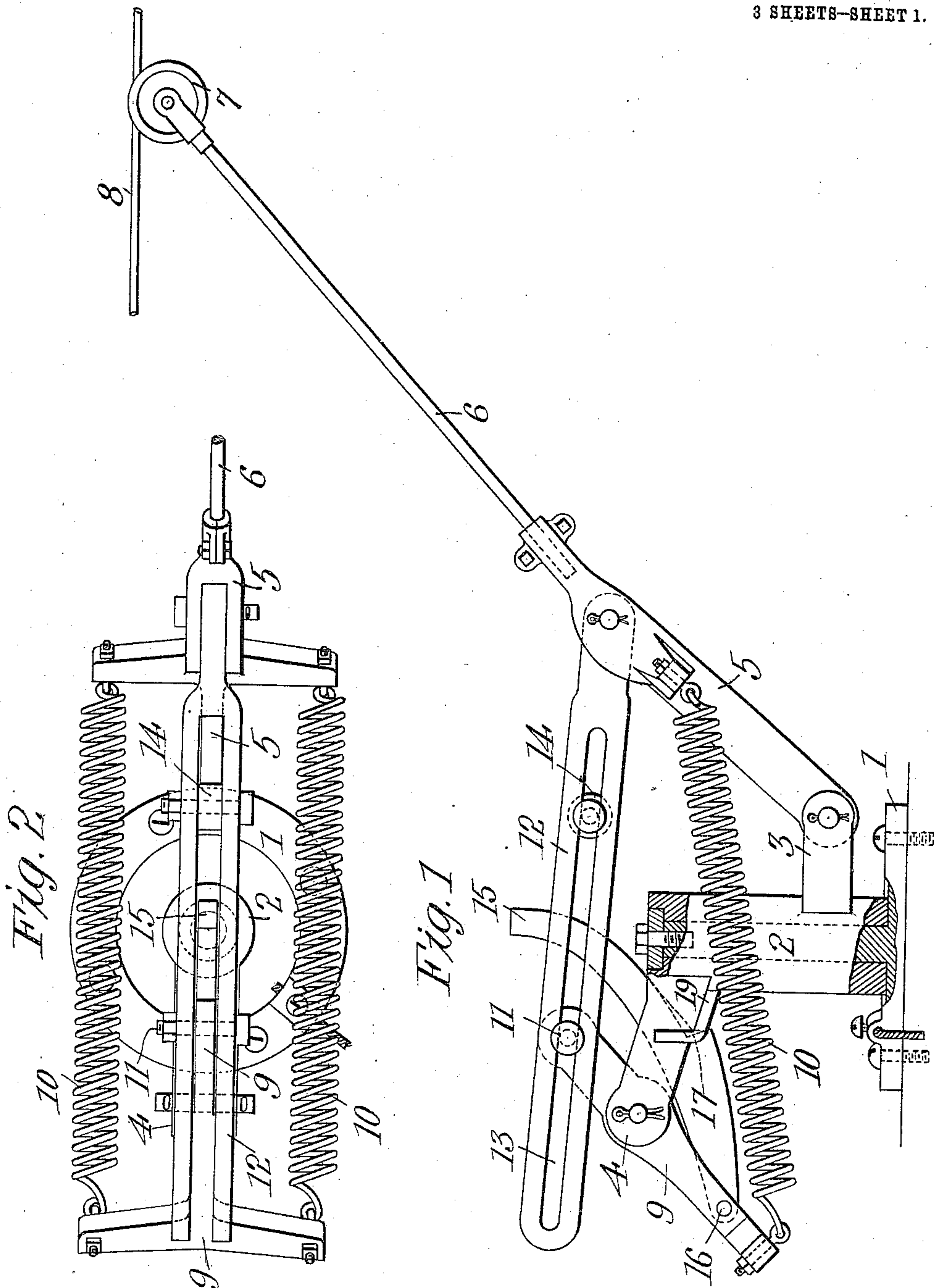


B. B. BOWERS.
TROLLEY STAND.
APPLICATION FILED MAR. 16, 1910.

985,654.

Patented Feb. 28, 1911.

