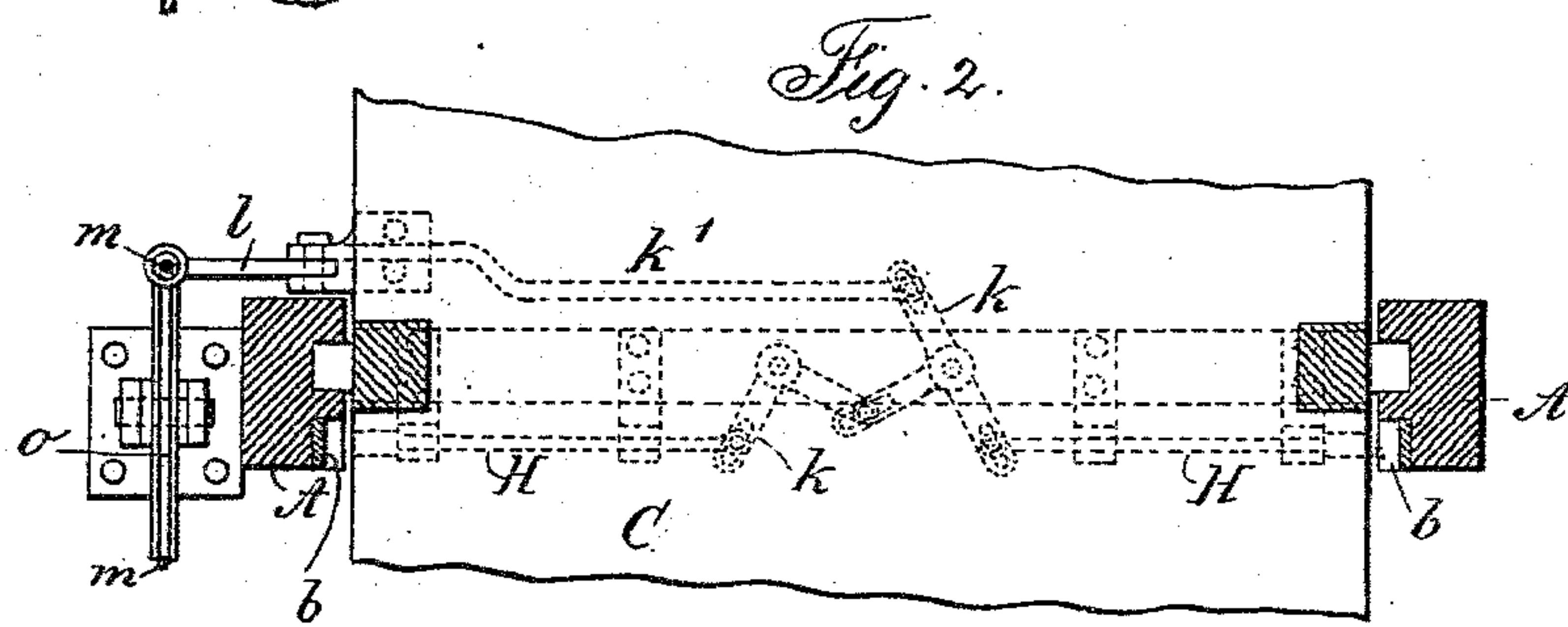
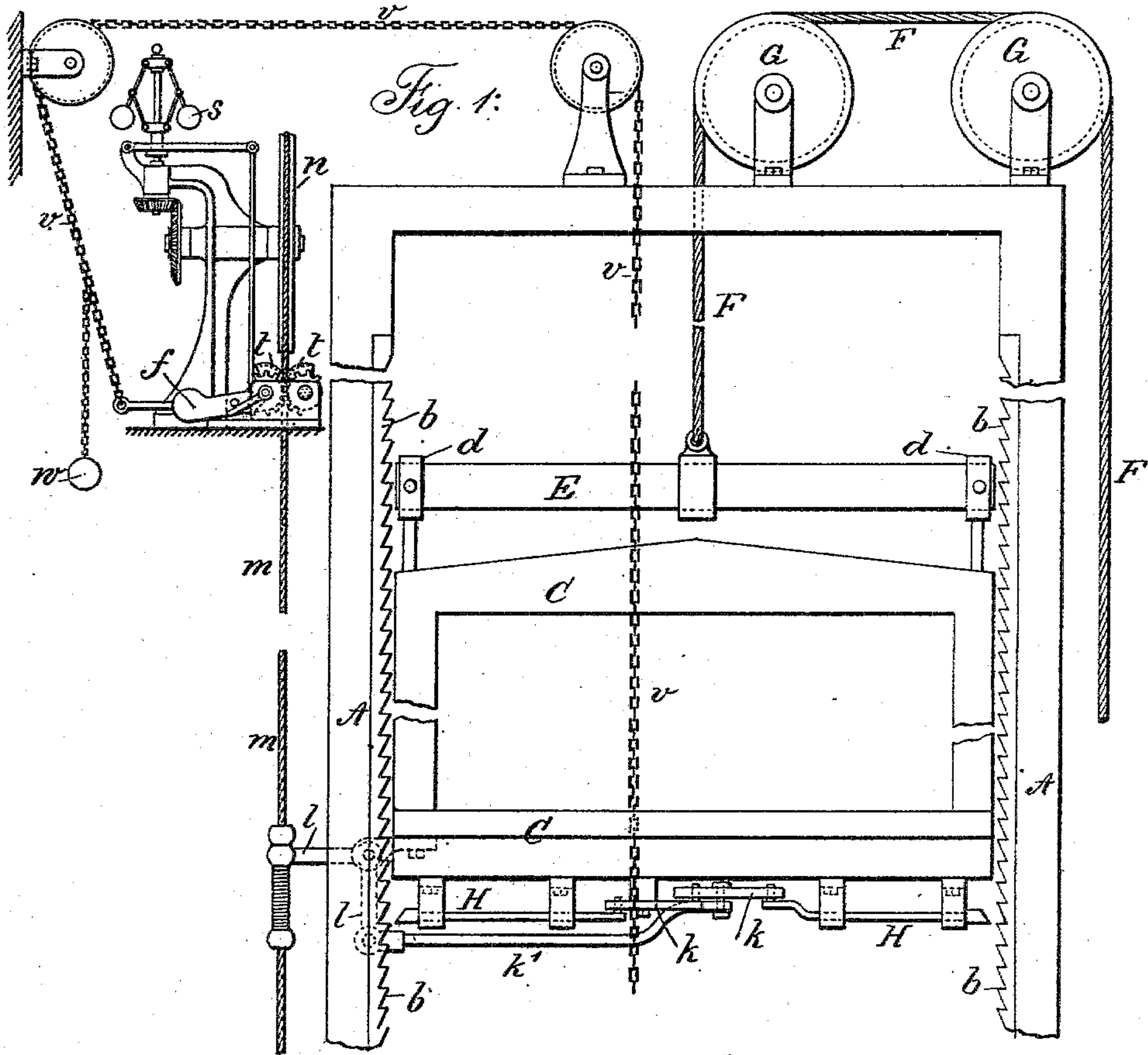


