

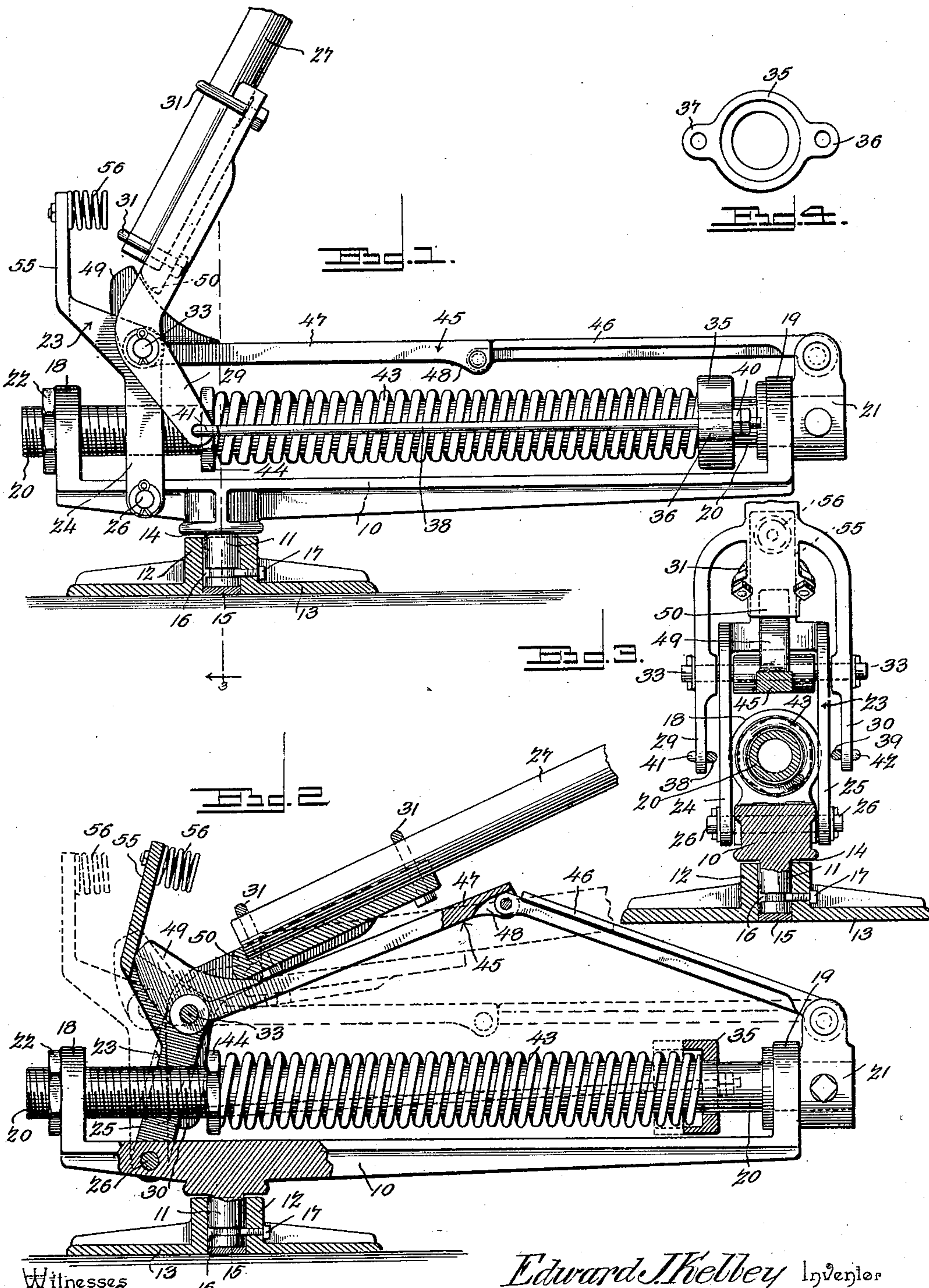
No. 680,662.

Patented Aug. 13, 1901.

E. J. KELLEY.
TROLLEY STAND.

(Application filed Dec. 14, 1900.)

(No Model.)



