

(No Model.)

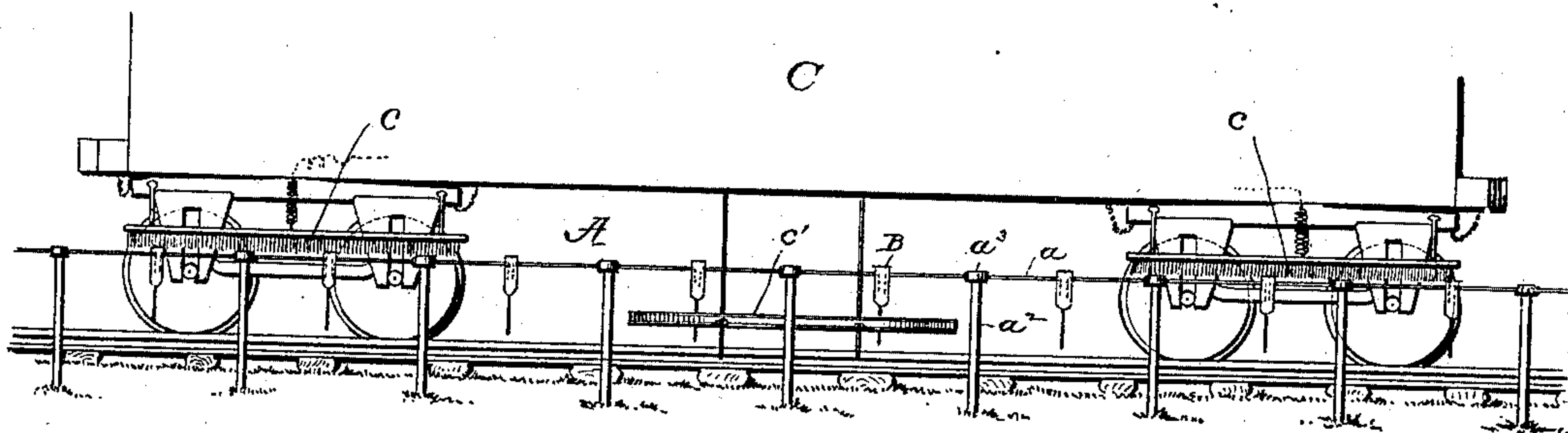
B. CADE.

RAILWAY TELEGRAPH.

No. 396,983.

Patented Jan. 29, 1889.

Fig. 1.



—fig. 2.

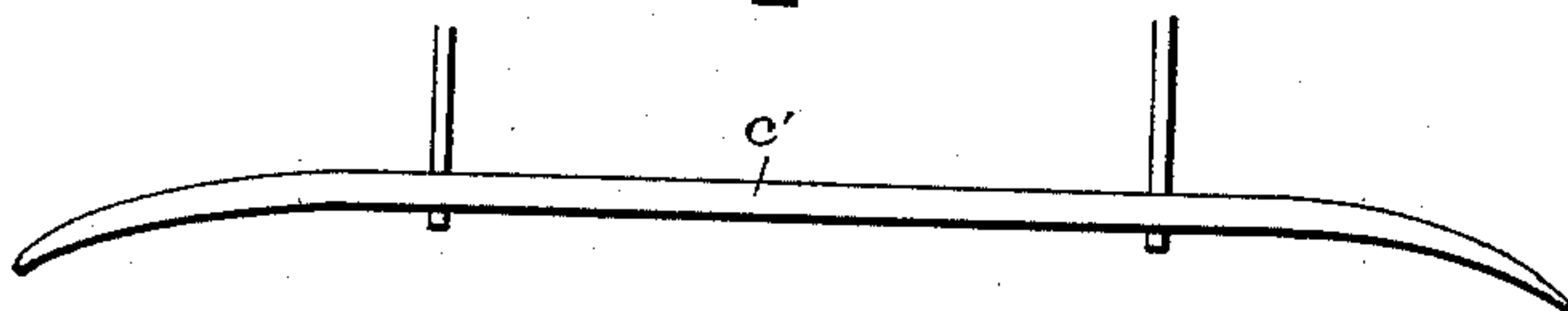


Fig. 5.

