H. PEARCE.

Automatic Brake for Elevator.

No. 167,560. Patented Sept. 7, 1875.

FIG. 1.

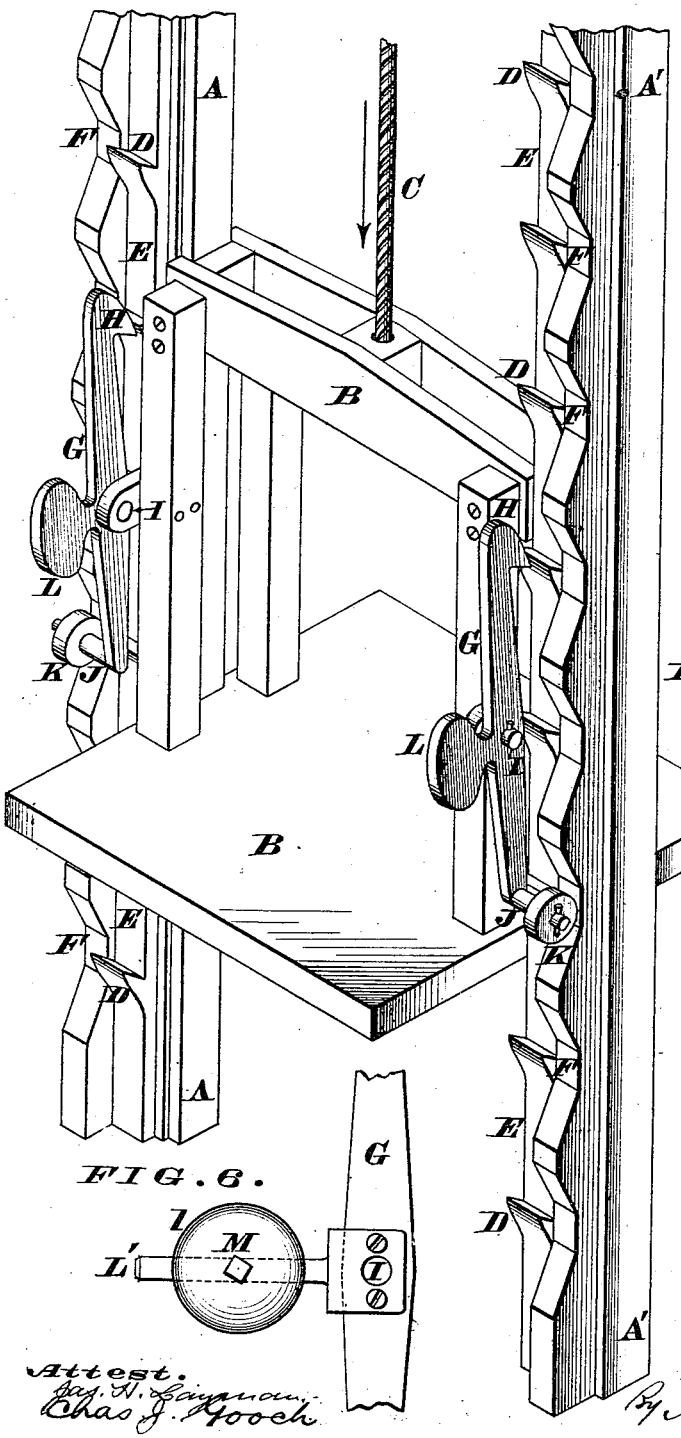

FIG. 2.

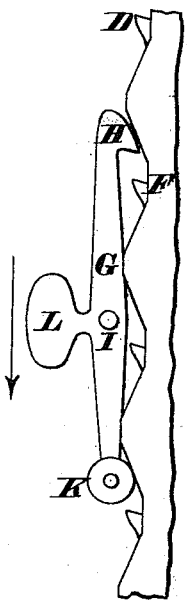

FIG. 3.

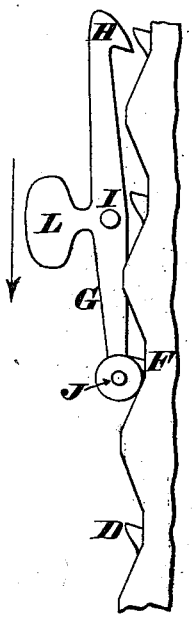

FIG. 4.

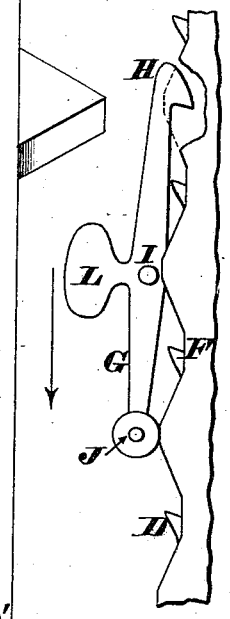

FIG. 5.

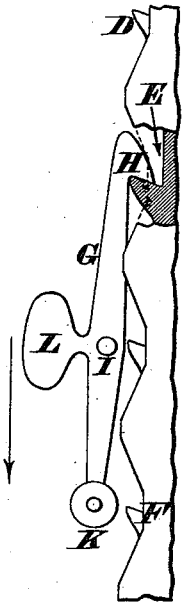

FIG. 6.

Attest.
Jas. N. Laymon.
Chas J. Hooch

Henry Pearce
By Knight Bros Att'ys.

