

(No Model.)

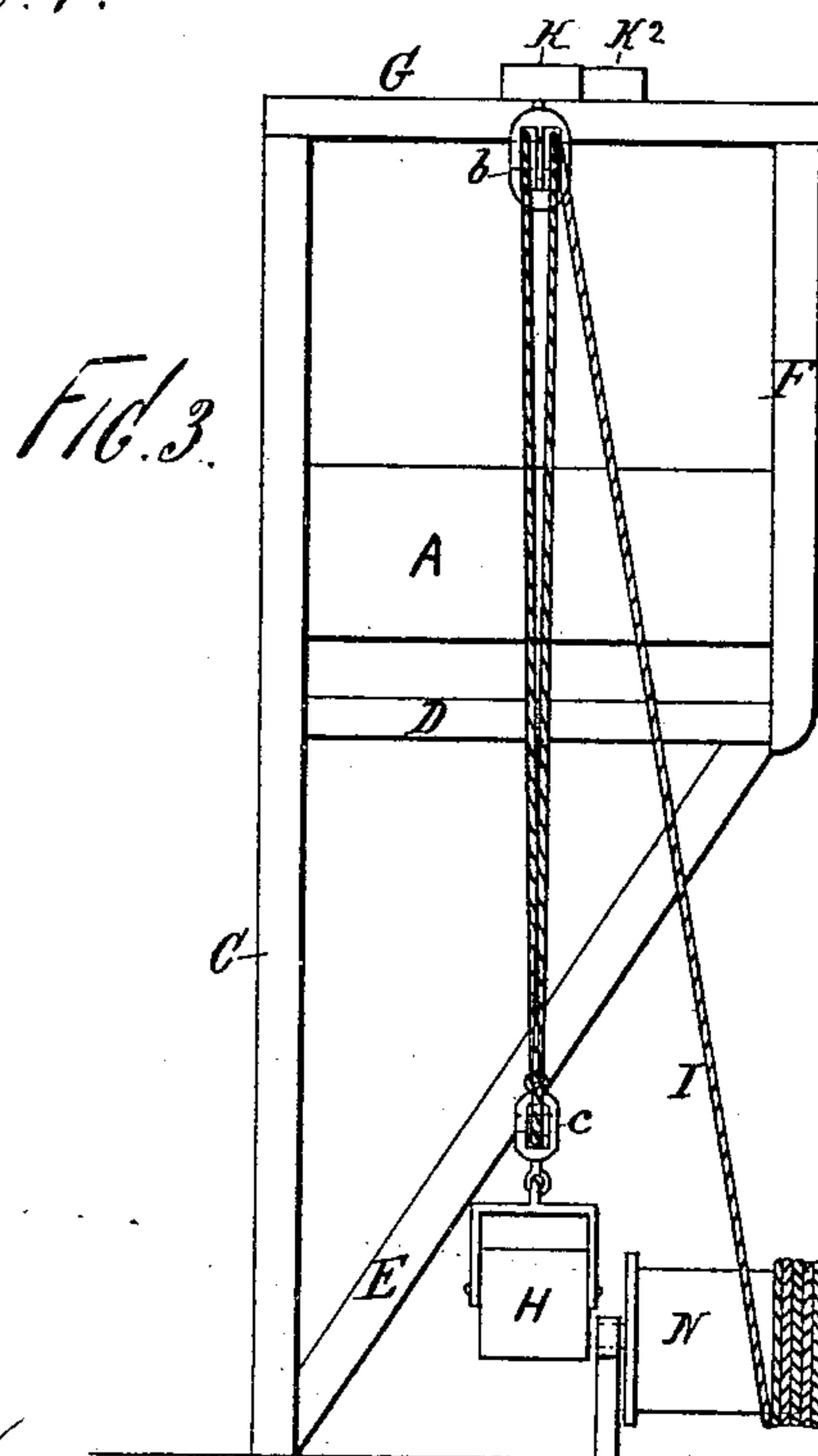
