P. N. VAN EPP.

TROLLEY CATCHER.

APPLICATION FILED FEB. 2, 1911.

1,054,061.

Patented Feb. 25, 1913.

3 SHEETS—SHEET 1.

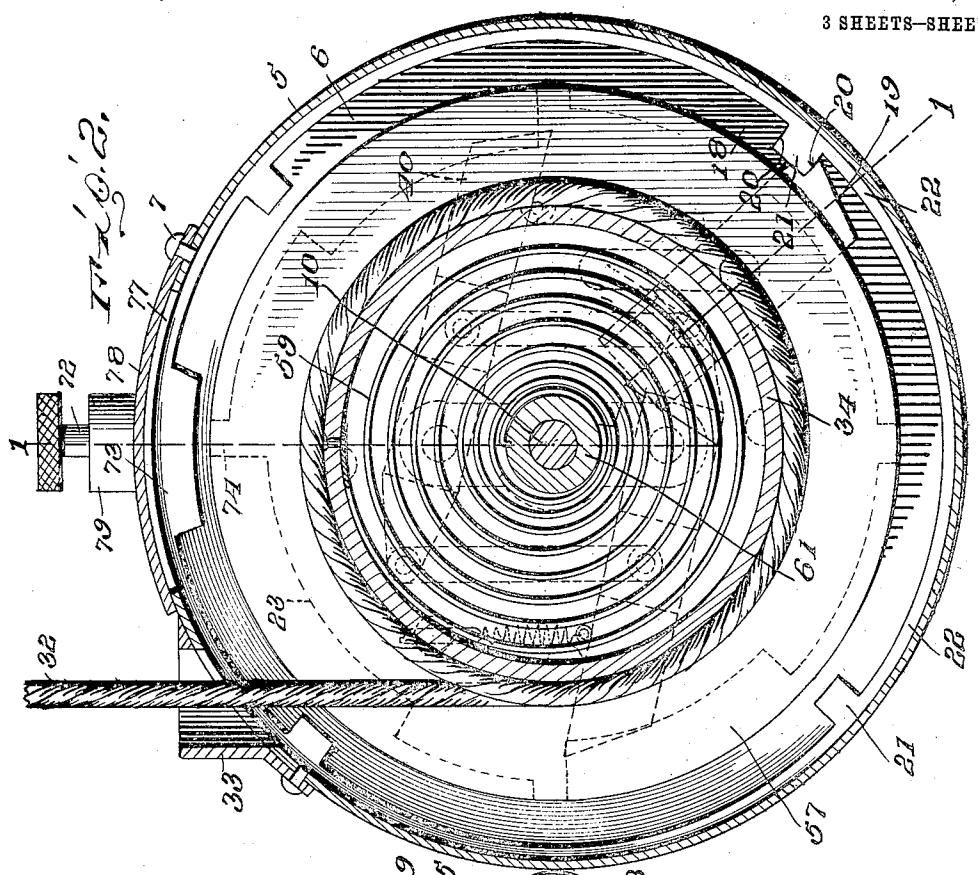

Fig. 2.

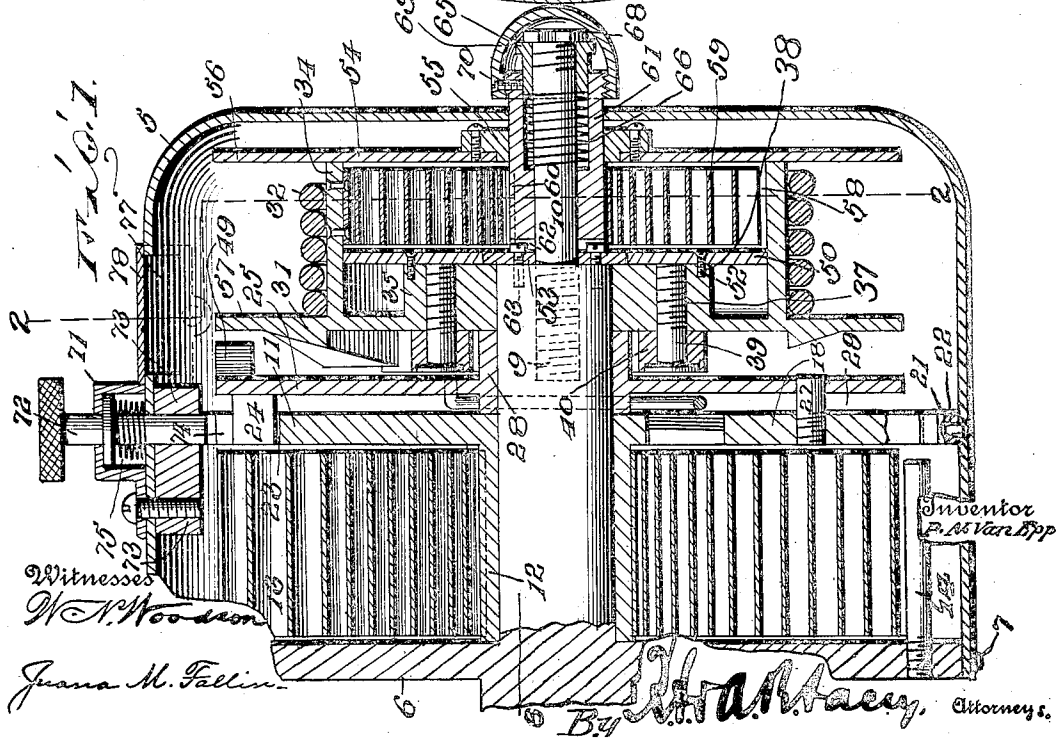

Fig. 1.

