

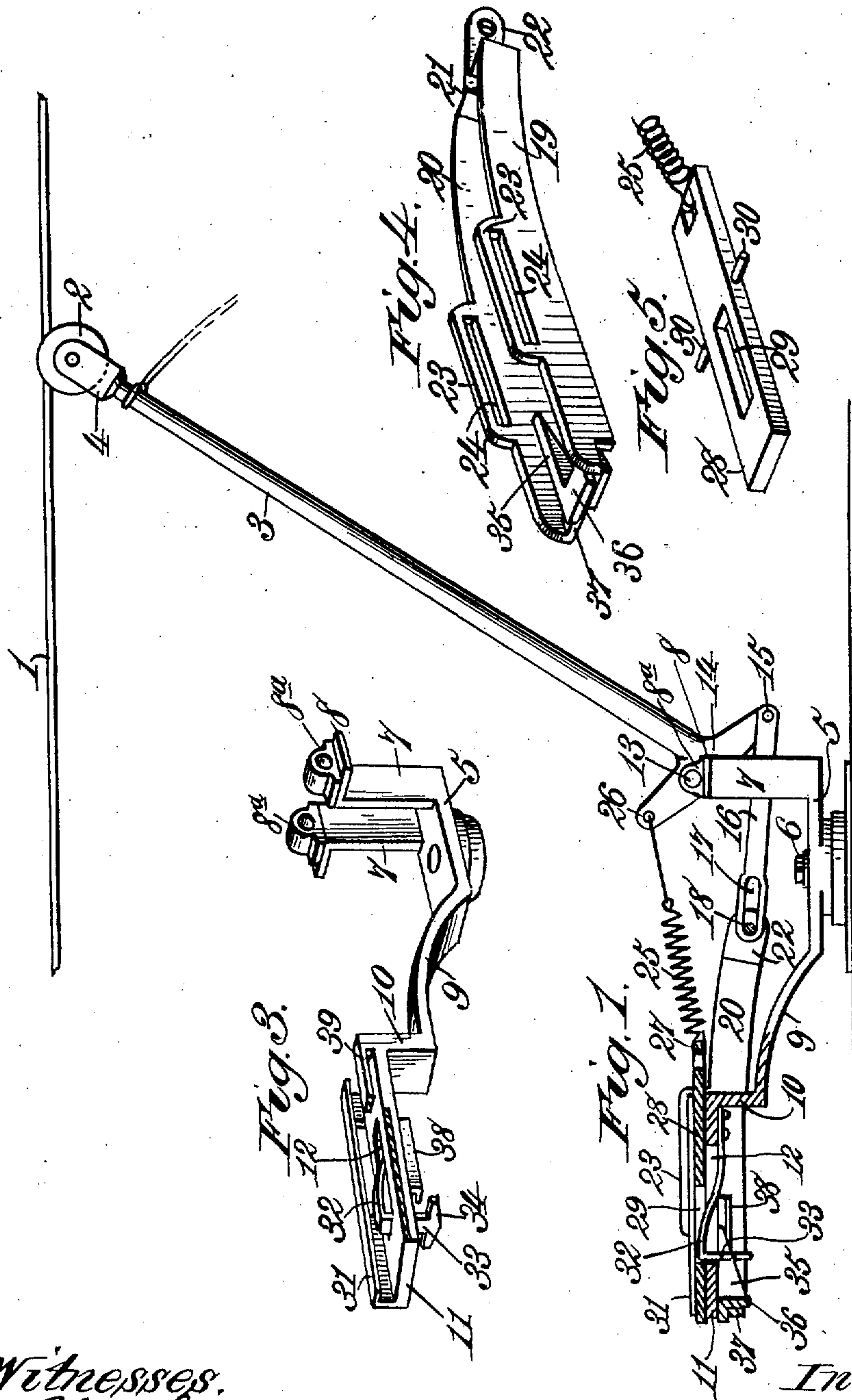
No. 847,170.

PATENTED MAR. 12, 1907.

H. E. EASTMAN.  
TROLLEY STAND.

APPLICATION FILED JAN. 5, 1906.

