

No. 826,565.

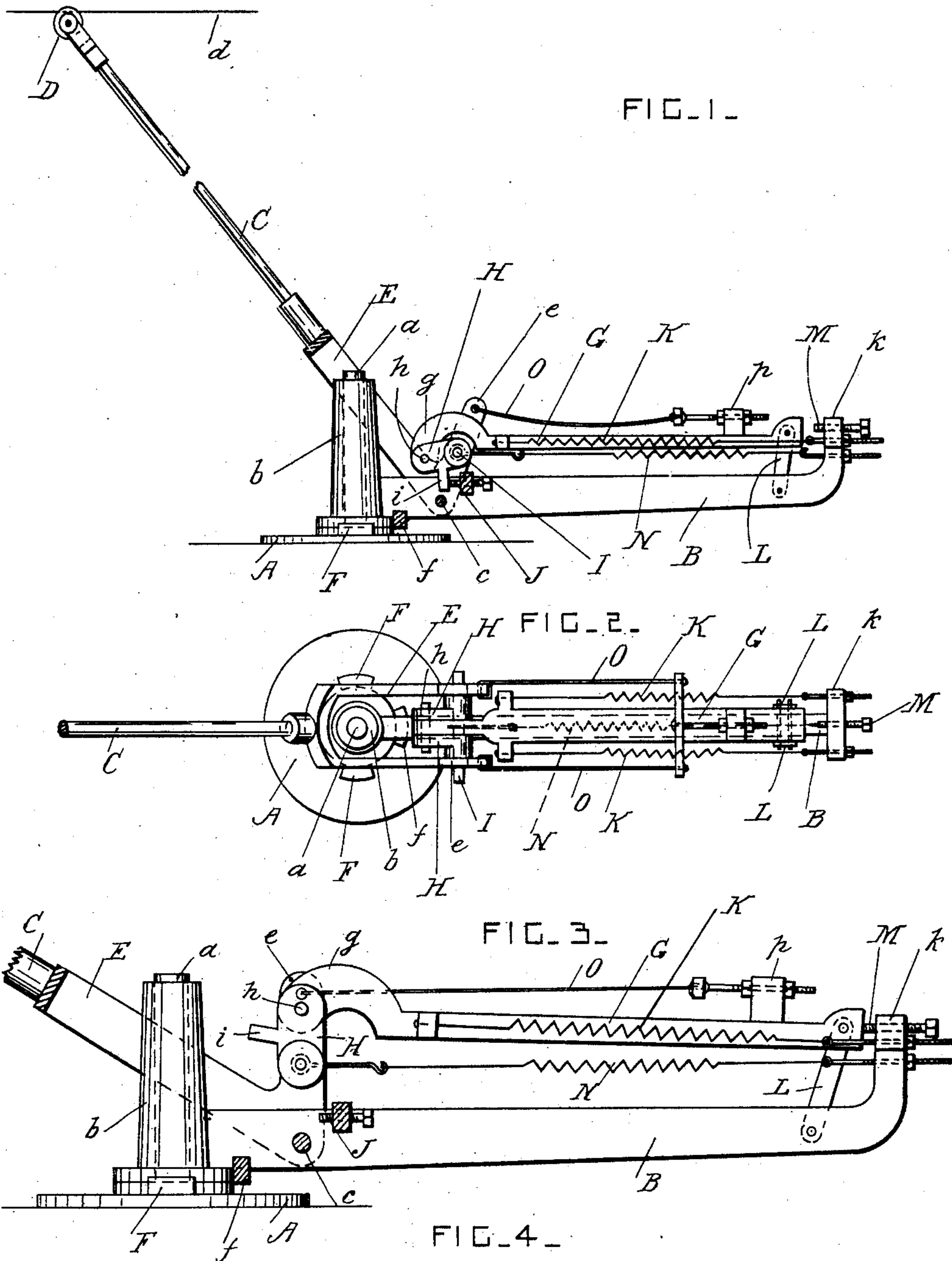
PATENTED JULY 24, 1906.

B. A. GRASBERGER.

TROLLEY STAND.

APPLICATION FILED AUG. 17, 1905.

2 SHEETS—SHEET 1.



WITNESSES:

Geo C. Poulton
Walter Allen

INVENTOR

Boniface A. Gruberger.

