

S. C. HENDRICKSON.

Track-Circuits for Electric Railway Signals.

No. 143,903.

Patented Oct. 21, 1873.

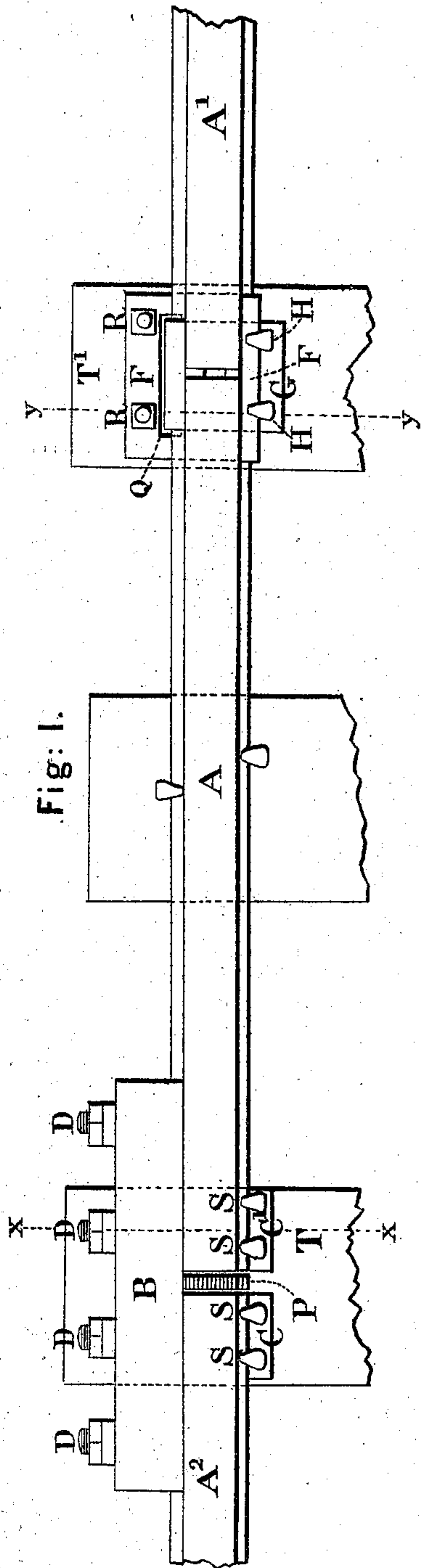


Fig: 1.

Fig: 2.

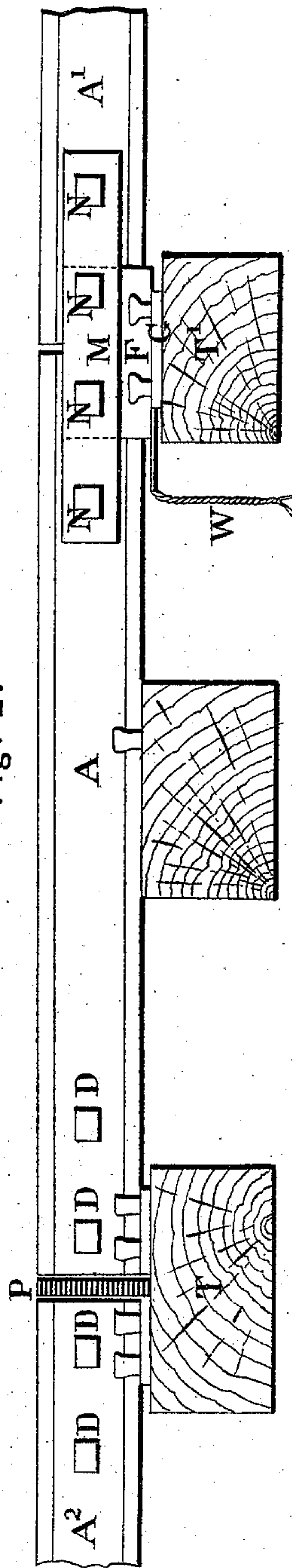


Fig: 3.

