

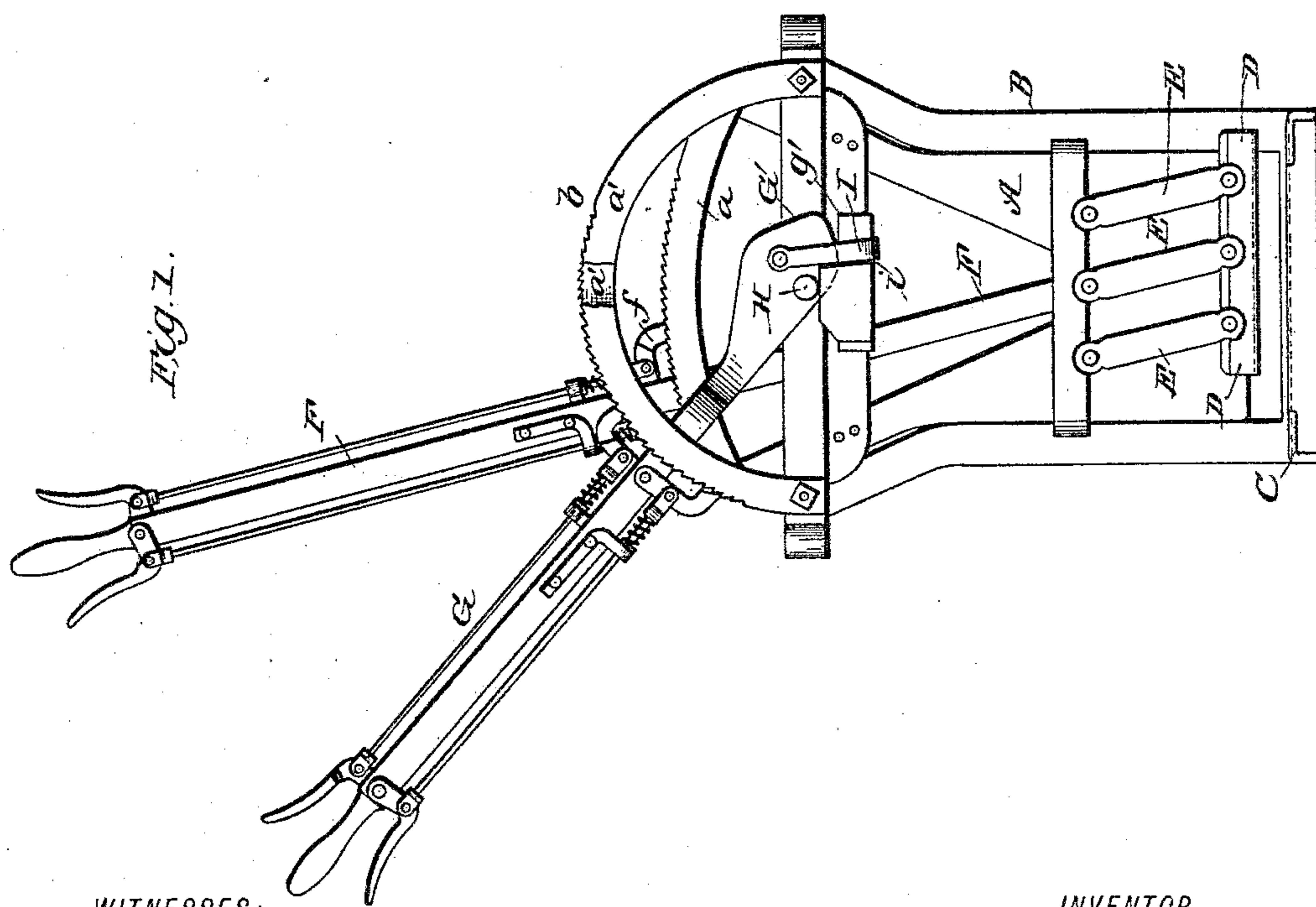
