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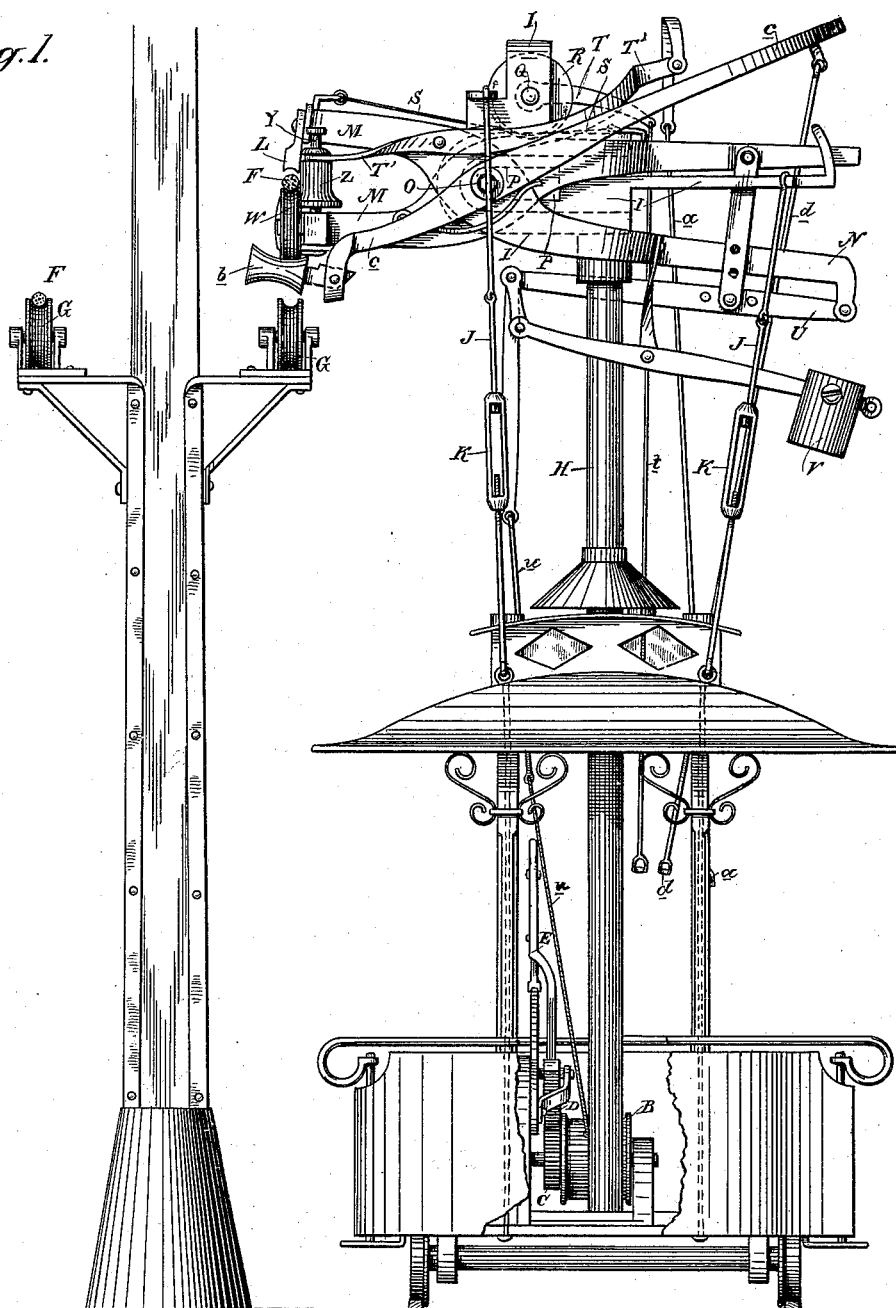
H. CASEBOLT.

ELEVATED CABLE AND CAR PROPELLER.

No. 384,124.

Patented June 5, 1888.

Fig. 1.



Witnesses,
Geo. H. Strong.
J. H. Morse.

Inventor,
H. Casebolt.
By Dewey & Co.
attys.

(No Model.)