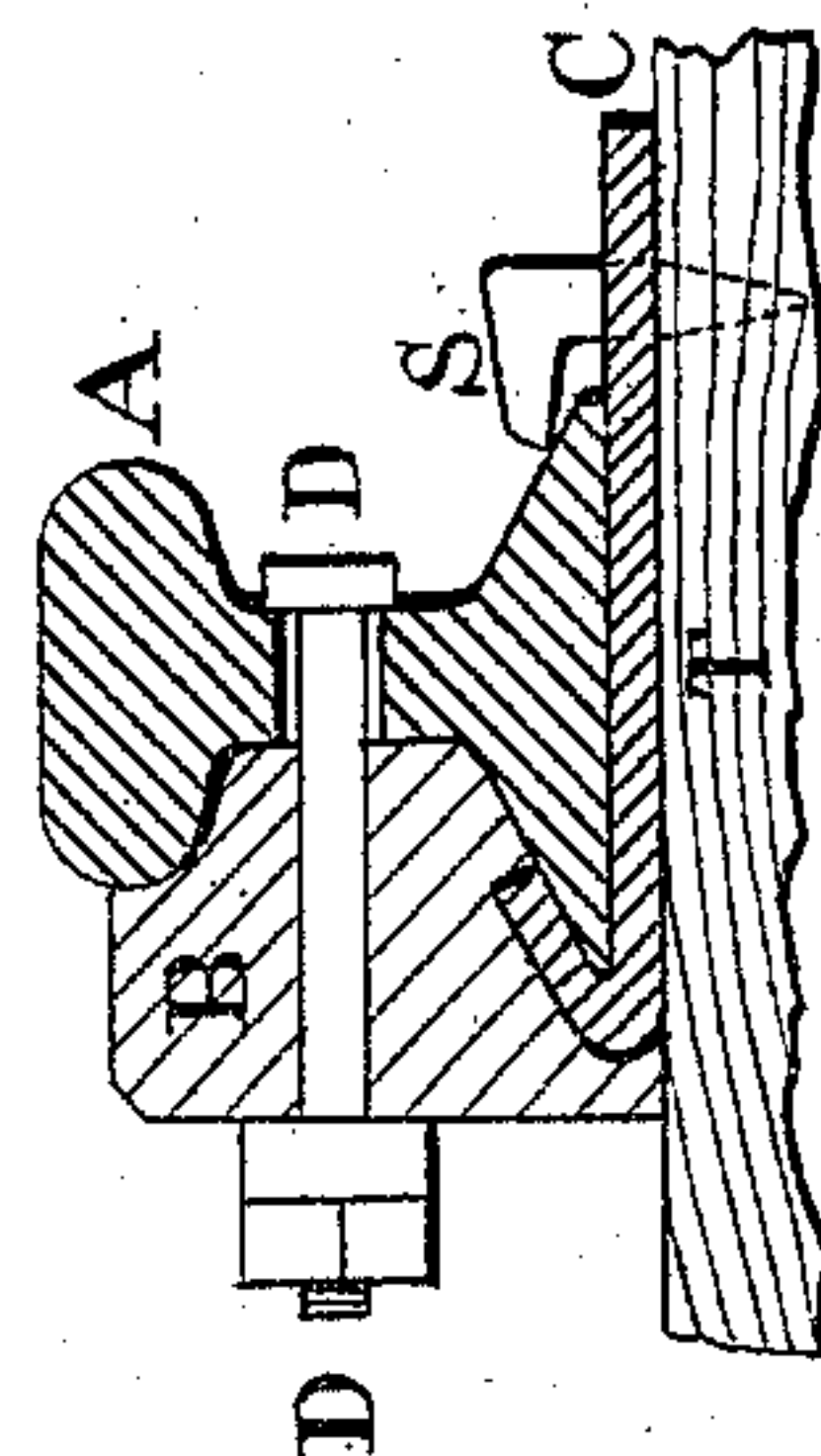
