(No Model.) 3 Sheets—Sheet 1.

J. H. MASTERS.

CABLE GRIP.

No. 452,077. Patented May 12, 1891.

Fig. 1.

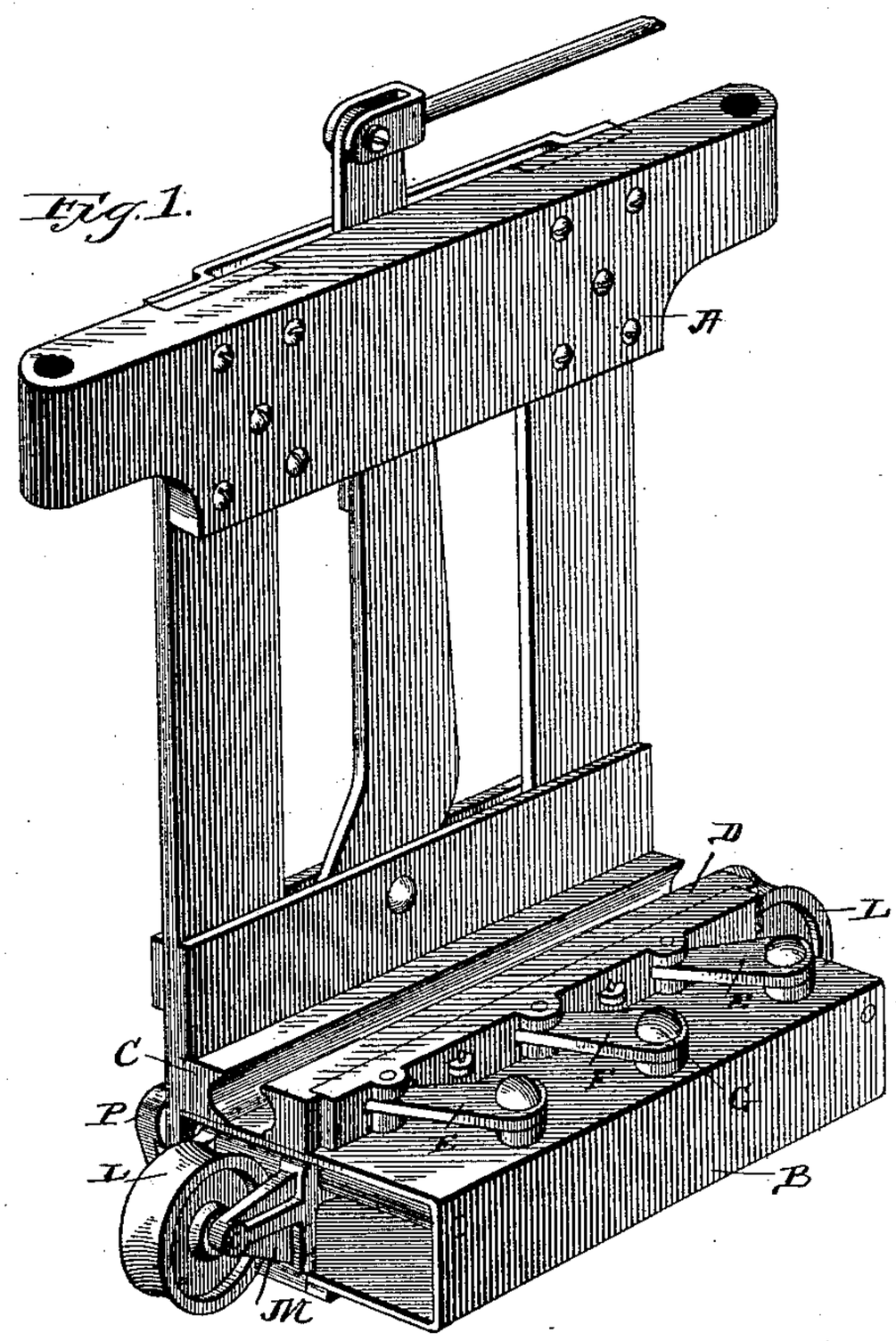
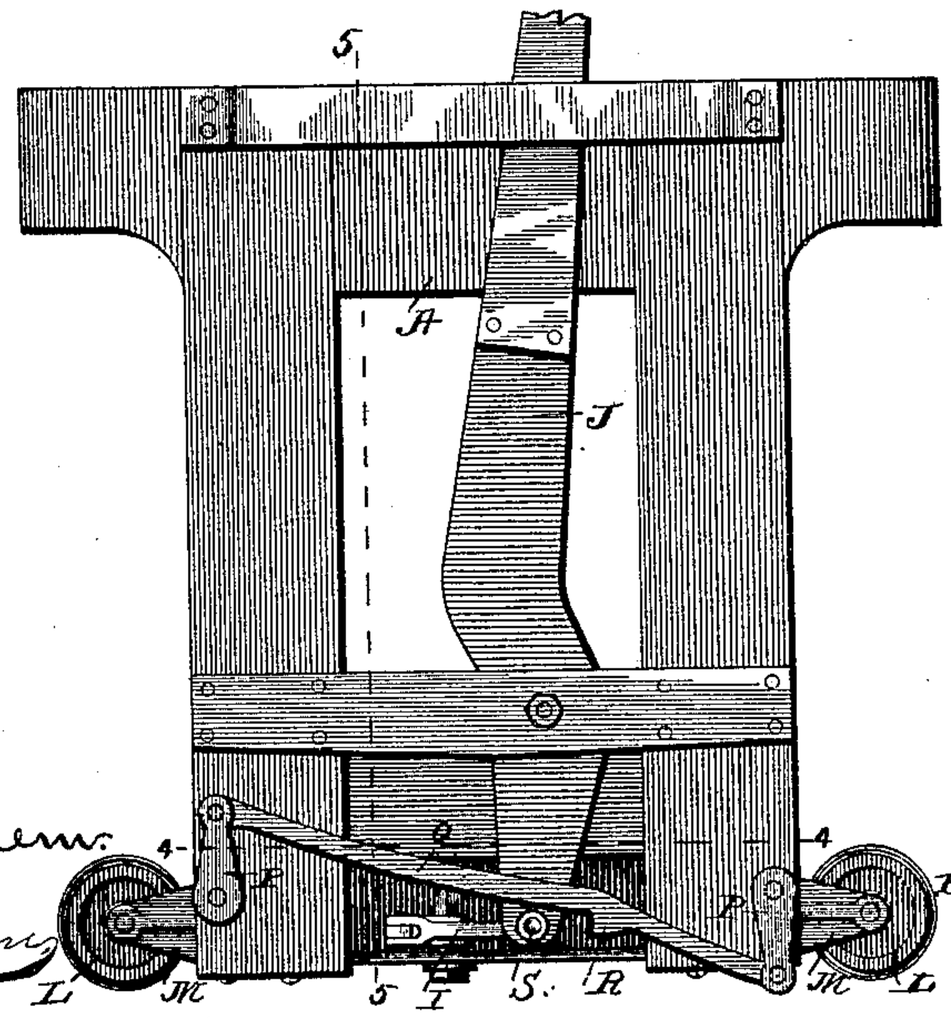