3 SHEETS-SHEET 1.



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Fig. 3

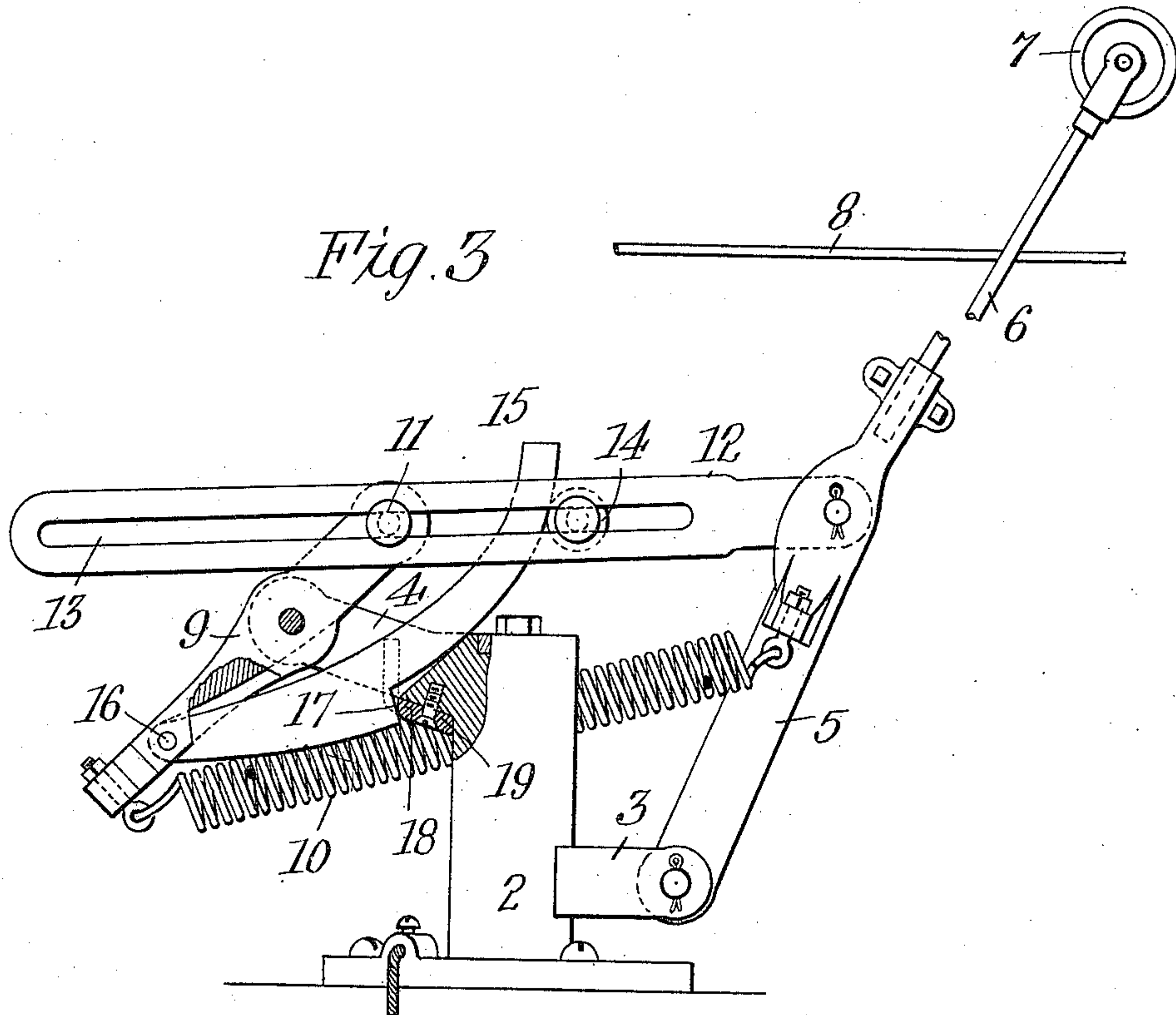
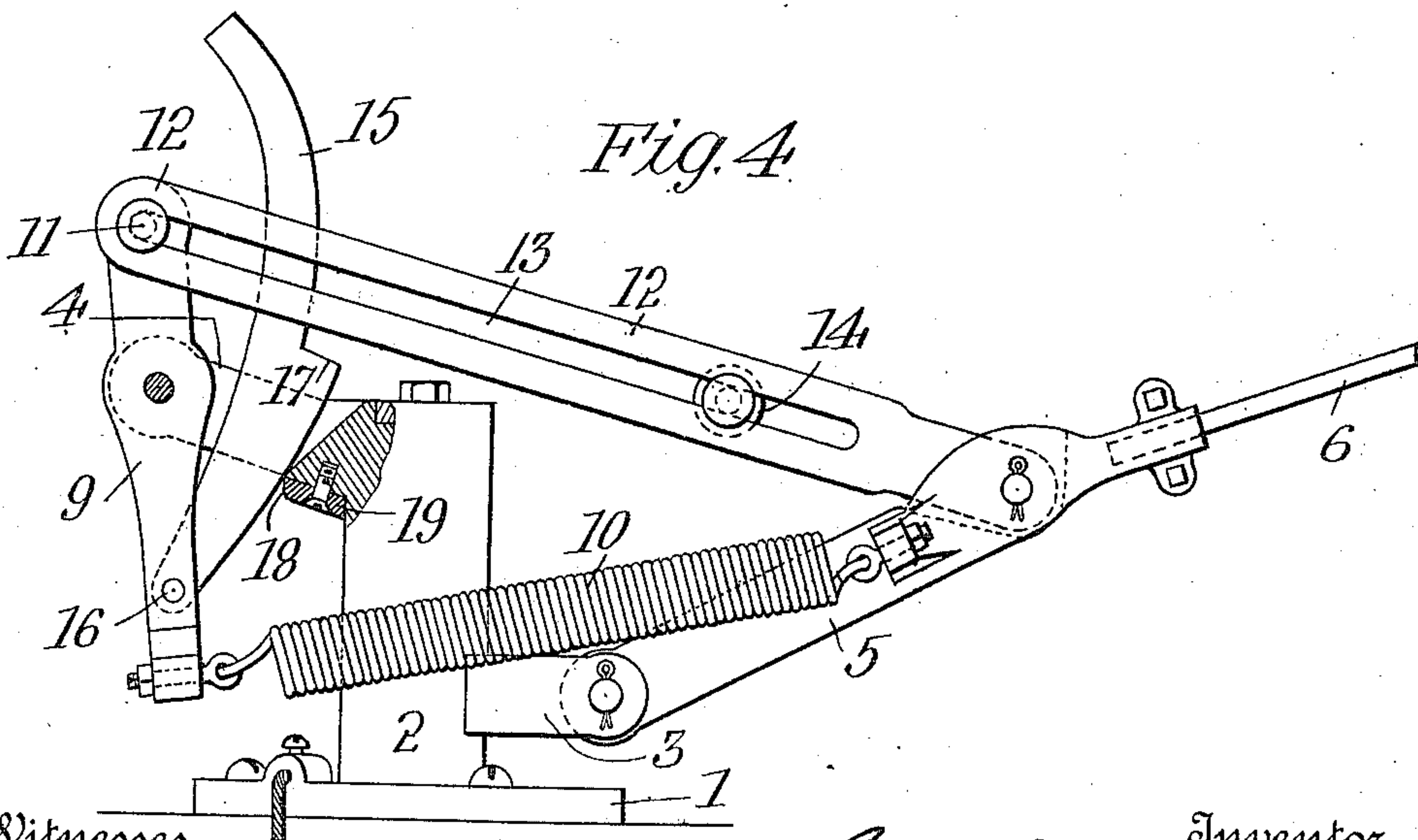


