(No Model.)

E. M. BENTLEY.

ELECTRIC RAILWAY.

No. 462,231. Patented Nov. 3, 1891.

Fig. I.

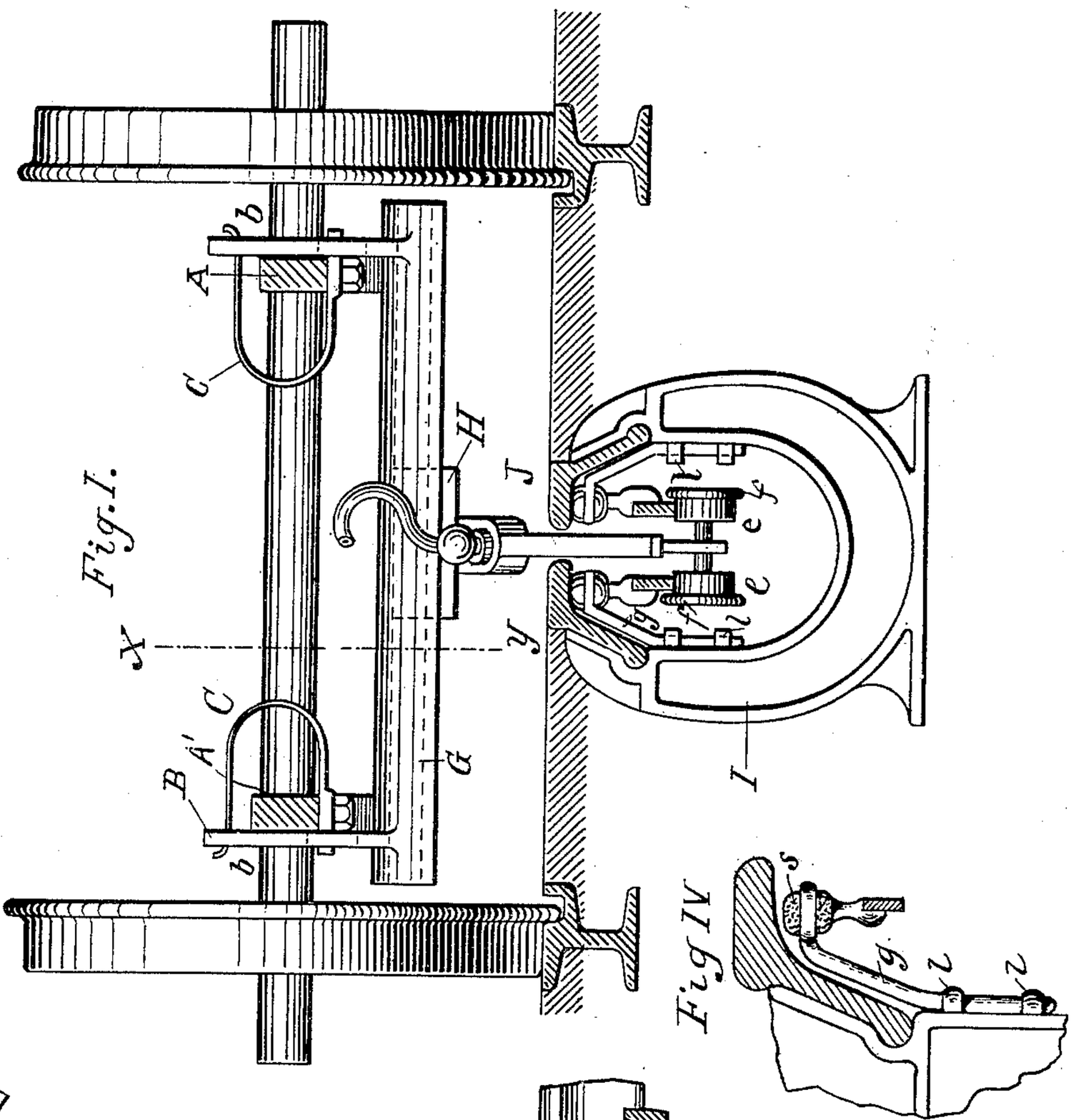


Fig. III.

