

(No Model.)

C. E. MOORE.

CONTROLLING DEVICE FOR ELECTRIC ELEVATORS.

No. 496,382.

Patented Apr. 25, 1893.

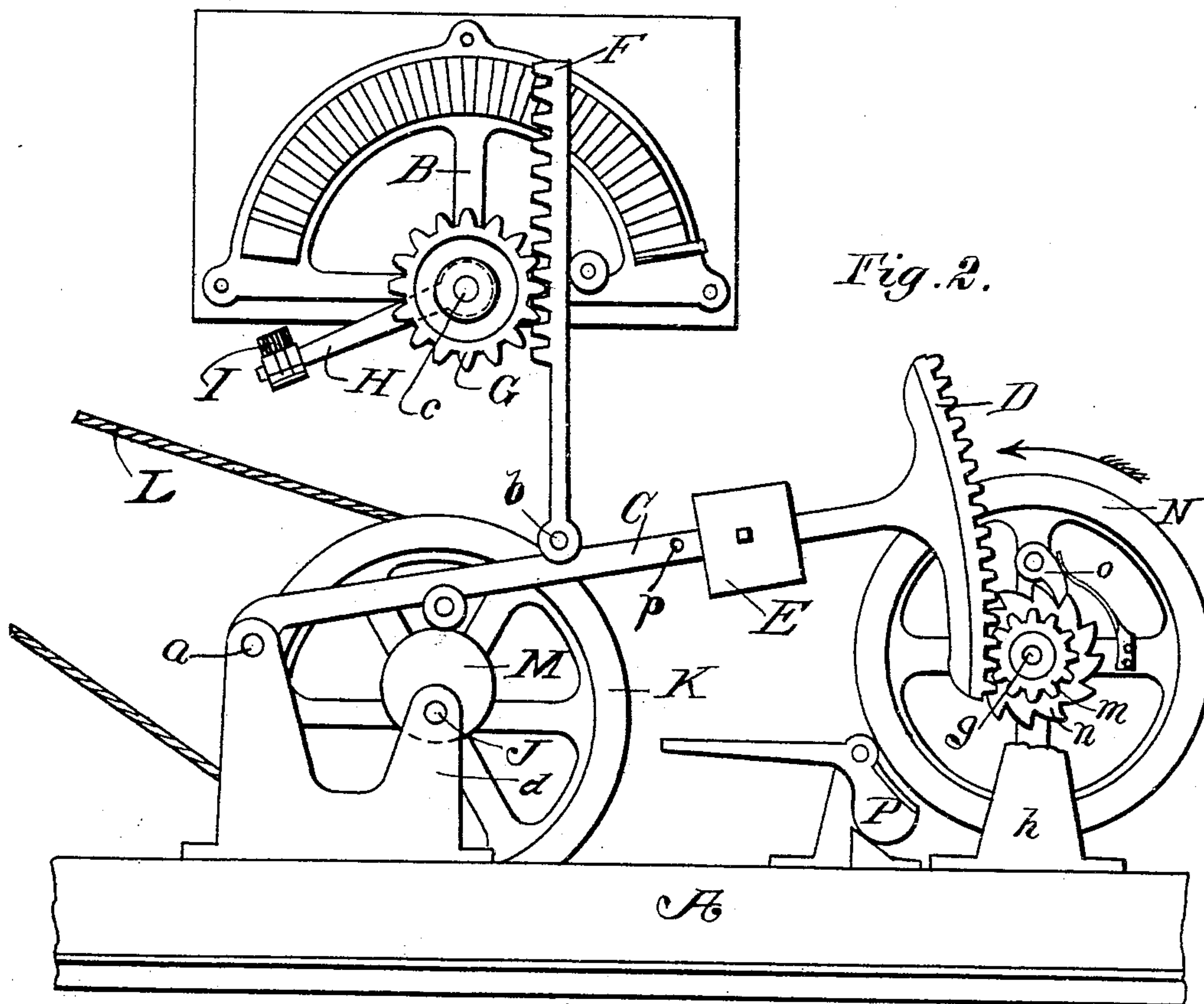


Fig. 2.

