

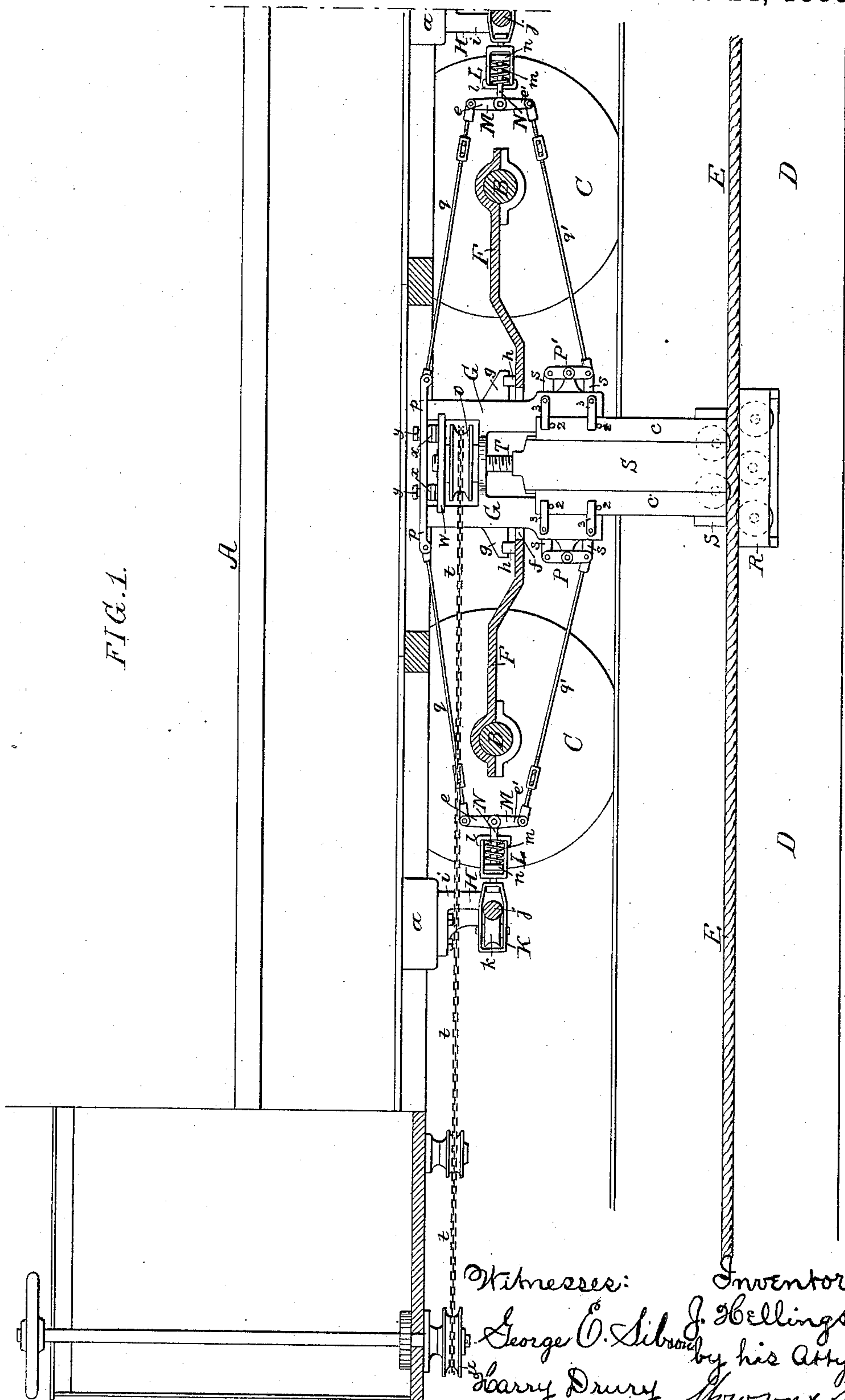
(No Model.)

