(No Model.) 3 Sheets—Sheet 1.

L. FREDERIC.

HOISTING APPARATUS.

No. 548,979. Patented Oct. 29, 1895.

Fig. 1.

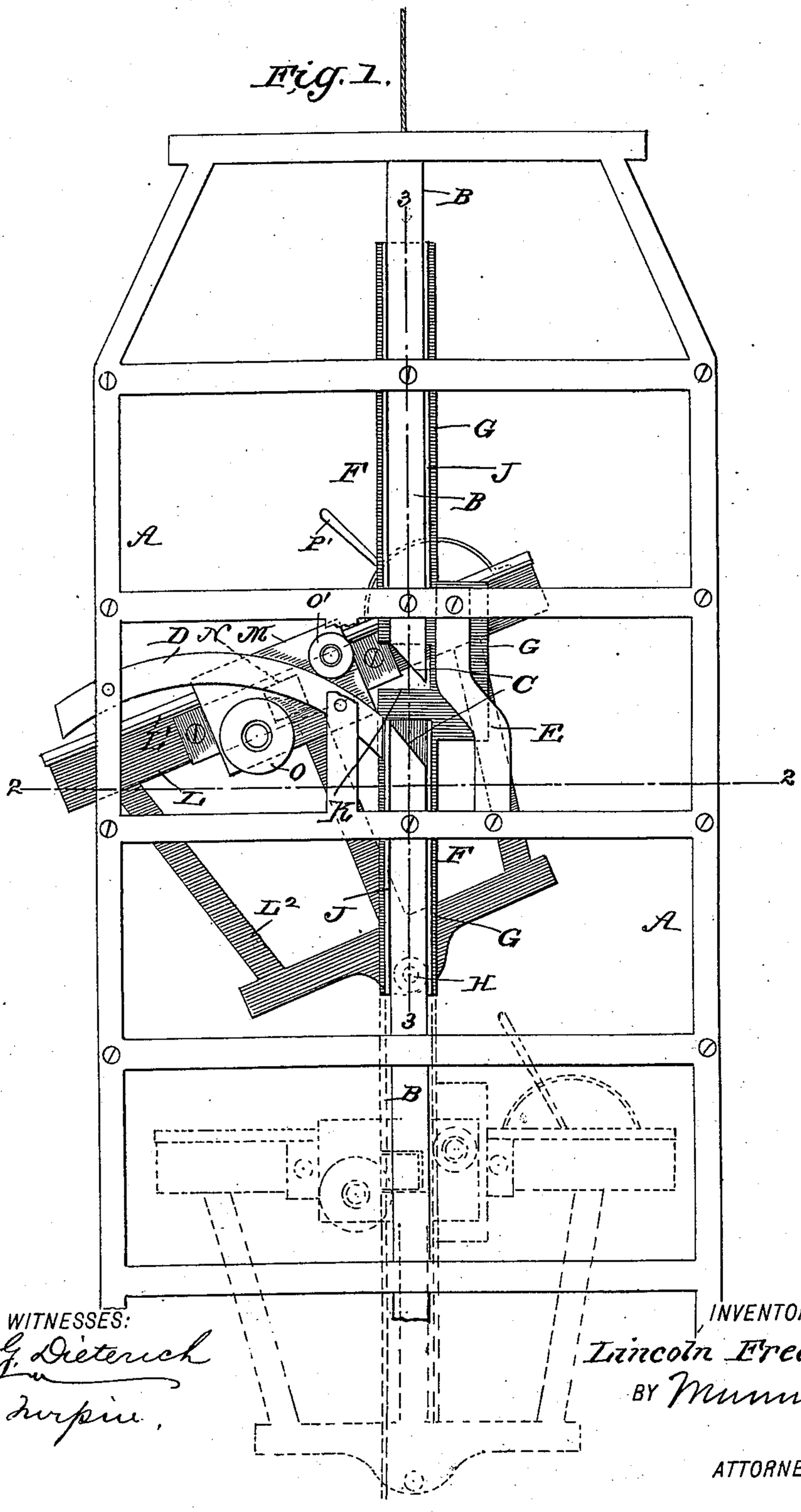

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Fig. 2.

