

(No Model.)

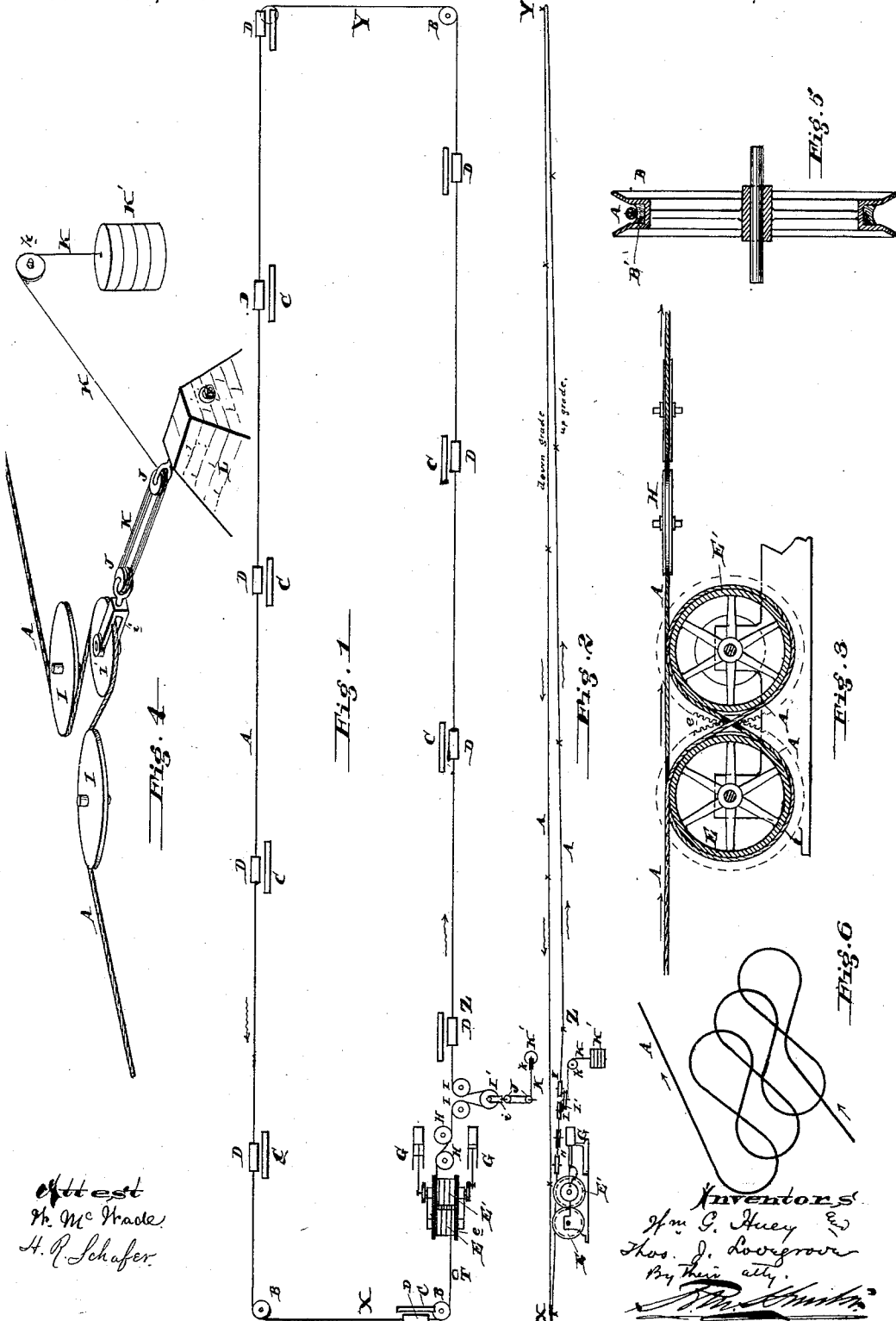
2 Sheets—Sheet 1.

W. G. HUEY & T. J. LOVEGROVE.

GRIPPING DEVICE FOR CABLE RAILWAYS.

No. 333,633.

Patented Jan. 5, 1886.



