

(No Model.)

J. HESS.  
TROLLEY FOR ELECTRIC RAILWAYS.

No. 549,091.

Patented Oct. 29, 1895.

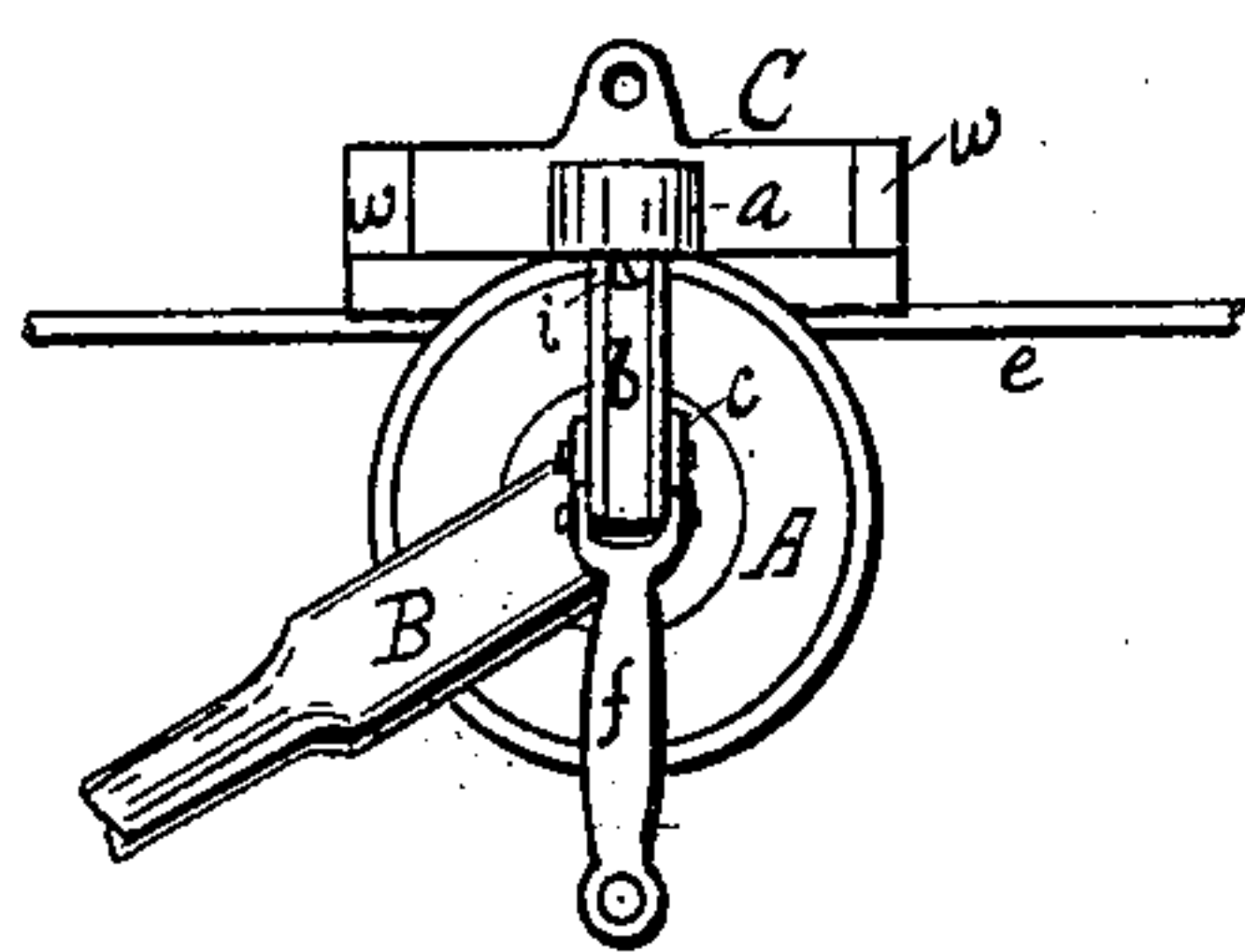


Fig. 1.



