

(No Model.)

3 Sheets—Sheet 1.

I. HYDE.

CABLE RAILWAY GRIP MECHANISM.

No. 309,506.

Patented Dec. 16, 1884.

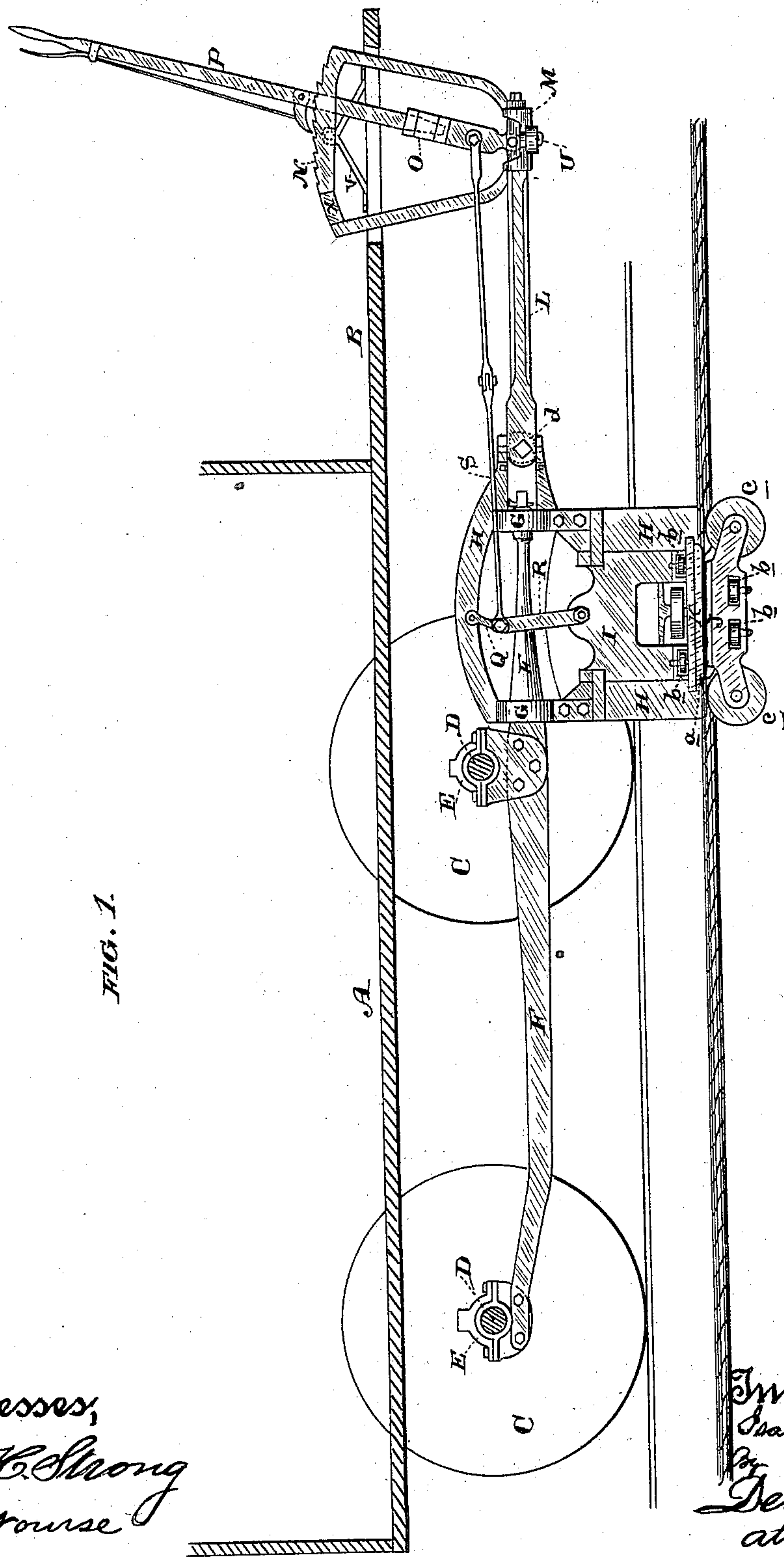


FIG. 1.