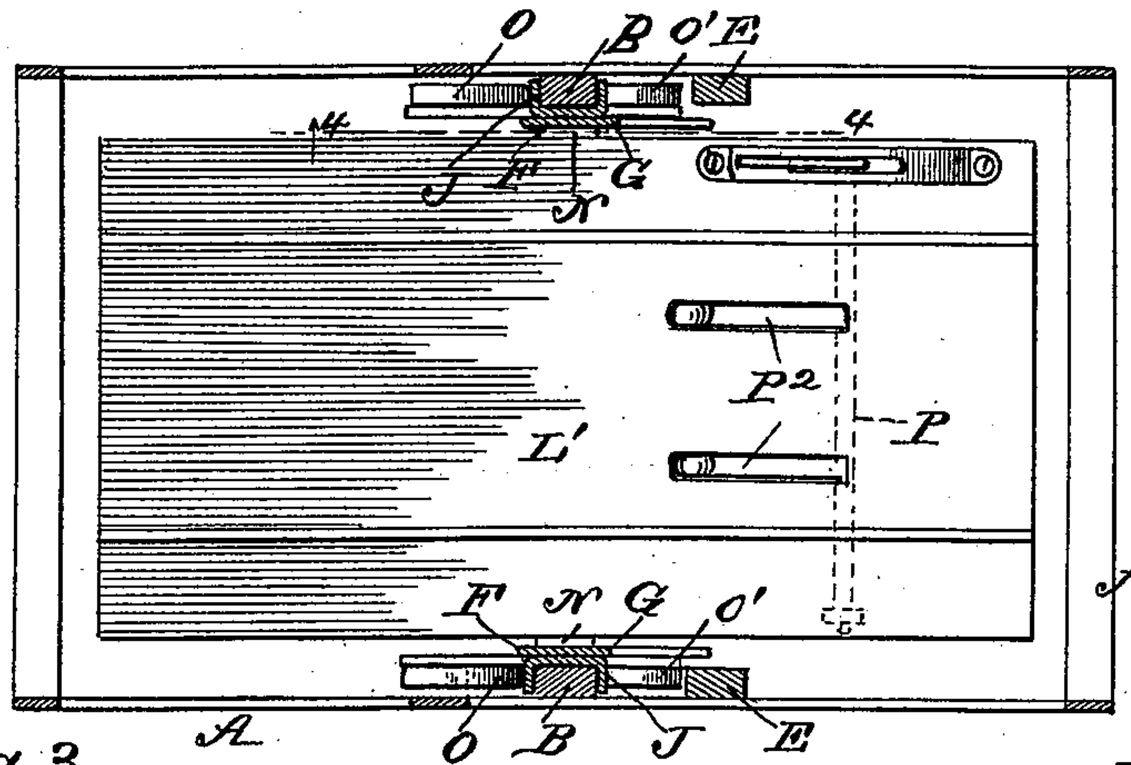

Fig. 7.

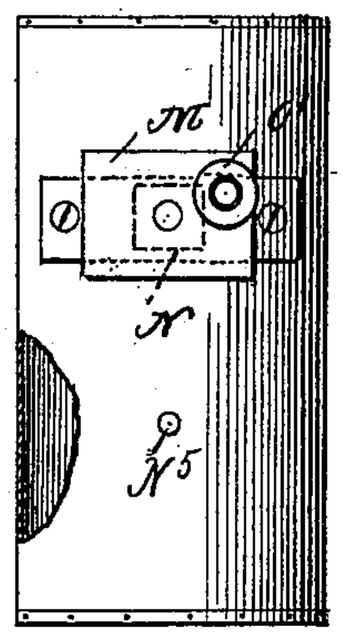

Fig. 3.

