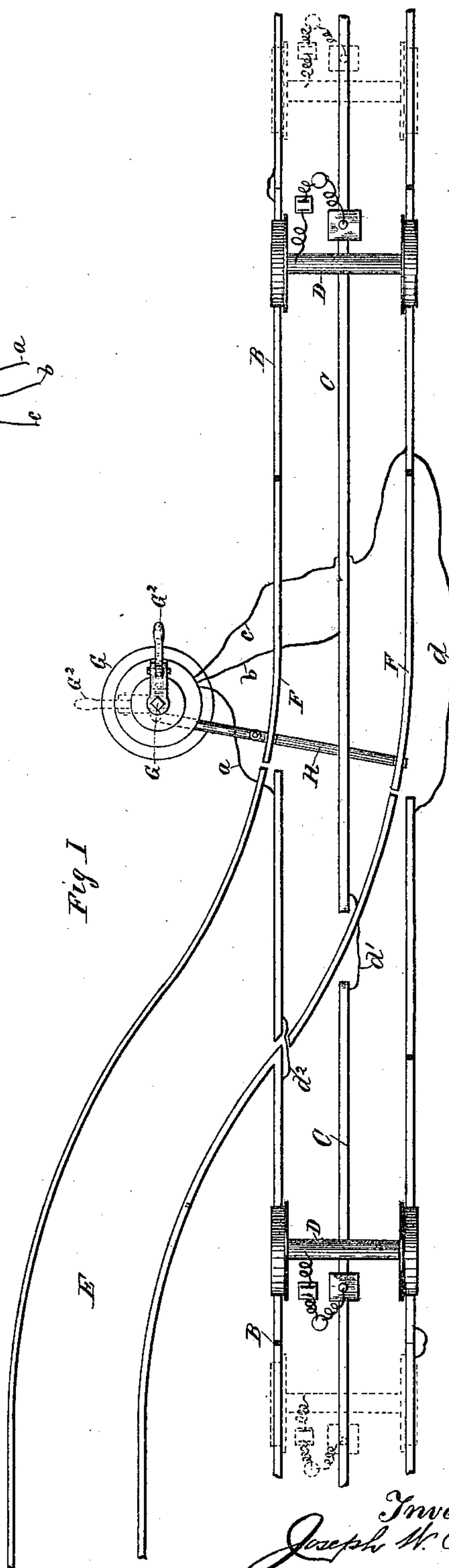
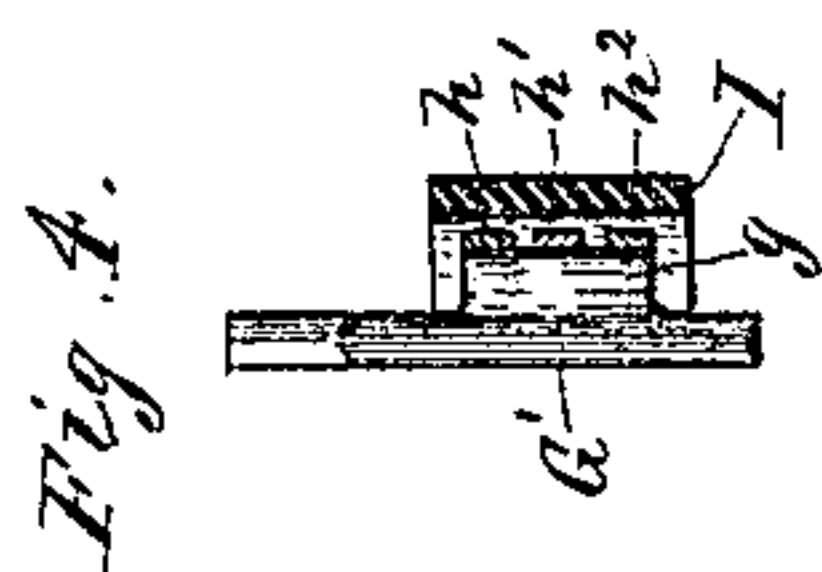
