

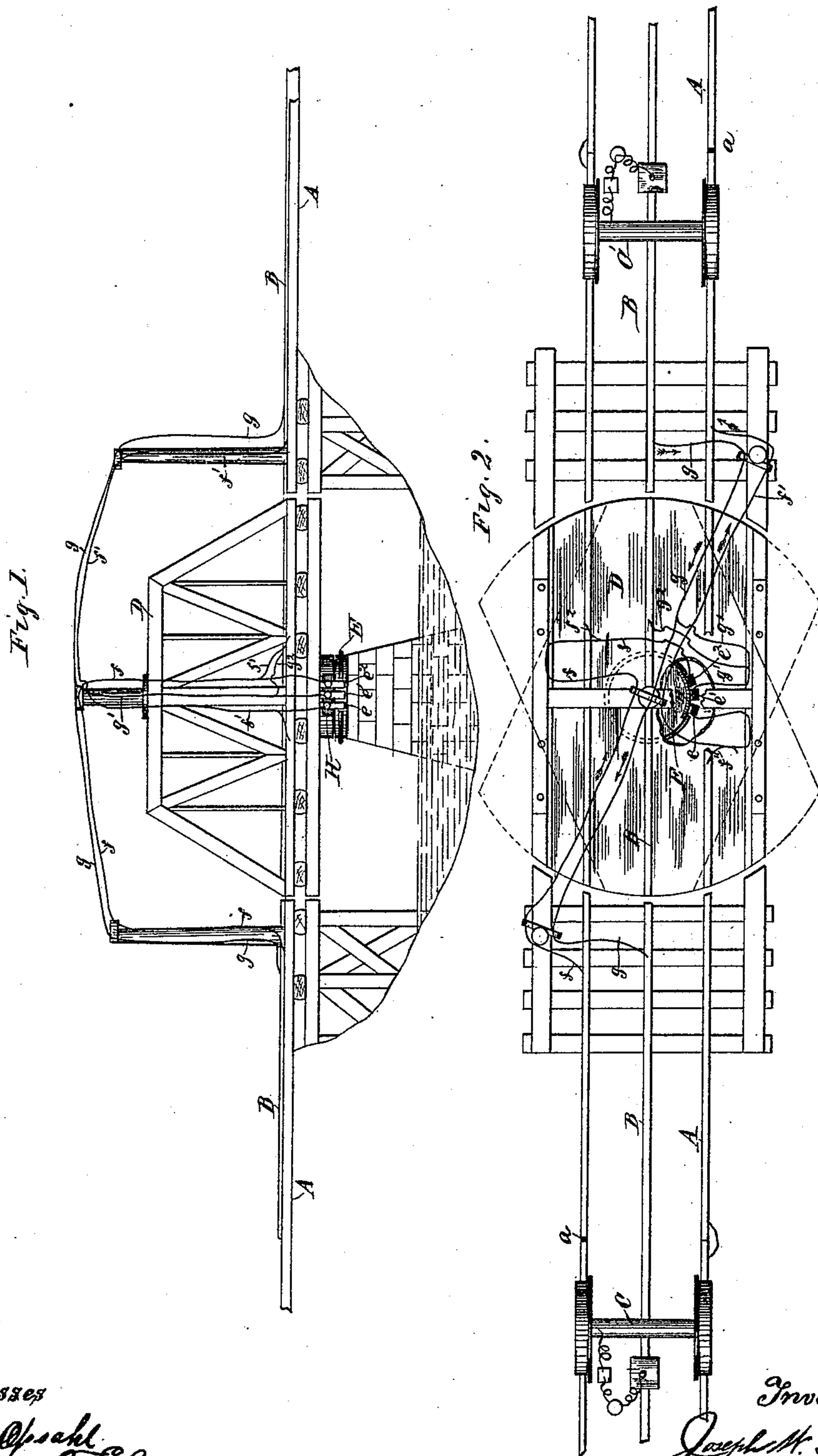
(No Model.)

2 Sheets—Sheet 1.

J. W. RIGGS.
ELECTRIC SIGNALING SYSTEM.

No. 441,703.

Patented Dec. 2, 1890.



Witnesses

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Inventor

Joseph M. Riggs

By his Attorneys.

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Fig. 3.

