

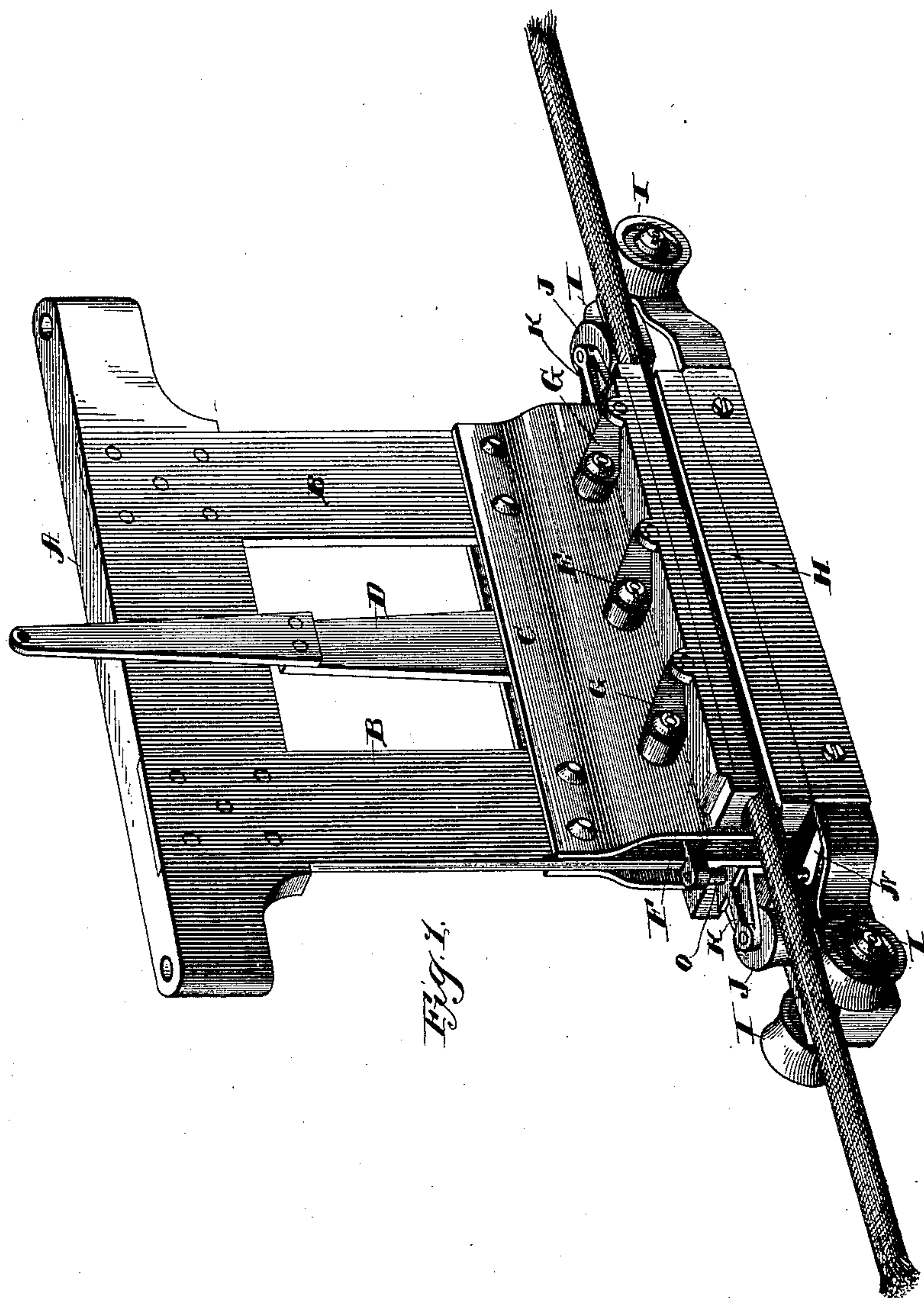
(No Model.)

3 Sheets—Sheet 1.

J. H. MASTERS.
CABLE GRIP.

No. 452,078.

Patented May 12, 1891.