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UNITED STATES PATENT OFFICE.

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TROLLEY-STAND.

SPECIFICATION forming part of Letters Patent No. 680,662, dated August 13, 1901.

Application filed December 14, 1900. Serial No. 39,886. (No model.)

To all whom it may concern:

Be it known that I, EDWARD J. KELLEY, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented a new and useful Trolley-Stand, of which the following is a specification.

This invention relates to trolleys for electric railways, and more particularly to the frame for the trolley-arm by means of which the arm is mounted upon the vehicle.

In the usual mounting of the trolley-arm the arm is pivoted in a rotatable frame and is provided with opposing helical springs which act to hold the arm normally in a vertical position. When the trolley-wheel is in engagement with the trolley-wire, one set of springs is compressed and the other set is distended, so that when the wheel jumps from the wire the springs formerly distended act as buffer-springs and cushion the shock that would otherwise tend to tear the frame from the roof of the vehicle. When the arm comes to rest, however, it is in a vertical position and will then strike the suspension-arms or the suspension-wires by means of which the trolley-wire is hung above the track, with the result that these suspending devices will be broken.

The object of the present invention is to provide a construction of frame which will not only overcome the tendency to fracture the frame and arm when the wheel leaves the wire, but will release the tension of the holding springs or spring that maintains the arm in its operative position, so that the arm will drop into such lowered position as will prevent it from striking the suspending devices. The arm will thus not only be prevented from injuring the suspending devices, but will be saved from injury by them.

A further object of the invention is to provide a construction which, after the tension has been taken from the sustaining-spring, may be readily operated to place the spring again under tension to raise and hold the arm yieldably in its operative position.

Additional objects of the invention relate to means for holding the sustaining-spring in proper position and to the pivotal mounting of the frame in the turn-table plate to permit of effective lubrication and to secure an efficient bearing.

Other objects and advantages of the invention will be evident from the following description.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a side elevation of the device, showing the trolley-arm in raised position. Fig. 2 is a view, partly in section and partly in side elevation, showing the trolley-arm in reclining position with the knuckle-brace broken and indicating in dotted lines the positions of the parts when the brace has been reset by the arm. Fig. 3 is a section on line 3 3 of Fig. 1. Fig. 4 is a detail elevation of the slidable collar for holding the retaining-spring.

As shown in the drawings, the frame of the trolley-arm consists of a base-casting 10, from the lower side of which and adjacent to one end there depends a spindle 11, which is rotatably mounted in the socket 12, formed upon and projecting upwardly from the turn-table plate 13, which is bolted fast to the roof of the car. While the base-casting 10 has a shoulder 14 at the upper end of the spindle, this shoulder does not rest upon the upper end of the socket to form a supporting-bearing, as is usual, but instead is held spaced slightly above the end of the socket by reason of the lower end of the spindle resting upon a plug 15 in the bottom of the socket, this plug being of Babbitt or other antifriction metal. By thus plugging the lower end of the socket the socket is made to contain a lubricant in such quantity as not to require frequent application. To prevent accidental displacement of the spindle from the socket, the spindle has a circumferential groove 16 near its lower end and with which is engaged a set-screw 17, passed inwardly through a threaded perforation in the side of the socket.

The base-plate 10 has upwardly-projecting end portions 18 and 19, through which are formed alining openings, and with these openings is engaged a preferably tubular spring-carrying bar 20, at one end of which is fixed a collar 21, for a purpose to be presently explained, while upon the opposite screw-threaded end there is engaged a nut

22, which bears against the portion 18 and may be adjusted to draw the bar 20 through the openings in the portions 18 and 19 to cause the collar to tightly impinge against the portion 19, and thus hold the bar securely in place. A yoke-shaped casting 23 is disposed with its legs 24 and 25 straddling the bar 20 and with the ends thereof pivotally mounted upon a pin 26, which is passed transversely through the casting 10, adjacent to the spindle 11 thereof. The trolley-arm 27 is connected with this yoke-shaped casting through the medium of a foot-casting 28, which is also yoke-shaped, as shown, and which is disposed with the legs 29 and 30 thereof against the outer faces of the legs 24 and 25, respectively, of the casting 23. The pipe which forms the trolley-arm proper is secured in a socket or groove in the stem of the foot-casting by means of clips 31, as shown.

