(No Model.)

2 Sheets—Sheet 1.

T. WRIGHT.

GRIP ATTACHMENT FOR CABLE MOTOR CARS.

No. 329,990. Patented Nov. 10, 1885.

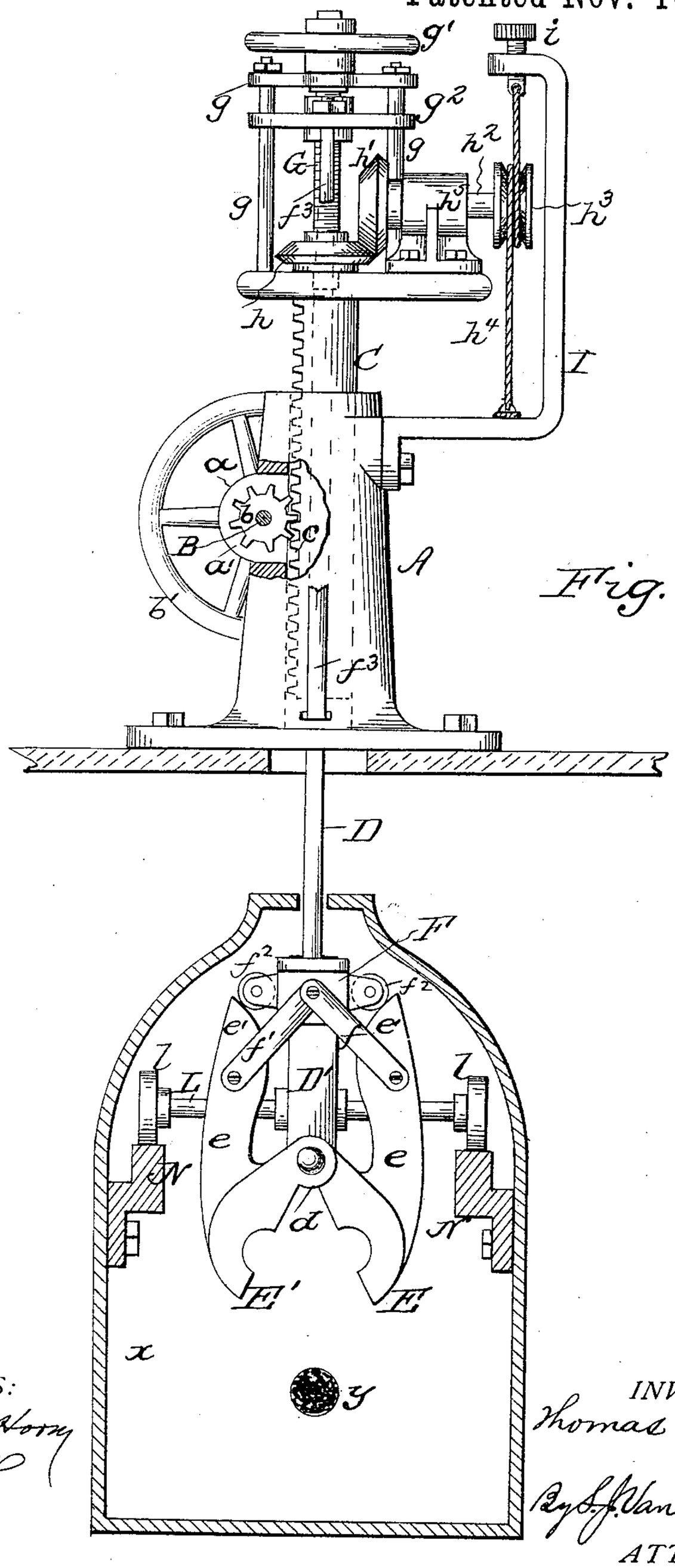

Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