2 Sheets—Sheet 1.

J. HELLINGS.
GRIP FOR CABLE RAILWAYS.

No. 331,055.

Patented Nov. 24, 1885.



Witnesses:

George E. Libron

Harry Drury

Inventor:

Gellinger

How don't you

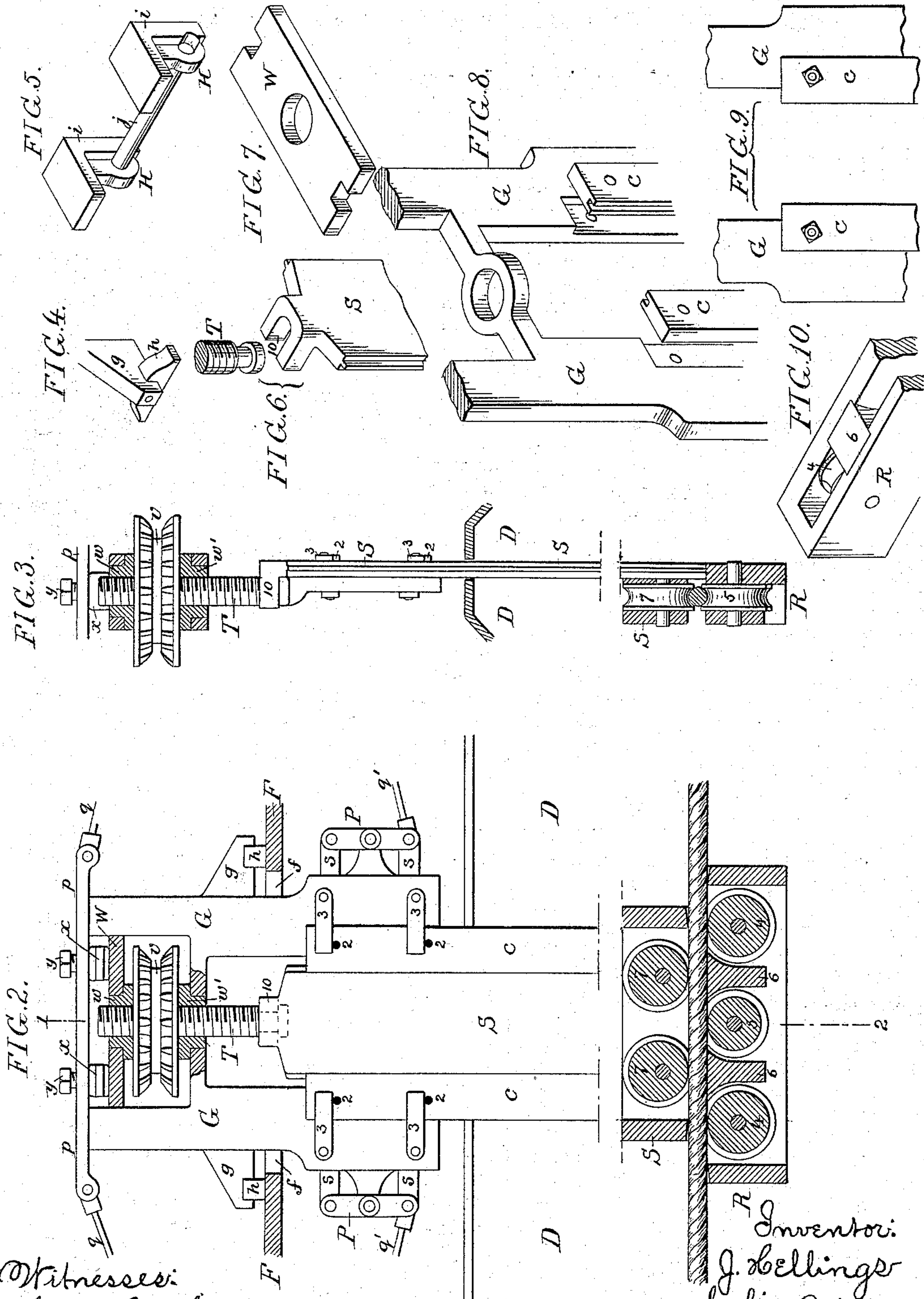
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George O. Libron.
Harry Drury

Inventor:
J. Hellings
by his Attorneys
Howson & Sons

UNITED STATES PATENT OFFICE

JOHN HELLINGS, OF PHILADELPHIA, PENNSYLVANIA.

