

(No Model.)

W. A. BUTLER.
CABLE GRIPPER.

No. 480,489.

Patented Aug. 9, 1892.

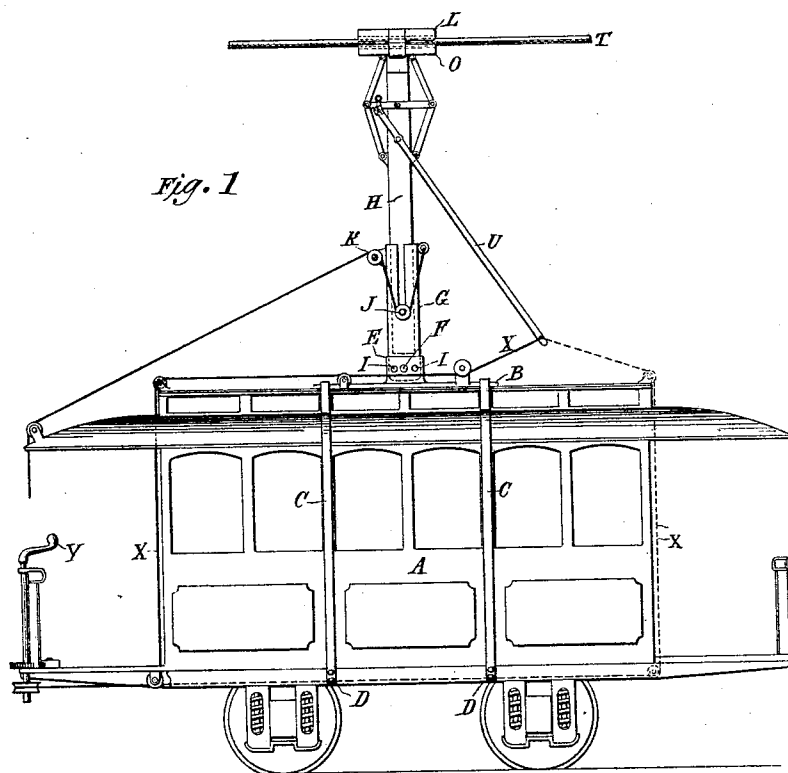


Fig. 3

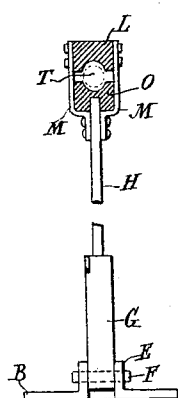


Fig. 4

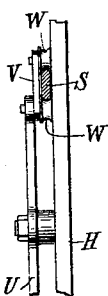
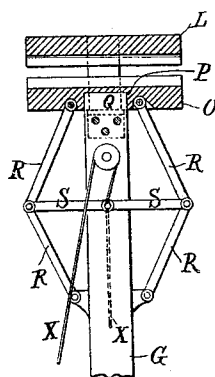


Fig. 2



Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM A. BUTLER, OF NEW YORK, N. Y., ASSIGNOR TO JOHN H. HAAR
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CABLE-GRIPPER.

SPECIFICATION forming part of Letters Patent No. 480,489, dated August 9, 1892.

Application filed March 7, 1892. Serial No. 424,003. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. BUTLER, a citizen of the United States, residing at the city of New York, in the county of New York, State of New York, have invented a certain new and useful Improvement in Cable Cars and Cable-Grips for Same, of which the following is a specification, reference being had to the drawings accompanying and forming a part of the same.

The present improvements relate to cable cars and to cable-grips therefor, particularly as the same is combined and constructed to operate in conjunction with an overhead cable.

The special features of improvement are, first, a new and improved toggle mechanism for operating one jaw of the grip to cause the same to grasp and release the cable; second, improved means whereby the grip is mounted on the top of the car and central to the same and whereby the grip arm or standard may be raised and lowered vertically, as well as turned down so as to lie horizontally upon the top of the car, as when not in use; third, means for securely anchoring or attaching the grip-supporting standard to the body of the car, whereby the propelling strain on the grip shall be transferred directly to the wheels and axles or truck portions of the car, and, fourth, means for adjusting the grip-standard vertically and for operating the same to seize and release the cable.

In the drawings accompanying this description, Figure 1 is an elevation view of a car provided with grip mechanism embodying my improvements. Fig. 2 is a central lengthwise section of the grip-jaws, showing, also, the operating devices of the movable jaw. Fig. 3 is a central cross-section of the same, showing, also, the base of the grip-standards. Fig. 4 is a detail edge view of the connections between the grip-operating lever and the toggle mechanism of the grip.