Fig. 2.

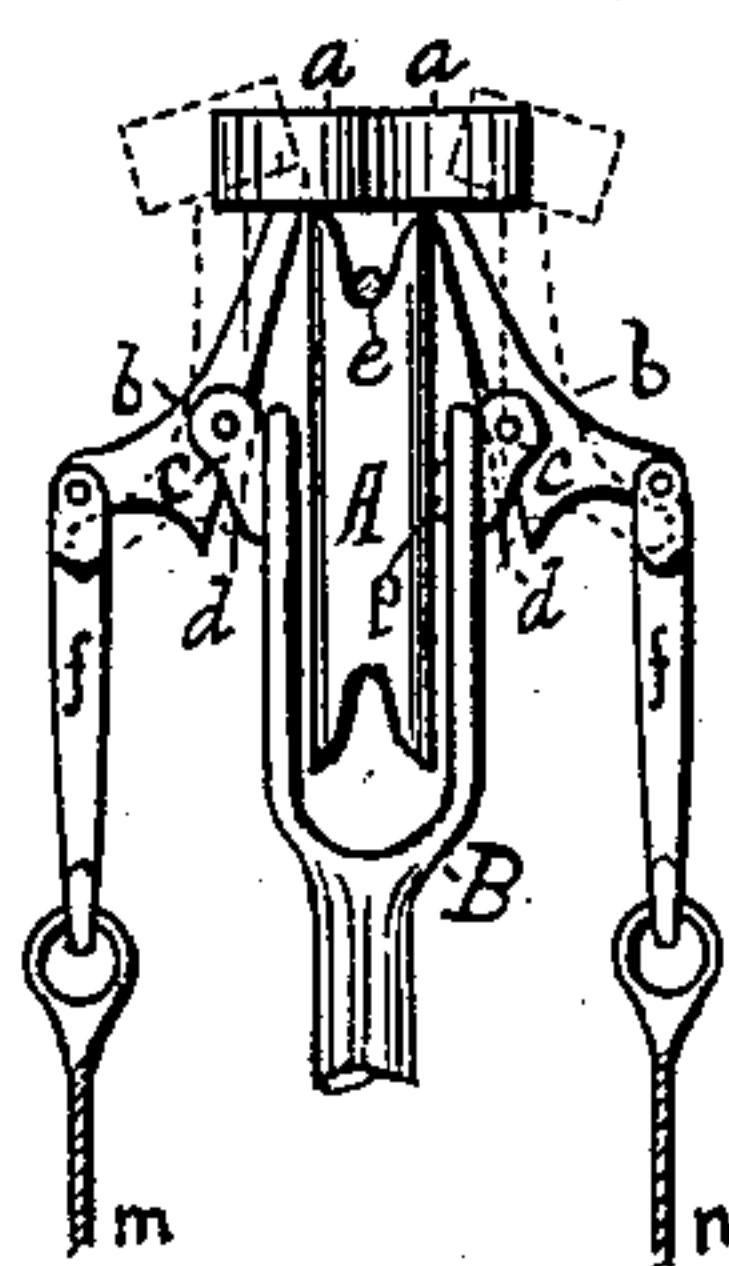


Fig. 3.

