No. 773,314. PATENTED OCT. 25, 1904.

C. F. DAVY.

TROLLEY CATCHER.

APPLICATION FILED JUNE 20, 1904.

NO MODEL. 2 SHEETS—SHEET 1.

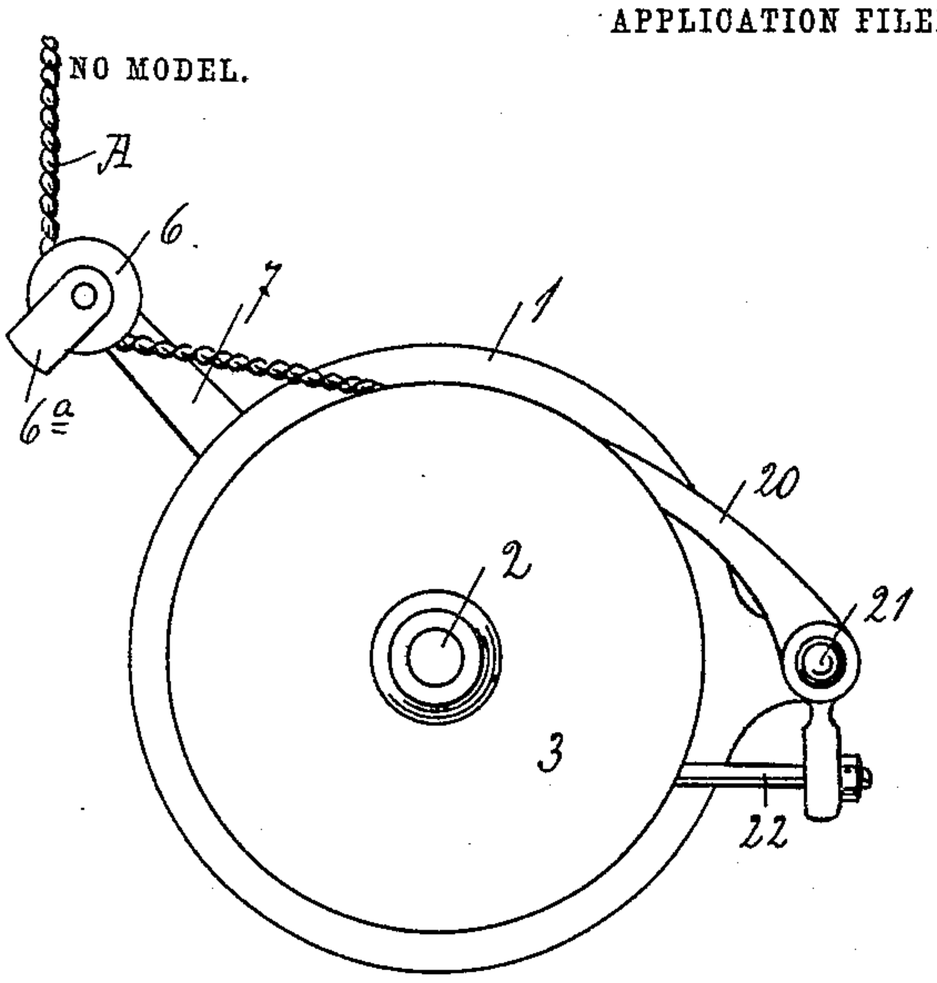

Fig. 1.

