

No. 611,897.

Patented Oct. 4, 1898.

L. T. DUBÉ.

ELECTRIC SIGNAL DEVICE FOR RAILWAYS.

(Application filed Dec. 6, 1897.)

(No Model.)

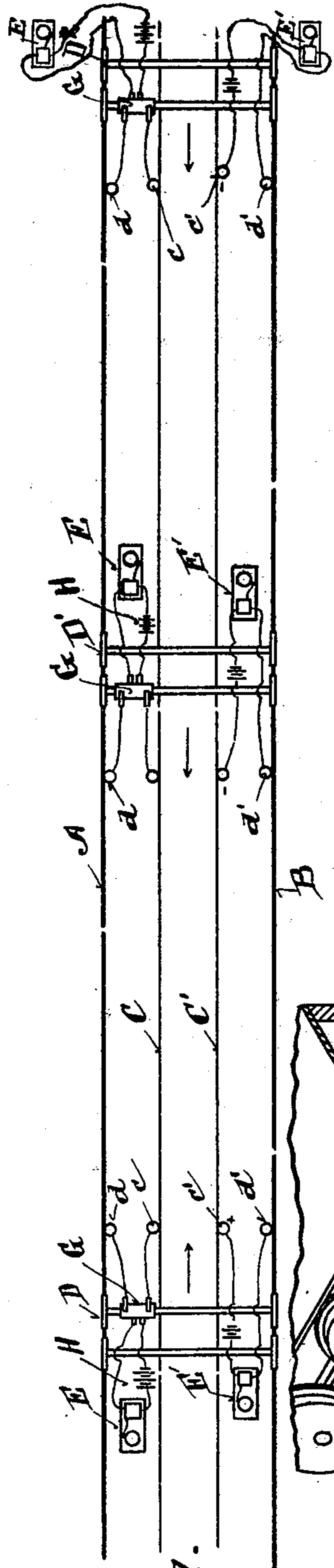


Fig. 1.

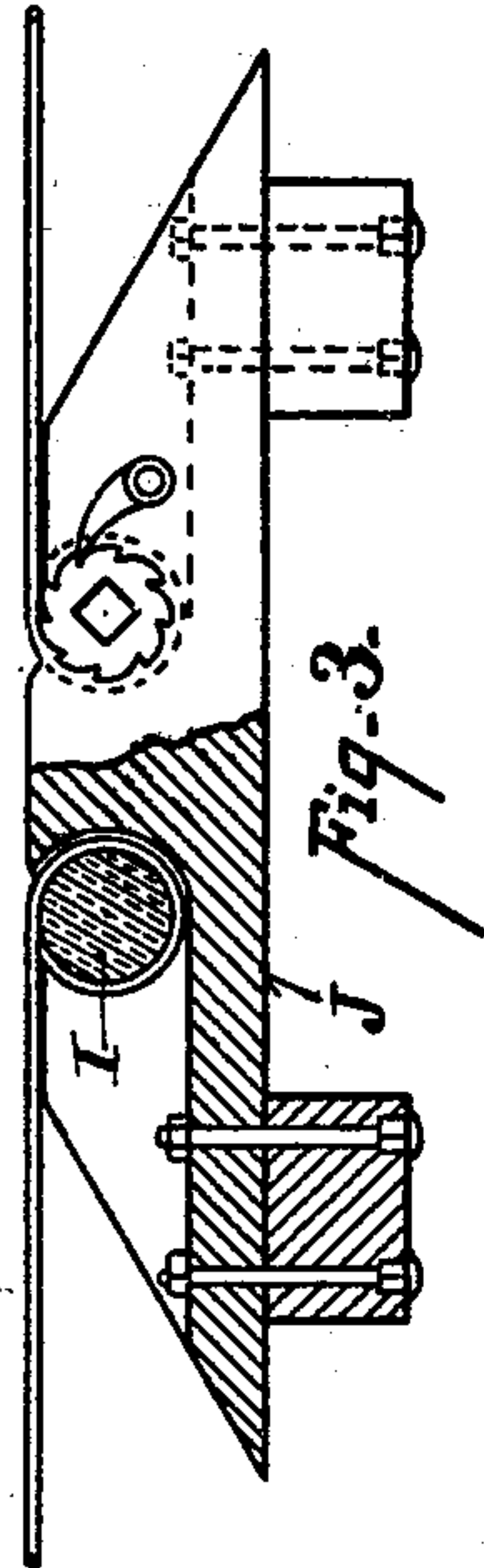


Fig. 3.

