

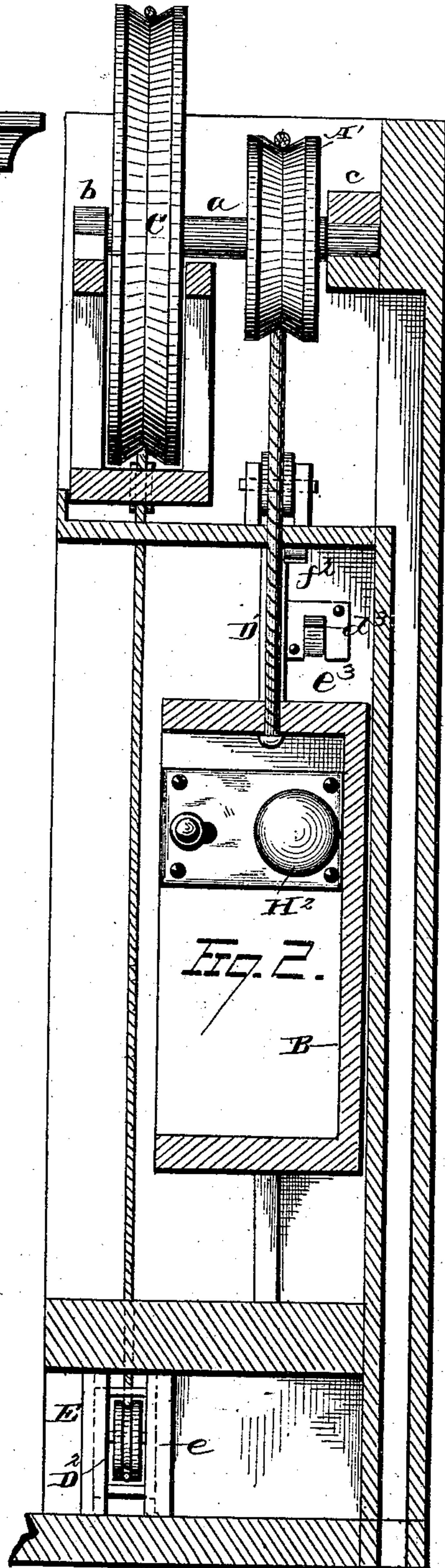
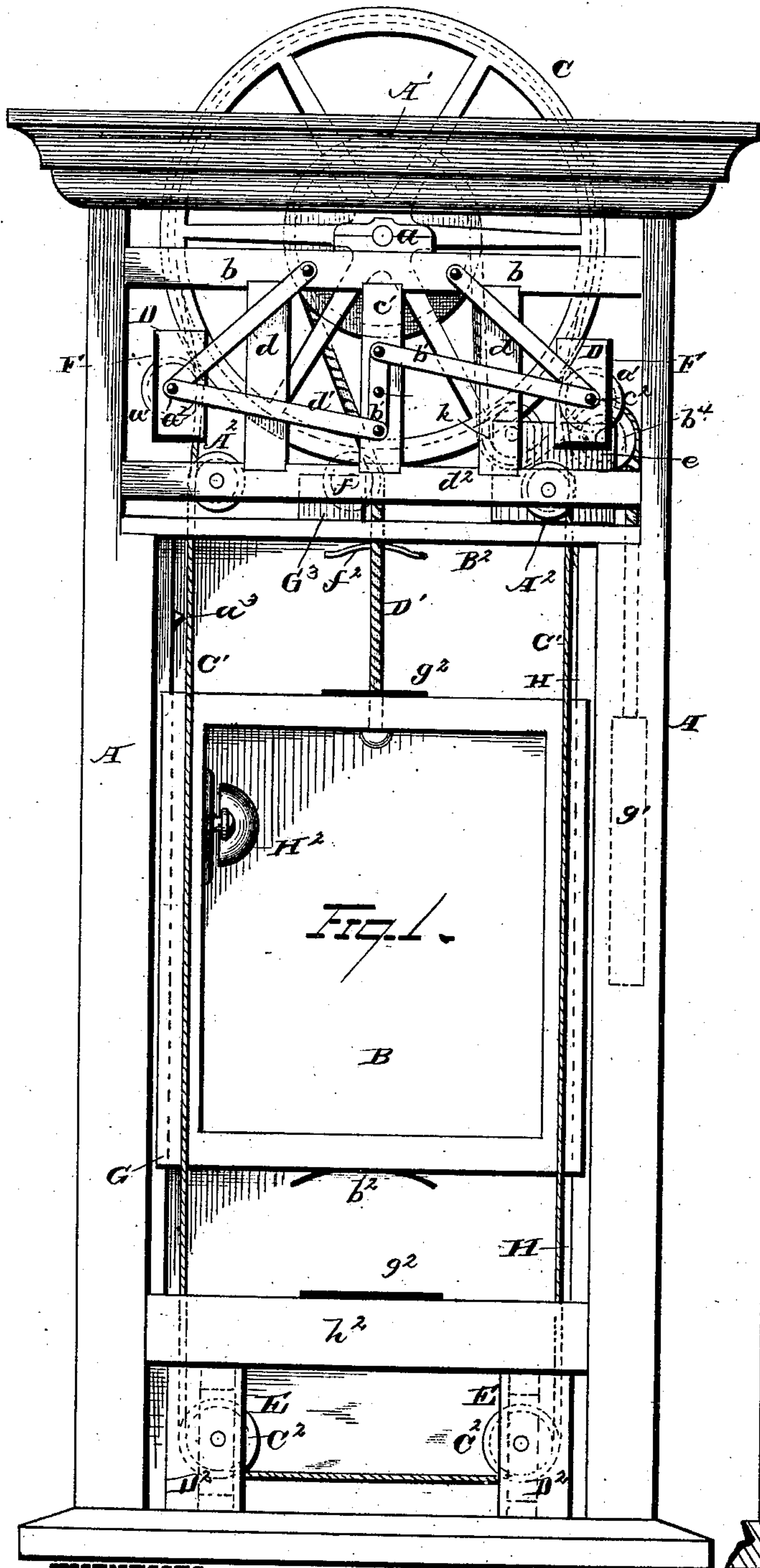
(No Model.)

