

No. 729,433.

PATENTED MAY 26, 1903.

A. C. SMITH.
ELEVATOR.

APPLICATION FILED OCT. 13, 1902.

NO MODEL.

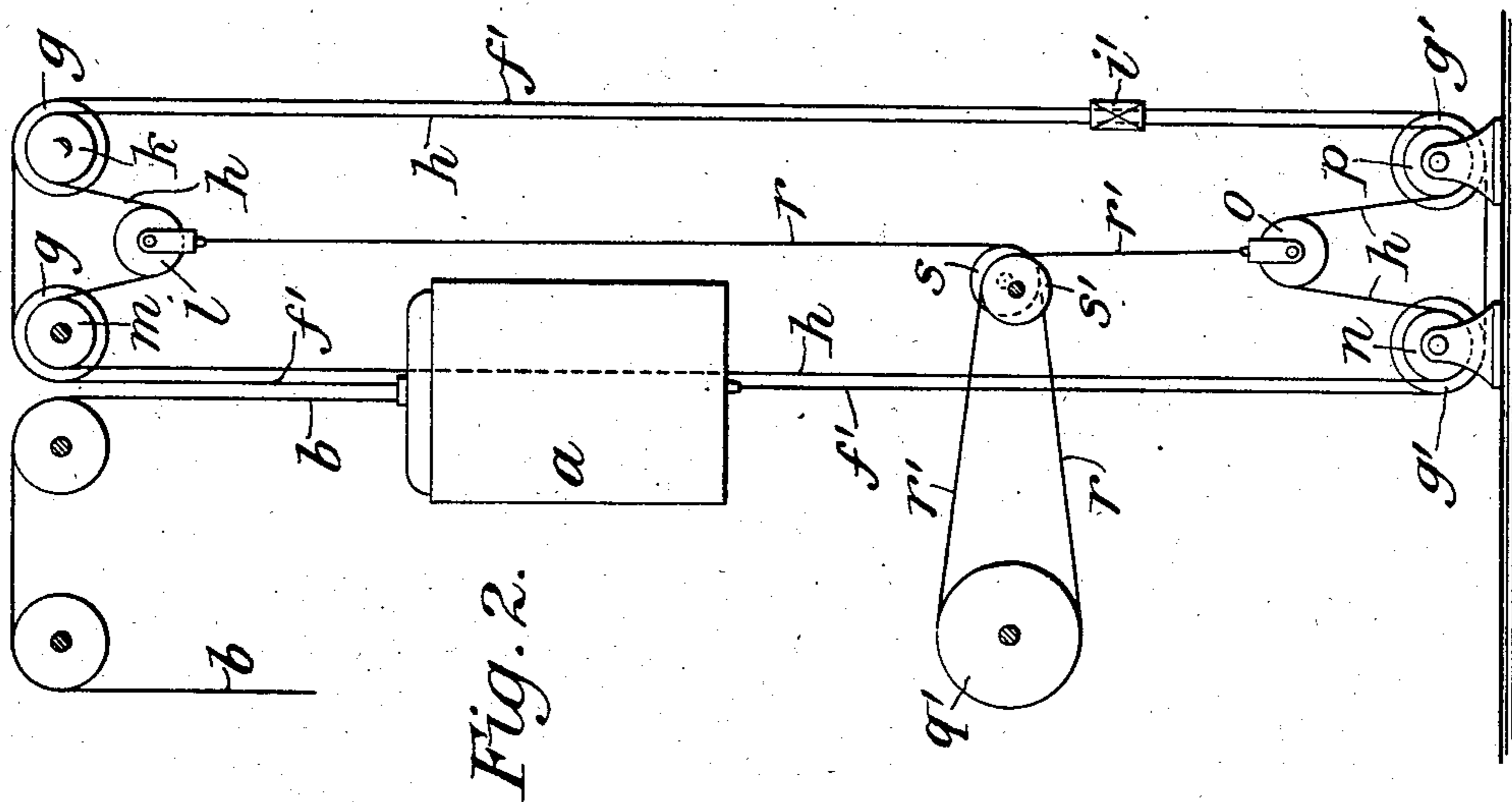


Fig. 2.