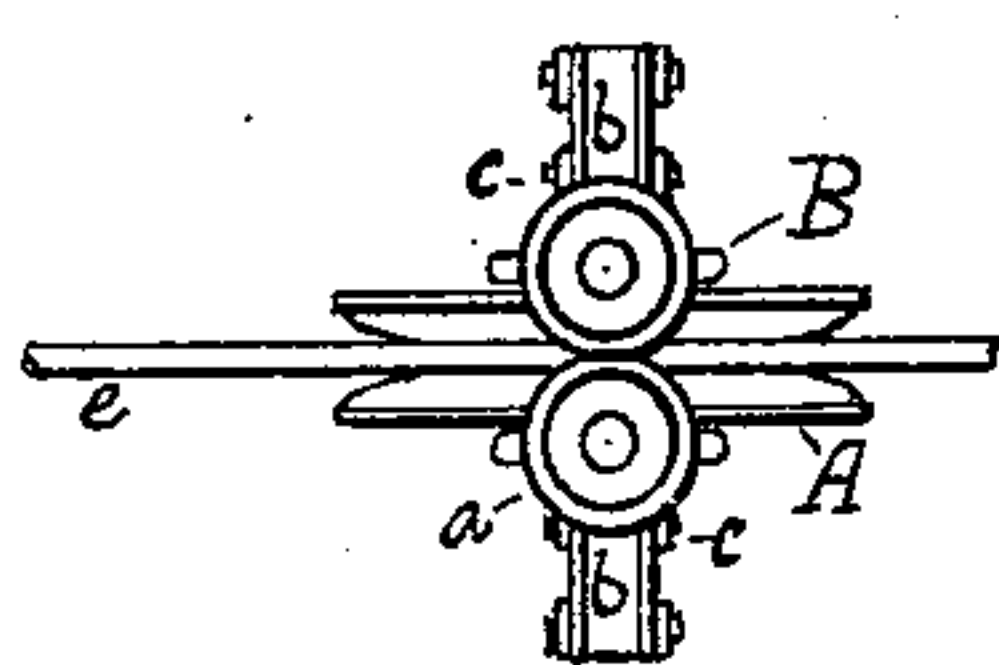


Fig. 4.



Fig. 5.

