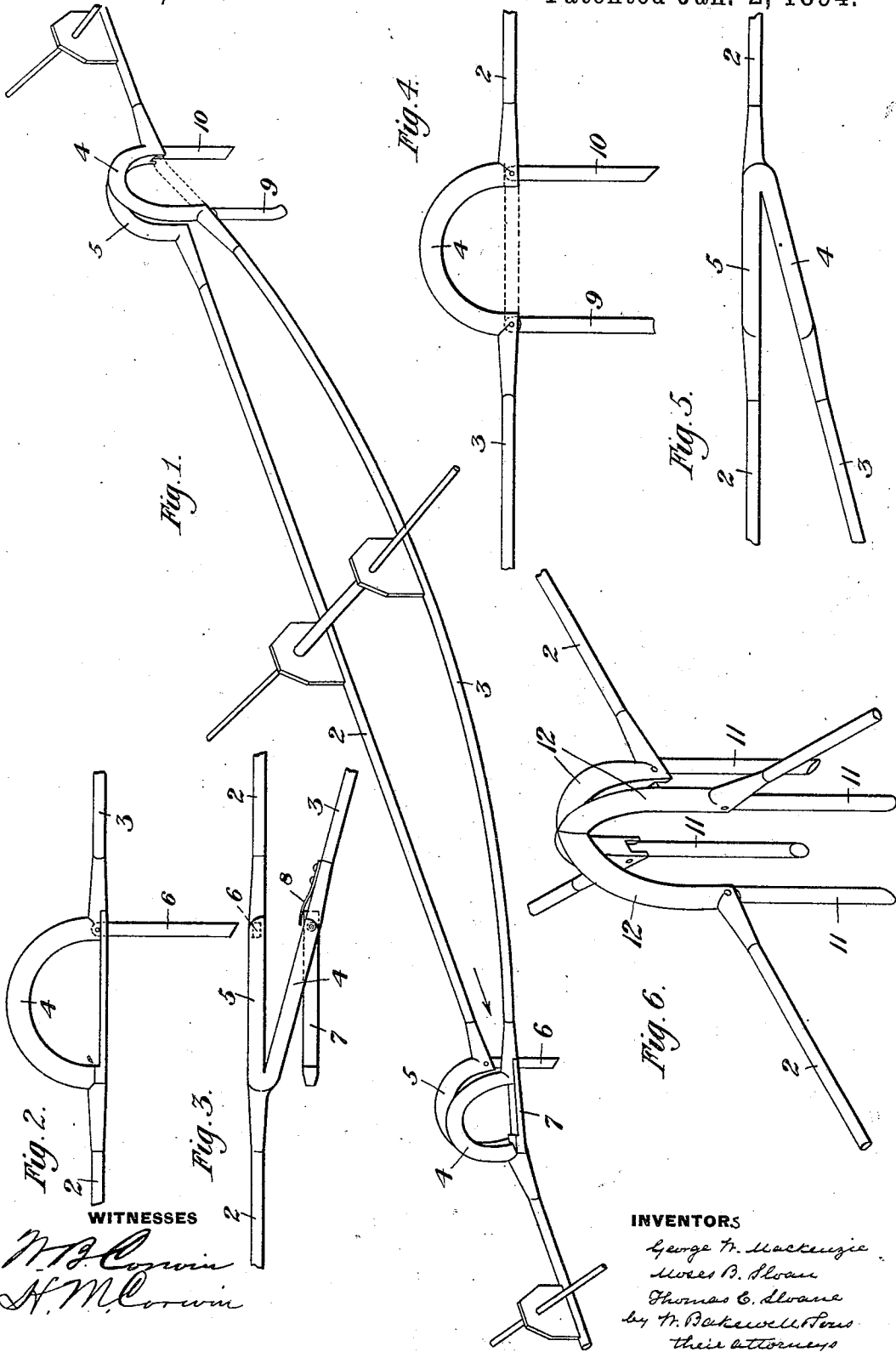


(No Model.)

G. W. MACKENZIE, M. B. SLOAN & T. C. SLOANE.  
OVERHEAD TROLLEY WIRE SWITCH.

No. 512,201.

Patented Jan. 2, 1894.



WITNESSES  
*M. B. Corwin*  
*A. M. Corwin*

INVENTORS  
*George W. Mackenzie*  
*Max B. Sloan*  
*Thomas C. Sloane*  
by *W. Bakerwell Peas*  
*their attorneys*

# UNITED STATES PATENT OFFICE.

GEORGE W. MACKENZIE, MOSES B. SLOAN, AND THOMAS C. SLOANE, OF  
BEAVER, PENNSYLVANIA.