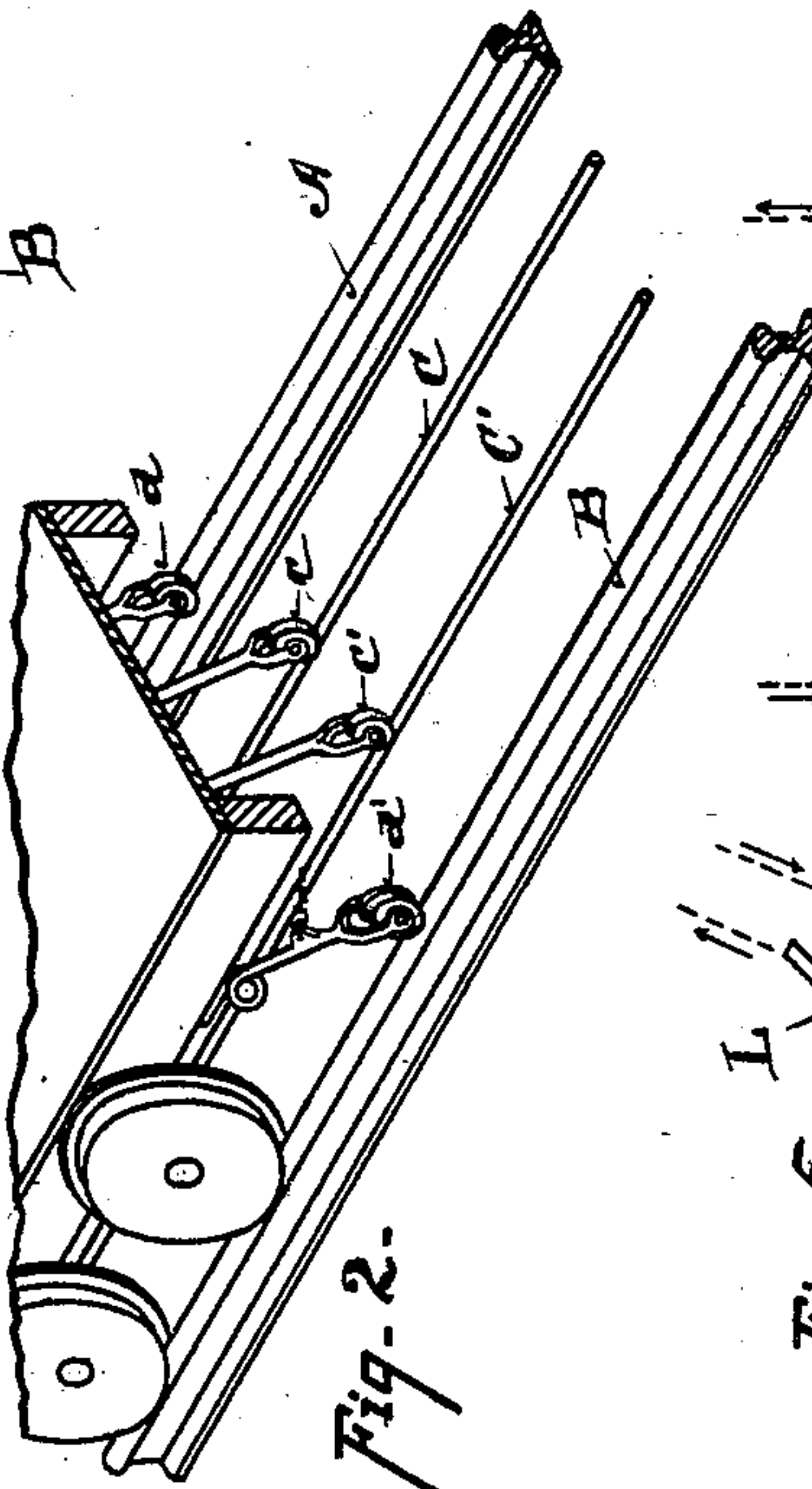


Fig. 2.

