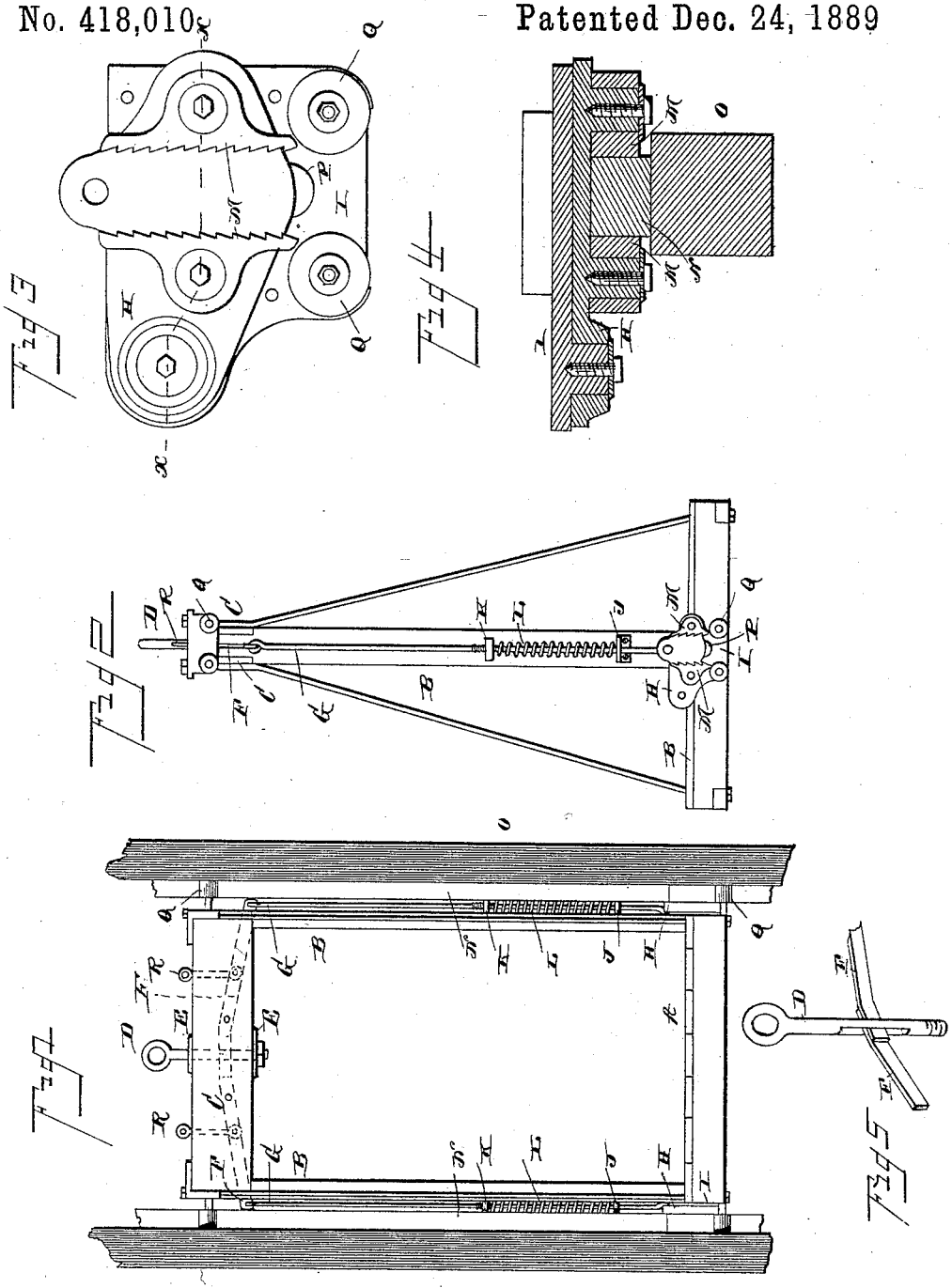
(No Model.)

M. T. GREENLEAF.

SAFETY DEVICE FOR ELEVATORS.

No. 418,010. Patented Dec. 24, 1889



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UNITED STATES PATENT OFFICE.

MILLER T. GREENLEAF, OF QUINCY, ILLINOIS.

SAFETY DEVICE FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 418,010, dated December 24, 1889.

Application filed April 2, 1889. Serial No. 305,715. (No model.)

To all whom it may concern:

Be it known that I, MILLER T. GREENLEAF, a citizen of the United States, residing at Quincy, in the county of Adams and State of Illinois, have invented a new and useful Improvement in Automatic Safety-Stops for Elevators, of which the following is a specification.