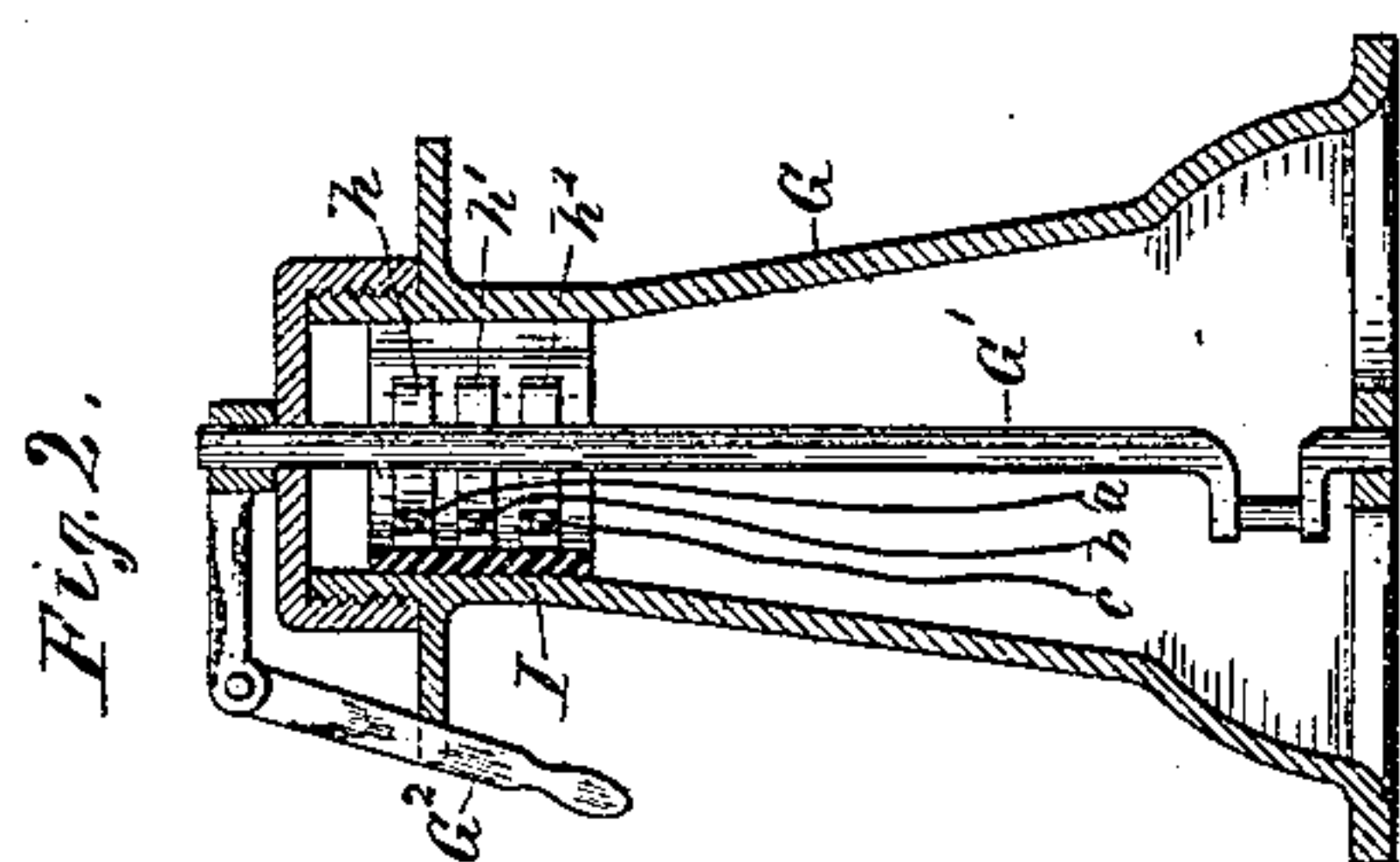
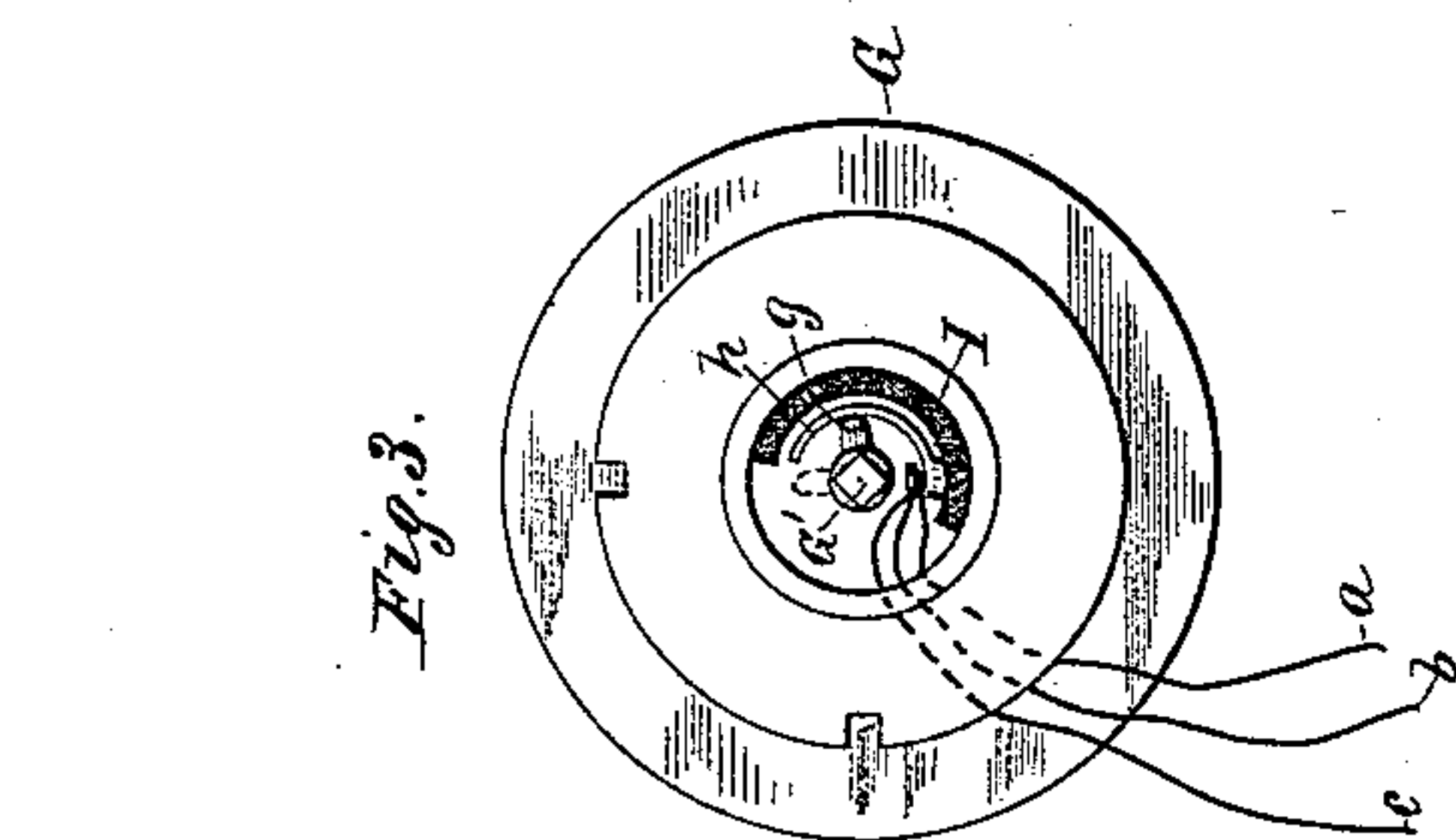