(No Model.)

J. T. PINE.
SAFETY ELEVATOR.

No. 287,959.

Patented Nov. 6, 1883.



Witnesses:
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Chas. H. Smith

Inventor
John T. Pine
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UNITED STATES PATENT OFFICE.

JOHN T. PINE, OF NEW YORK, N. Y.

SAFETY-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 287,959, dated November 6, 1883.

Application filed September 10, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. PINE, of the city and State of New York, have invented an Improvement in Safety-Elevators, of which the following is a specification.

Elevators for buildings have been made with safety dogs or catches beneath the car, which dogs are thrown out by the action of a rope passing over a pulley at the top and down beneath a pulley at the bottom, the ends of the rope being connected to the lever of the dogs upon the car. In connection with this device governor-balls have been employed, so that if the car descends faster than a given rate of speed the governor-balls will bring into action a clamp to hold the rope, and thus cause it to operate the lever and dogs that hold the descending car. A device of this kind may be seen in Letters Patent No. 228,107 to C. R. Otis. In this instance considerable time may elapse after the breaking of the hoist-rope or other derangement of the parts before the dogs are brought into action, and during this time the car is gaining speed as it descends, and hence when the dogs are brought into action they are sometimes broken by the concussion due to the sudden stoppage of the car, or else the car itself or some other portions of the elevator are ruptured at the risk of injury to the occupants of the elevator, and sometimes involving loss of life.

My invention is for rendering the elevator much more safe by adding to the automatic devices heretofore used a mechanism that is under the control of the persons in the car, whereby the dogs can be instantly locked to hold the car in position, without waiting for the automatic device to be operative, which might not come into operation with sufficient rapidity to insure safety.

In the drawings I have represented by an elevation, Figure 1, the general relation of the respective parts, and in Fig. 2 a plan showing the arrangement of levers and links acting on the dogs to stop the car.

