

(No Model.)

W. B. HUTCHINSON.  
ELECTRIC RAILWAY.

No. 467,699.

Patented Jan. 26, 1892.

Fig 1.

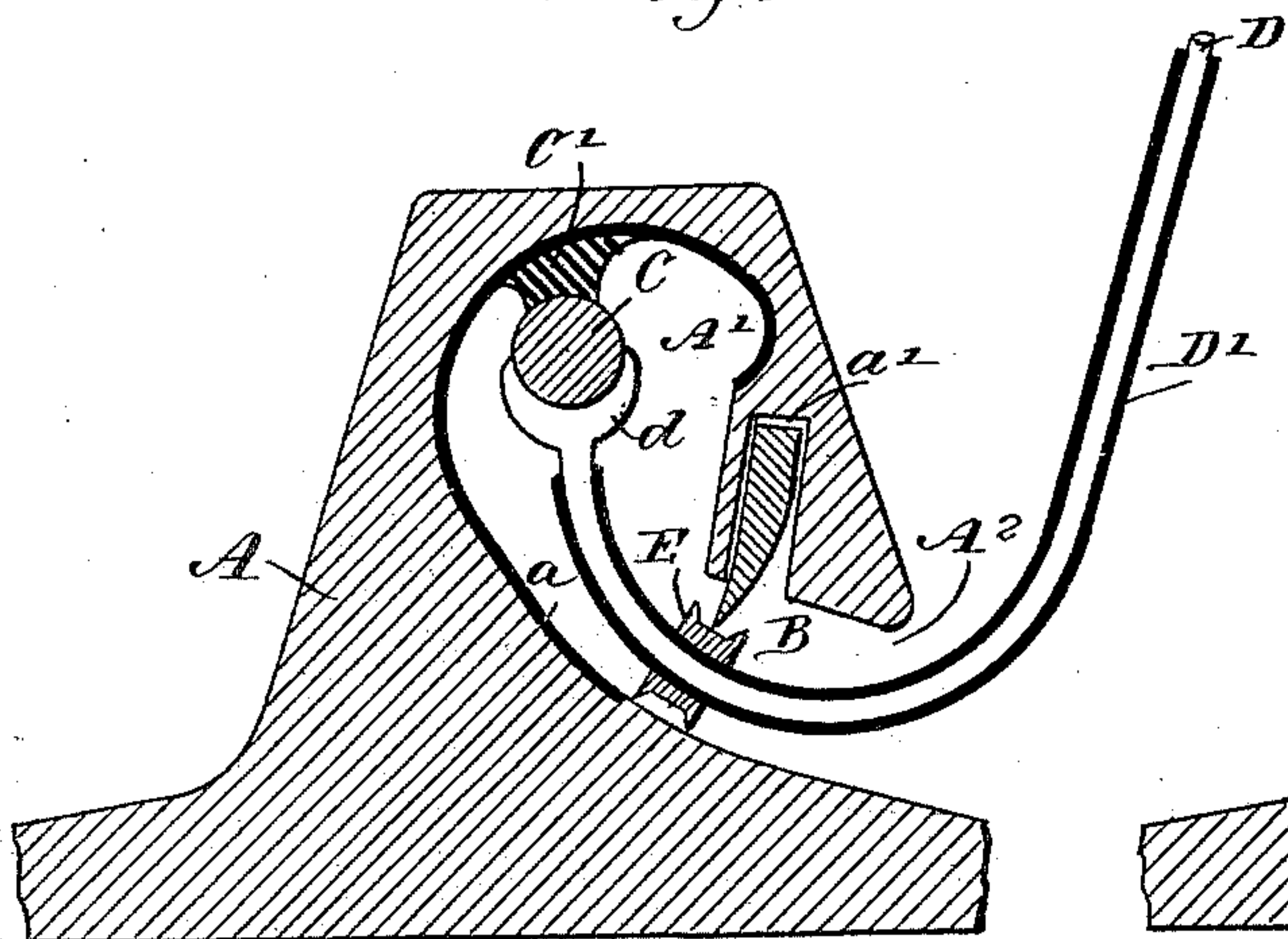


Fig 2.