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FIG. 2.

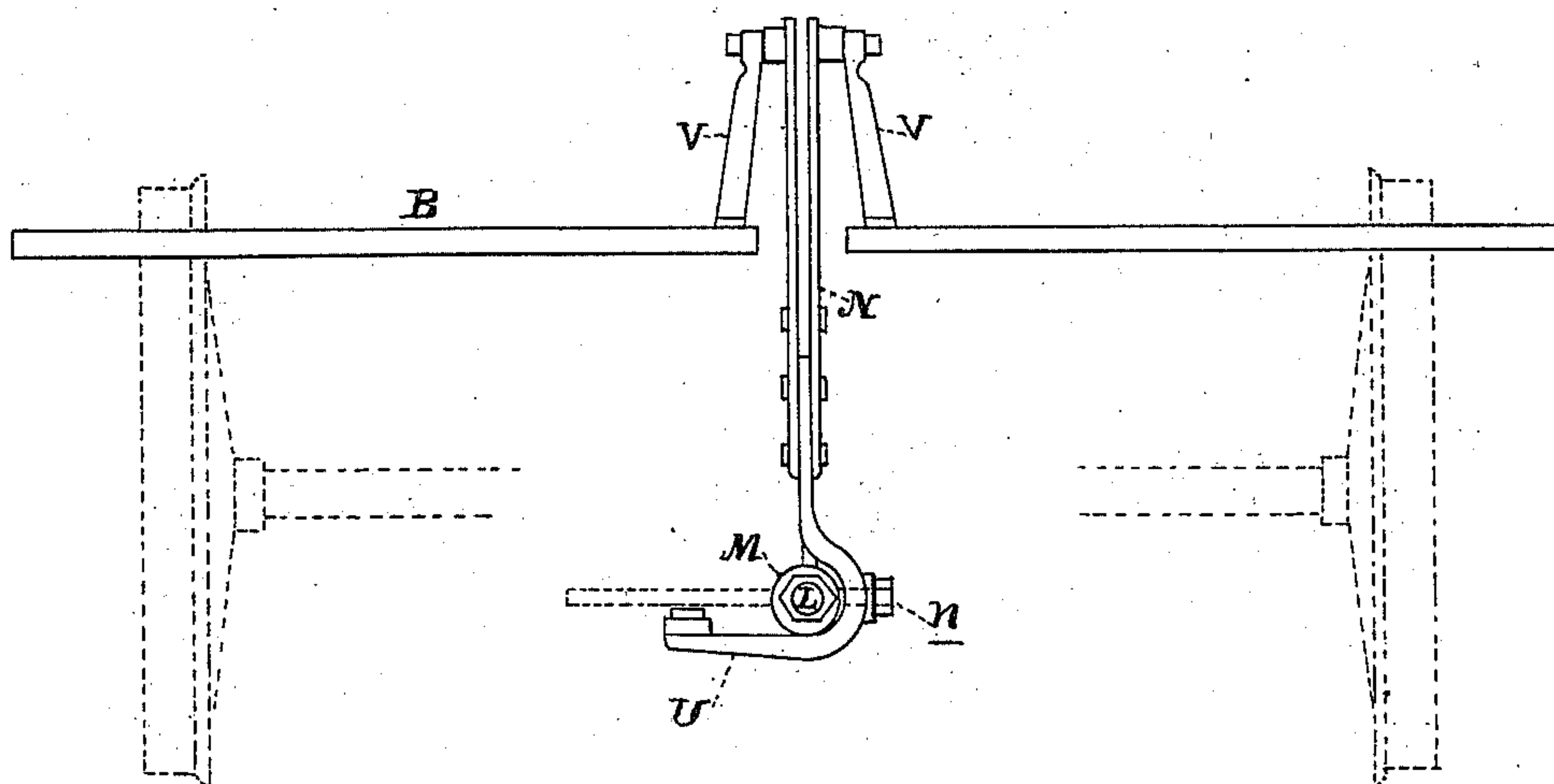
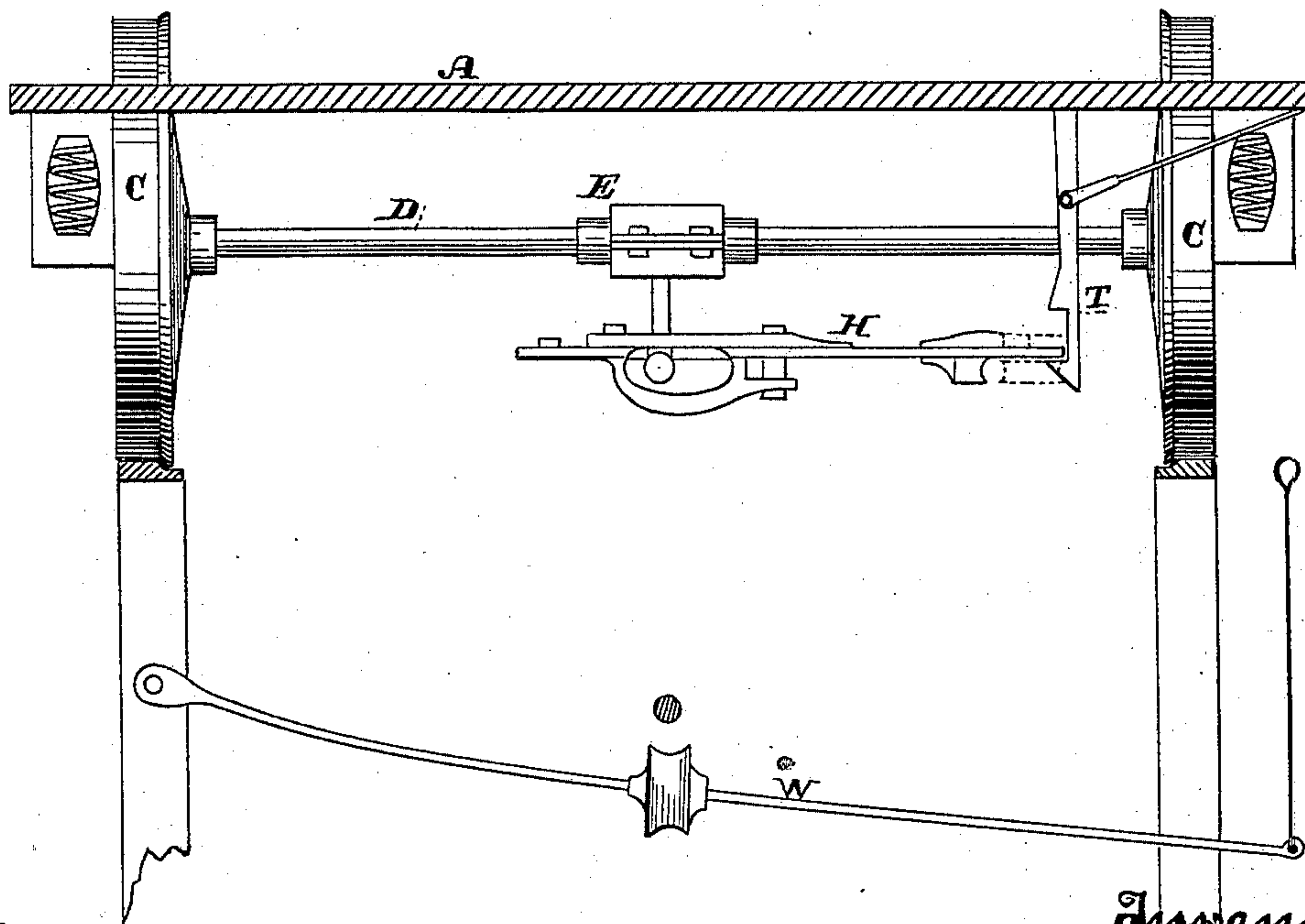


FIG. 3.