Witnesses:
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Inventor:
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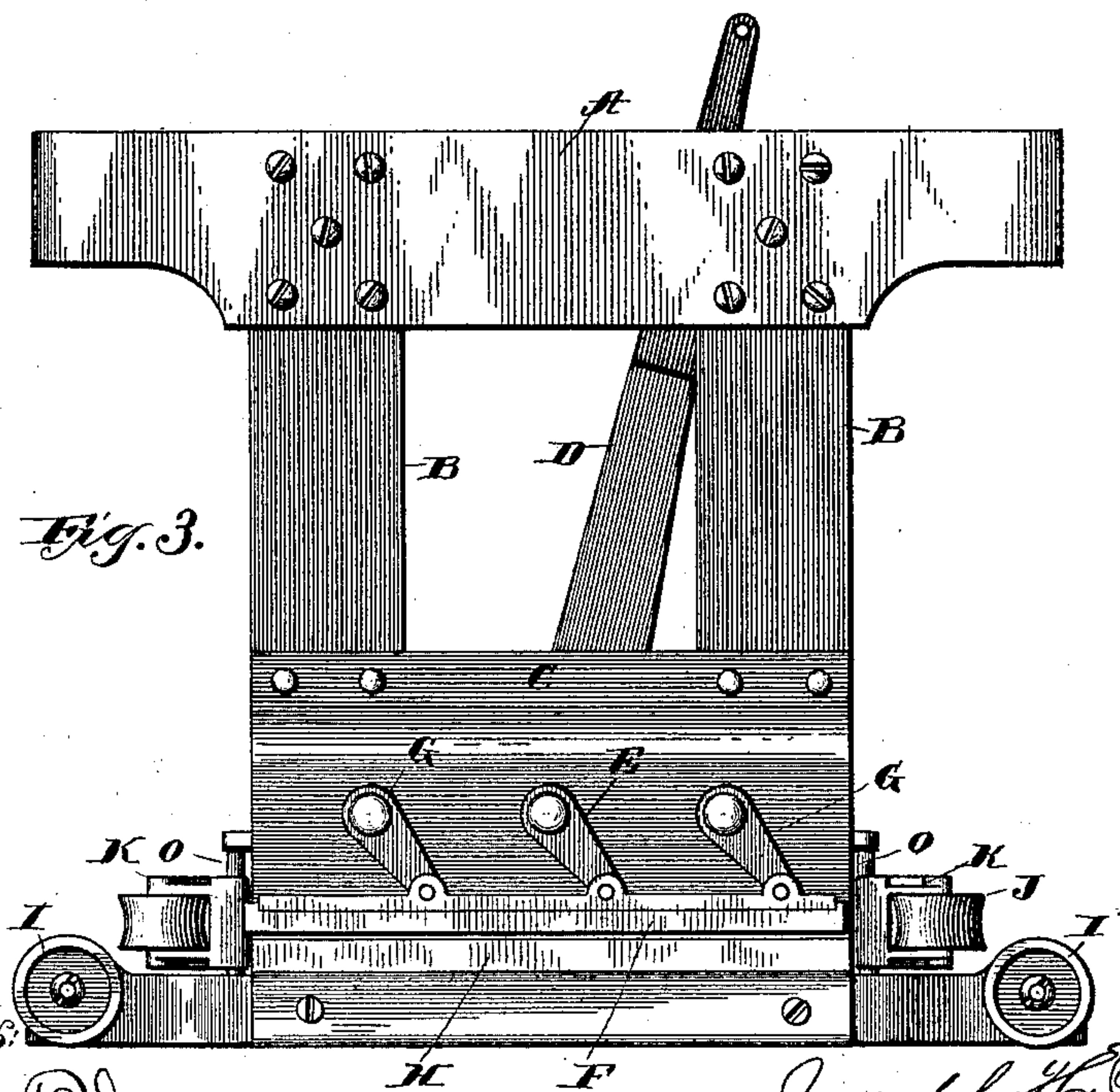