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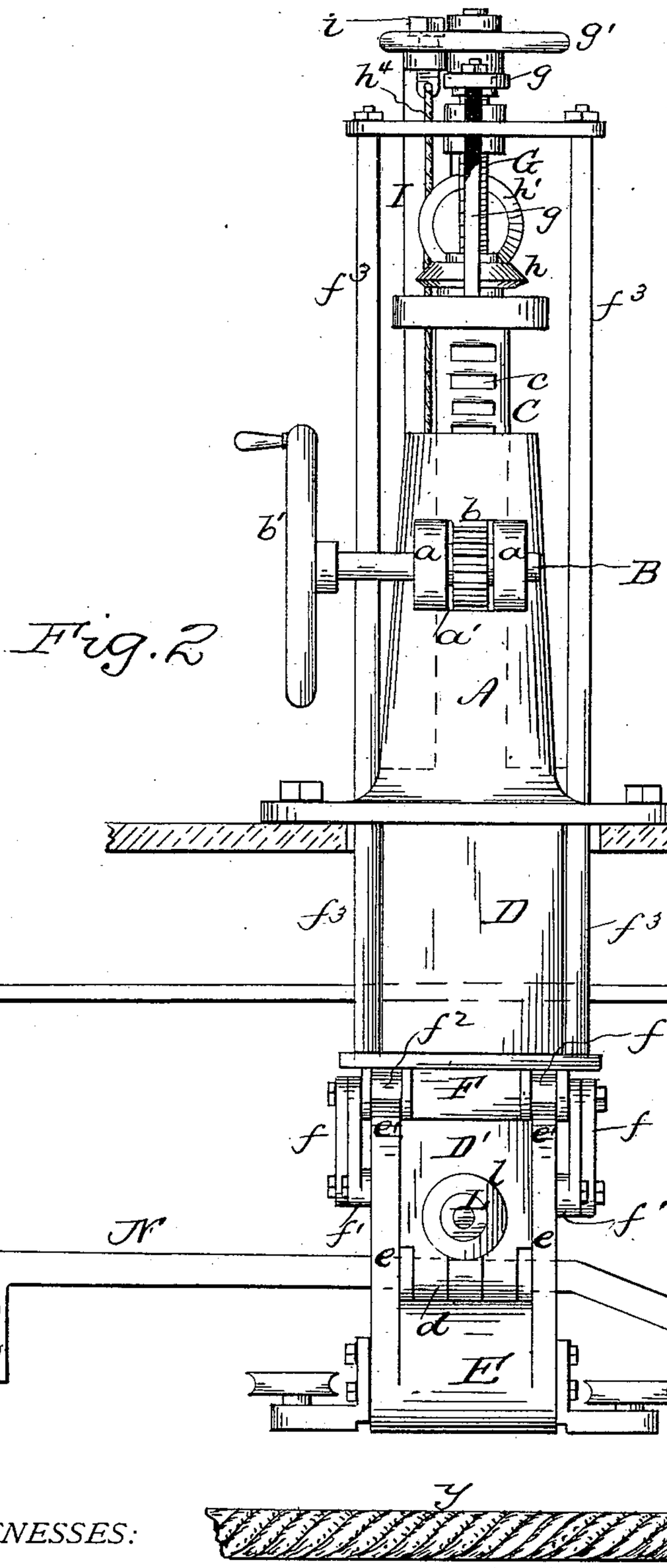

Fig. 2

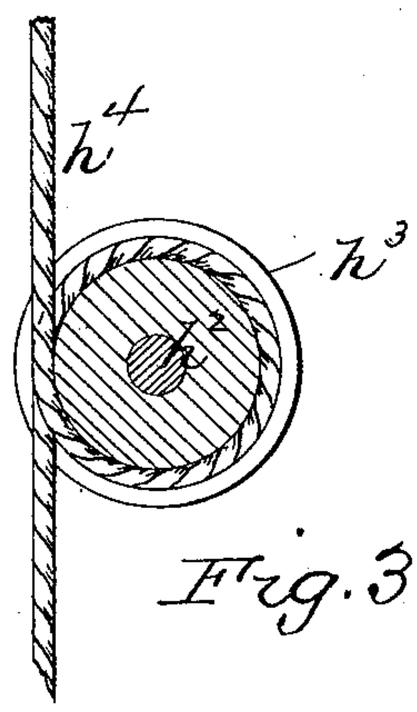

Fig. 3

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UNITED STATES PATENT OFFICE.

THOMAS WRIGHT, OF CAMDEN, NEW JERSEY.

