

(No Model.)

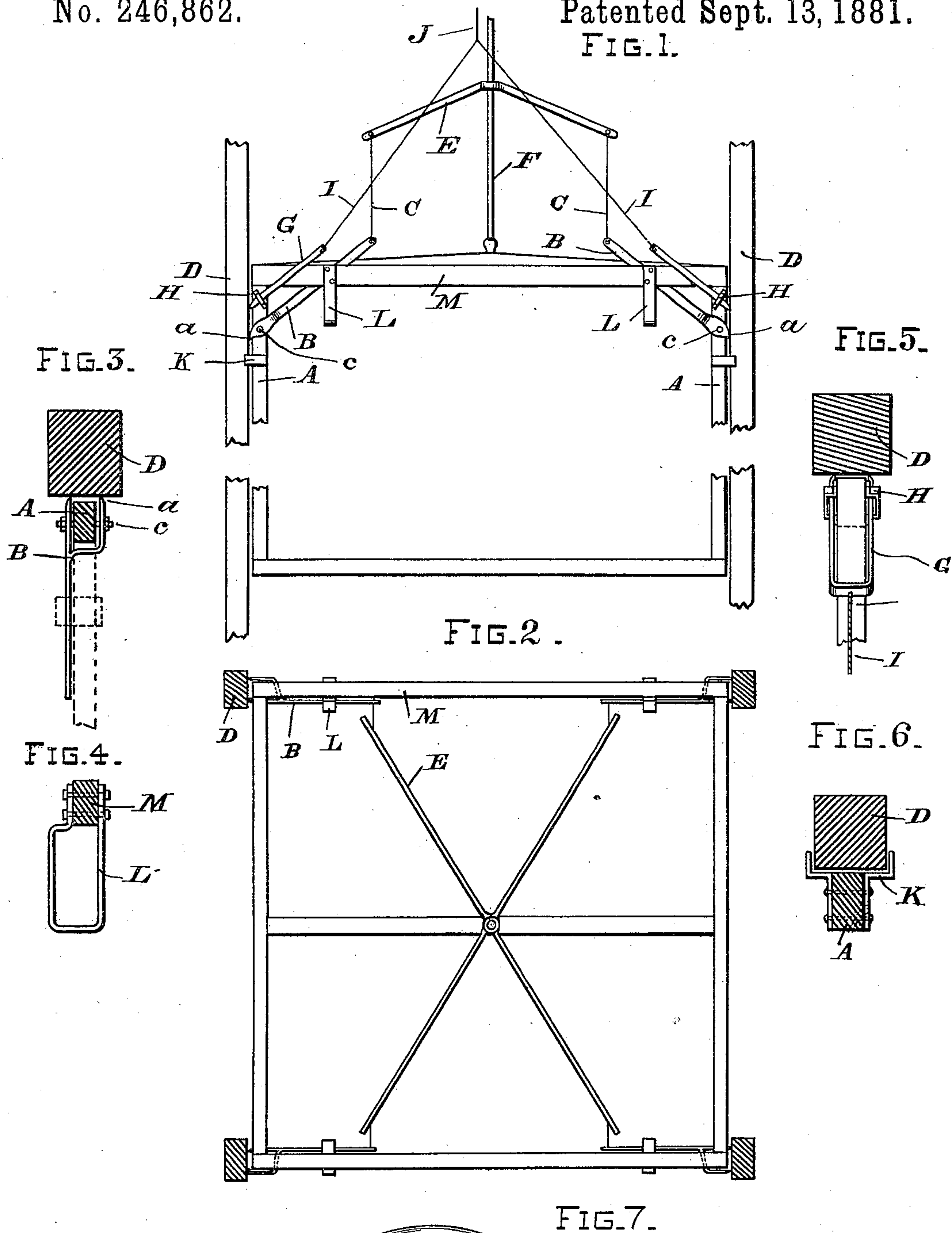
E. B. BISHOP.

SAFETY ATTACHMENT FOR ELEVATORS.

No. 246,862.

Patented Sept. 13, 1881.

FIG. 1.



WITNESSES.

Wilmer Bradford a

Henry Anderson

FIG. 7.

INVENTOR

E. B. Bishop.
By C. M. Smith
Attorney.

FIG. 8.

UNITED STATES PATENT OFFICE.

EPHRAIM B. BISHOP, OF SAN FRANCISCO, CALIFORNIA.

SAFETY ATTACHMENT FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 246,862, dated September 13, 1881.

Application filed March 30, 1881. (No model.)

To all whom it may concern:

Be it known that I, EPHRAIM B. BISHOP, a citizen of the United States, and residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Safety Attachments for Elevators, of which the following is a specification.