D. CASLEY.
Elevator.

3 Sheets—Sheet 1.

No. 237,815.

Patented Feb. 15, 1881.



WITNESSES

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(No Model.)

3 Sheets—Sheet 2.

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Fig. 3.

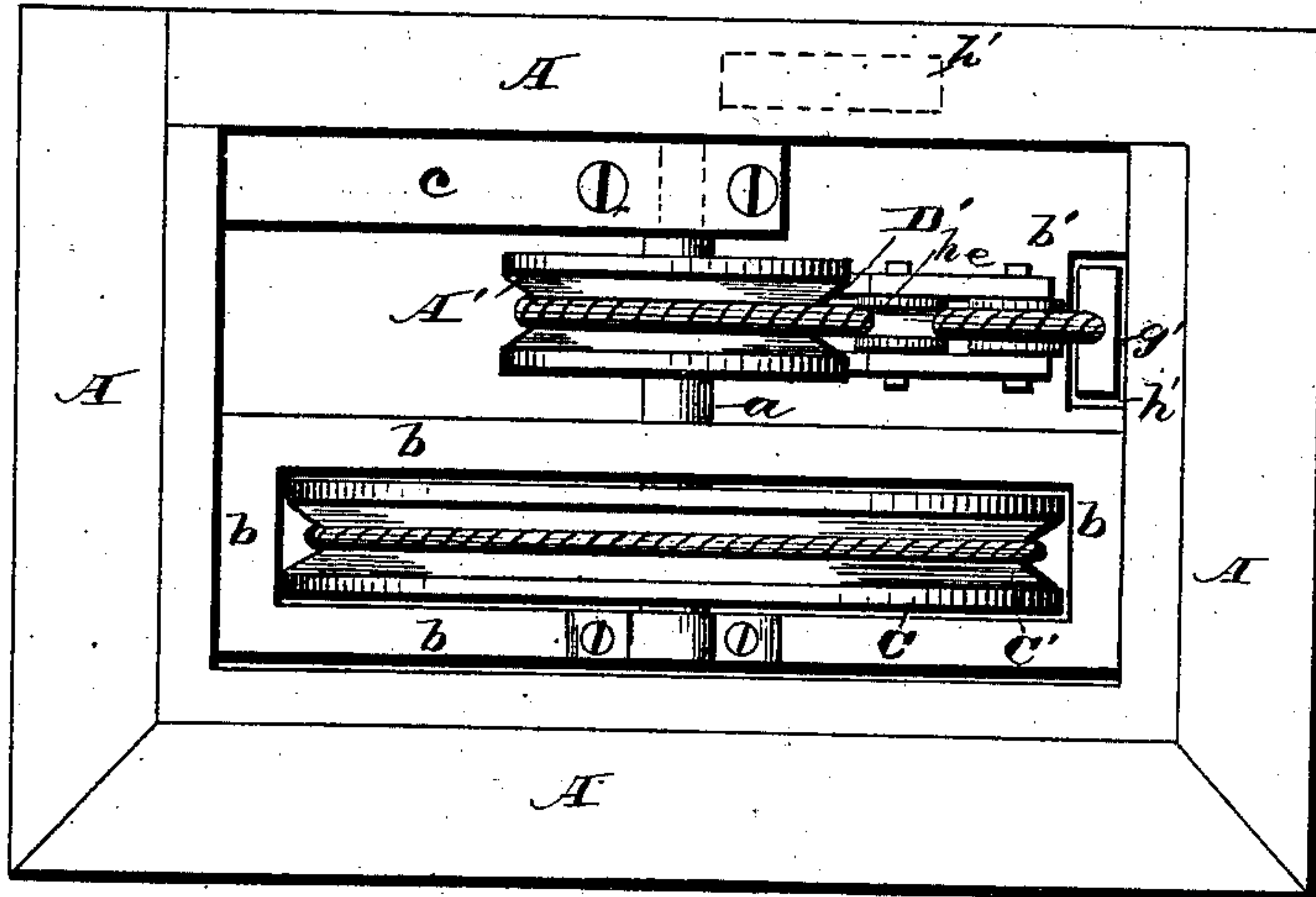


Fig. 4.

