

No. 706,305.

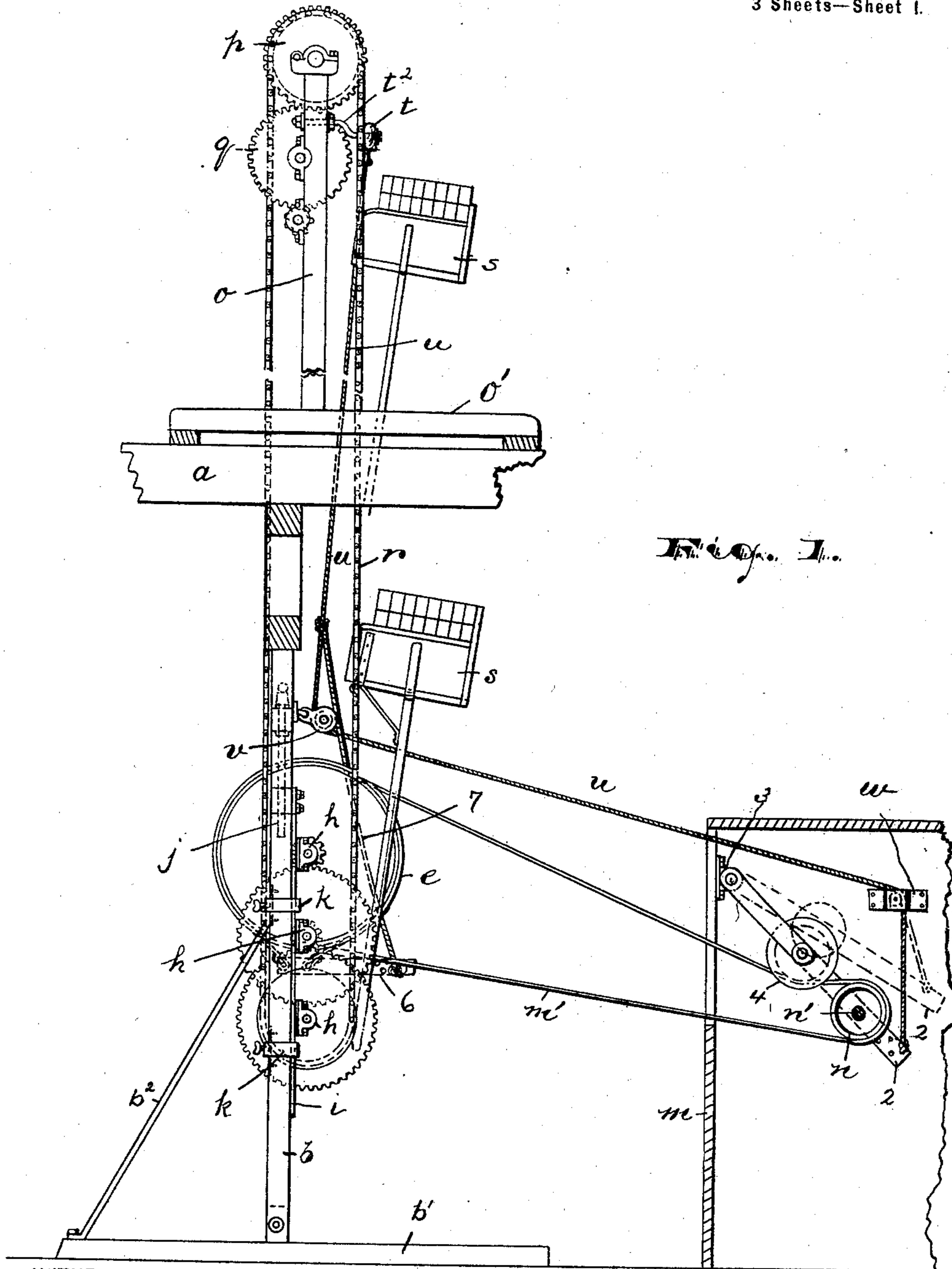
Patented Aug. 5, 1902.

