

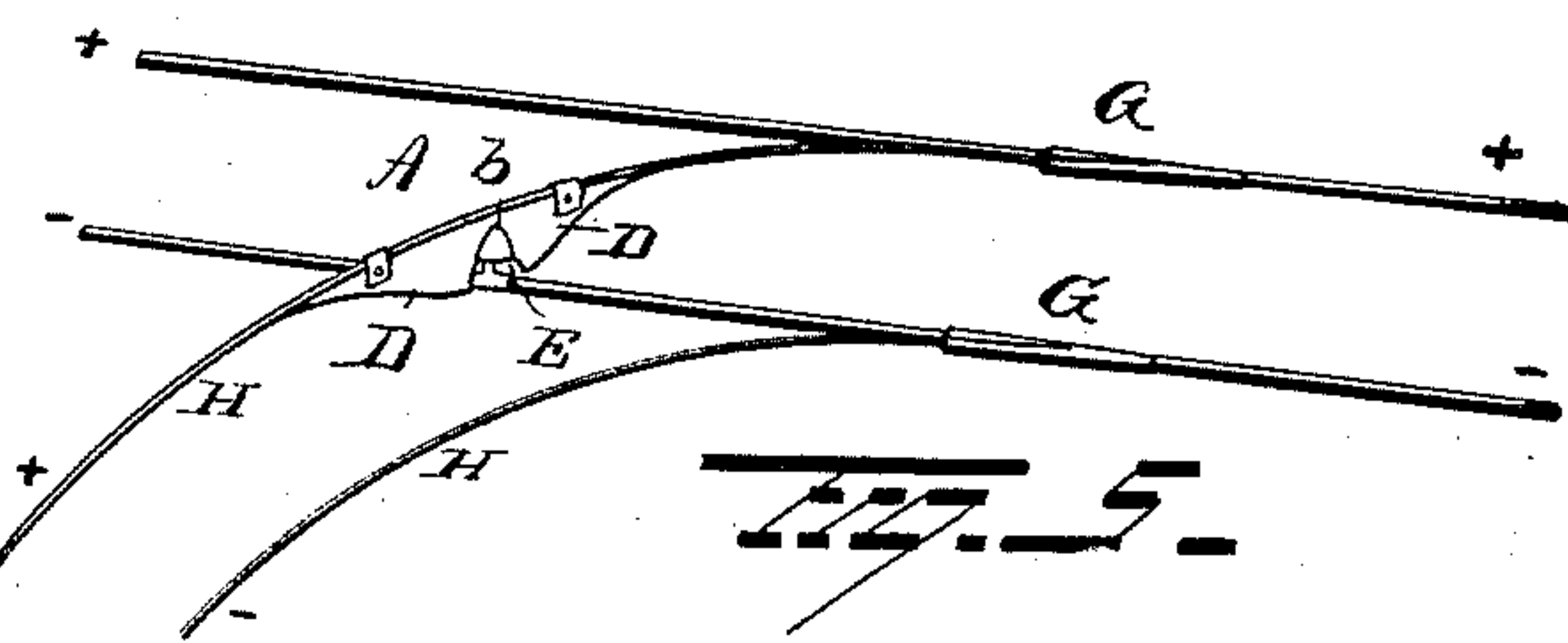
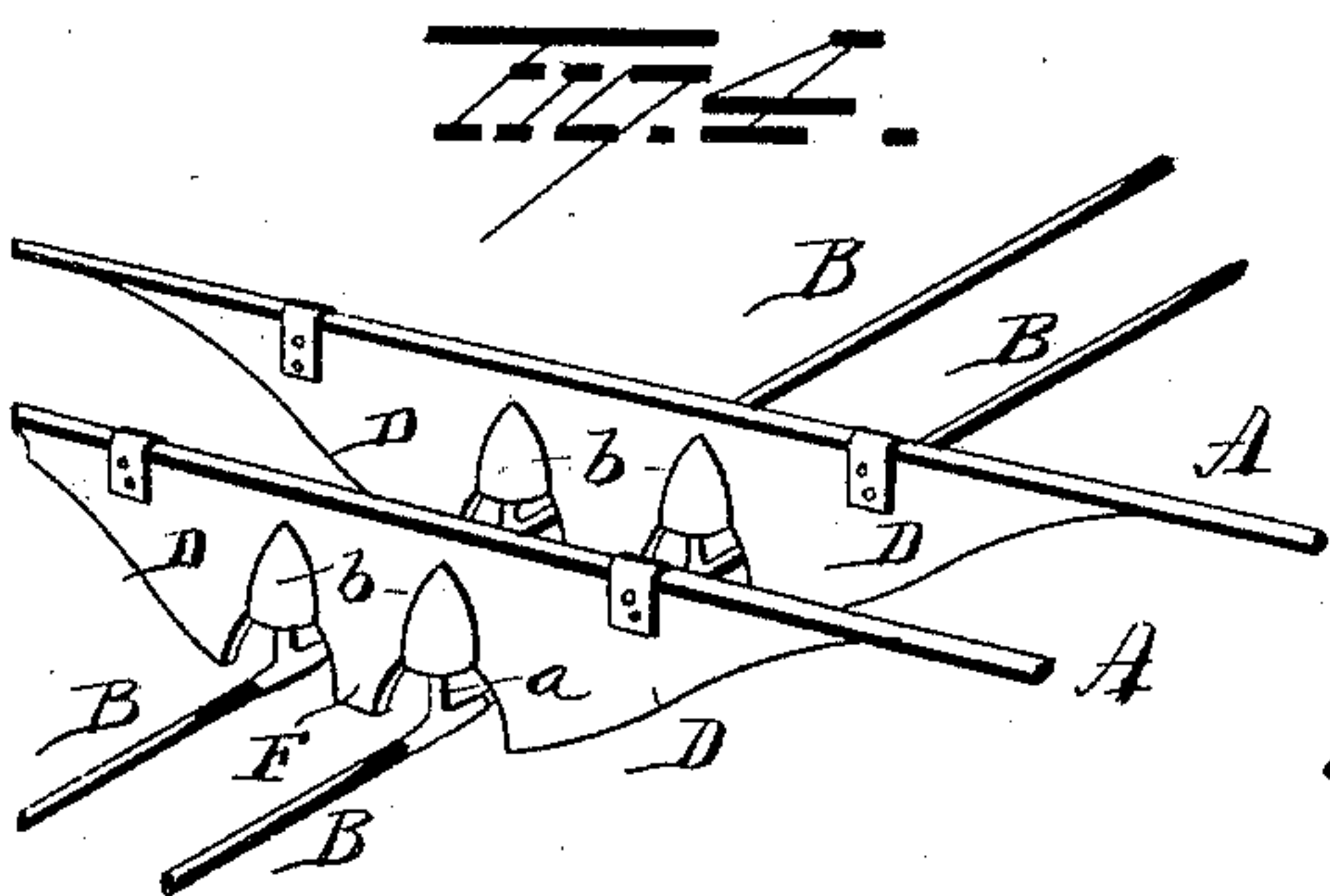
