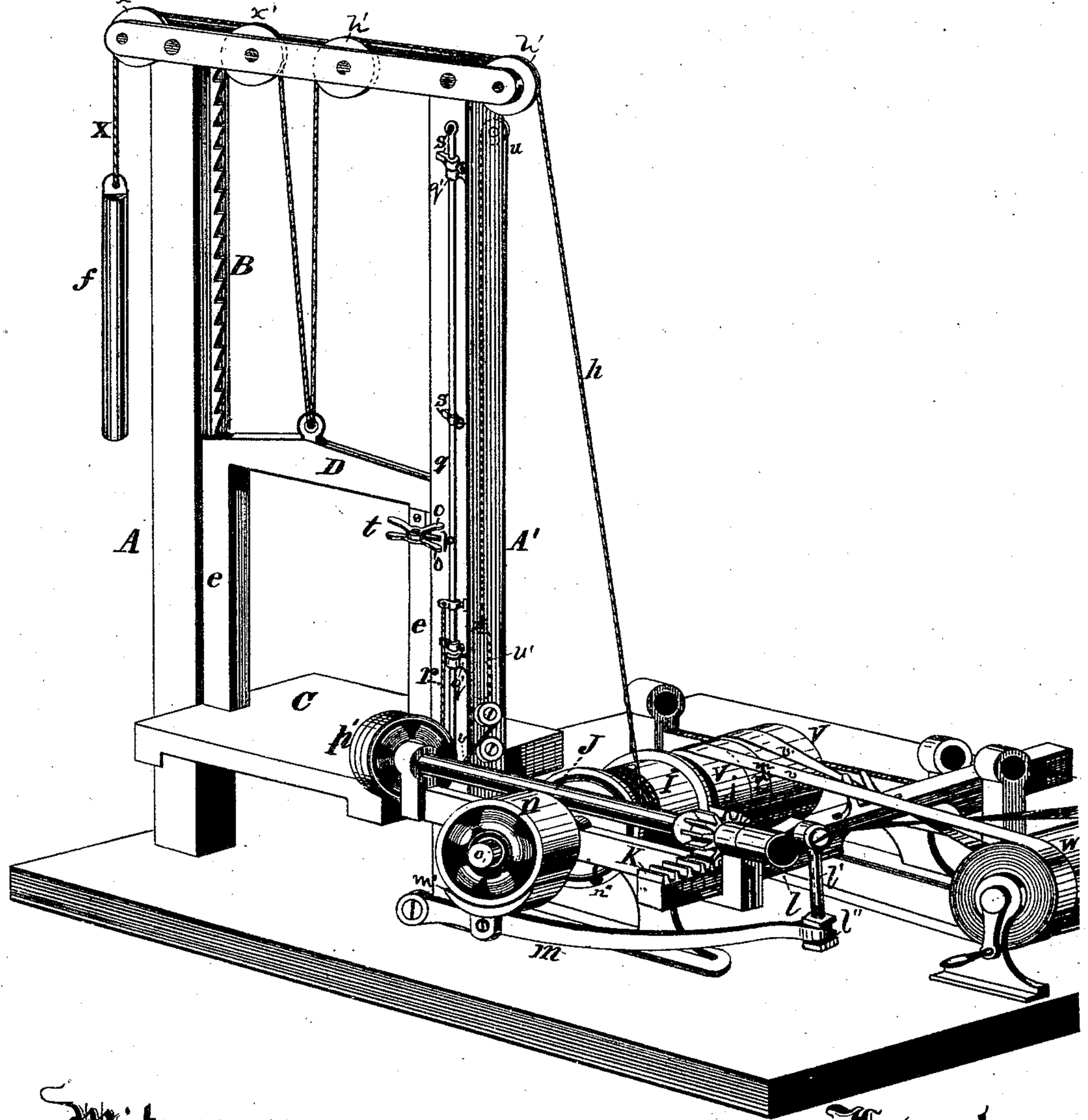
2 Sheets--Sheet 1.

E. SCHLENKER.

Elevators.

No. 156,067. Patented Oct. 20, 1874.

Figure. 1.