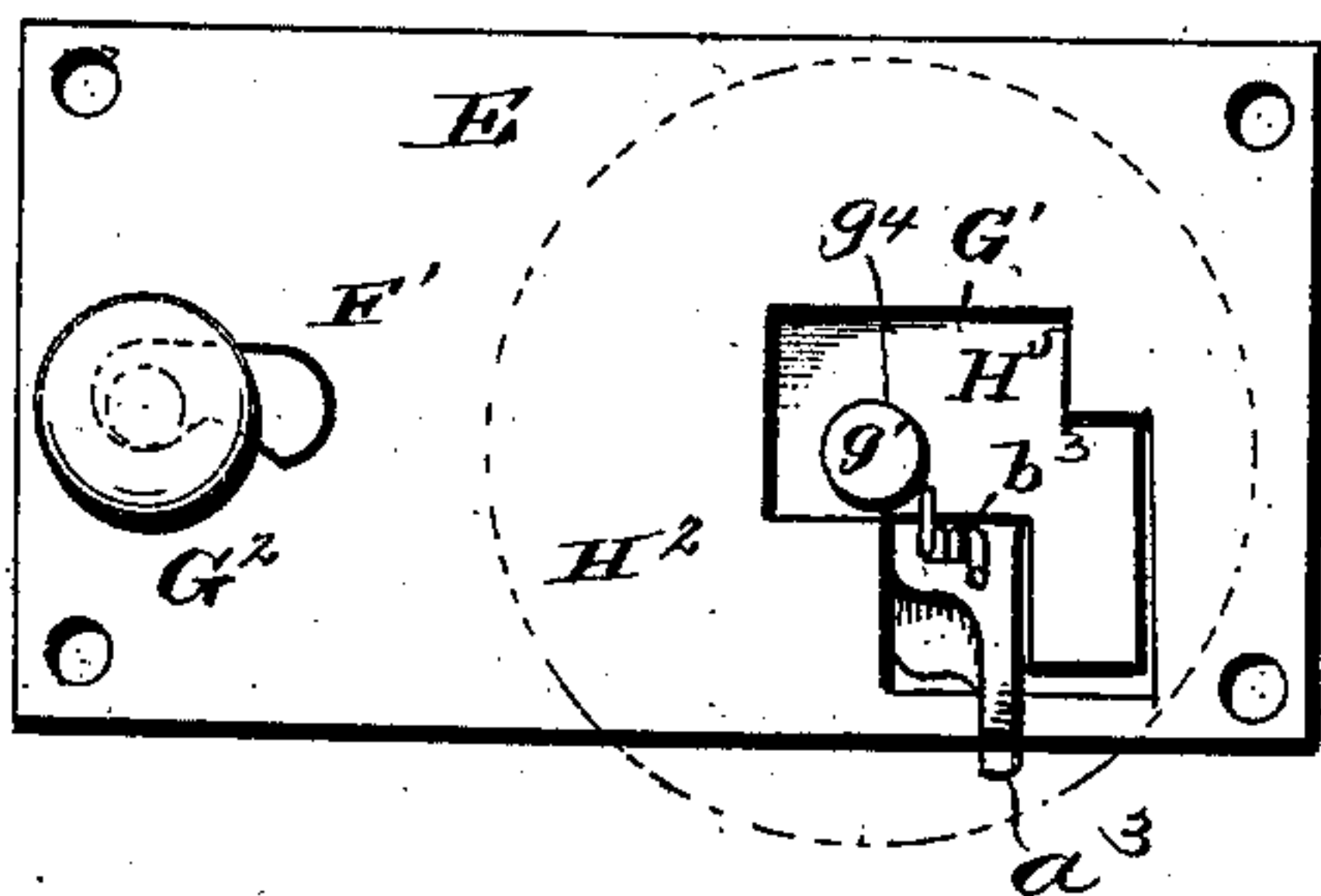


Fig. 5.