Fig. 4



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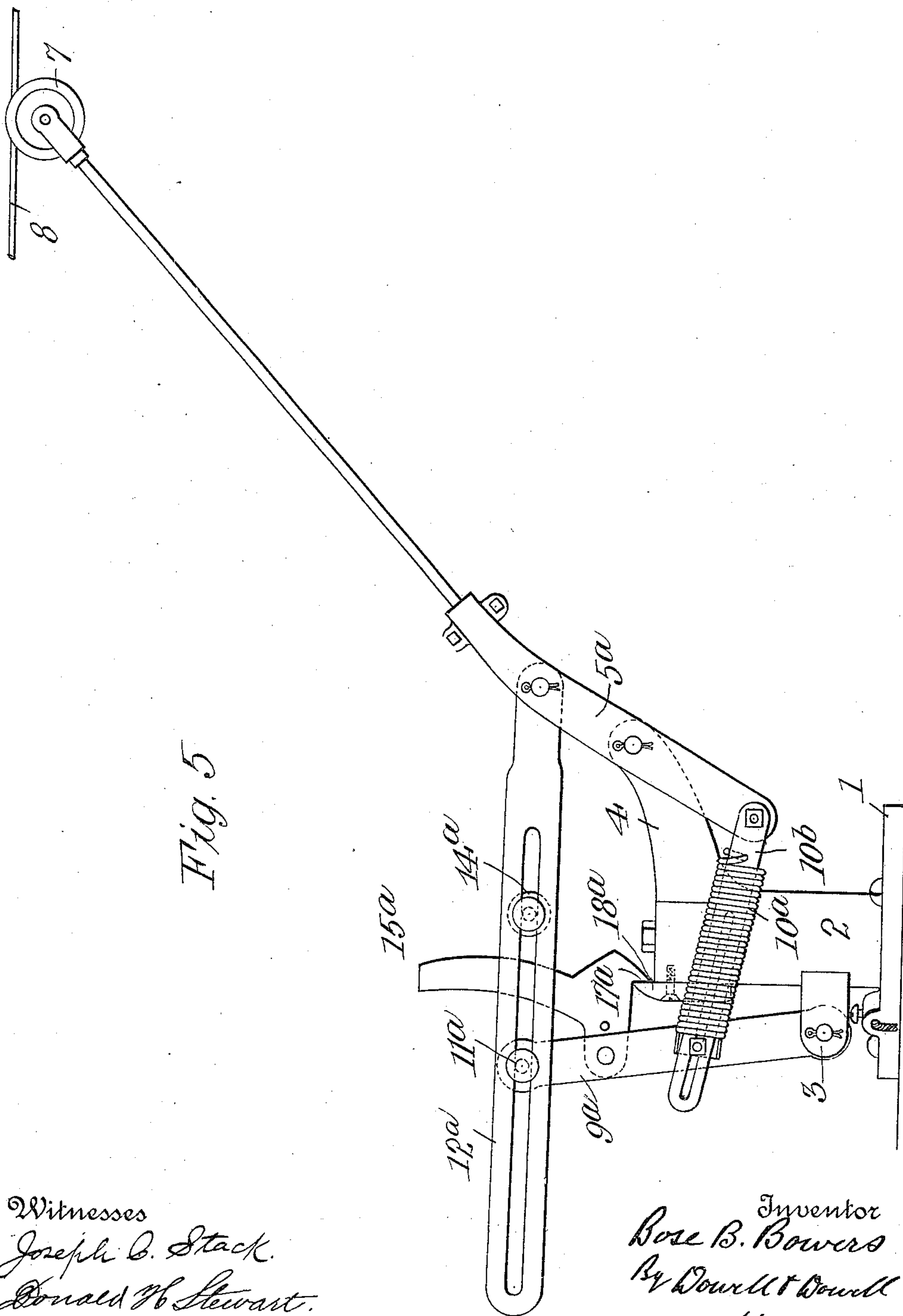


Fig. 5

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UNITED STATES PATENT OFFICE.

BOSE B. BOWERS, OF MACON, GEORGIA.

TROLLEY-STAND.

985,654.

Specification of Letters Patent.

Patented Feb. 28, 1911.

Application filed March 16, 1910. Serial No. 549,764.

To all whom it may concern:

Be it known that I, BOSE B. BOWERS, a citizen of the United States, residing at Macon, in the county of Bibb and State of Georgia, have invented certain new and useful Improvements in Trolley-Stands, of which the following is a specification.

This invention relates to a self-releasing trolley-retaining mechanism, in which the escape of the trolley-wheel from the overhead conductor or wire automatically releases the tension of the retaining spring or springs and allows the trolley-pole to drop down out of the way of the conductor and its suspension devices; the mechanism being reset and the tension of its springs restored by a downward pull on the trolley-pole.

The object of the invention is to provide a simple, practicable and efficient mechanism of this character, reliable in operation and adapted to withstand the necessary conditions of service.

In the accompanying drawings, which form a part of this specification, I have illustrated a practical embodiment of the invention, which will be hereinafter fully described with reference to said drawings, and the invention will then be more particularly pointed out in the appended claims.

