

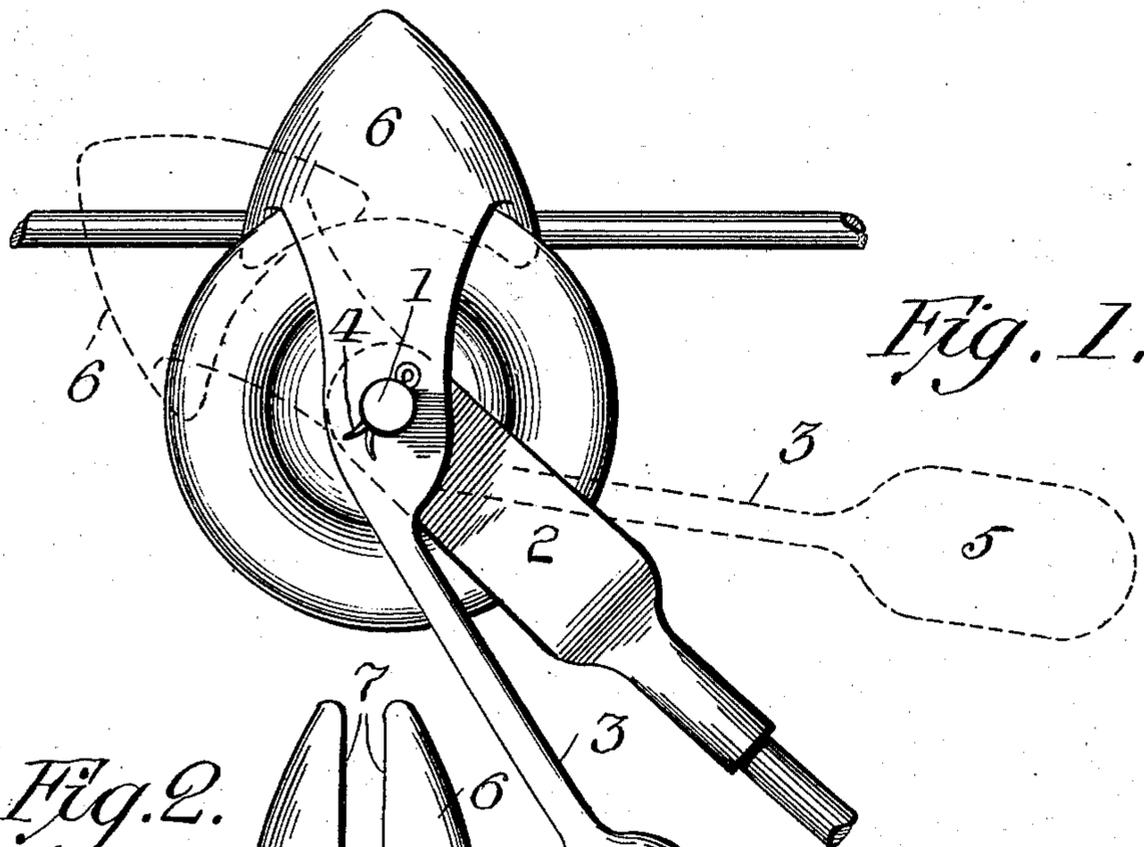
No. 748,441.

PATENTED DEC. 29, 1903.