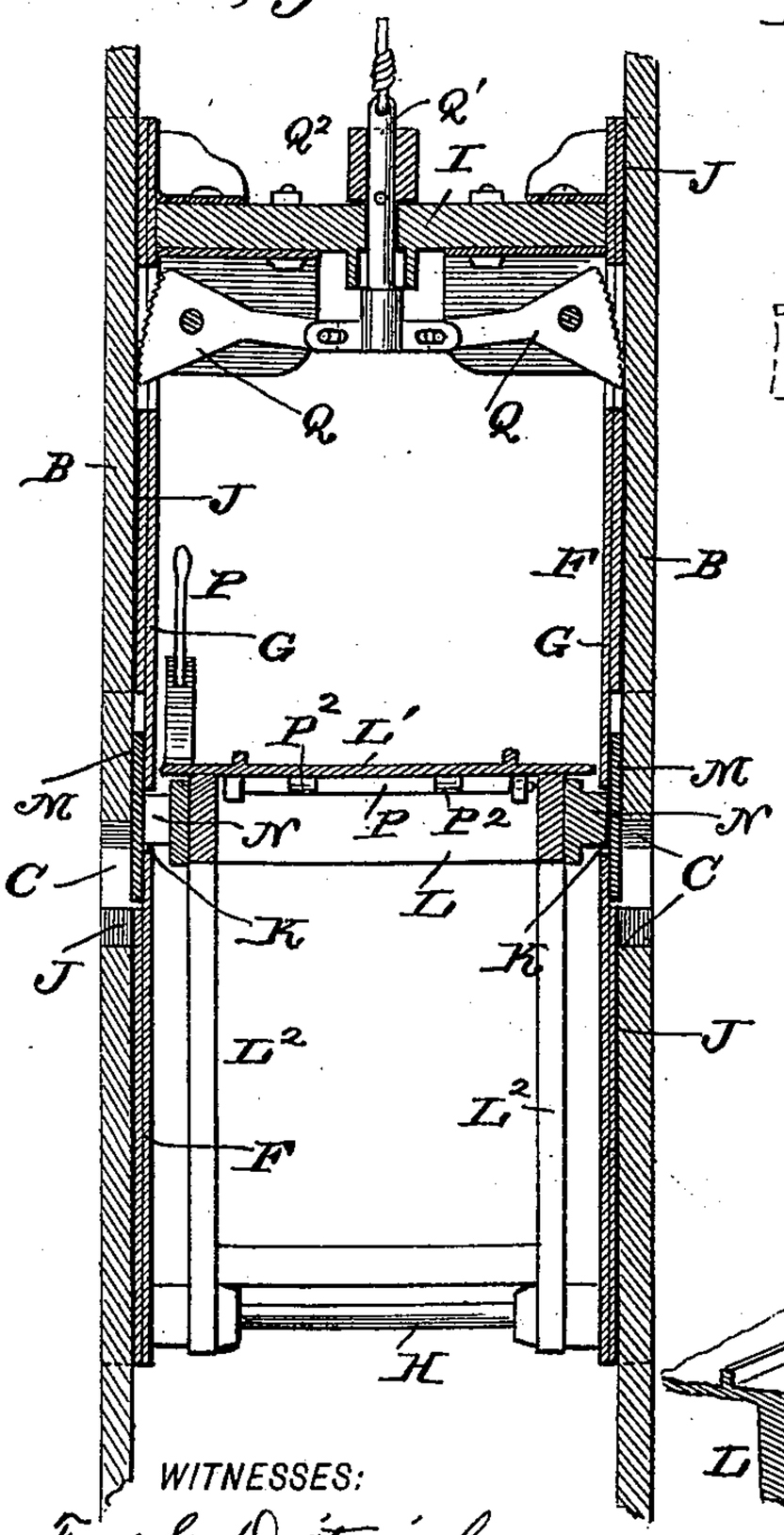

Fig. 4.