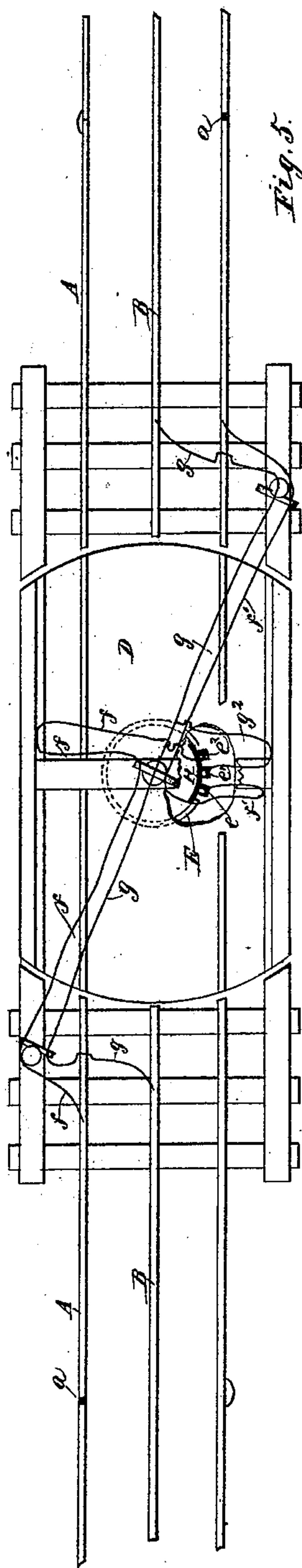


Fig. 5.

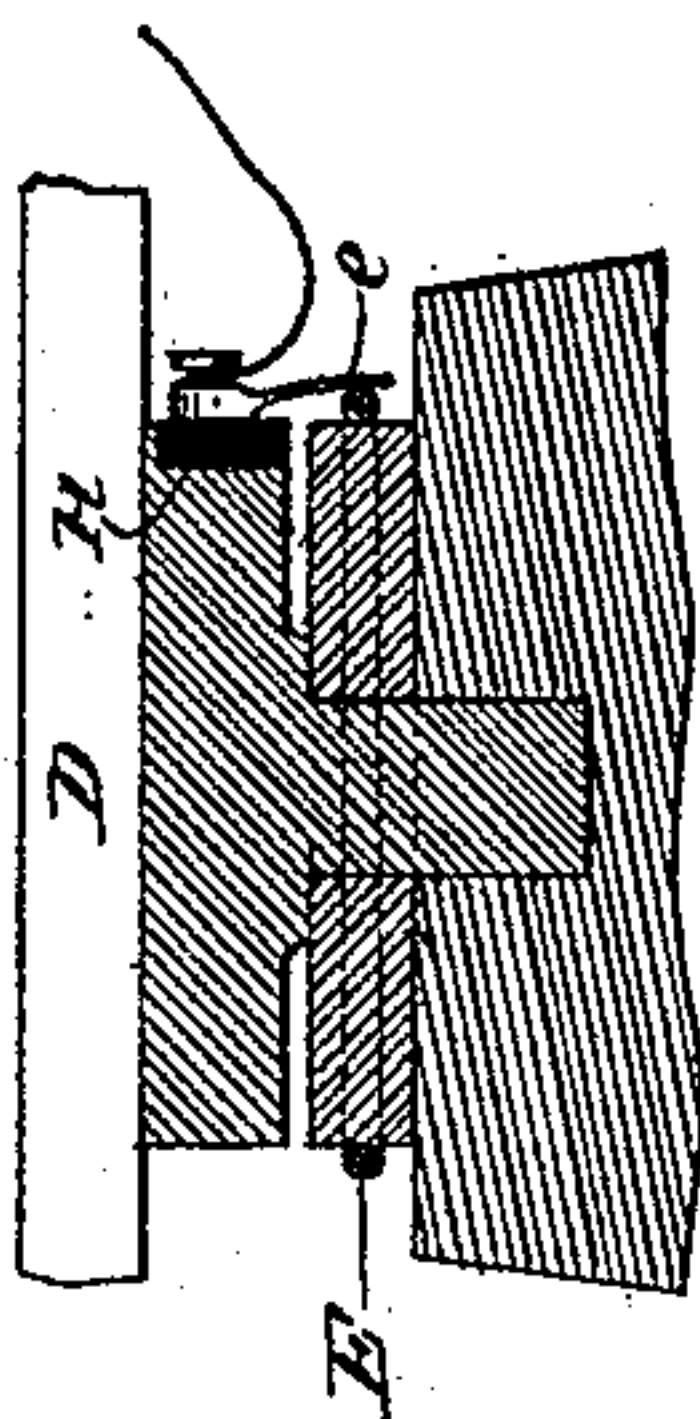
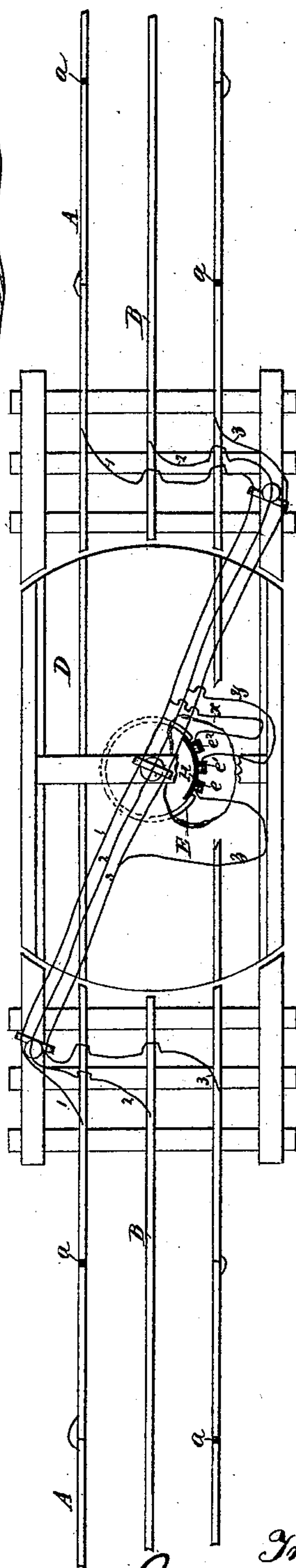