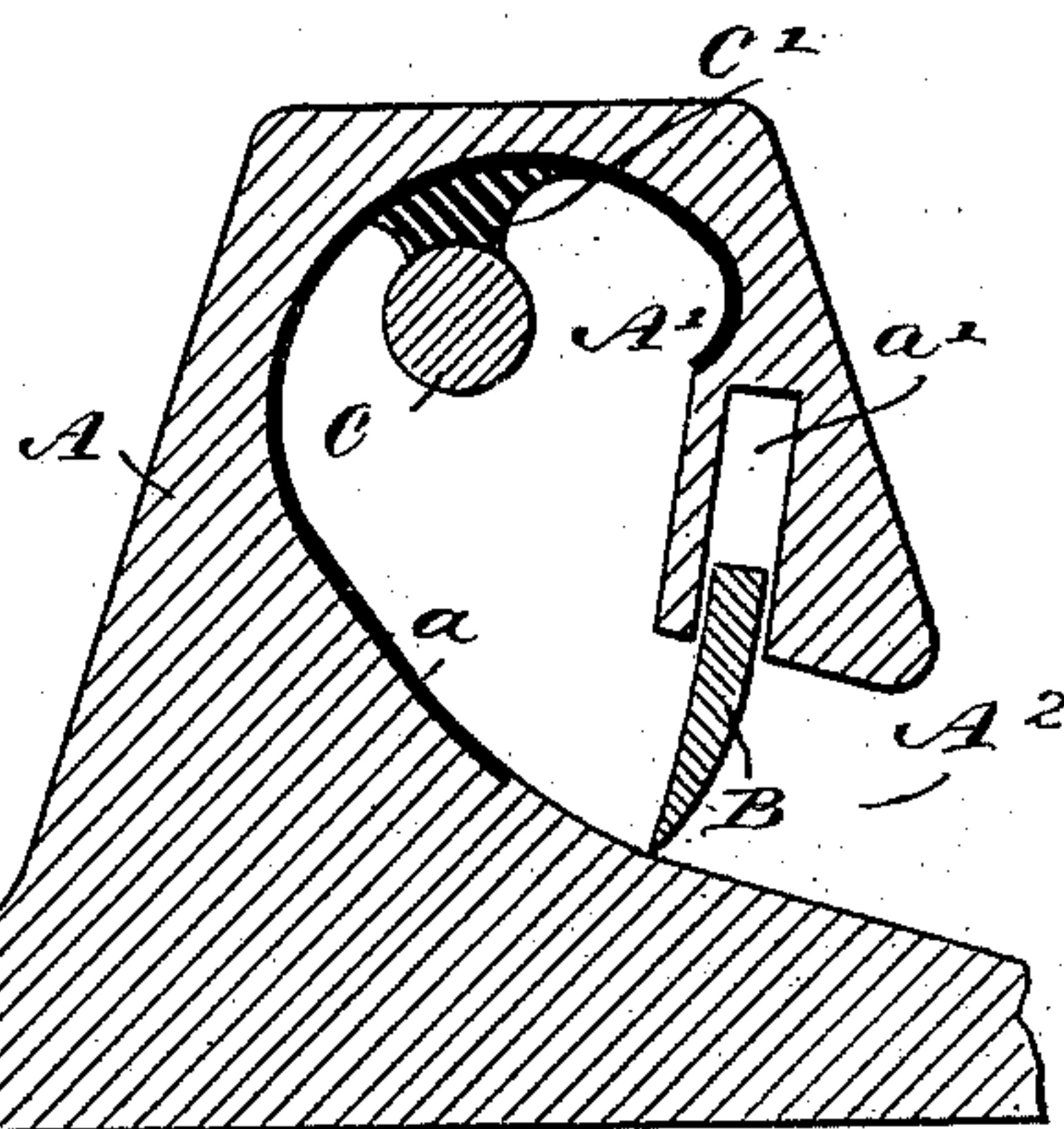


Fig 3.