In said drawings: Figure 1 is a side elevation of what is at present considered a preferred form of my invention, showing the mechanism in normal position, that is with the trolley-wheel upheld in contact with the wire by the tension springs. Fig. 2 is a top plan view of the same, omitting the trolley-wheel and a portion of the trolley-pole. Fig. 3 is a side elevation at the moment of tripping the latching trigger by the rise of the trolley-pole under tension of its retaining springs, the trolley-wheel having jumped off or escaped from the wire. Fig. 4 shows the mechanism disorganized that is with the tension of the springs released and the trolley-pole lowered. Fig. 5 is a side elevation of another form of the invention.

Referring to the drawings, 1 denotes a base-plate upon which is rotatably mounted a swivel-post 2, which may be a turret casting journaled on an upright pivot stud.

The swivel-post 2 is provided with oppositely projecting arms 3 and 4. To the lower arm 3 is fulcrumed a lever 5 carrying the trolley-pole 6 which in turn carries the trolley-wheel 7 engaging the overhead conductor or wire 8. The other arm 4 supports a tension-lever 9 which is intermediately fulcrumed thereon. High tension contractile springs 10 connect the lower arm of the tension-lever 9 with the pole-supporting lever 5. Two of such springs are shown, one at either side of the swivel post, though the number may be varied. One spring might be employed. The ends of the springs are shown attached to lateral arms on the said levers. The upper arm of the tension-lever 9 has a sliding pivot-connection 11 with a draw-bar 12 which is pivotally-attached to the pole-supporting lever 5. Said draw-bar 12 is bifurcated or divided in its vertical plane, making a double bar, both members of which are provided with a longitudinal slot 13; and the forward portion of the bar straddles the upper arm of the tension-lever 9 while the pivot-bolt 11 rides in said longitudinal slots 13. An adjustable stop 14 is secured in the rear portion of the bar, and may consist of a roller on a clamp-bolt inserted through said slots 13. Between the pivot-bolt 11 and stop 14 the bifurcated draw-bar straddles the upper end of a latching trigger 15 which is pivotally-attached at 16 to the tension-lever 9 and is formed or provided with a notch or shoulder 17, resembling a ratchet tooth, which engages a catch 18 on the swivel-post 2. In the construction shown, the arm 4 on the swivel-post is also bifurcated and straddles the latching trigger; and the catch 18, formed as a beveled lip at the inner end of said bifurcated arm, is provided with a removable hardened steel facing 19 detachably affixed on its under side; so as to permit substitution of a new piece when worn. The notch 17 in the latching trigger engages the under edge of the catch, that is the steel wearing plate or facing, the tension of the springs 10 holds the latching trigger thus engaged.

The operation is as follows: When the

dog or latching trigger 15 engages the catch or detent 18, the tension-lever 9 is thereby held stationary with its lower arm extending forwardly away from the swivel-post.

5 In this position (Fig. 1) the springs 10 are tensioned, thereby upholding the trolley-pole and retaining the trolley-wheel in contact with the wire; and, as the trolley-pole moves up and down or changes its inclination in accordance with the varying elevation of the wire, the draw-bar 12 is moved

10 idly back and forth on the pivot-bolt 11, the rising and falling movements of the trolley-pole being limited only by the effective

15 length of the slots 13, that is the distance between the pivot-bolt 11 and the stop 14. If however the trolley-wheel should escape from the wire, the trolley-pole would of course fly upward, under the force of its tension springs (Fig. 3), thereby shoving the

20 draw-bar 12 forward and causing the stop 14 to strike and trip the dog or latching trigger 15, disengaging it from the catch or detent 18. This releases the tension-lever 9,

25 allowing its lower spring-holding arm to drop backward (Fig. 4), thereby releasing the tension of the trolley-retaining springs 10; so that the trolley-pole is allowed to fall back by gravity and carry the trolley-wheel

30 below the wire and its suspension devices, cross and guy wires, braces, etc. The trolley-pole can fall backward until the draw-bar 12 is arrested by the pivot-bolt 11, forming a stop or abutment for the forward ends

35 of the slots 13. When the draw-bar is thus arrested the lax springs 10 will serve to cushion the fall of the trolley-pole. As the drop of the trolley-pole is limited by the draw-bar and cushioned as aforesaid, the