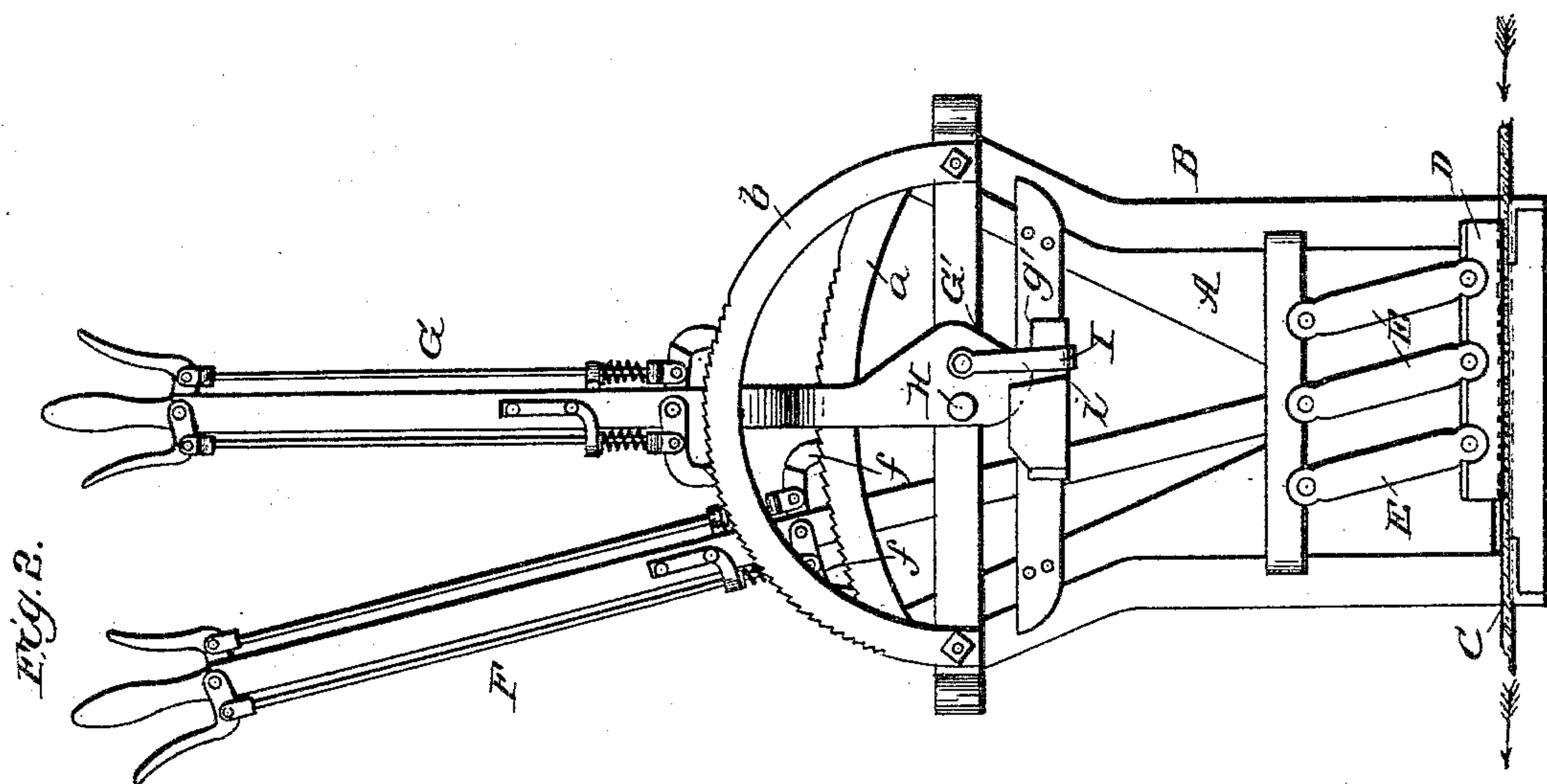
(No Model.)