## OVERHEAD TROLLEY-WIRE SWITCH.

SPECIFICATION forming part of Letters Patent No. 512,201, dated January 2, 1894.

Application filed December 30, 1892. Serial No. 456,765. (No model.)

*To all whom it may concern:*

Be it known that we, GEORGE W. MACKENZIE, MOSES B. SLOAN, and THOMAS C. SLOANE, of Beaver, in the county of Beaver and State of Pennsylvania, have invented a new and useful Improvement in Overhead Switches, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a perspective view of a main wire and a shunt provided with our improved switch. Figs. 2 and 3 are side elevational and top plan views of the switch at one end; and Figs. 4 and 5 are similar views of the opposite switch. Fig. 6 shows the form which the device takes when two wires cross each other at any angle.

Our invention is designed to produce a switch or crossing for overhead wires, which shall not necessitate any removal of the trolley-wheel and shall prevent liability to the wheel jumping from the wire, the action of the same being entirely automatic.

To that end it consists broadly in a pivoted bridge-piece at the switch or crossing which is arranged to be operated by the trolley-wheel of the passing car and connect the separated ends of the wire.

It also consists in the construction and arrangement of the parts as hereinafter more fully described and set forth in the claims.

In the drawings, in which similar numerals indicate corresponding parts, 2 represents the main wire, and 3 a branch connecting at each end with the main wire by the arch-pieces 4, similar arch connections 5 being employed in the main wire at these junctures.

Referring to the switch at the left hand of Fig. 1, which illustrates our preferred form, 6 is a vertically swinging bridge-piece pivoted at the inner end of the arch 5 and arranged to connect the two ends of the arch in the main wire when it is swung up by the trolley-wheel passing in the direction of the arrow.

7 is a second bridge-piece pivoted at the inner end of the arch 4, so as to swing in a horizontal plane, and terminating in a V-shaped lip which fits in a correspondingly shaped recess in the outer end of the arch. This bridge-piece 7 is normally held in closed

position by a leaf-spring 8 bearing against its projecting inner end, as shown in Fig. 3, so that a trolley-wheel passing from the main wire onto the branch, will ride over and be directed by said bridge 7, while a trolley-wheel moving along the main wire in the opposite direction will press back the bridge-piece, the wheel flange passing between its lip and the arch. We may, however, use two vertically swinging bridges, as shown at the right hand of Fig. 1, in which a bridge-piece 9 is swung upwardly by the wheel to connect the branch with the main, joining the two ends of the arch 4, the wheel then lifting a loosely swinging bridge-piece 10 and folding it into a groove or longitudinal recess in the socket of the arch-piece, as the wheel passes on along the main wire. When the car has passed on, the bridge-piece 10 swings downwardly again, and when a car approaches in the opposite direction, its trolley lifts the piece 10 and connects the two ends of the arch 5, the wheel continuing along the main wire. Where two wires cross each other, as in Fig. 6, a swinging link or bridge-piece 11 is loosely hung at the end of each arch 12, and as the car approaches the end of either arch, the link at such end is lifted to form the bridge and the opposite bridge-piece folded up in a suitable groove.

We preferably employ a shield to cover each switch or crossing and protect the pivoted bridge-pieces from clogging by dirt or ice.

It will be understood that by the use of the word "arch" in the specification and claims, we do not intend to limit ourselves to the exact form shown, as the joining may be of rectangular or other form, it merely serving as a raised connection to clear the flange of the trolley-wheel.

The advantages of our invention will be appreciated by those skilled in the art. The parts are simple, few in number, and not liable to get out of order, while the action is entirely automatic, no action on the part of the conductor being necessary.

Modifications in the form, construction and relative arrangement of the parts may be made by those skilled in the art without departure from our invention, since what we claim is—

1. A switch for overhead wires, comprising two arch pieces connecting the separated ends of the main and branch wires, and bridge pieces pivoted at the ends of the branch wires and arranged to connect both branches with the main wire; substantially as described.

2. A switch for overhead wires, comprising two arch pieces connecting the separated ends of the main and branch wires, and bridge pieces pivoted at the ends of the branch wires, one of said bridge-pieces being normally held in closed position by a spring; substantially as described.

3. A switch for overhead wires, comprising two arch pieces connecting the separated

ends of the main and branch wires, and bridge-pieces pivoted at the ends of the branch wires, one of said bridge-pieces being normally held in operative position by a spring, and the other being a depending piece; substantially as described.

In testimony whereof we have hereunto set our hands.

GEORGE W. MACKENZIE.

MOSES B. SLOAN.

THOMAS C. <sup>his</sup> × SLOANE.  
<sub>mark</sub>

Witnesses:

W. J. ALEXANDER,  
HERBERT E. SLOAN.