

No. 769,086.

PATENTED AUG. 30, 1904.

W. W. HOFFMAN.  
TROLLEY HARP.

APPLICATION FILED MAR. 24, 1904.

NO MODEL.

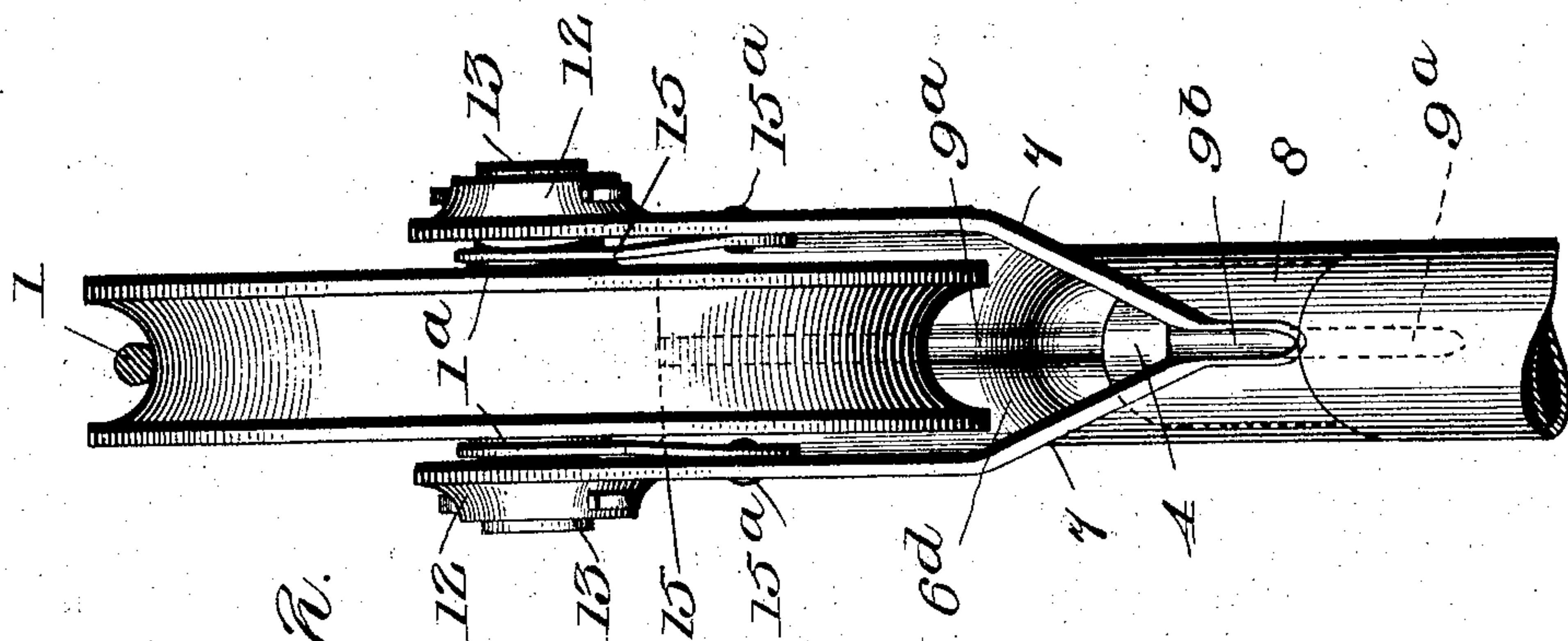


Fig. 2.