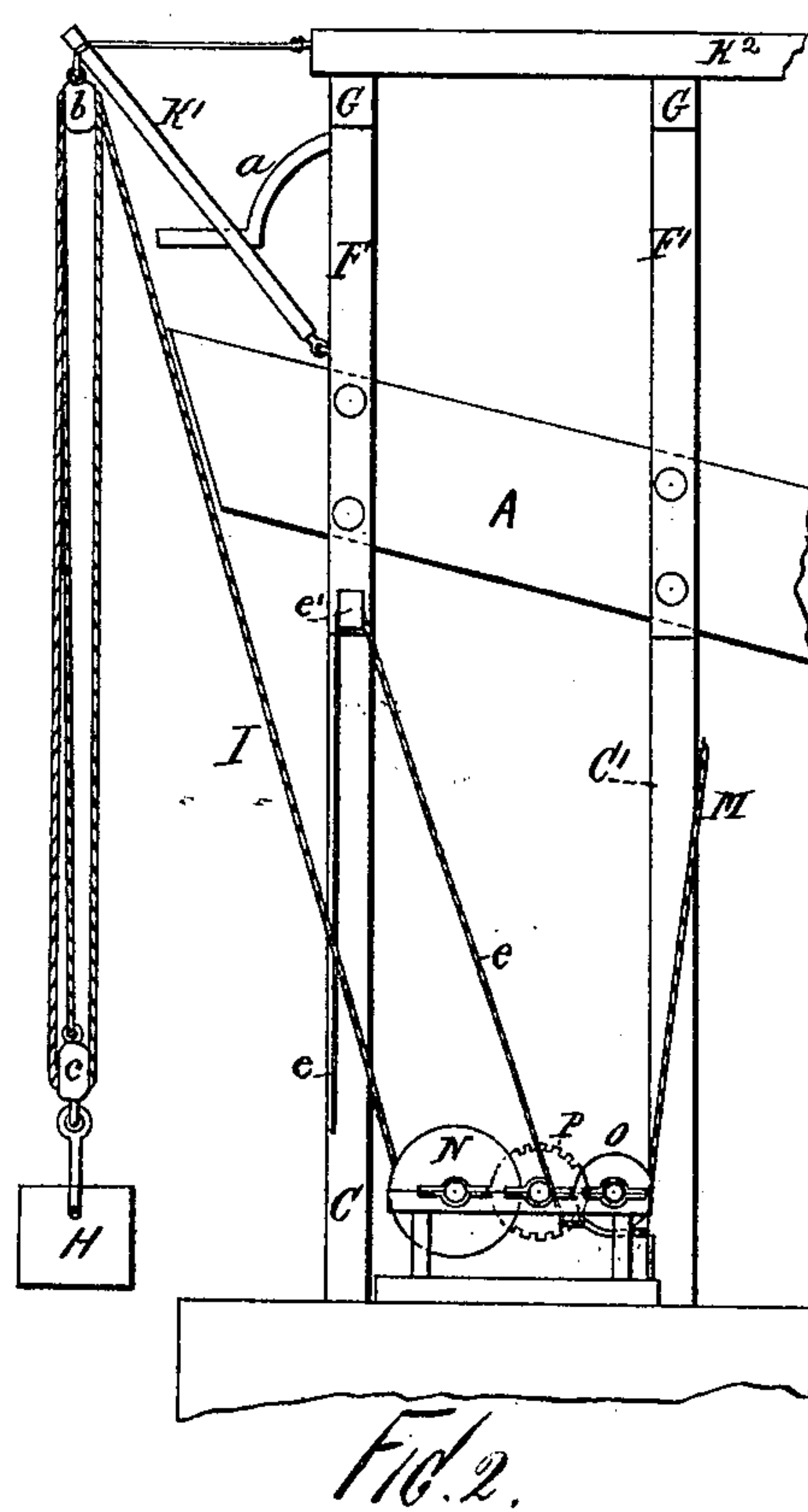
