

(No Model.)

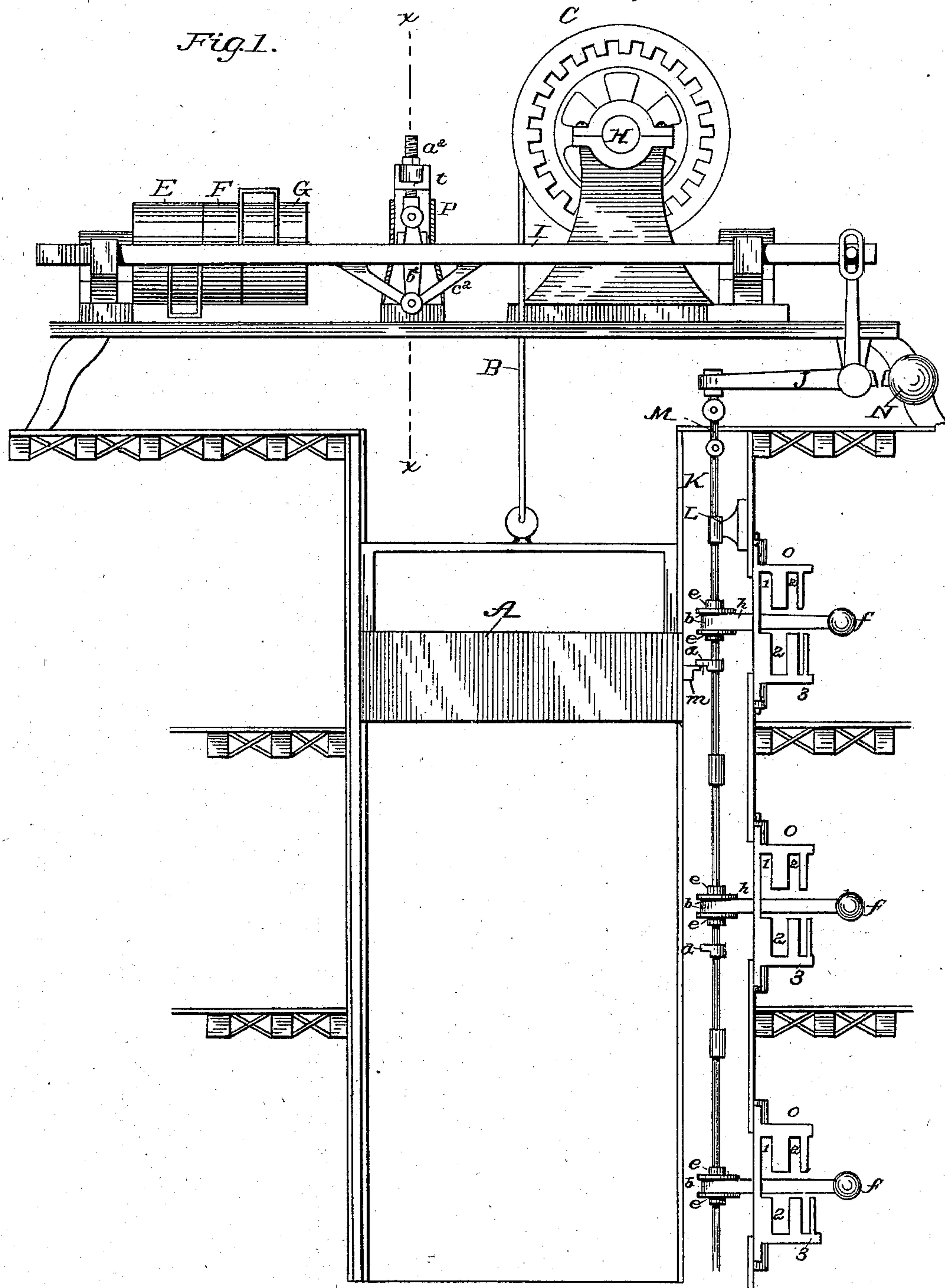
2 Sheets—Sheet 1.

G. C. TEWKSBURY.

ELEVATOR.

No. 255,049.

Patented Mar. 14, 1882.