3 Sheets—Sheet 1.

H. M. WREDE.
CABLE GRIPPER.

No. 411,630.

Patented Sept. 24, 1889.



WITNESSES:
W. D. Blondel.
P. B. Turpin.

INVENTOR
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BY *Wm L*

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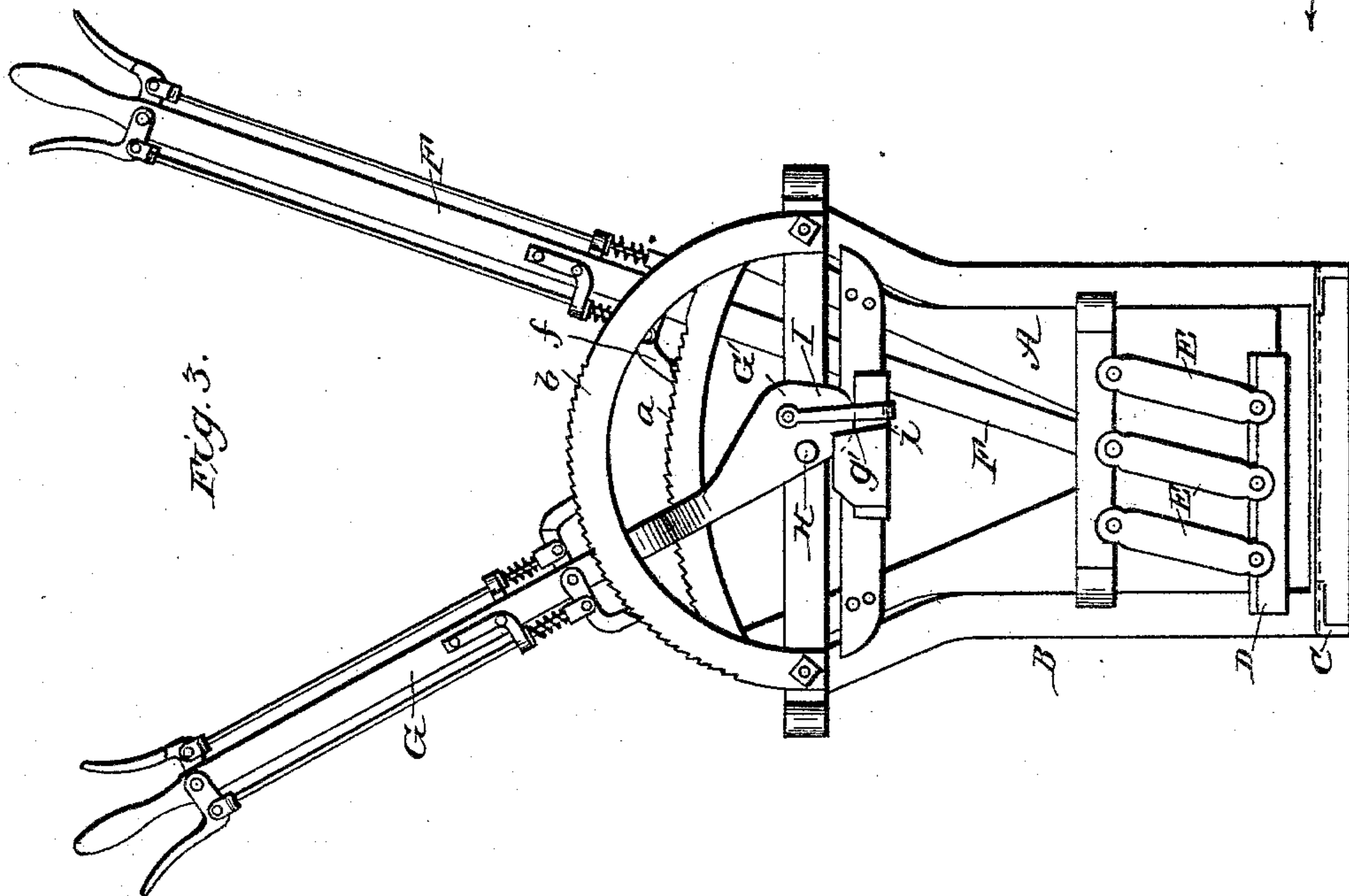
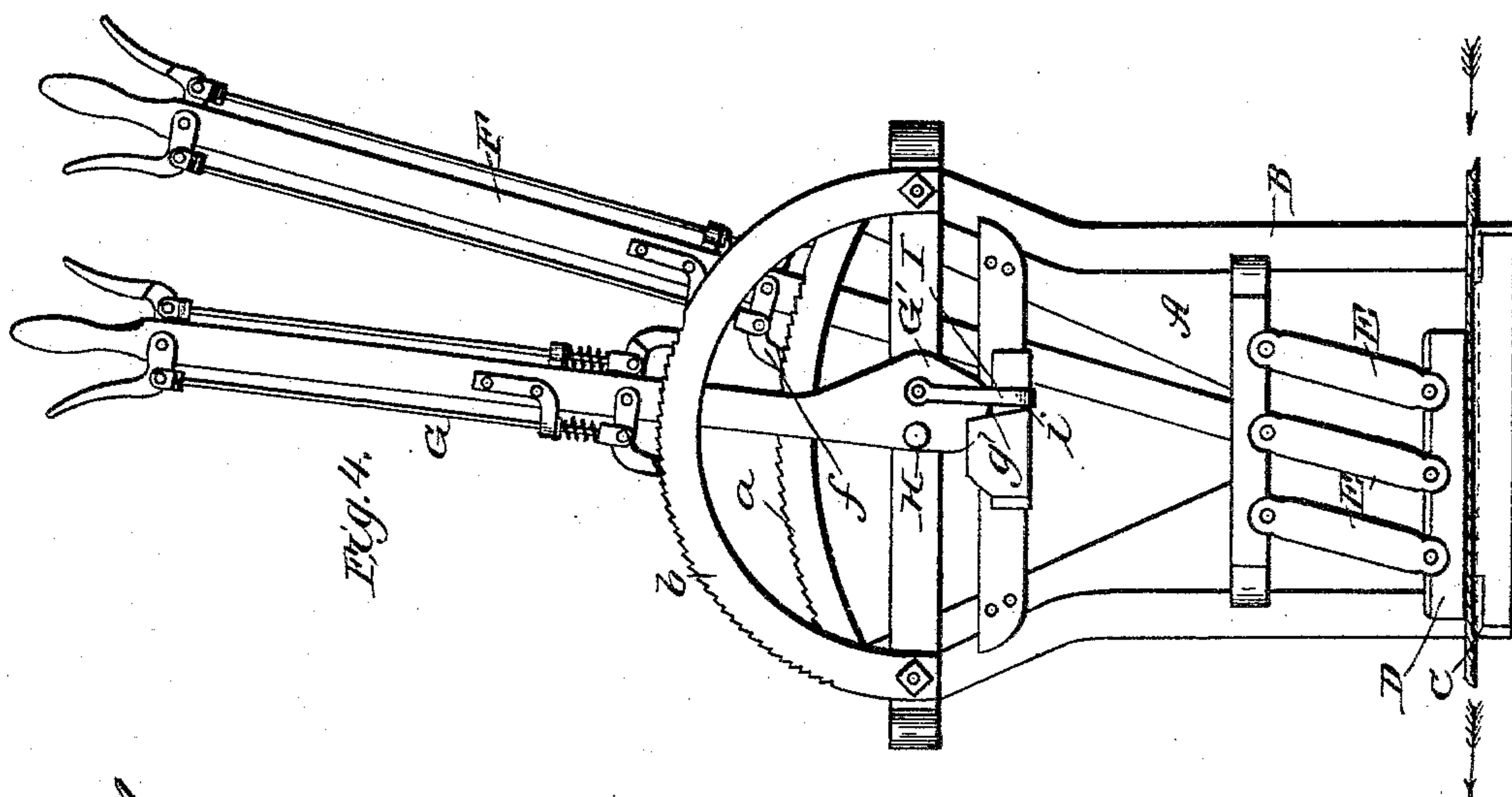
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WITNESSES:

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(No Model.)