Fig. 2.



Witnesses:
Wm. M. Rheem.
E. Hurdeman.

Inventor:
Jos. H. Masters
By Elliott & Quohnudro
atty's.

(No Model.) 3 Sheets—Sheet 2.

J. H. MASTERS.

CABLE GRIP.

No. 452,077. Patented May 12, 1891.

Fig. 3.

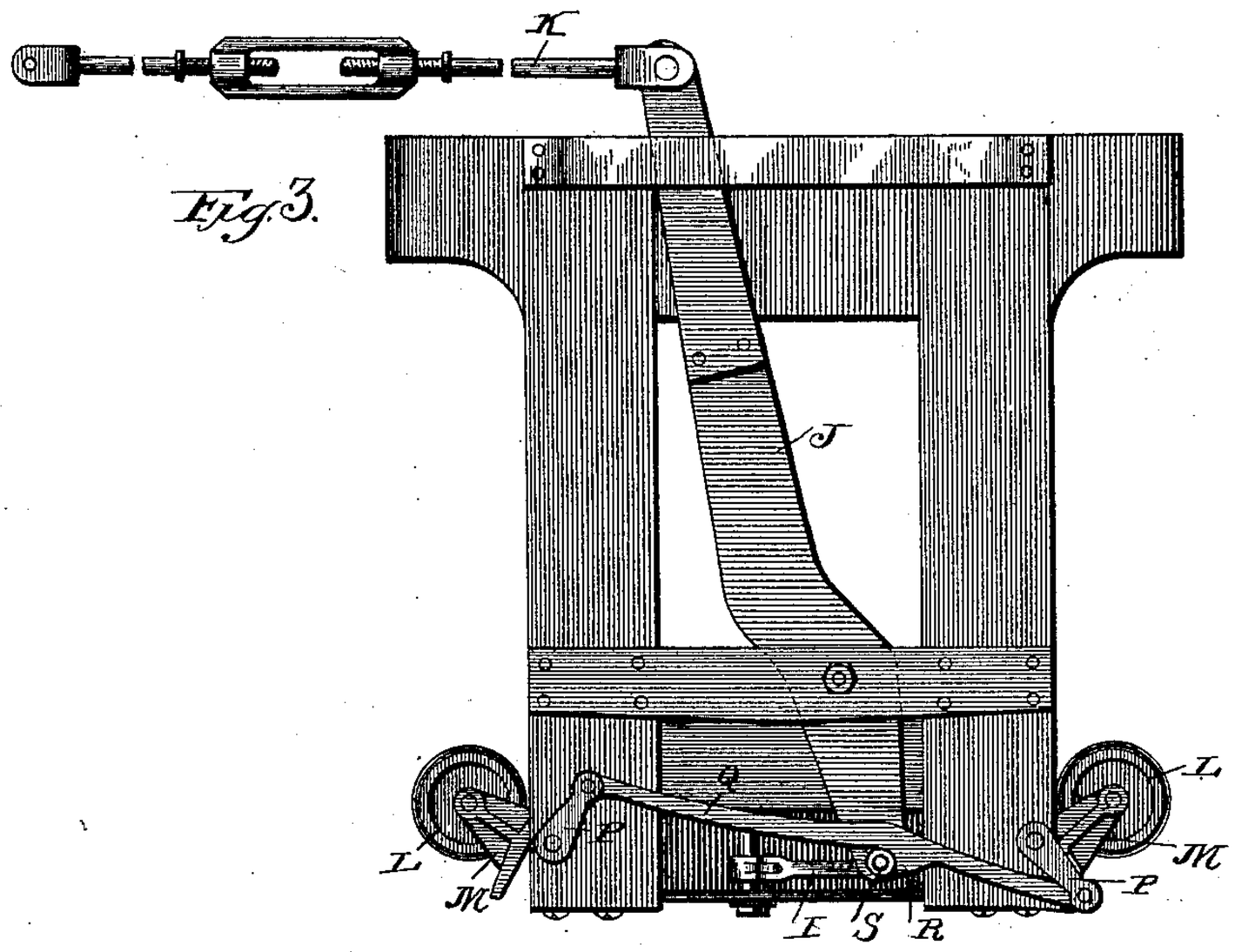


Fig. 5.

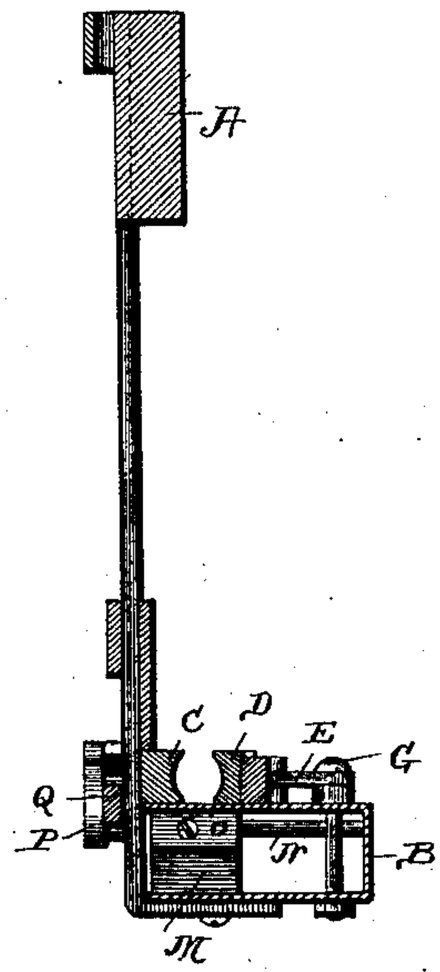


Fig. 4.