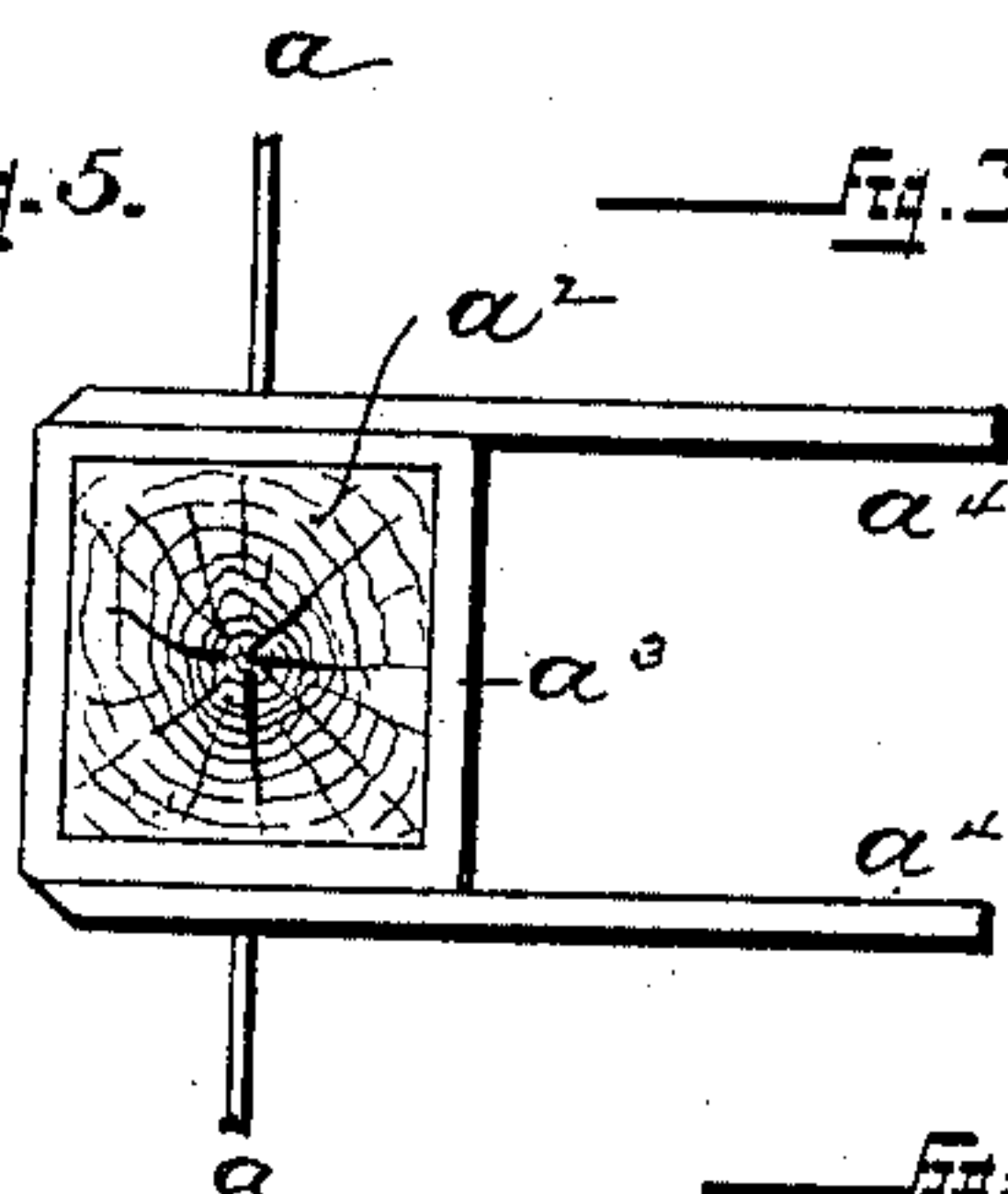
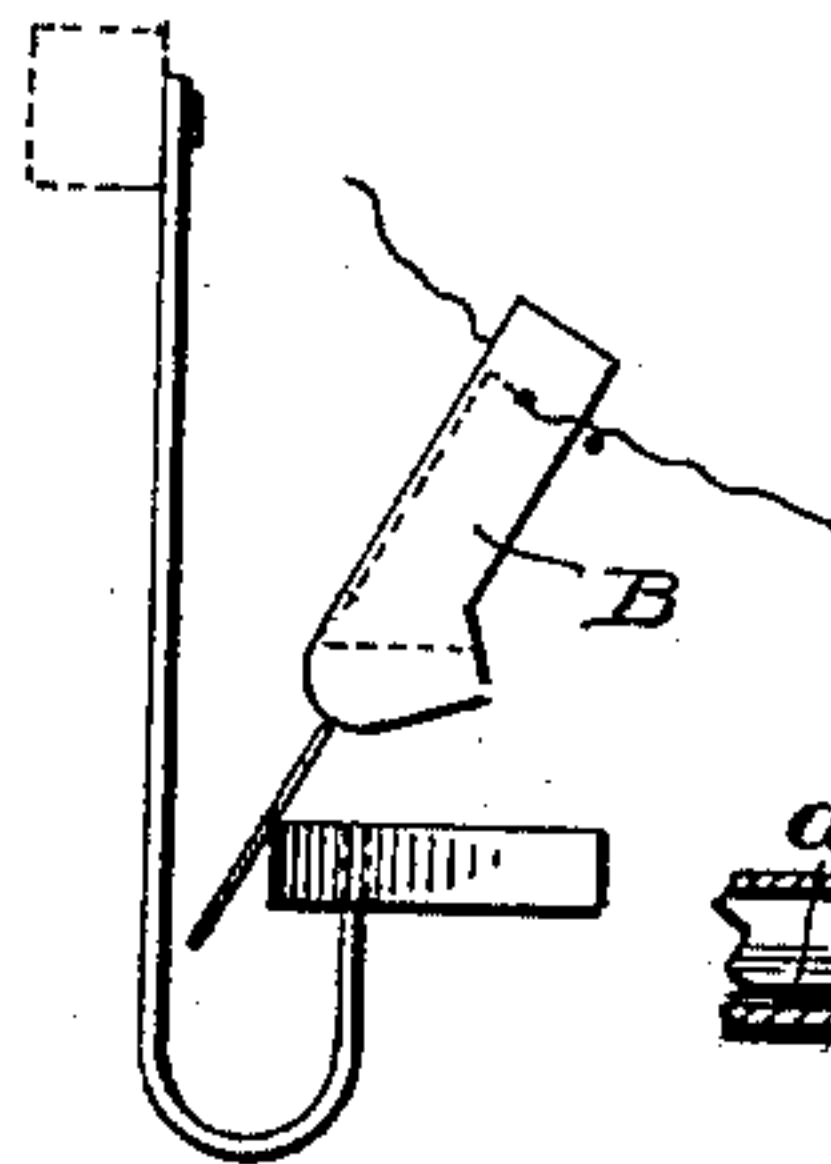