Witnesses

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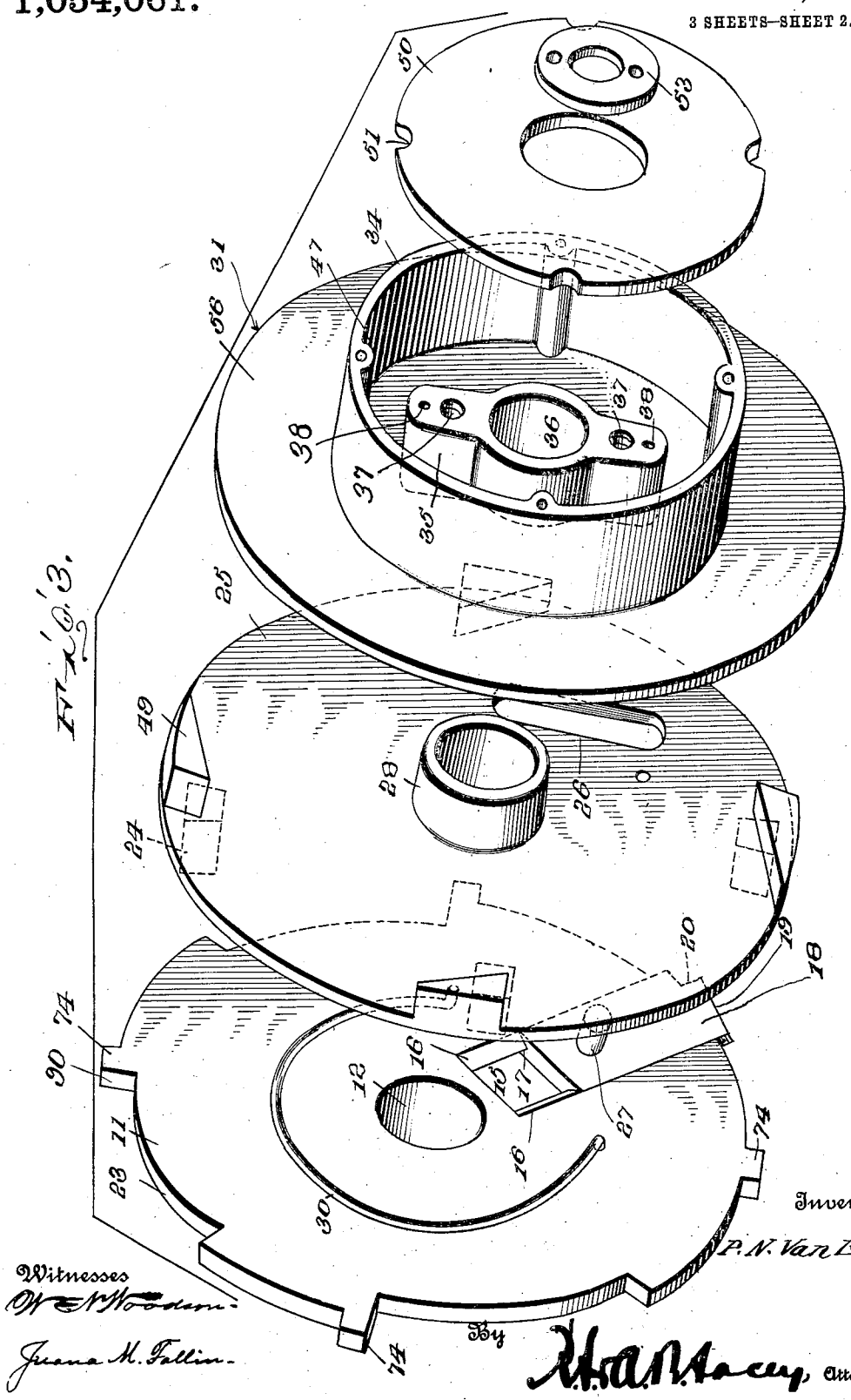
FIG. 2.



Witnesses

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3 SHEETS—SHEET 3.