2 SHEETS—SHEET 1.



Witnesses,  
Robert Gault,  
J. D. Keefe

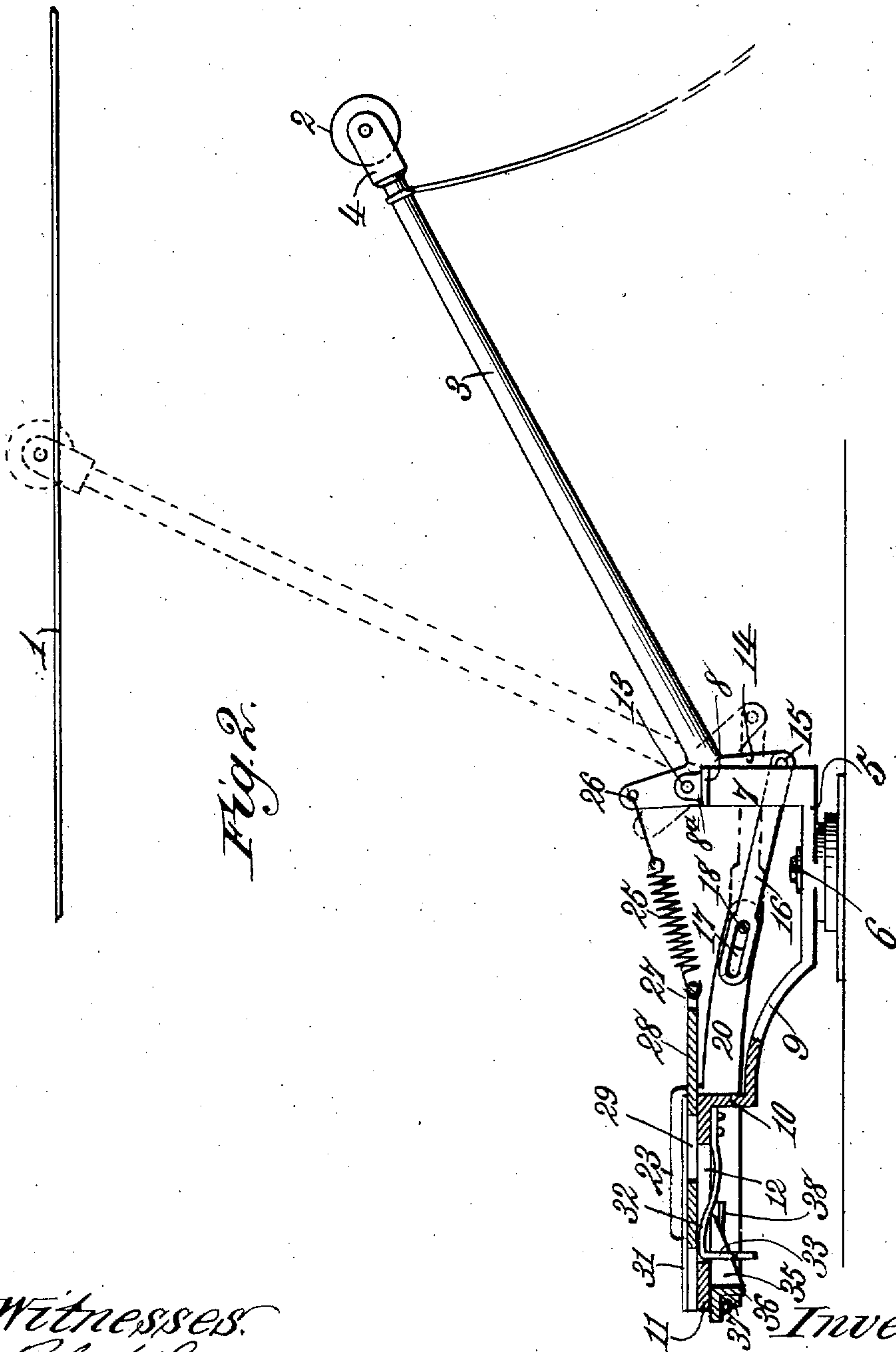
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2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

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## TROLLEY-STAND.

No. 847,170.

Specification of Letters Patent.

Patented March 12, 1907.

Application filed January 5, 1906. Serial No. 294,718.

*To all whom it may concern:*

Be it known that I, HARRY E. EASTMAN, a citizen of the United States, residing at Richmond, in the county of Henrico and State of Virginia, have invented new and useful Improvements in Trolley-Stands, of which the following is a specification.

This invention relates to trolley-stands, and aims to provide the stand with means, as hereinafter more specifically referred to, for causing the trolley to automatically drop when the trolley-wheel is accidentally or otherwise removed from the conductor, thereby preventing the pounding of the conductor by the trolley-wheel or by the harp of the trolley-pole.