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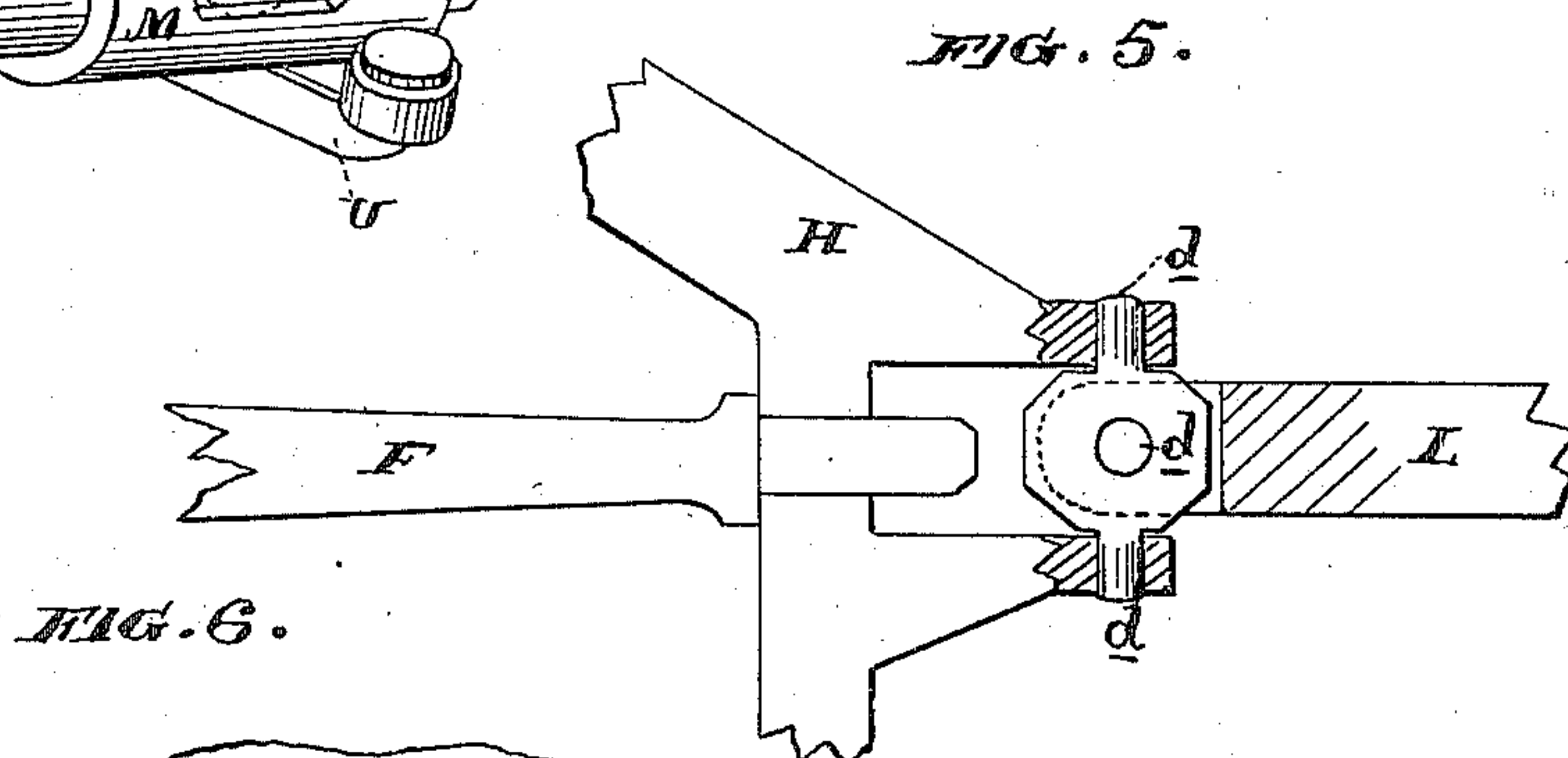
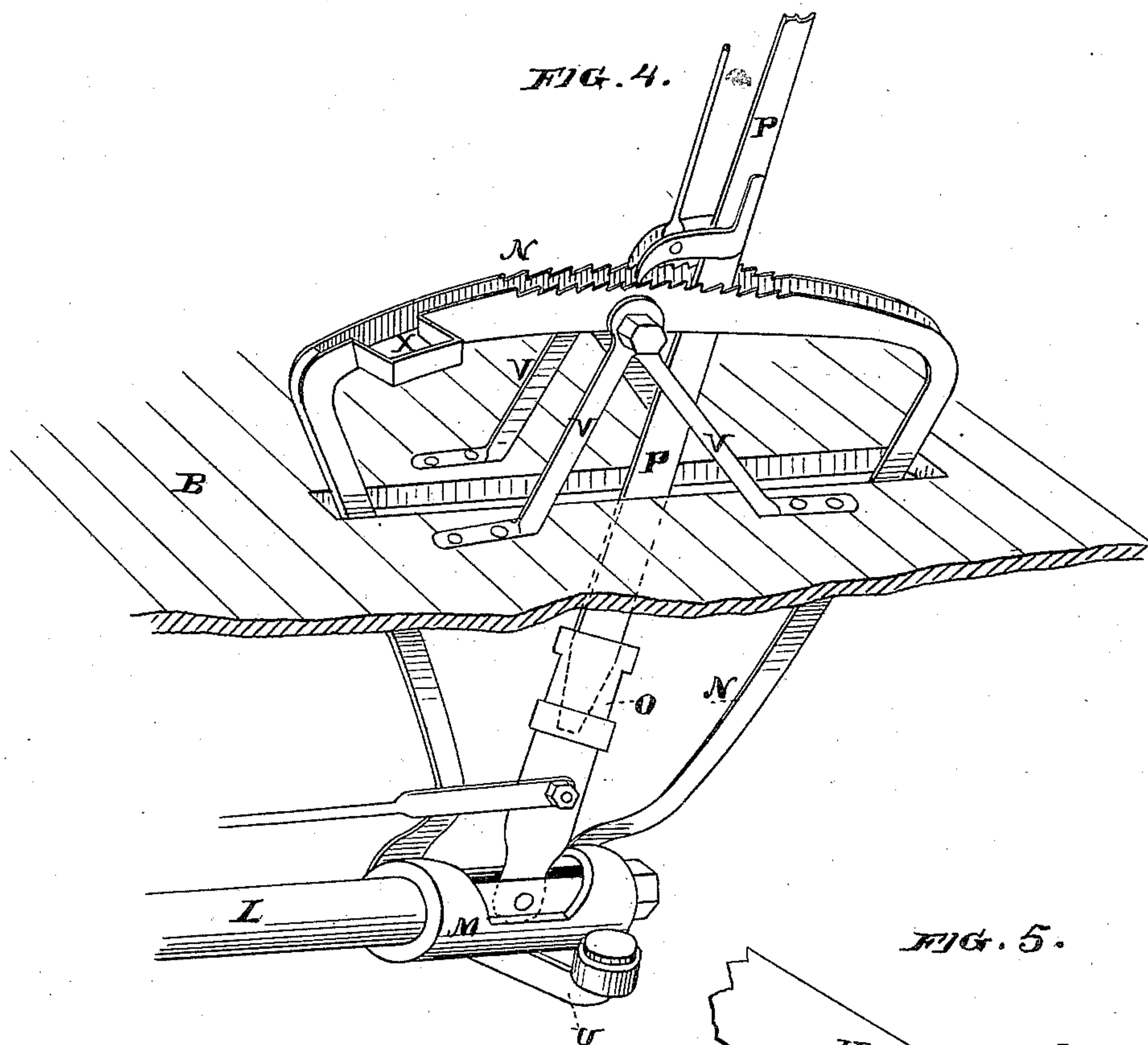
