

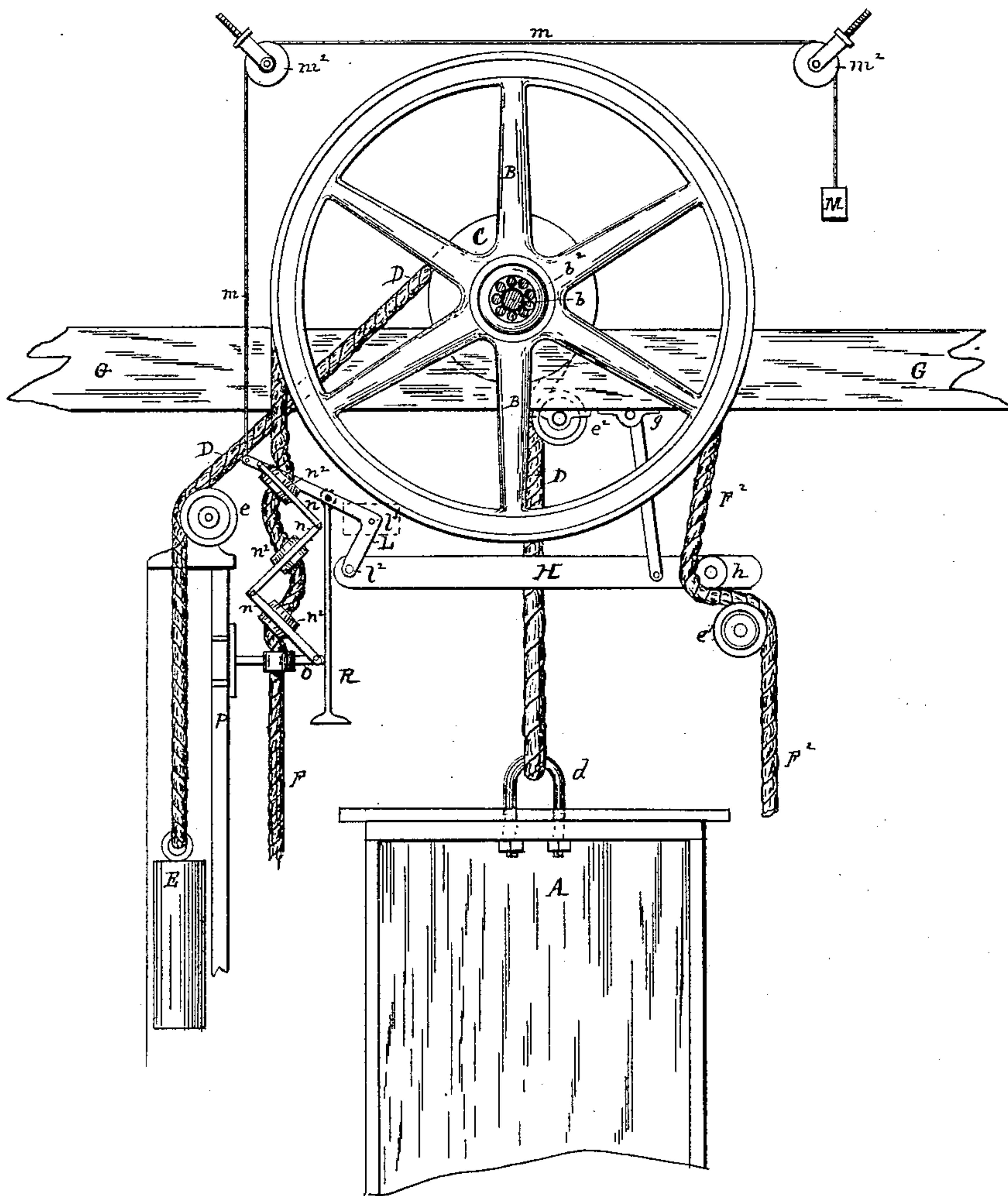
(No Model.)

J. F. TILMAN.

DUMB WAITER.

No. 368,256.

Patented Aug. 16, 1887.



WITNESSES,

*Chas. P. Gibson*  
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# UNITED STATES PATENT OFFICE.

JOHN F. TILMAN, OF BROOKLYN, NEW YORK.

## DUMB-WAITER.

SPECIFICATION forming part of Letters Patent No. 368,256, dated August 16, 1887.

Application filed March 26, 1887. Serial No. 232,559. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN F. TILMAN, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Elevators or Hoisting-Machines to be Operated by Hand, (and more especially adapted to Dumb-Waiters,) of which the following is a full and complete specification, reference being had to the accompanying drawings, forming a portion thereof.

The object of my invention is to provide a means of starting, stopping, and securely holding a hand-hoisting elevator or dumb-waiter at any part of its course. This requires to be at once simple, easily operated, and safe.

To this end my invention consists of certain devices applied to the hoisting and lowering ropes and connecting these two ropes or parts of one rope by a movable bar or link, also of suitable stops and a series of links through which the hoisting-rope passes and is firmly gripped when not in use, the security of the hold depending upon the well-known principles of jamming friction. These said devices will be more fully hereinafter set forth.