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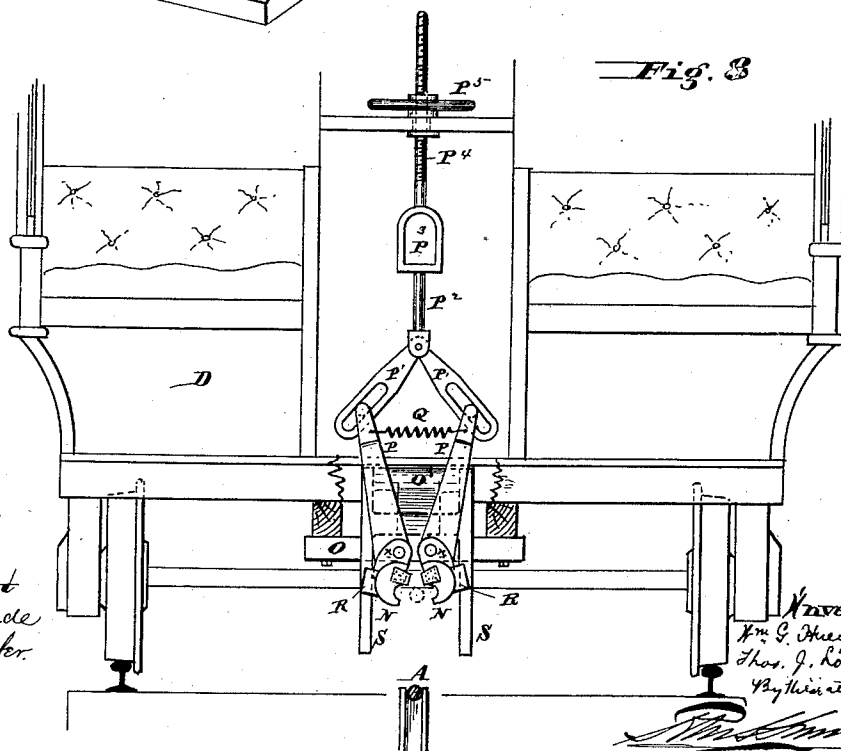
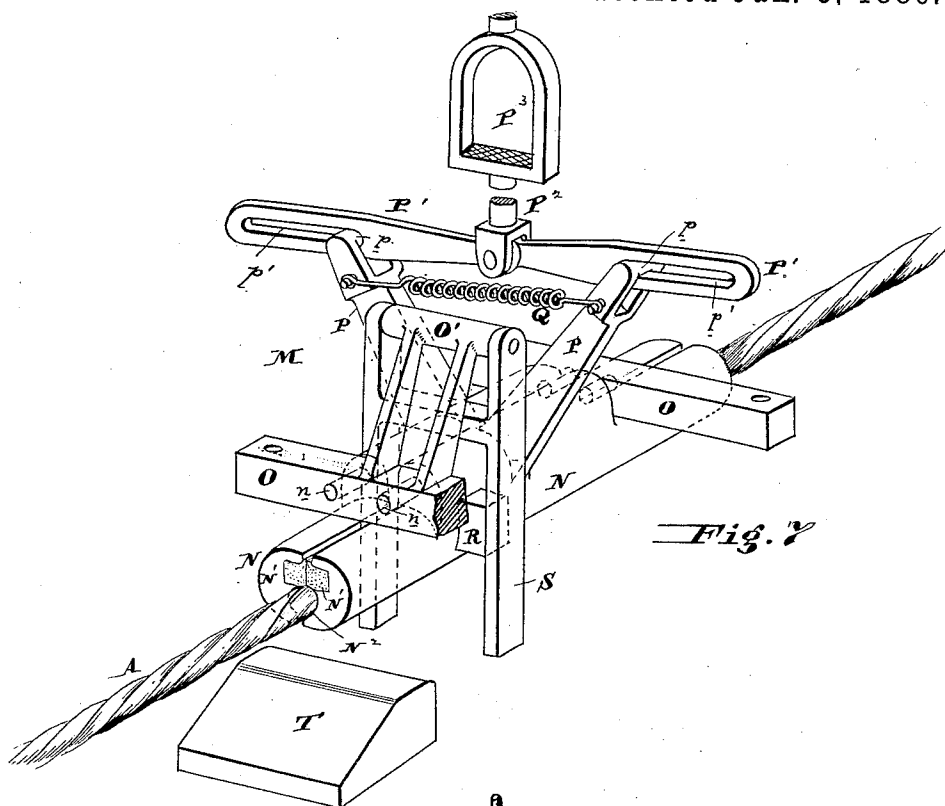
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UNITED STATES PATENT OFFICE.

WILLIAM G. HUEY AND THOMAS J. LOVEGROVE, OF PHILADELPHIA, PA.

GRIPPING DEVICE FOR CABLE RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 333,633, dated January 5, 1886.

Application filed April 17, 1884. Renewed October 9, 1885. Serial No. 179,408. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM G. HUEY and THOMAS J. LOVEGROVE, both of the city and county of Philadelphia, and State of Pennsylvania, have invented an Improvement in Gripping Devices for Cable Railways, of which the following is a specification.

Our invention has reference to gripping devices for cable railways; and it consists in certain improvements fully set forth in the following specification, and shown in the accompanying drawings, which form part thereof.

In the drawings, Figure 1 is a plan view of a cable-railway system embodying our improvements. Fig. 2 is a side elevation of same. Fig. 3 is a sectional elevation of the driving-drums. Fig. 4 is a perspective view of the take-up or tension device. Fig. 5 is a sectional elevation of one of the cable-supporting wheels. Fig. 6 is a perspective view of the cable, showing the manner in which it is wound upon the propelling-drums. Fig. 7 is a perspective view of the gripping device for the cars, and Fig. 8 is an end elevation of same when open, and showing its arrangement on the car.