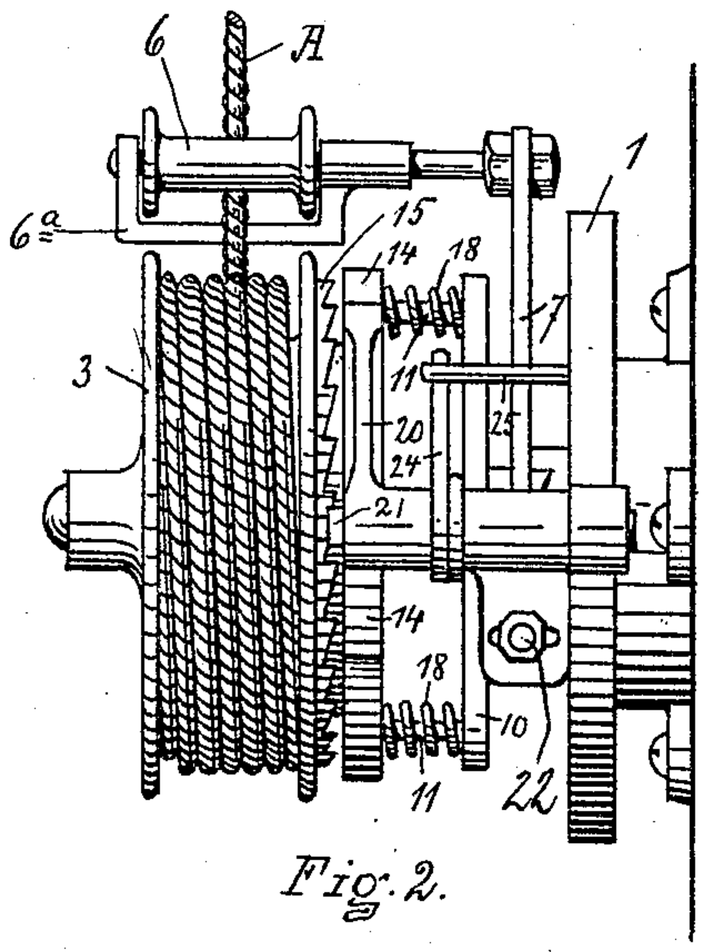

Fig. 2.

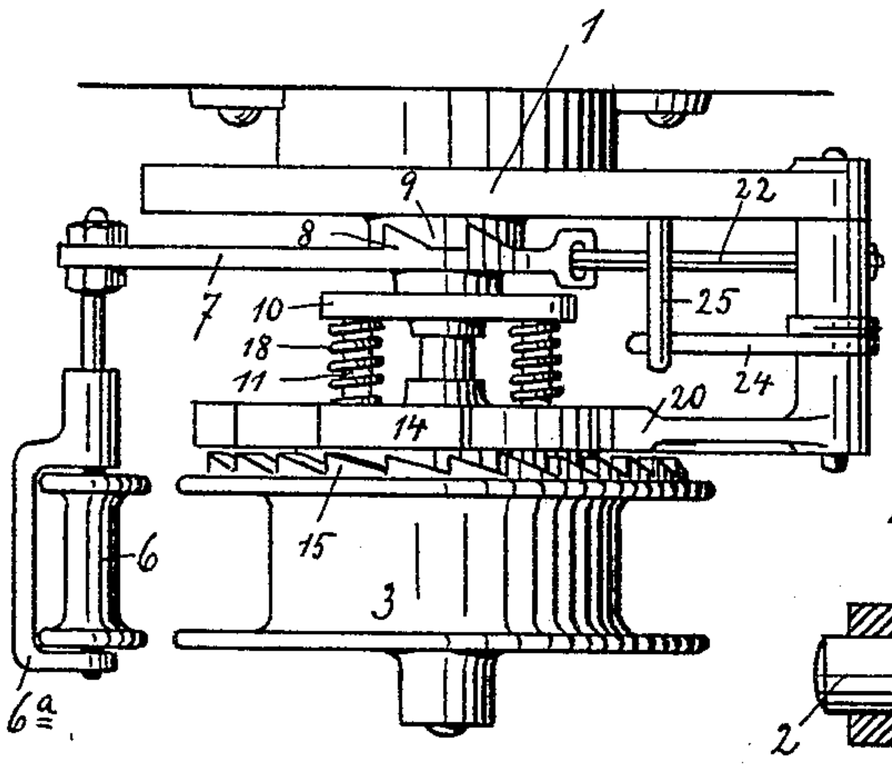

Fig. 3.

