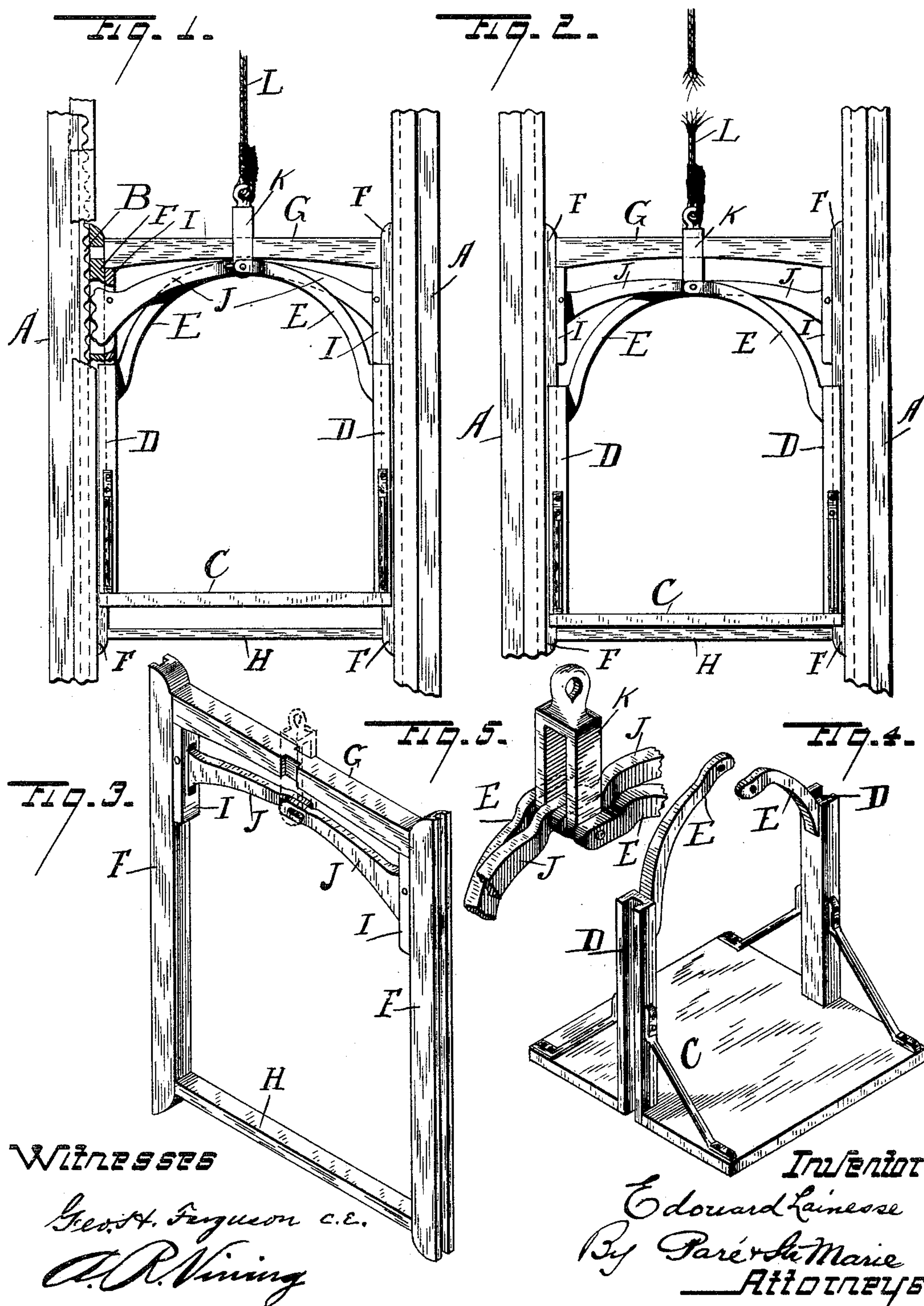


(No Model.)

E. LAINESSE.
SAFETY DEVICE FOR ELEVATORS.

No. 406,843.