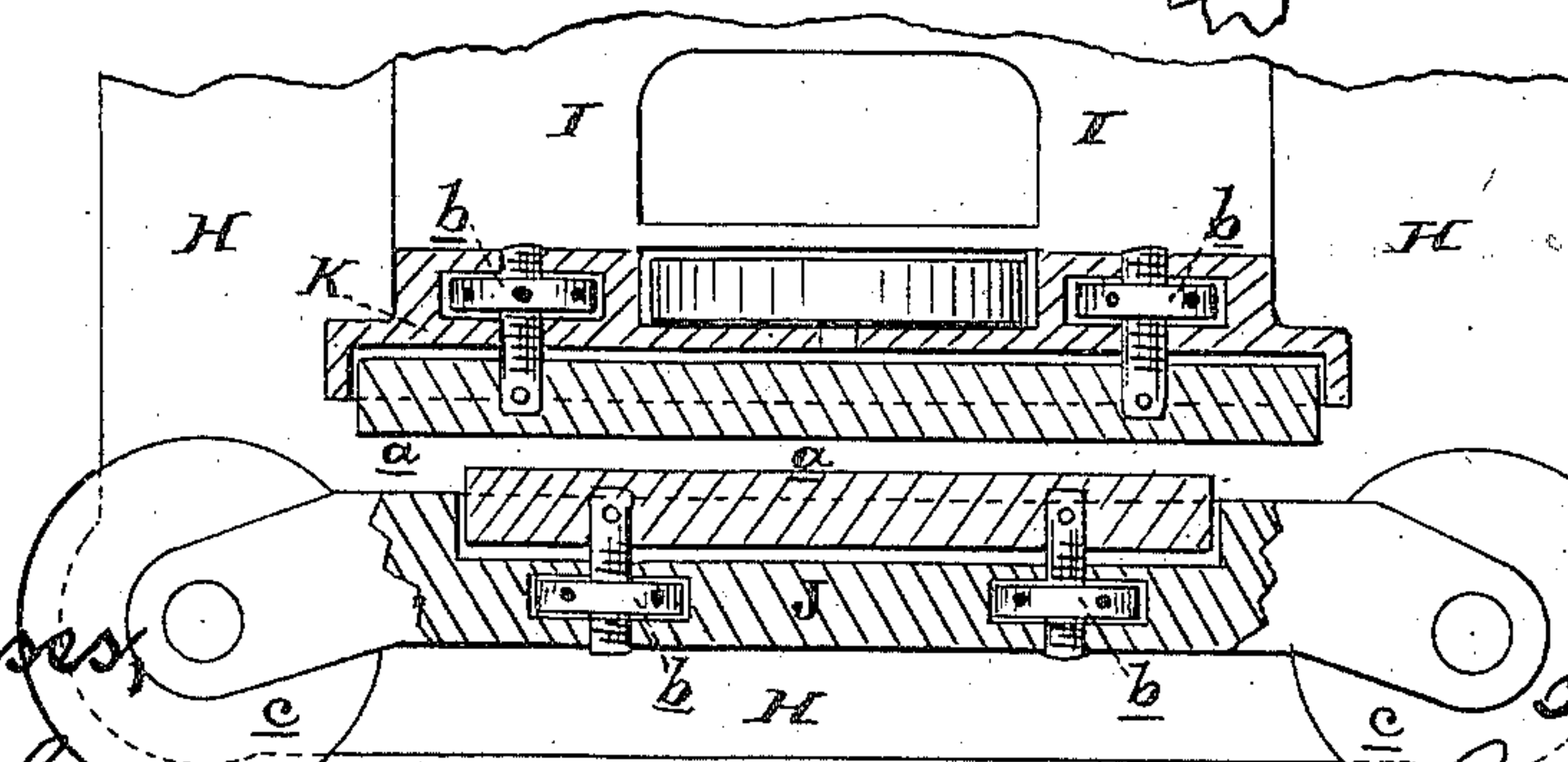