UNITED STATES PATENT OFFICE.

HENRY PEARCE, OF CINCINNATI, OHIO.

IMPROVEMENT IN AUTOMATIC BRAKES FOR ELEVATORS.

Specification forming part of Letters Patent No. **167,560**, dated September 7, 1875; application filed August 17, 1875.

To all whom it may concern:

Be it known that I, HENRY PEARCE, of Cincinnati, Hamilton county, Ohio, have invented a new and useful Automatic Brake for Elevators, of which the following is a specification:

This invention, while applicable to every kind of elevator-platform, is more especially designed for those which are operated by a hoisting-cable, and is intended to prevent the fall of the platform in the event of the giving way of the cable from any cause.

The ordinary safety devices depend on the working parts going into prompt operation the moment the platform begins to fall, while mine keeps hold and only lets go as the platform travels up or down in its customary work, so that the safety device is in a condition of visible and constant efficiency.

My invention consists essentially of an escapement latch or pallet pivoted to the platform and weighted on one side, and of two racks made fast in the hatchway, of which one coacts with such side weight to vibrate said escapement-latch, and to cause it to promptly engage with the other rack in the event of a sudden descent of the platform, as hereinafter explained.

In the accompanying drawing, Figure 1 is a perspective view, representing a platform and portion of a hatchway provided with my improvement. Figs. 2, 3, 4, and 5 are side elevations, showing my escapement-latch in different positions upon the rack. Fig. 6 represents a modification of my overpoise.

The following parts may be of customary or any approved form, to wit: Stanchions A A′, the cage or platform B, and the hoisting and suspending cable C. These members require, therefore, no specific description. To either or both of the stanchions I attach one or more peculiarly-formed duplex racks. Each of said duplex racks consists of a series of equidistant upturned ratchet-teeth, D, with interposed depressions E. The other member of said duplex rack consists of a series of obtuse serrations or undulations, F, whose consecutive distances are precisely equal to those of the ratchet D.

The illustration shows one of such duplex racks attached to each stanchion; but it is evident that each stanchion may have such a duplex rack on its rear as well as on its front side, and the ratchet-teeth of one rack may either—as in the present illustration—occupy corresponding levels with those on the other duplex rack, and consequently become effective simultaneously therewith, or the teeth of the respective duplex racks may be set at slightly-different elevations, so as to reduce the distance of platform fall before its arrest by the brake action.

G is my pallet or escapement-latch, the same consisting of a steel or wrought-iron bar, having a hooked upper extremity, H, which hook projects in the plane of said bar's vibration about a horizontal pivot, I, by which said latch is secured to the side of the cage or platform. The pivot I is located near the mid-length of said bar, but sufficiently to one side of its center of gravity to secure a preponderating weight or overpoise for the front edge of said bar, sufficient to cause the hooked upper end H to tend to retire from and pass without contact over the ratchet-teeth D during the normal action of the platform. A wrist, J, which extends laterally from the lower end of the escapement, carries a roller, K, which, during the normal action of the hoist, rests upon the undulating edge of the member F. Said roller, or, at least, its periphery, may be composed of india-rubber or other elastic material.

In order to insure the proper overpoise of the latch G there may be a projection, L, from its front edge. This projection may take the form of a bar, as at L′, Fig. 6, and the weight proper *l* be secured thereto by a screw, M, or other means, so as to be adjusted at will.

The undulating member F might be dispensed with, and the roller K be operated by contact with the ratchet D.

That portion of the hook H which in the breaking action comes in contact with the ratchet D may be shod or plugged with lead or other material softer than that of which the bar proper is composed, in order to ease the percussion incident to sudden contact.

I have shown my safety device in its application to prevent a sudden descent of the platform; but it may manifestly be made available to prevent a too rapid ascent of a coun-

terbalanced platform by a simple reversion of the parts.

The operation of my brake is as follows: So long as the platform is ascending or descending in the usual way the overpoise of the escapement, by pressing the roller K into the depressions of the undulation F, causes the hook H to pass without touching the ratchet D. The moment, however, that the platform breaks loose from its cable, the platform and the overpoise descend with equal rapidity, so as to neutralize or destroy, for the time being, the relative gravity of the overpoise, and consequently the hook H retains the rearward position, to which the last effective prominence of the undulation F has forced it, (see Fig. 4,) and by the descent of the platform becomes interlocked with the nearest ratchet-tooth, as in Fig. 5.

This safety device, being continually in motion during the normal operation of the hoist, gives assurance of its instant efficiency in the event of accident. The constant clearance of the escapement during normal action of the platform is attributable to the weighted side of the latch being free to drop more quickly than the more slowly-descending suspended platform. On the contrary, the instant that the platform breaks loose from its cable, it is, of course, at liberty to descend as quickly as any part of the escapement, whose relative gravity, being thus neutralized, is no longer effective to draw the hook clear of the ratchet, and these members, then interlocking, effectually arrest the platform.

I claim as new and of my invention—

1. The combination of duplex rack D F, attached to the hatchway, and escapement-latch or pallet G, pivoted eccentrically to the hoist, or their equivalents, substantially as set forth.

2. In combination with duplex rack D F, or its equivalent, the overpoised latch or pallet G H I J.

In testimony of which invention I hereunto set my hand.

HENRY PEARCE.

Attest:

GEO. H. KNIGHT,

WALTER KNIGHT.