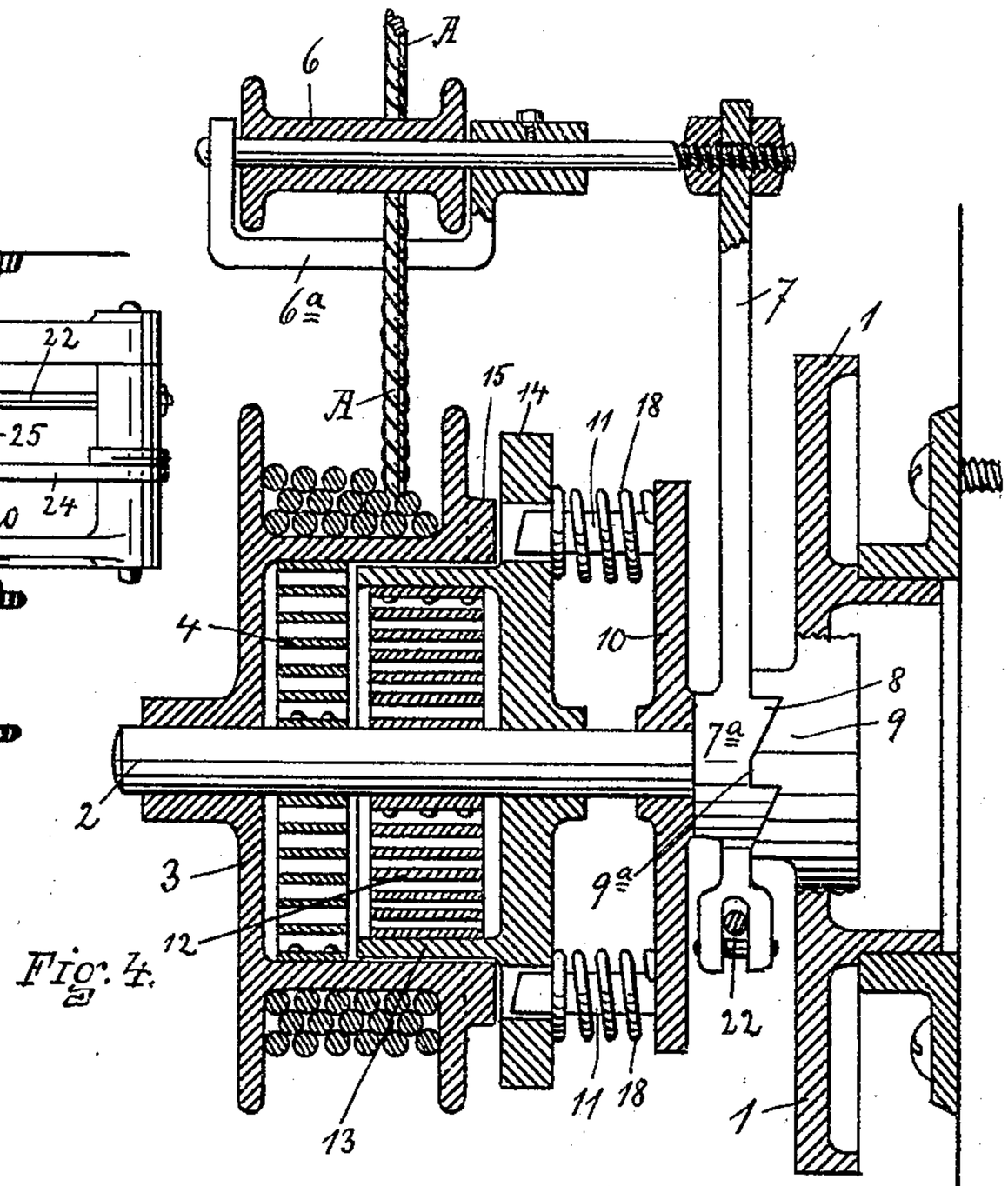

Fig. 4.

WITNESSES.
Rich. A. George
E. S. Hesse.

INVENTOR
CHARLES F. DAVY.
By Robinson, Martin & Jones
ATTORNEYS.

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NO MODEL. 2 SHEETS—SHEET 2.

