(No Model.)

H. CASEBOLT.

GRIP FOR CABLE RAILWAYS.

No. 348,380. Patented Aug. 31, 1886.

Fig. 1

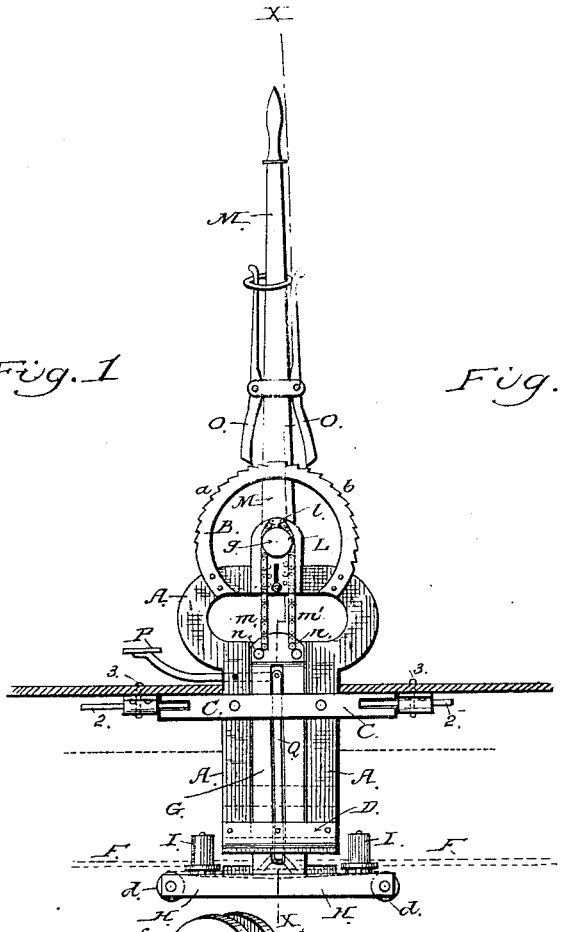


Fig. 2.

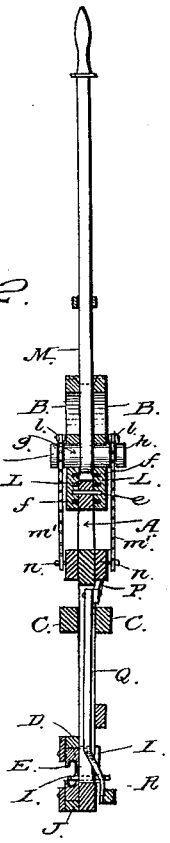


Fig. 3.

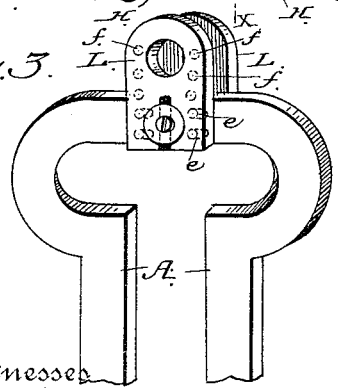
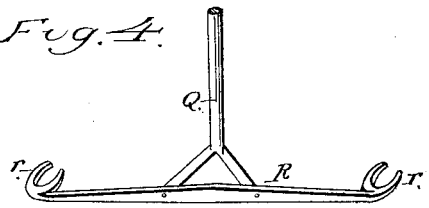


Fig. 4.



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UNITED STATES PATENT OFFICE.

HENRY CASEBOLT, OF SAN FRANCISCO, CALIFORNIA.

GRIP FOR CABLE RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 348,380, dated August 31, 1886.

Application filed March 25, 1886. Serial No. 196,449. (No model.)

To all whom it may concern:

Be it known that I, HENRY CASEBOLT, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented certain new and useful Improvements in Grips for Cable Railways, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a side elevation of a grip embodying my improvements. Fig. 2 is a sectional view on the line *x x* of Fig. 1. Figs. 3 and 4 are details, to be hereinafter described.