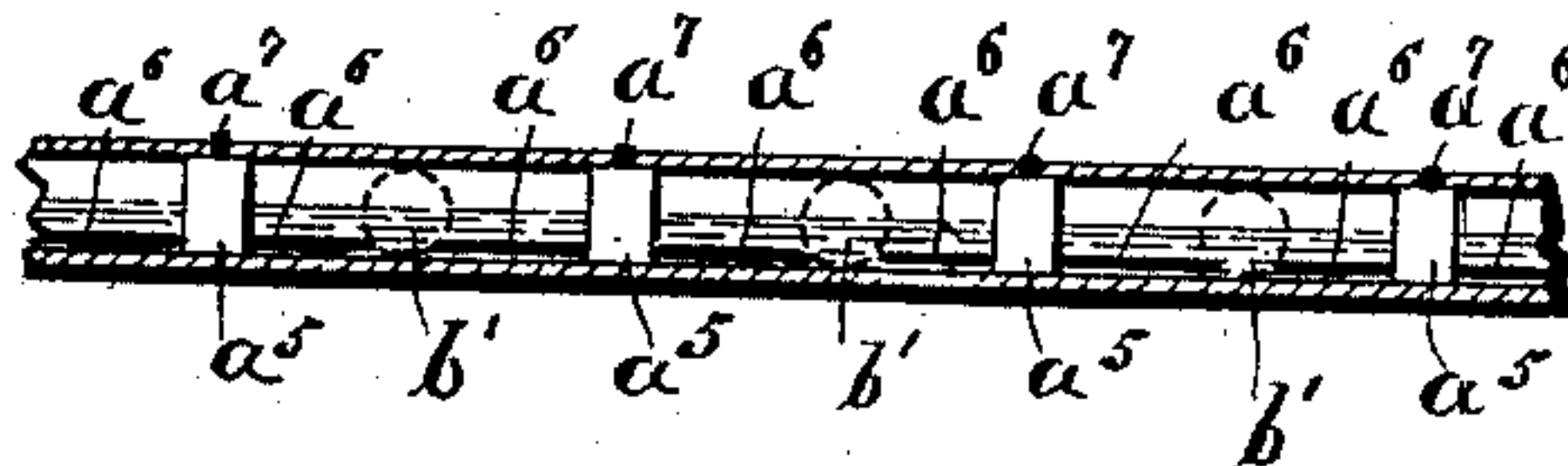