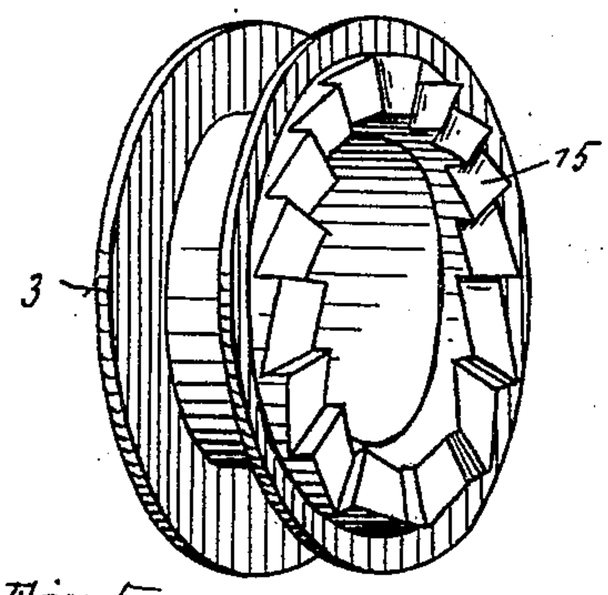

Fig. 5.

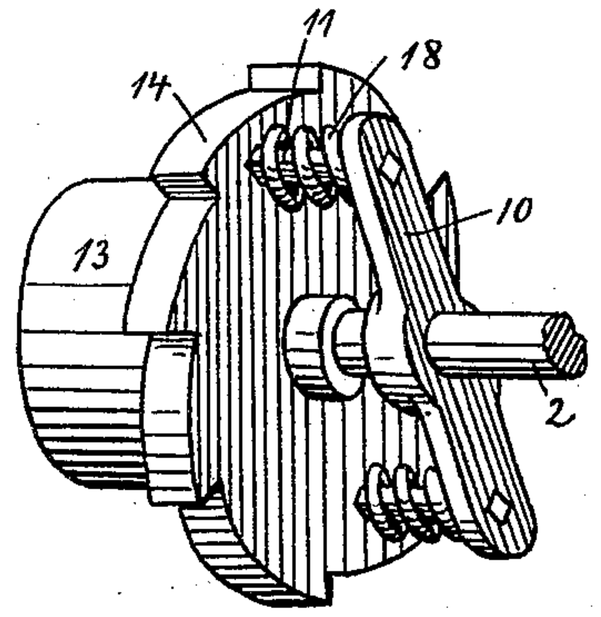

Fig. 6.