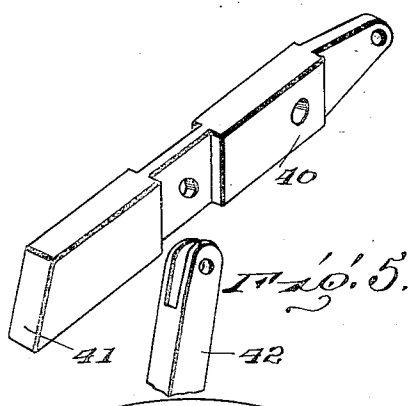

Fig. 5.

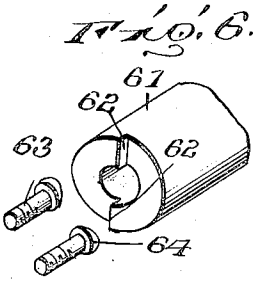

Fig. 6.

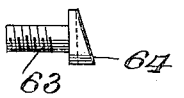

Fig. 7.

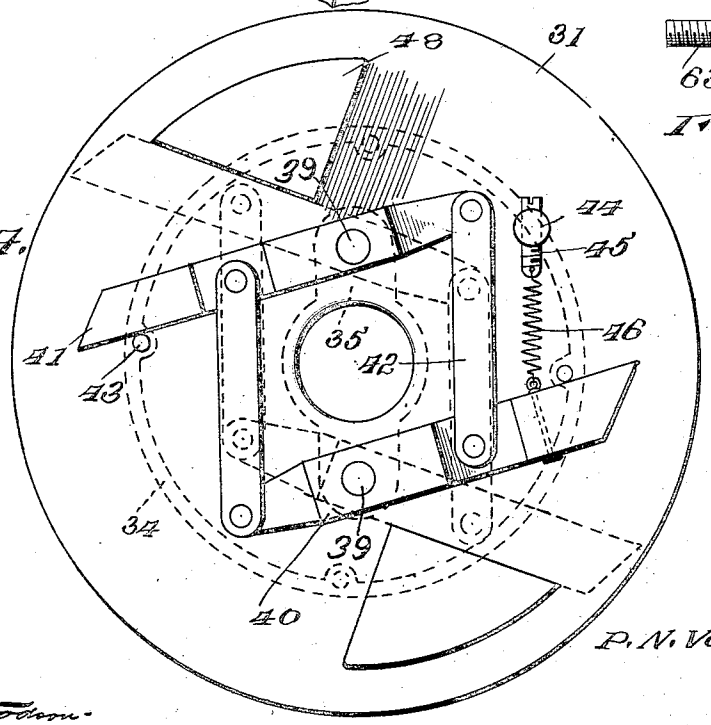

Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

PAUL N. VAN EPP, OF PORT CLINTON, OHIO, ASSIGNOR OF ONE-THIRD TO LAKE E. OWEN, OF PORT CLINTON, OHIO.

TROLLEY-CATCHER.

1,054,061. Specification of Letters Patent. Patented Feb. 25, 1913.

Application filed February 2, 1911. Serial No. 606,273.

To all whom it may concern:

Be it known that I, PAUL N. VAN EPP, citizen of the United States, residing at Port Clinton, in the county of Ottawa and State of Ohio, have invented certain new and useful Improvements in Trolley-Catchers, of which the following is a specification.

This invention relates to trolley catchers and has for its object the provision of a thoroughly practical and efficient device of this character, especially designed for use on interurban and city electric overhead trolley cars for the purpose of preventing injury to the trolley pole and wire should the trolley wheel jump said wire.

A further object is to provide a trolley catcher of simple and durable construction which shall operate automatically to catch and lower the trolley pole the instant the trolley wheel leaves the overhead wire or conductor.

A further object is to provide means for taking up the slack in the trolley rope when the pole is lowered, and means for permitting a slight rise and fall of the trolley wheel to accommodate the varying altitude of the overhead conductor or wire without effecting the trolley lowering mechanism.

A further object is to interpose a spring between the arbor plate or disk and the lock controlling plate for the purpose of actuating the latter to release the sliding locking member and also to receive and absorb the jar or shock incident to the impact of the centrifugal governor arms.

A still further object of the invention is generally to improve this class of devices, so as to increase their utility, durability and efficiency.

Further objects and advantages will appear in the following description, it being understood that various changes in form, proportions and minor details of the construction may be resorted to within the scope of the appended claims.

For a full understanding of the invention and the merits thereof, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a vertical sectional view of a trolley catcher constructed in accordance with my invention, the cylindrical extension on the back plate of the casing being broken away; Fig. 2 is a similar view taken on the line 2—2 of Fig. 1; Fig. 3 is a perspective view of the spring arbor plate, controlling plate and rope drum, removed from the casing and in position to be assembled; Fig. 4 is a front elevation of the rear face of the rope drum, showing the governor arms in position thereon; Fig. 5 is a detail perspective view of one of the governor arms, showing a portion of one of the connecting links below the same; Fig. 6 is a detail perspective view of the inner end of the winding arbor, the ratchet screws being shown directly in front of the teeth on said arbor; Fig. 7 is a side elevation of one of the ratchet screws.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The trolley catcher forming the subject matter of the present invention comprises a casing or housing 5, preferably cylindrical in shape, as shown, and having its front portion closed and its rear portion provided with a removable back plate 6, the latter being detachably secured to the casing 5 by bolts or similar fastening devices 7. Disposed within the casing 5 and preferably formed integral with the back plate 6, is a stationary spindle 8, the free end of which terminates short of the front end of the casing and is provided with a threaded socket 9 for the reception of the adjacent end of a corresponding pin or stud 10.