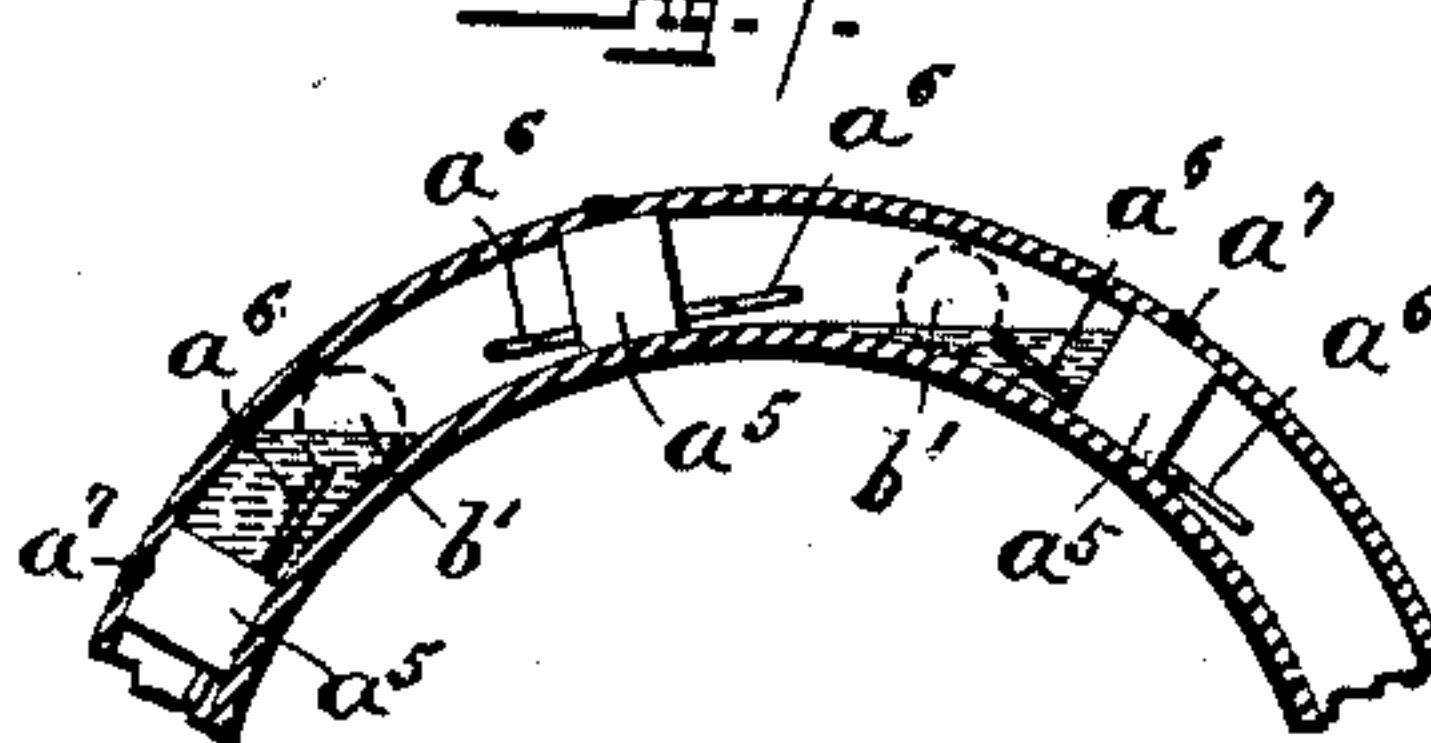
Fig. 3.