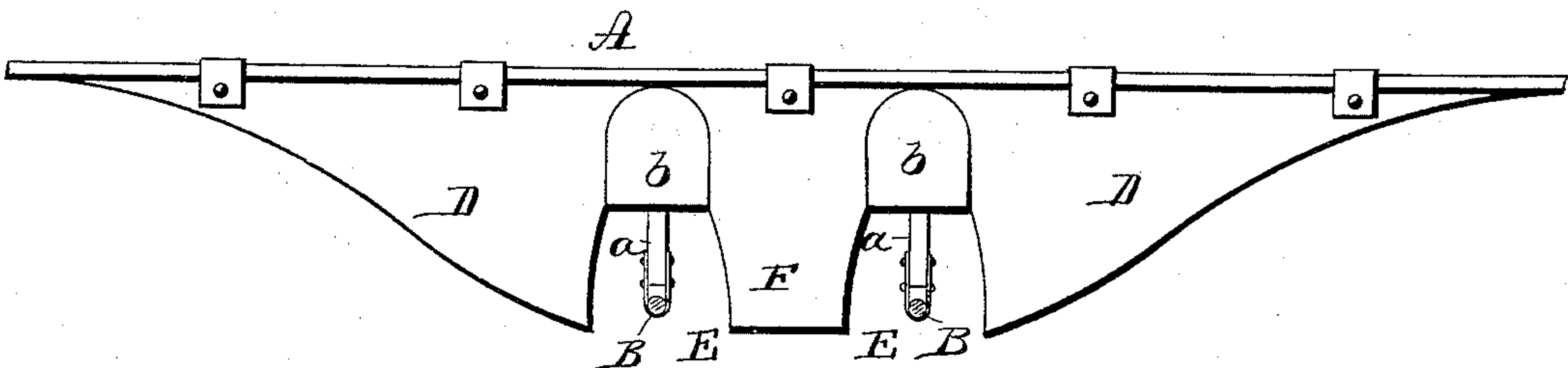
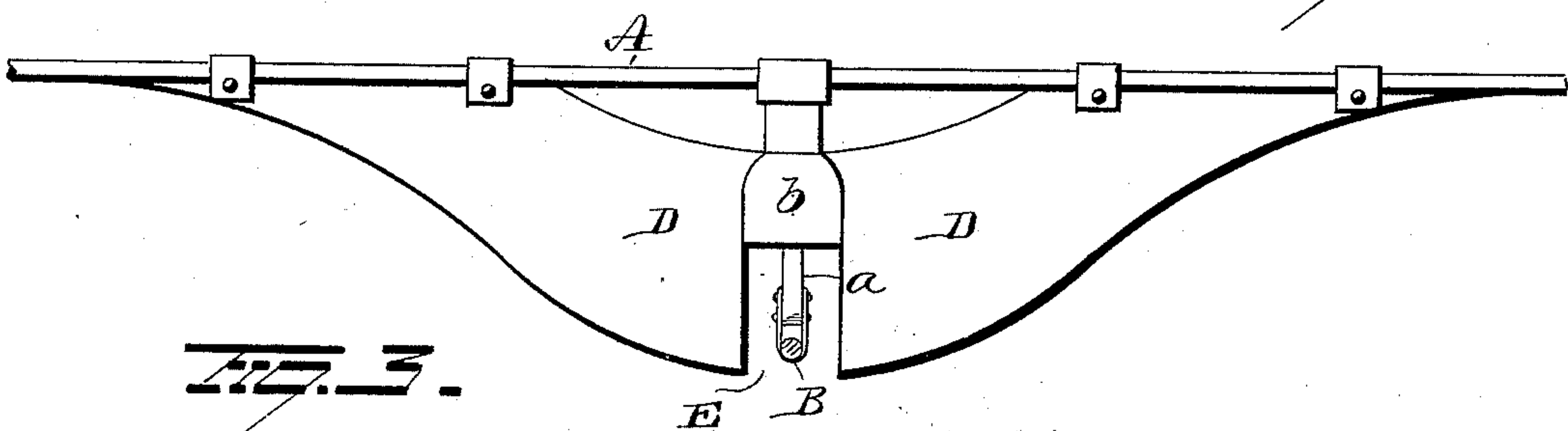
