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J. ZUMBRUNNEN.

TROLLEY.

(Application filed Apr. 4, 1900. Renewed Apr. 13, 1901.)

(No Model.)

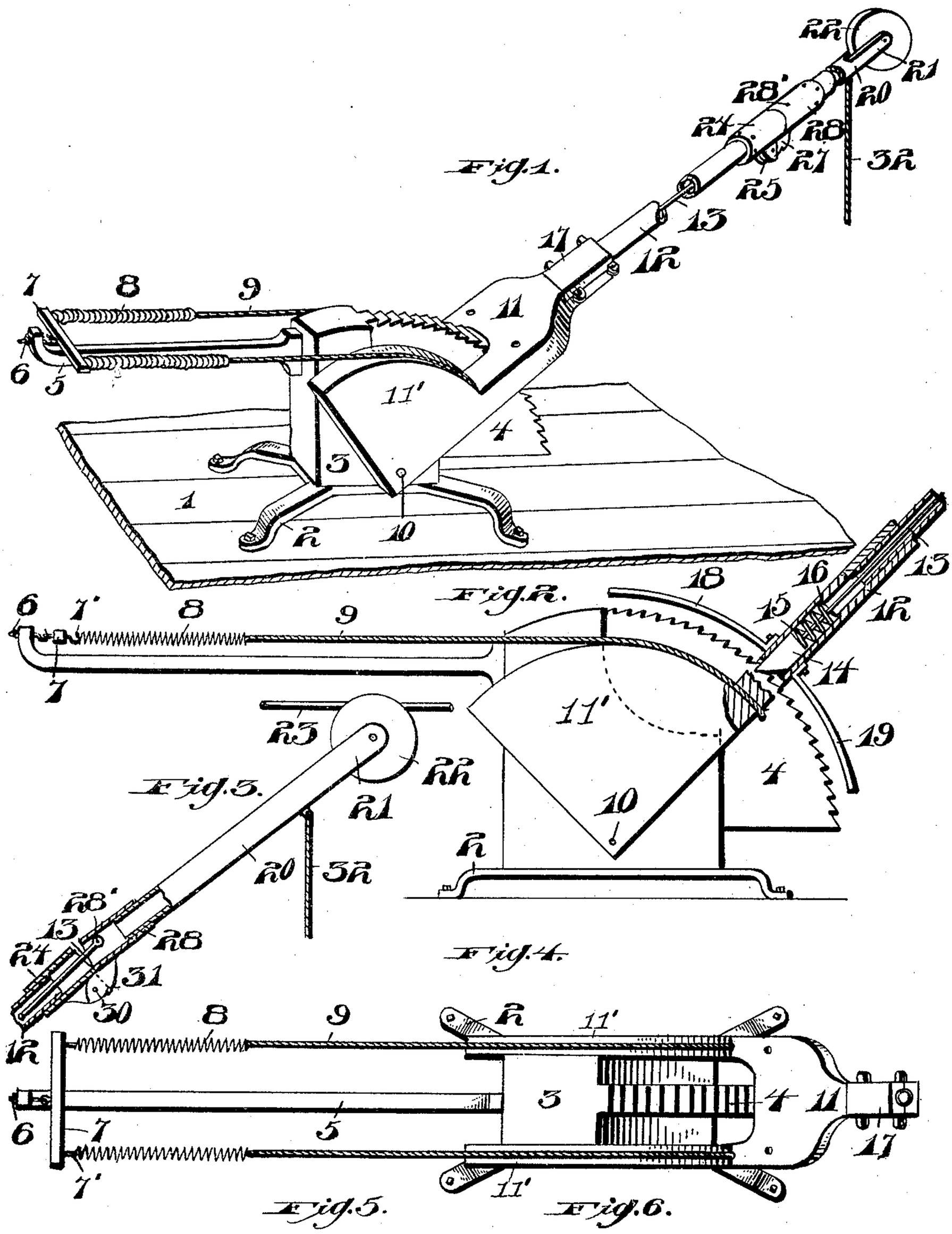

Fig. 1.

Fig. R.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

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UNITED STATES PATENT OFFICE.

JOHN ZUMBRUNNEN, OF ELLIOTT, PENNSYLVANIA.

TROLLEY.

SPECIFICATION forming part of Letters Patent No. 687,950, dated December 3, 1901.

Application filed April 4, 1900. Renewed April 13, 1901. Serial No. 55,757. (No model.)

To all whom it may concern:

Be it known that I, JOHN ZUMBRUNNEN, a citizen of the United States of America, residing at Elliott borough, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Trolleys, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in trolleys, and is adapted for use for electric railways.

The invention aims to construct a trolley with means to arrest the upward movement thereof when the trolley-wheel is in contact with the electrical conductor or trolley-wire. Furthermore, the invention aims to provide a trolley with means to permit of adjusting the same in relation to the electrical conductor or trolley-wire.

Briefly described, the invention consists of forming the trolley-pole of two sections carrying a spring-actuated pawl which is adapted to engage the segmental-shaped rack, and spring-actuated means connected to the lower section of the pole for retaining the fastening-pawl in engagement with the rack.