54. E.



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Witnesses:

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Inventor :

Inventor :
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UNITED STATES PATENT OFFICE.

BAYLUS CADE, OF LOUISBURG, NORTH CAROLINA.

RAILWAY-TELEGRAPH.

SPECIFICATION forming part of Letters Patent No. 396,983, dated January 29, 1889.

Application filed March 7, 1888. Serial No. 266,421. (No model.)

To all whom it may concern:

Be it known that I, BAYLUS CADE, a citizen of the United States, residing at Louisburg, in the county of Franklin and State of North Carolina, have invented certain new and useful Improvements in Railway-Telegraphs; 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.

This invention relates to electric telegraphy.

The object is to provide simple means whereby communication may be established with movable bodies while in motion or at rest.

The invention consists, essentially, in a conductor of electricity suitably supported and insulated, composed of pieces of conducting material of suitable length connecting at their ends with pendent vessels containing a conductible liquid—such as mercury—whereby the tilting of said vessels will sever the contact between said lengths of conducting material, and a moving body provided with a bar, cam, or similar device adapted to engage and tilt said vessels, thus breaking the electrical contact in said conductor, said car or movable body being also provided with metallic brushes or like means electrically connected, whereby electrical contact is afforded with said conductor upon opposite sides of the bar or cam and the current of electricity is caused to pass through the car in order to complete the circuit.

Furthermore, the invention consists in various novel details of construction hereinafter set forth.

In the accompanying drawings, in which like letters of reference indicate corresponding parts in all the figures, Figure 1 represents a portion of a car in side elevation and the conductor of electricity mounted upon short posts beside the track. Fig. 2 represents a detail view of the bar used in breaking contact in the electrical conductor. Fig. 3 represents an end view of the same, showing one of the vessels in the position it occupies when tilted by the bar. Fig. 4 represents a detail view of one of the vessels, showing in dotted lines its position when tilted. Fig. 5 represents a plan view of one of the posts connecting the wires of the conductor and arms ex-

tending therefrom for contact of the metallic brushes. Fig. 6 represents a detail view of a modification, and Fig. 7 illustrates the modification when tilted to break the circuit.