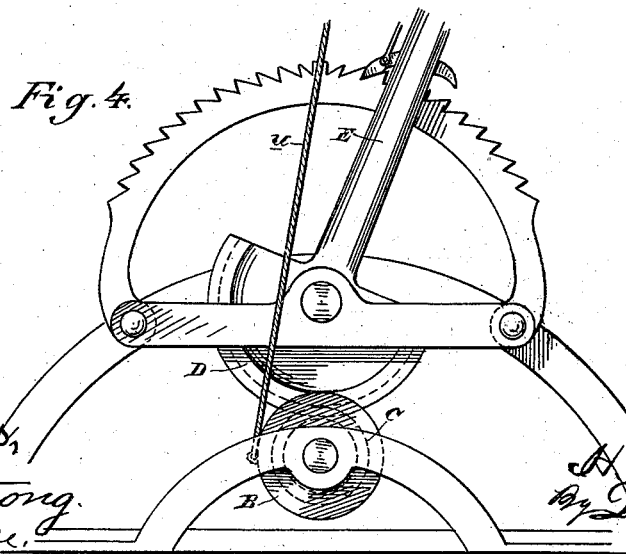
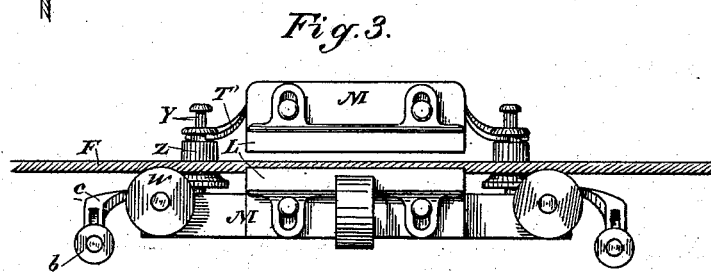
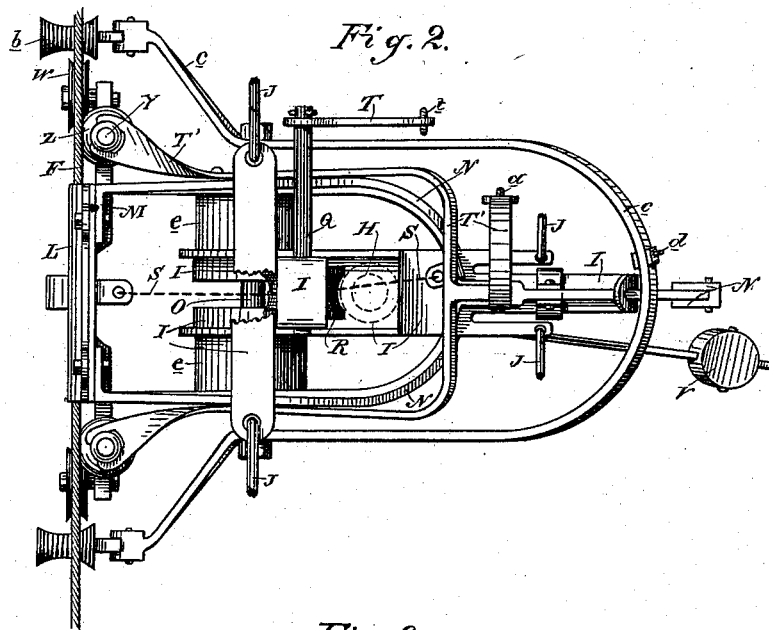
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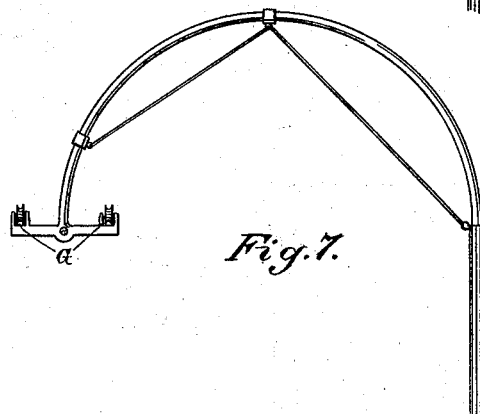
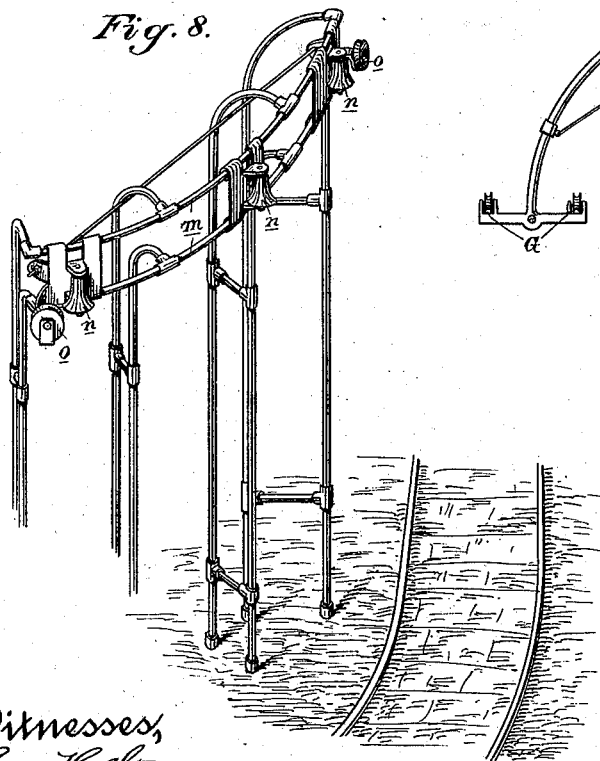
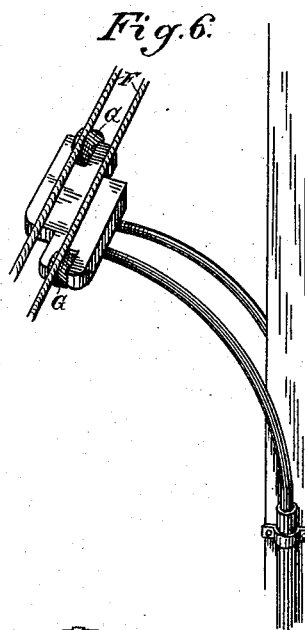
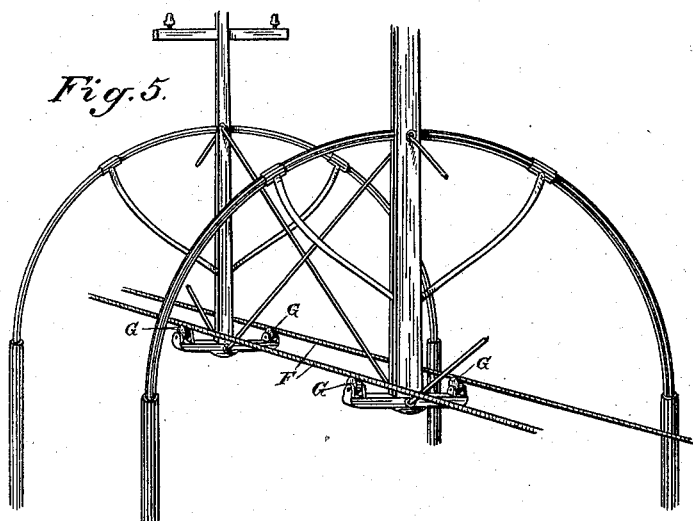
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H. CASEBOLT.