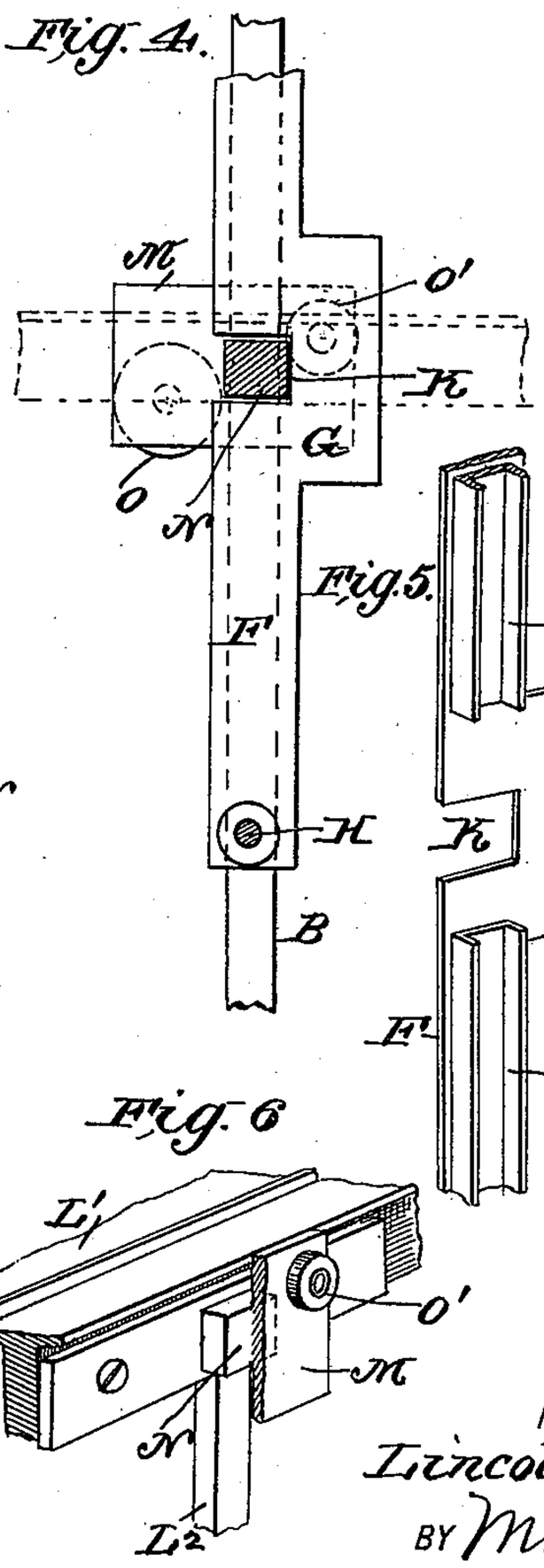

Fig. 5.

Fig. 6

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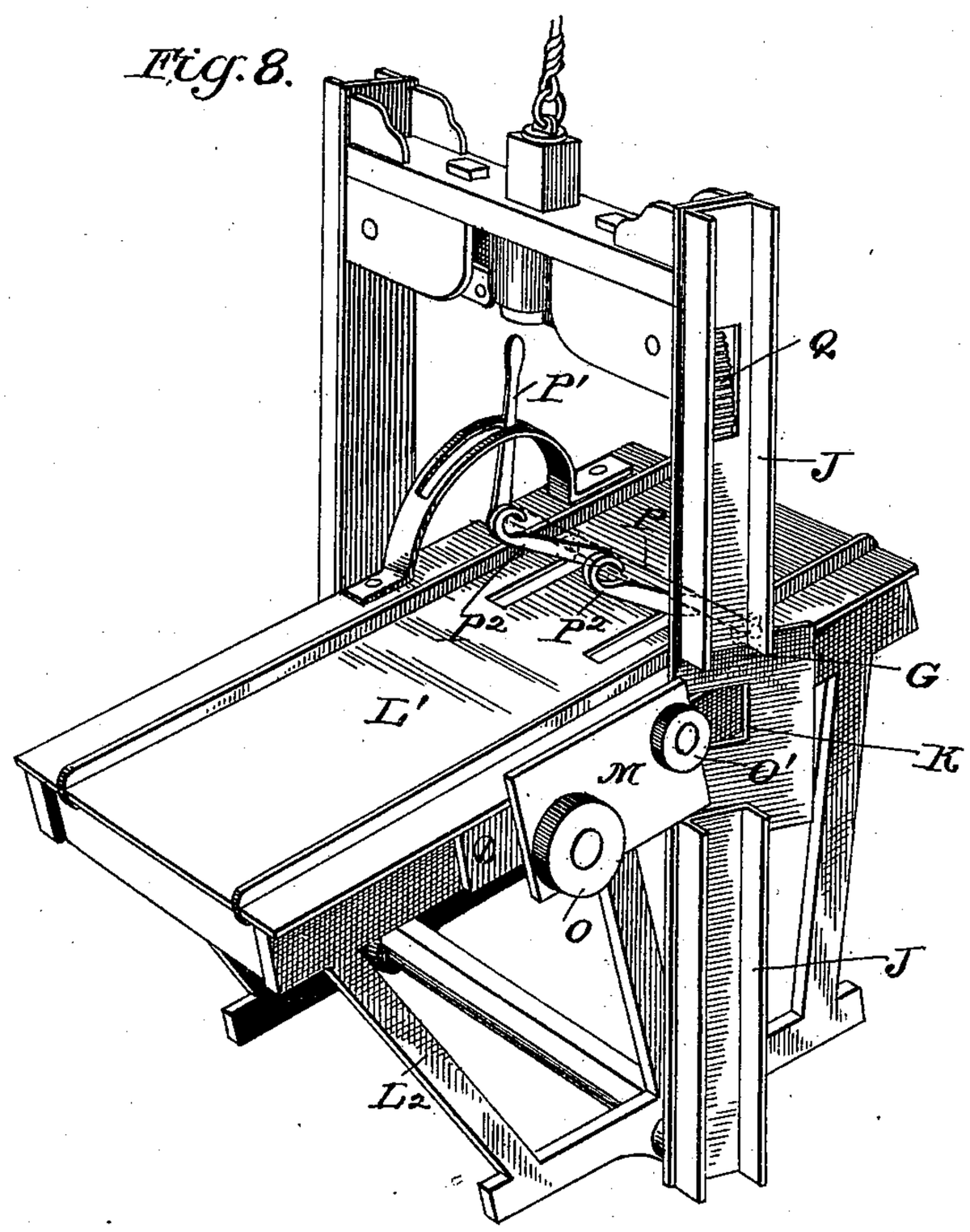
L. FREDERIC.