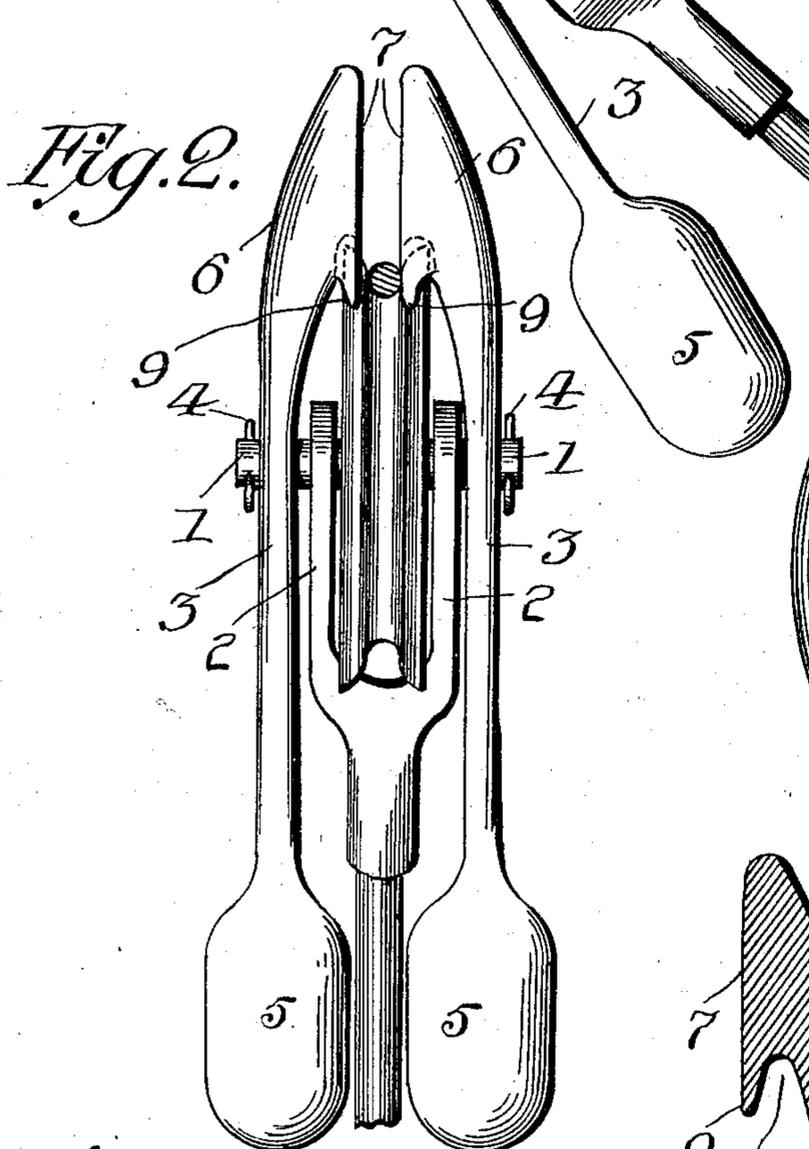
T. F. VARLEY.  
TROLLEY.

APPLICATION FILED AUG. 14, 1903.

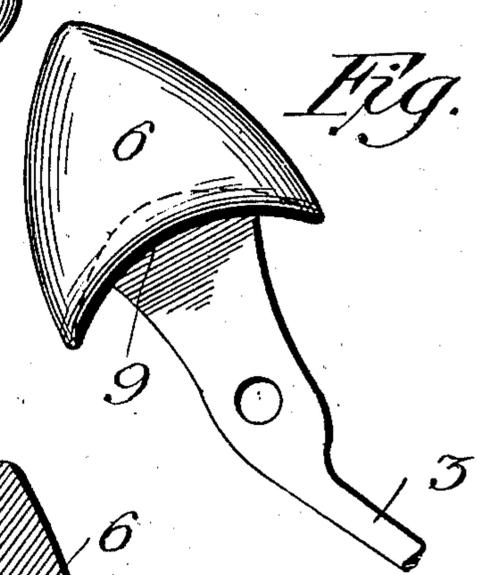
NO MODEL.



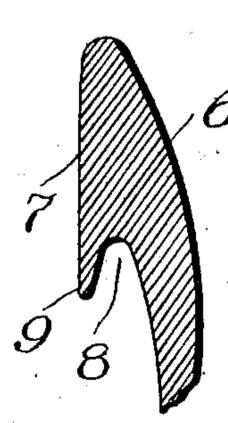
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



*Fig. 4.*

*Witnesses:*  
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# UNITED STATES PATENT OFFICE.

THOMAS F. VARLEY, OF LOWELLVILLE, OHIO.

## TROLLEY.

SPECIFICATION forming part of Letters Patent No. 748,441, dated December 29, 1903.