Fig. 4.



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ELECTRIC TRAVELING DANGER SIGNAL COMPANY, OF SAME PLACE.

ELECTRIC SIGNALING SYSTEM.

SPECIFICATION forming part of Letters Patent No. 441,703, dated December 2, 1890.

Application filed September 12, 1889. Serial No. 323,789. (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 new and useful Improvements in an Electrical Signaling System, of which the following is a specification.

In an application of even date herewith, (Case A,) Serial No. 322,630, I have shown and described an electric signaling system in which the railroad-track rails are arranged in sections and to break joints, insulating material being placed between the meeting ends of the rails. In this system a single conductor properly insulated from the ground is placed between the track-rails, and each locomotive is equipped with electric generating and signaling appliances and with a brush, trolley, or other device in contact with the intermediate conductor. By these means the circuit will be closed from one engine to the other if two trains should arrive on the same section of track, and an alarm will be sounded or other signal given in the cab of each locomotive, warning the engineer of impending danger.

My present invention has for its object to prevent the derailment of trains when a draw-bridge is open; and it consists of devices mounted on the draw and in electrical connection with the track-rails and insulated conductor, whereby when the draw is open the circuit between the battery on a locomotive approaching the open draw and the track-rails and insulated conductor will be closed and the alarm or other signal will be given in the cab.

In the accompanying drawings, in which like letters and figures are placed upon like parts in the several views, Figure 1 is a side elevation of a draw-bridge; and Fig. 2 is a plan thereof with my invention applied, representing, diagrammatically, parts of the trucks of locomotives provided with electric generating and signaling appliances. Figs. 3 and 4 are plan views representing modified arrangements of the wires connecting the draw-bridge and track. Fig. 5 is a section of the turn-table.

In the construction represented in Figs. 1 and 2, A is the track, the rails of which are insulated from each other at their ends at *a*.

B is an insulated conductor located between the rails.

C C' are representations of parts of the trucks of locomotives provided with electric generating and signaling appliances.

D is a draw-bridge mounted in the usual manner on an abutment in a river or other navigable body of water.

E is a band of conducting material nearly surrounding the stationary part of the bridge turn-table, and *e e' e²* are contact-pieces, preferably springs, attached to and depending from the movable section of said turn-table.

f f' g are main-circuit wires connected to the track-rails and insulated conductor, and shown as passing over the bridge, suitable poles being erected adjacent to each end of the draw for supporting said wires. Wire *f* is connected to contact-spring *e²* and by a branch *f²* with one of the track-rails on the bridge, while wire *g* passes from the insulated conductor B on one side of the bridge to a like part of the track on the other side thereof and is connected by a branch wire *g'* with contact-spring *e'* and by branch wire *g²* with the section of the insulated conductor B carried by the bridge. Wire *f'* connects a track-rail on the other side of the bridge with the contact-spring *e* and has a short branch *f''* connecting it with the section of rail on the draw.