F. C. DEY.
HOD ELEVATOR OR HOIST

(Application filed Sept. 14, 1901.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES:

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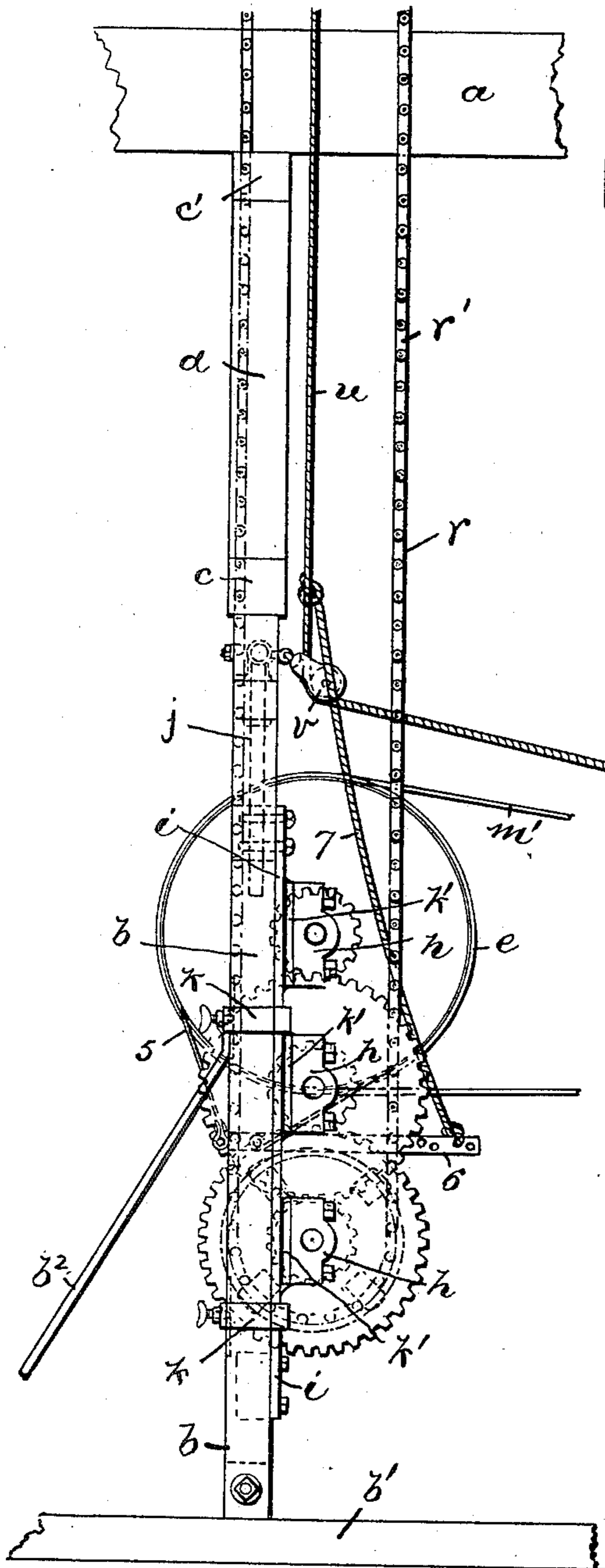


Fig. 2.

