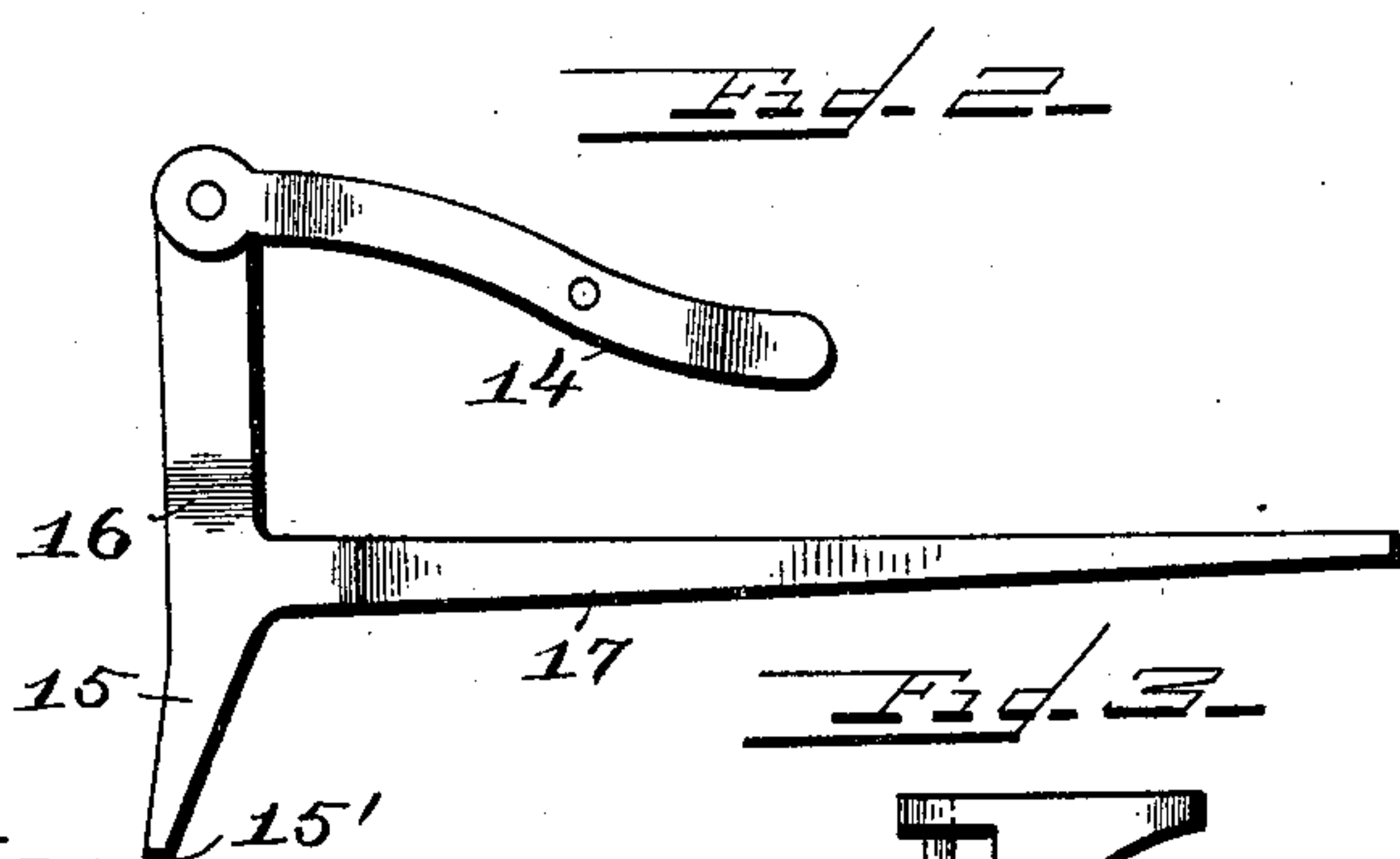
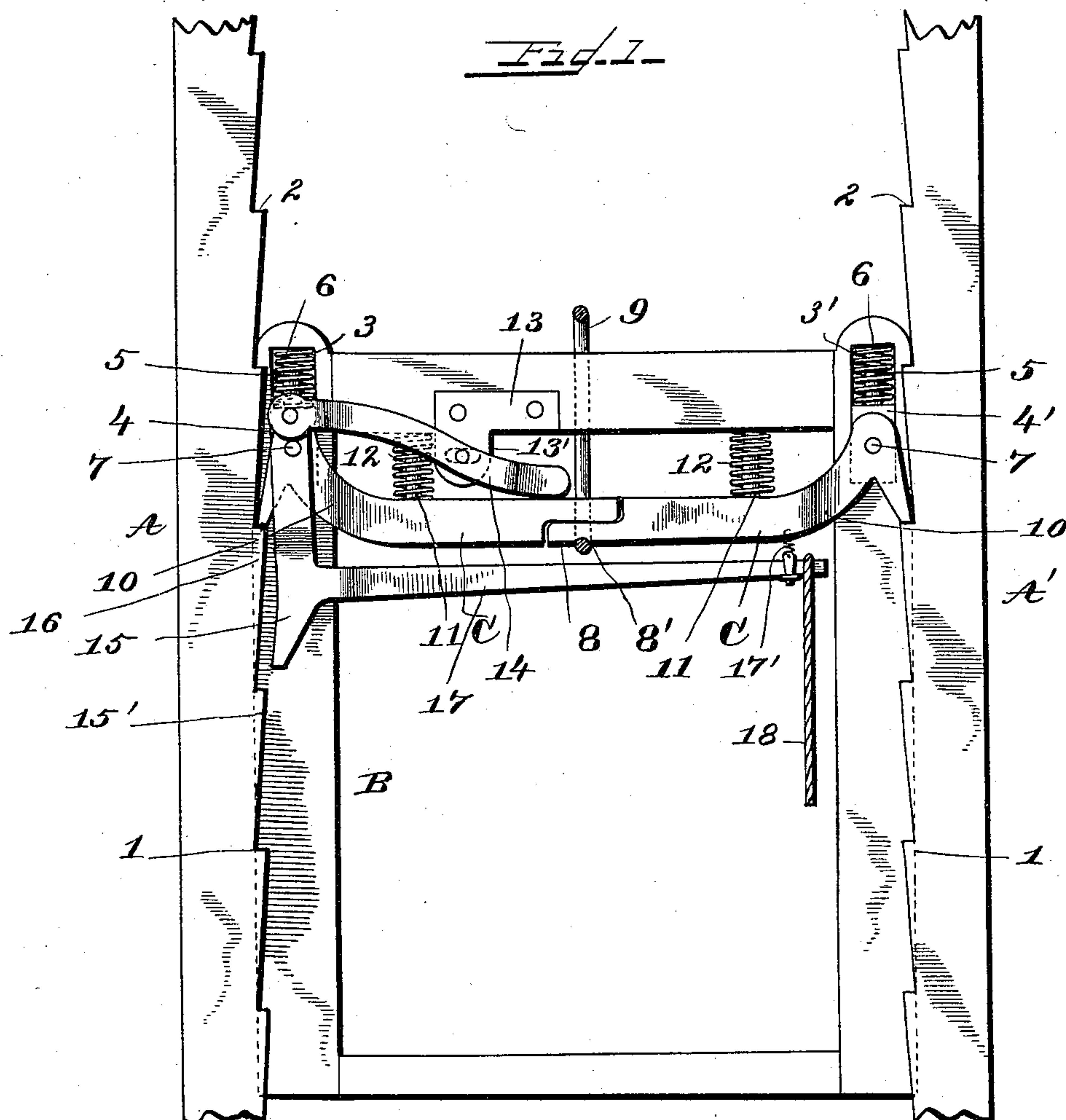