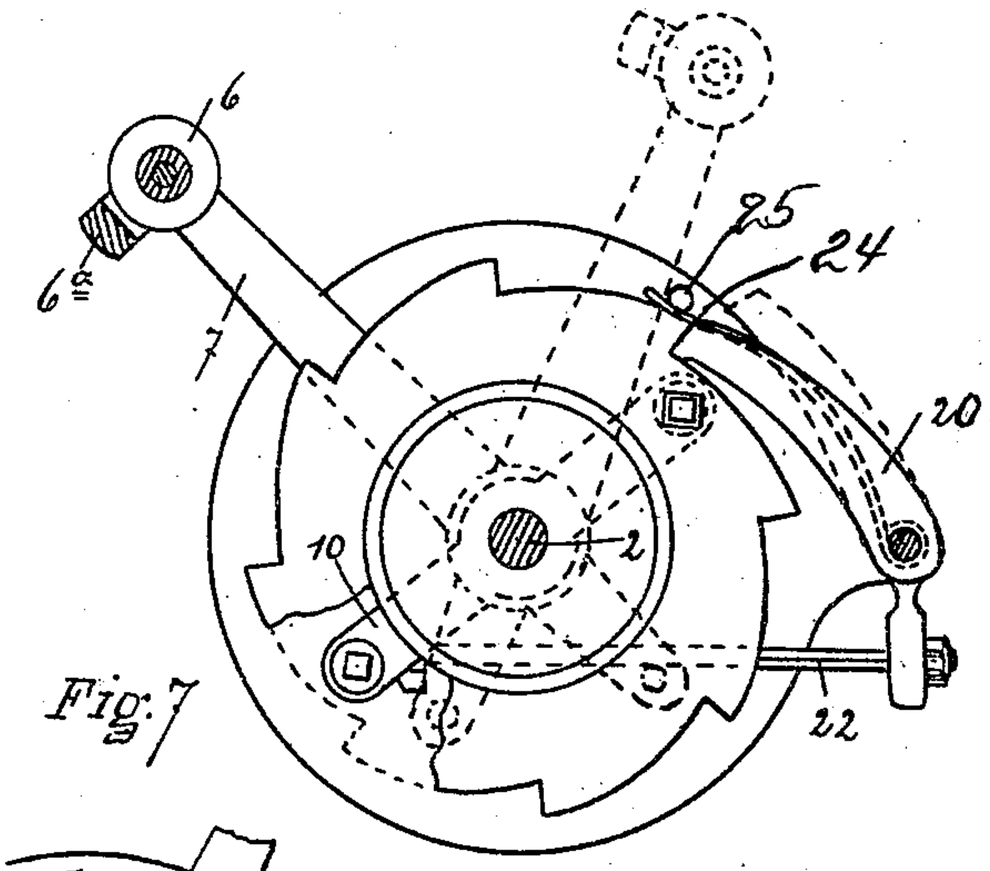

Fig. 7

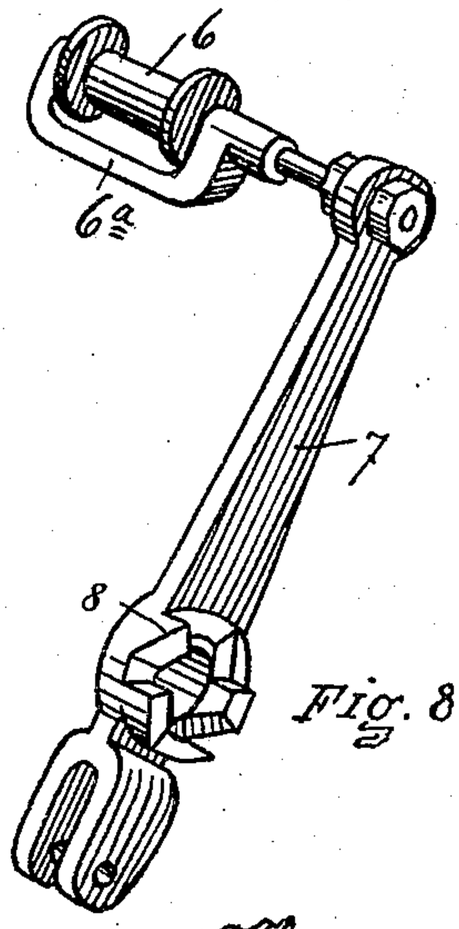

Fig. 8.