ELEVATED CABLE AND CAR PROPELLER.

No. 384,124.

Patented June 5, 1888.



Witnesses,
Geo. H. Chong.
J. H. H. H.

Inventor,
H. Casebolt,
By Dewey & Co.
Attys

UNITED STATES PATENT OFFICE.

HENRY CASEBOLT, OF SAN FRANCISCO, CALIFORNIA.

ELEVATED CABLE AND CAR-PROPELLER.

SPECIFICATION forming part of Letters Patent No. 384,124, dated June 5, 1888.

Application filed February 23, 1888. Serial No. 265,039. (No model.)

To all whom it may concern:

Be it known that I, HENRY CASEBOLT, of the city and county of San Francisco, State of California, have invented an Improvement in an Elevated Cable and Car-Propeller; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to improvements in cable-railway propulsion and in a means for operating the cars, which are running upon a track on the ground, by means of an aerial cable.

It consists of a cable supported above the surface of the ground, a mechanism connected with the car and carrying the grip or tongs, means for picking up the cable and placing it in the grip, means for throwing the cable entirely off, and means for adjusting the position of the grip with relation to the cable, together with certain details of construction, all of which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is an end view of my apparatus. Fig. 2 is a plan view of the grip mechanism. Fig. 3 is a side view of the jaws. Fig. 4 is a detail view of the lever mechanism. Figs. 5 and 7 show the cable supports for double track. Fig. 6 shows the cable support for a single track. Fig. 8 shows the cable support on a curve.

In the accompanying drawings I have shown my invention as applied to an open car having outside seats and an interior passage extending from end to end for the convenience of the gripman. Within this passage is journaled a drum, B, upon which winds the rope for operating the grip, as will be more fully described hereinafter. Upon the same shaft with the drum B is a pinion, C, which is engaged by a segment, D, journaled above the pinion, and having the operating-lever E connected with it, so that by throwing this lever backward or forward the gripman causes the drum to wind or unwind the rope, and through its other connections close or open the grip. A circular rack is fixed beside the lever, and the pawl upon the lever engages this rack. When the lever is in a vertical position, the rope is entirely unwound from the drum and the grip-jaws are open. From this point the lever may be thrown in either direction, according as the car is run-

ning in one direction or the other, and to suit the convenience of the gripman. The teeth of the segment upon one side of the top of the arc are so formed as to engage the pawl upon that side and hold the lever wherever it may be desired, and those upon the opposite side are pointed in a reverse direction, so as to hold the lever from that side, thus making the apparatus operate equally well in either direction.