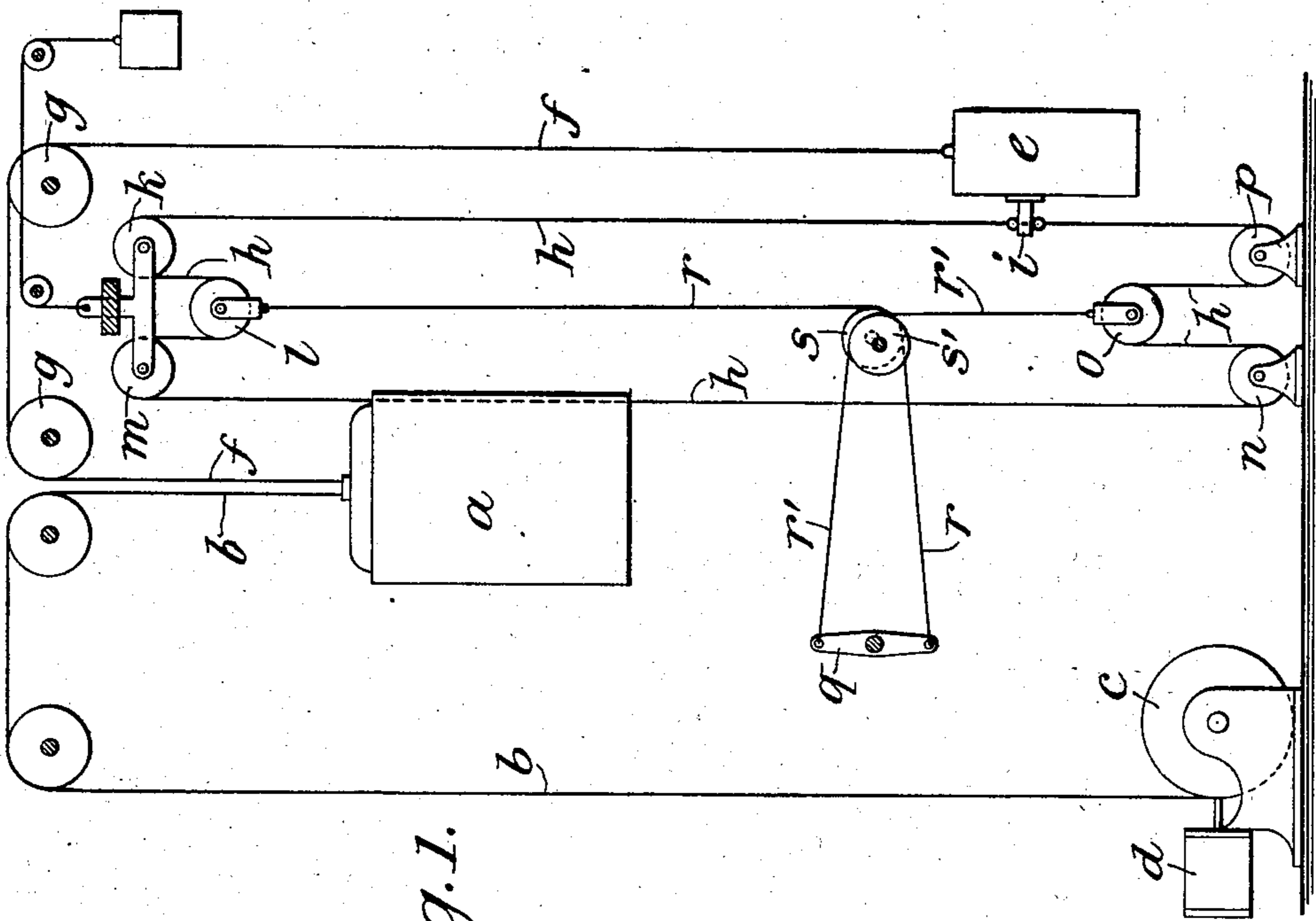


Fig. 1.

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UNITED STATES PATENT OFFICE.

AMOUR COLUMBUS SMITH, OF NEW YORK, N. Y., ASSIGNOR TO MARINE ENGINE AND MACHINE COMPANY, OF HARRISON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 729,433, dated May 26, 1903.

Application filed October 13, 1902. Serial No. 127,032. (No model.)

To all whom it may concern:

Be it known that I, AMOUR COLUMBUS SMITH, a citizen of the United States, residing in the borough of Manhattan, in the city of New York, State of New York, have invented certain new and useful Improvements in Elevators, of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

This invention relates to the means for controlling the movement of elevator-cars, and more especially to those devices which are operated by the conductor to actuate the valve, switch, or other device by which the speed and direction of movement of the hoisting mechanism are controlled.

One object is to make the controlling-rope stationary with respect to the car—that is, to move with the car in the same direction and at the same rate—so that it can at all times be readily grasped by the conductor and without danger of wearing or tearing his hands.

Another object is to multiply the power exerted by the operator, so that a slight pull shall be sufficient to move the controlling device in either direction.