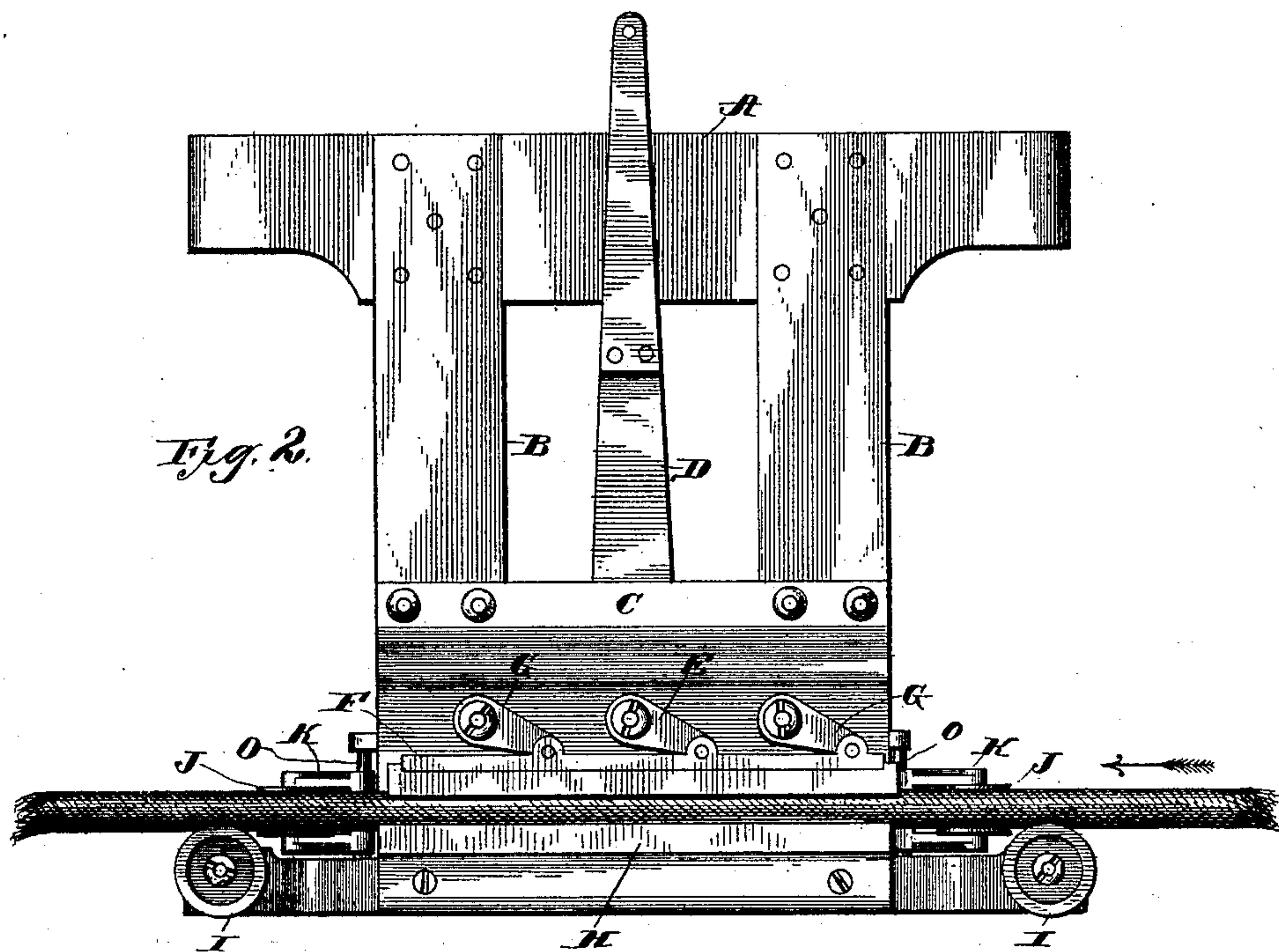
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3 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