(No Model.)

I. C. GRAY.
ELEVATOR.

No. 579,797.

Patented Mar. 30, 1897.



Witnesses

G. A. Pauberschmidt,
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UNITED STATES PATENT OFFICE.

ISAAC C. GRAY, OF TIPPECANOE, INDIANA, ASSIGNOR OF ONE-FOURTH TO
LORENZO D. ELY, OF SAME PLACE.

ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 579,797, dated March 30, 1897.

Application filed January 4, 1897. Serial No. 617,874. (No model.)

To all whom it may concern:

Be it known that I, ISAAC C. GRAY, a citizen of the United States, residing at Tippecanoe, in the county of Marshall and State of Indiana, have invented certain new and useful Improvements in Elevators; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention has relation to improvements in elevators; and the object is to provide a simple, efficient, and reliable safety catch or grip for vertically-moving and suspended elevator-carriages, whereby when the suspension-cables break or the progress of the carriage is stopped by accidental causes it will be automatically prevented from descent by engagement of the catches in racks or ratchets on the guides.

I have fully and clearly illustrated my invention in the accompanying drawings, wherein—

Figure 1 is an elevation of the carriage-frame of an elevator having my improvements applied thereto. Fig. 2 is a detail side view of the auxiliary catch and lever for engagement with the rack and to throw the main catches into engagement with the racks in case they are held by a partially slacked or broken cable. Fig. 3 is a top or plan view of the auxiliary catch and lever.

Referring to the drawings, A A' designate the guide-posts for the elevator-carriage frame, formed or provided with grooves or ways 1 (indicated in dotted lines in Fig. 1) and provided with racks or ratchets 2 to be engaged by the catches on the carriage, as hereinafter more fully specified.