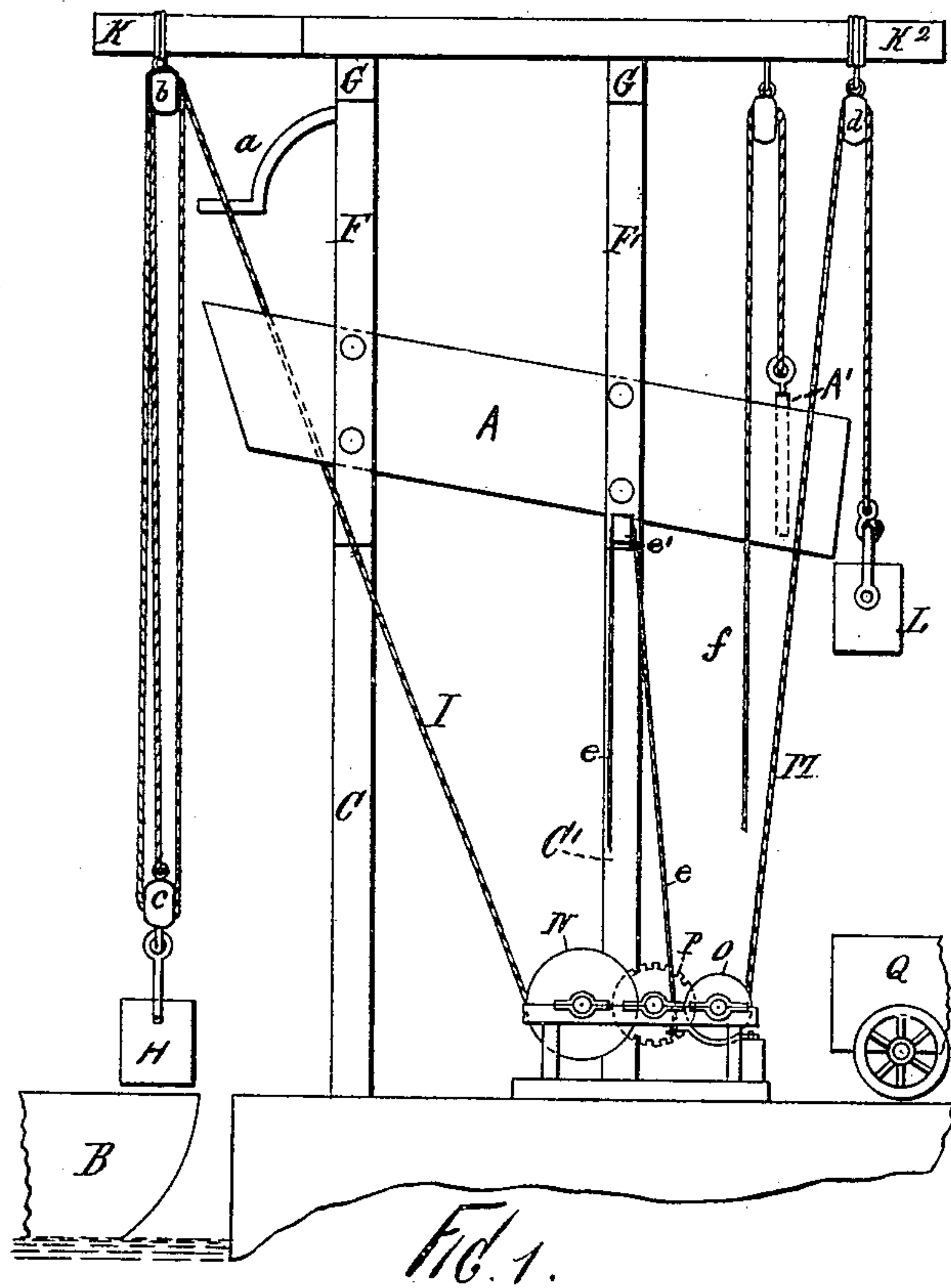
2 Sheets—Sheet 1.