Attest
Walter Donaldson
H. L. Middleton

Inventor
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(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

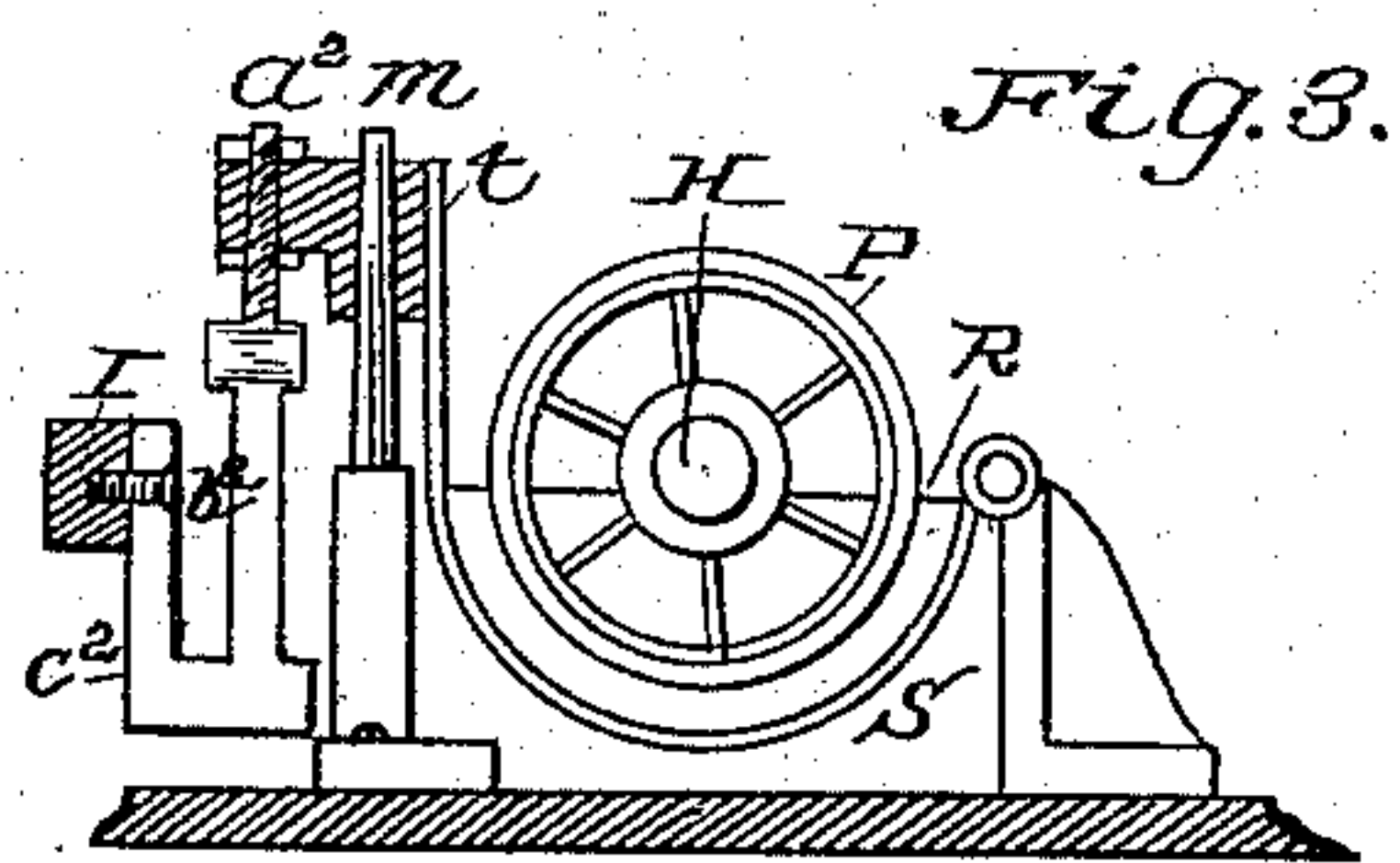
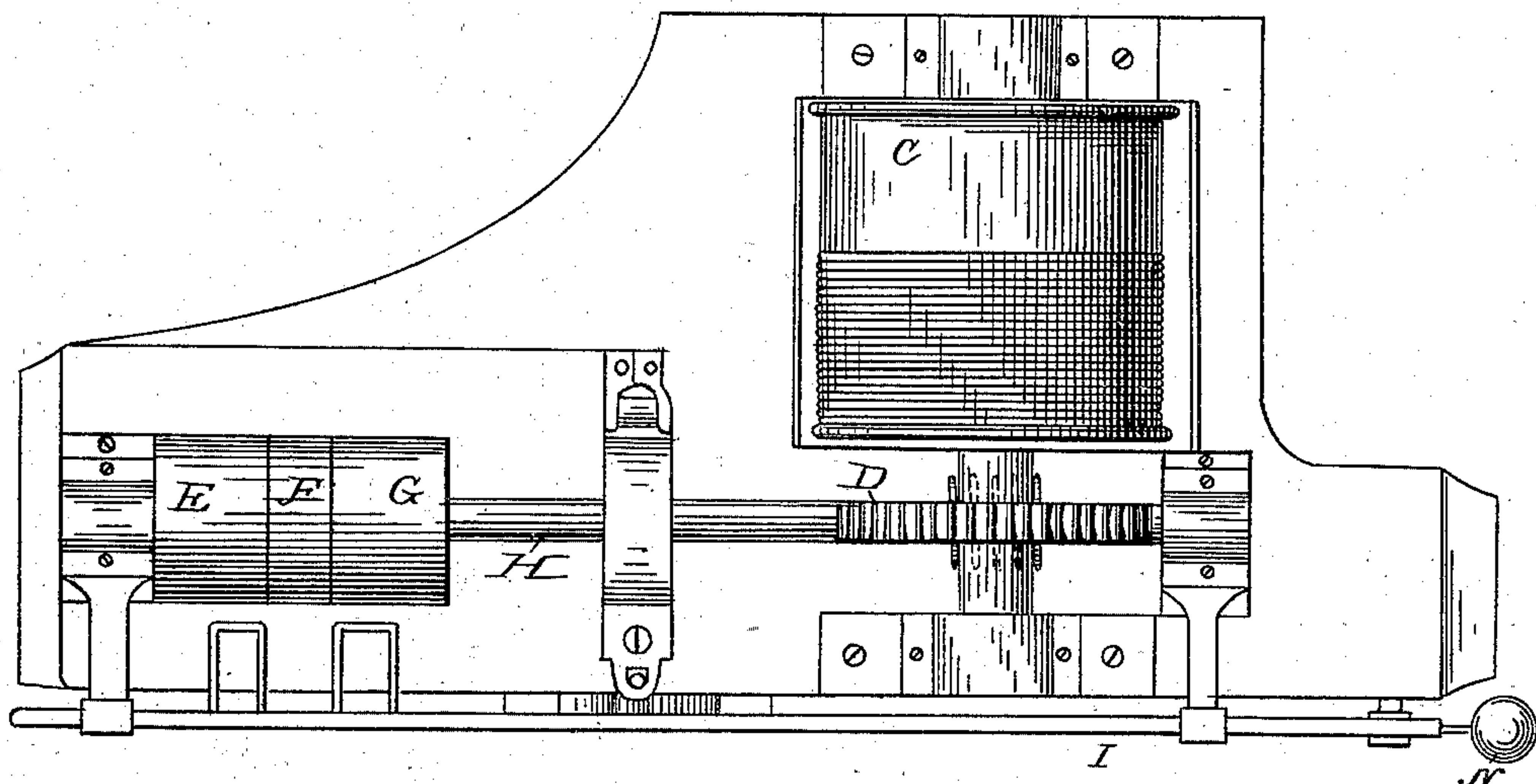