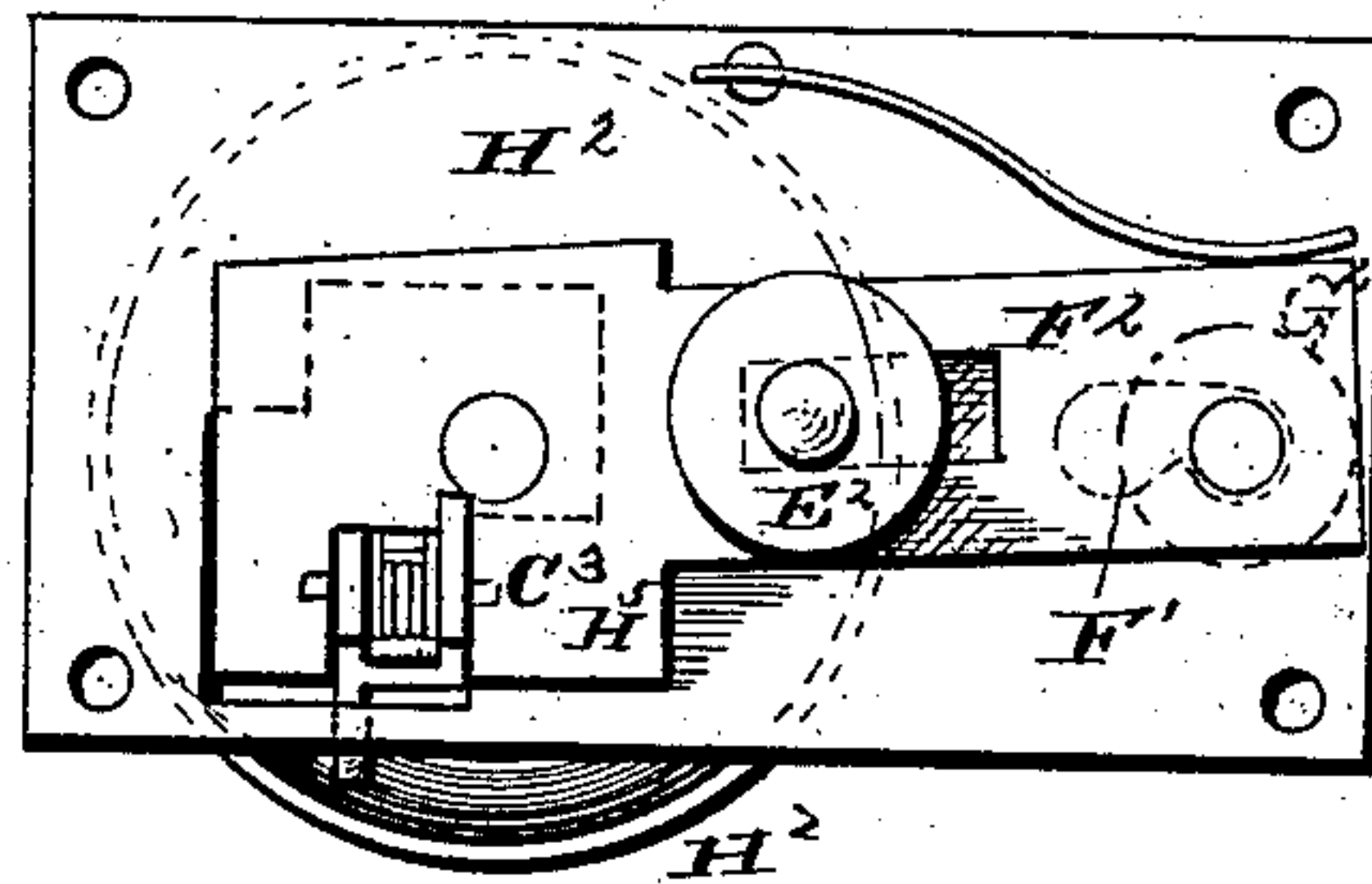


Fig. 6.