My invention relates to certain improvements in that class of grips which are adapted for cable railroads for the purpose of connecting and disconnecting the car to which the grip is attached with a moving cable, said grip extending through a slot into a tunnel or tube in which the cable runs and grips or releases the cable to move or stop the car.

My invention consists in the peculiar arrangement, construction, and combination of devices, which I will hereinafter fully describe, and specifically point out in the claims.

To enable others skilled in the art to which my invention appertains, I will now describe its construction and the manner in which I have carried it out.

In the said drawings, A represents the outside strips or stationary bars of the grip, formed, preferably, in one entire piece, and B represents a double segment secured by any suitable means to said bars and having the oppositely-arranged ratchet-teeth *a b*, as shown. If it be desired, the notched segments B may be formed as an integral portion of the stationary bars, although I prefer to make them separate and attach them to the plates in the manner substantially as indicated.

Across the bars A, about midway of their length, extend the cross-bars C, for securing the grip to the car, which may be done in any suitable manner—as, for instance, by means of plates 2, movably secured to the under sides of the floor-beams. The ends of the cross-bar are slotted and engage the plates so that the grip is readily slipped in place on the car. After the slotted ends engage the plate suitable pins, 3 3, are passed through the plates, and thereby secure the grip to the car, and also permit of its being readily removed.

To the lower part of the bar A, I attach the upper jaw or clamp, D, of the gripping device. This jaw may be constructed of one solid piece; but I prefer to construct it of a base or solid piece to which is fitted a die, E, having a groove in it to fit over the upper part of the cable F, this die being secured in place in any suitable manner, as by a plate bolted thereto, which insures the ready removal of the die in the event of its becoming worn or injured.

Between the bars A is the sliding bar G, which is formed in one piece. The lower portion of the bar G is extended transversely to form arms H; or, if preferred, the said arms may be made separate and attached to the lower portion of the bar, these arms having mounted in their outer ends the horizontal rollers *d*, over which the cable passes. The arms H are also provided with short vertical pintles, upon which are loosely mounted the flanged rollers I, which serve to diminish the friction of the cable when running loosely within the jaws and prevent it from chafing against the grip-bars A.

To the transverse arms H, on the lower portion of the bar G, is secured the lower jaw or die, J, it being located directly under the upper die, and constructed in a similar manner to said die, with a groove in it to fit the lower part of the cable, and forming with the upper die a complete grip for the cable.

The devices for causing the dies to approach or recede from each other and the means for holding these several features in their adjusted position I will now describe. The bars A, as before stated, have bolted to their upper surface the notched segments B, between which is adjustably secured the standard or plates L, their adjustment being accomplished by means of short pins *e*, projecting from the plates L, and engaging a series of holes, *f*, extending partially through the plates L, whereby said plates may be adjusted vertically to bring any of the series of holes *f* in engagement with the pins *e*, and also to accommodate itself to different lengths of chains.

Between the upper portions of the plates L

is mounted a drum, *g*, which is provided with grooved extended ends *h*, having a pin, bolt, or projection, *l*, with slotted head secured thereto. Within these heads are secured the upper ends of suitable independent short chains or cords, *m m'*, two of which are located upon the sides of the plates. These chains engage the grooves in the ends *h* of the drum, and have their lower ends pivotally secured to pins or bolts *n*, projecting from the upper portion of the bar G, or, if preferred, from a plate secured thereto. It will be observed the chains *m m'* pass downward from opposite sides of the drum *g*, and are operated to raise or depress the lower jaw of the gripping device by a lever, M, rigidly secured to the drum *g*, and between the segments B and standard L, as shown. This lever M is also provided with oppositely-placed pawls O, which are designed to engage the teeth of the ratchet when the lever M is forced either to the right or left. From the description of these parts it is manifest the movement of the lever M in either direction partially rotates the drum and causes the chains *m* or *m'*, which are attached to the pin *l*, projecting from the vertical center of the roller, to be drawn upward, thereby moving the lower jaw upward to grip the cable. As the drum rotates the pin *l* moves from its vertical position and permits the remaining or opposite chains to become slack. A reverse movement of the lever M, as when the car is traveling in an opposite direction, causes the chains *m m'* to draw the bars and lower die upward, the chains *m m*, first mentioned, becoming in this instance the slack chains. I am thus enabled to operate the lower die in a positive manner, the devices employed being very simple in construction, are readily removed and replaced by new ones, should any of the pieces become worn or damaged.

