(No Model.)

# T. A. EDISON.

## TROLLEY FOR ELECTRIC RAILWAYS.

No. 476,985. Patented June 14, 1892.

Fig. 1.

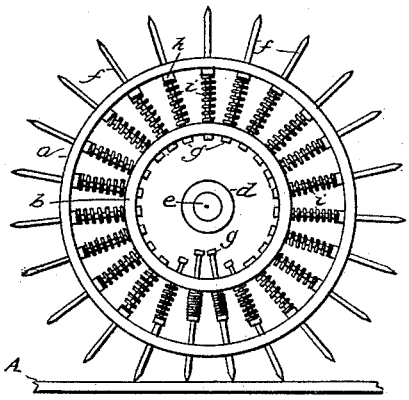



Fig. 2.

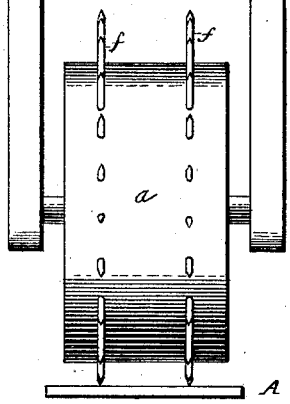
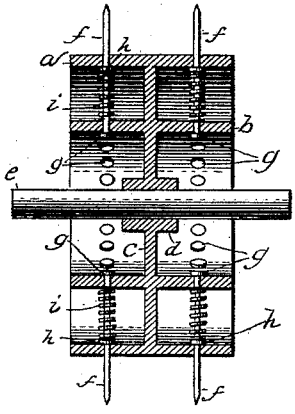



Fig. 3.




Witnesses
Norris A. Clark.
L. Curran

Inventor
Thomas A. Edison
By his Attorneys
Geo. Seely

# UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF LLEWELLYN PARK, NEW JERSEY.

## TROLLEY FOR ELECTRIC RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 476,985, dated June 14, 1892.

Application filed November 21, 1890. Serial No. 372,230. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS A. EDISON, a citizen of the United States, residing at Llewellyn Park, in the county of Essex and State of New Jersey, have invented a certain new and useful Improvement in Current-Collecting Devices for Electric Railways, (Case No. 898,) of which the following is a specification.

My invention relates, mainly, to those electric railways in which the supplying-circuit or a portion of such circuit is a rail, strip, bar, or other like conductor laid on the ground; and my object is to provide a simple and effective device for making a traveling electrical contact with such a conductor. Difficulty is experienced in this direction in addition to the ordinary difficulties of moving contacts by reason of the conductor becoming covered with mud, dirt, snow, ice, &c., which often increases the resistance of the contact to such an extent as to prevent the flow of sufficient current to move the traveling car. This is especially the case when currents of low potential and large quantity are employed in the system which I propose to use, the present method being wholly incapable of taking off the current. I have found that by the use of a contact device consisting of a series of pointed rods or spikes spring-pressed against the conductor this difficulty is obviated. The points pierce through the insulating-covering to the metal and make a close spring-contact with the latter, and by so arranging the points that several of them are in contact at once a low-resistance connection is formed. I prefer to arrange the contact-spikes about the circumference of a wheel through the rim of which they pass, and within which they are provided with springs, which are compressed when the spikes come in contact with the conductor, and so hold such spikes forward against the conductor.

My invention is illustrated in the annexed drawings.

Figure 1 is a side view of the contact-wheel; Fig. 2, a front elevation of the same, and Fig. 3 a vertical transverse section thereof.

A represents a conductor, which in this case is a flat bar of metal such as may be laid between the main rails of a railway-track to form one side of the supplying-circuit. The contact-wheel is suitably supported in bearings under the car. Such wheel consists of an outer rim or flange *a*, an inner flange *b*, a central web *c*, and a hub *d*, placed on a shaft or spindle *e*. The flanges *a b* have numerous holes in line with each other and arranged, preferably, in two lines around the wheel, so as to make a double contact, or there may be three or more such lines of holes, if desired. Through each pair of holes passes a pointed rod or spike *f*, having a head *g* and a flange *h*, and between the flange *h* of each spike and the inner flange *b* of the wheel a heavy spring *i* is coiled on the spike.

The operation of this device is apparent and is well illustrated in Fig. 1. As the car moves along and the wheel turns the lowermost spikes are in contact with the rail and are pushed in through the wheel-flanges, the springs being compressed and projecting the spikes outwardly against the conductor. The spikes are placed so close together that there is always a sufficient number in contact with the conductor to make a connection of sufficient conductivity for the purpose. I prefer to make the spikes of steel, hardened at the ends where contact is made.

What I claim is—

1. A current-collector for electric railways, having rods or spikes for making contact with the conductor, and a spring pressing each rod or spike outward, substantially as set forth.

2. A current-collector for electric railways, having several movable radial rods or spikes, the ends of which are adapted to bear on a suitable conductor, and a spring for pressing each rod or spike outward, substantially as described.

3. A current-collector for electric railways, having, in combination, a wheel and a series of pointed rods or spikes carried by said wheel, and springs projecting said rods or spikes outwardly, substantially as set forth.

4. A current-collector for electric railways, having, in combination, a wheel with holes in its periphery, and pointed rods or spikes extending loosely from said holes, substantially as set forth.

5. A current-collector for electric railways, having, in combination, a wheel with holes in its periphery, pointed rods or spikes project-

ing from said holes, and springs opposing the inward movement of said rods or spikes, substantially as set forth.

6. A current-collector for electric railways, having, in combination, a wheel with a central web and two concentric flanges, pointed rods or spikes passing through said flanges, and springs on said rods between the flanges, substantially as set forth.

7. A current-collector for electric railways, having spring-pressed pointed rods or spikes of hardened steel for making contact with the conductor, substantially as set forth.

This specification signed and witnessed this 27th day of October, 1890.

THOS. A. EDISON.

Witnesses:
RICHD. N. DYER,
CHARLES M. CATLIN.