GRIP ATTACHMENT FOR CABLE-MOTOR CARS.

SPECIFICATION forming part of Letters Patent No. 329,990, dated November 10, 1885.

Application filed February 6, 1885. Serial No. 155,076. (No model.)

To all whom it may concern:

Be it known that I, THOMAS WRIGHT, a citizen of the United States, residing at Camden, in the county of Camden and State of New Jersey, have invented certain new and useful Improvements in Grip Attachments for Cable-Motor Cars, of which the following is a specification, reference being had therein to the accompanying drawings, wherein—

Figure 1 is an elevation of grip and operating mechanism, partly sectional, and transverse section of cable and conduit embodying my improvements. Fig. 2 is a side elevation of same, and Fig. 3 is a sectional detail view.

My invention has relation to grips for cable-motor cars; and it has for its object to provide a simple, strong, and effective grip, which is susceptible of being easily and quickly manipulated, and to provide it with a roller attachment for contact with and movement upon cam or incline rails attached to the sides of the conduits at crossing lines of cables or other places, whereby the grip is at such places automatically loosened or released from the cable and elevated in the conduit to enable it to pass over or by a crossing cable or other obstruction in the path of its travel, or to otherwise act, as is essential.

My invention accordingly consists of the combination, construction, and arrangement of parts, as hereinafter described and claimed, having reference particularly, first, to a grip composed of two movable jaws, a slot-plate therefor having a sliding frame in gear with the grip-jaws, and having mechanism for raising and lowering it and the grip-jaws from and into the conduit, and operating mechanism in gear with said sliding frame and carried by said slot-plate or its pedestal-stem for gripping the jaws upon the cable, said grip having actuating mechanism in gear with the grip-jaw-operating devices, and rollers which ride up on cam rails or inclines suitably secured to the conduits, whereby the grip-jaws are automatically released from the cable and elevated in the conduit whenever said roller attachment contacts with and rides up on said inclines.

In the drawings, A represents a hollow or other support or pedestal having laterally-projecting lugs *a* and intervening slot, *a'*, for a pinion, *b*, mounted upon a shaft, B, having its bearings in lugs *a*, and provided with a hand-wheel, *b'*. In the bore of pedestal A is a sliding stem, C, having a side rack, *c*, which meshes into the pinion *b*, whereby said stem may be moved up and down to raise or lower the grip and other parts, to be hereinafter described, attached thereto. To the lower end of stem C is secured the slot-plate D, which terminates in a grip-shank, D', having knuckles *d* for a hinged connection with both grip-jaws E E'. The latter are provided with outside upwardly-projecting arms, *e e*, placed at or near each end of the jaws or otherwise, and have upper cam or rounded ends, *e' e'*. Upon the slot-plate D is placed a loose or sliding frame, F, in gear with the arms *e e* of the jaws E E' by means of links *f f'*, which operate to release the jaws E E' from the cable when said frame is raised, and the latter is also provided with suitably-located rollers f^2, against which the cam ends *e'* of arms *e* impinge when said frame is lowered, to close the jaws E E' upon the cable so as to grip the same. In the top of stem C is journaled or supported, by means of a frame, *g*, a screw, G, which has a hand-wheel, *g'*, and a traveling nut, g^2, which is connected by bars f^3 to the frame F.

By turning the screw G in the proper direction the nut g^2 is caused to travel up or down thereon to raise or lower frame F, which movement, through the agency of link-connections *f f'*, arms *e* of jaws E E', and frame-rollers f^2, causes the jaws E E' to respectively open or close to ungrip from or to grip the cable.

At any suitable point on screw G, preferably at its lower end, is mounted a friction or other gear-wheel, *h*, a miter or bevel gear being shown, which engages with a like wheel, *h'*, secured upon a shaft, h^2, having its bearings in a bracket, h^5, supported upon the top of stem C or on a projecting ledge formed thereon. Shaft h^2 also has a V or other shaped grooved pulley, h^3, around which passes a belt, chain, or like device, h^4.