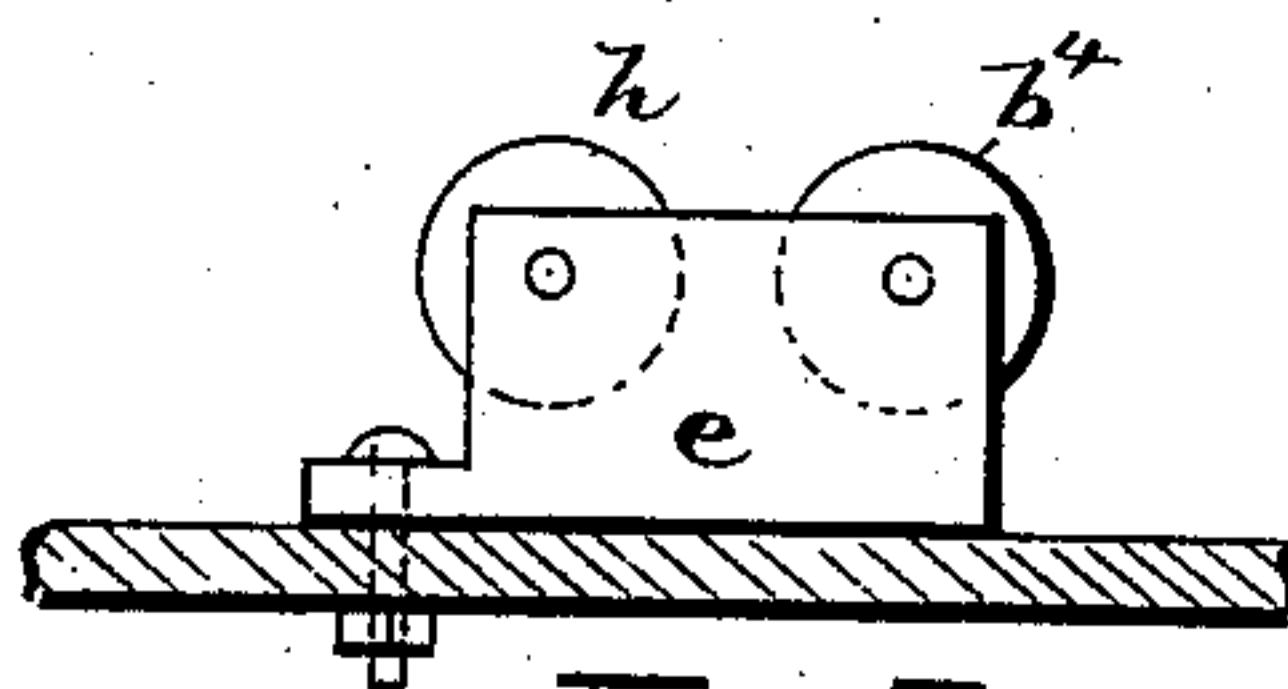


Fig. 7.



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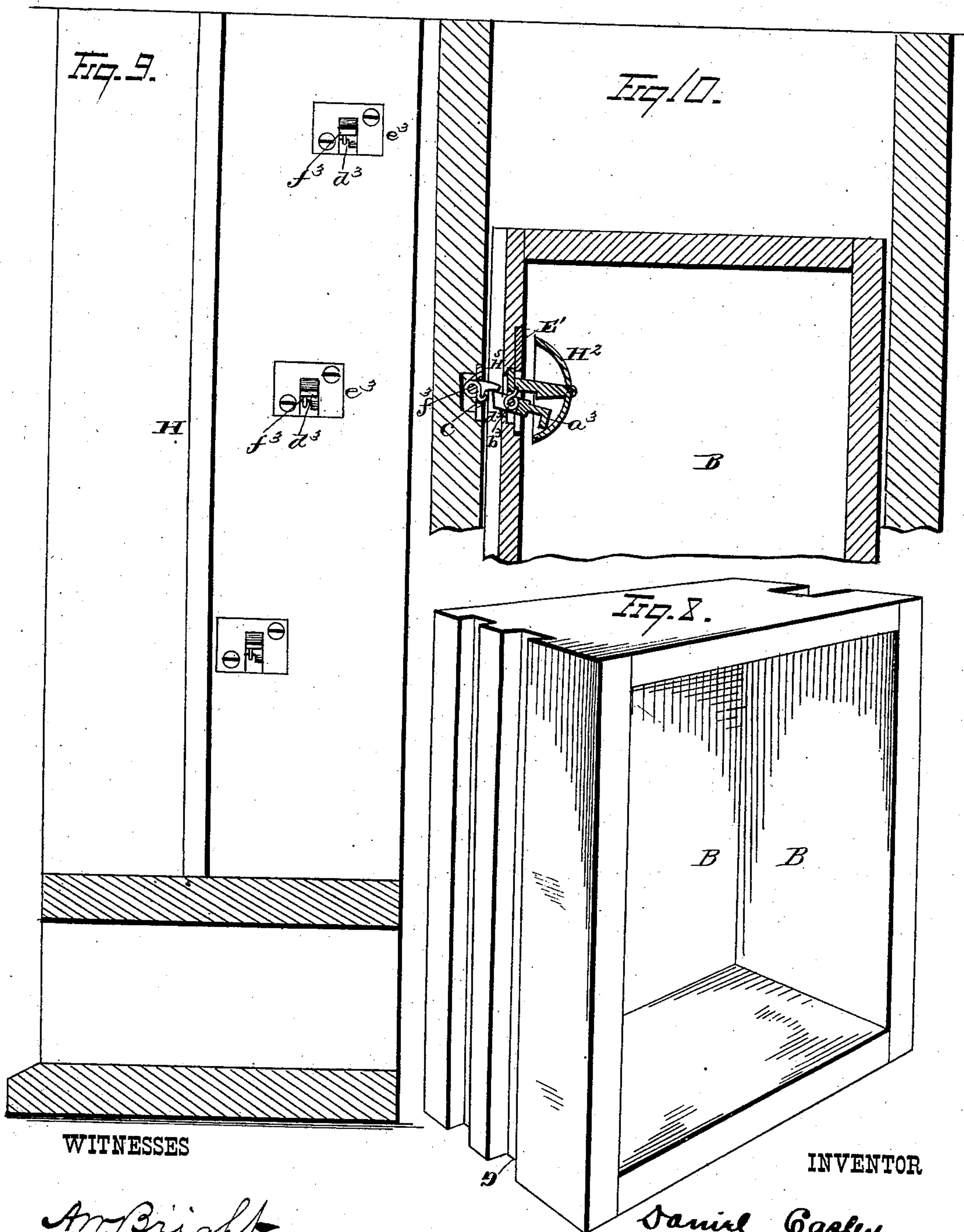
(No Model.)

D. CASLEY.
Elevator.

3 Sheets—Sheet 3.

No. 237,815.

Patented Feb. 15, 1881.



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UNITED STATES PATENT OFFICE.

DANIEL CASLEY, OF NEW YORK, N. Y.

ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 237,815, dated February 15, 1881.

Application filed June 10, 1880. (No model.)

To all whom it may concern:

Be it known that I, DANIEL CASLEY, of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Elevators; 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in elevators or dumb-waiters, and is designed to provide a device of this character which shall be of simple construction, of convenient and safe operation, and having new and improved appliances for hoisting and stopping the car, for signaling, for the prevention of violent shocks to the car at the upper and lower terminus of the car-track, and for keeping the hand-rope, through which the car is operated, at all times taut.

With this end in view my invention consists in the combination, with a hand-rope wheel, of a pair of sheave-frame brakes adapted to govern the movements of said wheel.

My invention further consists in the combination, with a hand-rope wheel, of a pair of sheave-frame brakes and a lever, arms, and hangers by means whereof the brakes are made to act in unison.

My invention further consists in the combination, with a hand-rope wheel and a hoist-wheel connected therewith, of a pair of sheave-frame brakes and a lever, arms, and hangers by means whereof the brakes are made to act in unison.

My invention further consists in the combination, with an elevator-car, of a hoist-rope attached to the top of the car, and passing over the hoist-wheel and a pivotal pulley-block, whereby the counterpoise-weight is adapted to be operated in either a side or back pocket provided therefor.

My invention further consists in the combination, with the hand-rope, of devices to keep the said rope taut, consisting, essentially, of two vertical guideways located at the bottom of each side of the elevator-frame and weighted sheave-frames having free vertical movement

in said guideways, the hand-rope running under the pulley in said sheave-frames.

My invention further consists in the combination, with a car, of a bell located in said car, and trips located in the elevator-frame and adapted to sound the bell.

My invention further consists in the combination, with the elevator-car and elevator-frame, of springs and plates disposed to form a resilient bed at the upper and lower terminus of the car-track.

My invention further consists in certain details of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a front view of my improved dumb-waiter or elevator. Fig. 2 is a view, in longitudinal cross-section, thereof. Fig. 3 is a plan view. Fig. 4 is a view of the signaling device with the bell removed. Fig. 5 is a rear view thereof. Fig. 6 is a view of the pivotal block over which the hoist-rope runs. Fig. 7 is a side view of a trip mounted in its plate. Fig. 8 is an end view of the elevator-car. Fig. 9 is a view of the elevator-frame, in vertical section, and showing the disposition of the trips; and Fig. 10 is a view, in detail section, of the signaling device.

Let A represent the elevator frame or case; B, the elevator-car; C, the main wheel; D, sheave-frames; A', hoist-wheel; C', hand-rope, and D' elevator-rope passing over hoist-wheel A'.

The main wheel C and hoist-wheel A' are mounted on a shaft, *a*, having its front and rear ends journaled in the main-wheel frame *b* and cross-block *c*.

Sheave-frames D D, located to the right and left of the lower portion of the main wheel C, are hung from the top beam of the main-wheel frame by depending arms rigidly secured to the sheaves, but pivotally secured to the top beam of the main-wheel frame, as before mentioned. Each of the sheave-frames has in its front face a groove equal in width to the peripheral width of the wheel, and is further provided midway of its length with pulleys *a'*, the grooved peripheries of which are adapted to receive the hand-rope C'. The successful operation of the sheave-frame brakes is further forwarded

by weights F F, secured to the outer faces of the sheave-frames. The two sheave-frame brakes are made to operate simultaneously by the employment of a coupling device consisting of an equal-armed lever, b' , pivotally secured to the upright post c' of the frame b .

To the lower arm of the lever b' the inner end of a horizontal arm, d' , is pivoted, the outer end of which latter is pivoted, at a^2 , to the left-hand sheave-frame D. Horizontal arm b^2 is, in like manner with the arm d' , pivoted respectively at its inner and outer extremities to the upper end of lever b' , and, at c^2 , with the left-hand sheave D.

Mounted in the standard d^2 of the frame b , and located under the sheaves D D, are two pulleys, $A^2 A^2$, grooved to retain the hand-rope C' , by means of which the movements of the waiter-car are controlled. The said rope C' is endless, and is secured above and below the two points between which the elevator-car is to traverse. Beginning at the right, the rope passes up through the partition B^2 and standard d^2 , over the outer face of the pulley A^2 , and onto the inner face of the pulley a' of the right-hand sheave-frame D. From thence it passes over the main wheel C and down over the inner face of the pulley a' of the left-hand sheave-frame D, thence to the outside face of the pulley A^2 , mounted on the standard d^2 , and through the partition B^2 . The lower portion of the endless rope C' runs under two pulleys, $C^2 C^2$, mounted in weighted frames $D^2 D^2$, which latter have free vertical movement in guide-ways E E.

Atmospheric changes and other causes will operate to alter the length of the hand-rope, and often cause serious trouble in the manipulation of the car. This objection is done away with by the employment of these vertically-moving weighted sheave-frames, which preserve the rope taut when stretched, and automatically adapt themselves to its length when shortened.

