

(No Model.)

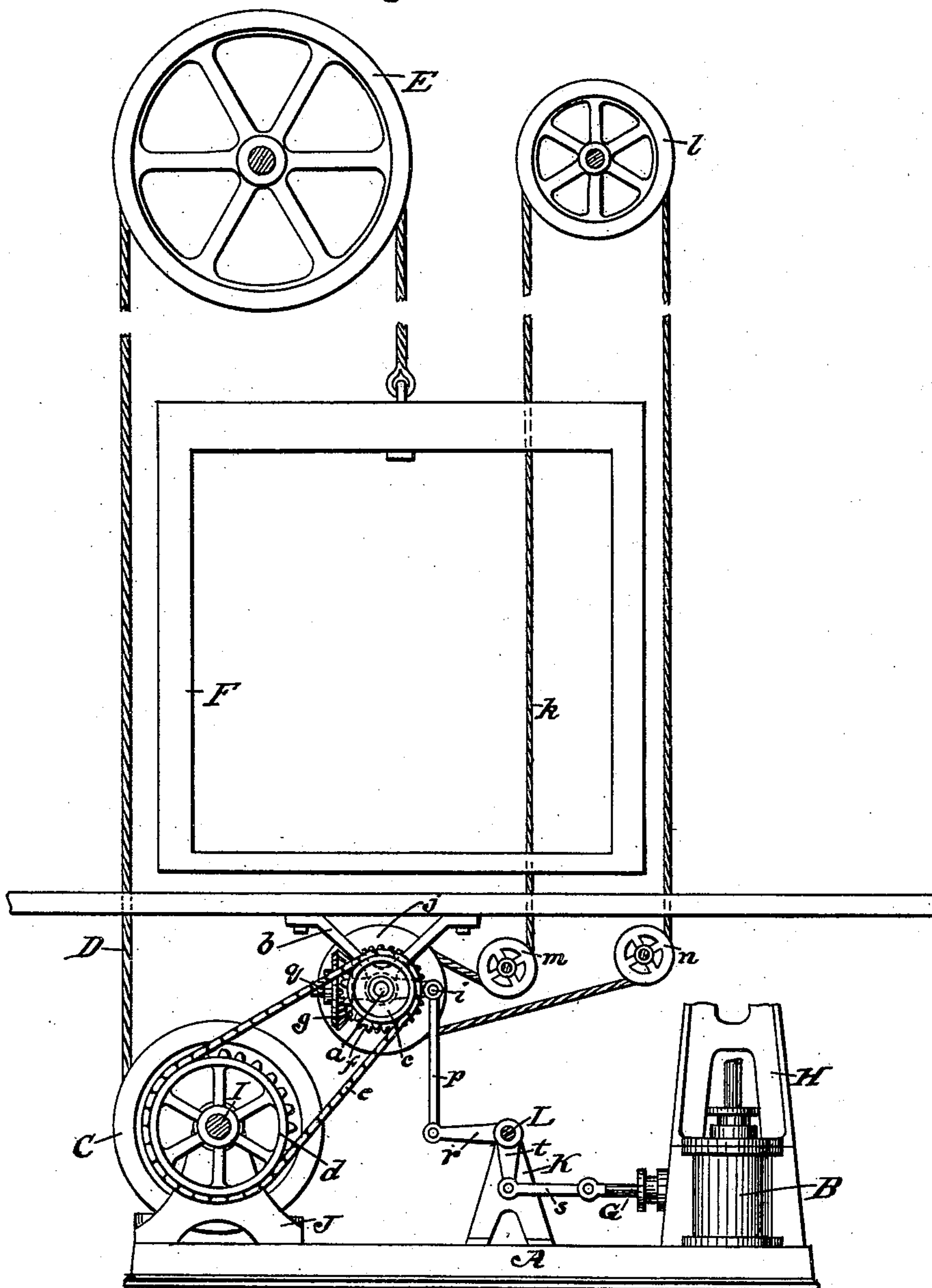
2 Sheets—Sheet 1.

C. E. MOORE.
OPERATING MECHANISM FOR ELEVATORS.

No. 488,526.

Patented Dec. 20, 1892.

Fig-1



WITNESSES:

Robt W Greenleaf
Joseph W. Moore.