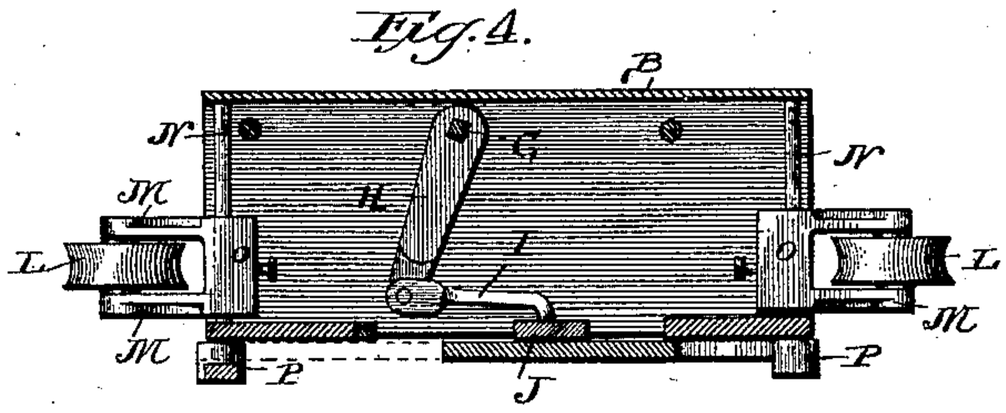
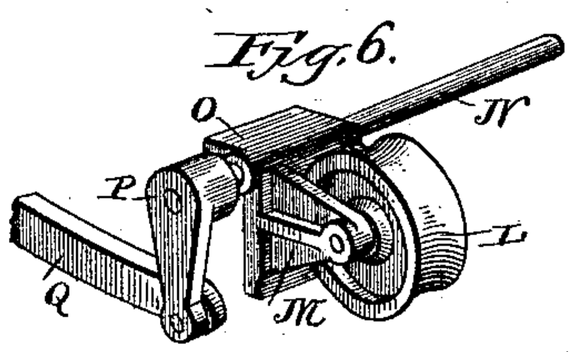


Fig. 6.



Witnesses:
Wm. M. Rheem.
E. C. Hurdeman.

Inventor:
Jos. H. Masters
By Elliott Bros & Quohundro.
Atty's

(No Model.) 3 Sheets—Sheet 3.

J. H. MASTERS.

CABLE GRIP.

No. 452,077. Patented May 12, 1891.

Fig. 7.