3 Sheets—Sheet 3.

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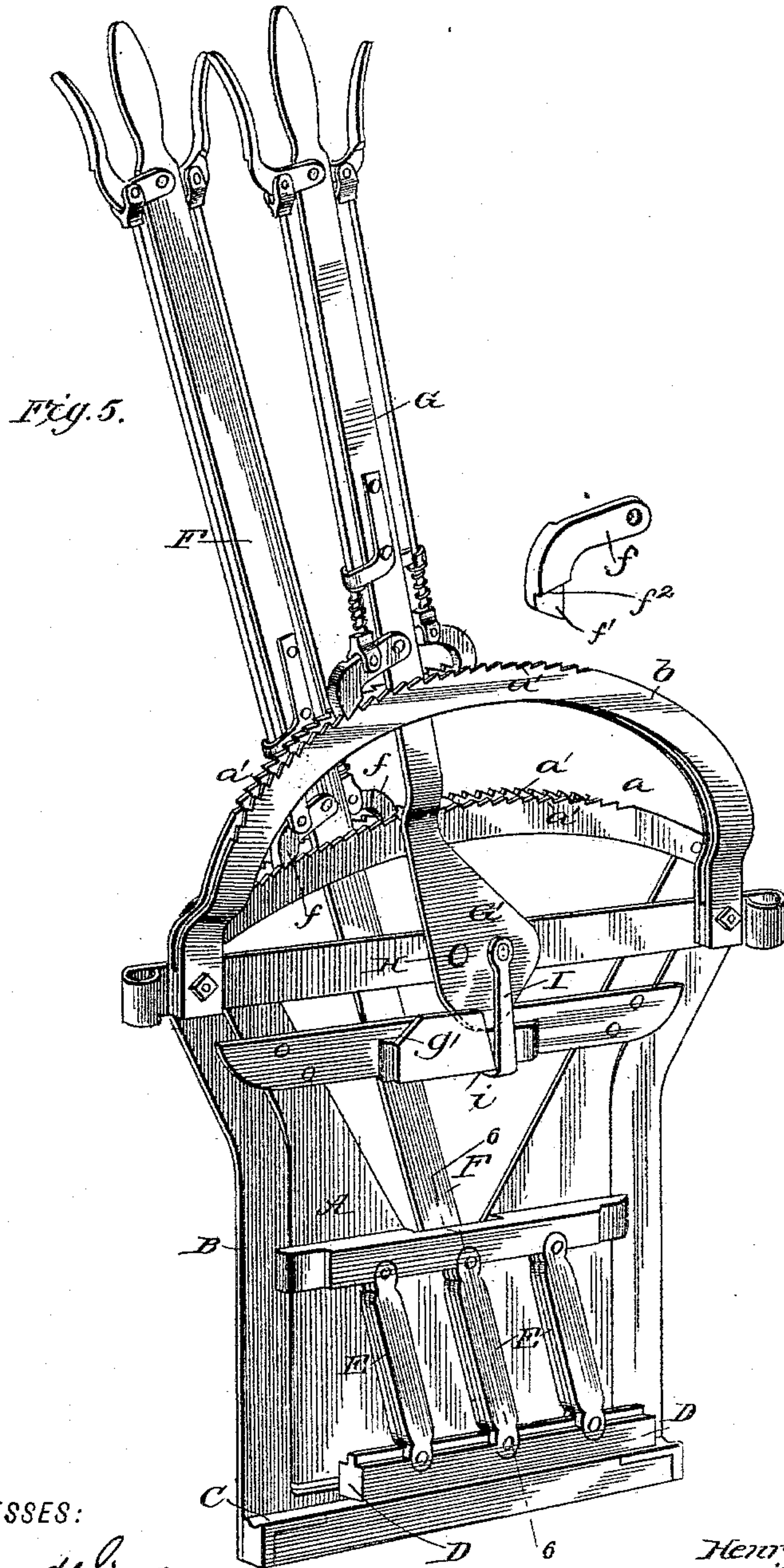
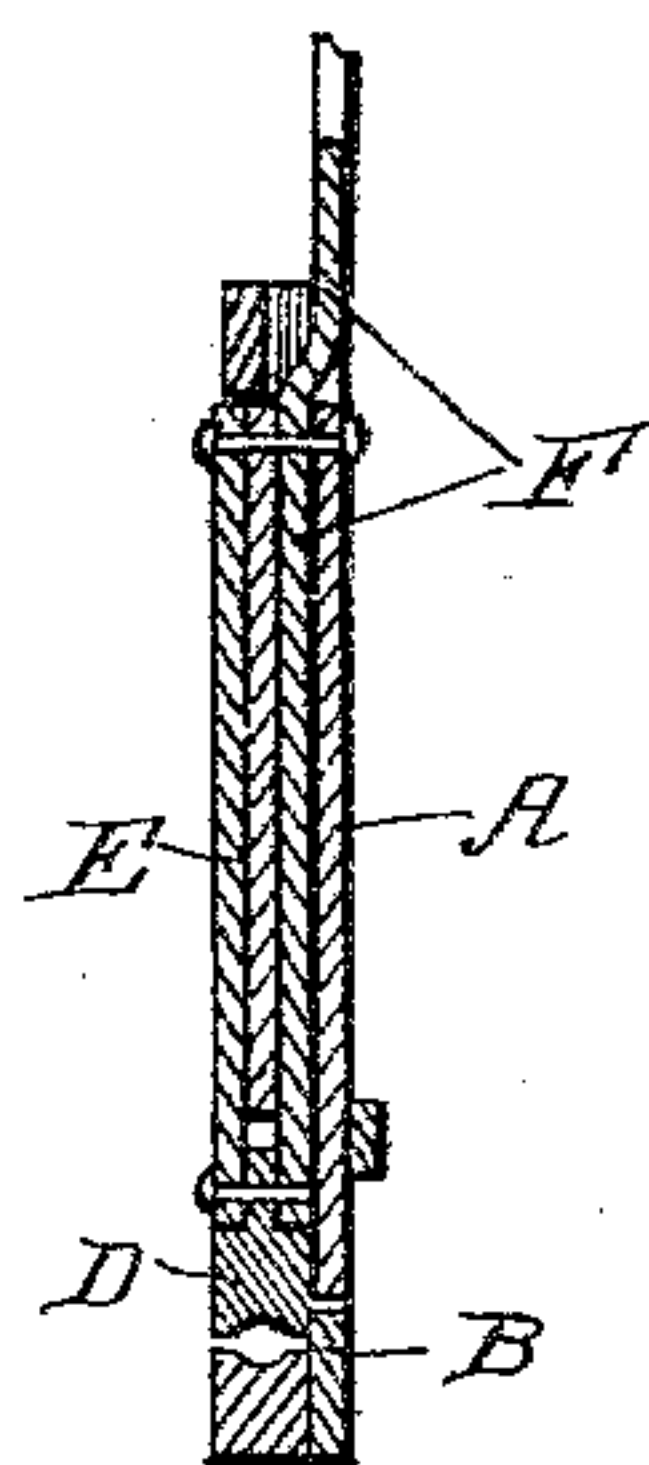


