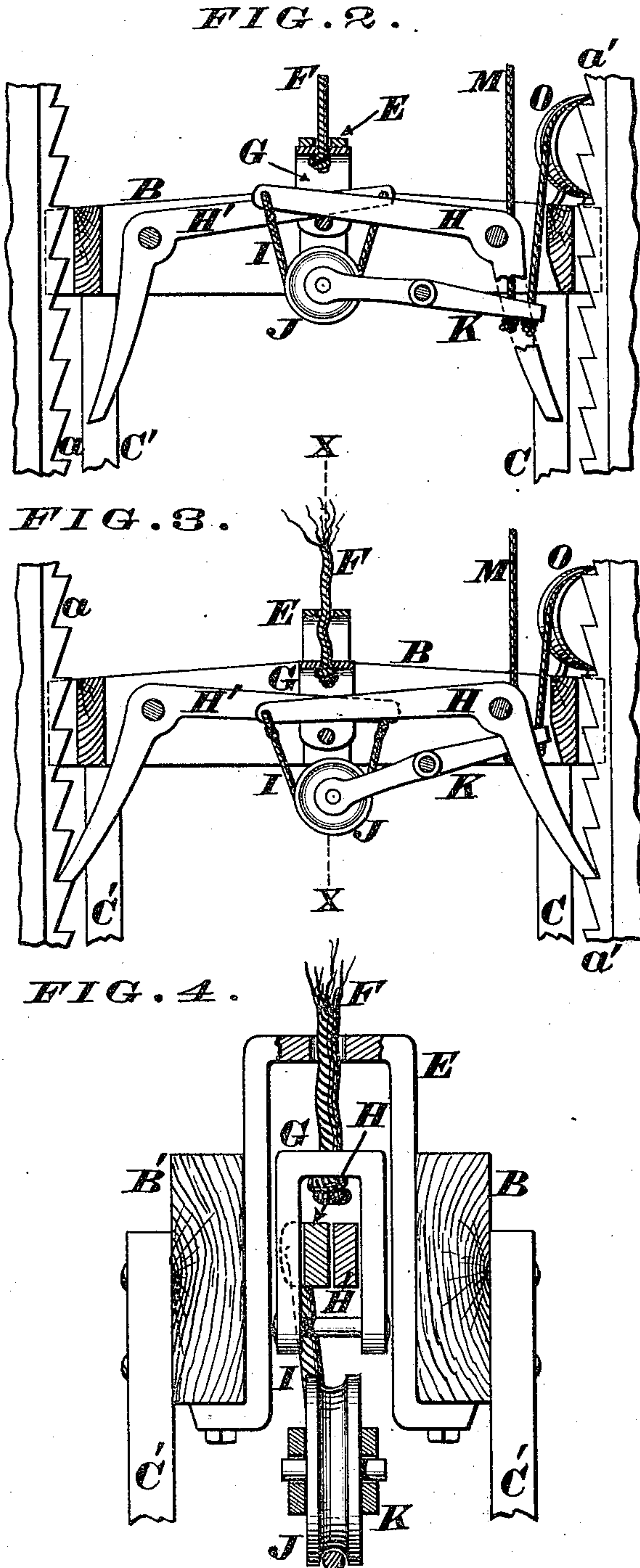
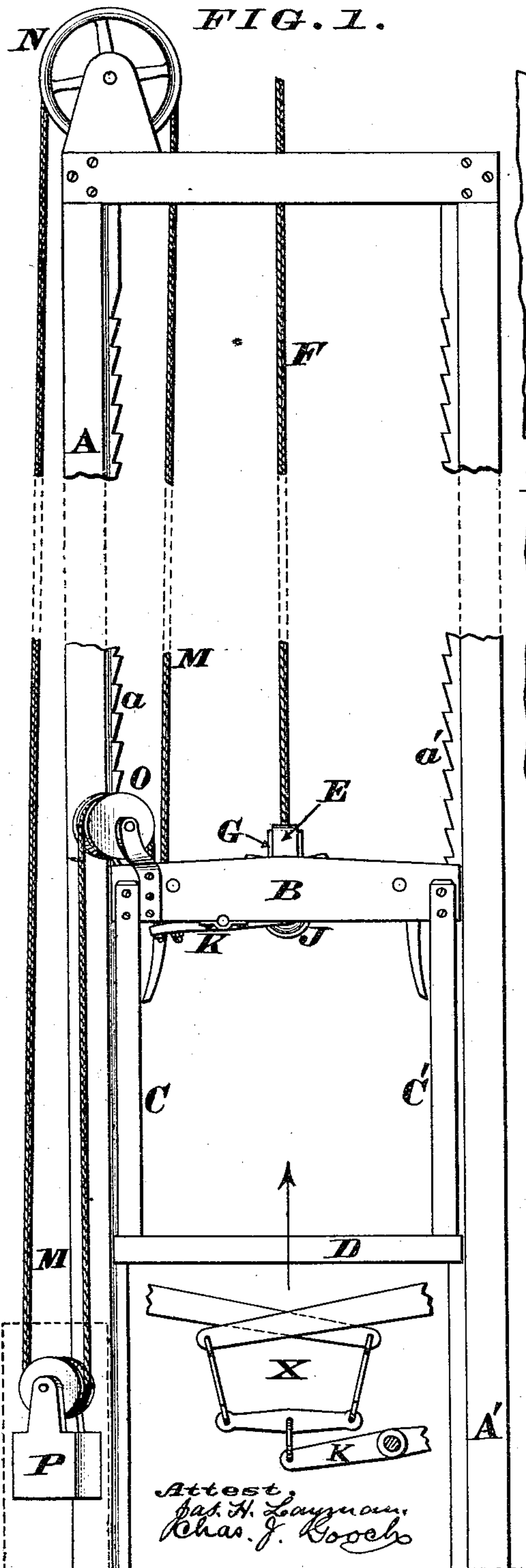