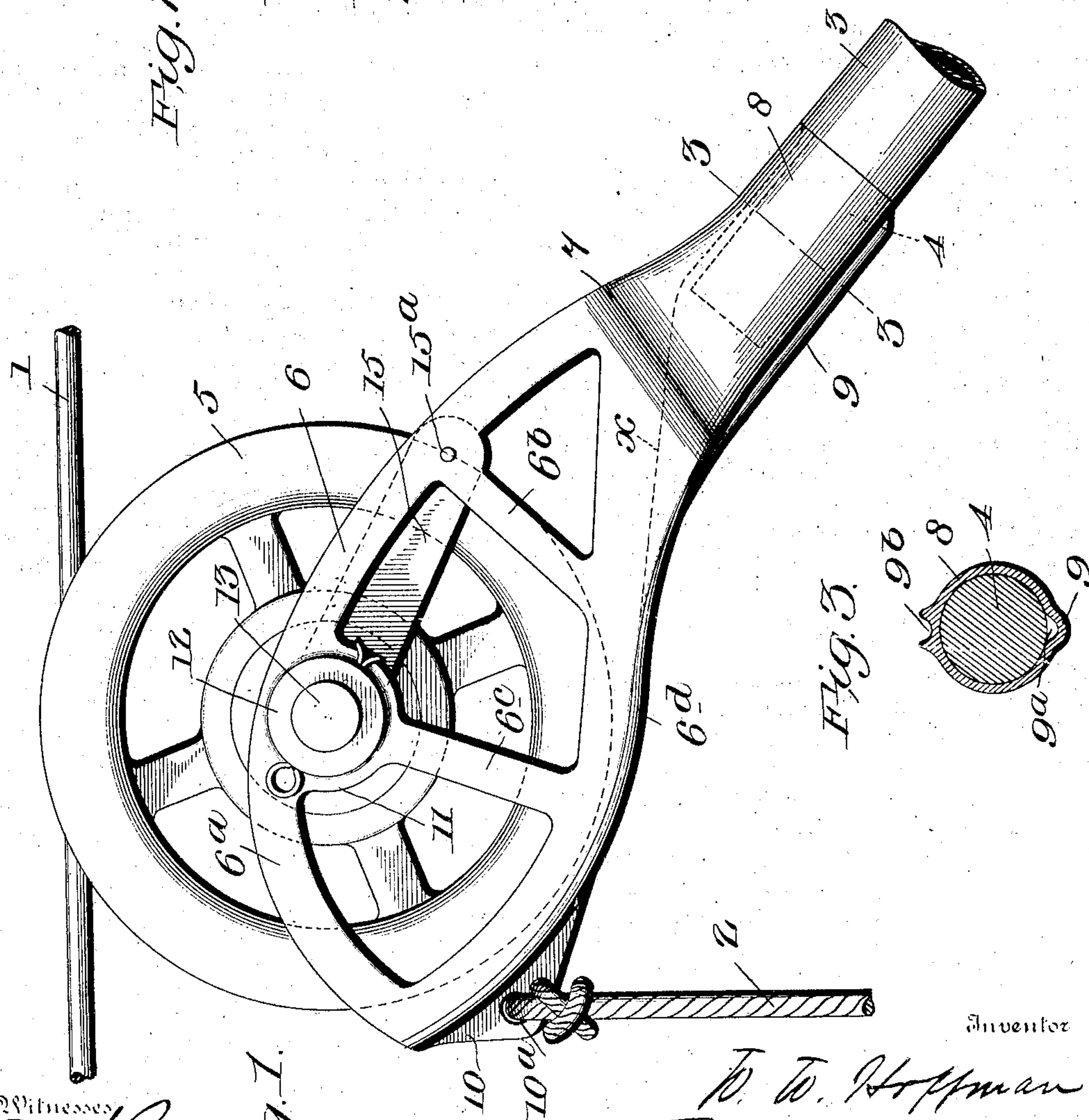


Fig. 3.

Witnesses  
Geo. A. Dupue  
Stephen Finster  
Fig. 1.

Inventor  
W. W. Hoffman  
By Dickinson & Fisher  
Attorneys



# UNITED STATES PATENT OFFICE.

WILLIAM W. HOFFMAN, OF WEST LAFAYETTE, INDIANA, ASSIGNOR TO  
ELECTRIC & STEAM RY. SUPPLY COMPANY, OF LAFAYETTE, INDIANA.

## TROLLEY-HARP.

SPECIFICATION forming part of Letters Patent No. 769,086, dated August 30, 1904.

Application filed March 24, 1904. Serial No. 199,840. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM W. HOFFMAN, a citizen of the United States, residing at West Lafayette, in the county of Tippecanoe and State of Indiana, 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 invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in means for mounting the trolley-wheel on a trolley-pole, and is especially applicable for use in connection with trolley-poles which are automatically retrieved by suitable mechanism when the trolley-wheel leaves the trolley-wire, but may be equally as well adapted for use with manually-controlled trolley-poles.

The invention consists in a special form of trolley-harp in which the trolley-wheel is journaled and which is adapted to be fitted on the end of the trolley-pole.

One of the objects of the invention is to make the harp of such construction that it will prevent the trolley-wheel from catching on the trolley-wire when it is drawn downward from a position above said trolley-wire when the wheel accidentally leaves the wire.

Another object is to provide a means for carrying off the oil-drippings from the wheel and also the water in inclement weather and prevent the same from running down the trolley-rope.

Another object is to provide a means for securing the trolley-rope on the said harp in a position substantially beyond the rear edge of the trolley-wheel, whereby greater leverage is secured and a consequent easier manipulation of the trolley-pole than if the rope were secured, as is now customarily done, at a point on the trolley-pole to the front of the wheel.

To more fully describe the invention, reference is had to the accompanying drawings, illustrating the same, wherein like numerals designate the same parts in the several views, and in which—

Figure 1 is a fragmentary view in side elevation of the trolley-pole with my improved

harp mounted thereon, portions of the trolley-wire and trolley-rope being also illustrated. Fig. 2 is an edge view looking to the left in Fig. 1, and Fig. 3 is a sectional view on the line 3 3 of Fig. 1.

1 designates the trolley-wire, 2 the trolley-rope, 3 the hollow trolley-pole provided with the solid end portion 4, 5 the trolley-wheel, and 6 the harp, in which the wheel is journaled. The harp 6 is of trough-like structure, the sides of which extend upwardly a sufficient distance so as to enable the trolley-wheel 5 to be journaled therein and rotate within the enlarged outer end thereof, the inner end of the side walls being bent inwardly, as at 7, and merging into a cylindrical portion 8, adapted to fit over the outer end of the trolley-pole. For the purposes of lightness in structure the side walls of the enlarged portion of the harp are of skeleton form, comprising the upper curved strip 6<sup>a</sup>, the forward strip 6<sup>b</sup>, and the central strip 6<sup>c</sup>, the lower ends of these strips merging into the curved bottom 6<sup>d</sup>, forming the trough of the harp.