E. GASSER.

## HOISTING APPARATUS.

No. 273,835.

Patented Mar. 13, 1883.



Witnesses-  
John Buckler, -  
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Edward Gussess.  
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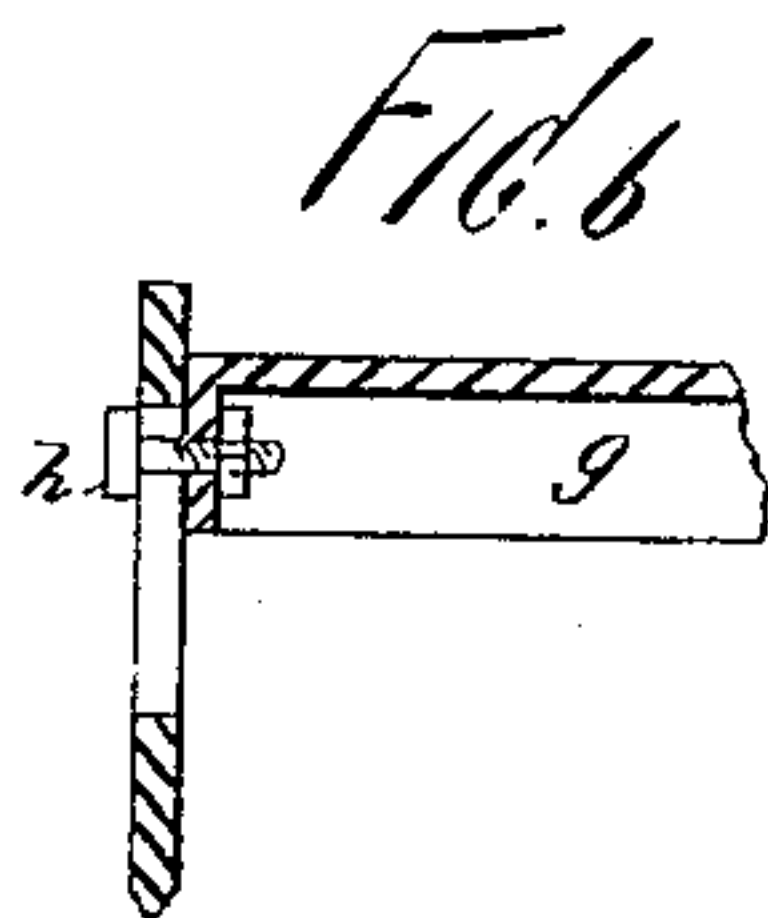
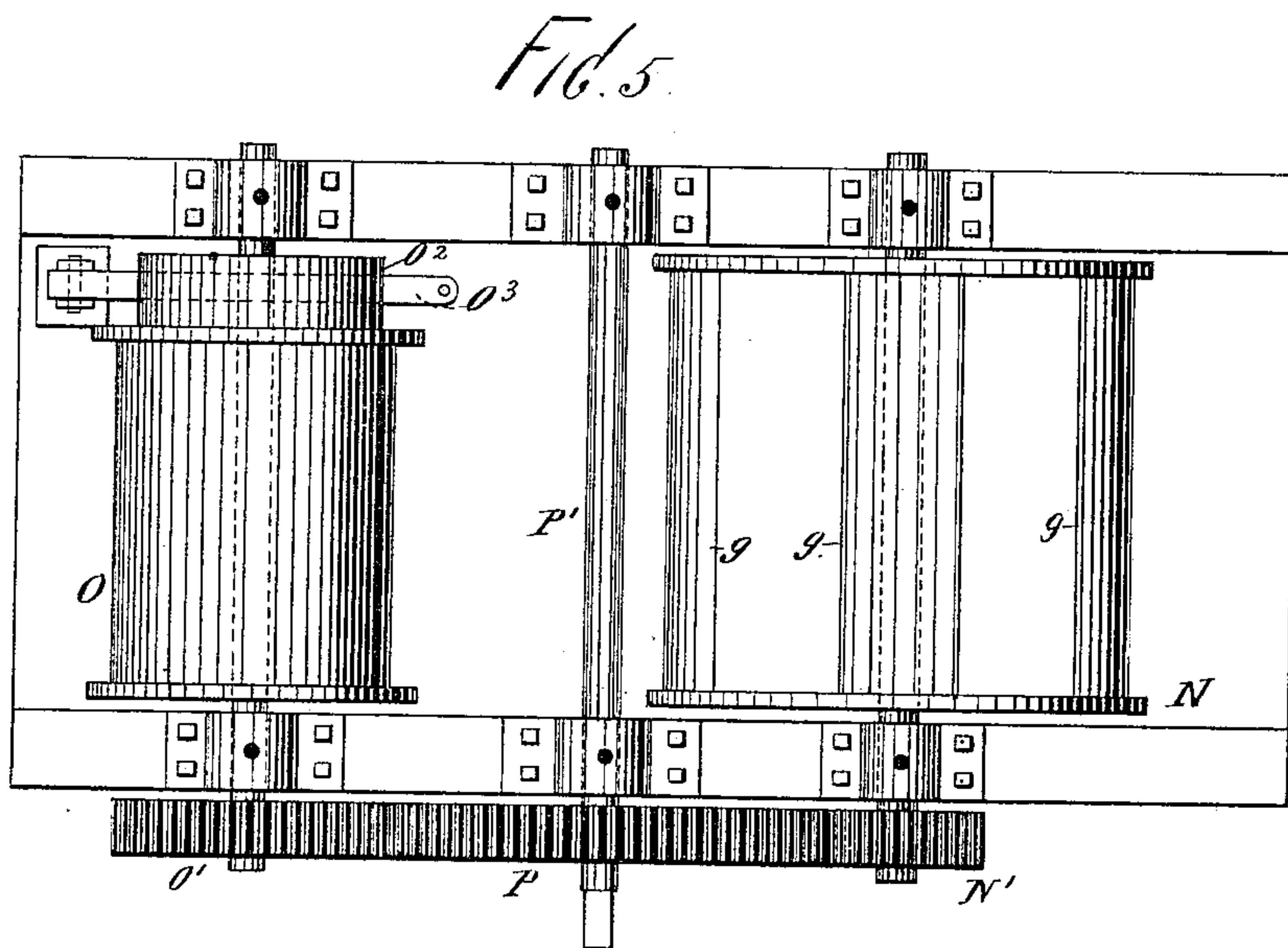
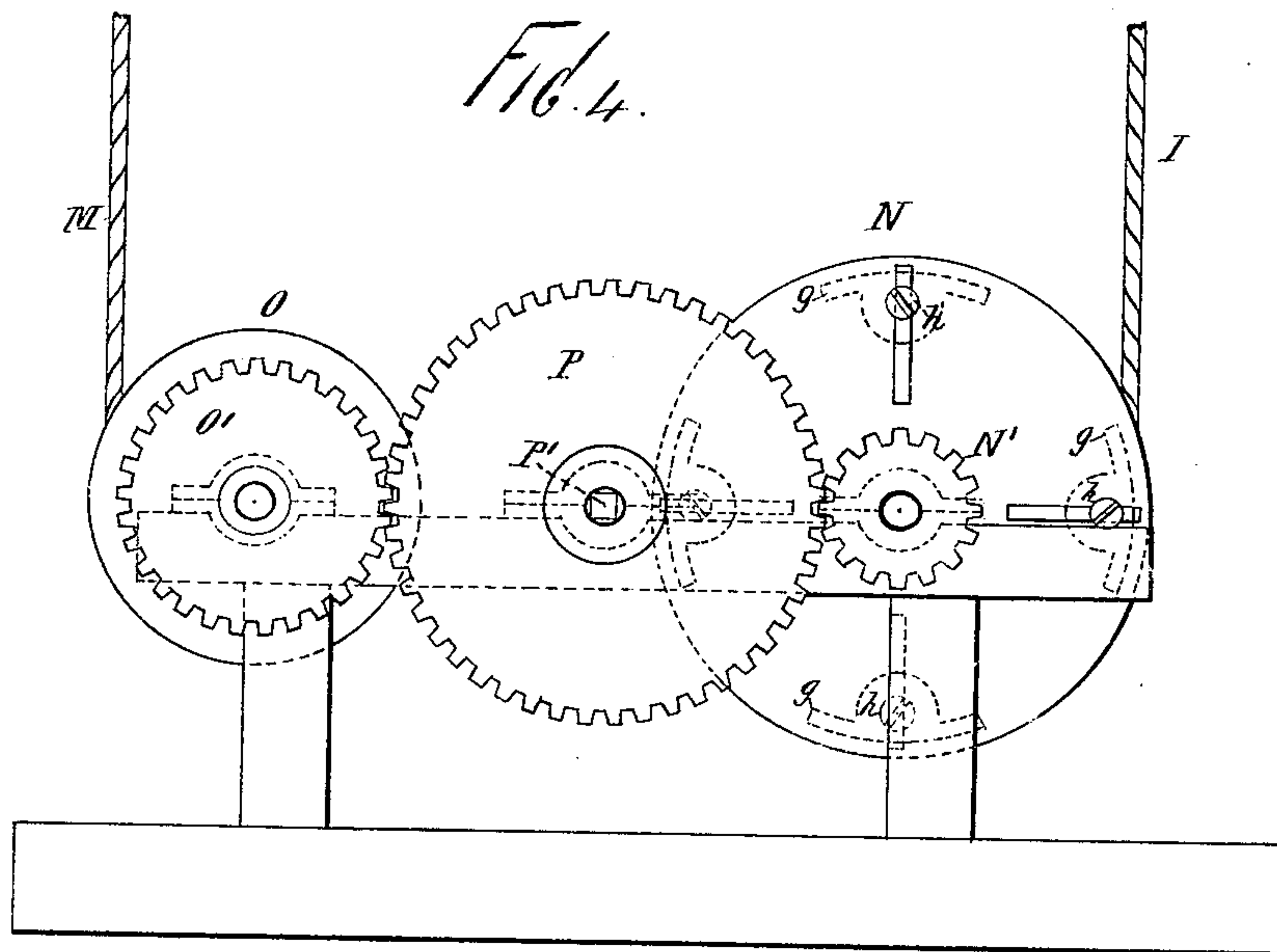
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HOISTING APPARATUS.