Fig. 3.

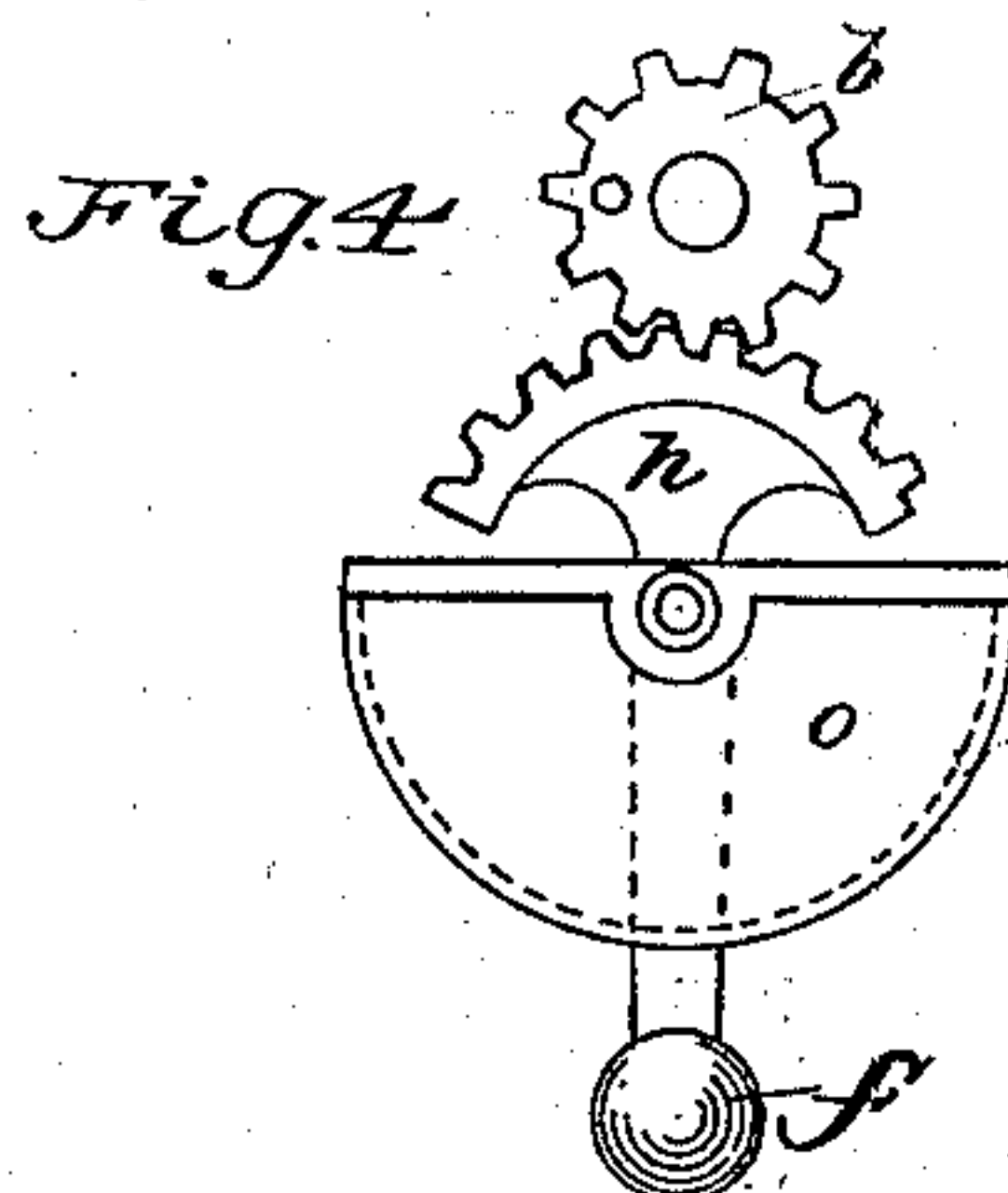


Fig. 4.