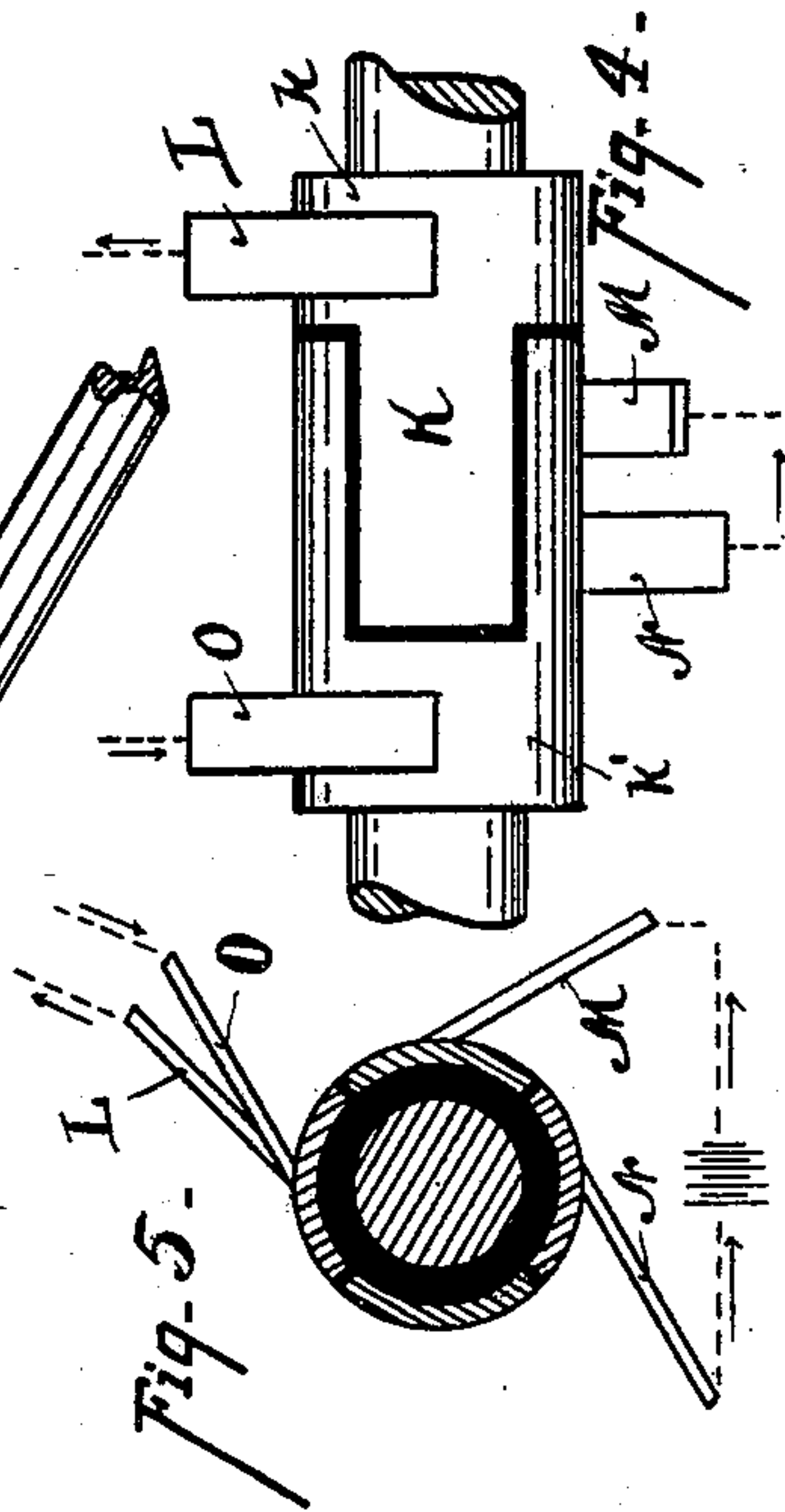


Fig. 4.