H is suitable insulating material between the contact-springs and the movable part of the turn-table.

The operation of this arrangement of my invention is as follows: If the draw is closed, as represented in full lines in Fig. 2, the contact-springs are in the position shown in Fig. 1—i. e., between the ends of the band of conducting material E on the fixed part of the turn-table—and should two trains approach each other and both arrive on the same section of track the system will operate as follows: The circuits will be closed and the signals given in the cabs of the locomotives, and this result will be effected in the arrangement thus far described when the wheels of one of the locomotives—C, for example—span or bridge the space between the ends of the rails on the draw and track adjacent thereto. The circuit in the instance just described will be

established through branch f'' to wire f' , along said wire to one of the track-rails on the other side of the draw, and from the rail to the signaling device in the cab of a locomotive advancing from the opposite direction—C', for example—and the circuit from said locomotive will be established through conductor B, wire g , and branch g^2 to the section of conductor on the draw, and from said section to a locomotive on the draw, thereby simultaneously sounding the alarms in the cabs of both locomotives. Should the draw be open, as represented by dotted lines in Fig. 2, the contact-springs e e' e^2 on the revoluble portion of the turn-table will be brought into engagement with the band E on the stationary part of the turn-table, and if a locomotive approaches from either direction—for instance, from the left—as soon as the wheels thereof are over the insulating material a the circuit from the battery of such locomotive will be closed and the alarm or other signal will be given in the cab thereof, as the current will pass through main-circuit wire f , contact-spring e^2 , branch wire g' , main-circuit wire g , and insulated conductor B of the track adjacent to the bridge, from which it will be conveyed by the devices on the locomotive to the alarm mechanism thereof. In the arrangement represented in Fig. 3 the section of intermediate insulated conductor is omitted, and if an engine should be standing on or passing over the draw the alarm would not be given. In other words, a signal will be given only when the draw-bridge is open and the contact-springs are in engagement with band E. The circuit will be established if an engine is advancing from the left, for instance, through rail A, wire f , contact-spring e^2 , band E, contact-spring e' , branch wire g^2 , wire g , and conductor B, thereby sounding the alarm and warning the engineer.

In Fig. 4 three connecting-wires 1, 2, and 3 are employed. Wire 1 passes from the left-hand rail on one side to a similar rail on the other side of the draw, wire 2 connects the sections of conductor B with each other, and wire 3 the right-hand rails of the track with each other. Should two trains approach from opposite directions toward the draw when closed, the system will operate in the same manner that it does on a section or block of the track described in my application hereinbefore referred to, as wires 1, 2, and 3 amount to but combinations of the track-rails and conductor.

Should the draw be open and an engine ap-

proach from the left, for instance, the circuit would be established through wire 1 and branch wire x to contact-spring e^2 , along band E to contact-spring e' , along branch wire y to wire 2, and from said wire to conductor B and to the signaling device in the cab of the engine. Should an engine approach from the other side of the open draw, the circuit would be closed in the same manner through wire 3, track-wire z , contact-springs ee' , and band E.

While I have shown, for the sake of perspicuity, the wires as passing over the bridge in all the figures of the drawings, yet it is to be understood that they may be placed in conduits or arranged in any desired manner on or above and below the same without departing from my invention. It is also obvious that the circuit-closing contact-springs and contact-band on the bridge could be variously modified.

Having fully described the invention and the mode of operation thereof, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with the track-rails and insulated conductor, of a draw-bridge carrying contact devices, and wires connecting the rails and conductor with such devices, substantially as set forth.

2. The combination, with a track comprising rails and an insulated conductor, of a draw-bridge, contact-pieces on the movable part of the turn-table thereof, a contact-strip on the stationary part of such turn-table, and wires connecting the track-rails, conductor, and contact-pieces, substantially as set forth.

3. The combination, with the track-rails divided into sections and insulated from each other, as described, and a single continuous insulated conductor between such rails, of a draw-bridge carrying a like section of track and conductor, contact-springs upon the movable part of the turn-table of such bridge and suitably insulated therefrom, a contact-strip on the stationary part of the turn-table, and wires connecting the track and conductor with the contact-springs, substantially as set forth.

4. The combination, with the turn-table of a bridge, of contact-springs suitably insulated and depending from the movable part thereof and a strip or band of conducting material partially surrounding the fixed part of the turn-table, substantially as set forth.

JOSEPH W. RIGGS.

In presence of—

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