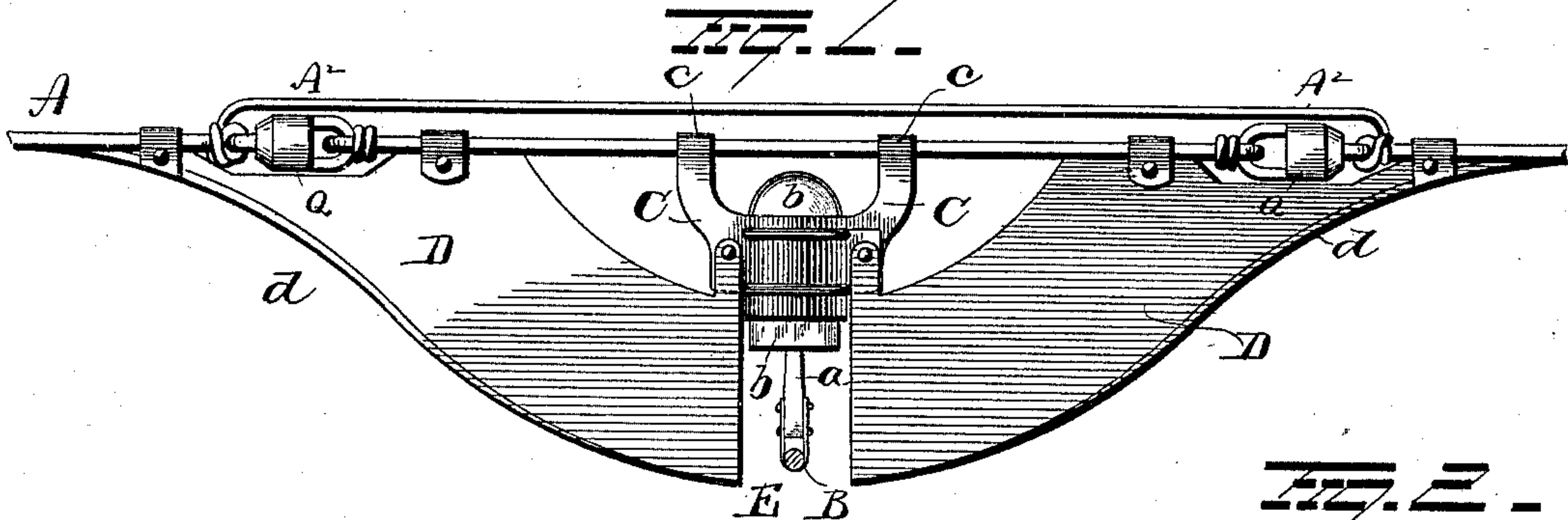
(No Model.)