With the above and other objects in view the invention consists in constructing a trolley-pole which shall be extremely simple in construction, strong, durable, efficient in its use, and comparatively inexpensive to manufacture.

The invention finally consists in the novel construction, combination, and arrangement of parts, to be hereinafter described, and particularly pointed out in the claim.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, wherein like numerals of reference indicate corresponding parts throughout the several views, in which—

Figure 1 is a perspective view of my improved trolley-pole secured to the top of the car, each of the two sections forming the pole proper being partly broken away. Fig. 2 is a side view thereof, showing the lower portion of the pole in vertical section. Fig. 3 is a side view of the upper and a portion of the lower sections of the pole, partly in section, showing the arrangement of the upper end of the rod carrying the spring-actuated pawl. Fig. 4 is a top plan view with the trolley-pole proper removed. Fig. 5 is a perspective view of the clamp carried by the lower section of the pole proper. Fig. 6 is a perspective view of the clamp carried by the upper section of the pole proper.

In the accompanying drawings, 1 indicates the top of the car, on which is secured a spider 2, having rigidly mounted thereon a standard or fulcrum-block 3. This standard or block has formed integral with one side thereof a segmental-shaped rack 4 and on its opposite side has an outwardly-extending bracket 5, in the free or outer end of which is mounted an adjustable screw 6. This screw is connected to the cross-bar 7, and the latter is adjusted thereby as desired. This cross-bar carries near each end a hook 7′, to which hooks are connected one end of the tension-springs 8, the other ends of these springs being connected to cords or cables 9, attached to the yoke that carries the trolley-pole proper.

For supporting the trolley-pole I provide a yoke 11, having segment-shaped cheek-pieces 11′, the curved edges of which receive the cords or cables and the cheek-pieces being pivoted near their lower ends, as at 10, to the standard 3. At its upper end the yoke 11 carries a clamp member 17, by means of which the lower section 12 of the trolley-pole is secured in position, the said yoke having an opening extending from its upper end through the same and registering with the space between the two prongs or forks which form the yoke. The section 12 of the trolley-pole is hollow and has arranged therein a rod 13, carrying a locking-pawl 14 on its lower end to engage with the rack 4 and limit the upward movement of the pole. For holding this pawl 14 in engagement with the rack 4 I employ a coil-spring 15, arranged on the rod 13 between the upper end of the pawl 14 and a shoulder 16, formed in the yoke. I preferably attach to the yoke 11 a pair of shields 18 19 opposite to the rack 4, as shown in Fig. 2 of the drawings. The upper section 20 of the pole proper is also hollow and carries the harp 21 on its upper end, in which is mounted the trolley-wheel 22 for engagement with the trolley-wire 23. The two sections 12 and 20, constituting the pole, are hinged together

by means of the sleeve 24, secured to the upper end of the lower section 12, and the sleeve 28, secured to the lower end of the upper section 20. The sleeve 24 is provided on its under side with a keeper 25, having an opening 26 to receive the lug or lip 27, formed on the under side of the sleeve 28 at the lower end thereof. This lug or lip is secured within the opening 26 of the keeper 25 by means of a pin 30, for which a hole 29 is provided in the lug or lip, said hole registering with a like one through the keeper. The rod 13 extends entirely through the section 12 into the sleeve 28, where it is secured by a pin 28'.

The operation of my improved trolley is as follows: When the trolley-wheel leaves the wire, the two sections closing by reason of the fact that the trolley-pole will elevate itself will cause the spring-actuated pawl to engage the rack 4 and arrest the movement thereof. The spring 8 will tend to draw the yoke up over the rack and will assist in keeping the pawl in engagement therewith. When it is desired to adjust the trolley-pole, by pulling downwardly on the cable 32 the pawl will ride over the rack until the wheel is in contact with the wire or conductor 23, and when the rope 32 is released the pawl will engage in the rack and secure the trolley in position by the action of the springs 15 and 8.

It is thought the many advantages of my improved construction can be readily understood from the foregoing description taken in connection with the accompanying drawings, and it will be noted that various changes may be made in the details of construction without departing from the general spirit of my invention.

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

In a trolley, the combination with the spider secured on top of a car, a standard mounted on said spider, a segmental-shaped rack formed integral with one side of said standard, and an outwardly-extending bracket carried on the opposite side of said standard, of a yoke having segmental-shaped cheek-pieces pivotally secured to said standard, a cross-bar adjustably connected to the outer end of said bracket, tension-springs connected to said cross-bar, cables connecting said springs to the yoke, a trolley-pole carried by said yoke, said pole consisting of two hollow sections, sleeves mounted on the engaging ends of said sections, means carried by the sleeves for hinging the sections together, a locking-rod arranged within the lower section, and a spring-actuated pawl carried by said rod for engagement with the rack of the standard for retaining the trolley-pole in position, as and for the purpose described.

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

JOHN ZUMBRUNNEN.

Witnesses:
JOHN NOLAND,
N. L. BOGAN.