In the practical operation of the grip there are times when the cable has to be dropped entirely, as when another cable-line has to be crossed or the car switched off onto another track or into the car-house. Therefore to provide for this I have constructed the following devices: A foot-lever, P, pivoted to the bars A, has attached to its inner end a connecting-bar, Q, which is designed to lie in the groove formed in the bar G, so that it will not impede the sliding movements of the same. This connecting-bar Q has secured to its lower end a transverse plate or bar, R, the outer ends, *r*, of which are forked or clutch-shaped and pass under the flanged rollers I I, to raise the same. Now, when the cable is to be dropped, the lower jaw is forced down, so as to release said cable. To push the latter off completely, I press upon the foot-lever P, which draws upon the rod Q and causes the forked or clutch-shaped end of the bar R to raise the rollers until their flanges engage the cable and force the same off the lower jaw, so that it can drop below the grip. When the lever P is raised, the pulleys resume their original position, and will then be out of the way of the cable when it is returned to the grip.

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

1. In a cable-grip, the stationary bar A and the movable bar G, in combination with an operating-lever, M, the drum *g*, and the independent chains or cords connecting the drum with the sliding bar, substantially as described.

2. In a cable-grip, the stationary bar A and the movable bar G, each being provided with dies, in combination with a standard or plates, L, secured to the bar A, a drum, *g*, mounted in the standard and having extended grooved ends, an operating-lever, M, for rotating the drum, and the independent chains connecting the drum with the sliding bar, whereby the latter is vertically moved, substantially as described.

3. The bar G, having a lower die, and the transverse bar having the rollers *d*, in combination with the stationary bar A, having an upper die, the oppositely-arranged ratched segments B, the plates or standard L, an operating-lever and drum mounted in said standard, and the double series of independent chains or cords connecting the drum with the sliding bar, substantially as described.

4. The combination, with the gripping-jaws, of a means for operating the same, comprising a lever, a drum operated by said lever, and the double series of chains attached independently to the drum and movable gripping-jaw, whereby the latter is operated, substantially as herein set forth.

5. The combination, with a stationary bar having pin *e*, of a movable bar, the adjustable plates or standard L, having a series of adjusting-holes, *f*, an operating-lever, M, a drum, *g*, carried by said lever and having the pins or bolts *l*, and the double series of independent chains or cords attached to the bolts and sliding bar, substantially as and for the purpose described.

6. An improved cable-grip, comprising the combination of stationary and movable bars A and G, the oppositely-ratched segments, the adjustable plates or standard L, an operating-lever, M, a grooved drum carried by said lever and mounted in the standard, and the independent chains connecting the drum with the sliding bar and the oppositely-placed pawls, substantially as and for the purpose described.

7. The combination, with a stationary bar having a transverse bar, H, of the vertical flanged pulleys I I, a foot-lever, P, pivoted to the stationary bar, a connecting-rod, Q, and a bar, R, having forked or clutch-shaped ends adapted to raise the pulleys, substantially as and for the purpose described.

8. The combination, with the movable plate, of the stationary bar A, and transverse bars C, secured to said stationary bar and having their ends slotted to engage the plates, substantially as described.

9. The movable gripping-bar G, having the pin *e*, in combination with the drum *g*, the pins or bolts *l*, having slotted heads, the chains secured in the heads and to the bolts, and the lever M, substantially as described.

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