

UNITED STATES PATENT OFFICE.

JULIUS A. GRASBERGER, OF RICHMOND, VIRGINIA.

TROLLEY-STAND.

SPECIFICATION forming part of Letters Patent No. 787,036, dated April 11, 1905.

Application filed January 20, 1905. Serial No. 241,984.

To all whom it may concern:

Be it known that I, JULIUS A. GRASBERGER, a citizen of the United States, residing at the city of Richmond, State of Virginia, have invented certain new and useful Improvements in Trolley-Stands; 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.

This invention relates to trolley-stands for use on the cars of electric railroads; and it consists in the novel construction and combination of the parts hereinafter fully described and claimed.

In the drawings, Figure 1 is a side view of the trolley-stand, showing the trolley-wheel in contact with the wire. Fig. 2 is a plan view of the same. Fig. 3 is a longitudinal section taken on the line *xx* in Fig. 2 and showing the trolley-wheel in its dropped position after leaving the line-wire.

A is a base-plate which is secured to the top of the car.

B is a longitudinal bar which supports all the trolley mechanism. The bar B has a cylinder *b* secured to its under side at about the middle of its length, and this cylinder projects downwardly through a hole *b'* in the plate A. The cylinder *b* has a disk C at its top under the bar B, and C' is a plate or disk which is secured to the lower end of the cylinder. An antifriction-ring *c* is arranged between the disk C and the plate A, and a second antifriction-ring *c'* is arranged between the plate A and the disk C'. These rings *c* and *c'* encircle the cylinder *b* and are preferably formed of round rods of steel bent to circular form and having their ends welded together.

D is a curved arm which has a forked lower end portion *d*, which is pivoted to the middle part of the bar B by a pin *d'*. The trolley-pole E is secured to the upper part of the arm D in any approved manner, and it supports a trolley-wheel *e* in contact with the line-wire *f*, so as to take current from it.

G is a longitudinal bar, which is provided with a cross-head F at one end. The bar G and the cross-head F are shown formed integral with each other; but they may be at-

tached or connected together in any other approved manner. This cross-head is provided with rearwardly-projecting lugs *f'*, which are pivotally connected with one end portion of the bar B by means of curved links *g* and pins *g'*. The other end portion of the bar G is provided with a gab end H.

I is a catch which is pivoted on a pin *i* in the forked end portion *d* of the arm D. When the parts are in the positions shown in Fig. 1, the gab end H engages with the catch and the trolley-wheel is pressed into contact with the line-wire by means of two spiral springs J, arranged between arms *j* on the cross-head F and lugs *j'* on the bar B. These springs J are provided with adjusting-screws *k*.

K is an adjusting-screw which engages with a lug *k'* on the bar B and which bears against the lower part of the catch I. When the screw K is screwed up so as to move the lower end of the catch farther away from the lug *k'*, the catch is tilted on its pivot, so that the release of the gab end takes place more freely, and by adjusting this catch in a suitable manner the whole mechanism can be set to work to the best advantage.

The bar B is provided with two stop-lugs *m*, and *m'* represents screws which engage with the cross-head F and which bear against the lugs *m*. These screws and lugs limit the forward movement and travel of the bar G and its gab end which engages with the catch I.

N is a setting-rod which is pivoted at one end to a pin *n* in the forked portion *d* of the arm D. The other end portion of the setting-rod N is provided with a screw-threaded portion P, and *p* is a tube which is slidable over the said screw-threaded portion. Stop-nuts *p'* are provided at the ends of the said tube and engage with the screw-threaded portion of the rod. The tube *p* is slidable in a hole in the cross-head F and protects the screw-threads from injury. The stop-nuts are adjustable upon the rod and limit its motion by striking against the cross-head.

R is an adjustable spring which is arranged between the curved arm D and the other end portion of the bar B from that previously referred to herein.

When the parts are in the positions shown

in Fig. 1 and the trolley-wheel accidentally leaves the line-wire, the trolley-head flies up and the gab end tilts over the catch and slides over the top of it to the position shown in Fig. 3. The upward movement of the trolley-pole is limited by the rear stop-nut, which strikes the cross-head. When the trolley-pole has sprung upward and the catch has been tilted over, the trolley-pole falls back by gravity to the position shown in Fig. 3. The front stop-nut strikes the cross-head and limits the downward movement of the trolley-pole, so that its head is supported below the level of the line-wire and is prevented from striking its supports and damaging them or itself. The parts are reset by pulling the trolley-pole downward, so that the setting-rod moves the bar G rearward until the gab end tilts back the catch to its original position and engages with it again.

What I claim is—

1. The combination, with a stationary supporting-plate having a hole, of a trolley-support provided with a disk and a cylinder below the said disk, said cylinder being arranged in the said hole, a disk secured to the bottom of the said cylinder, and antifriction-rings encircling the said cylinder and arranged between the said stationary plate and the two said disks.

2. The combination, with a single supporting-bar arranged to turn upon a vertical axis, of an arm for carrying a trolley-pole pivoted to the said bar, a catch pivoted to the said arm, a longitudinal spring-pressed bar having a gab end at one end for engaging with the said catch, and a link having its ends pivoted to the adjacent ends of the said bars respectively.

3. The combination, with a supporting-bar, of an arm for carrying a trolley-pole pivoted to the said bar, a catch pivoted to the said arm, a longitudinal bar having a gab end at one end for engaging with the said catch and having at its other end a cross-head provided with two rearwardly-projecting lugs, springs

between the said cross-head and the said supporting-bar, and links pivoted to the said lugs and to the adjacent end of the said supporting-bar.

4. The combination, with a supporting-bar, of an arm for carrying a trolley-pole pivoted to the said bar, a catch pivoted to the said arm, a longitudinal bar having a gab end at one end for engaging with the said catch and having a cross-head at its other end, a stop on the said supporting-bar in the forward path of the said cross-head, a pivoted link connection between the said cross-head and the said supporting-bar, and a spring which presses the cross-head toward the said stop.

5. The combination, with a supporting-bar, of an arm for carrying a trolley-pole pivoted to the said bar, a catch pivoted to the said arm, a longitudinal spring-pressed bar pivotally connected with the aforesaid bar and having a gab end for engaging with the said catch, a setting-rod pivoted at one end to the said arm and having its other end portion slidable with reference to the said longitudinal bar, and stops on the said setting-rod which engage with the said longitudinal bar.

6. The combination, with a supporting-bar, of an arm for carrying a trolley-pole pivoted to the said bar, a catch pivoted to the said arm, a longitudinal bar provided with a cross-head at one end which is pivotally connected with the aforesaid bar and having a gab end for engaging with the said catch, a setting-rod pivoted at one end to the said arm and having a screw-threaded portion at its other end, two stop-nuts on the said screw-threaded portion, and a tube between the said nuts which is slidable in a hole in the said cross-head.

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

JULIUS A. GRASBERGER.

Witnesses:

J. P. BEIRNE,

T. C. CRIDLIN.