GRIP FOR CABLE RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 331,055, dated November 24, 1885.

Application filed August 13, 1885. Serial No. 174,237. (No model.)

To all whom it may concern:

Be it known that I, JOHN HELLINGS, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented certain Improvements in Grips for Cable Railways, of which the following is a specification.

The main object of my invention is to so construct the grip and grip frame or carrier of a cable-railway car, first, that the grip may yield in any direction to accommodate itself to the irregularities of the slot in the conduit; second, that the strain will be on the car-frame and not on the car-axes, as heretofore, and, third, that the grip will take hold of the cable gradually.

In the accompanying drawings, Figure 1 is a longitudinal section of part of a car and conduit provided with my improvements; Fig. 2, a view, drawn to an enlarged scale, of part of Fig. 1; Fig. 3, a transverse section on the line 1 2, Fig. 2; and Figs. 4, 5, 6, 7, 8, 9, and 10 are detached perspective views of different parts of the gripping device.

Referring to Fig. 1, A is the body of the car, B B the axles, and C the ordinary traction-wheels. D is the conduit, and E the cable by which the car is to be propelled. A frame, F, is hung to the two axles B B, and through an opening, *f*, in this frame F passes the frame G, carrying the grip, this frame having two supporting-lugs, *g g*, provided with pivoted shoes *h*, which bear on the frame F, as shown in Fig. 4. The cavity in the frame F is large enough to permit the frame G to have such freedom of movement or play as the irregularities in the conduit may demand. I connect this grip-frame G to the body of the car, as I will now proceed to describe. Attached to cross-beams *a a*, near each end of the car, are brackets H H, (more clearly shown in Fig. 5,) which are each composed of two side plates, *i i*, and the cross-bar *j*. To the cross-bar *j* is adapted a roller, *k*, on a frame, K, which is secured to a box, L, containing a spring, *m*, between the cap *l* of the cylinder and the head *n* of a rod, N. To this rod is pivoted a lever, M, the arm *e* of which is connected to the top bar, *p*, of the frame G by a rod, *q*, while the arm *e'* of the lever M is connected to the lower end of a lever, P, by a rod, *q'*. The lever P is con-

nected to a similar lever, P', on the opposite side of the frame by two connecting-rods, *s s*. The lever P' is connected to the lever M at the corresponding end of the car in the same manner as the lever P, the several parts above described being duplicated at the opposite side of the frame G.

It will be seen that the above-described parts, constituting a movable carrier for the frame G and its grip, allow sufficient play in any desired direction, while the pull will be from the bracket H, which is secured to the body of the car, and not from the axle, as is usual. Furthermore, where the grip is carried by the axles the friction thereon interferes materially with their rotation. The springs *m* take up part of the strain in starting the car, and also keep the rollers *k* of the frames K in contact with the rods *j* of the frames H.

The grip proper is composed of a frame, R, and slide S, the frame R (carrying one set of gripping-rollers) being stationary and secured to the frame G, as described hereinafter, while the slide S is adjustable to move its rollers toward or from those of the frame R. The slide S is raised and lowered in suitable guides in the upright arms *c c* of the frame R by means of a chain-wheel, *v*, having its bearings in the frame G, and having a threaded hub for the reception of a screw-threaded stem, T, detachably secured to the slide S. The chain-wheel *v* is under the control of the attendant on the platform of the car through the medium of the chain *t*, passing around a chain-wheel, *u*, at the lower end of the upright shaft, which is provided at its upper end with a suitable hand-wheel. The screw T passes freely through the bearing-blocks *w w'*, as shown in Figs. 2 and 3, the latter resting upon the frame G, while the block *w* rests on the chain-wheel *v*, and is held in place by a plate, W, Fig. 7. Between this plate W and the top bar, *p*, are interposed two or more springs, *x*, preferably of rubber, and on these springs bear set-screws *y*, which pass through the bar *p*. This yielding connection between the slide S and the frame G in an upward direction is for the purpose of allowing any projections or irregularities in the cable to pass through the grip without affecting any of the working parts of the grip.