40 mechanism when in the disorganized position (Fig. 4) still provides for a further short downward stroke of the trolley-pole; and, to reset the mechanism, a downward pull on the trolley-pole, by means of the

45 trolley-rope, will cause the draw-bar 12 to draw back the upper arm of the tension-lever 9, thereby pushing out its lower arm and distending the springs 10; and by this movement the dog or latching trigger 15 is drawn

50 down into engagement with the catch 18; whereupon the mechanism is reorganized in its original trolley-retaining position (Fig. 1), and the trolley-pole can be allowed to rise under the tension of its springs until it

55 again finds the wire. The alternative construction shown in Fig. 5 embodies a reverse arrangement of some of the mechanism shown in the preceding views. In this construction, the trolley-carrying lever 5^a is a

60 lever of the first order, fulcrumed in the upper arm 4 of the swivel-post 2; while the tension-lever 9^a is a lever of the second order fulcrumed on the lower arm 3. Expanding springs 10^a operate between lever 9^a and the

65 lower arm of the lever 5^a. These are shown

as coiled or helical springs encircling guide-links 10^b, which links are pivotally-attached to the lower arm of lever 5^a and are longitudinally slotted to receive a pivot-pin on lever 9^a. As in the first construction, the

70 bifurcated and longitudinally slotted draw-bar 12^a, provided with the stop 14^a, is pivotally-attached to lever 5^a, has a sliding pivot connection 11^a with the tension lever, and straddles the dog or latching trigger 15^a

75 which is pivoted to lever 9^a and engages a catch 18^a on the swivel-post. In this case the latching trigger has a tooth 17^a which engages behind the catch 18^a. The latching trigger thus holds the tension lever, which

80 thereby provides an abutment for the springs 10^a, and the latter push back on the lower arm of the trolley-carrying lever 5^a, thereby upholding the trolley-pole and retaining the trolley-wheel on the wire. When

85 the trolley-wheel escapes from the wire, the trolley-pole flies up under force of the springs, pushing forward the draw-bar and tripping the latching trigger by the stop 14^a; thereby releasing the tension-lever and

90 relaxing the springs, which allows the trolley-pole to fall back until the draw-bar is arrested at the pivot bolt 11^a. A further downward pull on the trolley-pole will, through the draw-bar, pull back the upper

95 end of the tension-lever and carrying the latching trigger back into engagement with the catch, thus resetting the mechanism.

It will be understood that the invention is not restricted to the particular forms of

100 embodiment herein shown and described, as the details of construction and arrangement of parts may be modified within the scope of the appended claims.

In the following claims, the term trolley-

105 lever is intended to signify a lever which retains the trolley-wheel in contact with the wire, which, in the illustrated embodiment of my invention, is the lever 5 or 5^a carrying the trolley-pole proper; or it may be simply

110 a trolley-pole pivotally attached to the swivel post or other pivot base of the trolley-stand, or it may be another lever operatively connected with the trolley pole for upholding it to the wire. The term tension

115 or tensioning is intended to be construed in the sense of energizing, so as to include both the stretching of a tensile spring and the contraction of an expansion spring.

I claim and desire to secure by Letters

120 Patent:

1. In a trolley mechanism, the combination with the trolley-lever and its actuating spring or springs, of spring-tensioning means including a holding dog, and a draw-

125 bar movable by the trolley-lever inoperatively within certain limits, permitting free play of the trolley-lever under force of said spring or springs as required to conform to varying elevations of the wire, said draw-

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bar having an adjustable tripping instrumentality adapted to release said dog by striking it when the trolley-lever ascends a predetermined distance after escape of the trolley-wheel from the wire, thereby releasing said spring-tensioning means to relax the spring or springs and allow the trolley-lever to drop back by gravity, and said draw-bar being loosely-connected with said spring-tensioning means and adapted for resetting the same to restore the power of said spring or springs by a downward pull on the trolley-lever when fallen.

2. In a trolley mechanism, the combination of a swivel-post, a trolley-lever and a spring-tensioning lever pivotally-connected to said swivel-post, a trolley-retaining spring connecting said levers, a holding dog for said spring-tensioning lever, a draw-bar pivotally-connected to the trolley-lever and having a sliding and pivotal connection with the spring-tensioning lever, and a device carried by said draw-bar for tripping said dog and thereby releasing said spring-tensioning lever when the trolley-lever rises a predetermined distance.