INVENTOR

Charles E. Moore

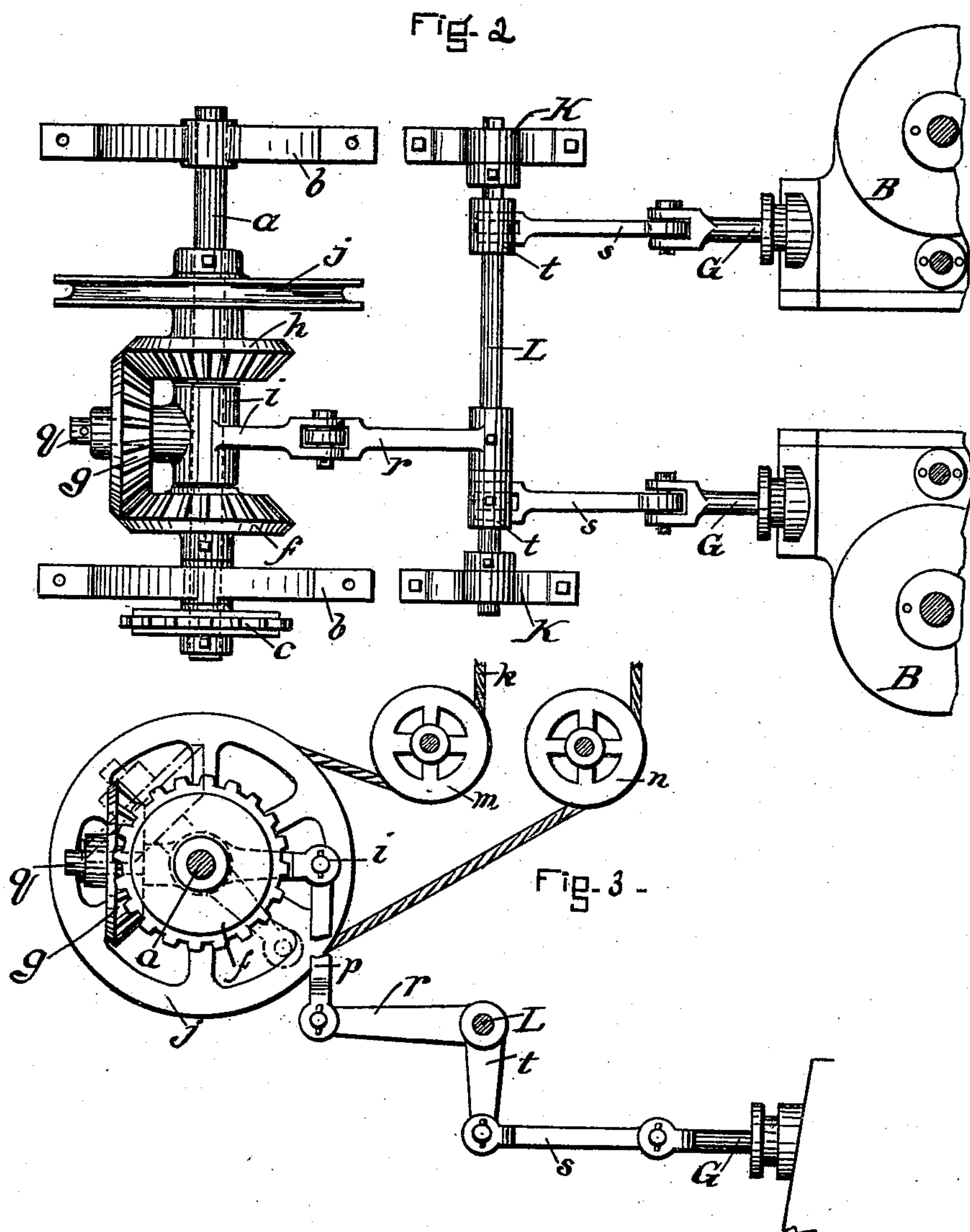
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2 Sheets—Sheet 2.

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WITNESSES:

Radney W. Greenleaf
Joseph H. Moore

INVENTOR

Charles E. Moore

UNITED STATES PATENT OFFICE.

CHARLES E. MOORE, OF BOSTON, MASSACHUSETTS.

OPERATING MECHANISM FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 488,526, dated December 20, 1892.

Application filed July 5, 1892. Serial No. 438,886. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. MOORE, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Operating Mechanism for Elevators, of which the following is a full description, reference being had to the accompanying drawings, making part of this specification, embodying my invention.