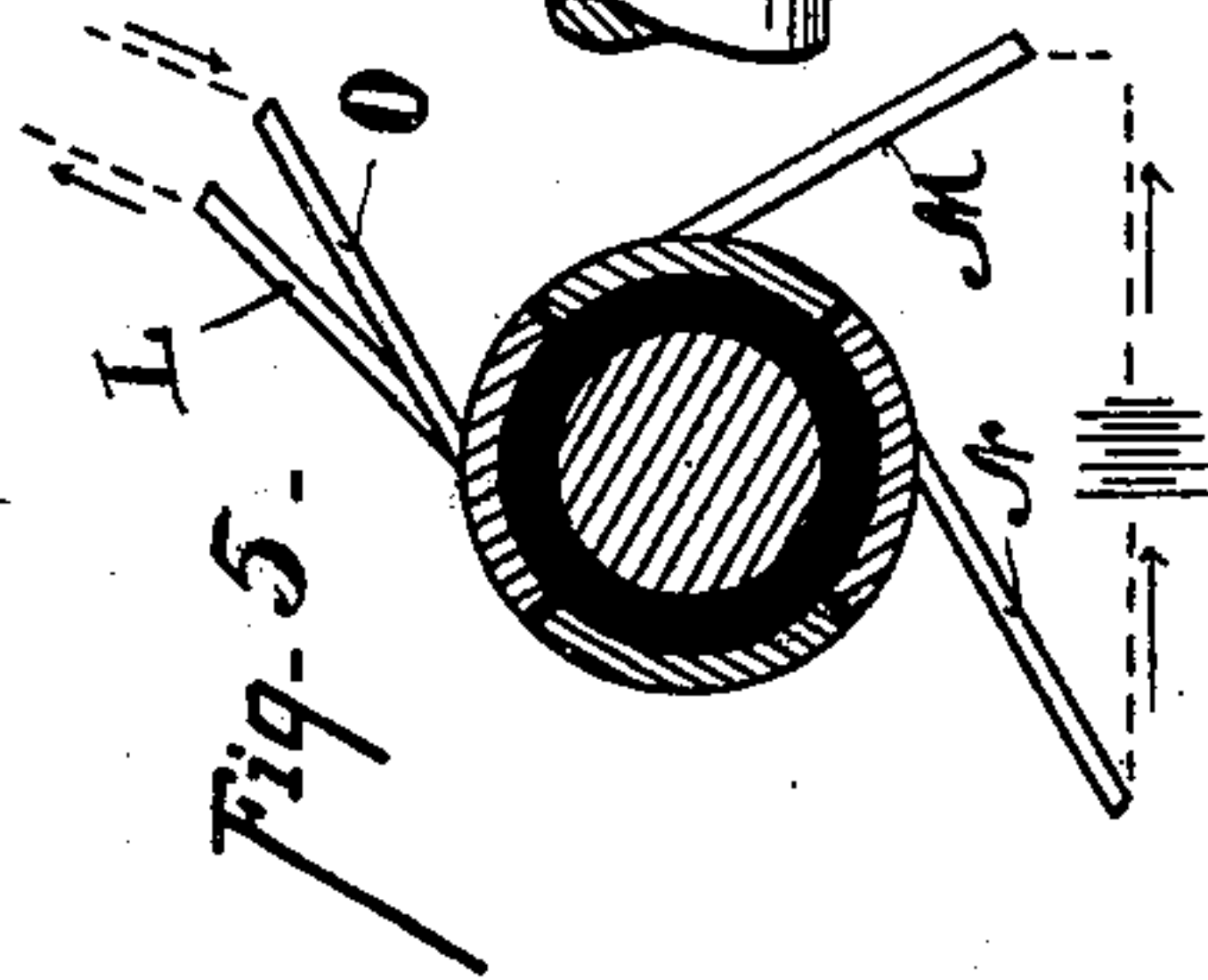


Fig. 5.

Witnesses  
Oliver D. Peiser  
W. R. Hood

Inventor  
Louis Theo. Dubé  
by Wood Bond  
Attorneys



# UNITED STATES PATENT OFFICE.

LOUIS THEODORE DUBÉ, OF PARIS, FRANCE, ASSIGNOR OF ONE-HALF TO  
R. N. ARCHER, OF LENOIR CITY, TENNESSEE.

## ELECTRIC SIGNAL DEVICE FOR RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 611,897, dated October 4, 1898.

Application filed December 6, 1897. Serial No. 660,897. (No model.)

*To all whom it may concern:*

Be it known that I, LOUIS THEODORE DUBÉ, a citizen of the Dominion of Canada, residing at 147 Avenue de Villier, Paris, in the Republic of France, have invented certain new and useful Improvements in Electric Signal Devices for Railways, of which the following is a specification.

My invention relates to an electric signal for railways, and has for its object to provide a signal between approaching locomotives on the same track in which the battery or source of electricity is carried on the locomotives, obviating the necessity of providing local batteries or car-stations along the railway-line.

The features of my invention are more fully set forth in the description of the accompanying drawings, making a part of this specification, in which—

Figure 1 is a diagram of a section of a railway-track, showing my improved signal. Fig. 2 is a detailed view of the locomotive or car truck, showing the trolleys in position. Fig. 3 is a detailed view, partly in section, showing the manner of securing and straining the wires. Fig. 4 is a side elevation of the reversing-current commutator. Fig. 5 is a sectional detailed view through the same.