By *Herbert W. Jenner*
Attorney

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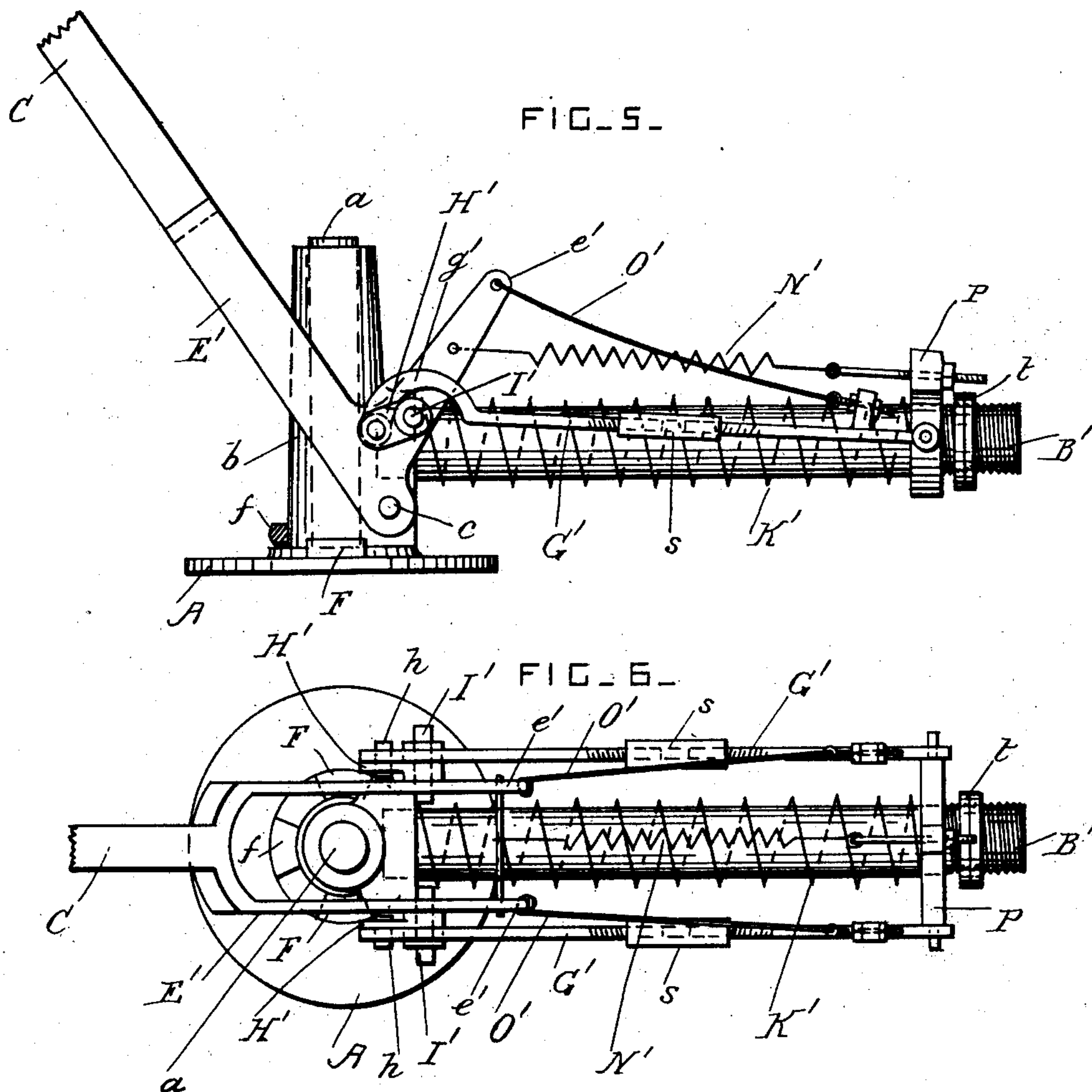
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UNITED STATES PATENT OFFICE.

BONIFACE A. GRASBERGER, OF RICHMOND, VIRGINIA.

TROLLEY-STAND.

No. 826,565.

Specification of Letters Patent.

Patented July 24, 1906.

Application filed August 17, 1905. Serial No. 274,558.

To all whom it may concern:

Be it known that I, BONIFACE A. GRASBERGER, a citizen of the United States, residing at the city of Richmond, in the 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 used in connection with 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, partly in section and showing the trolley-stand with the trolley in contact with the wire. Fig. 2 is a plan view of the trolley-stand. Fig. 3 is a side view similar to Fig. 1, but shows the position of the parts after the trolley has left the line-wire and has dropped to its lowest position. Fig. 4 is a detail view showing the check-lugs of the base and frame. Figs. 5 and 6 show modifications.

