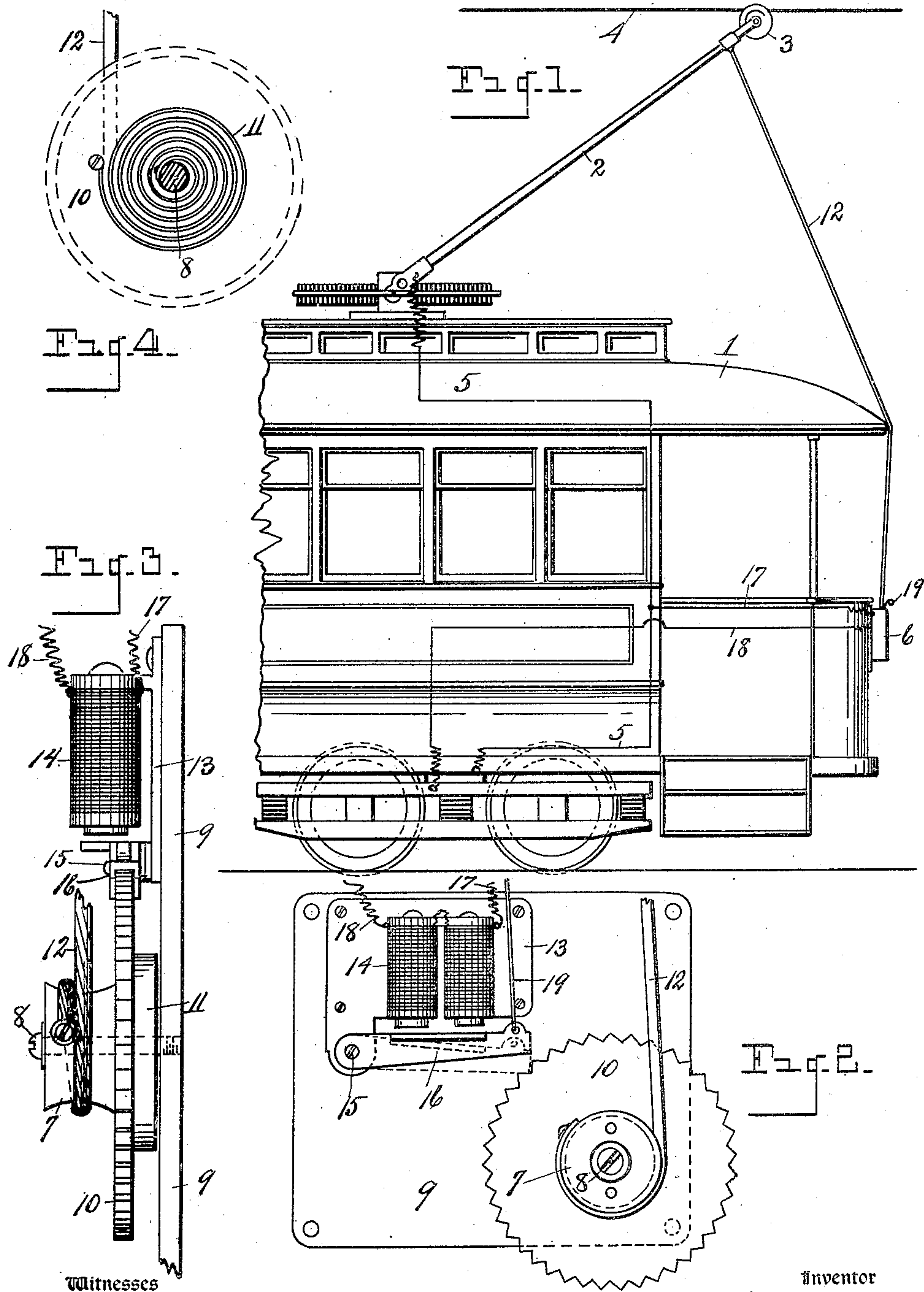


No. 897,273.

PATENTED SEPT. 1, 1908.

M. G. DELANEY.  
TROLLEY CATCHER.  
APPLICATION FILED AUG. 30, 1907.



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# UNITED STATES PATENT OFFICE.

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## TROLLEY-CATCHER.

No. 897,273.

Specification of Letters Patent.

Patented Sept. 1, 1908.

Application filed August 30, 1907. Serial No. 390,738.

*To all whom it may concern:*

Be it known that I, MICHAEL G. DELANEY, a citizen of the United States, residing at Detroit, in the county of Wayne, State of Michigan, have invented certain new and useful Improvements in Trolley-Catchers; and I do declare the following to be a full, clear, and exact description of the invention, such as 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 figures of reference marked thereon, which form a part of this specification.

This invention relates to trolley catching devices, and is designed for use in connection with electric railways.

The invention consists in the construction and association of parts hereinafter more fully set forth and claimed.

The object of the invention is to produce a trolley catching device electrically controlled by a flow of current from the trolley pole or circuit leading to the motor, whereby upon the trolley wheel leaving the over-head conductor, said device will be actuated to prevent the trolley pole flying upwardly through the action of its upwardly impelling spring and violently encountering the cross wires which support the over-head conductor, obviating injury to said cross wires and to said pole.