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# UNITED STATES PATENT OFFICE.

EDWARD GASSER, OF WEST TROY, NEW YORK.

## HOISTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 273,835, dated March 13, 1883.

Application filed August 16, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD GASSER, of West Troy, county of Albany, and State of New York, have invented certain new and useful Improvements in Hoisting Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention has relation to apparatus or means for hoisting and delivering materials, and is especially applicable to the handling of coal, though it might be employed in connection with other analogous materials intended to be delivered from a lower to a higher point, as in discharging boats, coal-dumps, store-houses, &c.

The object of my invention is to provide a simple, cheap, durable, and easily-operating device by which I may utilize the weight of the descending load in elevating the material to a height from which it may be readily delivered, and at the same time make the apparatus convenient and easy to be operated without the aid of horse or steam power, as is now ordinarily necessary. To accomplish all of this my improvements involve certain novel and useful peculiarities of construction and relative arrangements or combinations of parts, all of which will be herein first fully described, and then pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a side elevation of an apparatus constructed and arranged for operation in accordance with my improvements. Fig. 2 is a similar view of a part of the apparatus, showing a hinged boom for sustaining the pulley of the hoisting-line, instead of the stationary beam indicated in Fig. 1. Fig. 3 is an end elevation of the apparatus shown in Fig. 1. Fig. 4 is a side elevation, and Fig. 5 a plan or top view, of the system of gearing employed, the same being enlarged beyond the scale of the previous figures, and being shown detached from the uprights which support the chute and its adjuncts. Fig. 6 is a section of a fragment of the larger drum, indicating the means employed for regulating the size of barrel thereof.

In all these figures like letters of reference,

wherever they occur, indicate corresponding parts.

A is an inclined chute or hopper for the reception of the material to be delivered—as, for instance, from a boat, B, or from any other place or vessel to be unloaded. The chute is sustained, according to the circumstances of the case, at a greater or less elevation from the ground-line, upon any suitable frame-work or support. The support represented in the drawings is well adapted for the purpose, and is composed essentially of two uprights, C C', firmly planted in the ground or otherwise anchored, horizontal cross-pieces, as at D, upon which the bottom of the chute rests, inclined braces, as at E, short uprights F F', and top cross-pieces, G G, all suitably secured in place. This frame-work might be otherwise constructed; but the arrangement indicated is simple and affords plenty of room to locate and operate the improvements, as will be readily apparent. The bottom of the chute A is inclined so that the material dumped into it will slide by its own weight from the receiving to the discharging end.

H is the bucket by which the material is to be elevated. This is to be loaded in the usual way, and elevated by means of the rope, chain, or cable I at the proper elevation to be automatically dumped into the chute A. To facilitate this dumping, the bucket H is provided with a hinged bail, in the usual manner, and a stop, a, is arranged to trip the bucket at the proper time. The pulley-block b has two sheaves, and the block c but one, making what is termed a "double fall" for operating the hoisting-bucket. The block b may be swung from a stationary beam, K; or, if it be desired to swing the bucket, as is sometimes necessary, then this pulley may be suspended from a hinged boom, K', as in Fig. 2.

L is the lowering-bucket, also provided with a hinged bail for convenience in discharging. The rope, chain, or cable M, by which the lowering-bucket L is operated, is sustained by a single pulley, d, swung from a stationary beam, K<sup>2</sup>. The beams K and K<sup>2</sup> serve also to steady the frame-work, being secured upon the cross-pieces G G.