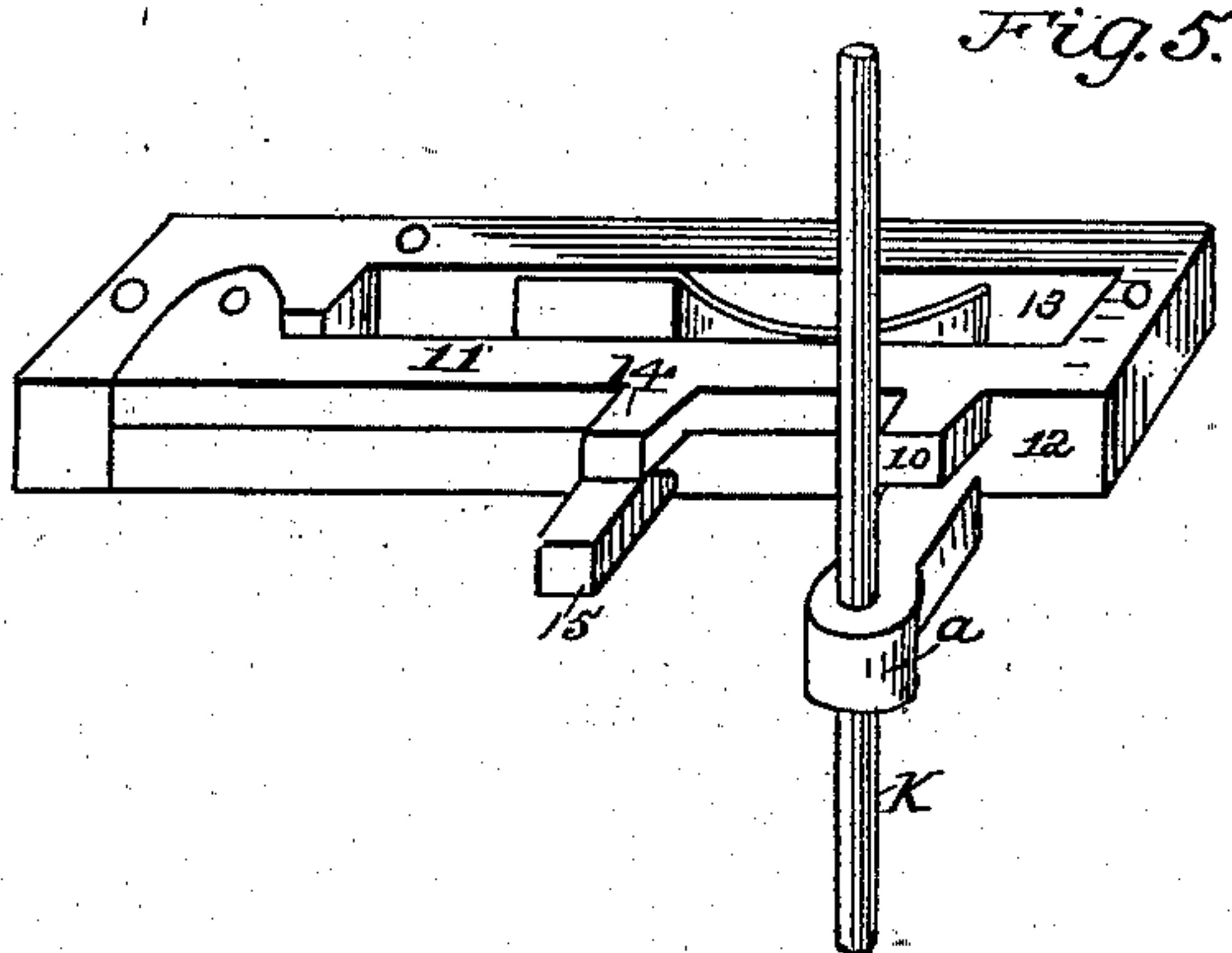


Fig. 5.