Witnesses.

O. Dierhs

Solomon Finley

Inventor.

Erhard Schlenker

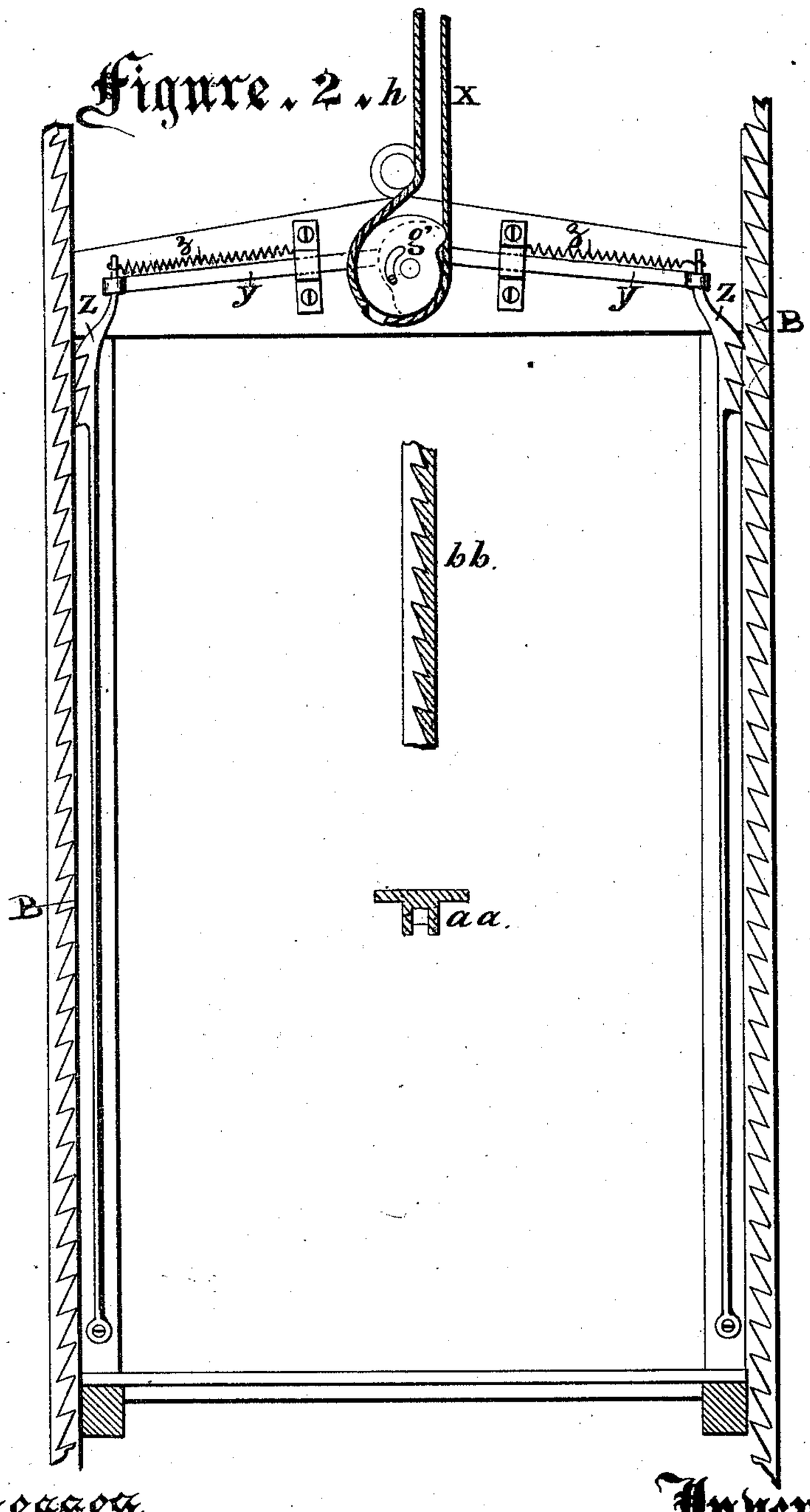
2 Sheets--Sheet 2.