In the drawing, which consists of but a single figure, A is the box of the elevator or dumb-waiter; B, the main hoisting-wheel, to which is secured the smaller wheel, C, having a V-shaped groove lined with leather, over which the counterbalance-rope D passes, and is secured at one end to a staple,  $d$ , in the box A, and at the other end to the counterbalance-weight E.

$e$  and  $e^2$  are idle-pulleys to change the direction of the rope D.

G is one of the supporting-beams which carry the hoisting-wheel.

The axle  $b$  of the hoisting-wheel B preferably turns in ball-bearings  $b^2$ , as shown.

The hoisting-rope F passes over the wheel B, under the idle-roller  $h$ , and over the idle-pulley  $C^3$ , which last is secured to a portion of the frame-work not indicated in the drawing.

The idle-roller  $h$  is pivoted to the horizontal swinging bar H, which is in turn supported by the link I, pivoted to the frame G at  $g$ , and by the bent lever L, pivoted at  $l^2$  to a plate which is bolted at the frame-work and pivoted at  $l^1$  to the swinging-bar H. The horizontal

arm of the bent lever L is the longer, and is supported by a cord,  $M^2$ , and counterbalance-weight M, the cord passing over small pulleys  $m^2$ , which are attached to the frame above the wheels. To the outer end of L is also pivoted a series of links, N, each pivoted to the next, and the lowest one pivoted to the bar O, which is fixed to the frame. Each of these links, including the fixed one, is provided with a thimble,  $n^2$ , through which the hoisting-rope passes easily.

P is a part of the frame-work.

R is a stop pivoted to the lever L and provided with a broad bottom, against which the top of the car or elevator-box strikes when it is at the upper limit of its travel, stopping the car or box instantly by the operation of the links N, as hereinafter explained.

The idle-roller  $h$  and the idle-pulley  $e^3$  are placed so that the rope makes an almost right-angled turn in passing from one to the other.

The operation is as follows: The elevator-box is supported in the usual way by means of a counterbalance-weight and a rope passing over the smaller wheel, C. The hoisting is also done in the usual manner by a large V-grooved wheel, with a rope passing over it and hanging down upon each side, these hanging portions being used for hoisting. An elevator or dumb-waiter, if not provided with some additional device, would, however, rapidly and uncontrollably descend as soon as any weight was placed upon it. To avoid this danger I have devised the apparatus set forth, the operation of which I will now explain. My invention works upon the same principle as the well-known device for tightening the ropes of a tent—that is, by what is known in mechanics as “jamming” friction. When the rope  $F^2$  on the right-hand side in the drawing is pulled downward, the bar H is drawn toward the right, and the short arm of the bent lever L is carried with it, bringing the long arm of L to a horizontal line and closing up the links N until the thimbles are in one vertical line, leaving the rope, which is then straight, free to slide through the thimble in the link, and of course the elevator-box free to move. The further downward pulling of the rope will then, by turning the large wheel B and the V-edged wheel over which the counterbalance-rope passes, lower the box A. If the lowering-rope



F<sup>2</sup> is then released, the small counterpoise-weight M will raise the longer arm of the bent lever L, and thus bring the several thimbles into an angular position, as shown in the drawing, and jam and twist the rope upon that side, so that it is impossible for it to move by any weight placed upon the car or box A. To raise the car or box A, the rope F upon the left hand in the drawing is pulled down. This also brings the several thimbles into line, releases the hoisting-rope at that end, and by means of the bent lever L and the swinging bar H also releases the rope at the other end, permitting the box A to be raised. When the car rises until its top strikes the bottom of the stop R, which is pivoted to L, it raises the longer end of L, and thus forces the links N into the angular position in which they lock the rope, stopping the machinery instantly, and prevents the hand-rope wheel from turning after the car has lifted the stop-bar R, and thus saves wear on the rope D.

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

1. The combination of a swinging horizontal bar provided with a pulley at one end, over which the hoisting-rope passes, a bent lever connected to a series of movable links, through which the hoisting-rope passes, pivoted to each

other and to a support, the car, counterbalance rope and weight, and the hoisting and counterbalance wheel, all constructed and operating substantially as set forth.

2. The combination of the counterbalance-wheel C, hoisting-wheel B, counterbalance-rope D, hoisting-rope F F<sup>2</sup>, and car A, with the swinging bar H, supported by link I, bent lever L, counterpoise-weight M, fixed pulley e<sup>3</sup>, and pulley h on the bar H, and the series of perforated links N, pivoted to each other and to the fixed bar O, all constructed and operated substantially as described.

3. The combination of the hoisting-wheel, rope, and car of an elevator with the horizontal bar H, provided at one end with a pulley, over which one end of the hoisting-rope passes, the links N, through which the other end passes, the bent lever L, and the pendent stop R, pivoted thereto, the whole operating to stop the hoisting mechanism and lock the hoisting-rope when the car has reached the upper limit of its course.

In witness whereof I have hereunto set my hand this 24th day of March, 1887.

JNO. F. TILMAN.

Witnesses:

CHAS. P. GILSON,  
JOHN M. STEARNS.