My invention relates to improvements in safety attachments for elevators, and has for its object the provision of a simple and efficient device by the use of which the elevator can be instantly stopped in the event of the hoisting-cable breaking or suddenly slacking.

The invention consists in certain novel features hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a front elevation of an elevator having my improvement applied thereto. Fig. 2 is a side view of the same. Fig. 3 is an enlarged view of the stopping devices. Fig. 4 is a sectional view on the line *x x* of Fig. 3. Fig. 5 is an enlarged detail perspective view of the levers and the central eyebolt.

In the drawings I have shown my improvements as applied to a freight-elevator, consisting of the platform A, the standards B B, rising from the side edges of the platform, and the cross-bars C, connecting the upper ends of the standards. It will be readily understood, however, that the construction of the elevator forms no part of my invention, and my improvements can be applied to a passenger-elevator as well as to a freight-elevator.

The hoisting-cable is secured to an eyebolt D, which passes downward between the cross-bars C C, and is secured in position between the same by the washers or plates E E, in which it is mounted, and which are fastened to the upper and lower sides of said cross-bars. The eyebolt is provided near its lower end with a longitudinal slot, in which the inner ends of the levers F F engage. These levers F are pivoted between the cross-bars C C, and their outer ends project through longitudinal slots in the upper ends of the standards B. To the said outer ends of these levers I secure the upper ends of the rods G, which pass downward alongside of the standards and have their lower ends secured to the locking-plates H, which are pivoted on brackets I, secured to the sides of the platform A and the standards B. The rods G pass through lugs J, projecting from the standards B, and above the said lugs they are threaded and provided with the jam-nuts K, a coiled spring L being arranged around the rod between the lugs J and the said jam-nuts.

Dogs M M are pivotally secured upon the locking-plate H, and are arranged on opposite sides of the vertical guides N, which are provided on the inner sides of the posts O, extending vertically the entire height of the elevator-shaft and between which the elevator moves. The locking-plate rests normally on the stud or pin P, projecting from the bracket I, as shown most clearly in Fig. 3.

The elevator is provided at its upper and lower ends with the rollers Q, which bear against the opposite sides of the guides N, and thereby cause the elevator to move in a true vertical line.

In order that the safety devices may be applied to elevators which employ counterbalancing-weights, I provide stirrups R, which project upward from the levers F. To these stirrups the cable supporting the counterbalancing-weights may be secured, in which case the weights act in conjunction with the spring L.

The construction and arrangement of the parts of my invention having been described, the operation and advantages of the same will be readily understood. When the parts are in their normal position, the tension of the hoisting-cable will hold the eyebolt D raised, and consequently maintain the inner ends of the levers F in an elevated position and the outer ends of the same depressed, so that the locking-plates will be lowered and the dogs will not bind against the guides. Should the hoisting-cable, however, break or suddenly slacken, the springs L will at once throw the rods G upward, consequently raising the locking-plates so that the dogs will swing against the sides of the guides N and clamp the same so as to support the elevator and prevent it from falling.

My device, it will be seen, is composed of few parts, which are simple in their construction and are compactly arranged. The device is automatic and positive in its operation, and will be brought into play instantly on the diminution of the tension of the hoisting-ca-

ble. The jam-nuts on the suspending-rods can be adjusted along the said rods, so as to increase or diminish the tension of the springs arranged around the same, as may be desired.

Owing to the simplicity of my device, it can be manufactured and applied to any elevator at a slight expense, and in the case of any one part being broken or otherwise rendered useless it can be quickly removed and a new part substituted without necessitating the provision of an entirely new device.

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

1. The combination of the locking-plate pivotally mounted on the elevator-car, the dogs pivoted on said locking-plate and arranged on opposite sides of the elevator-guides, and mechanism, substantially as described, whereby upon the tension of the hoisting-cable being released the locking-plate will be raised and the dogs clamped on the elevator-guide, as set forth.

2. The combination, with the elevator-car and the elevator-guides, of the brackets secured to the lower portion of the elevator-car and having the laterally-projecting studs or pins P, the locking-plates pivoted on the bracket and adapted to rest on said studs, the dogs pivoted on the locking-plates and adapted to engage the opposite sides of the elevator-guides, the rods G, secured to and extending upward from the locking-plates, the springs adapted to elevate said rods upon the release of the tension of the hoisting-cable, the eyebolt secured to the hoisting-cable, and the levers between said eyebolt and the rods G and actuated by the said eyebolt to hold the rods normally depressed, as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

MILLER T. GREENLEAF.

Witnesses:

SAMUEL WOODS,

GEORGE THRUSH.