Upon reference to the aforesaid Patent No. 228,107, the general construction and arrangement of an apparatus will be found to which my improvement can be applied; but I do not limit my device to its use with the said apparatus, but intend to use the same with any elevating apparatus in which the stops or

pawls on the car are brought into action by a rope passing over pulleys at top and bottom of the hoistway.

The stationary slides A A are placed vertically in the hoistway, and upon them are the rack-teeth *b*. The car or cage C is provided with jaws or sliders upon the vertical slides A, and there are suspending-slings *d*, and a cross-head, E, to which the hoist-rope F is attached. The said hoist rope passes over pulleys G G at the top, and is operated by suitable power.

Upon the car C, preferably at the bottom, there are the pawls or bolts H, that are adapted to engage with the rack-teeth *b*, and there are levers and links *k*, by which these are operated simultaneously, and a bent lever, *l*, one end of which is connected to the lever *k* by a link, *k'*, and the other end is connected to the rope or cable *m*, that passes at the top over the grooved wheel *n*, and at the bottom beneath the grooved wheel *o*.

There are in use several forms of safety appliances for arresting or retarding the movement of the car in its descent. Some are frictional and others positive stops. Any of these known appliances may be used for arresting the downward movement of the car, and I remark that the devices shown and described are only introduced to illustrate a mechanism that may be used, and I do not limit myself to the same. As the car is drawn up, the safety-rope *m* is moved with it, and it runs freely over the grooved wheels *n o* and rotates them. If the movement of the rope *m* is stopped as the car is descending, the pull of said rope upon the levers as the latter move with the car causes the engagement of the locking-dogs or safety mechanism with the rack-teeth and the immediate stopping of the car. In some instances the rotation of the upper pulley, *n*, has given motion to a governor, *s*, and when the speed of such governor has exceeded a given rate the governor has brought into action a clamp or clamps, *t*, that detain the rope and cause the lever *l* to operate the safety-pawls. This governor may be used with my invention or not, as there are other appliances that have been employed to bring into action the safety-pawls when the hoisting-rope breaks or the car falls.

My improvement especially relates to the

combination, with the safety catches or bolts, and the rope or cable m and its wheels n o, of a clamp that is operated by hand in the car, and serves to detain such rope m and cause
 5 the safety catches or pawls to be operative instantly in arresting the downward movement of the car, thus enabling the attendant in the car to instantly apply the safety locking device independently of the automatic devices
 10 operated by the accelerated movement of the car, so that the risk of injury from the breaking of the hoisting-rope is greatly lessened.

The rope, chain, cord, or wire rope v hangs vertically in the hoistway. At the top of such
 15 hoistway it passes over one or two guide-pulleys, and its end is connected with the clamp t by a lever, f . There is a weight, w , attached near the upper end of the chain v , to counter-balance the weight of said chain and prevent
 20 it from lifting the lever f and clamping the rope m , except when drawn upon by hand. If a person in the car C seizes this chain or rope v , it is pulled upon as the car descends, and the clamp t is immediately swung against the
 25 rope m , stopping its movement and acting through the levers and parts connected with the descending car upon the pawls or dogs, causing them instantly to engage with the rack and stop the car in its further movement. The
 30 car can thus be stopped by a careful attendant and locked without acquiring any accelerated velocity. At the same the automatic device is not interfered with, and will come into action

if the attendant is not sufficiently prompt in stopping the car.

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I claim as my invention—

1. The combination, with safety-catches, the rope m , its wheels, and the levers connecting the catches and rope, of a clamp applied to the rope m , and a vertical chain or rope passing
 40 at the upper end over a pulley and connected with the clamp, substantially as set forth.

2. The combination, with an elevator car or platform, of safety-catches, a rope to operate the same, wheels for such rope to pass over, a
 45 clamp to detain the rope, and a vertical chain or rope to operate the clamp, substantially as set forth.

3. The combination, with the elevator car or platform and the safety-catches upon the
 50 same, of a rope or cable to operate such catches, wheels for said rope, a governor actuated by one of the wheels, a clamp acted upon by the governor, and a rope or chain passing vertically of the elevator-shaft and connected at
 55 the upper end to the clamp, substantially as set forth, whereby the safety-catches can be brought into action either by the governor or by a person in the car, substantially as set forth.

Signed by me this 6th day of September, A.
 D. 1883.

JOHN T. PINE.

Witnesses:

GEO. T. PINCKNEY,
 WILLIAM G. MOTT.