Application filed August 14, 1903. Serial No. 189,477. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS F. VARLEY, a citizen of the United States of America, residing at Lowellville, in the county of Mahoning and State of Ohio, have invented certain new and useful Improvements in Trolleys, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to certain new and useful improvements in trolleys, and relates more particularly to a trolley designed to prevent the trolley-wheel from losing the wire, the primary object of the invention being to provide novel and effective means for retaining  
15 the trolley-wheel normally in engagement with the current or trolley-wire. To this end guards of a particular construction are hung or mounted to swing on the axle of the trolley-wheel, these guards being so shaped as to swing freely when they engage with a cross-wire or switch in order to readily pass the same, and the lower ends of the guards are weighted, so as to normally retain the same  
20 in their guarding position to retain the wheel in engagement with the wire.

The specific construction entering into the invention will be hereinafter more particularly described and then pointed out in the claims, and in describing the invention in detail reference will be had to the accompanying drawings, forming a part of this application, and wherein like numerals of reference will be employed for designating like parts  
25 throughout the different views of the drawings, in which—

Figure 1 is a side elevation of my improved device, showing the same in its guarding position in full lines and in dotted lines the position the guards assume when engaged by a cross-wire, switch, or the like. Fig. 2 is a rear elevation of the trolley-wheel and a part of the pole, showing the guards in their normal position. Fig. 3 is a detached side elevation of a part of one of the guards, and Fig.  
35 4 is a transverse vertical sectional view of the same.

My improved device may be employed in connection with the ordinary trolley wheel and harp, and where the axle 1 in the ordinary construction is not of sufficient length

to permit the attachment of my device thereto I place a longer axle in position, the axle required extending beyond each side of the harp 2, as shown, so as to form journals for  
40 the guards or finders 3. The guards are mounted on the extended ends of the axle and retained in position in any suitable manner, such as by keys 4, as shown. These guards each comprise a shank, the lower end  
45 of which carries a weight 5 and the upper end of which is substantially spear-shaped, this spear-shaped end 6 having a convexed outer face and a vertical inner face or wall 7. A segmental groove 8 is cut into the inner  
50 face of this head 6 back of the vertical inner wall 7, and this groove forms an overhanging flange 9, which lies inside the rim of the trolley-wheel, said rim of the trolley-wheel engaging and riding in the groove 8 of  
55 the guards. By this means these guards are always in the same relative position with the trolley-wheel, yet are free to swing on their journals as may be required when they engage with a cross-wire or switch, and as soon  
60 as they have passed such obstruction the weights 5 return the guards to their normal or guarding positions. It is to be noted that the guards are free to swing in either direction and may be applied to the ordinary trolley-wheel. The heads projecting above the  
65 wheel normally guard the wheel, so that in event of the wheel leaving the wire the latter is retained in the pass between the heads and the wheel conducted back into engagement with the wire.  
70

It will be evident that in the practice of the invention various changes may be made in the details of construction without departing from the general spirit of the invention.  
75

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

1. The combination with the harp, with the trolley-wheel mounted therein, with the axle  
80 for mounting said trolley-wheel, of a pair of guards mounted on the axle and having a weighted lower end, and a spear-shaped upper head with grooves of a segmental shape to form an overhanging flange, said flange  
85 extending inside of the rim of the trolley-wheel and below the periphery thereof, the

inner faces of said heads lying in closer relation than the space between the flanges of the trolley-wheel.

2. In combination with a trolley-wheel and  
5 the axle on which said wheel is mounted, of  
a pair of guards each comprising a shank  
weighted at its lower end, said shanks being  
mounted on said axle, and a spear-shaped  
upper head on said shanks, said head on its  
10 inner face being provided with a segmental-  
shaped groove, the periphery of the rim of

said wheel extending within said groove, the  
lower end of said head formed by said groove  
extending within the groove of the trolley-  
wheel, and having the lower portion of said 15  
head extending on the outside of said wheel.

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

THOMAS F. VARLEY.

Witnesses:

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R. S. JOHNSTON.