In the views, A represents the car-body.

B is the base of the grip-standard, which is properly secured to the top of the car in any desired manner. From this base B bars C, which are strongly secured to the base, extend laterally across the top of the car and down the sides thereof, the same being secured to the floor of the car at D or in other

suitable manner strongly connected with the running-gear of the car. These bars are of suitable size and strength to take the most of the propelling strain of the grip, so that the propelling power will not act to rack the car-body or loosen the grip-standard.

The grip, as will be seen, is in effect borne on a standard reaching from the bottom of the car to the cable above the car.

On the base B are the upwardly-projecting ears E, between which is pivoted on bolt F the sleeve or cylinder G, in which cylinder slides the grip arm or standard H. The pins I are removable to permit the cylinder to rock on its pivot-bolt F and be turned down, with the parts it carries, upon the top of the car. In the upright position the pins I when in position through the ears E and lower end of the cylinder hold the latter rigidly against turning on its pivot-bolt.

A rope or cable pulley J is borne on the arm H, and a similar pulley K is mounted on the cylinder G, and a rope, cable, or chain attached at one end to the cylinder and passing, respectively, under and over the pulleys J and K and extending to a position convenient to the conductor of the car serves to raise the grip-arm H to any desired height, as well as to permit it to be lowered.

L is the upper jaw of the grip, this jaw being rigidly secured to the arm H at its upper end between the parts of a fork M.

O is the movable lower jaw of the grip. This is located within the fork M and has as its guide the said fork and also the upper end of the arm H, which end P projects into a slot Q in the jaw, and thereby serves as a guide and support for the jaw.

R R represent two pairs of toggle-arms, each pair being pivoted at one end to each other and at their other ends one arm to the lower jaw and the other to the arm H. S represents two other toggle-arms pivotally connected at their one ends and at their other ends to the middle joint of the toggles R R. It will now be plain that the movement vertically of the central ends of the arms S will so actuate the arms R as to cause the lower jaw of the grip to be closed upon the cable (shown at T) or opened away from the same; and it is to be particularly noted that by this

compound toggle arrangement great power can be put upon the movable jaw of the grip by the application of relatively small power at the junction of the cross toggle-arms. The application of such power for operating the grip-jaws may be effected by various mechanisms, two forms of which I illustrate in the drawings.

U is a lever-arm pivotally supported on the grip-arm H and connected at its upper end to the cross-toggles S by the link V, which bears two grooved friction-wheels W, so positioned on the link as to engage between them the arm S and yet be free to move readily along the same as the upper end of the lever U is swung over. To the lower end of this lever is attached a rope X, belt, or other like device reaching to the position of the conductor of the car. Such a rope may preferably extend down the ends of the car to a hand-lever Y, turning which will cause the lever to be operated and the grip closed on the cable or loosed therefrom. Another form of such operating connection is shown in Fig. 2, where the rope X is shown as attached to the junction of the arms S and arranged so as to pull up and down, at the will of the conductor, the arms S of the grip. These various parts may be variously modified in other respects, and I do not, therefore, restrict myself to the precise features of construction shown.

What is claimed as new is—

1. In combination, a cable car, an overhead cable-grip mechanism composed of the base

B, pivotally attached to the sleeve G, and the grip-carrying arm H, adjustable in and along the said sleeve, and the bars C C, attached to the base B of the grip mechanism and running down the sides of the car and being attached to the floor or base thereof, substantially as and for the purpose set forth.

2. In a cable-grip, the combination of a fixed jaw, a movable jaw, and the toggle mechanism R and S, attached to and for operating the movable jaw.

3. In a cable-grip mechanism, the combination of a fixed and a movable jaw, the toggle mechanism R S, attached to and reciprocating the movable jaw, and a grip-operating lever mechanism attached to the arms S of the toggle mechanism and arranged to raise and depress the said arms at their junction ends.

4. In combination, in a grip-supporting mechanism, the base B, pivotally attached to the sleeve G and having the retaining stop-pins I, and the grip-carrying arm H, adjustable in and along the said sleeve, as and for the purpose set forth.

5. In combination, in a cable-grip, the fixed jaw L, secured to the grip-supporting arm H by the yoke M, the movable jaw O, the guide Q to said jaw, and the toggle mechanism R S for operating said movable jaw, as and for the purpose set forth.

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Witnesses:

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