One end, or the lower end, of belt h^4 is secured to a bracket, I, fastened to pedestal A, and the other or upper end is attached to a screw or tension device, *i*, supported at the upper end of bracket I. Said bracket and its

attached parts may be constructed, located, and arranged as shown, or otherwise, as desired.

The screw G and its nut g^2, or the operating mechanism for the grip-jaws, being located upon the stem C, and the bevel-wheel devices $h\ h'$ being correspondingly located and in gear with said screw, and the belt or chain I being affixed to or supported by pedestal A, it follows that whenever the stem C and said parts are raised or lowered the grooved pulley h^3, following such movement, is rotated by the belt h^4, and such rotation is in turn imparted to bevel-wheels $h\ h'$, to effect a revolution of screw G and an up-and-down movement of its traveling nut for either opening or closing the grip-jaws, as above described. *Per contra*, an upward pressure exerted within the conduit upon the grip-jaws, to raise them and stem C, will produce an automatic revolution of bevel-wheels $h\ h'$ and a rotation of screw G to raise its nut g and in turn the sliding frame F, and which, as it moves upwardly, automatically opens the jaws E E′ and ungrips them from the cable. To produce this upward pressure on the grip-jaws or stem C, the grip-shank D′ is provided with a lateral or cross shaft, L, having end rollers, $l\ l$, which are in line with cam guides or inclines N, of any desired configuration, suitably attached to the sides of conduit x.

As the grip moves along with a cable, the rollers l, as they meet and ride up and upon the inclines N, raise the grip in the conduit, whereupon the bevel-wheels $h\ h'$ are immediately rotated by means of pulley h^3 and belt h^4, to operate screw G for effecting an automatic release of said grip from the cable, to enable the grip to pass over a crossing cable or other lateral or crossing obstruction. The inclines N N are located at intervals along the conduit or at suitable places therein where such described movement or raising of the grip is required or desired.

The employment of the V-shaped groove for pulley h^3 provides a good frictional contact or pressure between the belt and pulley, to effect an immediate rotation of the latter as soon as the grip-rollers l begin to ride up on the inclines or ways N, thereby effecting an immediate loosening of the grip jaws upon the cable before the grip is released therefrom, and avoiding undue strain upon either of said parts as such elevation of the grip occurs.

The use of belt h^4 for pulley h^3 permits the belt to be readily thrown off and onto the pulley when it is desired to raise the grip out of and insert it into the conduit. While I have shown and described the bevel-wheel and belt attachment $h\ h'$ and h^4 in connection with my improved form of grip, yet I do not limit myself thereto, as it is evident that said attachment may be used in connection with any form of grip for cable-motor cars.

What I claim is—

1. In combination with a cable-motor car-grip and its actuating mechanism, the belt h^4, pulley h^3, and gearing interposed between the latter and said grip-actuating mechanism, substantially as and for the purpose set forth.

2. The combination, with a cable-motor car-grip having a sliding stem, C, sliding frame F, in gear with the grip-jaws, and actuating mechanism for said frame, of belt h^4, pulley h^3, gearing interposed between said pulley and frame-actuating mechanism, rollers $l\ l$, and conduit ways or inclines N, substantially as shown and described.

3. In a grip attachment for cable-motor cars, the combination of stem C, mechanism for raising and lowering the stem, jaws E E′, in gear with a sliding frame, F, in gear with a traveling nut and screw mechanism secured on stem C, belt h^4, and mechanism interposed between it and said screw, substantially as and for the purpose set forth.

4. In a grip attachment for cable-motor cars, the sliding stem C, having gripping-jaws, operating mechanism therefor, and rollers $l\ l$, in combination with a belt and automatic mechanism interposed between it and the jaw-operating mechanism, substantially as shown and described.

5. In a grip attachment for cable-motor cars, having a traveling nut, g^2, and screw G, the gear $h\ h'\ h^3$, belt h^4, and rollers $l\ l$, in combination with the conduit ways or inclines N, substantially as shown and described.

6. The combination, with the actuating mechanism of a cable-motor car-grip, of a belt, h^4, having a tension device, pulley h^3, and mechanism interposed between said pulley and grip-actuating mechanism, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS WRIGHT.

Witnesses:

JOHN RODGERS,

S. J. VAN STAVOREN.