FIG. 6.



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UNITED STATES PATENT OFFICE.

ISAAC HYDE, OF OAKLAND, ASSIGNOR OF TWO-THIRDS TO M. E. WILLIS
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CABLE-RAILWAY-GRIP MECHANISM.

SPECIFICATION forming part of Letters Patent No. 309,506, dated December 16, 1884.

Application filed September 11, 1883. (No model.)

To all whom it may concern:

Be it known that I, ISAAC HYDE, of the city of Oakland, county of Alameda, and State of California, have invented an Improvement in Cable-Railway-Grip Mechanism; and I hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to a novel construction of mechanism for operating the grip by which a car is connected with a traveling rope or cable; and it consists in the construction, arrangement, and combination of devices, all of which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a side elevation showing cable, a part of the car, and the grip mechanism. Fig. 2 is an enlarged transverse view of joint where the lever is connected with horizontal operating-rod. Fig. 3 is a transverse elevation showing the grip turned up beneath the car, and the lever or bar by which the cable is raised or lowered to disengage or engage the grip when changing from cable to horse power, or vice versa. Fig. 4 is an enlarged perspective view of a part of the platform, grip-lever, and its attachment, and the rack-frame pivoted on braces bolted to platform. Fig. 5 is an enlarged view showing the double joint between the forward end of grip-frame and bar L. Fig. 6 is an enlarged section of the grip and adjusting-screws for adjusting the dies.

In the ordinary construction of cars with grips to connect them with a cable traveling in a tube or tunnel beneath the roadway the grip is supported so as to depend from a point between the front and rear wheels of the car, and the operating-lever projects upward from about this point, so as to stand nearly in the center of the car.

In my invention the grip mechanism is supported in front of the forward axle, and the operating-lever is at the extreme front of the car upon the platform with a jointed connecting device, which prevents the movements of the car-body upon its springs from being communicated to the grip mechanism or lever.

A is a car, which may be of the ordinary pattern employed upon street-railways, with a platform, B, for the driver when horses are

used, and wheels C with axles D. Upon the center of these axles are boxes E, within which the axles turn when the car is in motion. A stout bar or frame, F, is bolted to each of these boxes and extends just in front of the forward axle, where it is made round, so as to pass through boxes G upon the grip-frame and allow the latter to be turned around it as an axis, when desired. Between the sides H of the frame the sliding portion I of the grip moves. The fixed jaw J of the grip is supported from the part H and the movable jaw K upon the sliding portion I, so that when closed upon the rope or cable the car will be propelled by it. The dies *a*, which grasp the rope, are adjusted within the jaws J K by screws having thumb-nuts *b*, as shown.

c c are grooved rollers journaled to the grip, and upon which the cable runs when the car stops. To the forward end of the grip-frame a bar, L, is hinged with a double joint, *d*, Fig. 5, in a line with the shaft F, upon which the frame may turn, and this bar L extends forward and passes through a box or sleeve, M, beneath the front platform. This box is pivoted to the lower part or frame of the curved rack N by a horizontal pin, *n*, about which it turns slightly. The rack N is loosely hung or pivoted upon braces V, which are bolted to the car-platform B, as shown.

O is the socket, into which the lever P is placed, the lever projecting up through the front platform of the car and having a spring-pawl to engage the rack N and hold it when desired. The socket O is pivoted to the bar L, in line with the pivot of the box M, so that they have a common center of motion.