The cable F, by which the car is propelled, is an endless one, and is supported by rollers or sheaves, G, which are journaled to posts, so that the cable travels at a sufficient height above the ground to be conveniently engaged by the grip mechanism, which is carried above the top of the car, directly over the sheaves, at a sufficient height to clear the sheaves and all obstructions.

I do not wish to confine myself to any especial form of posts for supporting the cable-carrying sheaves or pulleys, as arms or brackets may be constructed from wood or iron telegraph-poles; or poles may be especially constructed for the purpose of gas-pipe or angle-iron, these poles being set at such a distance apart as will properly sustain the rope above the ground.

When double tracks are used, a line of posts may be set between the tracks, and arms projecting from each side of these posts serve to support the pulleys over which the two parts of the traveling ropes pass, Fig. 1. These pulleys are at a sufficient height to allow the grips or tongs of the passing cars to clear them properly.

In some cases it may be preferable to form arches over the double tracks, and pendent arms from the center support the pulleys, Fig. 5; or single posts upon one side may be used, having arched arms extending over the central space between the two tracks and transverse arms at the ends to support the two lines of pulleys, as in Fig. 7. When but a single line of track is built near one side of the street, over which the cars pass in both directions, a single line of posts is sufficient, and arms extend out from these posts and carry the rope-supporting sheaves or rollers a short distance apart horizontally, Fig. 6, in which case the tong or grip mechanism will be adjustable upon its supporting frame-work on the car, so as to be shifted into position to

grasp either one rope or the other when the car is to go out or return. This movable mechanism is only necessary when a single track is used.

5 The grips and the various mechanism connected therewith are supported at the same distance above the roof of the car, and any frame-work of sufficient strength for the purpose may be employed, such as gas-pipe or
10 angle or channel iron. In the present case I have shown a post or standard, H, extending up through the roof of the car, and having a transverse frame, I, strongly secured to its upper end. From this frame-work stout iron
15 rods J extend downward and toward the ends of the car, the lower ends having hooks or other connections which unite them with rods passing down through the posts which support the car-roof, these being secured again
20 beneath the floor of the car. By means of turn-buckles K any desired tension may be brought upon these bracing-rods, and the structure above the roof will be held as rigidly as may be desired.

25 The tracks upon which the car travels are preferably laid near to one side of the street, so that the traveling cable supported upon the poles or brackets above will be nearly or quite in line with one side of the car, and the grip-
30 ping-jaws L, by which the rope is seized, are secured to the operating tongs, levers, or arms M, which project to one side of the central support or post, H, on the car far enough to bring the grip-jaws into line with the travel-
35 ing cable.

The grip mechanism consists of a tongs having one stationary and one movable lever, N, fulcrumed to a stout bar or shaft, O, which extends through horizontal slots P in the trans-
40 verse frame I at the top of the supporting-post H. In the upper part of this transverse frame is journaled a shaft, Q, having a winding-drum, R, fixed to it, around which the ropes S are wound in opposite direction, their
45 outer ends being attached to opposite sides of the levers which carry the grip-jaws. A rack and pinion may be substituted for the ropes and winding-drum, if preferred. Upon the shaft Q is a long lever-arm, T, and a rod, t, from
50 this arm extends down through the roof of the car to a point within the reach of the grip-man. By means of this rod the lever is moved so as to rotate the shaft Q and the drum R, and the ropes S, being correspondingly coiled or
55 uncoiled upon the drum, will cause the grip mechanism to move backward and forward in the slot in the horizontal frame, so that the tongs may take hold of either one of the two parallel traveling ropes, one of these ropes
60 being grasped by the tongs when it is going out and the other when returning.