Mounted for rotation within the casing 5, is a substantially circular plate or disk 11 having a centrally disposed opening formed therein for the reception of the spindle 8 and provided with a sleeve or arbor 12, which latter bears against the spindle 8 and serves to space the plate 11 from the back plate 6 and also forms an anchoring means for one end of a power spring, indicated at 13. The power spring 13 is interposed between the back plate 6 and arbor plate 11 and serves to rotate said arbor plate to effect the lowering of the trolley pole should the latter accidentally leave the overhead wire or conductor, as will be more fully explained hereinafter.

Extending inwardly from the back plate 6, is a circumferential row of pins 14 to one of which is secured the adjacent end of the power spring 13, the remaining pins serving to confine the convolutions of the power spring and thus prevent undue expansion of

the same especially when the casing is removed to expose the interior mechanism.

The arbor plate 11 is provided with a radiating slot or opening 15, the side walls of which are inclined or beveled at 16 for engagement with the correspondingly grooved walls 17 of a sliding locking member 18. The outer end of the locking member 18 is inclined at 19 and provided with a cut-away portion defining a stop shoulder 20 adapted to engage suitable lugs or projections 21 formed on a locking ring 22 secured to the interior wall of the casing 5, as best shown in Figs. 1 and 2 of the drawings.

The peripheral edge of the arbor plate 11 is cut away to produce spaced recesses 23 adapted to receive pins or lugs 24 extending laterally from the inner face of a lock controlling plate 25. Formed in the plate 25 is a slot 26 adapted to receive a pin or lug 27 extending laterally from one face of the sliding locking member 18 so that when the plate 25 is rotated or partially rotated in one direction, the walls of said slot, by engagement with the pin, will move the locking member into and out of engagement with the lugs 21.

The controlling plate 25 is provided with oppositely disposed relatively short collars or extensions 28, one of which bears against the adjacent face of the plate 11, thereby to form an intermediate chamber 29 for the reception of a spring 30. One end of the spring 30 is seated in a suitable opening in the arbor plate 11, while the other end thereof engages a corresponding opening formed in the controlling plate 25, said spring serving to impart an initial rotary movement to the plate 25 and also serving to receive and absorb the jar incident to the impact of the governor arms hereinafter referred to.

Mounted for rotation on the outer end of the spindle 8, is a rope drum 31 upon which is wound a rope or cable 32, the free end of said cable being passed through a guide nipple 33 for attachment to a trolley pole in the usual manner. The drum 31 is provided with a cylindrical extension 34, the inner wall of which is provided with an enlargement 35 constituting a reinforcing member, said reinforcing member being pierced by a centrally disposed opening 36 for the reception of the adjacent end of the spindle 8 and having relatively large and small threaded openings 37 and 38 arranged on opposite sides of the central opening 36, the large openings 37 extending entirely through the enlargement for the reception of correspondingly threaded pins 39 which serve to hold the governor arms 40 in position and the small openings 38 serving to receive screws for holding the retaining plate 50 on said enlargement.

Mounted on the inner face of the drum 31 and secured in position thereon by the pins 39, are the co-acting governor arms 40 having their outer ends weighted and inclined or beveled, as indicated at 41. The inner end of each governor arm 40 is cut-away and connected through the medium of an equalizing link 42 with the intermediate portion of the adjacent arm, there being suitable stop pins 43 for limiting the inward swinging movement of said arms. An auxiliary pin 44 is also preferably secured to the inner face of the rope drum and is provided with a threaded aperture for engagement with a correspondingly threaded pin 45. Secured to one end of the pin 45, is a coil spring 46, the opposite end of which is secured in any suitable manner to the adjacent governor arm 40, so that by rotating the pin 45, the tension of the spring 46 may be regulated, thus to control the swinging movement of the governor arms.

The stop pins 43, preferably extend the entire width of the drum 31, the inner wall of the extension 34 being thickened at 47 in order to strengthen the drum at said pins. Secured to or formed integral with the inner face of the drum 31, are spaced lugs 48 adapted to engage and limit the outward swinging movement of the governor arms 40, there being similar lugs 49 secured to or formed integral with the outer face of the lock controlling plate 25 and adapted to engage the outer ends of the governor arms for transmitting motion from the plate 25 to the drum 31 or vice versa.

Disposed within the cylindrical extension 34 of the drum, is the retaining plate 50 having notches 51 formed therein to accommodate the enlargements 47, said retaining plate being secured to the reinforcement 35 by screws 52 engaging the openings 38 in the member 35, as best shown in Fig. 1 of the drawings.