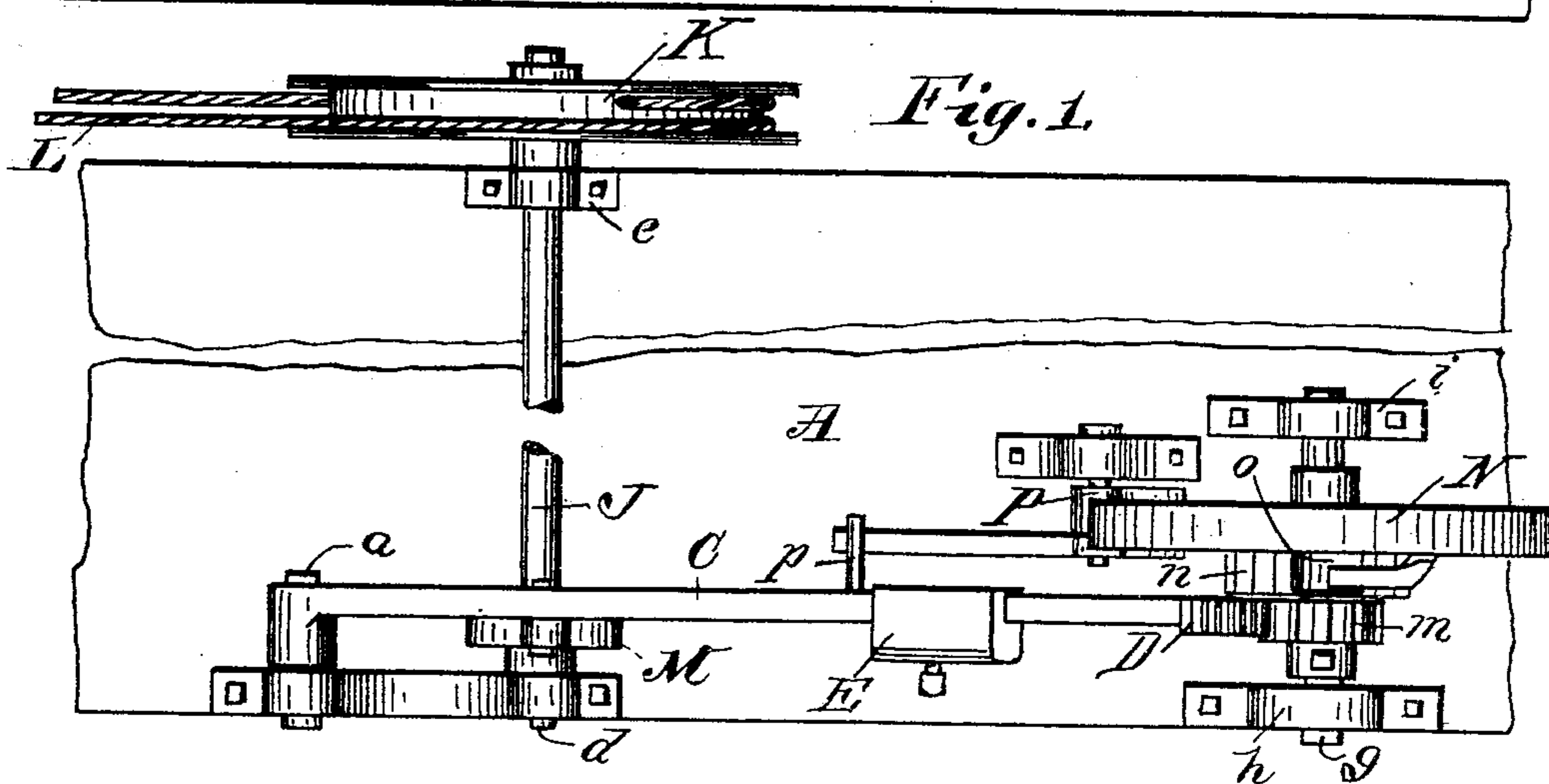


Fig. 1.

WITNESSES:

Harry H. Aikens
J. S. F. Huddleston

INVENTOR:

Charles E. Moore
by J. C. Teschemacher
Atty

UNITED STATES PATENT OFFICE.

CHARLES E. MOORE, OF BOSTON, MASSACHUSETTS.

CONTROLLING DEVICE FOR ELECTRIC ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 496,382, dated April 25, 1893.

Application filed June 21, 1892. Serial No. 437,541. (No model.)

To all whom it may concern:

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

My invention relates to a device for starting an electric elevator, by a slow and gradually increasing motion of the brushes across the contact points of the rheostat, and starting the motor and the elevator car without shock, or disturbance to the main circuit from which the current is obtained; the device working automatically and independent of the operator.

My improvement consists of a weight attached to a lever or rack, the descent of which, by gravity when released by the operator, starts and turns a wheel of considerable weight, and with the connections hereinafter to be described will operate the rheostat in the manner above stated. As it requires time to overcome the inertia of a wheel at rest and set in motion, the time of the descent of weight can be regulated by properly proportioning the operating mechanism, and thus the required time of operating the rheostat obtained.