(No Model.)

J. W. RIGGS.
RAILWAY SIGNALING SYSTEM.

No. 440,927.

Patented Nov. 18, 1890.



Witnesses

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ELECTRIC TRAVELING DANGER SIGNAL COMPANY, OF SAME PLACE.

RAILWAY SIGNALING SYSTEM.

SPECIFICATION forming part of Letters Patent No. 440,927, dated November 18, 1890.

Application filed September 12, 1889. Serial No. 323,788. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH W. RIGGS, a citizen of the United States, residing at Minneapolis, in the county of Hennepin, State of Minnesota, have invented a new and useful Improvement in Railway Signaling Systems, of which the following is a specification.

In an application filed contemporaneously herewith (Case A) I have described and shown an electric signaling system in which the rails of the track are arranged in sections and break joints with each other, and have between their meeting ends suitable insulating material. In this system I also employ a single continuous conductor properly insulated from the ground and located between the track-rails. Each locomotive carries electric generating and signaling devices and a brush, trolley, or other contrivance in contact with the intermediate conductor, so that should two trains arrive on the same section of track the circuit will be closed and the alarm or other danger-signal given in the cab of each locomotive.

The object of my invention is to prevent the derailment of trains from the main track when a switch is out of place; and with this end in view the mechanism for operating the switch is placed in electrical connection with the track-rails and conductor, so that should the switch be open the engineer of a locomotive approaching from either direction would be warned of such fact.