Rigidly secured to the inner end of the spindle 8, is a stop plate or disk 53 which bears against the adjacent face of the reinforcing web 35 and serves to prevent outward movement of the drum on the spindle 8, the inner face of the drum, by engagement with the adjacent collar 28 on the controlling plate, serving to limit the inward movement of said drum.

Fastened to the outer end of the extension 34, is a front plate 54 having a central opening formed therein for the reception of a bearing ring 55, the outer edge of the plate 54 being extended laterally beyond the outer face of the cylindrical extension 34 of the drum to form a retaining flange 56 which co-acts with a similar flange 57 on the rope drum 31 to retain the coils or convolutions of the rope 32 in place.

The front plate 54 is spaced from the retaining plate 50 to form an intermediate

chamber 58 for the reception of a coil spring 59, said spring serving to take up the slack in the trolley rope 32 when the trolley pole is lowered. One end of the spring 59 is secured to the extension 34 of the rope drum, while the other end thereof is seated in a groove 60 formed in a winding arbor 61 so that when the drum is rotated in one direction, the spring 59 will be placed under tension, and when said drum is rotated in the opposite direction, the energy stored by the spring will be expended in rotating the drum to wind the rope thereon.

The arbor 61 is mounted on the stud or pin 10, the outer end of said arbor being extended through the front of the casing 5 and the inner end thereof provided with ratchet teeth 62.

The stop plate 53 is secured to the adjacent end of the spindle 8, by screws 63, the heads of which are inclined or beveled to form ratchet teeth 64, which latter co-act with the teeth 62 on the arbor to hold the wind up spring 59 under tension.

The outer end of the stud 10 is threaded for engagement with a nut 65, which latter bears against a coil spring 66 seated in an opening in the arbor 61. The spring 66, by engagement with the nut 65 and the adjacent wall of the opening 67, serves to normally and yieldably hold the inclined heads of the screws 63 in engagement with the ratchet teeth 62, the tension of said spring being regulated by rotating the nut 65 on the threaded end of the stud. A suitable lock nut 68 is also preferably threaded on the outer end of the stud 10 for engagement with the adjusting nut 65. The outer end of the arbor 61 is exteriorly threaded for engagement with a correspondingly threaded cap 69, which latter is provided with a locking pin or screw 70 piercing the walls of the arbor, so that by exerting a slight outward pull on the cap 69, until the teeth 62 are disengaged from the heads of the screws 63 and rotating said cap, the wind up spring 59 may be placed under tension, the spring 66 serving to automatically move the teeth 62 into engagement with the heads of the pin 63 when the hand is removed from the cap piece, thus to hold the spring 59 under tension.

Secured to the top of the casing 5, is an auxiliary casing 71, in which is mounted for vertical movement, a push pin 72, the lower end of which extends through a reinforcing plate 73 secured to the inner wall of the casing 5, and into the path of movement of a series of projections 74 formed on the periphery of the arbor plate 11. The lower or active end of the push pin 72 is normally and yieldably held out of engagement with the projections 74, by means of a coil spring 75, one end of which bears against the top of the casing 5 and the other against a collar 76 formed on the pin and slidably mounted within the auxiliary casing 71, as best shown in Fig. 1 of the drawings. A handhold 77 is also preferably formed in the casing 5 near the push pin so that access may be readily had to the interior of the casing in order to effect any necessary repairs thereto, said hand hold being normally closed by a cover or plate 78 fastened in any suitable manner to the casing 5.

The function of the stop pin 72 is to lock the arbor plate or disk 11 against rotation until the controlling plate 25 has actuated the sliding locking member 18 and caused the latter to engage the lugs 21 on the locking ring 22.

The operation of the device is as follows: Under normal conditions, the rope is free to wind upon or unwind from the drum 31 so as to allow the trolley wheel to accommodate the varying altitude of the overhead conductor or wire without effecting the governor arms or power spring 13, the spring 59 serving to take up the slack in the trolley rope and maintain the latter under proper tension at all times. Should the trolley pole jump the overhead conductor or wire, a quick or violent jerk will be imparted to the trolley rope, thus causing the drum 31 carrying the governor arms to rotate rapidly the instant the trolley pole moves upwardly. The rapid rotation of the drum 31 causes the governor arms to be thrown outwardly by centrifugal force into engagement with the lugs 49, thus turning the controlling plate 25 and causing the pin 27 to slide to the upper end of the slot 26, with the result that the active end 20 of the sliding lock 18 is disengaged from the lugs 21 on the locking ring 22, thereby permitting the power spring 13 to rotate the arbor plate 11.

