

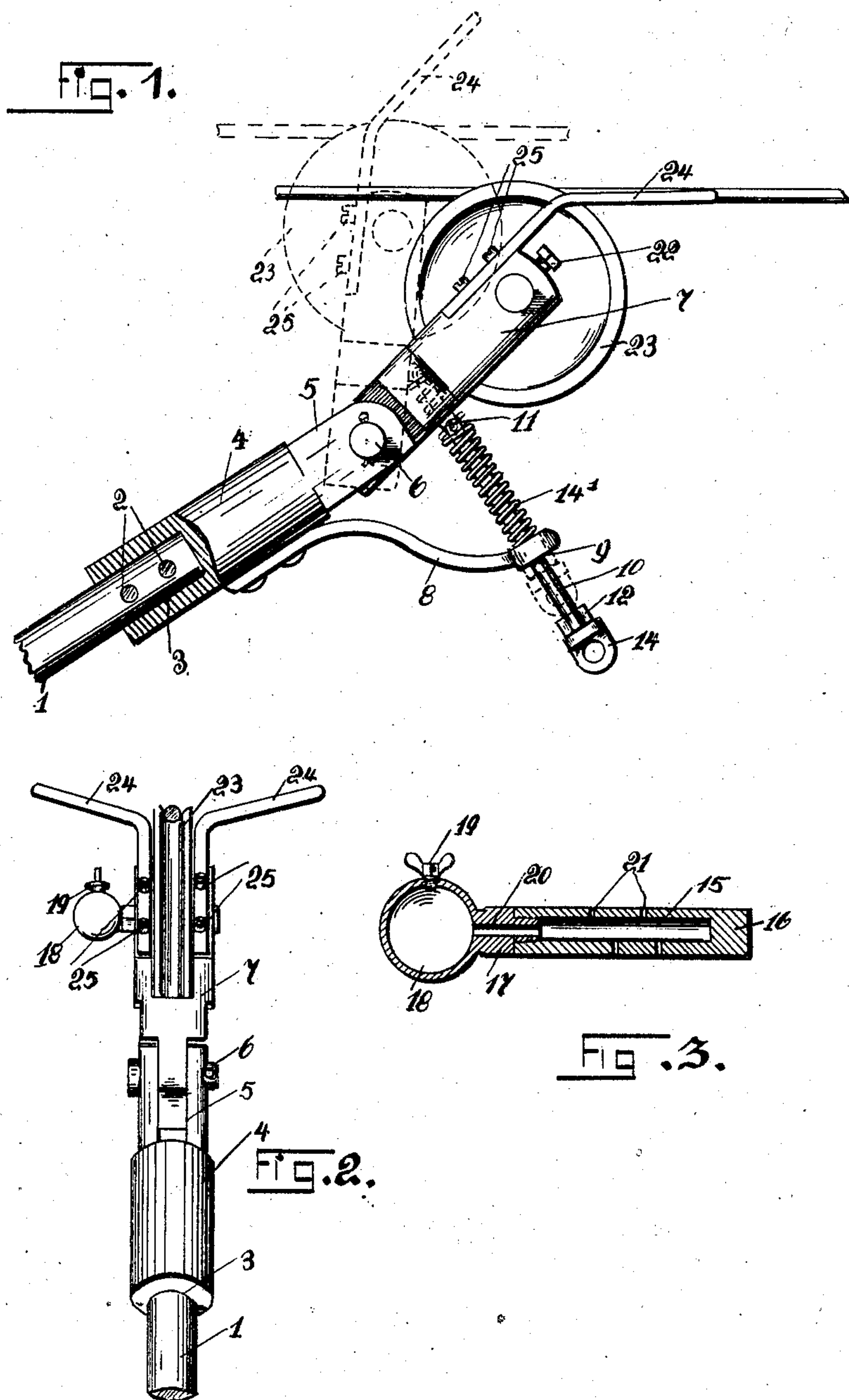
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C. DILLHOFF & J. HASTREITER.

TROLLEY.

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# UNITED STATES PATENT OFFICE.

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## TROLLEY.

SPECIFICATION forming part of Letters Patent No. 785,598, dated March 21, 1905.

Application filed December 13, 1904. Serial No. 236,689.

*To all whom it may concern:*

Be it known that we, CLEMENS DILLHOFF and JOSEPH HASTREITER, subjects of the Emperor of Germany, residing at Morgantown, in the county of Monongalia and State of West Virginia, have invented certain new and useful Improvements in Trolleys, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in trolleys, and more particularly to the harps in which trolley-wheels are journaled.

This invention has for its object the provision of a novel form of harp and means for actuating the same to at all times retain the harp in close proximity to a trolley-wire.

A further object of this invention is to provide novel means in connection with a harp for lubricating the spindle of the trolley-wheel, and we have constructed our improved harp in such a manner that if the same should accidentally become displaced from the wire it will be guided into position upon the wire to assume its normal path of travel.

With the above and other objects in view reference will be had to the drawings accompanying this application, wherein like numerals of reference designate corresponding parts throughout the several views, in which—

Figure 1 is a side elevation of our improved trolley. Fig. 2 is an end view of the same, and Fig. 3 is a longitudinal sectional view of a spindle used in connection with our improved trolley.