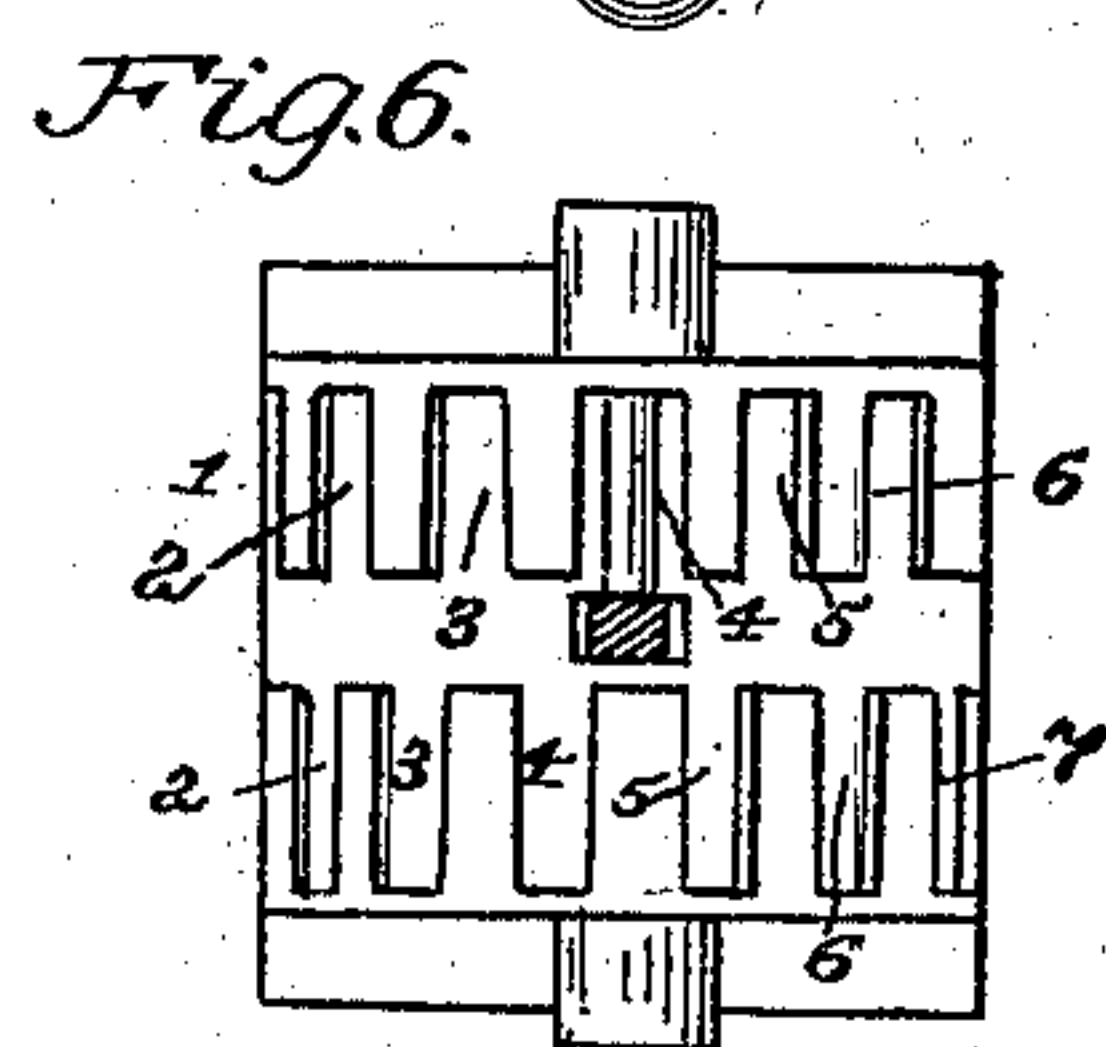


Fig. 6.

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UNITED STATES PATENT OFFICE.

GEORGE C. TEWKSBURY, OF LYNN, MASSACHUSETTS.

ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 255,049, dated March 14, 1882.

Application filed October 3, 1881. (No model.)

To all whom it may concern:

Be it known that I, GEORGE C. TEWKSBURY, a citizen of the United States, and resident of Lynn, in the county of Essex and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Elevators, of which the following, in connection with the accompanying drawings, is a specification.

10 This invention relates to that class of elevators generally operated by power, and commonly used in buildings for hoisting merchandise from one story thereof to another; and the objects of my improvements are, first, to
15 provide a more positive and efficient means than heretofore known for taking up the momentum of the driving-shaft, thereby rendering the elevator more sensitive and obedient to the shipper; second, to afford facilities for
20 revolving the shipper-rod so as to bring any one of the stopping devices (which are arranged upon said rod) into a given vertical plane; third, to provide a more positive indicator than heretofore known for determining
25 the position of the locking devices at the point where the elevator is intended to stop; and, fourth, to provide facilities for preventing the cramping or breaking of the locking devices in case the elevator should not properly or readily
30 respond to the belt-shipping devices. All of these are hereinafter fully described and specifically claimed.

In the accompanying drawings, Figure 1 is a side elevation of the entire machine, representing the same in contact with the building.
35 Fig. 2 is a plan of the hoisting mechanism. Fig. 3 is a cross section on line *xx*, Fig. 1. Fig. 4 is a cross-section on line *yy*, Fig. 1. Fig. 5 is a detached view of the locking mechanism,
40 and Fig. 6 is a detached view of the indicator.