S. H. SHORT.

DEVICE FOR SUSPENDING ELECTRIC CONDUCTORS AT CROSSINGS.

No. 422,096.

Patented Feb. 25, 1890.



Witnesses
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UNITED STATES PATENT OFFICE.

SIDNEY H. SHORT, OF CLEVELAND, OHIO.

DEVICE FOR SUSPENDING ELECTRIC CONDUCTORS AT CROSSINGS.

SPECIFICATION forming part of Letters Patent No. 422,096, dated February 25, 1890.

Application filed December 17, 1889. Serial No. 334,103. (No model.)

To all whom it may concern:

Be it known that I, SIDNEY H. SHORT, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Devices for Suspending Electric Conductors at Crossings; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in devices for suspending electric conductors at crossings. In electrical-railway systems so located as to necessitate the trolley wire or wires of two or more lines crossing each other it is necessary to preserve intact the electric circuit of each trolley-wire, and it is also highly important that the wires of the crossing be so arranged and suspended that the trolley-wire of one line cannot make contact with that of another.

With these objects in view my invention consists in certain features of construction and combinations of parts, as will be herein-after described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in side elevation of the overhead trolley-wires of two electrical railways, each employing a rail as a return-conductor, and illustrates my improved devices for suspending the trolleys and insulating them from each other and for causing the trolley engaging the upper conductor to pass downwardly and beneath the other trolley-wire. Fig. 2 is a modification of Fig. 1. Fig. 3 shows a crossing in which the single trolley-wire of one road passes over two trolley-wires of another road, the latter employing a trolley-wire instead of the rail as a return-conductor. Fig. 4 is a view in perspective of a crossing of two trolley-wires of one road over two trolley-wires of another road, and Fig. 5 shows the insulated crossing at a turn-out and where the positive wire crosses the negative.

In Fig. 1, A and B represent the trolley-wires of two electric railways which cross each other at right angles or at any other angle. The lower trolley-wire B is secured to a shank *a*, fastened to an insulating-block *b*, the latter being supported in a hanger C, the arms *c c* of which are secured in any desired man-

ner to the upper trolley-wire A. The upper trolley-wire A thus serves as a support for the lower trolley-wire B, while the two wires are separated from each other. D D are trolley-depressing flanges and are secured to the upper trolley-wire A and to the hanger C. These flanges are preferably made of insulating material and may be provided with metallic trackways *d d*, extending from the trolley-wire A to a point near their adjacent ends. The trolley engaging the lower wire B has an open and uninterrupted passage through the opening E, formed between the adjacent ends of the depressing-flanges D D. The trolley engaging the upper wire A, on reaching the crossing, engages the lower edge of the flange D, and is forced downwardly thereby and caused to travel across the opening E and onto the other flange, which guides it upwardly and onto the trolley-wire A on the opposite side of the crossing. If desired, the trolley-wire may have included therein the insulated breaks or joints Q, which will sustain the longitudinal strain imparted to the wire, while the circuit may be completed around the insulated breaks or joints by the wire A².

In Fig. 2 the depressing-flanges D D and insulator *b* are all made of a single piece of insulating material.

In Fig. 3 I have shown a single overhead trolley-wire A across two trolley-wires B B, in which case the depressing-flanges are provided with two openings E E and an intermediate trackway or trolley-supporting web F. In this form of crossing the trolley-wire A serves as a support for the two trolley-wires B B and is separated and insulated therefrom.

Fig. 4 is a view in perspective of a crossing when two trolley-wires A A cross over two trolley-wires B B.

In Fig. 6, A A represent two trolley-wires of an electric railway, one wire being indicated by the sign as the positive wire and the other by the sign as the negative. G G are switches, with which are connected the wires H H of a turn-out. The positive wire A is provided with the depressing-flanges D D and the insulated support to enable the trolley engaging the positive wire A to pass beneath the negative wire A and not come in contact therewith.

It is evident that many slight changes in the form and construction of parts might be resorted to without departing from the spirit of my invention, and hence I do not restrict myself to the particular construction of parts shown and described; but,

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

10 1. In an electric-railway system, the combination, with a lower trolley-wire and an upper trolley-wire, the latter located at an angle to and crossing said lower wire, of depressing-flanges located on opposite sides of the lower
15 wire leading from the upper wire for carrying the trolley below the lower wire, the lower wire being supported at a point between the depressing-flanges by an insulated support carried by the upper wire.

20 2. In an electric-railway system, the combination, with an overhead trolley-wire and de-

pressing-flanges formed of insulating material and attached to said wire, of a lower trolley-wire supported by an insulator attached to said depressing-flanges and located within
25 the opening formed between their adjacent ends, substantially as set forth.

3. In an electric-railway system, the combination, with one or more trolley-wires and one or more sets of depressing-flanges secured to
30 said wires, of lower trolley wire or wires attached to insulators suspended from the upper wires and located within openings formed in the depressing-flanges, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

SIDNEY H. SHORT.

Witnesses:

JOHN E. ERICKSON,
A. B. CALHOUN.