As the arbor plate or disk 11 is rotated, motion will be transmitted therefrom through the medium of the shoulders 90 and lugs or pins 24 to the controlling plate 25, and the governor arms being in contact with the lugs 49 will cause the controlling plate 25, together with the drum 31, to rotate in the opposite direction, so as to wind the trolley rope 32 on said drum and thus automatically lower the trolley pole. The downward movement of the trolley pole continues until the downward pull exerted by the power spring is equal to the upward pull exerted on the trolley pole. In order to wind up the trolley rope and place the power spring under tension, it is merely necessary to exert an upward pull on the trolley rope until the trolley pole is a little above the trolley wire, which action winds up the power spring as all of the parts are free to rotate together. After the power spring 13 has been placed under tension, in the manner described, the

push pin 72 is depressed against the tension of the spring 75 so as to engage the adjacent lug 74 on the arbor plate 11, thus to hold said plate stationary and prevent the spring from turning. The trolley wheel is then placed on the wire and the trolley rope 32 released, which takes the pull from the drum 31 and causes the spring 59 to wind up the slack in the rope. As the drum 31 is rotated to take up the slack in the trolley rope, the governor arms 40 are turned in the opposite direction or backward which disengages said governor arms from the lugs 48 and 49 and permits the spring 46 to return the governor arms to normal position in engagement with the stop pins 43, while at the same time, the spring 30 turns the lock controlling plate 25 until the pin 27 is at the lower end of the slot 26 when the active end of the sliding locking member 18 will engage the adjacent lug 21 on the locking ring and hold the arbor plate 11 against further rotation.

Attention is here called to the fact that as the trolley exerts considerable force as it leaves the wire, the governor arms, when thrown outwardly, will strike the lugs 49 rather hard, but as said lugs are free to move with the plate 25 a short distance against the tension of the wind up spring 30, the shock or impact of the arms against the lugs 49 is greatly reduced and consequently lessens the violent action of the coil spring upon the release of the same. In other words, the wind up spring 30 serves to receive and absorb the impact of the governor arms on the lugs 49 and also serves to prevent undue jar on the mechanism by the power spring when the latter is released to effect the lowering of the trolley pole.

It will here be noted that the wind up spring 30 is so attached to the arbor plate 11 and controlling plate 25, that the tension thereof will keep these plates in a position relative to one another so that the sliding locking member 18 will normally be held into engagement with the projections or lugs 21 on the locking ring. It will also be noted that when the power spring is released and the catcher is in action, all of the parts thereof are securely locked together, and turned as one, thus greatly adding to the efficiency of the device.

Having thus described the invention, what is claimed as new is:

1. In a trolley catcher, a casing, a stationary spindle disposed within the casing, an arbor mounted for rotation on the spindle and provided with a plate, a lock slidably mounted on the arbor plate and movable into engagement with the casing, a controlling plate, a spring forming a connection between the controlling plate and arbor plate, a drum having means for connection with a trolley pole, a centrifugal governor mounted on the drum adapted to engage the controlling plate, a power spring connected with the casing and arbor, respectively, and means carried by the controlling plate and adapted to engage and rotate the arbor plate, thereby to release the locking member and cause the power spring to rotate the drum and lower the trolley pole when the latter leaves the overhead conductor.

2. In a trolley catcher, a casing, a stationary spindle disposed within the casing, a drum mounted for rotation on the spindle and having means for connection with a trolley pole, an arbor plate, a power spring operatively connected with the casing and arbor plate, respectively, a locking member slidably mounted on the arbor plate and movable into engagement with the casing, a pin carried by the locking member, a controlling plate having a slot formed therein for the reception of the pin and provided with laterally extending projections, a centrifugal governor mounted on the drum and adapted to engage the lateral projections on the controlling plate, and a spring interposed between and operatively connected with the arbor plate and controlling plate, respectively.

3. In a trolley catcher, a casing, a stationary spindle disposed within the casing, a spring actuated drum mounted for rotation on the spindle and having means for connection with a trolley pole, an arbor plate having peripheral recesses formed therein and provided with an opening, a power spring operatively connected with the casing and arbor plate, a locking member slidably mounted in the opening, and movable into engagement with the casing, a pin carried by the locking member, a controlling plate having a slot formed therein for the reception of the pin and provided with projections adapted to enter the recesses in the arbor plate, and a centrifugal governor mounted on the drum and adapted to engage and rotate the controlling plate, thereby to release the locking member and permit the power spring to rotate the drum to effect the lowering of the trolley pole when the latter leaves the overhead conductor.

4. In a trolley catcher, a casing, a stationary spindle disposed within the casing, lugs projecting inwardly from the casing, a spring actuated drum mounted for rotation on the spindle and having means for connection with a trolley pole, an arbor plate carried by the spindle and having an opening formed therein, a locking member slidably mounted in said opening and movable into engagement with the lugs, a pin carried by the locking member, a power spring forming a connection between the casing and arbor plate, a controlling plate having a slot for the reception of the pin and provided

with means for engagement with said arbor plate, and governor arms pivotally mounted on the drum and movable into engagement with the controlling plate, thereby to rotate said controlling plate and arbor plate to effect the release of the locking member and cause the power spring to rotate the drum and effect the lowering of the trolley pole when the latter leaves the overhead conductor.