The legs 29 and 30 of the foot-casting are pivoted to the legs of the casting 23 by means of a pivot-pin 33, which is passed transversely through said legs at points between the ends of the legs and in the lower portions of the legs 29 and 30, which lower portions lie at near a right angle to the upper portions, so that when the trolley-arm is in its lowered position the lower ends of the legs 29 and 30 may stand vertical. It will be noted that the direction of projection of the lower portions of the legs 29 and 30 from the upper portions thereof is such that if the lower ends of said legs be moved in the direction of the upwardly-directed portion 19 the trolley-arm will be moved toward the vertical position, and, conversely, if the trolley-arm be moved toward a horizontal position in the direction of the portion 19 the lower ends of the legs will move away from the said portion 19.

To hold the lower ends of the legs 29 and 30 yieldably in the direction of the portion 19 and with the trolley-arm raised, a collar 35 is slidably mounted upon the bar 20 adjacent to the portion 19, and has perforated ears 36 and 37 at diametrically opposite points thereof, and with these ears are engaged tie-rods 38 and 39, provided with adjusting-nuts 40 to rest against the ears, while at the opposite ends of the rods are formed hooks 41 and 42, which are engaged with perforations in the lower ends of the legs 29 and 30. The collar 35 has an annular seat in its face adjacent to the casting 23, and in this seat is disposed one end of a helical spring 43, which is disposed encircling the bar 20 and which rests with its opposite end against an adjusting-nut 44, which is engaged with the threads at the opposite end of the bar 20. This spring, as will be readily seen, tends to hold the collar 35 against the upturned end 19 of the casting 10 to hold the trolley-arm elevated, with the wheel thereof in position for engagement with the trolley-wire. This tendency of the spring would of course draw the casting 23 in the

same direction as the lower ends of the legs 29 and 30, and to prevent this movement of the casting 23 under normal conditions the knuckle-brace 45 is employed. The knuckle-brace includes the two members 46 and 47, of which the member 46 is pivoted between ears 48 upon the collar 21, while the member 47 is mounted pivotally upon the pivot-pin 33 and has an upwardly-projecting end 49 projecting beyond said pin and lying between the legs of the casting 23 for engagement by the trip-lug 50, formed by continuing the stem of the casting 28 inwardly between the legs 29 and 30 thereof, this engagement of the trip-lug being effected when the trolley-arm rises under the influence of its retaining-spring beyond the position assumed when engaged with the trolley-wire. This engagement of the tripping-lug will of course move the member 47 pivotally to break the knuckle-joint between it and the member 46. Inasmuch as the knuckle-brace prevents pivotal movement of the casting 23 under normal positions the strain exerted on the brace by the spring is such that when the brace is once broken to a slight degree said spring acts to break it further, permitting the casting 23 to move pivotally and the foot-casting 28 to move bodily in the direction of the portion 19 of the casting 10, with the result that the collar 35 is permitted to move against the portion 19. At the same time the pivot-pin 33 is carried in the direction of the collar 35 and the ends of the legs 29 and 30 moving on the hooks of the tie-rods as pivots the trolley-arm is permitted to drop to lowered position.

The casting 23 has an upwardly-directed stem 55, against which is secured a spring-bumper 56 in the path of upward movement of the trolley-arm, and this spring-bumper receives the shock of the trolley-arm after it has effected a breaking of the knuckle-brace and throws the arm backwardly, so that it will drop by gravity to its lowered position to recline against the inclined member 47 of the knuckle-brace. With the trolley-arm in its lowered position and the knuckle-brace broken—that is, with the trolley-arm reclining against the member 47 of the knuckle-brace—if the arm be then drawn downwardly to a horizontal position it will press against the member 47 and will move it into position to set it by alining it with the member 46. When the members 46 and 47 are thus realigned, the casting 23 is of course pivotally moved to its former position, carrying the foot-casting 28 with it and placing the sustaining-spring again under tension. The trolley-arm being then permitted to rise, it will move into position to reengage the trolley-wire. This resetting of the sustaining-spring is of course effected by means of the usual trolley-rope. Thus it is not necessary for any operation other than that which is usual in replacing the trolley against the wire

to replace the present trolley, excepting an initial downward pull upon the rope to realine the members of the knuckle-brace.