The elevator-box A, cord B, drum C, worm D, pulleys E F G, shaft H, and shipping-levers I J are all constructed and combined as shown, to operate in the usual manner.

45 Connected with the elbow-lever J is a vertically-reciprocating rod, K, which extends the entire length of the elevator-well. It slides in suitable bearings, L, secured to the wall of the building, and is swiveled to the lever J, so as
50 to admit the rotary movement referred to here-

inafter. Said rod, to avoid bending, is provided with a link, M, which is set in the upper end thereof. The weight of the rod is balanced by a counter-weight, N, attached to a projection from the lever J, as shown. The rod is also
55 provided with pins *a*, which are fixed at different places on the rod, and project therefrom in different directions, like so many radii of a circle. Said rod is further provided with small gear-wheels *b*, which are fixed thereon between
60 suitable disks, *c*, as shown in Fig. 1. By moving this rod upward or downward the driving-belts may be shifted about on the pulleys E F G, as and whenever occasion requires it, to start or stop the elevator. This movement of
65 the rod K is effected by means of the handles *f*, which project outward through suitable slots in the indicators O. Said handles are fulcrumed on the center pins of the indicators, as shown in Fig. 4, being allowed to slide vertically as well as to oscillate thereon. Each
70 handle carries upon one end a segmental gear, *h*, which meshes into the corresponding smaller gear-wheel *b*, as shown in Fig. 1. With this construction it is possible by a horizontal movement of the handle *f* to effect a partial or a
75 complete revolution of the rod K, so as to bring any one of the pins *a* into the same vertical straight line with the dog *m*, which is attached to the elevator-box A, as referred to here-
80 inafter.

Each of the indicators O consists of a semi-cylindrical case having a central horizontal slot, which communicates directly with other
85 vertical slots made and numbered as shown in Fig. 6. Said vertical slots are constructed in two rows—one on each side of the horizontal slot—to correspond with the two directions in which it is possible to move the shipper-rod K. Each of said rows is provided with as
90 many slots, less one, as there are stories in the building which contains the elevator, and the slots on one side alternate with those on the other, as shown, for purposes referred to hereinafter.

95 The elevator-box is always at rest so long as the driving-belts remain on the loose or end pulleys, E G, which is always the case while the handles *f* are in the horizontal slots of the indicators O. The elevator is set in motion by
100

shifting either of the driving-belts onto the tight pulley F. This may be done by simply pushing the handle up or down (the direction being always contrary to that in which the elevator is intended to move) in either of the vertical slots, thereby moving the rod K, as before described.

The pins a are fixed upon the rod K so that when any one of the same is in a perpendicular line with the dog m , Fig. 1, the handles f will be at those slots of the indicators, respectively, which correspond in number with the story of the building at which the pin so arranged is located.

It must now be evident that when the operator desires to ship the elevator and have it stop at a given point or floor of the building he has only to turn the handle f into line with that slot of the indicator whose number corresponds with the number of the given floor, and whose position is on that side of the horizontal slot opposite to the direction which the elevator is to travel in order to reach said floor, and then push the handle up or down, as occasion requires, in the slot. The elevator-box will thereupon begin to move toward said point, and will continue so to move till the dog m , (which is fixed upon the box A,) interlocking with the pin a , (which is set upon the rod K at the given point,) moves the rod sufficiently to bring the handle f back to the horizontal slot, at which moment the elevator rests, as aforesaid. The belts are prevented from being carried over so as to ship the elevator in the opposite direction by reason of the handles f coming in contact with the projecting teeth of the indicators O; hence the irregular arrangement of the vertical slots.

The dog m will be equally effective for stopping the elevator, though rigidly fastened to the box A, as shown in Fig. 1; but I prefer (as a means of preventing breakage in case the elevator should not quickly respond to the shipping devices) to construct and arrange the dog as shown in Fig. 5. I therefore proceed to describe the same, so that others may construct and make use thereof. In this arrangement said dog is formed as a tongue, 10, projecting from the lever 11. Said lever is arranged, as shown, in a mortise formed in the block 12. Behind the lever 11 is a spring, 13, which serves to push forward the lever so as to keep the tongue 10 projecting outward, as shown. Said lever is further provided with a second tongue, 14, which operates upon a pin, 15, as referred to hereinafter.