The frame R of the grip is attached to the

frame G in the following manner: The frame G is recessed, as shown in Fig. 8, for the reception of the upper ends of the arms *c c* of the frame R, and two pins or studs, 2, projecting from the frame G, are adapted to suitable orifices in the upper portion of the arm *c*. These studs thus support the grip, and four turn-buckles, 3, pivoted to the frame G, overlap the arms *c* of the frame R, and securely lock the frame R to the frame G.

I prefer to construct my grip in the manner described in order to allow the ready removal of the frame R and slide S when repairs are necessary, as all that has to be done is to throw back the turn-buckles 3, when the frame R and slide S can be then withdrawn laterally and removed from the slot, and can be as easily replaced when required.

It will be seen on referring to Fig. 6 that the screw-stem T is detachably connected to the slide S by means of a notched flange, 10, adapted to fit over a head on the lower end of the stem T. The frame R is provided with a series of rollers, 4 4 and 5, the two end rollers, 4 4, preferably being larger than the central roller, for the purpose of carrying the cable, suitable partitions or bearing-plates, 6, being placed between adjacent rollers. The slide S is also supplied with rollers 7 7, opposite the bearing-plates; but these rollers are mounted eccentrically for a purpose which I will now describe.

In starting the cable car the grip should not completely grasp the cable immediately, as the shock would jolt the passengers in the car, but a steady gradually-increasing grip is required, so as to start the car slowly at first, and increasing its speed by increasing the hold on the cable. By having the rollers 4 4 and 5 on the frame R and the rollers 7 on the slide S, as soon as the slide S is lowered into contact with the cable the car is gradually moved forward, owing to the intermittent gripping and releasing movement of the eccentric rollers 7; but when the speed of the car nearly equals the speed of the cable the slide S can be moved downward to such an extent that the rollers 7 are unable to revolve, and the grip is thus gradually secured to the cable without the usual friction and tearing of the cable.

As before described, any jars caused by the sudden gripping or accidental moving of the slide S onto the cable is taken up by the springs *m*, and where the cable has to pass around curves or other irregular places the frame will yield, as described above.

I claim as my invention—

1. The combination of the stationary frame of a cable-grip with a slide, S, one provided with anti-friction rollers and intermediate plates, 6 6, and the other having eccentric rollers immediately opposite said bearing-plates, substantially as described.

2. The combination of the frame G, carrying the grip-frame R, the slide S, mounted in the frame R, and a yielding connection between the slide and the frame G, as and for the purpose described.

3. The combination of the frame G with the grip-frame R, having arms *c c*, the frame G having pins or projections 2, adapted to orifices in the arms *c*, and turn-buckles 3, for securing the frame R to the frame G, substantially as set forth.

4. The combination of the frame of the car and its axles and a frame, F, with a frame, G, suspended from the frame F, but connected to the body of the car independently of the frame F and axles, substantially in the manner described.

5. The combination of the frame G, carrying the cable-grip, with the brackets H and frames K, the levers M, connected to the frame G, and a yielding connection between the levers M and the frames K, substantially as set forth.

6. The combination of the frame G, carrying the cable-grip, the levers M M, connecting-rods *q q'*, levers P P', and brackets H H, having a bar, J, supporting the rollers *k*, the said rollers being connected to the levers M, substantially as herein set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN HELLINGS.

Witnesses:

WILLIAM F. DAVIS,
HARRY SMITH.