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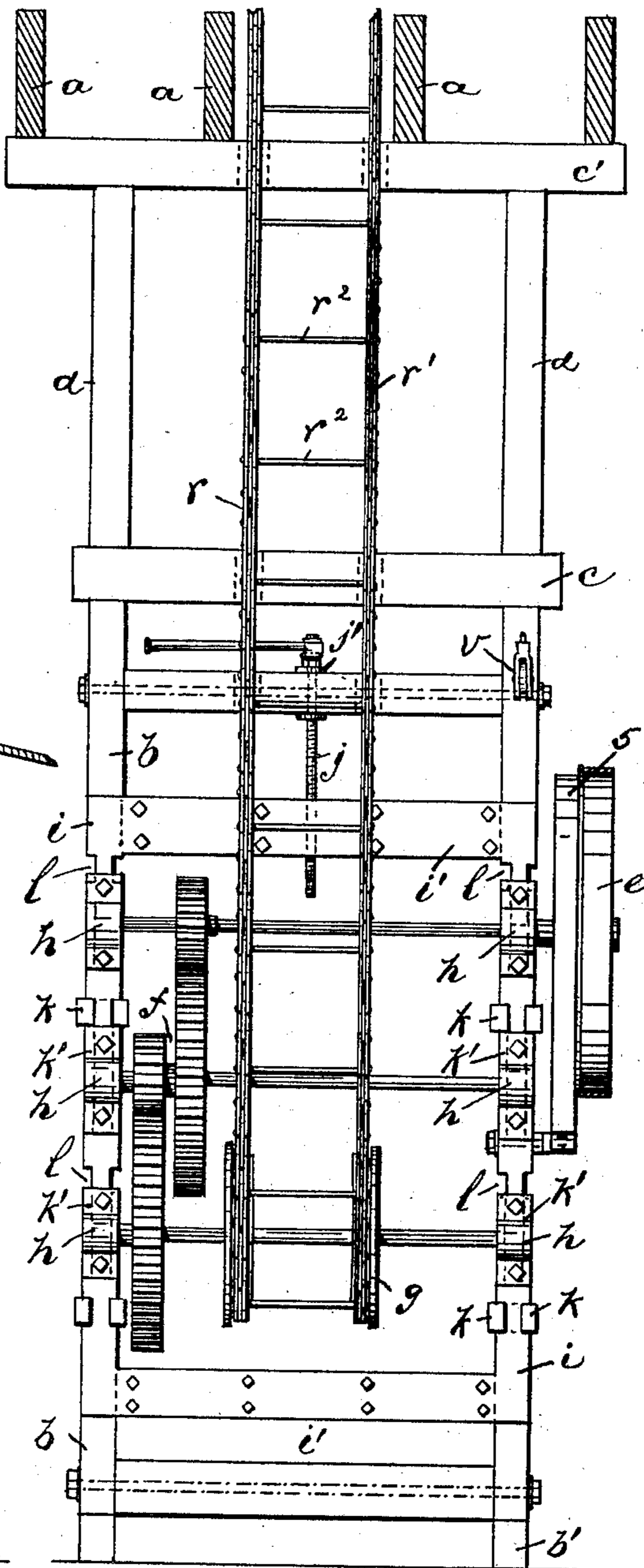


Fig. 3.

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Fig. 4.

