

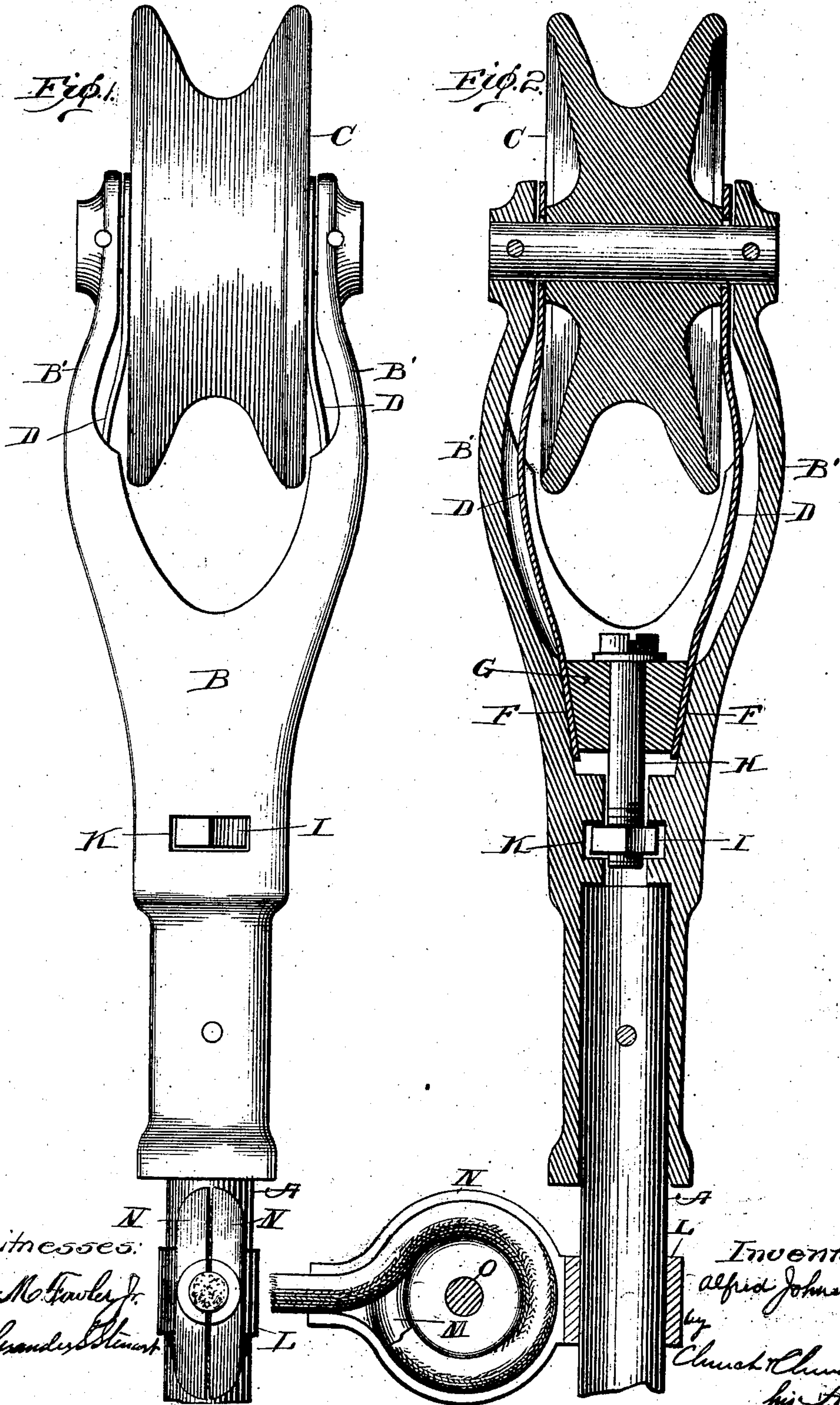
No. 692,519.

Patented Feb. 4, 1902.