The drawings, in which Figure (1) is an elevation and Fig. (2) a plan, represent my invention with the weight attached to a lever.

A represents the bed of an electric elevator, B the rheostat, C a lever with its fulcrum at (a); at the opposite end is a segmental rack D.

E is a weight, adjustable on the lever C. The rack F is pivoted at (b) and engages with the pinion G fastened to the spindle (c) of the rheostat.

H is the arm of the rheostat carrying the brushes I.

J is a shaft revolving in the bearings (d) (e.) On one end of the shaft J is fastened the operating rope wheel K, to which the operating rope L is attached; this rope generally passing through the car for the convenience of the operator. M is a cam, also fastened to the shaft J.

(g) is a spindle revolving in the bearings (h) and (i.)

N is a wheel with a thick rim to give it considerable weight, and fitted to turn easily on the spindle (g.)

(m) is a pinion tight on the spindle (g) and engages with the segment D. The ratchet-wheel (n) is also tight on the spindle (g) and turns the wheel N, only in one direction, by engaging the pawl (o), which is pivoted to the wheel N, with the ratchet-wheel (n.)

The drawings represent the position of the mechanism when the elevator is at rest. To start the elevator, the operator pulls on the operating rope L, which turns the shaft J one half of a revolution, disengaging the cam M from the lever C. The lever C is now free to descend by gravity, turning the spindle (g) and also wheel N in the direction of the arrow, by the means of the ratchet-wheel (n.)

As time is required to overcome the inertia of a wheel at rest and set in motion, the lever C will start, in its descent at a very slow speed, and gradually increasing to the end of its travel; and by the connections with this lever by rack F and pinion G, the same motion is imparted to the rheostat brushes in throwing on the current; thus starting the motor and the elevator-car without shock, or disturbing the main circuit, from which the motor is supplied. Just before the lever reaches the end of its travel, a stud (p) comes in contact with the arm of the brake P, which applies the brake to the rim of the wheel N and stops it.

The elevator is stopped by pulling the rope L in the opposite direction, the cam M raising the lever C, which brings the mechanism to the position shown on the drawings, and opening the circuit, and stopping the elevator. The wheel N is not turned with the spindle (g) on the return of the lever, as the ratchet-wheel (n) turns in the opposite direction and raises the pawl (o), connected to the wheel N.

I do not confine myself to the employment of the particular arrangement as above described, as it is evident, the same result can be obtained by the action of a spring upon the lever, to turn the wheel, or, a weight attached to the rack which operates the rheostat-arm, the rack also engaging the pinion to turn the wheel.

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

1. In an electric elevator-operating-mechanism, the combination, with the operating-rope-wheel, of a weighted rack, means whereby said weighted rack is raised when the operating-rope-wheel is rotated in one direction and released when said wheel is turned in the opposite direction, a rheostat for controlling the circuit through the motor, and suitable connections between the brush-arm of the rheostat and the said weighted rack whereby the brush arm is operated by the movement of said rack, and a retarding device connected with said weighted rack, said device consisting of a weighted wheel, a pinion revolving independently of said wheel and connected with the latter by a ratchet and pawl, and a second rack connected with the said weighted rack and engaging said pinion, all operating substantially as described.

2. In an electric elevator-operating-mechanism, the combination, with the operating-rope-wheel K, its shaft J, and the cam M thereon, of the weighted lever C, a rheostat having its brush-arm connected with the said weighted lever by a rack F, and a pinion G on the spin-

dle of the brush-arm, the weighted wheel N turning loosely upon the shaft g, the pinion m, and ratchet wheel n secured to the shaft g, the pawl o, on the wheel N, and the rack D secured to the lever C and adapted to engage the pinion m, all operating substantially in the manner and for the purpose set forth.

3. In an electric elevator-operating-mechanism, the combination of the weighted wheel N, the pinion m, revolving independently of said wheel and connected therewith by a ratchet wheel and pawl, a weighted lever provided with a rack engaging said pinion, said weighted lever being connected with the brush-arm of the rheostat which controls the circuit through the motor, and adapted to be raised by the movement of the operating-rope-wheel in stopping the elevator, a brake lever adapted to act upon the weighted wheel, said brake lever being actuated to apply the brake, by the weighted lever just previous to the termination of its downward movement, all operating substantially as set forth.

CHARLES E. MOORE.

Witnesses:

CHARLES E. WYMAN,
JOSEPH W. MOORE.