Fig. 6.



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UNITED STATES PATENT OFFICE.

HENRY M. WREDE, OF SAN FRANCISCO, CALIFORNIA.

CABLE-GRIPPER.

SPECIFICATION forming part of Letters Patent No. 411,630, dated September 24, 1889.

Application filed June 21, 1889. Serial No. 315,127. (No model.)

To all whom it may concern:

Be it known that I, HENRY M. WREDE, of San Francisco, in the county of San Francisco and State of California, have invented a new and useful Improvement in Cable-Grips, of which the following is a specification.

My invention is an improvement in cable-grips, and has for an object to provide certain novel constructions and combinations of parts whereby to save the wear and tear of the cable by being self-tightening, thereby lessening the labor of the gripman, and also to so construct the grip as to permit a ready letting go of the cable when the jaws are caught by a strand of the cable.

The invention has for further objects certain other improvements; and it consists in the novel constructions and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the drawings, Figure 1 is a side view of the grip with the parts in position as when clear of the cable and ready for adjustment to connect therewith in ascending a grade or on a level. Fig. 2 is a side view of the grip with the parts in position as when gripping the cable in running on a level or upgrade. Fig. 3 is a side view of the grip with the parts in position as when clear of the cable and ready for adjustment to connect therewith in descending a grade. Fig. 4 is a side view of the grip with the parts in position as when gripping the cable in running on a downgrade. Fig. 5 is a perspective view of the grip, and Fig. 6 is a section on about line 6 6 of Fig. 5.

The grip-frame A is supported to slide vertically in the main frame B, and both said frames are provided at their upper ends with curved toothed racks *a* and *b*. The said curved racks are each formed of two side sections *a'*, the teeth of which face in opposite directions, as shown. The main frame B supports the lower upwardly-facing jaw C, while the grip-frame A supports the upper jaw D, which is arranged above the jaw C and is movable toward and from the same, such upper jaw being movable with the grip-frame, and also having a movement independent of such grip-frame. To secure this independent

movement of the upper jaw D, I support the same pivotally on the lower ends of swinging arms or links E, which latter are pivoted at their upper ends to the grip-frame, so that as the said arms or links E are moved the upper jaw will swing down to or up from the lower jaw by reason of its swinging motion being vertical and also in the direction of its length, as will be understood from the drawings.

The main lever F is connected with the upper jaw to operate the same, such main lever being preferably so connected by pivoting it at its lower end to the upper jaw and also to the grip-frame in line with the upper pivots of the arms E, as shown in Fig. 6. This main lever F moves along the rack *a* and between the side sections or plates of such rack, and is provided with pawls *f f*, which engage the teeth of the sections of the rack *a*. These pawls are operated by hand-levers and connecting-rods, the hand-levers being extended adjacent to the hand portion of the main lever. Now, when both said pawls are locked with the toothed bars or sections the lever F is locked against movement in either direction, while if one of such pawls is lifted the lever may move in one direction, but is locked against the opposite movement, while if both pawls be lifted the lever may be freely moved in either direction. A peculiarity about these pawls is that they have stems or portions *f'*, fitting between the sections *a'*, and lateral or side portions *f''*, which engage the teeth of the racks. It will be seen that the main lever and its rack move up and down with the grip-frame, being supported by and connected with the same.

By the described construction it will be seen that the upper jaw may be raised or lowered and may be set with the arms or links inclined to the front or rear, as will be understood from Figs. 2 and 4, and for the purposes more fully described hereinafter.

Now, to raise and lower the grip-frame I provide a separate or what may be called the "grip-frame lever" G, which is pivoted at H to the main frame. This lever moves along the rack *b* between the sections thereof, and has pawls similar to pawls *f*, before described,

and which pawls serve, in connection with the rack *b*, to secure the lever *G* in any suitable position. At its lower end the lever *G* has a cam *G'*, which engages a bearing *g'* on the grip-frame and operates to depress such grip-frame when the lever *G* is properly operated.

To enable the lifting of the grip-frame by the lever, I connect with the latter eccentrically to its pivot a link *I*, which depends from said lever and has a portion engaging under a shoulder or bearing *i* on the grip-frame. Such cam and link form the connection between the grip-frame and its operating-lever, and, while the said construction is preferred, I wish it understood that I do not desire to be limited in the broad features of my invention to the said construction.

By the described construction it will be seen that I provide, in connection with the main frame and the grip-frame supported therein and having a gripping-jaw movable independently of such grip-frame, a lever supported on the main frame and arranged to move the grip-frame and a lever supported on the grip-frame and arranged to move the upper movable jaw, together with suitable detents by which to lock said main lever and grip-frame lever in any suitable adjustment.