The gearing or apparatus (which I term the



“engine”) located between and connecting the two lines I and M, and serving to transmit motion and power from one to the other, is composed of two drums, N and O, mounted upon a good solid frame-work or other foundation, substantially as indicated. Each of these drums carries a pinion, (represented, respectively, at N' and O',) and these mesh into an idle-wheel, P, the shaft of which, for stability and simplicity of construction, reaching across the frame-work or foundation for the drums, and, like the shafts of the drums, made to run in suitable boxes to reduce friction. The line M is attached to and intended to be wound upon and unwound from drum O, and, similarly, the line I is connected with drum N. The shaft P' of the idle-wheel P is squared at the end, or otherwise fitted for the reception of a crank, as plainly indicated. By turning this wheel it is plain that the two drums will be set in motion and both in the proper direction. The drum O has any suitable offset, as at O<sup>2</sup>, upon which to apply a friction-brake, O<sup>3</sup>, by which the motion of the apparatus may be controlled. To operate the friction-brake a hand-line, e, is sustained by a pulley-block, e', in position convenient to the hand of the operator. By simply pulling down upon the free end of this line the brake O<sup>3</sup> is brought to bear against the offset O<sup>2</sup>, and thus the requisite amount of friction applied. The chute is provided with an end-gate, as at A', controlled by a hand-rope, f, also within easy reach of the operator.

The device is operated substantially as follows: The chute must be charged with a sufficient quantity of the material to be elevated, as an initial supply. This may be loaded into the chute by operating the drums by hand, (through means of the crank applied to the axle of the idle-wheel above mentioned.) The operation may be assisted by applying the hands to either of the ropes I or M. The chute being thus charged, and the buckets in relative position, as indicated in Fig. 1, the bucket H is loaded, the end-gate raised, and the bucket L filled. The weight of the loaded bucket L will (when the apparatus is in proper order and adjustment) be sufficient to start the drums and through them to draw up the loaded bucket H. Thus, instead of discharging the material directly from the chute into the intended receptacle, (as a cart, represented at Q,) I employ the weight of the descending load to counterbalance and elevate the hoisting-bucket with its load. As soon as the bucket H is sufficiently high it is tripped and dumped by the stop a. The bucket L is then dumped, when, the brake being released, the empty bucket H, in descending for a second load, will elevate the bucket L to a position to receive its charge from the chute, and these operations are continued. The bucket H must travel a greater distance than L, and therefore its hoisting-drum N is geared with O in such a manner that it will revolve faster than

O, and the gearing and relative sizes of the drums are so proportioned that as the bucket L descends through the required distance the bucket H will also be raised to the proper height.

To provide for the necessary adjustments likely to be required under any ordinary circumstances of use, I make the barrel of drum N in separate leaves or sections *g g*, and these have flanges by which they are secured to the heads of the drum by suitable bolts, *h h*, passing through radial slots in the drum-heads.

By setting the leaves closer to or farther from the axis of the drum the barrel thereof is diminished or increased in size, as will be readily understood, and thus made to wind the line running thereon with less or greater rapidity, by which the relative distances traveled by the two buckets may be regulated.

The apparatus constructed and arranged substantially in accordance with the foregoing explanations will be found to admirably answer the purposes and objects of the invention as previously stated. It is not liable to get out of order, is always ready for immediate use, and requires but one man at the delivery-station to attend to it.

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

1. In a hoisting apparatus of the character herein set forth, the two drums mounted upon the frame, and having gears or pinions meshing into an intermediate idle-wheel, one of said drums carrying the line to which the hoisting-bucket is attached, and the other carrying the line to which the lowering-bucket is attached, the arrangement being substantially as described, so that the weight of the lowering-bucket and its load shall be utilized in raising the hoisting-bucket, for the purposes and objects explained.

2. In a hoisting apparatus of the character herein set forth, the two drums, one carrying the line of the hoisting-bucket and the other that of the lowering-bucket, both drums being provided with pinions meshing into an intermediate idle-wheel, the shaft of the latter being fitted for the reception of a crank by which the apparatus may be started or moved by hand as required, all combined and arranged substantially as and for the purposes set forth.

3. In a hoisting apparatus, the two drums for the hoisting and lowering lines, their attached pinions, the intermediate wheel, with which said pinions engage, and the friction-brake applied in connection with an offset upon one of the drums, and having a convenient hand-rope, substantially as shown and described.

4. In a hoisting apparatus of the character herein set forth, the two drums for the hoisting and lowering lines, each drum provided with a pinion which engages with the intermediate idle-wheel, the barrel of the larger



drum being made of adjustable sections or leaves, by which its size may be adjusted, substantially as shown and described.

5 In a hoisting apparatus of the character herein set forth, the combination of the hoisting-bucket swung from a double fall, the lowering-bucket swung from a single fall, the drums for the hoisting and lowering lines, and the connecting-pinions and intermediate wheel,

arranged substantially as shown and described, 10 and for the purposes set forth.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of two witnesses.

EDWARD GASSER.

Witnesses:

JOHN QUITTY,

ENOCH NORVELL.