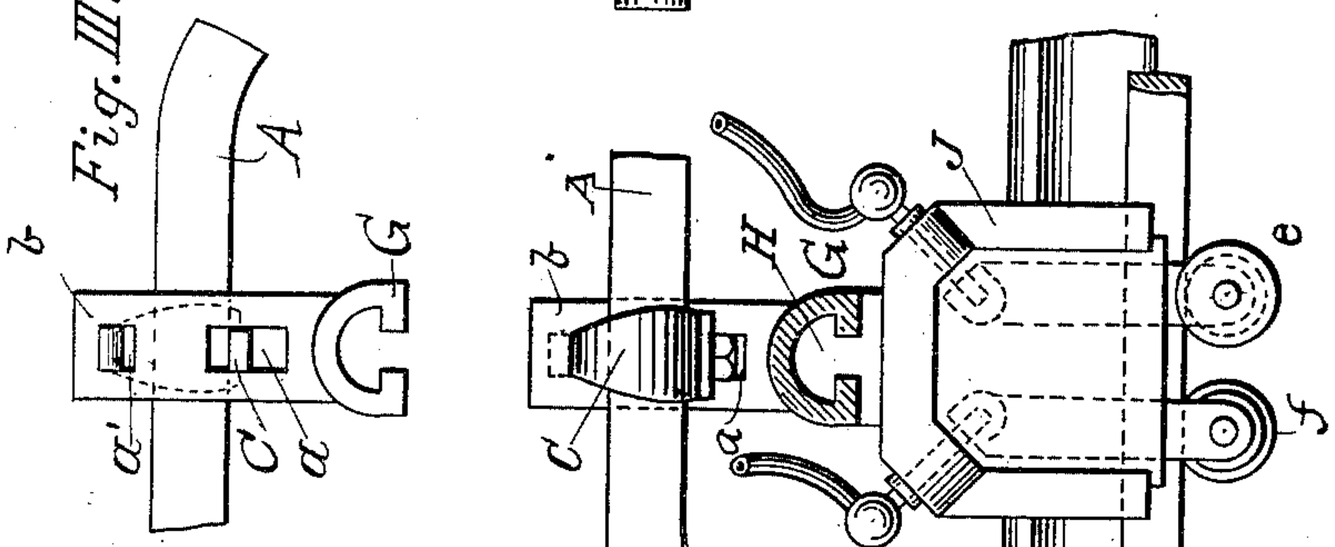
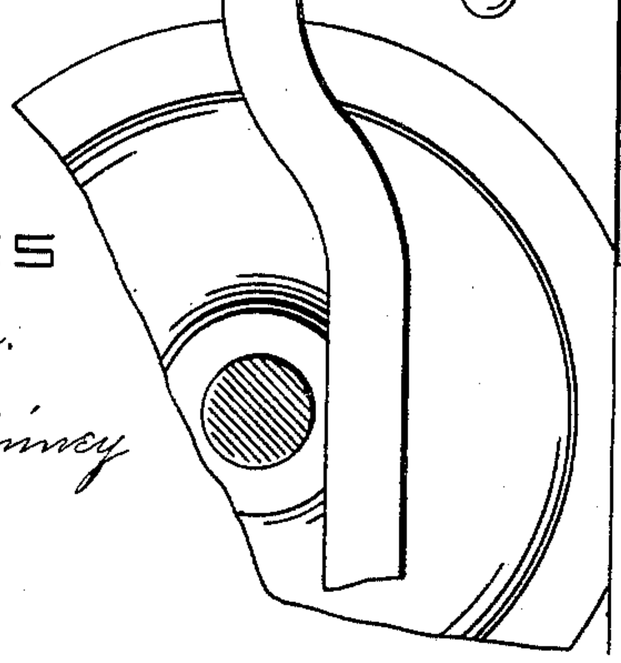


Fig. IV

Fig. II.



WITNESSES

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ELECTRIC RAILWAY.

SPECIFICATION forming part of Letters Patent No. 462,231, dated November 3, 1891.

Application filed November 23, 1888. Renewed August 8, 1891. Serial No. 402,142. (No model.)

To all whom it may concern:

Be it known that I, EDWARD M. BENTLEY, a citizen of the United States, residing at New York, in the county of New York, State of New York, have invented certain new and useful Improvements in Electric Railways, of which the following is a specification.

My invention relates to electric railways, and its object is to provide a vertically-yielding spring-pressure connection between the plow or current-collector and the supply-conductor.

My invention accordingly consists of a contact device adapted to bear upon the under side of the conductor and certain novel devices suspending the contact device from the car, whereby it will be pressed upward against the conductor with a yielding force. It also comprises details of construction, both in the collector and in the conduit, as hereinafter described and claimed.

In the accompanying drawings, illustrating my invention, Figure 1 is an end view showing parts of a car-truck and my invention applied thereto. Fig. 2 is a longitudinal section of the same, taken on line $x\,y$, Fig. 1. Fig. 3 is a detail end view of the transverse guide and spring, and Fig. 4 is a detail view of the means for supporting the conductor in the conduit.