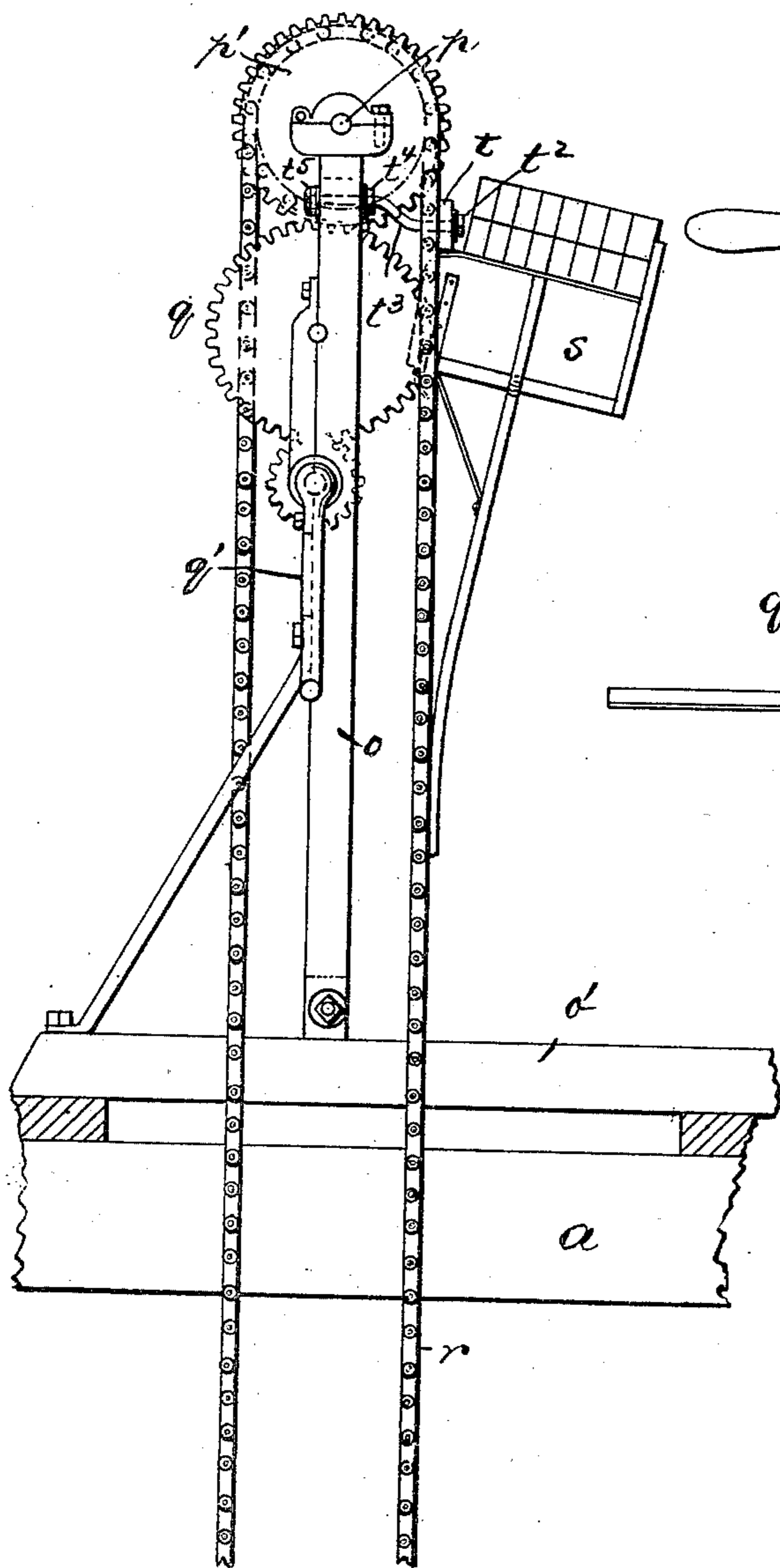
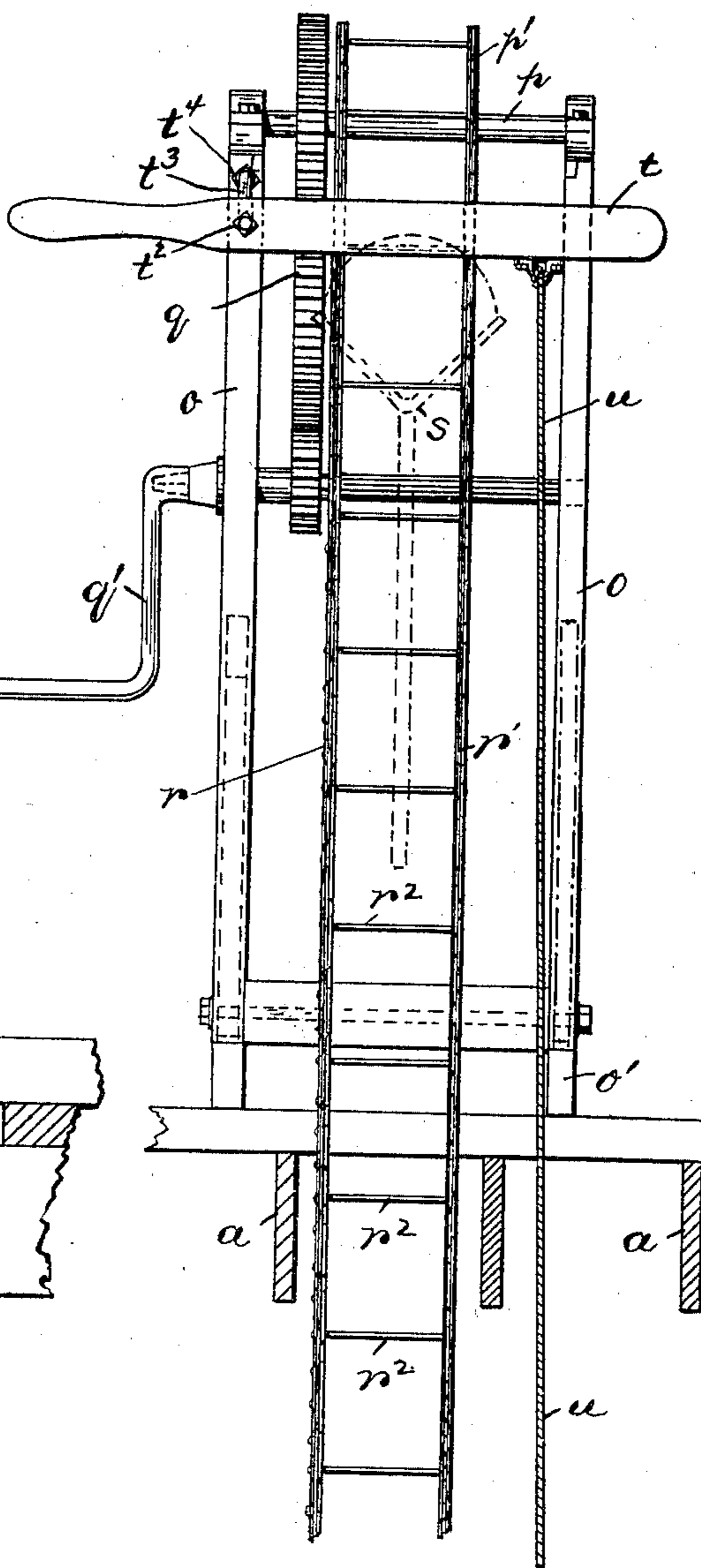