Briefly described, the invention resides in providing means, as hereinafter set forth, for relaxing the tension of the trolley-retaining spring when the trolley-wheel is accidentally or otherwise removed from the conductor. The relaxing of the tension of the trolley-retaining spring causes the automatic dropping of the trolley-pole, so as to prevent injury thereto or to the conductor, owing to the fact that after the trolley-pole has fallen it will remain in its lowered position until the retaining-spring is set, so that the tension of the said spring will act upon the trolley and hold the trolley-wheel in engagement with the conductor.

The invention further aims to provide a trolley-stand for the purpose set forth which shall be simple in its construction, strong, durable, efficient in its use, readily set up, and comparatively inexpensive to manufacture.

With the foregoing and other objects in view the invention consists of the novel construction, combination, and arrangement of parts hereinafter more specifically described, and illustrated in the accompanying drawings, which form a part of this specification, and wherein is shown the preferred embodiment of the invention; but it is to be understood that changes, variations, and modifications can be resorted to which come within the scope of the claims hereunto appended.

In the drawings, wherein like reference characters denote corresponding parts throughout the several views, Figure 1 is a sectional side elevation of a trolley-stand in accordance with this invention, the trolley-wheel being shown in engagement with the

conductor. Fig. 2 is a like view showing in full lines the trolley-pole dropped and in dotted lines the trolley-pole elevated. Fig. 3 is a detail of the base of the stand, also showing the shiftable catch device for holding the trolley-retaining spring in its set position. Fig. 4 is a detail of the shiftable mechanism for operating the holding-arm for the trolley-retaining spring, said mechanism also forming the means for distending the trolley-retaining spring. Fig. 5 is a detail of the trolley-retaining-spring holding-arm, also showing the spring attached to one end of said arm.

Referring to the drawings by reference characters, 1 denotes a conductor; 2, the trolley-wheel; 3, the trolley-pole, and 4, the harp carried by the pole and in which the wheel 2 is journaled. The foregoing elements are of known construction.

A trolley-stand in accordance with this invention comprises a base 5, swivelly connected by any suitable means, as at 6, in position. That portion of the base which projects forwardly of the connection 6 is provided with a pair of upwardly-extending supporting-arms 7, each having an angularly-disposed upper end 8, to which is secured a transversely-extending bearing 8<sup>a</sup>, having a function to be hereinafter referred to. That portion of the base at the rear of the connection 6 extends upwardly, as at 9, in a curvilinear manner, then in a vertical direction, as at 10. Said vertically-extending portion 10 terminates in an elongated flat portion 11, which extends rearwardly at right angles with respect to said vertically-extending portion 10. The said portion 11 of the base 5 is slotted, as at 12. Said slot 12 is somewhat elongated and extends in the direction of the length of said portion 11, and the function of said slot 12 will be hereinafter referred to.

The stand is provided with a mechanism for distending the trolley-retaining spring, to be hereinafter referred to, and for shifting the trolley-retaining spring holding-arm to a position so that the said arm will be engaged by a catch device and retain the holding-arm in its shifted position. The said catch device and holding-arm will be hereinafter referred to. The said mechanism consists of a shaft 13, journaled in the bearing 8<sup>a</sup> and carrying a lever-arm 14, said arm 14 being secured to



the shaft 13 in such a manner that that portion of the arm 14 which extends above the shaft 13 is somewhat shorter than that portion of the arm 14 which depends from the shaft 13. The depending portion of the arm 14, in close proximity to the shaft 13, has the lower end of the trolley-pole 3 fixed thereto, and the lower end of the said arm 14 has pivoted thereto, as at 15, the forward end of a link 16. The rear end of the link 16 is provided with an elongated slot 17, and through the said slot 17 extends a holdfast device 18 for slidably connecting the slotted end of the link 16 to the forward end of a pair of carrying members 19 20. The said members at their forward end are bent inwardly toward each other, as at 21, and then forwardly, as at 22, and between the portions 22 of the carrying members the slotted end of the link 16 is interposed. The carrying members are positioned on each side of the portion 11 of the base, and each has projecting upwardly therefrom, approximately centrally thereof, an inverted-U-shaped bar 23, the depending portions of the said bars 23 being secured to the carrying members, and the said bars 23, in connection with the top edge of the carrying members, form elongated slots 24, and said bars 23 act as a means for shifting the holding-arm, to be hereinafter referred to, in one direction when the carrying members are shifted.