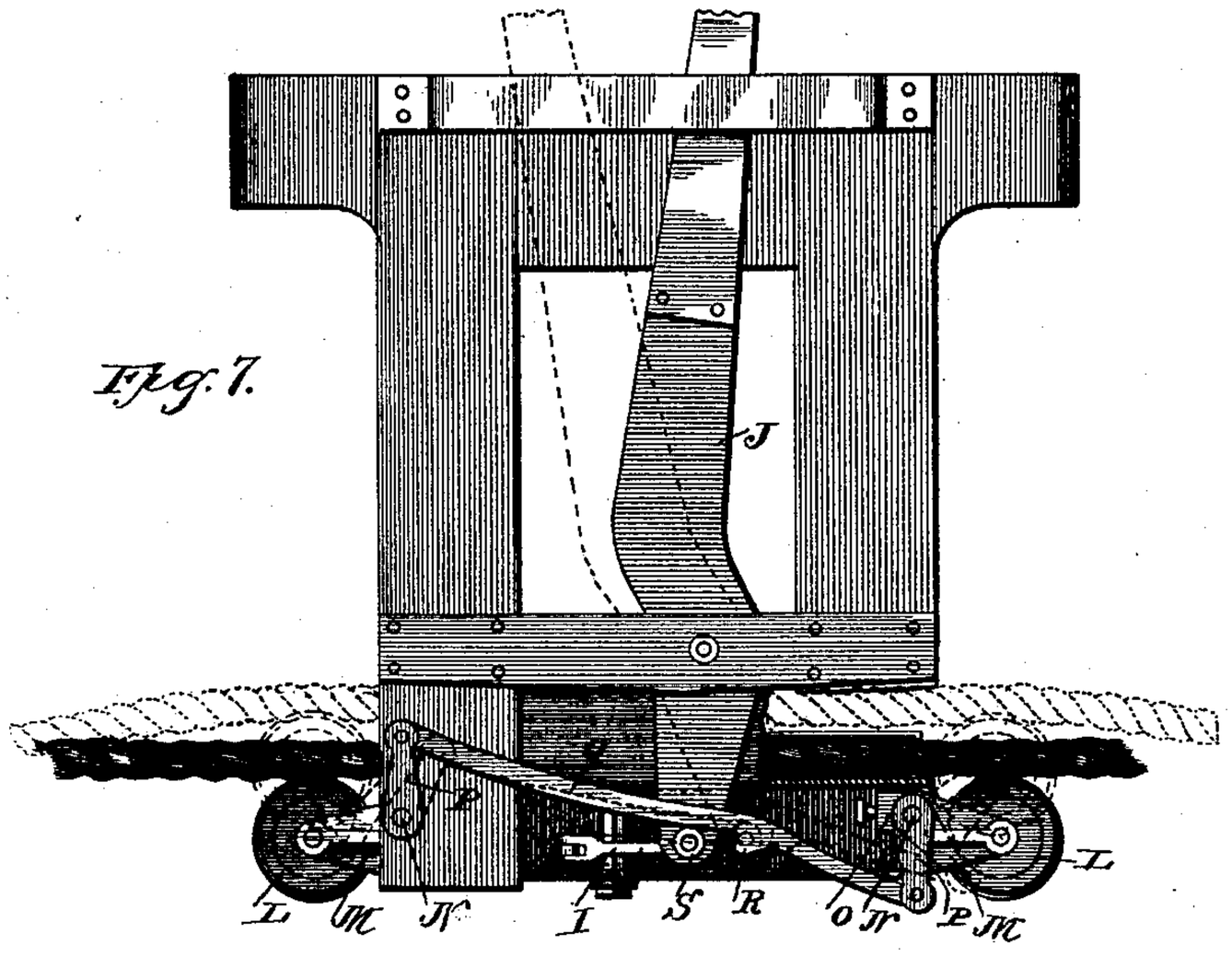
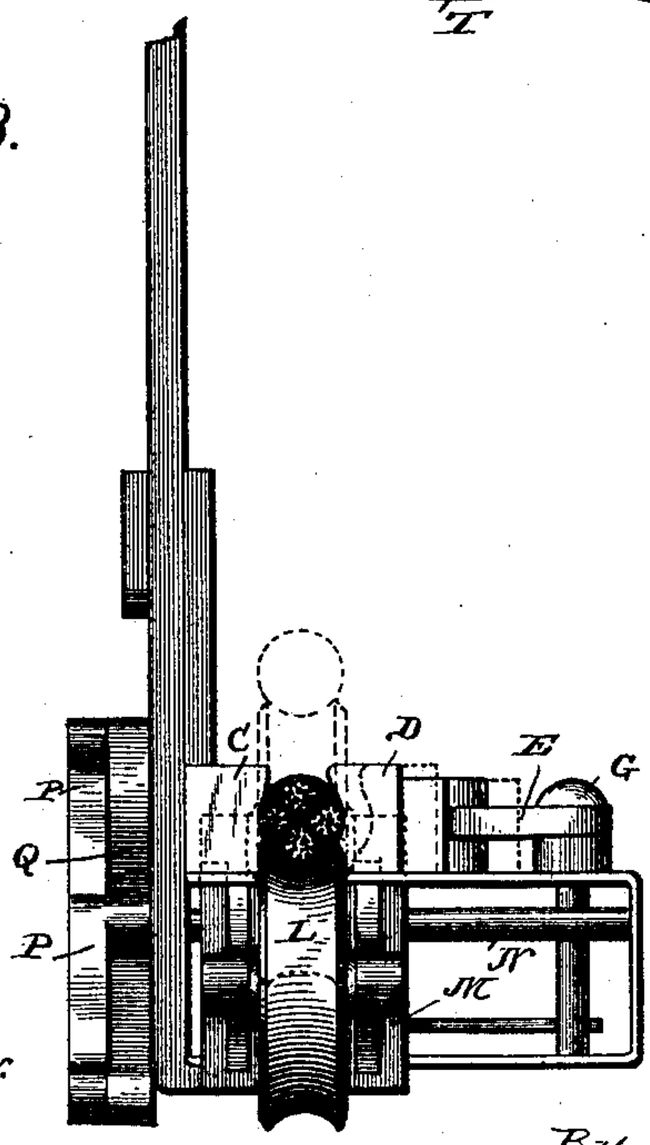


Fig. 9.

Fig. 8.



Witnesses:
Wm. M. Rheem.
E. C. Hardeman.