Fig. 5.



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UNITED STATES PATENT OFFICE.

FRANK C. DEY, OF NEWARK, NEW JERSEY.

HOD ELEVATOR OR HOIST.

SPECIFICATION forming part of Letters Patent No. 706,305, dated August 5, 1902.

Application filed September 14, 1901. Serial No. 75,429. (No model.)

To all whom it may concern:

Be it known that I, FRANK C. DEY, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Hod Elevators or Hoists; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to characters of reference marked thereon, which form a part of this specification.

The objects of this invention are to provide a hod hoist or elevator which can be operated by a continuously-running engine, and to thus dispense with an engineer; to obtain an arrangement whereby the hods on reaching the top will automatically stop the hoister or elevator proper without affecting the engine; to enable the elevator-chain to be adjusted to the proper tension, and to secure other advantages and results, some of which may be referred to hereinafter in connection with the description of the working parts.

The invention consists in the improved hod hoist or elevator herein described and in the arrangements and combinations of parts of the same, all substantially as will be hereinafter set forth, and finally embraced in the clauses of the claim.

Referring to the accompanying drawings, in which like characters of reference indicate corresponding parts in each of the several figures, Figure 1 is a side elevation of the improved device. Figs. 2 and 3 are side and front elevations, respectively, of the lower part of the elevator; and Figs. 4 and 5 are corresponding side and front elevations, respectively, of the upper part of the elevator.

In said drawings, *a a a* indicate the floor-joists of the second floor of the building in process of construction and on which I have shown the top frame of my hod-hoister located, although it will be understood that my device can be employed in connection with any number of floors or stories, as is common in the art. The bottom part of the hoister or elevator is located on the first floor, and comprises a rigid rectangular frame *b*, held up-

right by means of a suitable base *b'* and brackets *b²* to hold the said frame firmly in place. A stick of timber *c* is usually placed across the top of the frame *b* and upright pieces *d* wedged endwise between said stick *c* and a similar stick *c'* laid against the under side of the joists *a*. The said frame *b* affords bearings for the driving-pulley *e*, speed-reducing gearing *f*, and sprocket-wheel *g*; but the boxes *h* for the shafts of said parts are not bolted directly to the frame *b*, but to a sliding frame *i*, which can be vertically adjusted upon the stationary frame *b*. Said adjustable frame comprises side pieces formed of flat strips of metal lying against the side bars of the frame *b* and cross-pieces *i'*, extending between the said side pieces at the top and bottom of the adjustable frame. A screw *j*, working loosely in the upper part in the stationary frame *b*, as at *j'*, and having its threaded lower portion extending through a correspondingly-threaded seat in the upper cross-piece *i'* of the adjustable frame *i* enables said frame to be moved up and down with reference to the stationary frame *b*. The flat metal side pieces of the adjustable frame *i* slide through clasps *k*, projecting over their opposite edges from the stationary frame, and preferably the boxes *h* for the various shaft-bearings are held out from the adjustable frame to which they are bolted by means of narrower blocks *k'*, placed between so as to enable the said boxes *h* to pass the clasps *k*. Notches *l l* may be cut in the edges of the flat side pieces of the adjustable frame at suitable points to enable the said frame to be lifted out of the clasps *k*, and thus removed from the stationary frame *b* when necessary for transportation or the like.