JOSEPH H. MASTERS, OF CHICAGO, ILLINOIS.

CABLE-GRIP.

SPECIFICATION forming part of Letters Patent No. 452,078, dated May 12, 1891.

Application filed August 4, 1890. Serial No. 360,879. (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, and more especially to that class in which the grip is provided with vertically-operating gripper-jaws, and the cable is engaged by and disengaged from the same by a sidewise or lateral movement of the grip relative to the cable. In such devices, so far as I am aware, the engagement of the cable by as well as the release of the cable from the jaws has been solely dependent upon the sidewise movement of the grip without any positive means for discharging the cable from between the jaws, which construction has proven objectionable, because frequently the cable is caught by the gripping-jaws and not released at the proper time, and especially is this true when broken strands of the cable become tangled in the jaws, beside which the cable cannot be dropped or discharged from the jaws except at such points along the line as the rails and grip-slot are curved for that purpose, and frequently not even then if broken strands cause it to wedge between the jaws.

The prime object of this invention is to enable the "dropping" or discharge of the cable from between the jaws at any point along the line of the road, whereby in case of accident to the grip or of the entanglement therein of broken strands of the cable, interfering with or preventing the operation of the cable, the cable may be instantly dropped or discharged from the grip, thereby avoiding all danger of a "run-away" grip-car, which would otherwise be uncontrollable by the driver, and the cable could not be dropped until the grip arrived at the usual point of discharge.

Another object is to enable the positive and forcible discharge or ejection of the cable from between the jaws of the grip and by the continued movement or operation of the usual grip-lever, whereby the employment of separate or dependent devices is avoided.

A further object is to have such a grip

adapted and arranged for use with the car running in either direction, whereby is avoided the necessity for turning or switching the grip-car at the end of the line, whereby the cable may be gripped going either way, and forcibly ejected from either jaw by the operation of one and the same grip-lever.

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

Figure 1 is a perspective view of a cable-grip embodying my invention; Fig. 2, a side elevation thereof, showing the position of the parts with the cable carried between the jaws, but not gripped thereby; Fig. 3, a similar view showing the extreme movement of the parts when the cable is out of the jaws; Fig. 4, a similar view thereof, with a portion of the casing cut away, more clearly disclosing the internal construction and operation of the parts; Fig. 5, a transverse vertical section thereof on the line 5 5 of Fig. 4; Fig. 6, a horizontal section on the line 6 6 of Fig. 4; and Fig. 7, a horizontal section on the line 7 7 of Fig. 4, the dotted lines showing the position of the cable when gripped or running between the jaws, and the broken lines showing the position of the cable when discharged by the jaws.

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

Referring by letter to the accompanying drawings, A indicates the suspending frame of my grip, by means of which the same is attached to a grip-car, from which depend hanging bars B, suspending at their lower ends a casing C of any suitable form, but preferably that shown more clearly in Figs. 1 and 5, upon which the operative parts of my grip are directly supported, the casing being hollow, as shown, and extending to each side of the hanging bars. In this casing, about the center of length thereof, is pivotally secured a grip-lever D, extending upwardly between the hanging bars in convenient position to be operated by the usual hand-levers, (not shown,) or it may itself terminate in a suitable form of hand-lever, according to preference. To the outer ends of the pivot of this grip-lever and on the outside of the casing is secured the crank-arm E, the opposite

end of which is pivotally connected to, so as to operate, a movable gripping-jaw F, to which the crank-arm is connected about the center of length, the bar being also supported at its ends and guided in its movements by a pair of parallel links G, pivoted at their inner ends to the casing and corresponding in length and radial position with relation to their pivots with the crank-arm E, so that the jaw throughout its movement toward and away from the opposing fixed jaw H, secured to the casing, will remain in a position substantially parallel therewith.

It will of course be understood that there is a double set of jaws, crank-arms, and links, one set being upon each side of the casing, and, as more clearly illustrated in Fig. 7, the links and crank-arm upon one side extend from their pivots toward one end of the casing and on the other side toward the opposite end of the casing, the purpose of this arrangement being to take advantage of the movement of the cable between the jaws in the opposite direction from that in which the links and crank-arm extend, so as to increase the gripping effect of the jaws and reduce the labor of the driver or gripman. Another purpose of this arrangement is to have the jaws operating reversely to each other—that is, that while one set of jaws is closing or gripping the other is opening, and vice versa. Thus the operating-jaws, or those working upon the cable, will be open, while those not working upon the cable will be closed, or nearly so, the opening and closing of course being proportionate. At each end of the casing and in a line with the respective jaws is pivotally supported a pair of rollers I for carrying the cable between the jaws, being of such diameter and so arranged that the cable when resting upon the rollers at each end of the casing will be suspended therebetween and work between the jaws just clear of the lower and stationary jaw, so as to avoid friction, but at the same time in such close proximity that the cable may be readily gripped between the jaws. In a plane above these rollers and at each end of the casing is located a discharge-roller J, lying between but to one side of each pair of carrying-rollers and suitably journaled in a bracket K, pivotally secured to the casing or hanging bars, or any other stationary portion of the frame-work, these rollers being arranged to lay to one side of and just out of contact with the cable when resting upon the carrying-rollers, being the same relation to the cable whether carried upon one side or the other of the grip and capable of moving toward either side, so as to force the cable off of the carrying-rollers, as clearly illustrated by the dotted and broken lines in Fig. 7. These rollers are operated by means of the grip-lever through the medium of a connecting or reach rod L, located within the casing and engaged at its center of length by the lever, a convenient arrangement being the free projection of the