My invention relates to a device whereby the car of an elevator and the operating rope will both move at the same speed and in the same direction whenever the elevator is in motion; the operating rope not being attached to the car, but deriving its motion from differential mechanism, the said mechanism being driven from the drum-shaft, or from any of the other moving parts of the motor which drives the elevator. With the usual arrangement of the operating rope and its connections with the operating mechanism, the rope will remain at rest while the car is in motion and it is necessary, in order to stop the elevator, that the attendant grasp and hold the rope; and the time in which the elevator is stopped depends upon the speed at which the car may be moving, and with fast running elevators, this is a serious objection, as it causes a dangerous and disagreeable shock to the car, serious water hammer in hydraulic elevators, and also, carrying the operating mechanism beyond the stopping point and starting the elevator in the opposite direction.

With my improvement, the operating rope moves with the car, at the same speed and in the same direction; and the elevator can be stopped in any desired time independently of the speed at which the car may be moving.

The drawings represent my invention in connection with the operating valves of a steam elevator, only such parts of the elevator being shown as are connected with my improvement.

Figure 1 is a side elevation of an elevator having my improved operating mechanism applied thereto. Fig. 2 is a plan and Fig. 3 a side view of the differential mechanism.

A is the bed-plate of a steam elevator, B the cylinders, C the hoisting-drum, carrying

the hoisting rope D, which passes over the wheel E and is connected to the car F.

G are the operating-valve-stems, H the engine frame, I the drum-shaft, J the drum-shaft-stand, and K the stands of the rocker-shaft L.

All the parts above designated are common to all steam elevators and form no part of my invention.

The following designated parts relate to my invention and are shown on Sheets 1 and 2.

(a) is a shaft supported by the hangers (b), (c) a sprocket-wheel tight on shaft (a), (d) a sprocket-wheel tight on the end of drum-shaft I; the sprocket-wheels being connected by the link-belt (e).

(f), (g), and (h) are three miter gears, (f) being tight on shaft (a), (g) turning loose at the end of the forked lever (i), which lever, is loose on shaft (a), and (h) is also loose on shaft (a). Fastened to the hub of the gear (h) is a grooved wheel (j) which carries the operating rope (k), the said rope passing through the car, over the wheel (l) and down on the outside of the car around the wheel (j) guided by the leader wheels (m) and (n). To one end of the lever (i) is connected the rod (p) and at the opposite end is the gear (g) turning on the stud (q). The rod (p) connects with the lever (r), and the rod (s) with the valve-stems G and levers (t).

The operation of the above described mechanism is as follows:—The elevator being at rest with the car at the bottom of the hoistway, the operator in the car gives a downward pull to the operating rope (k) which turns the wheel (j) and gear (h), they being loose on the shaft (a); and as the shaft (a) can only turn when the elevator is in motion, the gear (h) will turn the gear (g) and move it around the gear (f) and carrying the lever (i) to the position shown by the dotted lines in Fig. 2, Sheet 2; and by the connections with the operating valve-stems G by the rods (s) and (p), levers (r) and (t), the valves are opened and the elevator started. Immediately when the elevator starts, the shaft (a) which drives the differential gearing will be set in motion, being driven from the drum-shaft of the elevator by the link-belt (e), and will turn the wheel

(*j*) by the gears (*f*), (*g*) and (*h*) driving the operating rope (*k*) at the same speed and in the same direction that the car is moving. Pulling the operating rope in the opposite direction closes the valves and stops the elevator.

What I claim as my invention and desire to secure by Letters Patent, is:—

The combination, with an elevator car and its hoisting and starting and stopping mechanism, of the shaft *a*, connected with and driven by the hoisting mechanism, the wheel *j* turning on said shaft *a*, the operating rope *k* traveling at the same speed and in the same direction as the car, said rope passing over said wheel *j* and a wheel *l* at the top of the hoistway, and the differential mechanism for transmitting motion from the wheel *j* to the starting and stopping mechanism and from the shaft *a* to the operating rope wheel *j*, said

differential mechanism consisting of the miter gear *h* turning loosely on said shaft *a* and having the wheel *j* immovably secured to its hub, the lever *i* connected at one end with the starting and stopping mechanism, a miter gear *f* immovably secured to the shaft *a*, and the miter gear *g* turning loosely on the end of the lever *i* and meshing with both of the gears *h* and *f*, all operating substantially in the manner and for the purpose set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 2d day of July, A. D. 1892.

CHARLES E. MOORE.

Witnesses:

RODNEY W. GREENLEAF,
JOSEPH W. MOORE.