5. In a trolley catcher, a casing including a back plate having a spindle secured thereto, a spring actuated drum mounted for rotation on the outer end of the spindle and provided with means for connection with a trolley pole, an arbor plate mounted for rotation on the spindle and provided with an arbor encircling said spindle, a power spring forming a connection between the casing and arbor, said arbor plate being provided with laterally extending lugs, a locking member slidably mounted on the arbor plate, a controlling plate having a slot formed therein, means carried by the locking member for engagement with said slot, lugs extending laterally from the opposite sides of the controlling plate, some of said lugs being extended in the path of and adapted to engage the arbor plate, governor arms pivotally mounted on the drum and adapted to engage other of said lugs for rotating the arbor plate to effect the release of the locking member, and a locking member carried by the casing and adapted to engage the lugs on the arbor plate for holding said arbor plate against rotation when the sliding locking member is released.

6. In a trolley catcher, a casing having means for attachment to the dash board of a car, a stationary spindle disposed within the casing, a spring actuated drum mounted for rotation on the spindle and having means for connection with a trolley pole, an arbor plate provided with an arbor encircling the spindle, a power spring forming a connection between the arbor and casing, a controlling plate, a locking member slidably mounted on the arbor plate and movable into and out of engagement with the casing by contact with the controlling plate, and a spring interposed between and operatively connected with both the arbor plate and controlling plate.

7. In a trolley catcher, a casing, a stationary spindle disposed within the casing, a spring actuated drum mounted for rotation on the spindle, an arbor plate, a power spring forming a connection between the casing and arbor plate, said arbor plate being formed with peripheral recesses and having lugs extending radially therefrom, there being an opening formed in said arbor plate and extending to the outer edge thereof, a locking member slidably mounted in said opening and provided with a pin, a controlling plate having lugs extending laterally from the opposite sides thereof, the lugs on one side of the controlling plate being adapted to enter the recesses in the arbor plate, there being a slot formed in the controlling plate and adapted to receive the pin of the locking member, governor arms pivotally mounted on the drum and adapted to engage the lugs on the other side of the controlling plate for rotating both plates, thereby to release the locking member and cause the power spring to rotate the drum and effect the lowering of the trolley pole when the latter jumps the overhead wire, and means mounted on the casing and adapted to engage the lugs on the arbor plate for holding said arbor plate against rotation when the locking member is released.

8. In a trolley catcher, a casing, a spindle arranged within the casing, a stud secured to the spindle and having a threaded terminal, a drum mounted for rotation on the spindle and having a rope attached thereto for connection with a trolley pole, a winding arbor carried by the stud and projecting through one wall of the casing, a spring connected with the drum and arbor respectively, pins secured to the spindle and provided with terminal teeth, there being teeth formed on the arbor, a coil spring encircling the stud and bearing against the arbor for holding the teeth in engagement with each other, a nut engaging the threaded end of the stud and bearing against the coil spring for regulating the tension of the latter, a cap secured to the projecting end of the arbor to permit the manual rotation of said arbor, and a power spring operatively connected with the drum for rotating said drum to effect the lowering of the trolley pole when the latter leaves the overhead conductor.

9. In a trolley catcher, a casing, a stationary spindle disposed within the casing, a stud secured to one end of the spindle, a drum mounted for rotation on the spindle and having a flexible element secured thereto for attachment to a trolley pole, pins carried by the spindle, a winding arbor mounted for rotation on the stud and having teeth in one end thereof for engagement with the pins and provided at its other end with a longitudinal bore, a spring connected with the drum and winding arbor, respectively, a coil spring seated in the bore of the arbor for normally holding the teeth in engagement with each other, a nut engaging the threaded end of the stud and bearing against the spring, a cap forming a housing for the nut, and a power spring operatively connected with the drum for rotating the latter to effect the lowering of the trolley pole when the latter leaves the overhead conductor.

10. In a trolley catcher, a casing, a stationary spindle disposed within the casing,

a hollow drum mounted for rotation on the spindle and provided with a reinforced portion, a flexible element secured to the drum for attachment to a trolley pole, means for preventing inward sliding movement of the drum on the spindle, a stop plate secured to the spindle and bearing against the reinforcement of the drum for preventing outward sliding movement of the drum on said spindle, a stud carried by the spindle and extending through said stop plate, a manually operated winding arbor journaled on the stud, a spring housed within the drum and operatively connected with said drum and winding arbor respectively, means for holding the spring under tension, and a power spring operatively connected with the drum and adapted to rotate the latter to effect the lowering of the trolley pole when said pole leaves the overhead conductor.