Elevator or waiter car B, provided with grooves G, is guided in its upward and downward motion by guides or rails H, which are received in the grooves G, the power whereby the car is raised and lowered being exerted through the rope D' , secured to the car in any desired manner, and which passes up through the partition B^2 , over pulley f , mounted in block G^3 , situated to the left of the shaft a . From thence it passes from left to right over the hoist-wheel A' , and down to pulley h , mounted in the inner end of a pivotal block, e , and then over to pulley b^4 , journaled in the outer end of the said pivotal block, and finally terminates at a counterpoise-weight, g' , which has vertical movement in a pocket, h' , formed in the side or back of the frame. The object of adapting this block e to be moved is to allow, when more convenient or desirable, the cord or rope D' to be received, together with its counterpoise-weight, in a pocket or recess, h' , in the back of the elevator frame or case A.

Steel springs f^2 are here shown as attached to the lower face of partition B^2 and the bottom of the car B, said springs engaging with the steel plates g^2 , respectively secured to the upper end of the car and the upper face of the partition h^2 of the frame A. Of course the arrangement of these steel springs may be changed and still accomplish the object of their design, which is to avoid the shock and consequent damage of the contents of the car when too violently stopped at either of these points.

The signaling device, by means of which the arrival of the car at any landing or story is announced, consists of a bell placed in the elevator-car and actuated by a series of trips located in the side of the frame A. Plate E' , having two slots, $F' G'$, is recessed in the side of the car, and has secured to its under side a plate, H^5 , arranged to have a sliding movement on the pivot E^2 by means of the slot F^2 . To the outer end of the said plate H^5 a knob or handle, G^2 , is secured, which projects through the slot F' of plate E' . A post, g^4 , secured to the inner end of plate H^5 , and projecting through aperture G' in the rear end of plate E' , is provided with a bell, H^2 , which is sounded by a hammer, a^3 , pivoted in plate H^5 , actuated by a spring, b^3 , and operated to strike the bell by means of a depending foot, c^3 , which engages with the trips d^3 , secured to the side of the elevator-frame. Said trips d^3 are mounted on plates e^3 , recessed in the side of the elevator-frame, are held in their normal position at right angles with the plate e^3 by springs f^3 , and may be depressed by any force acting from above, but do not yield to any force acting on their under faces. It is thus apparent that in the downward trip of the elevator-car the depending foot c^3 will depress the trips without sounding the gong; but in the upward trip of the car the depending foot c^3 of the bell-hammer will engage with the trips d^3 , the force of the spring b^3 will be overcome, and the hammer a^3 will recoil. As soon, now, as the engagement between the trip d^3 and bell-foot c^3 is released, the hammer, influenced by the spring b^3 , will fly back to its former position, and in so doing strike the bell. The trips are not arranged in line, but a trip at one floor is out of line with every other trip in the elevator-frame. The object of this arrangement is to enable the bell to be sounded only at the place where the car is destined to stop, and not at every trip between that point and the starting-point of the elevator.

The plate H^5 , secured, as before described, to the under side of plate e' , has longitudinal movement in the slot F^2 , and is moved, together with bell H^2 and its depending foot c^3 , by means of knob G^2 , projecting through slot F' .

Any arbitrarily-selected set of symbols placed at different points of slot F' designate different trips located at certain landings. For instance, let us suppose that by drawing the knob G^2 to the extreme forward portion of slot F' the foot c^3 will be placed in position

to engage with the trip at the first story of landing and there sound the bell. Again, suppose we push the knob to the extreme inner end of the slot F' . Now the foot c^3 will be placed
 5 in position to engage trip d^3 at the fourth story and there sound the gong, escaping all trips between the trip at the fourth story and the starting-point. It will be thus seen that I am enabled to sound the bell only at the
 10 story or landing where the car is destined to stop, and the signaling device may be set at any story to sound at stories above.

Having thus fully described the operation of the signaling devices used with my elevator or dumb-waiter, I will proceed to describe the operation of the car, which is effected by means of the hand-rope C' . As has been stated, the hand-rope C' passes over the outside faces of the pulleys in the standard d^2
 20 and over the inside faces of the pulleys a' , journaled in the sheave-frames $D D$. It will thus follow that when the right-hand portion of rope C' is pulled down it will tend to straighten, and in so doing will lift the right-hand sheave from
 25 engagement with the periphery of the wheel A , and also simultaneously lift, through the lever and arms $d' b' b^2$, the left-hand sheave from engagement with wheel A , which latter, now released from the sheaves or brakes, will
 30 be free to be revolved by the rope from left to right and the waiter-car will be raised as long as the rope is pulled upon; but the moment the operator stops pulling on the rope the sheave-frames will fall and lock the main wheel again
 35 by the attrition between the periphery of the main wheel and the inner faces of the sheave-frame brakes. To lower the elevator-car the left-hand rope may be operated in the same manner as the right-hand one, the only difference in the effect being to revolve the wheel
 40 A from right to left instead of from left to right.