A is a base-plate which is secured to the top of the car and provided with a vertical pivot-pin *a*.

B is a frame provided at one end with a socket *b*, which is journaled on the pin *a*. The frame, however, may be pivotally connected with the base-plate in any other approved manner.

C is the trolley-support which is pivoted to the frame B by a pin *c*.

D is the trolley head or sheave which runs against the line-wire *d* in the usual manner. The lower part of the trolley-support preferably consists of a forked bracket E, which is provided with arms *e*, which project upwardly and rearwardly from its pivot-pin *c*.

In order to prevent the trolley-pole from swinging around crosswise of the car into the path of the poles which support the line-wire, the base-plate and the frame are provided with check stops or lugs F and *f*, respectively. A single lug *f* on the frame is preferably arranged between two lugs F on the base-plate, and sufficient space is provided between the lugs to let the trolley-pole vibrate laterally to a limited extent. One or both of the meeting edges of the said check-lugs are beveled or rounded, so that they may operate as face-cams when pressed together.

When the trolley-pole swings around and the lugs meet, the motion of the pole is arrested and the pole is prevented from striking one of the line-wire poles. When the trolley pole is pulled around by hand to reverse the trolley, one lug rides over the other, the trolley-frame and pole being lifted slightly by the lugs and dropping back by gravity to their original positions when the lugs have been moved out of contact with each other.

G is a longitudinally-arranged trip-bar. This trip-bar has a downwardly inclined or curved front end *g*, and H is a link or links which are pivoted to the end *g* by a pin *h*. These links are pivoted to the forked bracket E by a pin I and are provided with stop-lugs *i*.

J represents stops carried by the frame and arranged to coact with the stop-lugs *i*. The stops J preferably consist of screws which engage with projections of the frame, so that the said stops are adjustable.

A single lug *i* and a single stop J may be provided, if desired, or each arm H may have a lug *i*, and two similar stops J may be provided.

K represents the actuating-springs of the trip-bar. These springs have their front ends secured to lugs on the trip-bar, and their rear ends are connected to lugs *k* on the rear end portion of the frame B. The springs are connected with the lugs by suitable adjustable connections, so that the tension of the springs can be regulated. Two actuating-springs are shown; but a single actuating-spring can be arranged to work effectively.

The rear end portion of the trip-bar is slidably supported from the frame B, and two pivoted links L are preferably provided for this purpose. A single link might, however, be used, or the rear end of the trip-bar might be slidably supported in any other approved manner.

M is a stop for the rear end of the trip-bar to abut against. This stop preferably consists of a screw, so that it may be adjustable, and this screw is carried by the rear end portion of the frame B.

N is a check-spring arranged between the frame B and the trolley-support in any approved manner, and preferably provided with means for adjusting its tension. This spring N prevents the trolley-support from dropping downward with too great a force or momentum.

O represents flexible connections, such as cords or chains, arranged between the arms *e*

of the trolley-support and lugs *p* on the trip-bar. These connections are preferably provided with means for adjusting their length, and a single connection can be used, if desirable, in place of two connections.

The operation of the devices are as follows: When the parts are in the positions shown in Fig. 1 and the trolley-sheave accidentally leaves the line-wire and flies upward, the center of the pin *h* is raised, so that the trip-rod is suddenly moved rearwardly by its actuating-springs, and the links *H* are turned upward to the position shown in Fig. 3. When the parts are in their normal positions, the center of the pin *I*, which carries the links *H*, is arranged a little above the points of support or connection of the ends of the trip-bar, so that the trolley-support is sustained in its raised positions by the said actuating-springs. The trip-rod is tripped by the stops *J* and *i*, which bear against each other. Any other means may also be used for tripping the trip-rod which will raise the center of the pin *h* above the level of the center of the pin *I*, and other approved means besides the said stops may be used for holding the said parts in their normal positions, as shown in Fig. 1. When the trolley-support drops to the position shown in Fig. 3, the trolley-head cannot strike the line-wire supports and cannot be damaged by coming in contact with them before the car comes to a standstill. The resetting of the devices is effected by pulling the trolley-support downward until the flexible connections *O* pull the trip-rod forward sufficiently to turn the links *H* downward to their original positions.