A is the endless cable, which runs upon sheaves or pulleys B, having their faces preferably covered with wood B', and of which there may be any desired number.

E E' are the driving-drums, and have their surfaces grooved to receive the cable, which is wound about said drums, as shown in Figs. 3 and 6, so that the incoming and outgoing cable shall always enter upon and leave the same place on said drum E. These drums are geared together by spur-wheels e, and are driven by engines G. The cable after leaving the driving-drums may be guided over wheels H H, to bring it again into line with the incoming cable, and the tension may be put upon said cable by means of guide-wheels I I and take-up wheel I', which latter is drawn back by a weight, K', which acts through the agency of a rope, K, guided over pulley k, and passing around the pulley-blocks J J, one of which is secured to the wheel I by a yoke, i, and the other to the masonry support L. This take-up device may be located at any place on the system.

C represents a series of stations arranged equidistant apart, and D represents a corre-

sponding series of cars, also arranged equidistant and secured to the cable.

The gripping device which forms the subject-matter of this application is constructed as follows: Two iron cross-bars, O, are secured to the car-frame and support the hinged clamping-jaws N, which are pivoted at n, and are provided with clamping-grooves N² and rubber blocks N', which, when the jaws grip the cable, are compressed, being forced down upon the spiral grooves in the cable, and prevent any possibility of its slipping. These jaws N are rocked by arms P, which are provided on their free ends with cross-pins p, arranged to work in slots p' in the toggle-arms P', which are hinged to the vertically-moving rod P². This rod P² may be provided with a foot-rest, P³, to assist in its downward movement, and its upper end is screw-threaded, as at P⁴, and is adapted to work through a hand-wheel, P⁵, by which it may be raised or lowered.

Q is a spring which, when the rod P² is raised, draws the jaws N apart and frees the cable.

S is a pivoted locking-dog, being supported by the frame O', and extending down below the jaws N, and is so constructed that when the said jaws N are closed it falls by gravity upon the outsides of the lugs R on said jaws, and prevents any possibility of their being opened. If desired, this dog may be pulled back by a suitable spring.

We may consider X and Y the two terminals of the railway, and from Y to X the car is, say, running down grade, and from X to Z, a short distance and extending over the driving-drums E E' and take-up, the downgrade is steep, and from Z to Y it is upgrade. These conditions can be obtained in almost every city, and while the grades from X to Y and Z to Y are not necessary, it is important to have the grade from X to Z over the driving-drums, for while the car is in motion the dog S strikes the stop T and frees the clamping-jaws N, which instantly open and drop the cable, and the car passes by gravity to the point Z, where, as soon as the cable is brought to rest again, the gripping-jaws N are once more closed upon the cable, and the car is ready for another trip. If it is impossible to get the downgrade from X to Z it will be necessary to provide

some other means to convey the cars over the driving-drums. After the jaws have clamped the cable the rod P² is raised, so that when the dog is automatically shifted the spring Q may

5 draw the arms P together to open the jaws.

While we prefer the construction of gripping device shown we do not limit ourselves thereto, as the details may be modified in various ways without departing from our invention.

10 In this application we make no claim to the cable-railway roadway nor the means for driving and guiding the cable, as that will form subject-matter of another application.

15 Having now described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination of the hinged jaw N, having the longitudinal grooves N², facing
20 each other, and the longitudinal elastic strips or blocks N', carried by said jaws and adapted to be forced together and thereby caused to press down upon the cable held in the grooves N, to prevent its slipping, substantially as and for the purpose specified.

2. The combination, in a cable railway, of the cable and its driving mechanism with the railway-bed arranged in a downgrade over the driving mechanism, the railway-cars provided with clamping-jaws, and automatic mechanism, substantially as set forth, for disconnecting the clamping-jaws and cable as the car is about passing over the driving mechanism, substantially as and for the purpose specified.

3. In the gripping device for cable railways, hinged jaws provided with clamping-grooves, and rubber blocks to press down upon the cable to prevent its slipping, substantially as and for the purpose specified.

4. The combination of the hinged jaws N, having the longitudinal grooves N², lugs R, facing each other, and the longitudinal elastic strips or blocks N', carried by said jaws and adapted to be forced together and thereby
45 caused to press down upon the cable held in the grooves N, to prevent its slipping, and hinged locking-dog S, substantially as and for the purpose specified.

5. The combination of hinged jaws N N, having arms P, slotted links P', and rod P²,
50 substantially as and for the purpose specified.

6. The combination of hinged jaws N N, having arms P, slotted links P', spring Q, and rod P², substantially as and for the purpose
55 specified.

7. The combination of hinged jaws N N, having arms P and lugs R, slotted links P', spring Q, locking-dog S, and rod P², substantially as and for the purpose specified.

In testimony of which invention we hereunto set our hands.

WM. G. HUEY.
THOS. J. LOVEGROVE.

Witnesses:

WM. HENRY PATTERSON,
GEO. FARQUHAR.