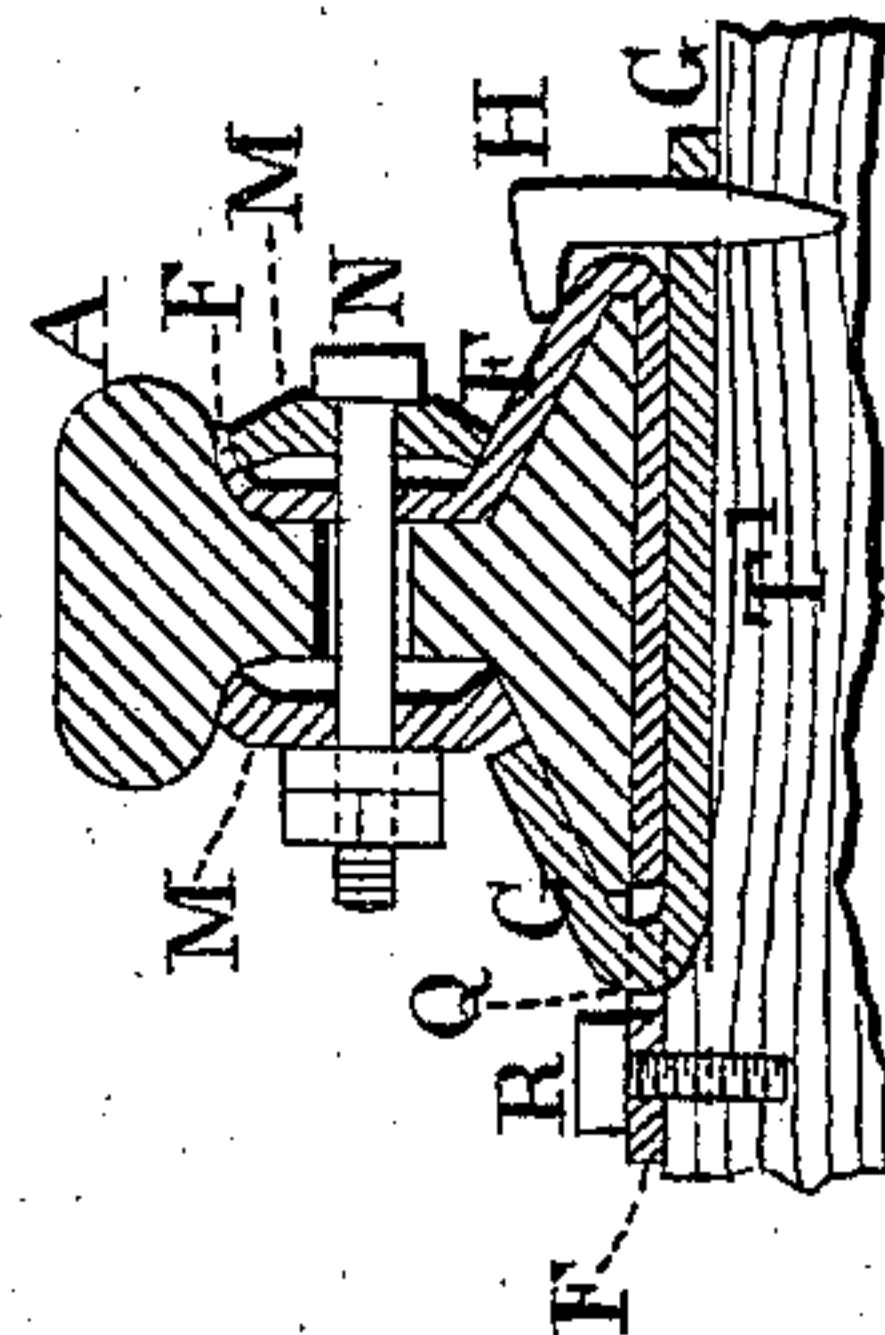