In the modification shown in Figs. 5 and 6 the frame *B'* is tubular, and a single spring *K'* is provided for actuating the trip-bars *G'*. This single spring is arranged around the frame and acts as a compression-spring instead of as a tension-spring. One end of the spring *K'* abuts against a cross-head *P*, which is slidable on the frame *B'*. Two trip-bars *G'* are provided instead of a single trip-bar, and these trip-bars are pivoted to the said cross-head so that their rear ends are slidably supported by the frame. The front ends of the two trip-bars *G'* are pivoted to two links *H'*, which are pivoted outside the fork of the bracket *E'*. The trip rods or bars *G'* are provided with screw-threaded turnbuckles *s*, so that their lengths may be adjusted, and the frame *B'* is provided with jam-nuts *t*, which form a stop which prevents the cross-head from sliding too far rearwardly. No stops are shown at the front end of the frame for the links to bear against, as the inclined or curved end *g'* of the trip-bar bears against the hub of the link *H* on each side, and the disengagement is effected by the rearward motion of the forked bracket. The check-spring *N'* is arranged between the trolley-support and the slidable cross-head *P* of the

frame. The flexible connections for resetting the trip-rods are arranged between lugs on the rear end parts of the trip-bars and the arms *e'* of the trolley-support and are marked *O'*. The action of the devices shown in Figs. 5 and 6 is the same as hereinbefore described with reference to the preferred form of construction.

What I claim is—

1. In a trolley-stand, the combination, with a base, of a vertically-movable frame pivotally supported by the said base, a trolley-support carried by the said frame, and stops on the said base and frame provided with friction-surfaces which coact to raise the said frame and permit its position to be reversed when pressed together with sufficient force.

2. In a trolley-stand, the combination, with a base, of a frame pivoted to the base and free to slide vertically with relation to it, a trolley-support carried by the said frame, and check-stops on the said base and frame which prevent the frame from swinging too far automatically and permit to be turned around by hand.

3. In a trolley-stand, the combination, with a frame, and a trolley-support pivoted to the frame; of a link pivoted to the said trolley-support, a spring-actuated trip-bar pivoted to the said link at one end and having its other end slidably supported from the said frame, and means for holding the said link and trip-bar in their folded position to support the said trolley-support.

4. In a trolley-stand, the combination, with a frame, and a trolley-support pivoted to the frame; of a link pivoted to the said trolley-support, a spring-actuated trip-bar pivoted to the said link at one end and having its other end slidably supported from the said frame, and stops on the said link and frame which normally hold the said link and trip-bar in their folded position and which trip them open when the trolley leaves the line-wire.

5. In a trolley-stand, the combination, with a frame, and a trolley-support pivoted to the frame; of a link pivoted to the said trolley-support, a spring-actuated trip-bar pivoted to the said link at one end and having its other end slidably supported from the said frame, and a flexible connection between the said trolley-support and the said trip-bar whereby the said link and trip-bar are folded and set when the trolley-support is pulled downward.

6. In a trolley-stand, the combination, with a frame, and a trolley-support pivoted to the frame; of a link pivoted to the said trolley-support, a spring-actuated trip-bar having its front end inclined or curved to clear the pivot of the said link and pivoted to the said link and having its rear end slidably supported from the said frame, and means

for holding the said link and trip-bar in their folded position to support the said trolley-support.

7. In a trolley-stand, the combination
5 with a frame, and a trolley-support having a
forked lower end portion which is pivoted to
the said frame; of a link pivoted in the forked
portion of the said support, a spring-actuated
trip-bar arranged longitudinally over the
10 said frame one end of the said trip-bar being
pivoted to the said link and its other end be-
ing slidably supported from the said frame,
and means for holding the said link and trip-
bar in their folded position.
- 15 8. In a trolley-stand, the combination,
with a frame, and a trolley-support pivoted
to the frame; of a link pivoted to the said
trolley-support, a spring-actuated trip-bar
arranged longitudinally over the said frame
20 one end of the said trip-bar being pivoted to
the said link and its other end being slidably
supported from the said frame, a stop on the

said frame for limiting the rearward move-
ment of the said trip-bar, and means for hold-
ing the said link and bar in their folded posi- 25
tion.

9. In a trolley-stand, the combination,
with a frame, and a trolley-support pivoted
to the frame; of a link pivoted to the said
trolley-support, a trip-bar arranged longitu- 30
dinally over the said frame one end of the
said trip-bar being slidably supported from
the said frame and its other end being pivoted
to the said link, two supporting-springs ar-
ranged at the sides of the trip-bar between its 35
front end portion and the rear part of the
said frame, and means for holding the said
link and trip-bar in their folded position.

In testimony whereof I have affixed my
signature in the presence of two witnesses. 40

BONIFACE A. GRASBERGER.

Witnesses:

J. KENT RAWLEY,
JOHN B. WELSH.