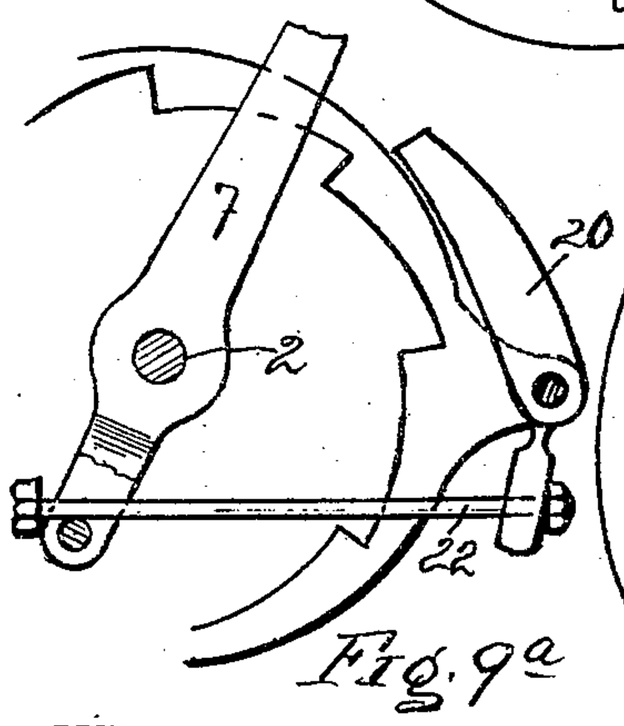

Fig. 9a

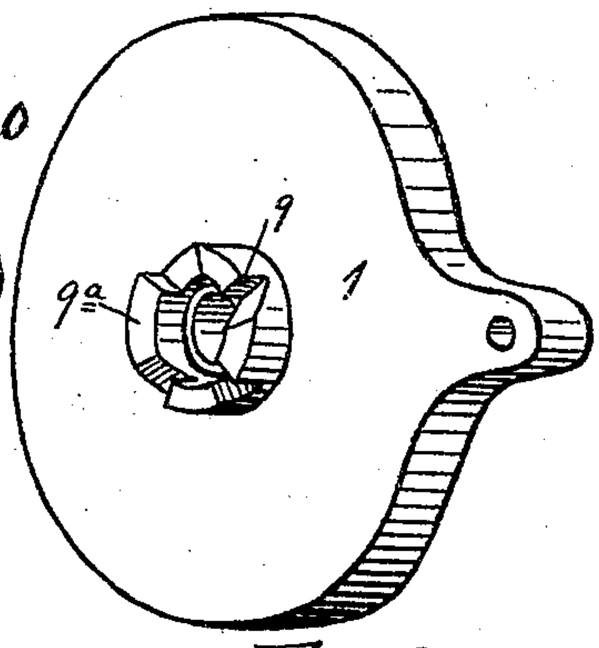

Fig. 9.

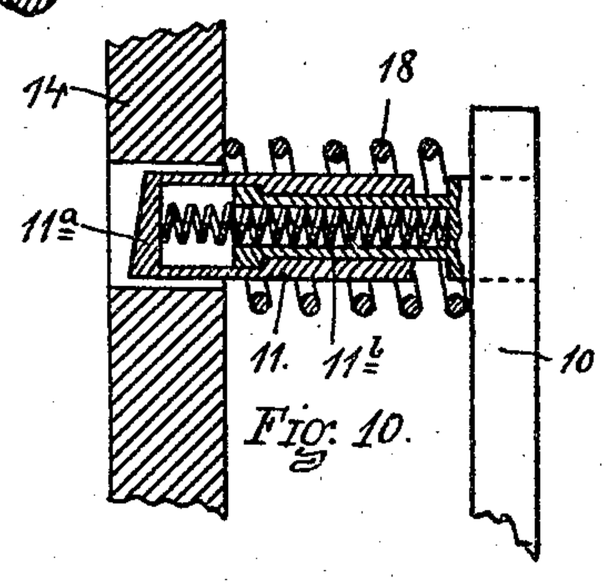

Fig. 10.

WITNESSES

Rich. A. George.

E. S. Hesse

INVENTOR

CHARLES F. DAVY.

By Robinson, Martin & Jones

ATTORNEYS.

No. 773,314. Patented October 25, 1904.

UNITED STATES PATENT OFFICE.

CHARLES F. DAVY, OF MOHAWK, NEW YORK.

TROLLEY-CATCHER.

SPECIFICATION forming part of Letters Patent No. 773,314, dated October 25, 1904.

Application filed June 20, 1904. Serial No. 213,217. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. DAVY, of Mohawk, in the county of Herkimer and State of New York, have invented certain new and useful Improvements in Trolley-Catchers; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form part of this specification.

The object of my invention is to provide improvements in trolley catchers and retrievers, which improvements are directed to providing such a device of simple and superior construction which is effective in operation and not liable to get out of order from wear and tear or from accumulation of dirt or dust or from sleet or snow.

In the drawings, Figure 1 shows a face view of the device. Fig. 2 shows a side elevation. Fig. 3 is a plan view. Fig. 4 shows on an enlarged scale the device mostly in section. Fig. 5 shows in perspective the reel employed in the construction. Fig. 6 shows the main spring-catch in connection with the other parts. Fig. 7 shows details of the operating-lever and a pawl or lock. Fig. 8 shows in perspective the operating-lever. Fig. 9 shows in perspective the rear or base plate of the construction. Fig. 9^a is a detached view showing the operating-lever and pawl or lock with other parts in full lines in the same position as they are shown in dotted lines in Fig. 7. Fig. 10 shows a modified form of catch which may be employed in the construction.