Fig: 4.



Witnesses:

James A. Ashley
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Inventor:

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UNITED STATES PATENT OFFICE.

STEPHEN C. HENDRICKSON, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN TRACK-CIRCUITS FOR ELECTRIC RAILWAY-SIGNALS.

Specification forming part of Letters Patent No. 143,903, dated October 21, 1873; application filed April 25, 1873.

To all whom it may concern:

Be it known that I, STEPHEN C. HENDRICKSON, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Circuit-Closers for Electric Railroad-Signals and other similar purposes; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing forming part of this specification.

My invention relates to that class of circuit-closers wherein a section of one or both the lines of rails of an ordinary railroad-track is electrically insulated from the abutting rails in each direction, and one of the said insulated sections is connected with a suitable electric conductor, which is attached to one pole of a galvanic battery, the opposite line of rails or insulated section thereof being in like manner connected with another conductor attached to the opposite pole of said battery, so that the circuit of said battery will be closed or completed by the wheels and axles of a locomotive, car, or train passing over and forming a connection between said opposite rails, as more particularly set forth in United States Letters Patent No. 129,425, granted to Frank L. Pope on the 16th day of July, 1872. My invention consists in an improved mode of attaching a conducting-wire to the rails or sections of a railroad-track, for the purpose of insuring a permanent electrical connection therewith.

In the accompanying drawing, Figure 1 is a plan view of a portion of one of the lines of rails of a railroad-track embodying my invention. Fig. 2 is an elevation of the same. Fig. 3 is a cross-section taken in the plane shown by the dotted line *x x*, and Fig. 4 is a cross-section taken in the plane shown by the dotted line *y y*.

In Figs. 1, 2, and 3, A and A¹ are two rails forming a portion of an electrically-insulated section of railroad-track, and A² is one of the non-insulated rails of the same track. The abutting ends of the rails A and A² are placed upon metallic supports C C¹, technically termed "chairs," the whole being securely fastened to the wooden sleeper or tie T by hook-headed spikes S S S S. The chairs C C¹, and also the

rails A A², must be separated from each other by a space of, say, half an inch, more or less. A plate of vulcanite, hard wood, or any suitable non-conductor of electricity, P, is inserted into the space left between the rails A and A², in order to prevent the said rails from coming, by accident or otherwise, into metallic contact with each other. When wood is used for this purpose, it should be so arranged that the fibers of the wood, when in position, will be parallel to the line of rails.

In order that the stability and rigidity of the track shall not be essentially impaired by the metallic separation of the rails in the manner hereinbefore described, I make use of a suitable non-conducting bar, B, preferably composed of hard wood, which is secured firmly to the two adjacent rails A and A² by means of suitable bolts D D D D, Figs. 1, 2, and 3. By this device the rails are maintained in line with each other, while, at the same time, the bar B, being a non-conductor of electricity, does not impair the insulation of the joint. The manner in which I attach the conductor or wire to the insulated rail or section is as follows: F, Figs. 1, 2, and 4, is a plate of some suitable metal, preferably copper or brass, which is bent so as to conform to the shape of the rail and to fit closely to the side and bottom thereof, as is clearly shown in the section in Fig. 4. A suitable conducting-wire, W, is soldered or otherwise permanently attached to the plate F, at a point preferably underneath the rail, as shown in Fig. 2. A pair of ordinary fish-plates, M M, of well-known construction and arrangement, are then clamped to the rail or rails by bolts N N N N, in the usual manner, the plate F being placed between the fish-plate M and the body of the rail, as shown in Fig. 4, and firmly secured in that position by the said bolts N N N N, which pass through suitable apertures in the neck of the rail, and also through corresponding apertures in the plate F, as seen in Fig. 4. A metallic chair, G, is placed beneath the rail and the plate F, and the lip of the chair G is turned over the flange of the rail A, passing through a slot, Q, in the plate F. The whole is then firmly secured to the tie or sleeper T by means of hook-headed spikes H H and bolts R R, or in any other suitable manner. By this means

a permanent electrical connection is secured between the conducting-wire W and the rails A or A¹, and the latter are, at the same time, electrically insulated from the rail or section A² without, in any essential degree, weakening or impairing the mechanical strength of the joint between the said rails.

I am aware that it is not new to electrically insulate one section of a railroad-track from another section by placing the ends of the abutting rails in separate metallic chairs secured to a wooden sleeper, nor to interpose some insulating substance between the adjacent ends of said rails, or between the bolts

that secure the fish-bars to the ends of said rails, as all these devices are found in United States Letters Patent No. 129,425, granted to Frank L. Pope on the 16th of July, 1872.

I claim as my invention—

The metallic plate F, in combination with the rails A or A¹ of a railroad-track and the conducting-wire or conductor W, substantially as and for the purpose specified.

Signed by me this 23d day of April, 1873.

STEPHEN C. HENDRICKSON.

Witnesses:

JAMES N. ASHLEY,
EDWIN EAGLES.