In operation, to grip the cable on a level or in ascending a grade, we will suppose that both levers are in the farthest position from the gripman, such position being shown in Fig. 1. The grip-frame lever should be drawn toward the gripman to force the grip-frame down just enough to let the cable pass between the jaws without friction. The main lever should then be pulled back until the upper jaw comes in contact with the cable, when the cable, coming in frictional contact with such upper jaw, operates to tighten the same on the cable, and the latter is effectively gripped.

In preparing to descend a grade the grip-frame should be raised and the main lever reversed—that is to say, moved back to its rear-most position—when the parts will be in the position shown in Fig. 3. The grip-frame should then be lowered and the main lever pushed forward, when the jaws will grip the cable, as shown in Fig. 4, and the weight of the car will tend to tighten the grip on the cable. It should be understood that in the said operation in descending the grade the car by its momentum is supposed to run ahead of the cable. In case the grip should catch on a strand of the cable it is only necessary to push the grip-frame lever from you to raise such grip-frame and move the main lever toward or from you, according as the car is descending a grade or being towed on a level or ascent, when the strand will be released.

It is well-known that the catching of cable-strands and the difficulty in releasing the grip therefrom is a source of great trouble in some cable roads, and that to effect such release of the grip it is sometimes necessary to

stop the engines, which renders necessary the use of a telephone-line or other signaling device in connection with the cable road.

By so constructing my grip that the cable can be easily released when a strand is caught I avoid all of said difficulty and inconvenience, as well as the necessity of using a telephone or other signaling medium along the route of the cable.

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

1. A cable-grip, substantially as described, comprising the main frame, the grip-frame supported and movable in said main frame, the upper jaw supported on and movable with and independently of said grip-frame, the main lever supported on the grip-frame and connected with and arranged to operate the upper jaw, and the grip-frame lever supported on the main frame and connected with the grip-frame, whereby to operate the same, all substantially as set forth.

2. In a cable-grip, the combination, with the main frame, of the grip-frame supported and movable in said main frame, the upper jaw supported on and movable with and independently of the grip-frame, and the main lever supported on the grip-frame and connected with and arranged to operate the upper jaw, whereby said jaw may be adjusted or moved independently of the grip-frame, substantially as set forth.

3. The combination, in a cable-grip, with the grip-frame movably supported, of the upper jaw, arms or links connecting said upper jaw with the grip-frame, and the main lever pivoted to the grip-frame and arranged to move or operate the said upper jaw, whereby the said jaw may be moved independently of the movements of the grip-frame, substantially as set forth.

4. In a cable-grip, substantially as described, the combination of the grip-frame, the upper jaw, and the links or arms pivoted at their upper ends to the grip-frame and at their lower ends to the said jaw and movable or swinging in advance and rear of a line dropped from their upper pivots, all substantially as described, whereby the said jaw may be swung to move vertically and in the direction of its length, whereby the grip will be self-tightening, substantially as set forth.

5. In a cable-grip, substantially as described, the combination of a curved rack formed of two side sections, such sections having teeth and the teeth of one section facing in opposite direction to those of the other section, the lever extended between said sections, and the pawls supported on said lever and arranged to engage the sections of the rack, such pawls having a portion fitting between the sections and a lateral portion to engage the same, substantially as set forth.

6. The improved cable-grip, substantially as described, consisting of the main frame having a curved rack and provided with the

fixed jaw, the grip-frame movable within said main frame and having a curved rack, the movable or upper jaw supported by said grip-frame and carried by swinging links or arms, 5 and the main and grip-frame levers provided with pawls, substantially as set forth.

7. In a cable-grip, the combination of the main frame, the grip-frame movable in the main frame and having a shoulder or bearing 10 i, the grip-frame lever pivoted to the main frame having a cam by which to engage and depress the grip-frame, and the link I, connected with the said lever and having a portion engaging under the shoulder or bearing i, substantially as set forth.

HENRY M. WREDE.

Witnesses:

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CLAUS J. WREDE.