Referring to the reference letters and figures in a more particular description of the device, 1 indicates the back or base plate of the construction, which is adapted to be secured to the car and support the rest of the mechanism. Projecting laterally from the base-plate 1 is a shaft or spindle 2. On the outer end of this spindle there is mounted the reel 3, which is provided with a grooved periphery to receive a quantity of cord and is mounted on the spindle 2 to rotate freely thereon. The tension-spring 4 is attached at one end to the reel and at the other end to the spindle 2. The cord A after passing around the reel and being attached at one end to the reel 4 is carried around a roller 6, mounted on the outer end of the swinging arm or controlling-lever 7. The arm 7 is pivoted or hinged on the spindle 2 adjacent to the base and is provided with a hub 7^a, having laterally-projecting teeth 8, which operate as camming-faces in connection with somewhat similar teeth 9, provided on the base-plate 1 in a boss surrounding the spindle 2. By reason of the cam-faces on the parts 8 and 9 the base of the lever 7 has a lateral movement along the spindle 2 and is adapted to operate through the medium of the cross-bar 10, which is pivoted on the spindle 2 of the catches 11 11.

The retrieving-spring 12, which of course is a heavier spring than the tension-spring 4, is attached at its inner end to the spindle 2 and at its outer end to the retrieving-spring case 13, which case includes a ratchet-wheel part 14, having a bearing on the spindle 2. The catches 11 operate through openings in the ratchet-wheel part 14 and are adapted to engage with ratchet-teeth 15 on the inner side of the reel. For withdrawing the catches 11 and moving the cross-bar 10 to the right, as the parts are shown in Fig. 4, there are provided springs 18, surrounding the catches 11, as shown. For securing the ratchet-wheel 14, with the retrieving-spring casing, from rotation when not engaged with the reel there is provided a pawl 20, mounted on a pivot 21, projecting from the base-plate 1. The pivotal portion of the pawl is an elongated hub, as shown. This pawl is adapted to engage with the ratchet-teeth on the periphery of ratchet-wheel 14 and is operated to unlocked position by means of a rod connection 22 between the lower extension of the pawl and the lower extension of the tripping-lever 7. For throwing the pawl 20 into engaged position there is provided a spring 24, one end of which is adapted to engage with a fixed pin 25 in the base-plate 1, while the other end of the spring is secured to the pivoted end of the pawl 20.

One end of the trolley-line A is attached to the reel 3 and passed around the roller 6, be-

ing passed between the roller and the keeper 6^a thereof. When in normal position, the tripping-lever 7 stands at an angle to the general position of the reel, as shown in Fig. 1. When the tripping-lever is in the position shown in Fig. 1, the dogs 11 are released from engagement with the ratchet-teeth 15 of the reel, and the retrieving-spring is held by the dog 20 engaging with the ratchet-wheel 14. Under ordinary circumstances as the trolley follows the trolley-wire the cord A will be drawn off or allowed to wind on the reel under the influence of the tension-spring 4 without disturbing the position of the tripping-lever 7. When the trolley loses the trolley-wire, or under any extraordinary pull on the trolley-cord by reason of the angle which the trolley-cord makes in passing around the roller 6, the tripping-lever 7 will be thrown from the position in which it is shown in Fig. 1 and in full lines in Fig. 7 to the position shown in dotted lines in Fig. 7. In this operation the cam-teeth 8 on the hub of the tripping-lever engaging with the cam-faces on the boss of the base-plate moves the lever, together with the cross-bar 10, toward the ratchet, forcing the catches 11 into engagement with the ratchet-teeth 15. This couples together the reel and the retrieving-spring 12. The arrangement is such that after the catches 11 have become engaged with the ratchet-teeth 15 the pawl 20 is thrown out of engagement with the ratchet-wheel 14 by reason of the draw on the connection 22 connecting together the lever and lower end of the pawl 20. The length of the connecting-rod 22 is somewhat greater than the normal distance between the parts of the pawl 20 and the lever 7 which are connected, and the rod slides in one or both to some extent when being operated. When the pawl 20 is thrown out, the retrieving-spring 12 is free to operate to rotate the reel, assisted, of course, by the tension-spring 4. The strength of the combined springs is arranged to be sufficient to draw down the trolley against the tension of the springs or devices which hold it in elevated position to make it follow the trolley-wire. When the operator desires to replace the trolley, he does so by forcibly drawing off sufficient of the trolley-cord from the reel 3 to wind up the retrieving-spring 12 to the desired tension. When this has been done, he moves the tripping-lever 7 from the position in which it is shown in dotted lines in Fig. 7 to that in which it is shown in full lines in the same figure. This operates, first, to allow the dog 20 to become engaged with the ratchet-wheel of the restraining-spring casing, and, second, to uncouple the retrieving-spring casing from the reel. When this has been done, the device is again in readiness for operation.