E. SCHLENKER.

Elevators.

No. 156,067. Patented Oct. 20, 1874.

Figure 2.



Witnesses,

P. P. Pendit

Solomon Finley

Inventor,

Erhard Schlenker

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

ERHARD SCHLENKER, OF BUFFALO, NEW YORK, ASSIGNOR OF ONE-HALF HIS RIGHT TO RUFUS L. HOWARD AND GIBSON F. HOWARD, OF SAME PLACE.

IMPROVEMENT IN ELEVATORS.

Specification forming part of Letters Patent No. **156,067**, dated October 20, 1874; application filed June 16, 1874.

To all whom it may concern:

Be it known that I, ERHARD SCHLENKER, of Buffalo, in the State of New York, have invented a Power Hoisting-Machine, of which the following is a specification:

The object of my invention is to provide an economical, safe, and rapid hoisting-machine, for operation by steam power.

In the accompanying drawings, Figure 1 is a perspective view, showing my improved hoisting-machine. Fig. 2 is a vertical sectional view of the platform, showing the ways, safety-ratchets, &c. Fig. 2, *a a*, is a cross-section of one side of the platform-ways; and Fig. 2, *b b*, is a vertical section of part of the ratchet.

A A′ represent the upright ways; B, the ratchet; C, the platform; D, the draw-head, secured to the uprights *e e*. *f* is the safety-weight or counterpoise, connected with the cam *g* by means of the rope or chain *x*. *h* is the lifting rope or chain that connects with the winding-drum. These ropes or chains *x* and *h* pass over pulleys *x′* and *h′*, and connect with the cam *g*. *y y* are levers or bars attached to the draw-head D, the inner ends of which are arranged to be operated by contact of the cam *g*, and their outer ends have loops or eyes through which are passed the upper ends of long spring ratchets or bars Z Z. These ratchet-bars Z extend downward, and are secured to the uprights *e e*, near to the platform C. Their upper ends are also connected to the draw-head D by springs *z*.

The operation of the safety device is as follows: The ropes *h* and *k* being firmly secured to the outer periphery of the cam *g*, the latter will be retained in its normal position so long as there is any strain on the lifting-rope, or so long as the platform continues to be suspended thereby, and in this position the platform will be free to rise and descend, as required; but should the lifting-rope from any cause break, or become detached, so as no longer to suspend and sustain the platform, the counterpoise weight *f* will then operate by its gravity, and through its connecting-rope X will cause the cam to turn on its shaft or spindle and push out the rods or levers *y*, the inner ends of which rest against the face of the cam, thereby causing the ratchet ends of the spring-bars *z* to engage with the ratchets B, and immediately arrest the fall of the platform, and hold it securely until the damage or break in the lifting-rope is repaired.

J is a shaft, having a gear or pinion, *j*, which controls the operation of the brake and shipper bar K, for shifting the belt D on the pulleys. *l* is a crank on the end of the shaft J. *m* is the brake-lever, having a shoe, *m′*. The free end of the lever *m* is connected with the crank *l*, by means of a rod, *l′*, a rubber-block or cushion, *l″*, being inserted between the head of the rod *l′* and the end of the levers, so as to break the blow and compensate for wear. *n* is the brake-pulley, which is mounted on the shaft *o*. *p′* is a grooved wheel on the inner end of the shaft J. *q* is a rod passing vertically through brackets or eyes *q′*, secured to one of the ways A′. It is provided with a number of projecting dogs, *s*, which are adjustably secured to the rod at any required distance apart. *r* is a cord, which connects the rod *q* with the grooved wheel or pulley *p′*. *t* represents a stopping and locking device, which is secured to the upright *e* next to the rod *q*. As shown by Figs. 4 and 6 of the drawings, it consists of a bracket or arm, *t′*, to the outer end of which is pivoted two locking-levers, *o o*, and to which is also secured a projecting-arm or stop-pin, *p*. O is a hollow shaft mounted in proper bearings, on one end of which, as before stated, is the brake-pulley *n*. V V are two band-pulleys, loosely mounted on this shaft, and *m′* is a tight pulley secured to said shaft, so as to turn with it. Belts *v v′*, arranged to run in opposite directions, connect these pulleys with the counter-pulley *w*. *i* represents the winding-drum, mounted on the shaft *o*, and provided with internal bearings *d d*, for the gear wheels or pinions *g g* and *i′ i*. h^2 is the internal gear-wheel to which the power is transferred from the pinions *g g*. It is keyed fast to pinion k^2, which revolves loose on the shaft *o*. The pinions *i′ i′* transfer the power, and are connected by gearing in the inner side of the drum *i* and to pinion k^2. *n″* is a notch or angular opening cut in