HOISTING APPARATUS.

No. 548,979. Patented Oct. 29, 1895.

Fig. 8.



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UNITED STATES PATENT OFFICE.

LINCOLN FREDERIC, OF SHAMOKIN, PENNSYLVANIA.

HOISTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 548,979, dated October 29, 1895.

Application filed January 5, 1895. Serial No. 533,914. (No model.)

To all whom it may concern:

Be it known that I, LINCOLN FREDERIC, of Shamokin, in the county of Northumberland and State of Pennsylvania, have invented a new and useful Improvement in Hoisting Apparatus, of which the following is a specification.

My invention is an improvement in hoisting apparatus, and particularly in the construction of guides upon the car and frame, whereby the dumping operation is accomplished in an easy manner and the return of the car proper to and its stoppage in normal hoisting position are insured.

The invention consists in certain novel constructions, combinations, and arrangements of parts, as will be hereinafter described, and pointed out in the claims.

In the drawings, Figure 1 is a side elevation of my improvement. Fig. 2 is a horizontal section on about line 2 2, Fig 1 the car proper being shown in Fig. 2 in normal position instead of tilted, as in Fig. 1. Fig. 3 is a vertical section on about line 3 3 of Fig. 1. Fig. 4 is a detail section on about line 4 4 of Fig. 2. Fig. 5 is a detail perspective view of one of the side plates of the carrier-frame. Fig. 6 is a detail perspective view. Fig. 7 shows the bucket-car; and Fig. 8 is a detail perspective view of the car, showing the car proper tilted at an angle in the carrier-frame.

The main frame A may in general respects be of any suitable construction to furnish a proper support for the vertical guide-bars B, which are interrupted or broken away at C for the passage of the rear roller of the car presently described. The slots or openings C are inclined or curved upwardly from rear to front, so the rear roller of the car may pass freely through them in both the lifting and lowering movements of the car. The main frame also has a curved deflecting-rail D, extending forward from immediately below the slot C and effecting the tilting of the car in the operation presently described. I also provide the main frame with a rear deflecting-rail E, which is preferred at all times, because it relieves the front guide-rail of part of the strain at the starting of the dumping movement; but this rear guide-rail is only necessary in the use of the bucket-car shown in Fig. 7, and in which form of car only the rear guide-roller is used, as shown in said Fig. 7. The car may be said to comprise the vertically-movable carrier-frame and the car proper pivoted to said frame and tilting therein, as shown in Fig. 8.

The carrier-frame F is provided with the side plate G, operating close to the inner side of the vertical guide-bars B, the bottom cross bar or rod H, and the top cross-bar I. The side plates G are provided near their upper and lower ends with guide portions J J, engaging the vertical bars, and such plates G also have between said portions recesses K in their front edges, said recesses being formed in line with the upper and lower guides J J, and they operate to limit the movement of the car proper in the adjustment thereof to normal position, and also serve as a supplemental or safety support for the car proper, all of which will be more fully described.