In Fig. 10 a modified form of construction of the catch 11 is shown. In the modified form of construction the catch is made in two pieces 11^a and 11^b, which have a spring 11^c introduced between these relatively movable parts. This enables the cross-bar to be forced over at any time, even though the ratchet-teeth 15 are not registering perfectly with the catches at the time of this movement.

It will be noted particularly from Fig. 4 that the teeth 9 on the spindle-boss are somewhat extended on their points, as indicated at 9^a. The arrangement of parts is preferably such that the dog 20 will be thrown out while the point of the tooth 8 is moving along this flat end or face of the tooth 9. By this arrangement the dogs 11 are sure to be engaged with the reel before the retrieving-spring is released by the dog 20. Further than that, when it comes to resetting the device the tripping-lever 7 can be moved somewhat toward its normal position, as shown in Fig. 1, allowing the dog 20 to assume its holding position while the catches 11 are still engaged with the ratchet-teeth 15. Thus when the operator desires to reset the spring he can pull a limited amount on the cord and stop and make a second or third effort, and all that he has gained is saved by the dog or pawl 20, engaged with the ratchet-wheel 14.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination in a trolley-catcher of a reel, a spindle on which the reel is mounted to rotate freely, a tension-spring attached at one end to the spindle and at the other end to the reel, a retrieving-spring attached at one end to the spindle, a retrieving-spring casing including a ratchet-wheel to which the other end of the retrieving-spring is attached, a pawl for engaging the ratchet-wheel of the retrieving-spring casing, catches for coupling the retrieving-spring casing to the reel, and a tripping-lever for operating the said catches and pawl, carrying a roller under which the cord from the reel is passed, substantially as set forth.

2. The combination in a trolley-catcher of a reel, a spindle on which the reel is mounted to rotate freely, a tension-spring attached at one end to the spindle and at the other end to the reel, a retrieving-spring attached at one end to the spindle, a retrieving-spring casing including a ratchet-wheel to which the other end of the retrieving-spring is attached, a fixed pawl for engaging the ratchet-wheel of the retrieving-spring casing, catches for coupling together the retrieving-spring casing and the reel, a tripping-lever pivoted on the spindle and provided with means for operating the pawl and catches, and adapted to swing from a normal position at one side of the vertical line through the retriever toward or past the said vertical line, and a roller carried on the outer end of the tripping-arm, around which the cord is passed, substantially as set forth.

3. The combination in a trolley-catcher of a reel, having a circle of ratchet-teeth 15, a spindle on which the reel is mounted to rotate freely, having fixed cam-faces at its base, a tension-spring attached at one end to the spindle and at the other to the reel, a retrieving-spring attached at one end to the spindle, a retrieving-spring casing including a ratchet-wheel to which casing the other end of the retrieving-spring is attached, a catch adapted to engage with the ratchet-teeth 15 of the reel and couple the reel and retrieving-spring casing together, a tripping-lever pivoted on the base of the spindle having cam-faces coöperating with the other cam-faces at the base of the spindle to operate the catch, a pawl for securing the retrieving-spring casing also connected to the tripping-lever, and a roller carried by the outer end of the tripping-lever adapted to engage with the cord passing to and from the reel, substantially as set forth.

In witness whereof I have affixed my signature, in presence of two witnesses, this 14th day of June, 1904.

CHARLES F. DAVY.

Witnesses:

J. BENJ. BRADY,

EMMA S. HESSE.