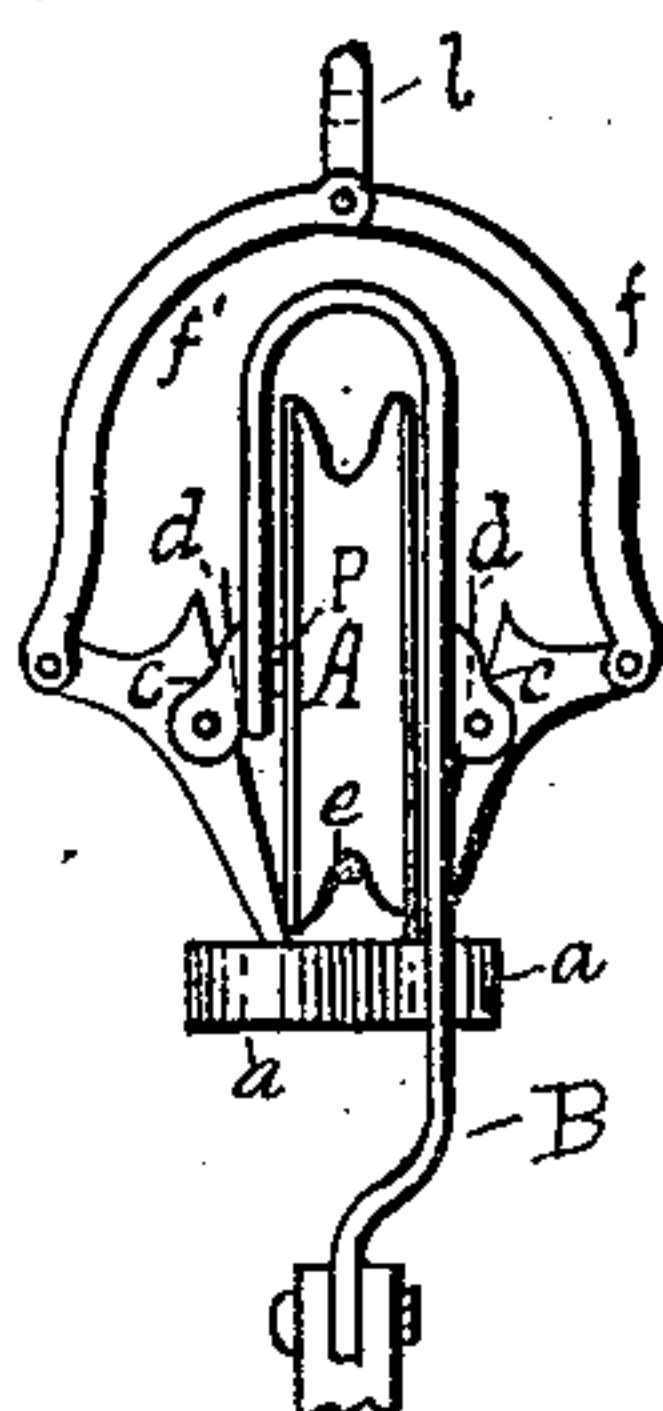


Fig. 6.

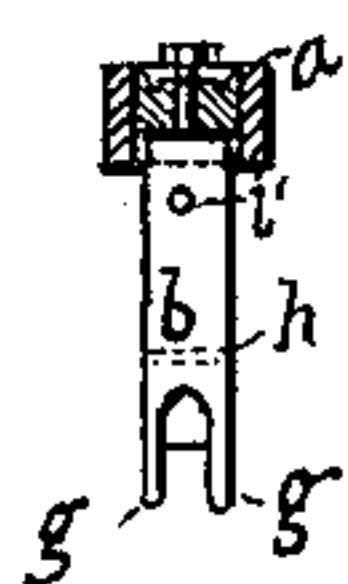


Fig. 7.

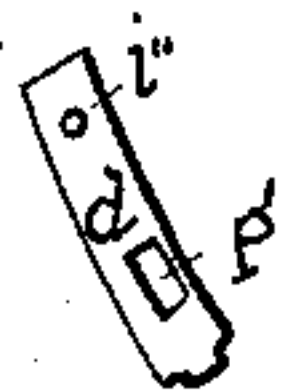


Fig. 8.

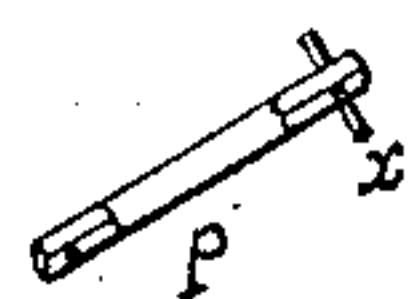


Fig. 9.

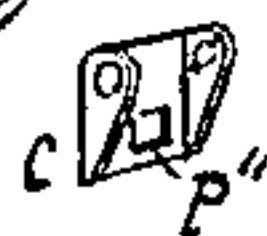


Fig. 10.