The car proper L has a platform L′ and a lower portion L^2 below the same, and pivoted near its lower end to the carrier-frame, preferably upon the lower cross-rod, as shown; and near its upper end the car proper has the side plates M, connected to the car proper by lugs N, which lugs move into and out of the recesses K, the plates M fitting between the side plates G and the vertical guide-bars of the main frame and tending to brace the car proper and carrier-frame rigidly together when in normal hoisting position. It will also be seen that the construction is such that in hoisting and lowering the pivotal connection of the car proper, with its carrier-frame, is relieved or supplemented by the fitting of the lug in the recess, and if such pivot should become broken or weakened it will be reinforced by the lug in the recesses of the frame-plate. Moreover, the relations of the lugs, recesses, deflecting-rails, and the rollers are such that the lug remains in the recesses and reinforces the pivot when the car proper is in normal position and the deflecting-rails supplement or reinforce such pivot when the car proper is being dumped and returned, so that the pivot is at no time entirely relied on as a support for the car proper, but only as a hinge or fulcrum in the dumping thereof. On these side plates are supported the front and rear rollers O O′, arranged on the outer face of the side

plates, and arranged the rear roller O′ slightly above the front roller O, and such roller O′ is about in line with the lug between the side plates and the car proper, so that as such roller O′ passes through the opening in the vertical guide-bars the lug will pass out of or into the recess in the side plates of the carrier-frame.

To the platform L′ is journaled a shaft P, having a lever or handle P′ and provided with one or more catch-bars P^2, adapted to engage the axle of a vehicle rolled onto the platform L′ and so retain said vehicle when the car proper is tilted. These catches fit down in slots or recesses in the car-platform, and by supporting the catch-bars and hand-lever both on the same shaft a simple, easily-operated mechanism is provided, which may be readily shifted into position for use or out of the way, as may be desired.

In Fig. 7 I show a water-lifting car which may be easily substituted for the car proper shown in Figs. 1, 2, and 3 when it is desired to hoist water from drowned wells, such as have filled with water, or elsewhere, and consists of a boiler-iron bucket having pivot-trunnions and side plates and a single roller at each side, and manifestly this construction may be substituted for the car proper shown in Fig. 1, and by it water may be quickly hoisted and dumped.

The car shown in Fig. 7 may be readily applied to the carrier-frame shown in Figs. 1 and 8 by applying it to trunnions N^5 in place of the lower cross-rod H of the tilting car proper shown in said Figs. 1 and 8.

To the carrier-frame are pivoted the safety-catches Q, arranged at their outer ends to move into and out of engagement with the guide-rails and having their inner ends connected to a slide-rod Q′, to which the hoisting-chain is attached, and such rod Q′ supports a weight Q^2, so that in case the hoisting devices break the weight will operate to throw the safety-clutches into engagement with the guide-rails, as shown in Fig. 3, and stop the descent of the car, thus avoiding accidental damage to machinery and life.

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

1. In a hoisting apparatus the combination with the guide rails having a cross passage of the carrier frame having side plates provided in their front edges with recesses, the car proper pivoted to said frame below such recesses in the side plates and having lugs or portions movable into and out of such recesses substantially as set forth.

2. In a hoisting apparatus, the combination, with the guide rails and the carrier frame having side plates provided with upper and lower portions engaging the guide rails, and having between said portions recesses in their edges, of the car proper pivoted to the carrier frame, and provided above said pivot with side plates fitting in normal position along the outer sides of the carrier frame side plates and lugs connecting said side plates with the car proper and movable into and out of the recesses in the side plates of the carrier frame substantially as set forth.

3. The combination of the guide rails having openings or passages formed through them, deflecting rails adjacent at one end to the upper ends of the lower sections of the guide rails the carrier frame having side plates provided with upper and lower guide portions and between the same with recesses, the car proper pivoted to the carrier frame and provided above said pivot with lugs movable into and out of the recesses of the carrier frame, and plates on the outer ends of said lugs and fitting outside the side plates of the carrier frame and rollers supported on said plates and movable through the openings or passages in the guide rails substantially as set forth.

4. In a hoisting apparatus, the combination with the pivoted tilting car proper of the carrier frame having upper and lower guide portions and a plate intermediate the same provided in line with said guide portions with recesses or seats and lugs on the car proper movable into and out of said recesses or seats substantially as set forth.

5. The combination of the guide bars having breaks or openings, the carrier frame having side plates provided with upper and lower portions engaging the guide bars and with intermediate portions having recesses or seats, the car proper pivoted to the carrier frame and provided above the pivots with lugs entering the recesses or seats in the side plates and plates supported on the said lugs and moving outside the side plates and supporting the rollers which move through the breaks or openings in the guide bars, all substantially as and for the purposes set forth.

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