The source of power best adapted for use with my device is some form of hydrocarbon-engine or electric motor; but any other may be employed equally well. Said engine is preferably inclosed in a box-like casing *m*, and the pulley *n* on the driving-shaft *n'* is connected with the pulley *e* on the bottom frame *b* by means of a belt *m'*, which is normally loose. The up-and-down movement of the adjustable frame *i* merely increases or diminishes the looseness of said belt without in any way disturbing the relation of the pulleys *e* and *n*.

It will be understood by those skilled in the art that this vertical adjustment of parts on the bottom frame of my device is to enable the conveyer-chain to be always kept under the proper tension which is essential for the proper working of the device, and the objects of the construction described are to enable such tension regulation to be made without disturbing the power connection to said parts.

The upper part of my device comprises a frame *o*, similar to the bottom frame *b* and held upright by a suitable base *o'*, standing upon the floor to which it is desired to hoist material. Said frame provides at its upper part bearings for a shaft *p*, bearing a sprocket-wheel *p'* for the conveyer-chain, and preferably the said shaft *p* is also connected by suitable gearing *q* with a crank *q'*, by means of which the apparatus can be operated by hand-power if necessary or desirable. The conveyer-belt *r* extends around the sprocket-wheels of the upper and lower frames, as is common, and is composed of the usual side chains *r'*, connected by cross-bars *r''* at suitable distances apart, and on which hods *s* may be hung in the ordinary manner.

As above stated, one object of my invention is to secure an automatic stopping of the hoister or elevator when a hod is raised to the proper point, and to this end I provide upon the top frame *o* a lever *t*, pivoted upon one of the side pieces of the frame and extending across said frame in the path of the hods. To the end of said lever at the opposite side of the conveyer-belt from which it is pivoted is attached a rope *u*, which extends downward in same general line with the conveyer-belt and is led through suitable idle pulleys *v* on the bottom frame *b* and *w* on the engine-casing *m* to a belt-tightening lever 2 within said engine-casing. The said lever 2 has its upper end fulcrumed on the casing *m*, as at 3, and intermediate of its two ends carries an idle wheel 4, adapted to press upon the belt *m'*, and tighten the same, so that the engine will transmit power to the elevator. The normal position of the lever *t* on the elevator permits the belt-tightening lever 2 to drop into engagement with the belt *m'*. When, however, a hod comes up on the conveyer-belt *r* and the workman is not there to remove the same before it reaches the lever *t*, said hod strikes said lever and raises the same. This produces a pull upon the rope *u*, which raises the belt-tightening lever 2, removes the wheel 4 from the belt *m'*, and stops the transmission of power to the elevator, so that the hod is carried no farther. In this way the engine can run continuously at a uniform speed, and the services of an engineer to tend said engine and start and stop the same are not needed; but the hods themselves automatically stop the elevator when they have been raised to the proper height. Under some conditions it might be possible that the two sides of the conveyer-belts would

not be properly balanced, so but that even when the power transmission was cut off the belt would continue to move by gravity. To provide against this emergency, I place upon a portion of the periphery of the pulley *e* on the bottom frame *b* a brake 5 of any common construction controlled by lever 6, and this lever I connect by a rope 7 with the rope *u*, running from the lever *t* on the top frame of the hoister. Said rope 7 is left a little more slack than the rope *u*, and thus the brake 5 does not come into play if the mere stopping of power transmission suffices to stop the conveyer-belt; but if not then the rope 7 is tightened and the brake 5 brought into play to positively stop the conveyer-belt *r*.