The invention further contemplates an arrangement whereby upon returning the trolley into operative relation with said conductor, the parts are restored to their normal position in readiness for a succeeding operation, in which position a vertical movement of the pole is permitted within the limits required under conditions of actual use.

The above object is attained by the structure illustrated in the accompanying drawings, in which:—

Figure 1 is a view showing the rear end of a trolley car and illustrating in a general way the application of my invention. Fig. 2 is a front elevation of the trolley catching mechanism which comprises an electro-magnet with a pivoted armature adapted to engage a ratchet wheel secured to a spring actuated drum upon which the trolley rope is wound. Fig. 3 is an end elevation of Fig. 2. Fig. 4 is a fragmentary view showing the shaft of the

drum in transverse section and the coiled spring which is attached at one end to said shaft, and at the other end to the ratchet wheel of the drum.

Referring to the characters of reference, 1 designates a trolley car carrying the usual spring actuated trolley pole 2 having at its upper end a wheel 3 adapted to have engagement with the over-head conductor 4. Leading from the trolley pole and in electrical connection therewith is a circuit wire 5 which conveys the electrical energy from the trolley pole to the motor on the car, not shown.

Upon the rear dash of the car is a suitable housing 6 in which is located a rotary drum 7 journaled upon a shaft 8 which is mounted at its inner end in a suitable base plate 9. Secured to said drum is a ratchet wheel 10. Embracing the shaft 8 between the ratchet wheel and the base plate 9 is a coiled spring 11, one end of which is secured to said shaft and the other end to the ratchet wheel, as shown in Fig. 4. Connected with the trolley pole at one end in the usual manner is a rope 12, the other end of said rope being wound upon the drum 7.

Located within the housing 6 and mounted upon a suitable plate 13 is an electro-magnet 14. Pivoted at 15 to said plate within the field of said magnet is a detent armature 16, the free end of which stands adjacent to the teeth of the ratchet 10. While the armature remains energized by the passage of an electric current therethrough, said armature will be attracted and raised from engagement with the ratchet wheel, permitting a free rotation of the drum 7 in either direction. Upon the deenergizing of said magnet the armature will fall causing its free end to engage the ratchet wheel, thereby preventing the rotation of the drum 7 in a direction to permit of the unwinding of the rope 12.

The electro-magnet 14 is included in a shunt circuit consisting of the wire 17 which leads from the circuit wire 5 and the wire 18 which is grounded on the truck frame of the car. By this arrangement while a current is flowing through the wire 5 the magnet remains energized and the armature is raised from engagement with the ratchet wheel, a condition which obtains while the trolley pole remains in contact with the over-head conductor. Should the trolley leave the



overhead conductor, the flow of current to the magnet will at once cease, permitting the armature to fall and lock the ratchet wheel, as illustrated by dotted lines in Fig. 2, preventing the unwinding of the rope 12 from the drum 7, and restraining the trolley pole against springing upwardly, thereby preventing injury to the cross wires and the pole. Upon restoring the trolley wheel to the over-head conductor, current will again flow through the magnet, thereby raising the armature and releasing the ratchet wheel. As the distance between the top of the car and the over-head conductor varies, it is necessary to provide for the vertical movement of the trolley and consequently for the unwinding of the rope from the drum and the winding of the rope thereon. This is accomplished by means of the coiled spring 11 which as before stated is connected to the shaft 8 and to the ratchet wheel 10, the arrangement being such that as the rope winds from the drum as the trolley moves upward, the spring 11 is contracted so that the tension thereof will rotate the drum in the opposite direction when the trolley moves downward, thereby re-winding the rope upon the drum and keeping said rope always taut.

To enable the detent armature 16 to be disengaged from the ratchet wheel without energizing the electro-magnet, there is attached to the free end thereof a rod or cord 19, the upper end of which projects through the housing, as shown in Fig. 1, and enables the armature to be raised by an upward pull thereon to disengage it from the ratchet wheel.

Having thus fully set forth my invention,

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

1. In a trolley catching device, the combination with an over-head conductor, of a trolley pole carrying a wheel in engagement with said conductor, a rope attached to the trolley pole, a spring actuated drum upon which a portion of the rope is wound, a detent for restraining the rotation of the drum, means for electrically actuating said detent to release said drum, said detent actuating means being in circuit with the trolley pole, and a cord attached to said detent for actuating it to release the armature independently of the operation of said electrically actuated means.

2. In a trolley catching device, the combination of an over-head conductor, a trolley pole in engagement therewith, a rope attached to the trolley pole, a spring actuated drum upon which a portion of the rope is wound, a ratchet wheel upon said drum a detent armature pivotally mounted at one end and at the other end engaging said ratchet wheel for restraining the rotation of said drum, an electro-magnet for actuating said armature, said magnet being in circuit with the trolley pole, and means for disengaging the armature from said ratchet wheel independently of the operation of said electro magnet.

In testimony whereof, I sign this specification in the presence of two witnesses.

MICHAEL G. DELANEY.

Witnesses:

E. S. WHEELER,  
WM. R. SHERWOOD.