The trolley-retaining spring is indicated by the reference character 25. The same is connected at one end, as at 26, to the upper end of the arm 14 and has its other end connected, as at 27, to the holding-arm 28. The holding-arm 28 is formed of a flat strip of suitable material and is supported upon the upper face of the portion 11 of the base provided with an opening 29, in which operates the catch device, to be hereinafter referred to, and further provided with a pair of laterally-extending lugs 30, which extend through the slots 24 and are adapted to be engaged by the bars 23, so that when the carrying members are shifted the bars 23 will engage the lugs 30 and shift the holding-arm 28 to a position so that the same can be engaged by the catch device in a manner as hereinafter referred to.

The holding-arm 28 is retained upon the portion 11 of the base 5 through the medium of a pair of guides 31, suitably secured to the sides of said portion 11 of the base 5. When the holding-arm 28 is shifted in one direction, the opening 29 therein is adapted to be positioned over the slot 12 in the portion 11 of the base 5, for a purpose to be hereinafter referred to.

The catch device for securing the holding-arm 28 in its shifted position, so as to retain the spring 28 distended, consists of an elongated leaf-spring 32, secured at its forward end to the rear face of the horizontally-ex-

tending portion of the base 5 and bent in an inclined manner, so as to extend upwardly into the slot 12 in the portion 11 of the base 5. The free end of the spring 32 is bent downwardly, as at 33, and terminates in a transversely-extending V-shaped member 34. By such construction the free end of the spring 32 is of inverted-T shape. The manner in which the catch device operates will be hereinafter referred to.

A releasing means is provided for the catch device, and said means consists of a pair of wedge-shaped members 35, arranged to depend from the lower face of the portion 11 at each side of the slot 12, and the said wedge-shaped members 35 are connected together at their rear end, as at 36, and the said connecting portion is secured to a transversely-extending bar 37, fixed to the rear end of the carrying members 19 20. The wedge-shaped members 35 are carried by a plate 38, attached to the carrying members 19 20. To limit the upward movement of the V-shaped member 34, so that the wedge-shaped members 35 can pass between the lower face of the portion 11 and the top edge of the member 34 for a purpose to be hereinafter referred to, a pair of stops 39 are provided, which extend in the direction of the length of the portion 11 of the base 5. The stops 39, as shown, are a continuation of the guides 31.

The manner in which the trolley-stand is caused to automatically drop or fall when the same is accidentally or otherwise removed from the conductor, so as to prevent the pounding of the conductor by the trolley wheel or harp of the trolley-pole, is as follows: It will be assumed that the position of the trolley-pole is that as shown in full lines in Fig. 2. The trolley cord or cable is grasped by the operator and the trolley-pole lowered. Such action will rock the shaft 13, so as to cause the upper end of the lever 14 to move forwardly and the lower end of said lever 14 to move rearwardly. The moving forwardly of the upper end of the lever 14 will distend the spring 25, owing to the fact that the holding-arm 28 is at the same time being moved rearwardly. Owing to the rearward moving of the lower end of the arm 14 the link 16 will be shifted rearwardly, causing thereby the moving rearwardly of the members 19 and 20. During the movement of the members 19 and 20 the bars 23 will engage the lugs 29 and carry the holding-arm 28 therewith. The movement of the arm 28 will tend to distend the spring 25. As the arm 28 moves rearwardly the opening 29 therein will be positioned over the slot 12 to enable the free end of the spring 32 to project up through the slot 12 and into the opening 29 and engage the rear wall of the opening 29. The free end of the spring 32 will then retain the holding-arm in its shifted po-



sition and also retain the spring 25 in a distended condition. The trolley-wheel is then moved into engagement with the conductor 1, the conductor then limiting the upward movement of the trolley, as it will be evident that the action of the spring 25 will tend to elevate the trolley. Now it will be supposed that the trolley has been removed accidentally or otherwise from the conductor. The action of the spring 25 when the trolley is off the conductor will tend to draw the upper end of the arm 14 rearwardly and the lower end of the arm 14 forwardly. On the forward movement of the arm 14 the carrying members 19 20 will be moving in the same direction, consequently carrying the wedge-shaped members 35 therewith, and the said wedge-shaped members will pass between the V-shaped member 34 and the lower face of the portion 11, and owing to the manner in which the members 35 are constructed the said members 35 will engage the top edge of the member 34 and lower said member, carrying the free end of the spring 32 out of engagement with the rear wall of the opening 29 and permit of the spring 25 relaxing and carrying the arm 28 to its inoperative position. As the tension of the spring 25 has now been relaxed the trolley will automatically fall and be retained in such position until the spring 25 is set in a manner as hereinafter set forth. Therefore it is evident that a means is set up which when the trolley is accidentally or otherwise moved out of engagement with the conductor the trolley will automatically fall or drop, so as to arrest the pounding of the conductor by the trolley, and thereby prevent the trolley or conductor becoming injured.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A trolley-stand comprising a base, a slidable holding-arm carried thereby, a shiftable mechanism operated by the trolley, a trolley connected to said mechanism, a trolley-retaining spring attached to said mechanism and said arm, a catch device carried by said base, adapted to extend up in said arm and comprising a depending inverted-T-shaped free end, and a pair of wedged-shaped members carried and shifted by said mechanism and adapted to engage the free end of said catch device for moving the catch device from its engagement with said arm.