11. In a trolley catcher, a casing, a stationary spindle disposed within the casing, a hollow drum mounted for rotation on the spindle and having a reinforced portion, a flexible element secured to the drum for attachment to a trolley pole, means for preventing inward sliding movement of the drum on the spindle, a retaining plate disposed within the drum and secured to the reinforcement thereof, a stop plate arranged within the retaining plate and bearing against the adjacent portion of the spindle, and reinforced portion of the drum for limiting the outward sliding movement of the drum on said spindle, a stud carried by the spindle and extending through the stop plate, a winding arbor carried by the stud, a spring seated in the drum and having one end thereof operatively connected with the said drum and its other end secured to the winding arbor, a front plate forming a housing for the spring, interengaging teeth carried by the spindle and winding drum for holding the spring under tension, and a power spring operatively connected with the drum for rotating the latter to effect the lowering of the trolley pole when the latter leaves the overhead conductor.

12. In a trolley catcher, a casing, a stationary spindle disposed within the casing, a hollow drum mounted for rotation on the spindle and provided with an interior reinforcement, a flexible element secured to the drum for connection with a trolley pole, a retaining plate disposed within the drum and secured to the reinforcement thereof, a stop plate secured to the spindle and disposed in the same plane with the retaining plate, a stud extending through the stop plate and having its outer end threaded, a winding arbor carried by the stud, a coil spring housed within the drum and operatively connected to said drum and winding arbor respectively, a front plate forming a closure for the drum and provided with a bearing ring engaging the arbor, pins extending longitudinally from the spindle and provided with teeth, there being teeth formed on the arbor, a second coil spring surrounding the stud and bearing against the arbor for normally holding said teeth in engagement with each other, a nut engaging the threaded end of the stud, a cap forming a housing for the stud, and a power spring operatively connected with the drum for rotating the latter to effect the lowering of the trolley pole when said pole leaves the overhead conductor.

13. In a trolley catcher, a casing, a spindle disposed within the casing, a spring actuated drum mounted for rotation on the spindle and having its inner face provided with projections, a flexible element secured to the drum for engagement with a trolley pole, an arbor plate, a power spring connected with the casing and arbor plate, respectively, a controlling plate having lugs extending from the opposite faces thereof, some of the lugs engaging the arbor plate, a locking ring secured to the interior of the casing and provided with lugs, a locking member slidably mounted on the arbor plate and movable into engagement with the lugs on the locking ring, a pin carried by the locking member, there being a slot formed in the controlling plate for the reception of the pin, a spring interposed between and connected with the arbor plate and controlling plate, respectively, and governor arms pivotally mounted on the drum and movable into engagement with the other lugs on the controlling plate when the trolley pole leaves the overhead conductor, thereby to release the locking member and actuate the power spring to effect the lowering of the trolley pole.

14. In a trolley catcher, a casing, a spindle disposed within the casing, a spring actuated drum mounted for rotation on the spindle and provided with a reinforcement, the inner face of said drum being formed with stops, a flexible element secured to the drum for attachment to a trolley pole, governor arms pivotally mounted on the reinforcement of the drum, links forming a connection between the governor arms, stop pins extending laterally from the drum for limiting the inward movement of the governor arms, an arbor plate, a power spring operatively connected with the arbor plate and casing, respectively, a controlling plate having a slot formed therein, a locking member slidably mounted on the arbor plate and provided with a pin seated in said slot, said locking member being movable into and out of engagement with the interior of the casing, and a pin carried by the casing and adapted to engage projections on the edge of the arbor plate when the locking member is disengaged from said casing.

15. In a trolley catcher, a casing, a stationary spindle disposed within the casing, a spring actuated drum mounted for rotation on the spindle, a flexible element secured to the drum for engagement with a trolley pole, an arbor plate mounted on the spindle, a power spring forming a connection between the casing and arbor plate, said arbor plate being provided with peripheral recesses defining stop shoulders and having an opening formed therein, a locking ring secured to the interior of the casing and provided with spaced lugs, a locking member slidably mounted in said opening and movable into engagement with the lugs, a pin extending laterally from the locking member, a controlling plate having lugs on the inner face thereof operating in the recesses in the arbor plate and provided with a slot adapted to receive the pin of the locking member, lugs extending laterally from the outer face of the controlling plate, governor arms pivotally mounted on the inner face of the drum and movable into engagement with the lugs on the outer face of the controlling plate, and a spring interposed between and connected with the arbor plate and controlling plate, said spring serving to normally hold the lugs on the inner face of the controlling plate against the adjacent shoulders on the arbor plate.

16. A trolley catcher including a casing, a spindle disposed within the casing, a spring actuated drum mounted for rotation on the spindle and having means for connection with a trolley pole, an arbor plate encircling said spindle, a power spring operatively connected with the arbor plate, a controlling plate, a locking member slidably mounted on the arbor plate and movable into and out of engagement with the casing by contact with the controlling plate, and a spring interposed between and operatively connected with both arbor plate and controlling plate, the controlling plate being operatively connected with the drum.

In testimony whereof, I affix my signature in presence of two witnesses.

PAUL N. VAN EPP. [L. S.]

Witnesses:

GEO. A. TRUE,

BESSE MULHERAN.