Inventor:
Jos. H. Masters
By Elliott & Quohundro
Attys.

UNITED STATES PATENT OFFICE.

JOSEPH H. MASTERS, OF CHICAGO, ILLINOIS.

CABLE-GRIP.

SPECIFICATION forming part of Letters Patent No. 452,077, dated May 12, 1891.

Application filed June 30, 1890. Serial No. 357,311. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH H. MASTERS, a subject of the Queen of Great Britain, residing in the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Cable-Grips, of which the following is a specification.

This invention relates to improvements in cable-grips in which a fixed horizontal jaw is opposed by a movable horizontal jaw operated by suitable levers for gripping and releasing the cable, but is more especially designed as an improvement upon the invention set forth in my application for Letters Patent of the United States, Serial No. 338,343, filed January 28, 1890, and allowed May 12, 1890, and patented June 3, 1890, No. 429,590.

The prime object of this invention is to combine with the gripping apparatus devices whereby the cable may be forcibly lifted out of the gripping-jaws, so that in case of the wedging of the cable in said jaws due to the breaking of a strand or from any other cause which prevents the release of the cable by the jaws the cable may be lifted out of the jaws and the obstruction thus removed.

Another object of this invention is to so combine my releasing device with the gripping mechanism that with a single movement of the actuating-lever the cable may be first fully released by the jaws and afterward detached therefrom, but both actions by a positive movement, whereby the employment of extra or auxiliary releasing devices and their accompanying levers is dispensed with and a single lever utilized for the double purpose of operating the jaws and releasing devices either independently—that is to say, one at a time—or both together, thus materially reducing the labor of the gripman.

These objects are attained by the devices illustrated in the accompanying drawings, in which—

Figure 1 represents a perspective view of a cable-grip embodying my invention; Fig. 2, an elevation thereof, taken from the opposite side; Fig. 3, a view similar to Fig. 2, showing the releasing devices in operation; Fig. 4, a horizontal section on the line 4 4 of Fig. 2; Fig. 5, a transverse vertical section on the line 5 5 of Fig. 2; Fig. 6, a detail perspective view showing the manner of operating the lifting-rollers; Fig. 7, a rear elevation, partly in section, showing the cable gripped in position in full line, and thrown out of the jaws in dotted lines; Fig. 8, an end elevation of the same parts in the position shown in Fig. 7, and Fig. 9 a modified form of connecting-bar.

Similar letters of reference indicate the same parts in the several figures of the drawings.

Although my invention may be applied to many other forms of grippers than that shown in the drawings, for convenience and clearness of description it is herein illustrated in connection with my gripping apparatus, described and claimed in my aforesaid application, comprising the suspending frame A, by means of which the gripper is attached to the grip-car, a horizontally-arranged oblong body or casing B, attached to the lower end of said frame, a fixed gripping jaw C, and a movable gripping-jaw D, secured at its ends, respectively, to parallel links E and at its center to a crank-arm F, secured to the upper end of a short shaft G, journaled in the casing, to which is also secured a second crank-arm H, connected by a rod I with the operating-lever J, pivotally attached to the suspending-frame in any suitable manner. This lever may be operated through the medium of a rod K, connecting with the upper end thereof by means of the usual hand-levers employed for this purpose.

At the ends of the casing are pivotally secured rollers or pulleys L for carrying the cable when lying between the gripping-jaws, which rollers in this case are arranged to swing about their pivots so as to lift or elevate the cable clear of the jaws instead of being fixed, as in my aforesaid application. To this end the rollers are loosely journaled in brackets M, rigidly secured to shafts N, loosely journaled in the casing, and are provided with horizontal inwardly-extending projections O, which strike against the under side of the upper wall of the casing, as illustrated more clearly in Fig. 7, thus constituting a stop for the pulleys when uncontrolled by the devices

hereinafter described and lowered to their normal position when carrying the cable between the jaws.

To the end of each of the shafts N is rigidly secured a crank-arm P, extending in opposite directions to each other, preferably both in a vertical plane, but one above and the other below the shaft, which crank-arms are connected by a bar Q, provided with a shoulder or projection R about midway the length thereof, adapted and arranged to engage a pin S upon the grip-lever J when the latter is thrown sufficiently to produce that result, so that when the bar is actuated by the lever the carrying-pulleys, through the medium of the crank-arms and brackets, will be caused to have a corresponding movement about the axis of the shafts N, thus causing the pulleys to be lifted or elevated, carrying with them the cable, as illustrated by dotted lines in Fig. 7.