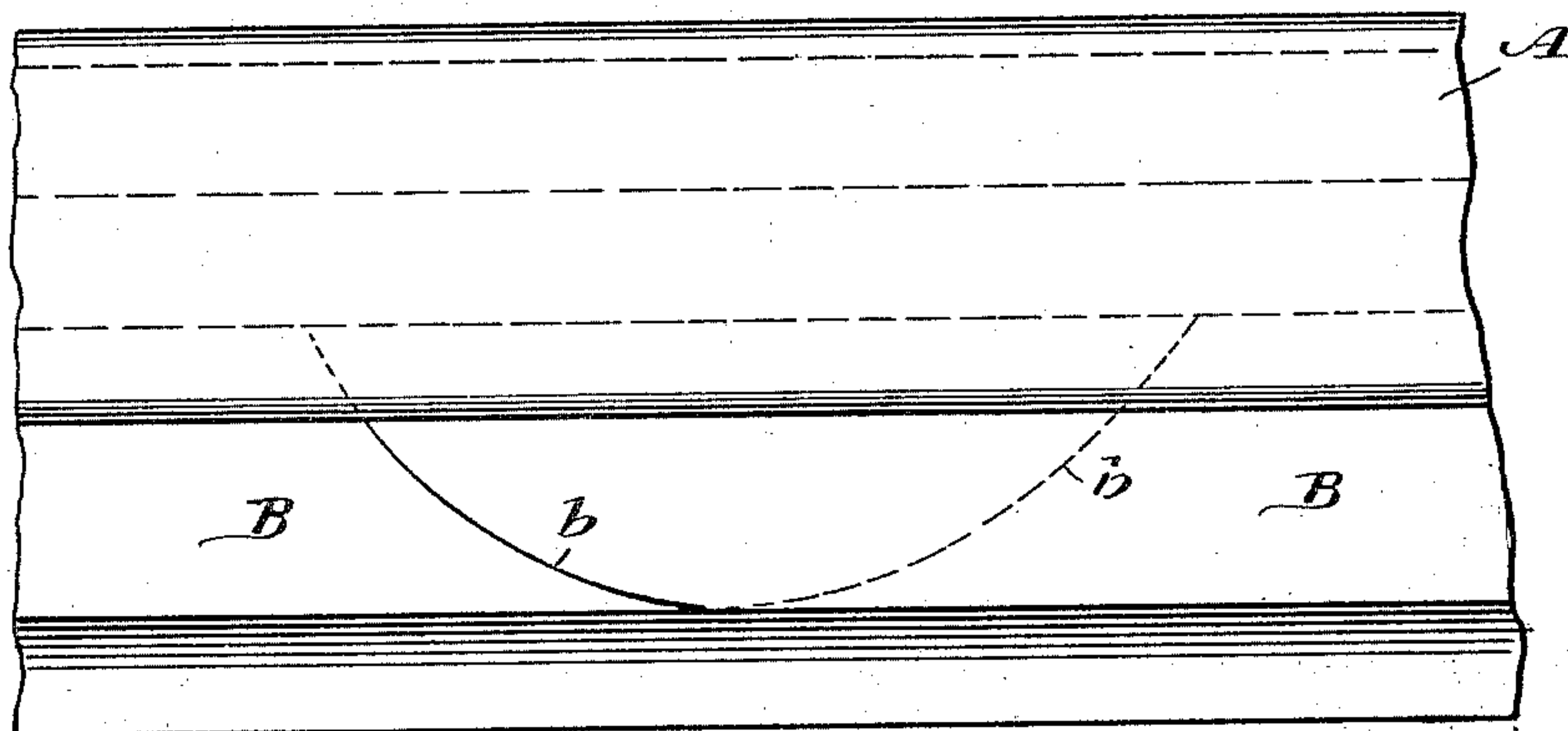
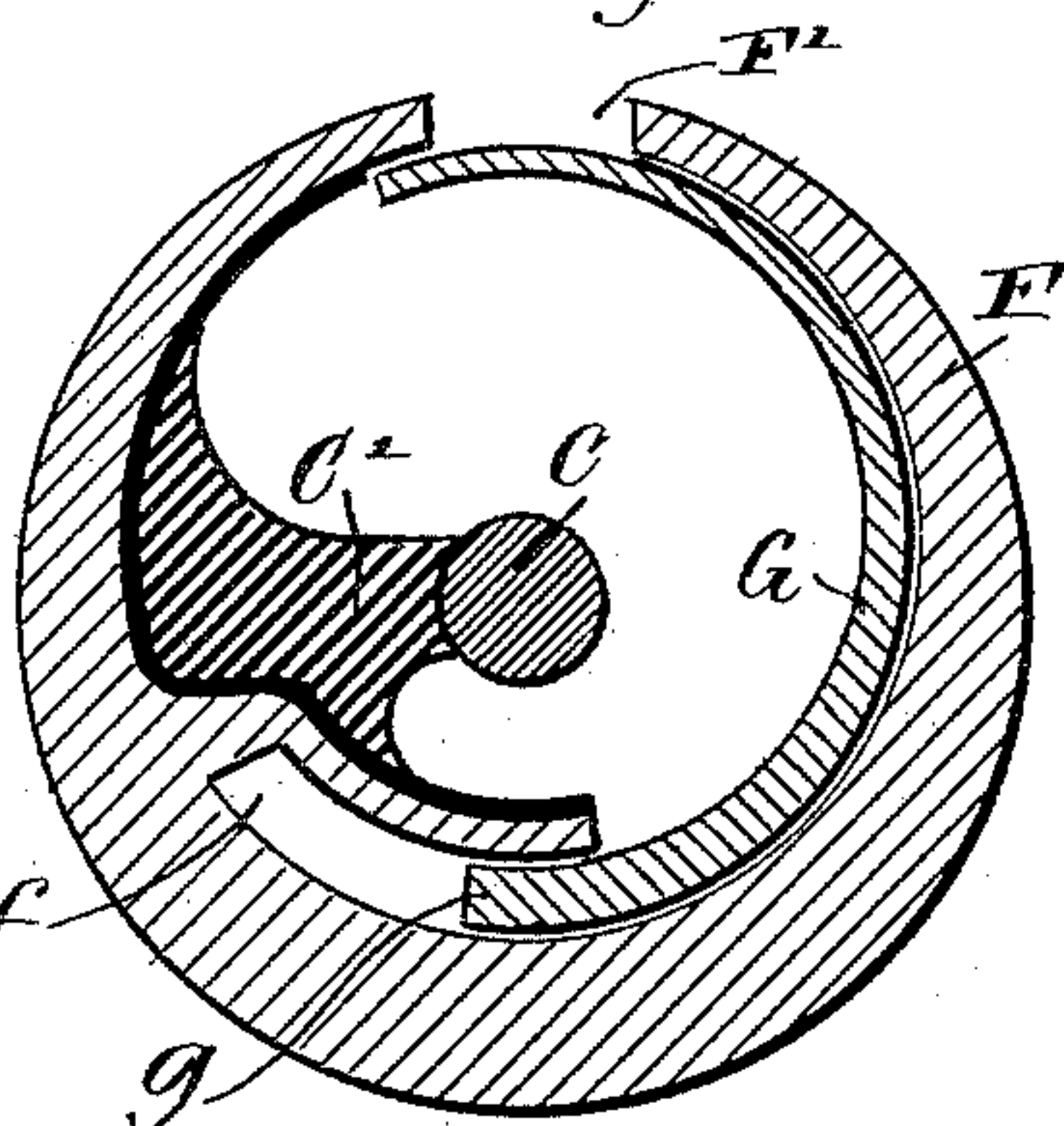