A represents one of the longitudinal car-beams, and A′ a similar beam on the other side of the car.

G is a transverse guide which carries the plow and which is attached to the beams A and A′ by yielding supports, thereby allowing the guide to rock when the track is uneven and giving the collector a yielding contact with the conductors which are shown in conduit I. It is evident that this desired result may be accomplished in many different ways, and while I describe a certain specific form which I have devised, the scope of my invention must not be thought to be limited thereto.

b b are ears or brackets extending up from the guide by the side of the beams A A′.

C C′ are plate-springs secured to the beams, and by passing the free ends of these springs through openings *a a′* formed in the brackets they are made to carry the guide. It should be noticed, also, that the lower and stiff ends of the springs are prolonged beyond their point of support and project into openings *a*, likewise made in the brackets. These openings are elongated, so as to allow free play of the ends of the springs for a distance equal to the amount of vertical movement which the guide and plow are to have. The projections will, however, engage with the brackets, and so act as stops to prevent undue movement of the guide in either direction.

J is a current-collector having a sliding head H engaging with the guide and consisting of insulating-panels, guards, and conducting-strips, which will not be particularly described, as they form no part of the present invention. Each conducting-strip has connected with it at its upper end a flexible conducting-lead extending to a motor upon the car in a manner well understood, and carries at its lower end a wheel, which forms a rolling contact with the under side of the conductor. Inasmuch as the plow has free lateral movement in the guide and the wheels contact with the lower edge of the conductor, there is danger that they will work to one side of the conductor and the circuit thereby be broken. In order to prevent this, some means must be devised for properly guiding the wheels. I do this by providing a flange *f* on the outside of each wheel which will engage with the side of the conductor and keep the trolley in place.

The conduit is made up of brackets placed at intervals and slot-rails carried thereby. I provide lugs or sockets *l* upon the brackets, and I fix the conductors in place by inserting in the sockets upwardly-projecting pieces *g*, corresponding in shape to the slot-rail and by suspending the conductors therefrom. If this piece be of metal any suitable insulation, as seen at *s*, is placed between it and the conductor. By this arrangement I am able to support a conductor from the yoke and to bring it to the upper part of the conduit, so that there may be room for the contact device to travel below and in engagement with its lower edge.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the slotted conduit and the supply-conductor therein with the

transverse guide supported from the vehicle on yielding supports, and a current-collector moving transversely in said guide and in contact with said conductor.

2. The combination, with a slotted conduit and a conductor therein, of a transverse guide upon the vehicle, a current-collector moving in said guide and adapted to bear on the under side of the conductor, and a yielding spring connection between the collector and the vehicle.

3. The combination of a transverse guide attached by springs to an electrically-propelled vehicle and given thereby an up-and down play, with a contact-plow traveling along said guide and adapted to make contact with a supply-conductor, as described.

4. In an electric railway, the combination of a collecting-trolley and a transverse guide therefor with a traveling vehicle and plate-springs attached to the vehicle and carrying the guide and collector at their free ends, as described.

5. The combination of the vehicle, the transverse guide, and a spring connection between the vehicle and the guide at either end of the latter, with a collector carried by and moving in said guide, substantially as described.

6. The combination, in an electric railway, of a traveling vehicle, a collecting-plow moving transversely to said vehicle, flexible electrical connections extending directly from said plow with a guide for said plow forming no part of the electric circuit, and a yielding spring connection between the collector and the vehicle.

7. The combination of the supply-conductors, a traveling vehicle, the transverse guide carried thereby on springs, the current-collector moving freely on said guide and provided with a contact-surface which runs in engagement with one edge of said conductor, and a projecting guard adapted to contact with the side of the conductor and preventing lateral displacement of the collector.

8. The combination of a conduit made up of brackets and slot-rails, and lugs upon the brackets, with an upwardly-projecting piece engaging said lugs loosely, and a conductor insulated and suspended therefrom.

9. In a conduit for electric railways, the combination of the bracket and slot-rail with the upwardly-projecting piece attached to the bracket and a conductor insulated and suspended therefrom.

10. In a conduit for electric railways, the combination of the bracket and slot-rail with an upwardly-projecting piece attached to the bracket and corresponding in shape with the inner surface of the slot-rail, and a conductor supported thereby.

11. The combination of the slot-rail and bracket and a conductor supported therefrom with a traveling vehicle and a current-collector contacting with and bearing upwardly against said conductor.

12. The combination of the slot-rail and bracket, a support extending upwardly therefrom, and a conductor carried thereby, with a traveling vehicle and a contact device extending below and bearing upwardly against the conductor.

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Witnesses:
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