The advantages of my improved dumb-waiter are manifold: Its construction is simple and its operation is easily controlled; the
 45 brakes, being of automatic operation, are entirely independent of the hand-ropes, which latter, if broken or worn, can be easily replaced, and the signaling devices will be found
 50 to be of great advantage and utility.

I would have it understood that I do not limit myself to the exact construction shown and described, but hold myself at liberty to make such changes and alterations as come within
 55 the proper spirit and scope of my invention.

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

1. In a dumb-waiter, the combination, with
 60 a hand-rope wheel, of sheave-frame brakes, adapted to engage with the grooved periphery thereof, pulleys mounted in the brakes, and a rope passing over the brake-pulleys and the hand-rope wheel, and adapted to raise the
 65 brakes from peripheral engagement therewith, substantially as set forth.

2. In a dumb-waiter, the combination, with a hand-rope wheel, of two sheave-frame brakes, respectively located to have peripheral engagement with the lower face thereof, pulleys
 70 mounted in the brakes, a rope passing over the inner faces of the pulleys in the brakes to raise the brakes from engagement with the hand-rope wheel, and a system of levers to transmit the motion of one brake to the other, substantially
 75 as set forth.

3. In a dumb-waiter, the combination, with a hand-rope wheel, of brakes adapted to have peripheral engagement therewith, pulleys
 80 mounted in said brakes, hanger-arms by means of which the brakes are held in position, weights attached to the brakes, a rope to raise the brakes from engagement with the periphery of the hand-rope wheel, and a system of levers to transmit the motion of one brake to the other,
 85 substantially as set forth.

4. In a dumb-waiter, the combination, with a hand-rope wheel, of brakes adapted to have peripheral engagement therewith, and devices to transmit the motion of one brake to the other,
 90 consisting, essentially, of a lever located midway of the two brakes, and arms respectively attached to the upper and lower ends thereof, the outer ends of said arms being respectively pivoted to the right and left hand brakes, substantially
 95 as set forth.

5. In a dumb-waiter, the combination, with a hand-rope wheel, of a pair of sheave-frame brakes, weights attached to said brakes, pulleys mounted in the brakes and levers, where-
 100 by the two brakes are made to act in unison, substantially as set forth.

6. In a dumb-waiter, the combination, with a hand-rope wheel and a hoist-wheel, of weighted sheave-brakes, and pulleys mounted in said
 105 brakes, pulleys mounted on the lower cross-beam, and a lever and arms by means whereof the two brakes are made to act in unison, substantially as set forth.

7. In a dumb-waiter, the combination, with a
 110 hand-rope wheel, a hoist-wheel, a pair of sheave-brakes adapted to engage with the periphery of the hand-rope wheel, and a rope to raise the brakes from engagement therewith, of an elevator-car and a hoist-rope passing over the
 115 hoist-wheel, substantially as set forth.

8. In a dumb-waiter, the combination, with a hand-rope wheel, a hoist-wheel, a pair of sheave-brakes in engagement with the periphery of the hand-rope wheel, and a rope to operate the said brakes, of an elevator-car, a
 120 hoist-rope attached to the car and passing over the hoist-wheel, and a counterpoise-weight sliding in one of two pockets in the elevator-frame and attached to the free end of the hoist-
 125 rope, substantially as set forth.

9. In a dumb-waiter, the combination, with a hand-rope wheel, a pair of sheave-brakes in peripheral engagement with the hand-rope wheel, of an elevator-car, a hoist-rope passing
 130 over the hoist-wheel, and a pivoted pulley-block over which the hoist-rope passes, and

whereby the counterpoise-weight may be operated in a slide or back pocket of the elevator-frame, substantially as set forth.

10. In a dumb-waiter, the combination, with
5 the hand-rope, of devices to keep the same taut, consisting, essentially, of two stationary vertical guideways located at the bottom of each side of the elevator-frame, of weighted frames having free vertical movement in said
10 guideways, and of pulleys mounted in the weighted frames, the hand-rope being arranged to run under the pulleys aforesaid, substantially as set forth.

11. In a dumb-waiter, the combination, with
15 a car, of a bell located within the car and adapted to have lateral movement therein, to be sounded by trips located at the different car-landings, substantially as set forth.

12. In a dumb-waiter, the combination, with
20 a car, of a bell located within the car and adapted to have lateral movement therein, and a series of trips no two of which are in line with each other, and which are arranged at different landings to sound the bell when in its

proper lateral adjustment in the car, substantially as set forth. 25

13. In a dumb-waiter, the combination, with a car, of a bell adapted to be laterally adjustable therein, of a spring-actuated bell-hammer having a foot projecting through the elevator-
30 car, and a series of trips no two of which are in line with each other, and which are arranged at different landings to sound the bell when in its proper lateral adjustment in the car, substantially as set forth.

14. In a dumb-waiter, the combination, with
35 a segmental spring attached to the upper terminus of the car-track and a metallic plate to the lower terminus of the track, of a metallic plate attached to the upper face of the car and
40 a segmental spring to the lower face thereof, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand and seal.

DANIEL CASLEY. [L. S.]

Witnesses:

JAMES F. THOMSON,
HOWARD M. HOYT.