My invention relates to improvements in safety attachments for elevators, in which dogs or levers are thrown out to arrest the downward progress of the cage when the hoisting mechanism breaks or becomes disarranged or detached; and the objects of my invention are, first, to provide a safety attachment for such elevators that will act immediately upon the breaking of the hoisting gear or rope and prevent further descent of the cage; second, to provide a safety attachment for elevators which may be cheaply and easily applied to any style of elevator or hoisting device, and one in which the use of springs, cams, and ratchets is dispensed with, thereby reducing the cost of manufacture to a minimum. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation, showing the position of the safety-catches when in their normal position. Fig. 2 is a plan view. Figs. 3, 4, 5, 6, 7, and 8 are detail views.

Similar letters of reference are used to designate like parts throughout the several views.

To each of the four uprights A, which constitute the frame-work of the cage, I connect the lever-arms B, which are pivoted to the uprights by a pin, *c*. The outer ends of these levers are bifurcated and provided with peculiar-shaped points *a a*, and so constructed as to work in an automatic manner on both sides of the uprights A, and engage and enter the guides D when the hoisting-rope of the cage breaks or becomes disarranged. The upper end of each lever is connected by a light cord, C, to a four-armed frame, E, the center of which is provided with a hole or opening, up through which the hoisting-rope F of the cage passes, which clamps the rope, and in this position the frame-work E is suspended in such a manner that as the ascent of the cage is being made the oval or rounded ends of the back portion of the dogs will be carried along with the cage without friction against the guides D. These

points *a* are formed in the manner shown at Figs. 7 and 8, the flat side *a'* facing toward the upright A, while the curved or rounded side *a''* faces outwardly. The upper edge of the point is more rounded than the lower edge, in order that it may slip easily over the surface of the guides D.

To the two outer cross-beams, M, of the cage are attached stirrups or straps L, which receive the lever-arms, into which they fall by gravity when the hoisting mechanism of the cage gives way, and by which the dogs are prevented from passing beyond a horizontal plane, or a line in which the dogs would cease to engage with the uprights or guides D D.

As a further precaution against accidents I provide the auxiliary dogs or catches G, which embrace the uprights A and pass through guides H; and these dogs are pointed in a similar manner to the dogs B. The inner ends of these auxiliary catches G are held up by means of the cords I I sufficiently high to permit the points thereof to clear the face of the guides D. The cords I are in turn connected to the cord or rope J, which extends upward parallel with the hoisting-rope, and is wound upon a separate sheave of the same drum.

Guide-irons K K are bolted to the upright timbers of the cage and partially embrace the guide-timbers D, as is shown at Fig. 6. The operation of my improved safety attachment will be as follows, to wit: Upon the parting of the hoisting-rope F above the point at which the cross-arms E are clamped the said cross-arms will naturally fall by gravity upon the top of the cage, and the cords C being slackened, the lever-arms will move upon their pivotal points or fulcrums *c*, and the greater weight of the long arm of the lever will cause it to fall, while the shorter arm is raised and the point *a* is thrown into the solid timber of the guide D, and thereby arrests the downward progress of the cage. Should the hoisting-rope part below the point of junction with the cross-arms E, the descent of the cage will cause the small cords C to break, when the levers will instantly fall into position and the cage be stopped. The action of the auxiliary dogs or catches G G will be substantially the same as that just described. Upon the parting of the hoisting-rope the small cords I I will immedi-

ately break, allowing the dogs or catches G G to drop and at the same time slide through their guides H H, and the points will engage with the timbers composing the guides D.

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

1. In an elevator, the combination, with the guides or ways D and frame A M, having stir-
10 rups L and guide-irons K, of the dogs or levers B, provided with detents or points *a*, cords C, and cross-arms E, clamped to the hoisting-rope F, whereby the levers B will fall into the stirrups L and permit the points *a* to enter and
15 engage with the ways D when the hoisting-rope becomes broken or disarranged, substantially as specified.

2. In an elevator, the combination, with the hoisting-rope F, of the auxiliary catches or
20 dogs G, held in place by guide-irons H H and rope J, arranged and operating so that the cords J or I will be snapped asunder as the cage falls and permit the auxiliary dogs G to

enter the guides and arrest the downward progress of the cage, in the manner substantially 25 as herein set forth and specified.

3. The combination and arrangement together of the lever-arms B with points or dogs *a* and suspending-cords C, as shown, and the auxiliary catches or dogs G, the latter being 30 held in position by the guiding-irons H, and suspended by the frail cords I J, and operating so that when the cords C and J are snapped asunder or slackened the said levers will fall by gravity and the dogs engage with the up- 35 rights or guides to arrest its downward progress, substantially in the manner as herein set forth and specified.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 5th 40 day of March, 1881.

EPHRAIM B. BISHOP. [L. S.]

Witnesses:

WILMER BRADFORD,
C. W. M. SMITH.