2. A trolley-stand comprising a base, a slidable holding-arm carried by the base and provided with a pair of lugs, shiftable mechanism operated by the trolley and adapted to engage said lugs for shifting said arm, a trolley-retaining spring connected to said mechanism and to said arm, a catch device carried by the base, adapted to extend through the base and engage said arm for retaining it in operative position, and compris-

ing an inverted-T shaped free end, and a pair of wedged-shaped members carried and operated by said shiftable mechanism and adapted to engage the free end of the catch device for moving said catch device out of engagement with said arm.

3. A trolley-stand comprising a base, a slidable holding-arm carried thereby, a pair of shiftable carrying members adapted when operated to shift the arm, a shiftable lever-arm, a trolley-retaining spring connected to said slidable arm and to said lever-arm, a link attached at one end of said shiftable lever-arm and having a lost-motion connection between it and the forward end of said carrying members, a catch device for retaining said arm in operative position, and means operated by the carrying members for releasing said catch device.

4. A trolley-stand comprising a base, a slidable holding-arm carried thereby, a shiftable means for said arm, a trolley connected to said mechanism, a trolley-retaining spring attached to said mechanism and to said arm, a spring carried by the base and adapted to engage the holding-arm for retaining it in normal position, said spring having a depending portion substantially T-shaped in contour, a pair of wedge-shaped members operated by the shifting mechanism and adapted to engage said depending T-shaped portion of the spring for moving the spring out of the path of the said arm.

5. A trolley-stand comprising a base, a slidable holding-arm carried thereby and provided with a pair of laterally-extending lugs projecting from the base, a shiftable mechanism provided with inverted-U-shaped bars arranged in the path of said lugs, said bars when said mechanism is operated adapted to engage the lugs for shifting the arm, a trolley-retaining spring attached to said mechanism and to said arm, a spring carried by the base and projecting in the path of said arm for retaining it in its normal position, said spring provided with a depending inverted-T-shaped portion, and a pair of wedge-shaped members operated by said mechanism and adapted to engage the said inverted-T-shaped portion for moving the spring out of the path of the arm.

6. A trolley-stand provided with means for automatically dropping the trolley when the same is removed from the conductor, said means comprising a retaining element for the trolley, a shiftable holding element for said retaining element, a shiftable carrying element for said holding element, a securing element adapted to extend in the path of the holding element for retaining it in its shifted position, and a releasing element depending from the carrying element and adapted to engage the securing element for moving it out of the path of the holding element when the carrying element is moved in one direc-



tion and to release said holding element when the carrying element is moved in the opposite direction.

7. A trolley-stand provided with means  
5 for automatically dropping the trolley when the trolley is removed from a conductor, said means comprising the combination with the trolley and a base, of a lever-arm connected with the lower end of the trolley and pivot-  
10 ally mounted upon the base, a spring-retaining element for the trolley, connected at one end to one end of said lever-arm, a shiftable holding element for said spring-retaining element, said holding element mounted upon  
15 the base and connected to the other end of said spring-retaining element, a shiftable element mounted upon the base and connected to the other end of said lever-arm, said shiftable element adapted to engage said holding

element for shifting it, a securing element 20 carried by the base and adapted to extend in the path of said holding element for retaining it in its adjusted position, and a releasing element depending from said shiftable element and adapted during the movement of 25 said shiftable element in one direction, to engage said securing element for moving it out of the path of said holding element and when the shiftable element is moved in the opposite direction to release said securing ele- 30 ment.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

HARRY E. EASTMAN.

Witnesses:

SAMUEL W. HOLDCROFT,  
JOHN MINOR SALE.