A designates an electrical conductor composed of pieces of wire a , mounted upon posts a^2 , each provided with a cap, a^3 , having metallic arms a^4 extending therefrom. Interposed between the posts are vessels or cells B, suspended by the pieces of wire, their ends extending within the vessel, and, when the vessel is in its normal position, being in contact with a movable conductible body, b' . This body is here shown as a liquid—such as mercury—although it is obvious a movable solid may be used with equal success. The cell or vessel B is formed with a compartment upon one side into which the mercury flows when the vessel is tilted, and thus the mercury is removed from contact with the terminals of the conducting-wires and the circuit broken.

C designates the movable structure—in this instance a car—depending from which, preferably near each end, is a metallic brush, c , or other suitable conductor, these conductors being connected with each other through the car and so hung that upon movement of the car each will be caused to strike the arms a^4 , thus establishing electrical contact between them and the electrical conductor A. The brushes are of sufficient length at all times to be in contact with one or more of the arms, insuring a direct connection in all positions of the car.

In order to cause the current to leave the conductor and pass through the connecting lines in the car, the connection upon the main line must be broken. To accomplish this a bar or other device, c' , depends from the car at a point between the brushes. This arm is curved outward at its ends beyond the line of the vessels, its inner or main portion being sufficiently out of the line to cause the vessels, when caught by either end of the bar, to be swung inward and held in this position until released from contact with the bar. Thus the mercury being removed from contact with the terminals of the conductor while the vessel is held tilted, the current is here broken, and, as previously shown, the circuit will be completed through the car. This bar is also long enough at all times to keep one or more of the vessels

tilted, and thus the current is always broken upon the main line between the brushes and a permanent circuit is established through the car.

5 In the modification I have shown a conductor composed of tubing of rubber or like material, there being within it at intervals a number of metal disks, a^5 , dividing the interior of the tubing into small compartments
10 and provided with contact-points a^6 near their lower edges. In each of these compartments is provided a small quantity of mercury, b' , or the like, affording electrical contact between the disks. From each disk there is a
15 conductive projection, a^7 , through the upper surface of the tube, for contact with the brushes. The manner of breaking connection in this conductor is by causing the bar depending from the car arranged to curve the
20 tube upward to come in contact with the tube, when, as soon as the tubing is bent or twisted, as shown in Fig. 7, the mercury, seeking its level, at once breaks the contact between the circuit therethrough.

25 By my invention the construction of apparatus for signaling by or to and from railway-trains is simplified, and by the simplification the expense of construction is greatly reduced, which on a long line of railroad is a
30 matter of no small importance.

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

35 1. A conductor of electricity or line, consisting of sections of insulated conductive substance sustained upon suitable supports, in combination with vessels, each vessel consisting of insulating substance containing a
40 conductive body and adapted to be moved, the sections being connected by the vessels and having their ends passing into and fixed in the same, so as to form the support for said

vessels, whereby movement of a vessel will throw the conductive body which it contains out of or into direct contact with the sections
45 and thus break or make the circuit, substantially as described.

2. A conductor of electricity or line, consisting of sections of insulated conductive substance sustained upon suitable supports,
50 in combination with vessels and with a movable structure, each vessel consisting of insulating substance containing a conductive body and adapted to be moved, the sections being connected by the vessels and having
55 their ends passing into and fixed in the same, so as to form the support for said vessels, and the movable structure having a projection which comes into contact with and moves the
60 vessels, substantially as described.

3. A conductor of electricity or line, consisting of sections of insulated conductive substance sustained upon suitable supports, in combination with vessels and with a movable structure, each vessel consisting of
65 insulating substance containing a conductive body and adapted to be moved, the sections being connected by the vessels and having their ends passing into and fixed in the same, so as to form the support for said vessels, and
70 the movable structure having a projection which comes into contact with and moves the vessels, and having conductors—such as brushes—for contact with the line, the projection on the movable structure being located
75 between these conductors, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

BAYLUS CADE.

Witnesses:

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