The letters A B indicate the two rails of a track, which rails are separated into sections or blocks of suitable length, the sections of the rail B overlapping the sections of the rail A.

C C' indicate two wires which are strained between the tracks and are likewise separated into blocks or sections which are insulated from each other.

D D' indicate the trucks of two approaching locomotives, and D<sup>2</sup> indicates the truck of a third locomotive moving in the same direction as the truck D'.

The letters c c' indicate trolleys traveling, respectively, on the wires C C', and which trolleys are respectively connected, through a battery or other source of electricity, with the bells E E', carried by the locomotive of each truck D D' D<sup>2</sup>.

The letters d d' indicate trolleys traveling on the rails A B, and also respectively connected with the bells E E'.

It will thus be seen that I have two circuits,

in one of which is the series of bells E and in the other of which is the series of bells E'.

The letter G indicates a commutator located on one of the wheel-axles or in any other suitable position on a locomotive, which by its revolution reverses the direction of the current from batteries H, so as to cause the current of electricity in one locomotive to coincide with the currents in the battery of the locomotive either approaching from the opposite direction or approaching from the rear, as soon as the approaching locomotive enters the block with another locomotive. By the arrangement shown the bells E' will ring whether the approaching locomotive comes from in front or in rear, while the bells E will ring only for a locomotive approaching in the opposite direction, thereby serving to indicate the direction of the approaching train.

In Fig. 2 I have shown the trolleys c c' d d' in position on the rails and wires. The wires are strung along between the tracks, slightly elevated above the rails, and are strained by means of drums I, around which the end of the wire is drawn, said drums being mounted in a block J and provided with pawl and ratchet to maintain suitable strain on the wires, the wires being supported in any suitable manner at short intervals between the terminal blocks J.

The letter K indicates a commutator composed of two sections k k', mounted, preferably, on the car-axle and suitably insulated therefrom.

The letter L indicates a brush in electrical contact with the trolley-wheel c and also in continuous contact with the section k of the commutator.

The letter M indicates a brush alternately in contact with the sections k k' and connecting said brush with the battery and bell upon one side.

The letter N indicates a brush alternately in contact with sections k k', but so arranged as to be in contact with the section k when the brush M is in contact with section k'.

The letter O indicates a brush continuously in contact with the section k' and in electrical contact with the trolley d. It will thus be seen that as the commutator K is revolved a



current from the battery is frequently reversed, so that the plus and minus poles of the battery are alternately brought into contact with the wire C. It will therefore be  
5 apparent that the presence of an engine ahead will be indicated always by the ringing of both bells, while the presence of an engine to the rear will be indicated by the ringing of the intermittently-ringing bell only.

10 In practice I prefer to make the sections of rails and wires about three miles long, having their ends overlapped, so that no two locomotives can be upon the same track within less than a mile of each other without oper-  
15 ating the signals.

Having described my invention, I claim—

1. An electric signal for railways consisting of the rail-sections A, B, overlapping one another, two series of electrical conductors ex-  
20 tended along parallel to the rails, two sources of electric supply carried by each locomotive, each having its circuit formed through trolley-wheels carried by the locomotive engaging respectively with one of the electric conduc-  
25 tors, current-reversing mechanism carried by each locomotive and interposed in the same circuit whereby alternating currents are sent through this circuit and an electric bell carried by each locomotive and inter-  
30 posed within said circuit, the other circuit being so arranged that the trolley-wheels

traveling in one direction have a reverse polarity from the trolley-wheels traveling in the opposite direction, and an electric bell carried by each locomotive and interposed in  
35 this circuit, substantially as specified.

2. An electric signal for railways consisting of the rail-sections A, B, overlapping one another, a series of electric conductors for each rail parallel thereto said conductors overlap-  
40 ping their respective rails, electric batteries carried by each locomotive each having an independent circuit formed through the rail and its respective conductor by means of trolley-wheels carried by the locomotive en-  
45 gaging respectively with the rail and with the electric conductors, current-reversing mechanism and an electrically-operated signal carried by each locomotive interposed in the same circuit, the other circuit being so ar-  
50 ranged that the trolley-wheels traveling in the same direction have a reverse polarity from those traveling in the opposite direction and an electrically-operated signal carried by each locomotive and interposed in said  
55 circuit substantially as specified.

In testimony whereof I have hereunto set my hand.

LOUIS THEODORE DUBÉ.

Witnesses:

EDWARD P. MACLEAN,  
DAVID T. S. FULLER.