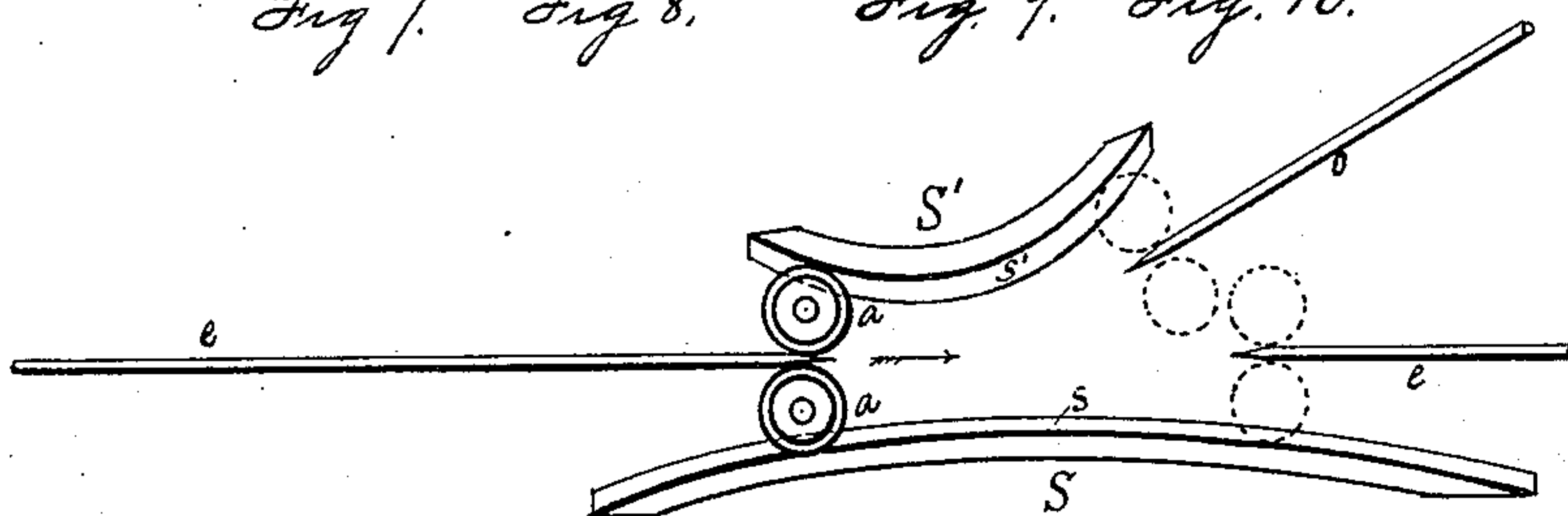


Fig. 11.

Witnesses:  
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# UNITED STATES PATENT OFFICE.

JACOB HESS, OF SCRANTON, PENNSYLVANIA.

## TROLLEY FOR ELECTRIC RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 549,091, dated October 29, 1895.

Application filed May 13, 1895. Serial No. 549,105. (No model.)

*To all whom it may concern:*

Be it known that I, JACOB HESS, a citizen of the United States, residing at Scranton, in the county of Lackawanna and State of Pennsylvania, have invented certain new and useful Improvements in Trolleys for Electric Railways; and I 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to that class of trolleys which is used in electric railways for keeping a continuous contact with an electrically-charged wire or cable overhead; and the object of my device is to provide a trolley which cannot leave the wire or cable unless intentionally released by the person having it in charge.

To this end my invention consists of the construction and combination of parts, as described herein and illustrated in the drawings accompanying, which form a part of this specification.

Referring to the drawings, Figure 1 represents a side elevation of my trolley and a side elevation of one of the supports or hangers that is used in connection with it in their relation with the wire or cable on which the trolley is to run. Fig. 2 is an end view of the hanger and a cross-section of the wire supported by it. Fig. 3 is a front or back elevation of my trolley complete, showing the operation of the parts when it is to be removed or replaced upon the wire. Fig. 4 is a top elevation of the trolley, and Fig. 5 a top elevation of the hanger. Fig. 6 shows one of my trolleys adapted to be used in the inverted position—i. e., running on top of an overhead wire. Figs. 7, 8, 9, and 10, respectively, show details in the construction of the essential features of my invention; and Fig. 11 is a diagram showing the operation of my trolley in a switch.

Similar letters refer to similar parts throughout the several views.

The main trolley-wheel A is attached to the bifurcated end of the trolley-bar B by the pin or axle *p*, the said pin or axle being revolu-

ble in its bearings in the ends of the bar B, its rounded middle portion serving as the axis of the main trolley-wheel and its square ends serving as shanks, to which are attached the lugs *c c*, the square ends of the pin *p* fitting exactly into the hole *p''* of the lug *c*. To the lugs *c c* are pivoted the L-shaped levers *b b*, having at their top ends the revoluble disks or wheels *a a*, and at their outer ends the arms *f f*, pivotally attached. The levers *b b* are held into normal or closed position by means of small flat springs *d d*, which are attached by a screw or rivet *i* through the holes *i'* and *i''*, the said springs being supplied with a slot *p'*, adapted to receive the end of the pin *p*, which assists to hold the spring in place and also permits the necessary sliding action of the spring. The said L-shaped levers are also provided with projections *g g*, which stride the pin *p*, which projections serve as a stop to the lever and also hold it steady in its position. Fig. 7 shows an inner side view of one of the L-shaped levers, in which the dotted lines *h* show the position of the hole through which the rivet passes which pivots said lever to the lug *c*. (Shown in Fig. 10.)