flange of the winding-drum *i*, in which the end of the rope is secured in such manner that in case the platform gets foul and the rope unwinds it will become detached from the drum. *u* is a small cord, attached at one end to the grooved pulley *p'*, and passed between two small pulleys near the bottom, and over another at the top of way A', its other end carrying a weight, *u'*. This device is used to stop the elevator should the starting-rod *q* fail to operate. The rope or cord *u* being fastened to the grooved pulley on a line passing between the two small pulleys, it will wind in the grooved pulley in either direction, and by pulling upon it it will operate to stop the machine in the same manner as the rod *q*, as hereinatter more fully set forth.

The operation of the machine not previously hereinbefore set forth, is as follows: In order to start the machine by pulling down upon the starting or stopping rod *q* the shaft J will revolve through the operation of the wheel *p*, and, revolving, will move the shipping-rod *k*, and thereby ship the belt from the loose to the tight pulley, at the same time releasing the brake from the pulley or wheel *n*. The shaft *o* will now revolve, and with it the winding-drum I, and thereby, through the winding of the rope *h*, the platform will be elevated. When it is desired to stop the platform the operator turns the lower lock-lever *o* so that it will strike one of the dogs *s*, and, remaining in contact with it, will raise the rod *q*, thereby reversing the operation before described, and stopping the machine. To lock the machine when the desired elevation is reached, the upper locking-lever is turned so as to turn the rod *q* and bring the dog between the locking-levers, thereby securely holding it, so that it cannot be moved in either direction, or the machinery be disturbed or operated until again set in motion by the operator upon the platform. To reverse the motion and cause the platform to descend, both the locking-levers *o* are turned out of the way, and clear of the dogs on the rod *q*, which is then lifted up, thereby causing the shaft J to revolve in the opposite direction from that before described, thereby releasing the brake-shoe and shifting the belt, as before, and causing the platform to descend until the stop-pin *p* of the device *t* comes in contact with the lower dog *s*, and again stops the machine. The same pin *p* will prevent the platform rising too high by coming in contact with the upper dog *s*, which is secured at the proper height on the rod for that purpose.

In case the platform should meet with any obstruction in its descent, and the lifting-rope uncoil itself off from the drum, it will become detached or unhooked as soon as all is uncoiled through the notch or opening, allowing the knotted end to slip out, and thereby be prevented from rewinding upon the drum in an opposite direction.

Having thus described my improved hoisting apparatus, what I claim as my invention, and desire to secure by Letters Patent, is—

1. The cam *g*, in combination with the lever *y*, spring-bars *z*, and ratchets B, substantially as and for the purpose specified.

2. The rod *q*, having dogs *s* or equivalent device, operating in combination with the levers or striking and locking bars *o o*, stop-pin *p*, cord *r*, and wheel *p'*, and with hoisting mechanism, substantially as and for the purpose specified.

3. The flanged drum *i*, having countersink notches *n''* for the reception of the knotted end of the rope *h*, as and for the purpose set forth.

4. The combination of the drum *i*, shaft *o*, pulleys V V and *m*, shipper-bar *k*, shaft J, and pinion *j*, all operating in connection with a starting and stopping device, substantially as and for the purpose specified.

5. In combination with the starting and stopping device, the shaft J, crank *l*, rod *l'*, rubber-block *l''*, lever *m*, and shoe *m'*, all operating substantially as and for the purpose specified.

ERHARD SCHLENKER.

Witnesses:

P. P. BURTIS,

SOLOMON FINLEY.