3. In a trolley mechanism, the combination with the trolley-lever and its actuating spring or springs, of a spring-tensioning lever, a holding dog therefor pivotally attached to said spring tensioning lever, said spring-tensioning lever adapted to latch the dog when moved to operative position, and a draw-bar movable by the trolley-lever past said dog and having a loose connection with said spring-tensioning lever which permits a limited free movement of the draw-bar, said draw-bar having a stop adapted to trip and release the dog when the trolley-lever rises a predetermined distance, thereby relaxing the spring or springs and allowing the trolley-lever to drop until the draw-bar is arrested by its connection with said spring-tensioning lever, the arrangement being such that a further pull on the trolley-lever will reset said spring-tensioning lever and restore the power of said spring or springs.

4. In a trolley mechanism, the combination with the trolley-lever and its actuating spring or springs, of a spring-tensioning lever, a holding dog therefor pivotally-attached thereto, a catch engaged by the dog, a draw-bar pivotally-attached to said trolley-lever and having a pin-and-slot connection with said spring-tensioning lever, and a stop on said draw-bar for tripping said dog when the trolley-lever ascends a predetermined distance.

5. In a trolley mechanism, the combination with the trolley-lever and its actuating spring or springs, of a spring-tensioning lever having a pivoted dog for holding it in operative position, said dog having a curved trigger-arm, and a tripping device opera-

tively-connected with the trolley-lever for tripping said dog by engagement under said arm to release said spring-tensioning lever when the trolley-lever rises a predetermined distance.

6. In a trolley mechanism, the combination with the trolley-lever and its actuating spring or springs, of a spring-tensioning lever having a holding dog pivotally-attached thereto, a draw-bar operatively-connected with the trolley-lever and having a pin-and-slot connection with said spring-tensioning lever, and means on the draw-bar for tripping said dog to relax the spring or springs when the trolley-lever ascends a predetermined distance.

7. In a trolley mechanism, the combination with the trolley-lever and its actuating spring or springs, of a spring-tensioning lever, a holding dog therefor pivotally attached thereto, a bifurcated draw-bar pivotally attached to said trolley-lever and straddling said dog and said spring-tensioning lever, the draw-bar being provided back of the dog with a stop for tripping it, and the members of said draw-bar being longitudinally slotted and receiving a pivot pin on the spring-tensioning lever.

8. In a trolley mechanism, the combination with a swivel post, of a trolley-lever fulcrumed on one side of the post, a tension lever fulcrumed on the opposite side of the post, springs operatively arranged between said levers, a latching trigger or dog pivotally attached to the tension-lever and engaging a catch on the swivel post, thereby holding said tension lever in position to tension the springs, and a draw-bar pivotally attached to said trolley lever and having a pin-and-slot connection with said tension lever, said draw-bar being provided back of the latching trigger with a stop for tripping it.

9. In a trolley mechanism, the combination with the trolley-lever, of a tension lever, one of said levers being intermediately fulcrumed, a spring or springs operatively-arranged between one arm of the intermediately fulcrumed lever and the other lever, a latching trigger or dog for holding the tension lever in position to tension said spring or springs, and a draw-bar operatively connected with the trolley lever having means for tripping said dog and having a sliding connection with said tension lever which permits a limited independent movement of the draw-bar.

10. In a trolley mechanism, the combination of a swivel post, a trolley lever fulcrumed on the swivel post, a tension lever intermediately fulcrumed on the swivel post, tensile springs connecting said trolley-lever with the lower arm of said tension lever, a latching trigger or dog pivotally attached to the lower arm of said tension-

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lever and engaging a catch on the swivel-
post, and a draw-bar pivotally attached to
said trolley-lever by a pin-and-slot connec-
tion with the upper arm of said tension
5 lever, said draw-bar being provided back of
the latching trigger with a stop for trip-
ping it.

In testimony whereof I affix my signa-
ture, in presence of two witnesses.

BOSE B. BOWERS.

Witnesses:

JOSEPH C. STACK,
OSGOOD H. DOWELL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