The depending arms *f f* are made heavy, so as to maintain an upright position of the levers *b b*; but when the inverted form, Fig. 6, of my trolley is used the upwardly-extending arms *f' f'*, which are lighter than *f f*, are substituted. The said arms *f' f'* are pivoted together at their upper ends and one of them terminates in the lug *l*, which is adapted to be used in lifting the trolley off the wire.

The hanger C, which is adapted to be used in connection with my trolley, is comprised in an enlarged part *e'*, a thinner shank part having wedge-shaped ends *w w*, adapted to parting the wheels *a a* when the trolley is in use, and a lug for suspending the hanger, as shown in the figures.

The operation of my device is now readily explained. By pulling the ropes *m* and *n*, which may be twisted into one, if desired, the wheels *a a*, which are normally held together by the springs *d d*, are pressed apart to the positions shown by the dotted lines, the levers *b b* bending outward until they are stopped by contact of the projections *g g* with the flat surfaces of the lugs *c c*. The trolley can now be placed on or off the wire as required. As



the ropes are released, the springs *d d* throw the wheels *a a* together again, and, being closed over the top of the wire, the trolley cannot leave it on any account until released again, as  
 5 aforesaid. To remove the inverted trolley, as shown in Fig. 6, a rod or hook is inserted into the lug *l* and lifted upward. This action spreads the retaining-wheels in a similar manner to the ropes in Fig. 3. In passing a switch  
 10 the wheels *a a* act as rollers against the guides *S* or *S'* according as the turn is made or not, and direct the trolley moving, say, in the direction of the arrow, Fig. 11, to the wire *o* or to *e*, as required. It is impossible for the trolley  
 15 to leave the switch, as the ordinary trolleys now in use generally do, since the flanges *s* and *s'* are adapted to extend under the outer rims of the retaining-wheels and thus prevent running off.

20 What I claim as new, and desire to secure by Letters Patent, is—

1. The herein described trolley consisting of the combination of the main trolley-wheel *A* revolving on the pin *p*, the ends of the said  
 25 pin extending through the ends of the bifurcated portion of the trolley bar *B* and revolvable in the same, the lugs *c c* and the *L* shaped levers *b b* hinged to said lugs, and the lugs fixed to the ends of the pin *p*, and the  
 30 said levers having at their upper ends rotatable disks *a a* with their axes at right angles

to the axis of the main trolley wheel, and the said disks normally pressed together immediately beyond the rim of the main trolley wheel by means of the flat springs *d d*; and  
 35 the said *L* shaped levers having pivotally attached at their outer ends, the arms *f f* by which the said levers may be operated so as to spread the rotating disks *a a* when required, substantially as described and for the  
 40 purposes set forth.

2. In a trolley of the kind described the combination with a main trolley wheel of a pair of disks *a, a*, rotatable on axes parallel  
 45 to the plane of rotation of the main trolley wheel, and closing together above and in the center plane of the said main trolley wheel, the said disks adapted to be held in the closed position by guides *S, s*, running concurrently  
 50 with the trolley wire at switches, but adapted to be pressed apart by the wedge shaped edges of the supports of the trolley wire, and also to be fully opened and released from the  
 55 trolley wire by means of the *L*-shaped levers *b, b*, and the arms *f, f*, substantially as shown and described.

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

JACOB HESS.

Witnesses:

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 CHAS. W. DAWSON.