Connected with the lever-arm N, which opens or closes the jaws of the tongs, is a second lever, U, fulcrumed on the transverse frame and serving to multiply or increase the power which is
65 applied to the jaws to any desired extent. From the long arm of this lever a rod, u, ex-

tends downward through the roof of the car and connects with the cord or rope which is coiled upon the drum B, as described above, and by which the lever mechanism is operated
70 to close the jaws. A weight, V, or an equivalent spring, is connected with the lever mechanism, so as to open the jaws whenever they are released from the action of the levers and
75 drum. When the jaws are open, the rope travels freely and the car remains stationary, the rope running over rollers or pulleys W just beyond the ends of the lower stationary jaw; or if for any purpose it is de-
80 sired to throw the rope out of the jaws entirely it is done by the action of the conical rollers Z, turning loosely upon the vertical shafts Y. These rollers have circular grooves or channels cut in their upper ends to allow them to
85 be grasped by the clutch-levers T'. These levers are fulcrumed upon the frame of one of the levers M of the grip mechanism, extending backward from the fulcrum, and having a rod, a, extending from their united ends down
90 through the roof of the car within reach of the grip-man. By pulling on this rod the rollers are raised so that their lower and larger ends come in contact with the rope, throwing it out of the jaws.

Horizontal rollers b receive the rope and prevent its dropping too low. These rollers are mounted upon shafts which are pivoted or fixed in a lever-frame, c, this lever-frame being also provided with an operating-rod, d,
100 which extends down through the roof of the car within reach of the grip-man. When it is desired to replace the rope within the jaws of the tongs, this lever is operated so as to raise the rollers b until the rope is again placed
105 within the jaws.

The jaws are made adjustable upon or removable from their supporting-frame, and are provided with wearing-dies in the manner usual to other forms of cable railways, and
110 they may be removed or replaced at any time. The shaft O, passing through the horizontal slotted frame and supporting the operating mechanism above described, has upon it heavy rubber or other elastic springs, e, upon each
115 side of the slotted frame and between the lever-arms and the frame, the object of these springs being to yield when the grip has grasped the rope and slightly relieve the shock of starting.

When curves in the line of the road are to be passed, the supporting frame-work or posts have horizontal curved frames m, upon which vertical and horizontal pulleys n and o are supported, so as to direct and carry the rope
125 around the curves.

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

1. The car-body having the vertical stand-
130 ard projecting above its roof, and the horizontal frame secured upon its upper end, upon which the tongs and other mechanism are carried, in combination with the diverging rods extend-

ing downward from the frame and connecting with rods passing downward through the floor of the car, and turn-buckles whereby any desired tension may be given to the rods, substantially as herein described.

2. The supporting post or standard extending above the roof of the car, and having a horizontal slotted frame fixed upon its upper end, with tension bracing-rods, as shown, in combination with levers fulcrumed upon a bar or shaft extending through the slot in the fixed frame, said levers having gripping-jaws secured to one end, and having the other end connected with a lever mechanism whereby the jaws may be opened and closed, substantially as herein described.

3. The tongs for grasping the moving cable, having lever-arms fulcrumed upon a shaft which extends through a frame supported above the roof of the car, the compound-lever connection whereby these jaws are operated, and a rod extending downward through the roof of the car, in combination with a drum around which the rope connected with this rod is coiled, and a lever with pawl and holding-rack whereby the drum is rotated so as to close or uncloze the jaws, substantially as herein described.

4. The tongs and operating-lever mechanism supported upon a frame-work above the roof of the car, and a rod and flexible rope connecting this lever mechanism with a drum journaled within the car and around which the rope is coiled, in combination with a segmental gear and pinion, a hand-lever for operating the same, and the double segmental rack with which the pawl upon the lever may engage, substantially as herein described.

5. The tongs and the lever mechanism by which they are operated, the fulcrum-shaft of said levers extending through the horizontal slot upon the frame-work supported above the roof of the car, a rotary shaft with winding-drum or pinion, and cords or rack-bars connecting with the tongs and lever mechanism, a lever upon the drum-shaft, and a rod connecting therewith and extending down through the roof of the car, whereby the shaft may be rotated so as to move the grip mechanism to and from the central support, substantially as herein described.

6. The tongs supported above the roof of the car and lever-arms by which said tongs are opened and closed, in combination with the vertically-journaled conical rollers Z, and the levers and operating-rod whereby the rollers are raised to disengage the rope from between the jaws of the tongs, substantially as herein described.

7. The tongs having jaws, the lever mechanism by which they are opened and closed supported above the roof of the car, conical vertically-movable rollers by which the rope is disengaged from the jaws when the latter is opened, and horizontally-journaled rollers b, supported on lever-frames which are operated from the interior of the car, said lever and rollers serving to raise the rope and replace it within the jaws, substantially as herein described.

In witness whereof I have hereunto set my hand.

HENRY CASEBOLT.

Witnesses:

S. H. NOURSE,
H. C. LEE.