Patented July 9, 1889.



UNITED STATES PATENT OFFICE.

EDOUARD LAINESSE, OF SAN FRANCISCO, CALIFORNIA.

SAFETY DEVICE FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 406,843, dated July 9, 1889.

Application filed December 26, 1888. Serial No. 294,681. (No model.)

To all whom it may concern:

Be it known that I, EDOUARD LAINESSE, a citizen of Canada, residing at San Francisco, in the county of San Francisco and State of California, have invented some new and useful Improvements in Elevators; and I hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to improvements in elevators provided with safety-catches, and the object of my improvements is to afford simple and effective means of stopping the descent of the elevator-carriage should the hoisting-rope break, and thus prevent the otherwise unavoidable injury to life and property. I attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation, partly broken, of my elevator as it appears in its normal condition; Fig. 2, a front elevation of the same, showing the position of the several parts when the hoisting-rope gives way; Fig. 3, a perspective view of the outer movable frame which surrounds the cage; Fig. 4, a detailed view in perspective of the platform, and means connecting it to the outer frame and to the draw-head; and Fig. 5, a perspective view of the draw-head, showing the relative position of the safety-levers and of the platform-hangers.

Similar letters of reference indicate corresponding parts throughout all the views.

A represents the guideways, between which the elevator-car moves up and down. Toothed racks B (shown only in Fig. 1, and the purpose of which will be fully set forth hereinafter) are attached to the guideways. The cage comprises the platform C, the channeled standards D, and the hangers E. Surrounding the cage is an outer vertically-sliding and movable frame composed of the uprights F, grooved so as to ride freely over the racks B, the upper cross-beam G, the lower cross-bar H, and the side supports I. The latter are adapted to rest upon the standards D, and sustain the frame in the up and down course of the cage when in normal condition. Levers J, provided with teeth adapted to en-

gage with the racks B on the guideways, are pivoted at their outer ends to the uprights F, their inner ends being slotted and connected with the coupling-pin in the draw-head K, which straddles the cross-beam G. The latter is allowed some play within the draw-head, which also holds in suspension the platform H, through the hangers I and the hoisting-rope L.

It will be seen that by this arrangement the levers or safety-catches are under the immediate and direct control of the hoisting-rope from above, and of the cage from beneath.

As long as the rope is taut and in working order, as shown in Fig. 1, the inner ends of the levers will be raised and the teeth at their outer ends disengaged, permitting the free ascent or descent of the cage, the outside frame resting on the standards D all the while. In case, however, the hoisting-rope breaks, the weight of the dropping-cage depresses the inner ends of the safety-catches, projecting the teeth at their outer ends into the racks B, and thus arrests the descent instantaneously.

It is evident that the heavier the load the more powerfully will the levers operate, keeping the cage securely locked until repairs are made.

If the rope be broken, the outer movable frame no longer rests upon the standards D, but is raised to its uppermost position relatively to the platform and to the draw-head.

The inner ends of the safety-catches should be formed into an arch in order to offer a greater resistance in case of rupture of the hoisting-rope; but should they be straightened out or otherwise badly disposed the outer movable frame will prevent them from being unduly depressed, the cross-bar H, in addition to steadying the side timbers, holding the platform from beneath, and the cross-beam G helping to accomplish the same purpose by supporting the draw-head from above. In this way the strain is well equalized all around and the cage stopped at the very moment that the rope gives way.

I am aware that elevator-cages provided

with levers adapted to engage with racks on the guideways are already in existence, and I do not claim that combination.

What I claim as new, and desire to secure
5 by Letters Patent, is—

The combination of the platform C, the channeled standards D, the hangers E, the grooved uprights F, the upper cross-beam G, the lower cross-bar H, the side supports I, the

safety-levers J, the toothed racks B, the draw- 10 head K, and the hoisting-rope L, all substantially as described.

In witness whereof I have hereunto set my hand and seal.

EDOUARD LAINESSE. [L. S.]

Witnesses:

J. F. KINGWELL,

CHAS. A. JONES.