOUNG.

Witnesses:

O. M. SHAW,  
K. DUFFEE.