Preferably the lever *t*, to be engaged by the hods, is pivoted upon the end of a pin *t''*, projecting from the frame *o*, and said pin is bent or curved laterally between the said frame and lever, as at *t'''*. Thus by turning the pin in its seat in the frame a circular movement of its outer end is obtained which enables the fulcrumal point of the lever *t* to be adjusted in height. Nuts *t'''* on the pin *t''* are adapted to be screwed against the frame *o* to clamp the pin in any desired position.

It will be seen from the above description that by my construction I thus provide a hoist or elevator to which power can be applied at the bottom without interfering with the necessary adjustments to secure proper tension of the conveyer-belt and one, moreover, to which power can be continuously and uniformly applied and the elevator control its own movements automatically.

Having thus described the invention, what I claim as new is—

1. In a hod hoist or elevator, the combination of a rigid rectangular support or framework *b*, adapted to be stationed in upright position at the bottom of the hoist, means for holding said support in fixed position, a shorter rigid rectangular frame *i*, comprising a single integral casting arranged flatwise against one side of said support and adapted to slide vertically thereon, means connecting said frame to said support and preventing lateral shifting thereon or outward movement therefrom while permitting endwise adjustment, a single adjusting-screw passing loosely through the middle of the top piece of said support and working in a threaded socket in the corresponding end piece of the frame, transverse shafts journaled near their opposite ends upon the opposite upright lateral portions of said frame and lying approximately in the plane of the frame, and a conveyer-belt pulley, driving-pulley and connecting-gears mounted on said shafts.

2. In a hod hoist or elevator having upper and lower bearings, an endless conveyer-belt passing around said bearings, a continuously-operating source of power, means normally transmitting power from said source of power to the conveyer-belt, and controlling means adapted to be engaged by a load on the con-

veyer and disengage said transmitting means to stop the conveyer or belt without stopping the source of power.

3. In a hod - hoist, a conveyer - belt, a sprocket-wheel and driving-pulley at one end of said belt, a suitable source of power and a belt adapted to transmit motion to the driving-pulley, means normally tightening said belt, and a lever *t*, adapted to be engaged by a load on the conveyer-belt and being connected to said power-belt-tightening means.

4. In a hod-hoist having a conveyer-belt and sprocket-pulleys therefor, a loose power-belt connected to the bottom sprocket, a lever *t*, adapted to be engaged by a load on the conveyer-belt, a lever having a friction-pulley for tightening the power-belt and a connecting-rope extending from said lever *t*, to the belt-tightening lever.

5. In a hod-hoist having a lower sprocket-wheel and driving-pulley, an upper sprocket, and a conveyer-chain, a loose power-belt passing around said driving-pulley, tightening means therefor, a brake for said pulley, a lever *t*, adapted to be engaged by a load on the conveyer, and means connecting said lever to the said brake and power - belt - tightening means.

6. In a hod hoist or elevator, a conveyer-belt, a pulley geared to said belt, a continuously - rotating driving - pulley, a loose belt passed over said pulleys, a pressure - roller normally tightening said belt to transmit

power, a lever adapted to be engaged by a load on the conveyer, and connecting means extending from said lever to the said pressure-roller and adapted to release the latter from the belt when the lever is operated.

7. In a hod hoist or elevator, a conveyer-belt, a pulley geared to said conveyer-belt and having a braking-surface, a brake, a continuously-rotating driving-pulley, means for connecting and disconnecting said pulley and driving-pulley, a lever adapted to be engaged by a load on the conveyer-belt, and means connecting said lever to said brake and to said connecting and disconnecting means whereby the latter are operated conjointly to stop or start the conveyer - belt irrespective of the driving-pulley.

8. In a hod-hoist the combination with the conveyer - belt, supporting means therefor, and driving means, of a lever *t*, connected to the driving means and adapted to be operated by a load on the conveyer to disengage the driving means, said lever being fulcrumed on the outer end of a crank-shaped pin *t*², adapted to be turned in its seat to adjust the position of the lever.

In testimony that I claim the foregoing I have hereunto set my hand this 3d day of September, 1901.

FRANK C. DEY.

Witnesses:

CHARLES H. PELL,
RUSSELL M. EVERETT.