No. 661,975. Patented Nov. 20, 1900.

H. S. GOUGHNOUR.

TROLLEY.

Application filed Dec. 12, 1899.

(No Model.)

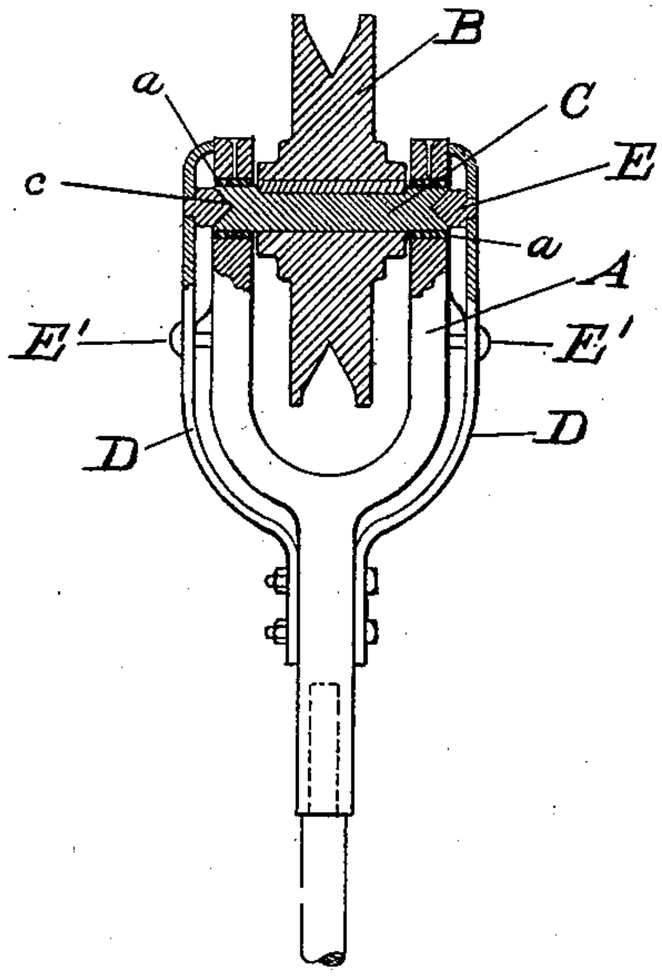

Fig. 1

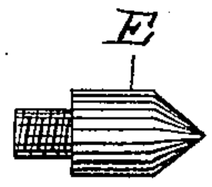

Fig. 2

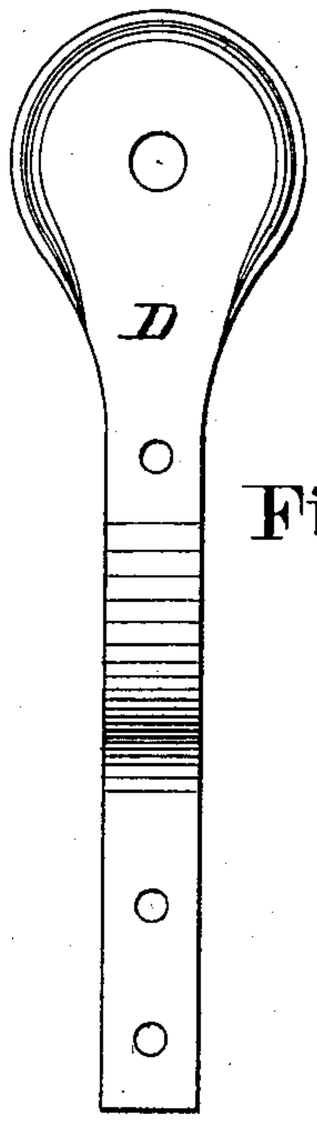

Fig. 3

WITNESSES:

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UNITED STATES PATENT OFFICE.

HENRY S. GOUGHNOUR, OF JOHNSTOWN, PENNSYLVANIA, ASSIGNOR TO THE LORAIN STEEL COMPANY, OF PENNSYLVANIA.