S. R. SMITH & E. MYERS.

Automatic Brake for Elevators.

No. 164,603.

Patented June 15, 1875.



Samuel R. Smith
 Edward Myers
 By Knight Bros. Att'ys.

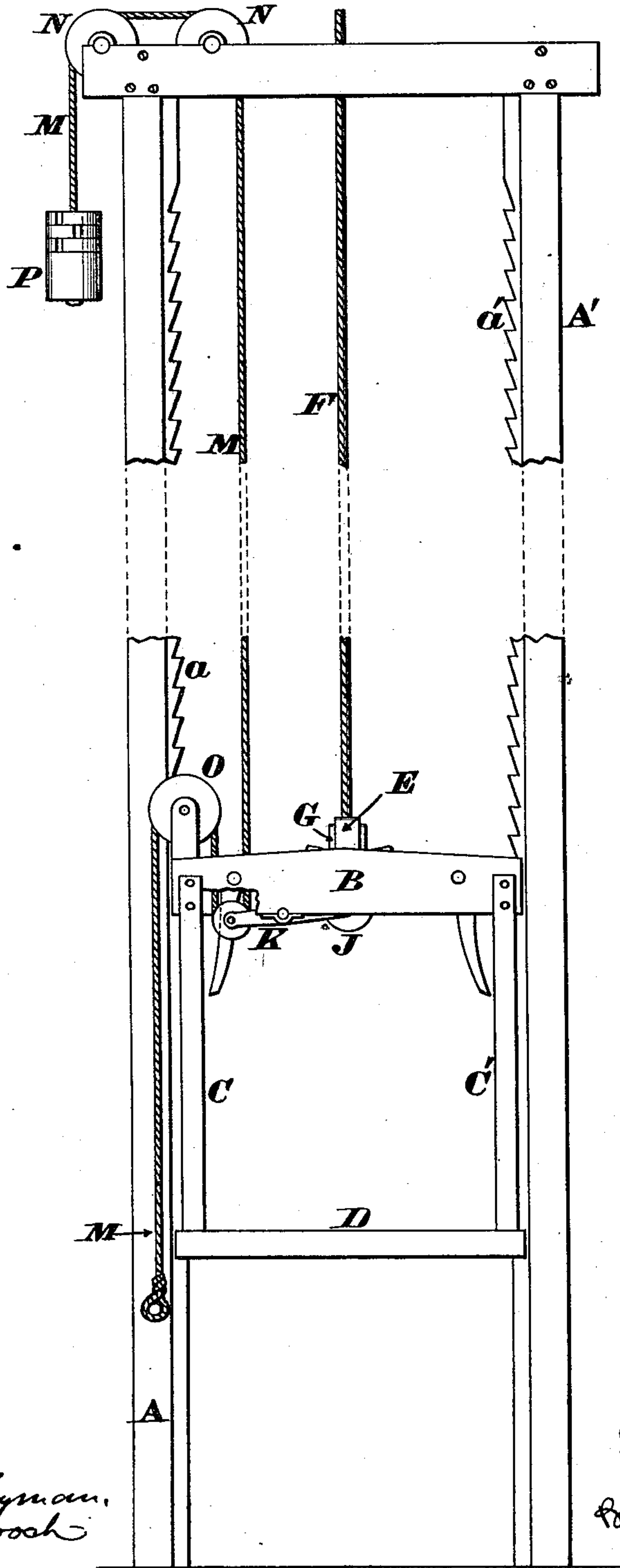
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FIG. 5.