In the accompanying drawings we have illustrated our improved trolley in its normal position in relation to the trolley-wire, and in practice we ordinarily use the conventional form of pole now in use and secure our improved trolley device upon this pole.

The reference-numeral 1 designates the upper end of the trolley-pole, which is secured by pins 2 2 in a socket 3 of the harp-body 4. The upper end of the harp-body is bifurcated, as indicated at 5, and in this bifurcated end is pivotally mounted by a pin 6 the harp proper, which is designated by the reference-numeral 7.

The under face of the harp-body is provided with a rearwardly-extending arm 8, the outer end of which is provided with an aperture 9, through which passes a rod 10. The upper end of the rod is pivotally connected, as indicated at 11, to the under face of the harp proper, 7. The lower end of the rod 10 is provided with a nut 12 and an eyelet nut or stirrup 14, in which the ordinary trolley rope or cord (not shown) may be attached. The reference-numeral 14' designates a spring which is mounted upon the rod 10, interposed between the arm 8 and the harp 7.

In the harp proper is mounted a hollow spindle 15, the one end 16 of said spindle being closed, while in the other end is secured the shank portion 17 of a lubricant-receptacle 18. In the accompanying drawings we have illustrated this receptacle as being spherical in contour; but we do not care to confine ourselves to this particular shape. The receptacle 18 is provided with a screw-threaded plug 19, which will permit of access being had to the interior of the receptacle. The shank portion 17 of the receptacle is provided with a port 20, which communicates with the hollow spindle 15, and said spindle is provided with a plurality of radial apertures 21, the object of which will be presently described.

The spindle just described is secured in the harp proper by set-screws 22 22, and upon the spindle is revolubly mounted the trolley-wheel 23.

The reference-numerals 24 24 designate two substantially L-shaped arms which are secured to the sides of the harp 7 by set-screws 25 25, and the upper ends of these arms extend outwardly at an angle from said harp and the wire upon which the trolley-wheel 23 travels.

The operation of our improved trolley is as follows: The trolley as constructed by us is particularly adapted to be used for street-car service, although the same may be readily used in connection with other vehicles employing an electrical trolley-wire system. It is a well-known fact that when street-cars pass around a curve very rapidly there is a tendency for the trolley-wheel to become displaced from the trolley-wire, this also being true



when the trolley-wheel passes over irregularities on the wire; and it is the primary object of this invention to provide a harp which will at all times retain the trolley-wheel upon the trolley-wire. The construction which we have employed is of such a nature that the trolley-wheel will adjust itself to the different positions the trolley-wire may assume in respect to the trolley-wheel. In Fig. 1 of the drawings we have illustrated in dotted lines the position the trolley-wheel will assume when the wire is elevated, and by referring to this figure it will be observed that the spring 14' has expanded and elevated the harp proper to such a position that the trolley-wheel will be retained in engagement with the trolley-wire. The pivotal connection of the trolley proper within the harp-body 4 permits of this movement, and upon the trolley-wire assuming a lower elevation the spring 14' will be compressed by the trolley proper assuming its normal position.

The upward movement of the trolley proper is limited by the nut 12, carried on the lower end of the rod 10, and after the trolley-wheel has been raised as high as possible the arms 24 are adapted to retain the trolley-wire in close proximity to the trolley-wheel should the trolley-wheel become disengaged from the wire. The inclination of the outer ends of the arms 24 will guide the trolley-wire to its normal position upon the trolley-wheel, and in Fig. 1 of the drawings it will be observed that the arms extend a considerable distance above the trolley-wire when the trolley-wheel is in an elevated position. It is also a well-known fact that the rapidity at which the trolley-wheel revolves causes an overheated spindle and trolley-wheel, which creates considerable friction and in the course of time wears the trolley-wheel and harp to such an extent

that they are rendered useless. It is therefore with this fact in view that we have provided a lubricating feature in connection with our improved trolley, and from time to time the receptacle 18 is filled with a suitable lubricant, which will be fed to the journal of the trolley-wheel by the hollow spindle.

It will be noted that various changes may be made in the details of construction without departing from the general spirit and scope of the invention.

Having fully described our invention, what we claim, and desire to secure by Letters Patent, is—

1. The combination of a trolley-body having a bifurcated end and a rearwardly-extending arm having an aperture at its end, with a trolley-harp pivotally mounted in the bifurcated end of said body, a trolley which is journaled in said harp, a rod pivotally attached to said harp and passing through the aperture in said arm, a spiral spring surrounding said rod and an eyelet-nut carried on the end of said rod and adapted to receive a trolley-rope.

2. The combination of a trolley-body, a harp pivotally mounted thereon, a rearwardly-extending arm carried by the body, a rod pivotally attached to said harp and passing through said arm and provided with means for the attachment of a trolley-rope, a spiral spring surrounding said rod and L-shaped arms secured to the harp and extending rearwardly therefrom.

In testimony whereof we affix our signatures in the presence of two witnesses.

CLEMENS DILLHOFF.  
JOSEPH HASTREITER.

Witnesses:

JOHN L. HATFIELD,  
J. F. NELSON.