Fig 4.



Fig 5.



WITNESSES:

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INVENTOR

*Warren B. Hutchinson*



# UNITED STATES PATENT OFFICE.

WARREN B. HUTCHINSON, OF PASSAIC, NEW JERSEY.

## ELECTRIC RAILWAY.

SPECIFICATION forming part of Letters Patent No. 467,699, dated January 26, 1892.

Application filed April 14, 1891. Serial No. 388,865. (No model.)

*To all whom it may concern:*

Be it known that I, WARREN B. HUTCHINSON, of Passaic, in the county of Passaic and State of New Jersey, have invented a new and Improved Electric Railway, of which the following is a full, clear, and exact description.

My invention relates to improvements in that class of electric railways in which the current is taken from a continuous conductor extending parallel with the track and carried to a motor on the cars, and more particularly to the carrier for the conductor, the object being to produce a surface carrier which will hold the conductor in a convenient position for contact with a conducting-arm which carries the current to the motor, and which will hold the conductor so that the current cannot be grounded, and so that it is impossible for people or animals to come into accidental contact with it.

To this end my invention consists in certain features of construction and combinations of parts which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a cross-section of a rail embodying my invention, with the conducting-arm in contact with the conductor. Fig. 2 is the same view, but with the conducting-arm removed. Fig. 3 is a broken side elevation of the rail. Fig. 4 is a cross-section of the conducting-arm, and Fig. 5 is a cross-section of a modified form of the conductor-carrier.