In the accompanying drawings, Figure 1 is a plan view of a portion of the main-track and side-track connection, the switch being shown as open. Fig. 2 is a vertical section of the switch-stand. Fig. 3 is a plan view thereof with the cover and operating-lever removed. Fig. 4 is a detail of the switch-operating shaft, showing the contact-piece carried thereby, and representing in section the contact-springs and the body of insulating material.

Similar letters refer to similar parts throughout the several views.

B is the main track, the rails of which are divided into sections and are arranged to break joints and have insulating material between their meeting ends.

C is a single continuous conductor, prop-

erly insulated from the ground, located between the tracks.

D D represent parts of the trucks of locomotives carrying suitable electric generating and signaling appliances. As thus far described, the track and its accessories are the same as those set forth in Case A, to which attention has been directed.

E is a side track, and F F the usual movable rails or switch of the main track.

G is a switch-stand, and G' the operating-shaft thereof.

H is the usual slide, connected with the crank-shaft and containing seats or chairs for the movable rails.

G² is the handle for locking and operating the switch.

g is a contact-piece in the form of a projection extending from shaft G' and engaging with a series of contact-springs *h h' h²* when the shaft is turned to set the switch for the side track.

I is a curved body of suitable insulating material placed between the contact-springs and the switch-stand.

a b c are a series of wires connected to the binding-posts of the contact-springs. Wire *a* is connected with one of the fixed track-rails, wire *b* with the intermediate conductor, and wire *c* with the other fixed track-rail. Suitable wires *d d' d²* connect the severed portions of the track-rails and conductor where the switch is located.

The operation of the invention is as follows: If the switch is set so that the main track is straight, everything operates in the same manner as in my application Case A, to which attention has been directed; but if the switch has been left open by carelessness or otherwise the projection or contact-piece *g* of the switch-shaft is in engagement with the contact-springs *h h' h²*. When the wheels of a locomotive approaching the open switch from the left, for instance, pass the insulating material between the meeting ends of the rails, the circuit from the battery in the cab of such locomotive is closed and the current passes along the wire *a*, contact-springs *h h'*, and wire *b* to insulated conductor C, and back along this conductor to the signaling devices in the cab, thus sounding the alarm and warn-

ing the engineer of impending danger. The parts of the switch-stand are of course to be suitably insulated, if necessary, to prevent grounding of the circuit. Should a train approach from the other direction, the engineer would be warned in the same manner through the contact-springs and wires *b c*, and collision with a train or car standing on the side track would be avoided.

It is obvious that many details of the invention could be modified without departing from the spirit thereof, and that the character of switch-operating mechanism could be widely varied.

Having fully described the invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a track the rails of which are arranged in sections and to break joints and are insulated from each other at their meeting ends, an insulated conductor, and a switch in said track, of a switch-stand, mechanism contained therein for actuating the switch, a contact-piece, and connections from such piece to the track and insulated conductor, substantially as and for the purpose specified.

2. The combination, with a track the rails of which are arranged in sections and to break joints and are insulated from each other at their meeting ends, and an insulated conductor between the track-rails and the switch-rails, of a switch-stand, mechanism contained therein for actuating the switch-rails, a contact-piece attached to such mechanism, contact-springs within the switch-stand, wires connecting the contact-springs with the track and conductors, and a car provided with elec-

tric generating and signaling appliances, substantially as set forth.

3. The combination, with the track-rails and insulated conductor, of a switch-stand provided with a body of insulated material, a series of contact-springs, a crank-shaft having a projection, means for connecting such crank-shaft with the switch-rails, and wires connecting the contact-springs with the track-rails and conductor, substantially as set forth.

4. The combination, with the track-rails, a single continuous insulated conductor, and the switch-rails, of a switch-stand, a crank-shaft mounted therein and suitably connected with the switch-rails, a contact-piece carried by said crank-shaft, contact-springs in engagement with said piece when the shaft is turned to open the switch, a body of insulating material intermediate the contact-springs and switch-stand, and wires connecting said springs with the track-rails and insulated conductor, substantially as set forth.

5. A switch-stand comprising a crank-shaft provided with a contact-piece and an operating-handle, a series of contact-springs, and a body of insulating material placed between the springs and the stand, in combination with a main track the rails of which are insulated from each other at their meeting ends, an insulated conductor between the rails, a side track, and wires connecting the contact-springs with the rails and conductor of the main track, substantially as and for the purpose specified.

JOSEPH W. RIGGS.

In presence of—

WM. H. BLODGETT,
A. H. OPSAHL.