In operation the block 12 is secured to the side of the elevator-box A, the tongues being allowed to project beyond the edge of the box. The pin 15 is secured to the wall of the building, in close proximity to the pin a , and in a perpendicular line with the tongue 14. The elevator may then be set in motion, as above described. The tongue 10 will engage with the pins a , and reciprocate the shipper-rod K, so as to bring the handles f into the horizontal slots of the indicator O. At this moment the

tongue 14 strikes upon the pin 15, (secured to the building, as before described,) which depresses the lever 11 so as to draw the tongue 10 inward away from the pin a and allow the elevator to pass.

To make sure of the elevator's stopping promptly at the given point, I have devised a mechanism to be used in combination with the driving mechanism for taking up the momentum thereof, as follows: Upon the driving-shaft H is a fixed pulley, P, Fig. 3, about which is arranged the brake-shoe R. Said shoe is held in position by a spring, S, one end of which is attached to the hanger r , and the other end of which is attached to the movable block t , as shown. Said block t is arranged to slide upon the vertical hanging pin u . It carries the screw-rod a^2 , to which is jointed one end of the toggle-arm b^2 , the other end of which is jointed, as shown, to the angular frame c^2 , which in turn is fixed to horizontal lever I, as shown. With this arrangement it must be evident that when the lever I, Fig. 1, is moved in either direction horizontally, as it must be in order to bring either of the driving-belts onto the tight pulley F, the effect is to depress the spring S, so as to relieve the pressure of the shoe against the pulley P and allow the elevator to freely move, while the reverse of this movement, which always takes place in stopping the elevator, elevates the end of the spring and brings the shoe in contact with the pulley P, so as to counteract the momentum thereof and quickly stop the elevator-box.

What I claim is—

1. The combination of the lever J, pivoted as shown, the pulleys E F G and intermediate belt-shifting devices, the revoluble vertically-sliding rod K, having suitable clutch-pins, a , arranged at different points on the rod, to project in different directions therefrom, the handles f , fulcrumed as shown, and the intermediate gearing mechanisms, whereby the rod K may be turned and vertically reciprocated, substantially as described.

2. The combination of the lever J, pivoted as shown, the pulleys E F G and intermediate belt-shifting devices, the revoluble vertically-sliding rod K, having clutch-pins a , arranged at different points on the rod, to project therefrom in different directions, substantially as described, the lever-handles f , fulcrumed as shown, the indicators O, for determining the relative position of the clutch-pins a , and the intermediate gearing mechanism, whereby the rod K may be turned, substantially as set forth.

3. In an elevator of substantially the construction described, the combination of the revoluble vertically-reciprocating rod K, provided with clutch-pins a , gear-wheels b , and suitable disks, c , said pins, gears, and disks being arranged upon the rod at different points, with the pins a projecting therefrom in different directions, substantially as described, the centrally-pivoted lever-handles f , having toothed plates on one end to mesh with the

gears on the rod, and suitable indicating mechanism for locating the relative position of the clutch-pins *a*, substantially as set forth.

4. The combination, substantially as described, of the elevator-box A, the detachable block 12, the lever pivoted to the detachable block and provided with projecting tongues, as shown, and mechanism for pushing forward the lever, so as to keep the tongues in position, substantially as described.

5. The combination, with the movable lever on the elevator-box, of the stud-pins 15, attached to the wall of the building, adapted to automatically engage with the tongue 14 on the lever when the box is reciprocated, so as to throw the tongue 10 on the lever out of engagement with the clutch on the rod K, substantially as described.

6. The within-described indicator O, which consists of a semi-cylindrical case having two systems of vertical slots, one on each side of a central horizontal opening, with the vertical slots on one side communicating with the horizontal opening alternately with the vertical slots on the other side thereof, all of said openings being adapted to receive the handle *f*, and the vertical slots being numbered, as shown.

In testimony whereof I have signed this specification in presence of two subscribing witnesses.

GEO. C. TEWKSBURY.

Witnesses:

C. B. TUTTLE,
FRANK PEASE.