The invention will be more fully described hereinafter with reference to the accompanying drawings, in which for purposes of illustration and explanation it is illustrated as embodied in convenient and practical forms, and in which—

Figure 1 is an outline drawing illustrating one application of the invention, the well-known devices being indicated conventionally. Fig. 2 is a similar view illustrating another application of the invention.

The elevator-car *a* and its hoisting mechanism (represented in Fig. 1 by a hoisting-rope *b*, a drum *c*, and a motor *d*) may be constructed and arranged in any usual or preferred manner, the present invention not being concerned therewith. If a counterweight *e* is employed, as indicated in Fig. 1, the same being connected to the car by a rope *f*, running over guide-sheaves *g*, as usual, advantage is taken of its employment to effect the necessary movement of the controlling-rope, while if such counterbalance-weight and rope are

not employed a rope *f'*, running over guide-sheaves *g* and *g'* at the top and bottom of the elevator-shaft, is provided, such rope having its ends connected to the car, as shown in Fig. 2, so that it shall travel with the car. In either case the controlling-rope *h* is connected to the traveling rope, as by a suitable clip *i* or *i'*, secured to the counterweight *e* or its rope or to the rope *f'*, so that the controlling-rope also shall travel with the car. At the top of the shaft the controlling-rope passes over a sheave *k*, under a floating or movable sheave *l*, and over a sheave *m*, the sheaves *k* and *m* being mounted, if desired, upon an ordinary compensating device, as shown in Fig. 1. At the bottom of the shaft the rope *h* passes under a sheave *n*, over a floating sheave *o*, and under a sheave *p*, the standing part of the rope between the sheaves *m* and *n* passing through the car. The floating sheaves *l* and *o* are connected to each other through the medium of the controller, which may be of any suitable character and is sufficiently indicated at *q* in Fig. 1 and at *q'* in Fig. 2, so that they shall move together and shall actuate the controller. Obviously the floating sheaves might be connected to the controller and to each other in different ways. As shown in Fig. 1, the floating sheaves are connected to ropes *r* and *r'*, respectively, which pass about guide-sheaves *s* and *s'* to opposite ends of the lever *q* in Fig. 1 or to opposite sides of the wheel *q'* in Fig. 2.

It will now be understood that the controlling-rope *h* moves or halts with the car under normal conditions, but is movable with respect to the car, and that a downward pull upon the rope within the car causes a corresponding upward movement of the floating sheave *l* through a distance equal to one-half of the length of said pull and permits a corresponding upward movement of the floating sheave *o*. Through the ropes *r* and *r'* a like movement in one direction or the other is imparted to the controller *q* or *q'*. The extent of movement of the floating sheaves is one-half that of the rope *h*, so that the force required to move the rope is only one-half of the resistance offered by the controller.

It is evident that any of the well-known arrangements of starting levers or wheels might be applied to the controlling-rope within the car, if desired, and that in general the details of construction and arrangement may be varied from those shown in the drawings without departing from the spirit of the invention.

I claim as my invention—

10 1. In an elevator, the combination of a car, a rope connected to the car to move therewith, a controlling-rope having one part passed through the car and one part connected to the first-named rope, guide-sheaves for the controlling-rope at the top and bottom of the shaft, a controller, floating sheaves at the top and bottom of the shaft and about which the controller-rope is passed, and ropes connecting said floating sheaves to opposite sides of the controller, substantially as described.

20 2. In an elevator, the combination of a car, a rope connected to the car to move therewith, a controlling-rope having one part passed through the car and one part connected to the first-named rope, a pair of guide-sheaves at the top of the shaft and a pair of guide-sheaves at the bottom of the shaft, a floating sheave intermediate the sheaves of each pair, the controlling-rope being passed about said
30 guide-sheaves and floating sheave, a controller

and connections from said floating sheaves to said controller, substantially as described.

3. In an elevator, the combination of a car, a rope both ends of which are connected to the car to move therewith, a controlling-rope having one part passed through the car and another part connected to the first-named rope, guide-sheaves for the controlling-rope, a floating sheave about which the controlling-rope passes, and a controller connected to said floating sheave, substantially as described.

4. In an elevator, the combination of a car, a rope both ends of which are connected to the car to move therewith, a controlling-rope having one part passed through the car and another part connected to the first-named rope, guide-sheaves for the controlling-rope at the top and bottom of the shaft, a controller and floating sheaves connected to the controller and to each other, the controlling-rope also passing about said floating sheaves, substantially as described.

This specification signed and witnessed this 23d day of September, A. D. 1902.

AMOUR COLUMBUS SMITH.

In presence of—

M. A. BRAYLEY,
ROSWELL S. NICHOLS.