9 is a hollow rib formed on the lower face of the cylindrical portion 8 of the harp and extending longitudinally thereof, forming a conduit 9<sup>a</sup> from the curved trough portion 6<sup>d</sup> to the end of the cylindrical portion 8 for conducting the liquid contents of said trough down the lower face of the trolley-pole. The upper face of the cylindrical portion 8 is grooved or channeled longitudinally, as at 9<sup>b</sup>, to conduct the liquid contents out of the trough should the passage-way 9<sup>a</sup> become obstructed.

10 is an ear or lug formed at the outer end and on the underneath face of the trough 6<sup>d</sup>, to which the trolley-rope is secured, as through the aperture 10<sup>a</sup>. At the point of joinder between the upper strips 6<sup>a</sup> and the cross-strips 6<sup>c</sup> are formed enlarged portions 11, carrying the bosses 12, in which are journaled the ends of the spindle 13, and on this spindle within the harp the trolley-wheel is rotatably mounted. The spindle 13 may be held in position by any suitable means; but for the purpose of illustration I have illustrated the ordinary split-pin-securing means.

15 represents the contact-springs, one on



each side of the wheel, which are riveted at one end, as at 15<sup>a</sup>, to the harp and bent inwardly at their other ends to press against the hub 1<sup>a</sup> of the trolley-wheel.

5 By the construction illustrated it will be obvious that the oil-drippings from the wheel, as well as the water during inclement weather, will fall into the trough 6<sup>d</sup> and ordinarily conducted through the conduit or groove 9<sup>a</sup> to  
10 the lower face of the trolley-pole; but, as before mentioned, should this groove become obstructed the water will rise to the level indicated by the dotted line *x* and will flow through the channel 9<sup>b</sup> and run down the  
15 trolley-pole, the inner end of the trolley-pole, as at 4, being solid or plugged to prevent the water from running therethrough should the channel-way 9<sup>a</sup> become obstructed. Also the  
20 attachment of the rope to the bottom of the trough, together with the skeleton sides of the harp, forms a perfect guard for the wheel to prevent it from catching over the top of the trolley-wire when it is being drawn down from a position above said wire.

25 Although I have specifically described the above as the preferred form of construction, it will be obvious that other means might be provided for preventing the oil and water from running down the trolley-rope, and I do  
30 not wish to limit myself to the exact details of construction as illustrated; but

What I claim is—

1. A trolley-harp provided at its lower end with a trough-shaped portion, in combination  
35 with means for mounting the trolley-wheel and discharging the drippings therefrom into said trough, and means for carrying off the liquid contents of said trough out of contact with the trolley-rope.

40 2. A trolley-harp provided with a trough-shaped base portion, in combination with means for mounting the trolley-wheel and discharging the drippings therefrom into said trough, and means other than the trolley-rope  
45 for carrying off the liquid contents of said trough.

3. A trolley-harp provided at its lower end with a trough-shaped portion, in combination with means for mounting the trolley-wheel  
50 and discharging the drippings therefrom into said trough, and means for conducting the liquid contents of said trough to the trolley-pole.

4. A trolley-harp provided at its lower end

with a trough-shaped portion, in combination 55 with means for mounting the trolley-wheel and discharging the drippings therefrom into said trough, and means for conducting the liquid contents of said trough to the trolley-pole, comprising a channeled rib extending 60 from said trough along said trolley-pole.

5. A trolley-harp provided with a trough-shaped lower portion merging into a cylindrical portion adapted to fit over the end of the trolley-pole, in combination with means 65 for mounting the trolley-wheel and discharging the drippings therefrom into said trough, and means for conducting the liquid contents from said trough to said trolley-pole, comprising a channeled rib extending along said cylindrical portion and communicating with said trough. 70

6. A trolley-harp provided with a trough-shaped lower portion converging into a cylindrical portion adapted to fit over the trolley-pole, said cylindrical portion provided on its 75 lower face with a channeled rib and on its upper face with a groove, said groove and the channel of said rib communicating at one end with said trough, in combination with means 80 for mounting the trolley-wheel and discharging the drippings therefrom into said trough.

7. A trolley-harp provided with spaced side walls and a trough-like base portion, in combination with means for revolvably mounting 85 the trolley-wheel between said spaced walls above said trough, whereby the trough-like portion forms a guard for the trolley-wheel and a means for catching the drippings therefrom, and means for discharging the contents 90 of said trough.

8. A trolley-harp provided with side walls converging inwardly at their forward ends and merging into a cylindrical portion adapted to be secured to the end of the trolley-pole and 95 provided at its base with a trough-like portion adapted to receive the drippings from the trolley-wheel, also forming a guard therefor, in combination with means for revolvably mounting the trolley-wheel between the side 100 walls of said harp above said trough-like portion.

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

WILLIAM W. HOFFMAN.

Witnesses:

MARTIN L. SNYDER,  
MARGARET BOOHER.