A. JOHNSON.  
TROLLEY HARP.

(Application filed Oct. 10, 1901.)

(No Model.)





# UNITED STATES PATENT OFFICE.

ALFRED JOHNSON, OF QUINCY, ILLINOIS.

## TROLLEY-HARP.

SPECIFICATION forming part of Letters Patent No. 692,519, dated February 4, 1902.

Application filed October 10, 1901. Serial No. 78,243. (No model.)

*To all whom it may concern:*

Be it known that I, ALFRED JOHNSON, a citizen of the United States, residing at Quincy, in the county of Adams and State of Illinois, have invented certain new and useful Improvements in Trolley-Harps; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

This invention relates to improvements in that portion of an electrical railway equipment employed for supporting and taking the current from the trolley-wheel, the particular device to which the invention appertains being carried by the upper end of the trolley-pole and is known as the "trolley-harp."

The objects of the invention are to provide a simple structure in which the contact-springs may be conveniently and cheaply replaced or renewed when worn and at the same time held rigidly and so as to insure a good electrical contact.

The invention consists in certain novel details of construction and combinations and arrangements of parts, all as will be now described, and pointed out particularly in the appended claims.

In the accompanying drawings, Figure 1 is an elevation of the upper end of a trolley-pole and trolley-harp embodying the present improvements. Fig. 2 is a longitudinal section.

Like letters of reference in both figures indicate the same parts.

The trolley-pole (indicated by the letter A) may be of any usual or preferred construction, but adapted at its upper end for the attachment of the head or trolley-harp B. The upper portion of the latter is bifurcated, and the arms B' are provided with bearings for the journal or axle of the trolley-wheel C, the latter running between the arms and in position to contact with the overhead trolley-wire, as usual.

For insuring good electrical contact between the trolley-wheel and pole or conductor for conveying the current down to the car spring contact-arms D bear against opposite sides of the trolley-wheel within the arms B' and are firmly united with the body of the trolley-harp, so as to insure good electrical

contact as well as a firm and rigid support. The spring-arms preferably contact with the hub portions of the trolley-wheel, and hence preferably surround the journal or axle thereof, while at their lower ends said spring-arms project down into a recess having converging side walls F. A wedge-block G is inserted in the recess between the ends of the arms and when forced down clamps them firmly in their adjusted position and at the same time insures a good electrical contact, such as will not be affected by weather or other conditions. The preferred means for forcing the wedge downward to clamp the contact-springs consists of a bolt H, passing down through the wedge, through an opening in the body of the harp, which may be threaded, and into engagement with a nut I, located in a cavity or slot K in the base of the harp, as shown. The head of the bolt may be slotted for the reception of a screw-driver, and thus in adjusting the parts the spring-arms may be inserted and the bolt set up from the upper end of the harp before the trolley-wheel is put in place.

For drawing the trolley-pole down out of engagement with the wire a rope is employed, and to secure this rope to the pole at the base of the harp a clamp having an eye L surrounding the pole is employed, said clamp being provided with a circular recess m, in which the end of the rope lies. The two sides N of the clamp are preferably made separate and are united and the rope clamped by a central bolt or screw O, as will be readily understood.

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

1. The combination with a trolley-harp having a bifurcated upper end and a tapered recess at the base of the bifurcated portion, a trolley-wheel journaled between the arms of said harp, of contact-springs bearing on said wheel and having their lower ends located within the tapered recess, and an adjustable tapered plug located in said recess between the contact-springs for clamping the latter in position; substantially as described.

2. The combination with a trolley-harp having its upper end bifurcated forming arms and a tapered recess at the base and between the



arms, and a trolley-wheel journaled between the ends of said arms, of contact-springs bearing on opposite sides of the hub of said wheel and extending down between said arms and into the tapered recess, a tapered plug between said springs for clamping them in said recess, and a bolt passing down through said plug and into the base of the harp for hold-

ing the plug in place and whereby said bolt may be operated from the upper end of the harp; substantially as described.

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Witnesses:

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