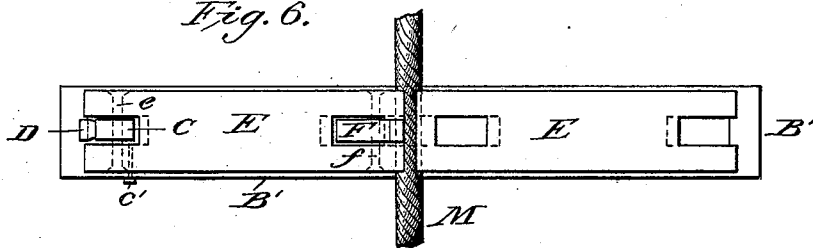
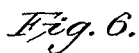
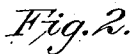
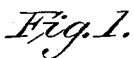


A. H. DE CAMP.
CABLE GRIP.

Patented Mar. 1, 1892.



Inventor:

Alfred H. Hamp

UNITED STATES PATENT OFFICE.

ALFRED H. DE CAMP, OF BOONTON, NEW JERSEY.

CABLE-GRIP.

SPECIFICATION forming part of Letters Patent No. 469,909, dated March 1, 1892.

Application filed October 15, 1890. Serial No. 368,249. (No model.)

To all whom it may concern:

Be it known that I, ALFRED H. DE CAMP, a citizen of the United States, and a resident of Boonton, county of Morris, State of New Jersey, have invented certain new and useful Improvements in Cable-Grips, of which the following is a specification.

The object of my invention is to provide an economical and safe cable-grip for tramway-cars.

In the following description reference is to be had to the accompanying drawings, in which like letters represent similar parts in the several figures.

Figure 1 is a front elevation showing the grip mounted upon a tramway-car. Fig. 2 is also a front elevation showing the position of the parts when in position to receive the cable. Fig. 3 is a front view of a portion of the device, showing more particularly certain details of construction. Fig. 4 is a side elevation showing the grip mounted upon a car and an arrangement above for putting the same in action. Fig. 5 is a plan showing a device laid in the track at the terminals to throw the grip out of action and disengage the hauling-cable. Fig. 6 is a top view of the grip, showing the position of various parts in gripping relation.

This grip is preferably applied to cars similar to that shown in front view in Figs. 1 and 2 and side view in Fig. 4, being practically the same as shown and described in my application for United States Letters Patent, Serial No. 349,468, and for which certain claims were therein made.

In Fig. 1, A represents the body of the car, A' A' wheels secured thereto, adapted for the rails of a suspended tramway, and A'' A'' the wheels mounted at the bottom adapted to supporting the car upon ground-rails.

B B' in Figs. 1, 2, 3, 4, and 6 is preferably a piece of angle-iron, one leg of which is secured to the car and the other leg B' of which projects, Fig. 3, and is perforated in certain parts, Fig. 6, to permit the passage of certain of the working parts of the grip.

The upright bars C, Figs. 1, 2, 3, 4, and 6, pass through the projecting part of the angle-iron B' and are secured below to the upright leg of the same B or to the car-body, as the case may be, by the screw-bolts c or their

equivalent. The set-screws c', Figs. 1 and 6, screwing into the projection B' to and against the uprights C, prevent the said uprights from moving forward toward the center.

The wedges D, Figs. 1, 2, 3, and 6, are placed in the same slots in B' as the uprights C, filling the space between the uprights and the end of the slot. The slots for C C in the plate B' are extended somewhat toward the center beyond the normal position of the uprights, the boundary of the slot to the right (at the left in Fig. 6) being indicated by the dotted line near C. The pieces E E are pivotally secured to the uprights C C at their outward ends by rivets e. The outward ends of E E being opened so as to admit the said uprights centrally, Fig. 6, at their inward ends, they are hollowed out transversely, so as to properly embrace the cable, as shown in Figs. 1, 2, 3, and 6.

The pieces E are slotted toward their inner ends to permit the passage through of the pieces F, the plate B' being sufficiently slotted for the same purpose, the slots in each being of a length great enough to permit of the slight longitudinal movement to which the pieces F are subjected, as clearly shown in Fig. 6. The pieces F are tapered outwardly at their upper ends, as shown in Figs. 1, 2, and 3, to form a guide for the rope when entering the grip. They are also preferably hooked over the inner ends of the pieces E, as shown in Fig. 3, the upper part being properly shaped therefor. They are also pivotally connected to the pieces E, as by the rivets f, Figs. 1, 2, and 3, the perforations in the pieces F to receive said rivets being slightly oblong vertically, as shown in Fig. 3, part of the plate E being removed for the purpose.

The pieces F are connected together below and to the upright piece G by the bolt or stud g, Figs. 1, 2, and 4. The upright G is centrally mounted in the encircling keepers H and H', which are secured to the front of the car. These keepers are so proportioned inwardly as to permit of a certain movement of the rod G right and left within them, as shown by the relative positions of the rod in Figs. 1 and 2. The collar g' is secured at a proper distance below loop H to the rod G and the rod G has near its lower end the downwardly-tapered projection g'', Figs. 1 and 2. The

spring I, bearing with its free end against the upright G on the side opposite the projection g'' , is secured at the other end to the body of the car, as shown in Figs. 1 and 2.