end of the lever through a slot M in the rod, the free ends of which latter are respectively pivotally connected with crank-arms N, rigidly secured at their opposite ends to the pivots O of the brackets K, supporting the discharge-rollers, the crank-arms N, as illustrated in Figs. 6 and 7, extending in opposite directions from their pivots, so that by a single movement of the connecting-rod through the medium of the grip-lever both rollers will be thrown to the same side of the center, as illustrated by the dotted lines in Fig. 7, a reverse movement of the rods serving to throw both discharge-rollers to the opposite side of the center, thereby enabling the discharge of the cable by this one pair of rollers from either pair of carrying-rollers, and consequently from between either jaw of the grip.

It will be understood that in practice the parts will be so arranged that with the grip-lever standing in the middle or vertical position shown in Fig. 2 the cable will be carried by the carrying-rollers between the gripping-jaws at one side, but not engaged thereby, at which time the car may remain at rest; but whenever it is desired to grip the cable it is only necessary to move the lever toward the position shown in Fig. 3, when the cable will be gripped as tightly between the jaws as desired, the discharging-rollers during this action moving away from the cable or toward the opposite side of the grip; but if it be desired to discharge the cable from between the jaws and off of the carrying-rollers any movement of the grip lever in the opposite direction to that shown in Fig. 3 will cause the jaws to open still wider and the discharging-rollers simultaneously therewith to bear against the cable and force the latter off of the carrying-rollers. Of course if the cable were engaged by the jaws at the opposite side of the grip the operation would be just the reverse of that just described; but the result would be the same. Thus it will be seen that through the medium of the single grip-lever the cable may be gripped and released by either jaw in all the ordinary starting and stopping of the grip-car, or it may be forcibly discharged from either jaw when necessary by simply continuing the releasing movement of the grip-lever beyond that ordinarily required for releasing the cable without dropping it.

This apparatus is both simple, durable, and effectual in its operation and imposes no additional labor upon the gripman, but, on the contrary, provides a quick and convenient means for dropping the cable whenever he may deem it necessary without the necessity for awaiting the arrival of the grip-car at the usual discharging-point, as has heretofore been necessary, thus placing the car absolutely within his control without danger of entanglement of the strands of the cable in the jaws of the grip and the consequent running away of the grip-car.

In an application filed by me on or about June 30, 1890, Serial No. 357,311, I have described and claimed a discharging device adapted for use in connection with horizontally-operating grip-jaws for lifting or discharging the cable vertically; but that apparatus is not adapted for use in connection with vertically-operating grip-jaws from which the cable must be discharged horizontally, and the present invention is therefore especially adapted for use in connection with such grips.

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

1. The combination, with the cable-grip, the actuating-lever thereof, and the cable-carrying rollers attached to the grip, of the horizontally-disposed discharge-rollers pivoted in horizontally-swinging supports above said carrying-rollers, crank-arms on the pivots of said roller-supports, extending in opposite directions, and a rod or bar connecting said

crank-arms, respectively, with the grip-lever, substantially as described.

2. In a cable-grip, the combination, with a pair of fixed jaws, a pair of movable jaws opposing the same, crank-arms and links supporting and operating said movable jaws, extending in opposite directions from the pivots, and the actuating-lever connected with said crank-arms, of the pivotally-supported swinging brackets, discharging-rollers carried thereby, crank-arms upon the pivots of said brackets, and a rod or bar connecting said crank-arm with the grip-lever, whereby said gripping-jaws will be alternately operative and the discharging-rollers co-operated alternately with the gripping-jaws, substantially as described.

JOSEPH H. MASTERS.

Witnesses:

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