B designates the frame which carries the car or carriage. This frame is composed of vertical side timbers or pieces 1' and bottom and top pieces 2' 2', all suitably secured together, as usual. In the upper end portions of the side pieces 1' are formed vertically-elongated openings 3 3', of the same size and dimensions, wherein are disposed cushion-

blocks 4 4', consisting of substantial blocks of metal or other suitable material adapted to stand squarely and firmly on the bottom of the housings or openings in which they are arranged and formed or provided with stems 5 5, serving as guide-stems for the coiled cushion-springs 6 6, arranged thereon with their lower ends seated on the upper ends of the blocks and their upper ends lodged against the upper end of the housings or openings, substantially as seen in the drawings, the object being to provide buffers to relieve the jar which would otherwise occur on the sudden engagement of the safety-catches when the carriage would suddenly descend.

C C designate the safety-catches, substantially of the form shown in the drawings, pivoted to the cushion-blocks, as at 7, and having their ends overlapped, as at 8, the overlapped end being formed with a suitable seat 8', in which the cable-link 9 engages. This cable-link is of the usual form and is arranged centrally and loosely about the upper bar or rail of the frame. The catches C C are supported so that their catch ends aline with the racks on the guide-posts, and have an offset, as at 10, made in them, so as to bring their arms or stems directly under and in alinement with the cross-bar above them. In the arm of each catch is fixed a vertical guide-stud 11, about which is arranged a buffer-spring 12, the lower end of which rests on the arm of the catch and the upper end under and against the top rail of the carriage-frame, substantially as seen in the drawings, the springs acting to throw the catches down and into engagement with the racks when the strain or stress on the cable-link is slackened.

It will be perceived from the foregoing description, taken in connection with the drawings, that should the cable break the stress on the catches will immediately be relieved and the force of the compressed springs at once be exerted to move the arms of the catches downward and throw their catch ends into engagement with the notches of the racks, and thus stop the carriage and hold it from descending farther.

For additional security and to insure the action of the catches in any and all exigencies where it may be required to bring them

into action I provide an auxiliary lever and catch of the following construction: On the top rail of the carriage-frame is strongly secured a plate or bracket 13, formed with a downward-extending lug 13', to which is fulcrumed a lever 14, so arranged that its inner and short arm will bear normally on the arms of the catches and having its outer and longer arm extended adjacent to the rack, and has the end pivotally secured to the buffer-block, substantially as seen in the drawings. This lever is pivoted or fulcrumed in a slot formed in the depending portion 13' of the lug 13, so as to have proper play to compensate for its requisite movements. To the outer end of the lever 14 is pivotally hung a pawl or catch 15, the lower catch portion 15' of which is carried into alinement with the rack by means of a bend or offset 16. To the arm or stem of the catch 15 is rigidly secured a handle or lever 17, provided with a retractile spring 17' at its free end, the spring being connected to the arm of one of the main safety-catches, substantially as seen in the drawings, and to the outer end of the lever 17 is attached a cord or rope 18, designed to be let through the top of the carriage and be manipulated by the operator. It will be perceived that if from any cause the main catches would fail to engage the racks when required to do so, by pulling on the rope 18 the catch 15 will be moved or swung outward into engagement with the rack, which engagement will act to move the buffer-block upward, carrying therewith the end of the lever 14, causing the inner end thereof to bear on the arms of the main catches and throw their catch ends into engagement with the racks and thus hold the carriage securely against descent.

The operation may be stated as follows: Under ordinary action the pull on the cable-link holds all the catches out of engagement with the racks, but should the cable break or other accident occur which would cause the carriage to descend the force of the springs on the arms of the catches causes engagement with the racks and the force of the jar or stop being compensated for by the action of the springs on the buffer-blocks. As heretofore stated, should the main catches fail to

engage the racks a pull on the rope connected to the handle of the auxiliary-lever catch will effect the engagement and hold the carriage.

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

1. In an elevator, a safety-catch device, comprising a carriage-frame, oppositely-disposed guides for the carriage formed with racks, buffer-blocks housed in the frame of the carriage, springs over the buffer-blocks, safety-catches pivotally mounted on the buffer-blocks, and adapted to engage the racks and having their inner ends lapped, springs to throw the catches into engagement and a cable-link arranged over the lapped ends of the catches.

2. In an elevator, a safety-catch device comprising a carriage-frame, oppositely-disposed guides for the carriage formed with racks, buffer-blocks housed in the frame of the carriage, springs over the buffer-blocks, safety-catches pivotally mounted on the buffer-blocks, and adapted to engage the racks and having their inner ends lapped, springs to throw the catches into engagement and a cable-link arranged over the lapped ends of the catches, an auxiliary lever fulcrumed to bear with one end on the safety-catches, and its outer end connected to one of the buffer-blocks, and a catch, having an actuating-handle, pivotally suspended from the outer end of the auxiliary lever.

3. In an elevator, the combination with the guides having racks, main safety catches or levers, of an auxiliary safety device, comprising a lever fulcrumed to the carriage-frame with one end arranged to bear on the arms of the main safety-catches, and a catch-arm pivotally suspended from the outer end of the said lever and having a catch portion adapted to engage one of the said racks, and a handle on the catch-arm, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ISAAC C. GRAY.

Witnesses:

DAVID HARRINGTON,
S. C. BARRETT.