Attest.
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UNITED STATES PATENT OFFICE.

SAMUEL R. SMITH AND EDWARD MYERS, OF CINCINNATI, OHIO, ASSIGNORS
TO LANE & BODLEY, OF SAME PLACE.

IMPROVEMENT IN AUTOMATIC BRAKES FOR ELEVATORS.

Specification forming part of Letters Patent No. **164,603**, dated June 15, 1875; application filed
May 31, 1875.

To all whom it may concern:

Be it known that we, SAMUEL R. SMITH and EDWARD MYERS, both of Cincinnati, Hamilton county, Ohio, have invented a new and useful Automatic Brake for Elevators, of which the following is a specification:

Our invention relates to a device for the automatic arrest of a descending elevator-platform whose hoisting-cable has become accidentally broken or parted while in use. For this purpose we connect the customary detents or brake-levers with a weight that remains wholly passive and immovable at all times, except on severance of the said cable, as aforesaid, when said weight, moving a short distance in the same direction as the descending platform, operates, through said detents, to arrest said platform until relieved by the re-attachment and restored action of said cable.

In the accompanying drawing, Figure 1 is a front elevation of a hoisting apparatus provided with our brake, the platform being shown in the act of ascending. Figs. 2 and 3 are vertical sections through the platform-beam, showing the brake in its inactive and active conditions, respectively. Fig. 4 is a section at the line X X. Fig. 5 represents a modification of our invention.

The stanchions A A', racks *a a'*, platform B B' C C' D, clevis E, hoisting-cable F, stirrup G, and brake-levers H H' may be of any customary or approved construction, and require no specific description. I is a loop or bridle, of wire cordage, rove under a sheave, J, in the tripping bar or lever K. M is a rope, preferably of wire, both of whose ends are made fast to the free extremity of the tripping-lever K. From one end said rope extends vertically upward and over sheave or sheaves N in stationary bearings at the top of the hatchway, and from the other end over a sheave, O, journaled in the top of the cage or platform. The two portions of this cord depend to near the bottom of the hatchway, so as to form a bight, in which rests a weighted sheave, P.

The operation is as follows: As long as the hoisting-cable continues intact the brake-action remains dormant; but the instant that the cable breaks or gives way from any cause, the

two ends of the rope M, being acted on by the weighted sheave P, elevate free end of lever K, which, acting upon the brake-levers H H', causes them to engage with the racks *a a'*, and to thus stop the descending platform before it has had time to acquire any sensible momentum.

It will be seen that, in this arrangement, the weighted sheave P remains quiescent, neither ascending nor descending so long as the elevator is in proper condition. On the other hand, it is apparent that the cessation of the cable-action while the platform is elevated, by allowing the stirrup G to fall, liberates said weighted sheave P, which drops simultaneously and coacts with the platform to throw the brakes into action.

We have shown a rack for engagement of the brake-levers, but do not restrict ourselves to any specific form of detent or safety device. For example, our arrangement may be used in conjunction with a frictional grapple such as described in Patent No. 128,152, granted June 18, 1872. Nor do we restrict ourselves to the described arrangement of weighted sheave in the bight of a movable rope, attached by its extremities to the trip-lever, because the rope may be single and have its lower end fastened to some fixed object, said rope being rove around a sheave on the free extremity of the trip-lever, and the weight suspended from the said rope's upper end, as shown in Fig. 4.

With either form a spiral or other spring may be used in place of, or in addition to, the weight, and said spring or weight may be protected by a box or casing, occupying very little room because of the nearly stationary character of such spring or weight. Being always in one place, the weight or spring can be examined at any time, and is not liable to become jammed, as is the case with those weights which operate as counter-balances and slide up and down long tubes the full height of the hatch.

A single-tree and rods, as shown at X, may be substituted for the sheave J and bridle I.

Chains may be used instead of the ropes, cords, or cables.

We claim as new and of our invention—

1. The combination, with an elevator-plat-

form, of a weight, P, so arranged as to remain quiescent in the ordinary condition of the elevator, and to move in the same direction as the platform on the precipitation of the latter by cessation of the cable-action, said weight being connected, by suitable rope M, with the described brake mechanism K J I H H' a a', substantially as set forth.

2. The combination of loaded sheave P in the bight of a rope, M, whose extremities pass over sheaves N O on the hatch and platform, respectively, and are both attached to the trip-

ping-lever K of the represented brake K J I H H' a a'.

3. In combination with a pair of brake-levers, H H', having the equalizing-cord I and sheave J, the trip bar or lever K.

In testimony of which invention we hereunto set our hands.

S. R. SMITH.

EDWARD MYERS.

Attest:

GEO. H. KNIGHT,

WALTER KNIGHT.