What is claimed is—

5 1. A device of the class described comprising a trolley-arm mounted for pivotal and bodily movement, a sustaining-spring disposed to move the arm both pivotally and
10 bodily and means for holding the arm normally against bodily movement, said means being adapted for movement from operative position by pivotal movement of the arm under the influence of said spring.

15 2. A device of the class described comprising a trolley-arm mounted for pivotal and bodily movement, a sustaining-spring disposed to move the arm pivotally into operative position and bodily out of operative position, and means for holding the arm normally
20 against bodily movement, said means being adapted for movement from operative position by pivotal movement of the arm under the influence of said spring.

25 3. A device of the class described comprising a trolley-arm mounted for pivotal and bodily movement, a sustaining-spring disposed to move the arm both pivotally and bodily and means for holding the arm normally against bodily movement, said means
30 being adapted for movement from operative position by pivotal movement of the arm under the influence of said spring and being adapted for movement into operative position by pivotal movement of the arm in an
35 opposite direction.

4. A device of the class described comprising a pivoted arm, a spring-carrying bar having a stop, a collar mounted slidably on the
40 bar and having an annular seat concentric with the bar, a helical spring disposed upon the bar and with its ends in the seat and against the bar-stop respectively whereby tilting and binding of the collar will be prevented, and connections between the collar
45 and arm, for holding the arm yieldably against pivotal movement.

5. A device of the class described comprising a base-plate, a support pivoted on the plate, a trolley-arm pivoted to the support
50 and adapted for bodily movement therewith, a retaining-spring connected with the arm for holding it yieldably in operative position, and a breakable support for holding the trolley-arm support against pivotal movement
55 under the influence of said spring.

6. A device of the class described comprising a base-plate, a support pivoted on the plate, a trolley-arm pivoted on the support and adapted for bodily movement therewith,
60 a spring connected with the trolley-arm for holding it yieldably in operative position and for moving the support pivotally at times to release the tension of the spring, and a brace

for the pivoted support for holding it against movement, said brace being adapted for movement into and out of operative position as the
65 arm is pivotally moved in opposite directions.

7. A device of the class described comprising a base-plate a support pivoted to the plate, a movable brace for holding the support normally against pivotal movement, a
70 trolley-arm pivoted to the support and adapted for bodily movement therewith, a spring connected with the trolley-arm for holding it normally in operative position, the pull of the spring being in opposition to said brace, and
75 means in the path of pivotal movement of the arm under the influence of the spring, for moving the brace to inoperative position to release the tension of the spring. 80

8. A device of the class described comprising a base-plate, a support pivoted to the base-plate, an arm pivoted to the support and adapted for bodily movement therewith, a
85 spring connected with the arm for holding it yieldably in operative position, and a hinged brace for the support adapted to hold the support against the tendency of said spring to prevent bodily movement of the arm, said
90 support having a projection in the path of pivotal movement of the arm under the influence of the spring for engagement by the arm to move it to inoperative position, and said support being adapted for engagement by the
95 arm when moved in an opposite direction to move the brace to operative position.

9. A device of the class described comprising a pivoted base-plate having a spring-supporting bar mounted therein and provided
100 with a stop, a spring upon the bar and resting at one end against the stop, a collar upon the bar against the opposite end of the spring, a support pivoted to the plate, an arm pivoted to the support, connections between the
105 arm and collar for holding the arm yieldably in operative position, and a knuckle-brace pivoted to the base-plate and to the pivoted support for holding the support against movement under the influence of the spring and
110 to hold the spring under tension, said brace having a projection in the path of movement of the arm under the influence of the spring for engagement by the arm to break the
115 knuckle to release the tension of the spring, and said arm being adapted to lie upon a member of the brace when the spring is released, for moving the brace into operative position.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in
120 the presence of two witnesses.

EDWARD J. KELLEY.

Witnesses:

GEO. H. CHANDLEE,
FRANK S. APPLEMAN.