At points of departure of cars there is to be mounted the inclined plate J centrally over the track, being inclined downwardly in the direction of travel of the cars and supported by any suitable overhead fixtures, as beams J' J'' , by means of the hinge j at the upper and bolt j' at the lower end. The spring j'' is introduced between plate J and beam J' , for the purpose later explained.

The spring K and the upwardly-inclined piece L, Figs. 4 and 5, may be secured in the ground-tracks when desired. The spring K can bend horizontally and is so mounted, Fig. 5, that its fastened end is entirely out of the line of travel of the lower end of G, (represented by the two dotted lines ll , Fig. 5,) while its free end crosses said lines, as clearly shown. The incline L may also be of spring material.

The operation is as follows: The car being moved along the ground-track till the downwardly-projecting part of G comes in contact with the horizontally-inclined spring K, the spring K being stiffer than the spring I, holding the rod G, the rod G is thrown from left to right, as in Fig. 2, and also as the car advances, elevated by the incline L, against which it immediately afterward strikes, to the position shown in Fig. 2, where it is evident that if the grip has been holding a cable it is now in position to disengage, or if it is desired to grip the cable it is evident that the cable can enter into the grip, and if the car is advanced, as in Fig. 4, so that the upwardly-projecting ends of the pieces F come in contact with the inclined plate J they and the plates E will be pressed down to the position seen in Fig. 1. The spring I will then set the rod G over to the left and the projecting part g'' will project under the loop H' and so prevent the rising of the rod G from any cause and necessarily of course of the connecting-pieces F and the plates E. The collar g' on the rod G, coming in contact with the loop H, prevents the rod G and plates E being raised more than to a given point. The object of having the parts K and L of spring material instead of presenting fixed surfaces is that inequalities in the construction and wear of the parts will not cause them to become inoperative, or, on the other hand, cause undue strains when operating. For the same reason the spring j'' is introduced between the plate J and beam J' rather than have said plate secured rigidly to said beam. The hinged connection j of the other end of the plate to J'' permits, of course, vertical movement of the operating end of the plate. All the slots in the plate B' being made of greater length than that merely required for the parts operating therein, it is evident that the grip can be at first readily adapted to the rope by means of the wedges D and

that any wear of the plates E where they grip the rope may be readily compensated for by driving down the wedges and so bringing the plates E nearer together. The hooked or projecting part of F transmits the pressure of the plate J directly to the plate E, the elongated opening for the pin f relieving the said pin of that duty, as shown in Fig. 3.

I contemplate, also, using instead of the angle-iron $B B'$ a plate or shelf representing the projecting leg B' of the angle-iron bolted directly to the car. It is evident, also, that the spring L could be replaced by a hinged plate similar to the plate J, with the spring j'' or its equivalent placed under its elevated or outward end.

Having described my invention, I claim as new, and desire to secure by Letters Patent, the following:

1. In a cable-grip, the combination, with a support $B B'$, secured to a car, of the plates E E, pivotally secured thereto and transversely grooved to receive the cable, substantially as set forth.

2. In a cable-grip, the combination, with a supporting-plate secured to the car and having slots therein, as described, of the upright posts C C, passing upwardly through the slots, and the plates E E, pivotally secured to said posts and grooved for the cable on their inner ends, substantially as described.

3. In a cable-grip, the combination, with a supporting-plate secured to the car and having slots therein, as described, of the upright posts C C, pivotally secured at their lower ends to the car and passing upwardly through said plate, the plates E E, pivotally secured at their outward ends to said posts and grooved at their inner ends to receive the cable, the wedges D, and set-screws c' , substantially as shown and described.

4. In a cable-grip, the combination, with a supporting-plate secured to the car and having slots in it, as described, of the plates E, mounted thereon, substantially as described, of the connecting-pieces F, pivotally secured to said plates E and passing through the plates E and plate B' , the pin g , pivotally connecting said pieces F together and to the rod G, the rod G, and the keepers H and H' for said rod, substantially as shown and described.

5. In a cable-grip having plates E suitably mounted and pivotally secured at their outward ends, permitting vertical movement of their inward ends, and their inward ends being grooved to receive the cable, the combination therewith of the connecting-pieces F, having inwardly-projecting parts resting upon said plates and having their inner top sides beveled, the pins f , connecting the plates E and pieces F, the vertically-oblong openings in said pieces F for said pins, the pin g , connecting the pieces F together and to the piece G, the piece G, having the collar g' and projection g'' , the keeper H, the keeper H' ,

and the spring I, substantially as shown and described.

6. The combination, with a cable-grip, of the operating device consisting of the inclined plate J, the hinge j, and support J'', the bolt j', support J', and the spring j'', mounted above the car and grip and operating substantially as described.

7. The combination, with a cable-grip, of the inclined spring K and the vertically-inclined post L, both mounted below the car and

grip and operating substantially as shown and described.

In testimony that I claim the foregoing as my invention, I have signed my name, in presence of two witnesses, this 7th day of October, 1890.

ALFRED H. DE CAMP.

Witnesses:

CLARENCE A. DE CAMP,
SUSAN M. DE CAMP.