In practice the shoulder upon the releasing-bar Q is so located that in the ordinary operation of the car the cable will be released by the gripping-jaws sufficiently to permit the stopping of the car before the pin or its equivalent upon the grip-lever engages the shoulder, and, in fact, the cable may be gripped and released continually without producing any effect whatever upon the releasing-bar or the carrying-pulleys operated thereby; but should the cable wedge in the gripping-jaws for any reason whatever, so that it cannot be released by the usual movement thereof and in the usual manner, it is only necessary to continue the movement of the grip-lever to the position shown by the dotted lines in Fig. 7, when the gripping-jaws will first be opened to a greater degree than is necessary in the ordinary operation of the grip, after which the carrying-pulleys will be elevated, as before described, and the cable lifted forcibly from between the jaws. As soon as this is accomplished, the cable will then travel upon the carrying-pulleys of the grip the same as if the pulleys were in their lowered position. The obstruction will pass on by the grip and the car may be stopped. When it is desired to again start and continue the trip, by reversing the grip-lever the weight of the cable will serve to depress the carrying-pulleys to their normal operative position and the cable will again travel between the gripping-jaws, ready to be gripped thereby.

In Fig. 9 I have illustrated a modified form of the releasing-bar, in which the shoulder R is dispensed with and a slot P employed instead thereof, in which works the pin S, which may, however, be an anti-friction roller, the slot being of sufficient length to permit the operation of the grip and releasing device in the manner before described in the use of the shouldered releasing-bar. It will thus be understood that while the gripman has free control of the gripping-jaws for gripping and releasing the cable without operating the releasing apparatus herein described, at the same time this apparatus is so connected with the grip-jaw operating-lever that by one single and continuous movement of the said lever the cable may be first entirely released by the jaws and then lifted forcibly from between the jaws, thus permitting any obstruction—such as a broken strand, which may have wedged in between the jaws—to pass on by the grip without materially interfering with or impeding the progress or operation of the grip-car, which would not be the case were means not provided for forcibly removing the cable from between the jaws when the necessity for such action arises.

It is obvious that by properly locating the shoulder upon the releasing-bar the releasing of the cable by the jaws and its elevation from between the jaws may occur simultaneously.

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

1. The combination, with a cable-grip provided with horizontal gripping-jaws and the carrying-pulleys thereof, of means for simultaneously operating the gripping-jaws and elevating said pulleys, substantially as and for the purpose described.

2. The combination, with a cable-grip provided with horizontal gripping-jaws, the actuating-lever thereof, and the cable carrying pulleys attached to the grip, of a releasing-bar connecting said lever and pulleys, whereby the pulleys will be elevated simultaneously with the opening of the gripping-jaws, substantially as described.

3. The combination, with a cable-grip provided with horizontal gripping-jaws and pivotally-supported carrying-pulleys attached thereto, of crank-arms on the pivots of said pulley-supports, a releasing-bar connecting said crank-arms, and a connection between said bar and the grip-lever for operating the same, substantially as described.

4. The combination, with a cable-grip and pivotally-supported carrying-pulleys attached thereto, of crank-arms upon the pivots of said pulley-supports, a releasing-bar connecting said arms, a shoulder or its equivalent upon said bar, and a pin or projection upon the grip-lever for engaging said shoulder so as to operate the bar, substantially as described.

5. The combination, with a cable-grip, brackets pivotally supported thereon, stops therefor, and carrying-pulleys loosely journaled in said brackets, of crank-arms secured to the pivots of said brackets, a releasing-bar connecting said arms, a shoulder or its equivalent on said bar, and a pin or projection on the grip-lever for engaging said shoulder, substantially as described.

6. In a cable-grip, the combination, with a fixed jaw, a movable jaw opposing the same,

a crank for operating said movable jaw, a grip-lever, and a rod connecting said lever and actuating-crank, of pivoted brackets, carrying-pulleys loosely journaled in said brackets, crank-arms upon the pivots of said brackets, a releasing-bar connecting said arms, a shoulder or its equivalent on said bar, and a pin or projection upon the grip-lever for engaging said shoulder, substantially as described.

JOSEPH H. MASTERS.

Witnesses:
R. C. OMOHUNDRO,
A. MILO BENNETT.