TROLLEY.

SPECIFICATION forming part of Letters Patent No. 661,975, dated November 20, 1900.

Application filed December 12, 1899. Serial No. 740,087. (No model.)

To all whom it may concern:

Be it known that I, HENRY S. GOUGHNOUR, of Johnstown, in the county of Cambria and State of Pennsylvania, have invented a new and useful Improvement in Overhead Contact Devices, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention has relation to the overhead contact devices or trolleys of electric railways, and more particularly to a novel construction of the trolley wheel and harp.

One object of my invention is mainly to provide means of simple and efficient character for collecting the current from the trolley-wheel and conducting the same to the trolley pole or frame, such means being so constructed and arranged as to reduce to a minimum the friction and wear between the contact-surfaces and to maintain a good contact between said surfaces, notwithstanding a considerable amount of wear.

A further object is to provide means whereby one or both of the contacting parts may be removed and replaced when worn to such an extent as to be no longer useful without the necessity for providing a new wheel or harp.

With these and other minor objects in view the invention consists in the novel construction, arrangement, and combination of parts, all as hereinafter described, and pointed out in the appended claims, reference being had to the accompanying drawings, in which—

Figure 1 is a front view, partly in section, of a trolley wheel and harp embodying my invention; Fig. 2, a detail view of one of the conical contact devices, and Fig. 3 a plan view of the spring which carries the said device.

The letter A designates a trolley harp or fork, and B a trolley-wheel of the usual grooved type being hung in said harp upon a shaft or spindle C, to which it is fixed. The shaft or spindle is preferably of brass, and the wheel is keyed or otherwise removably secured thereto. The end portions of the shaft are journaled in the harp or fork in suitable hard-metal bushings *a*.

D designates spring-arms secured at one end to the trolley-pole or to the lower portion of the harp, one at each side thereof and exterior thereto. These springs each carry at their upper or free ends a contact E, having a cone-shaped point which makes a neat bearing fit in a conical recess *c* in the adjacent end of the shaft or spindle. These contacts E are preferably threaded into or otherwise removably secured to the springs, so that they can be replaced when worn. In order to protect the pins from arcs which may form when the wheel leaves the wire and the harp contacts with the side of the same and also to prevent the wire from catching between the springs and the harp, the springs are broadened at their upper portions and are flanged inwardly against the face of the harp, as shown in the drawings. Adjusting-screws E may also be provided for increasing the tension of the springs.

Inasmuch as the point of contact of the pins E is at the center of the shaft or spindle where the speed of revolution is at a minimum, there is comparatively little wear of the contacting surfaces, and the conical form of such surfaces enables a good contact to be maintained, notwithstanding considerable wear. Either the shaft or the contact-pins, or both, may be readily renewed at any time.

Although I have shown one of the contact devices at each side of the harp, it will be understood that a single device at one side only may be used. The shape of the contact devices may also be changed from the conical form shown.

I do not wish to limit myself to the exact construction and arrangement of parts herein shown and described, as the same may be varied in detail without departing from the spirit and scope of my invention.

Having thus described my invention, what I claim, and desire to protect by Letters Patent, is—

1. In a trolley, the combination of a harp, the bushings seated in the arms thereof, the wheel-spindle journaled in said bushings, the wheel removably secured to said spindle, and the contact-springs exterior to the harp-arms and having removable and renewable contact devices which bear on the end portions of the said spindle.

2. In a trolley, the combination of a frame or harp, a spindle journaled therein, a wheel secured to said spindle, and spring-arms secured to the said frame or harp and having at their free ends contact devices bearing on the end portions of the said spindle, said arms having inwardly-facing cup-shaped portions surrounding the said contact devices and bearing against the outer faces of the harp-arms.

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

HENRY S. GOUGHNOUR.

Witnesses:

M. E. SHARPE,

H. W. SMITH.