Q R are the two parts of a knee-lever, one being pivoted or hinged to the grip-frame H and the other to the slide I. From the joint or knee a rod, S, extends forward and has its front end connected with the socket O, so that when the lever P is thrown forward the grip will be closed upon the cable.

It will be seen that by reason of the double hinge where the bar L joins the frame H, and the hinge or joint upon which the box M turns, the body of the car will be allowed a free vertical movement and oscillation upon its springs without in any way affecting the grip or lever.

It is sometimes desirable or necessary to use the cable as a means of propulsion upon only a part of the line, while for the remainder of the distance the car is drawn by horses.

5 My device is especially applicable to cars which may be used for either cable or animal propulsion, and for this reason the forward end of the bar F is made round, and the grip-frame is journaled so that it can be turned
10 around upon it until it is clear of the tube and slot and lies in a horizontal position beneath the car. In order to effect this, openings with suitable doors or traps are made at points where it is desired to remove the grip
15 from the tube, and the jaws being loosened from the cable a hook may be used to swing the grip-frame up to a horizontal position, as shown in Fig. 3, where it will be held by a
20 swinging link or catch, T, from the bottom of the car and entirely above the level of the track. When the grip is to be turned up out of the slot, the rope is first raised so as to be clear of the pulleys *c c* by a lever, W, which
25 is fixed across beneath the cable at that point and carries a small friction-pulley, as shown. The lever P is then thrown back until it will swing into the offset X in the rack-frame, Fig. 4, and this turns the grip to one side suffi-
30 ciently to allow the rope to drop below the grip. The lever P is then withdrawn from the socket O, and as the latter is beneath the platform, and is hinged to the rod or bar L within the open sleeve or box M, it and the rod will be turned in the opposite direction when the
35 grip is turned up. An arm, U, extends out from the bottom of the frame N, and has an elastic or other support upon which the socket O rests or stops when the grip is turned up. When this has been done, the car is converted
40 into an ordinary horse-car, the grip, lever, and mechanism being entirely out of the way. The rack N is near the floor and almost entirely out of the way when not in use. By thus supporting the grip just in front of the forward
45 axle and employing the connecting rods or links the operating-lever may be removed to a considerable distance from the grip and placed upon the forward platform. The grip will, by its proximity to the axle, be subjected

to the least lateral movement, and will be kept 50 in center of slot in passing around curves, and the double joint *d d* allows the grip to be turned up to one side without binding or preventing the movement of the rod or bar L.

Having thus described my invention, what I 55 claim as new, and desire to secure by Letters Patent, is—

1. In a street-railway car, the boxes E, placed midway between the ends of the axles, and having a bar bolted to them and projecting in 60 front of the forward axle, where it forms a shaft or journal upon which the grip-frame is supported and turns, substantially as herein described.

2. In a street-railway, a cable-gripping 65 mechanism supported so as to turn about a longitudinal axis in front of the forward car-axle, and a lever situated in front of the grip and connected therewith by a rod, S, in combination with a rod or bar, L, hinged to the 70 front of the grip-frame, and having its forward end journaled in a swivel-box, M, substantially as herein described.

3. In a street-railway car, a swinging grip- 75 ping apparatus supported from and forward of the axles, an actuating-lever situated forward of the grip mechanism and connected therewith by a rod or link, in combination with a rod, L, fitting loosely in the box M, so as to turn within it, and having its rear end 80 hinged to the front of the grip-frame, substantially as herein described.

4. In a street-railway car having a swinging rope-gripping apparatus, a rod hinged to the front part of the frame in line with the axis 85 upon which it turns, in combination with the frame N and the arm or support U, substantially as herein described.

5. The rack-frame N, having an offset, X, into which the lever may swing to disengage 90 the grip from the rope, substantially as herein described.

In witness whereof I have hereunto set my hand.

ISAAC HYDE.

Witnesses:

GEO. H. STRONG,
S. H. NOURSE.