The rail A is in its exterior construction substantially like a common street-rail, but it is hollowed out to form a chamber A', which extends longitudinally through it, and the back side a of which is inclined toward the front, which is slotted longitudinally, as shown at A<sup>2</sup>, the slot being in the lowest part of the chamber, so that any loose material will have a tendency to drop out of the rail rather than to crowd into it. In practice the slot would be narrow; but it is exaggerated in the drawings to more clearly show the construction.

The chamber A' is lined with insulating material to guard against the grounding of

the current, and in the front of the chamber is a slideway a', which opens upward from the slot A<sup>2</sup> and which is formed preferably when the rail is rolled, but which may be formed by securing keepers on the inner side of the rail. A vertically-movable plate B is held in this slideway, and will normally drop of its own weight, so as to entirely close the slot A<sup>2</sup>. The plate is made somewhat wedge-shaped with the edge down, so that it will readily drop through any ordinary obstruction. This the plate easily does as its lower edge strikes upon the solid portion of the rail. The ends of the plate are rounded up from the bottom, as shown in Fig. 3, so that the conducting-arm may enter beneath the plate and the plates extend throughout the entire length of the rails, there being preferably several plates to a rail, so that they will not be too heavy. The ends of the plates are thinned and overlap, as shown in Fig. 3, so as to keep the slot A<sup>2</sup> tightly closed.

The main conductor C extends longitudinally through the upper part of the chamber A', it being supported by insulated hangers C', and a sliding contact is made with it by means of the conducting-arm D, which is curved to enter the slot A<sup>2</sup>, and projects up into the chamber A', the arm having at its lower end a head d, which fits and slides upon the main conductor. The conducting-arm D is provided with an insulating cover D', and that portion of the arm which comes beneath the plate B is provided with a grooved wear-plate E, which protects the arm and which also serves as a guide for it, as when the plate rests in the groove of the wear-plate the head d will be in contact with the main conductor.

The conducting-arm D is flattened, as shown in Fig. 4, so that it will pass easily between the plates without taking up too much space, and also to increase its strength in the direction of the greatest strain. The arm is supported from a car in the ordinary way, being held up by a spring, and any suitable means may be employed for inserting it in the slot A<sup>2</sup> of the rail.

The operation of the device is as follows: The arm D is inserted in the rail-slot so that the head d will contact with the conductor C, the plate B being first raised for the purpose,



and the current will pass through the arm to the motor in the usual way. As the car moves, the arm will slide along beneath the plates B, its flattened shape, together with the rounded ends of the plates, enabling it to pass with little friction, and as it moves it will raise the plates which will drop back and close the rail-slot after the arm has passed.

In Fig. 5 I have shown a modified form of the carrier for the conductor, which is a tube F, having a slot F' in the top, and it is obvious that the principle is the same whether the carrier is a rail or a tube, as the tube might be slotted near the bottom, like the rail already described. The tube F is adapted to be partially embedded in the earth parallel with the track-rails, and the hangers C', which carry the conductor C, are secured on one side of the tube. The slot is normally closed by a slide G, which moves in a slideway *f* a little above the bottom center of the tube, and the lower end of the slide is thickened, as shown at *g*, so that the lower end will normally drop by gravity to the center of the tube, and the slide conforms to the shape of the tube and is wide enough so that when in this position it will close the tube-slot. The slide may be pushed aside by a contact-arm, like the slide B, already described, and after the arm passes it will immediately close the slot.

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

1. In an electric railway, a hollow carrier

for the main conductor, said carrier having a longitudinal slot in one side and having its rear wall inclined downward to the slot, substantially as described.

2. In an electric railway, a hollow conductor-carrier having a longitudinal slot in one side near the bottom and a slide to close the slot, substantially as described.

3. In an electric railway, the hollow slotted conductor-carrier having a wedge-shaped slide to close the slot and a bearing for the edge of the slide, substantially as described.

4. In an electric railway, the combination, with the hollow conductor-carrier having a slot in one side and the slides to close the slot, of a curved insulated conducting-arm adapted to enter the slot beneath the slides, substantially as described.

5. In an electric railway, the combination, with the slotted carrier having a conductor therein and a slide to close the slot, of an insulated conducting-arm and a wear-plate mounted on the arm to engage the slide, substantially as described.

6. In an electric railway, the combination, with the hollow slotted carrier having a conductor therein and a slide to close the slot, of a flattened insulated conducting-arm having a wear-plate to engage the slide, substantially as described.

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Witnesses:

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C. SEDGWICK.