A. J. & R. S. WHITTIER.

Elevator.

2 Sheets—Sheet 1.

No. 227,866. Patented May 18, 1880.

Fig. 2.

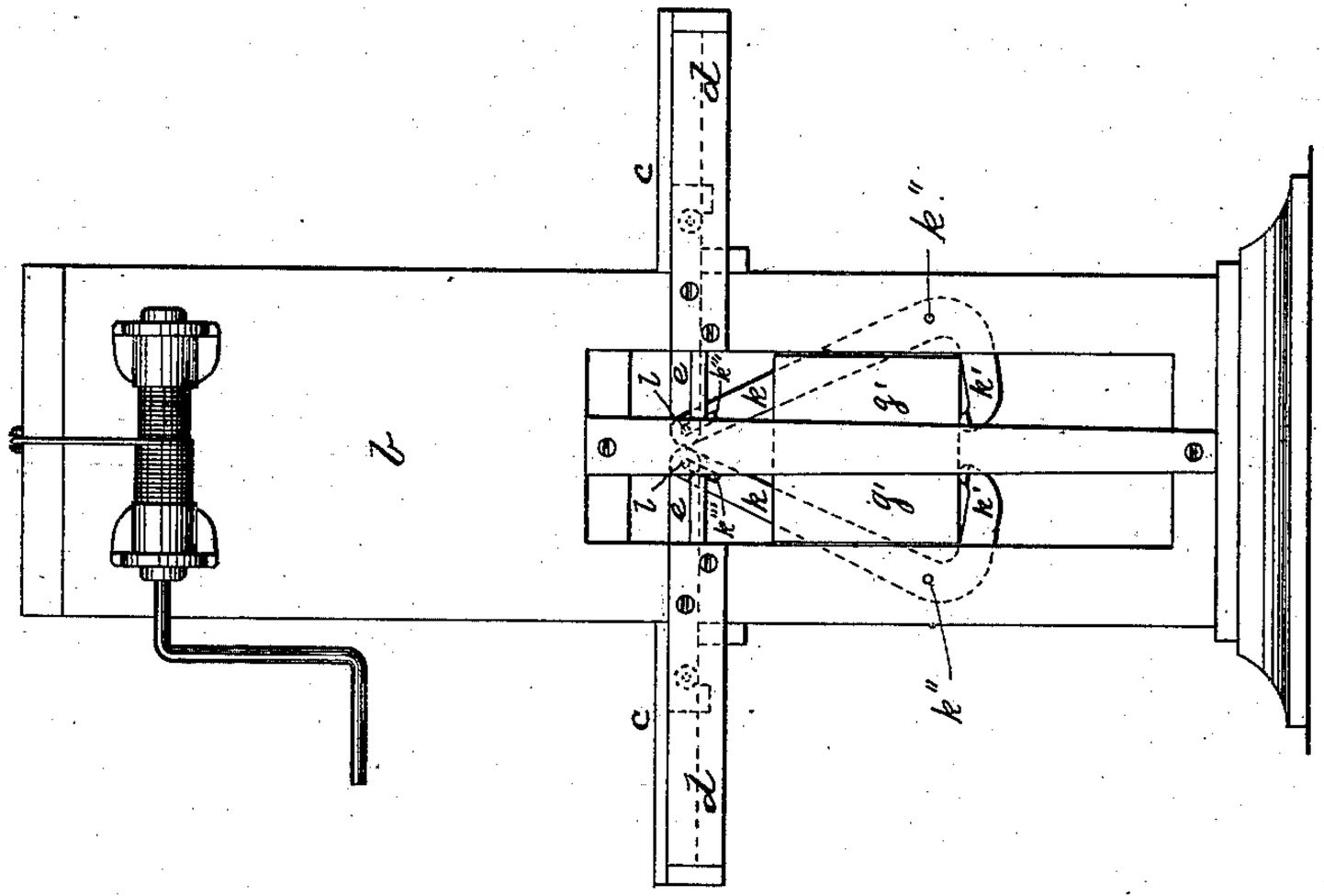
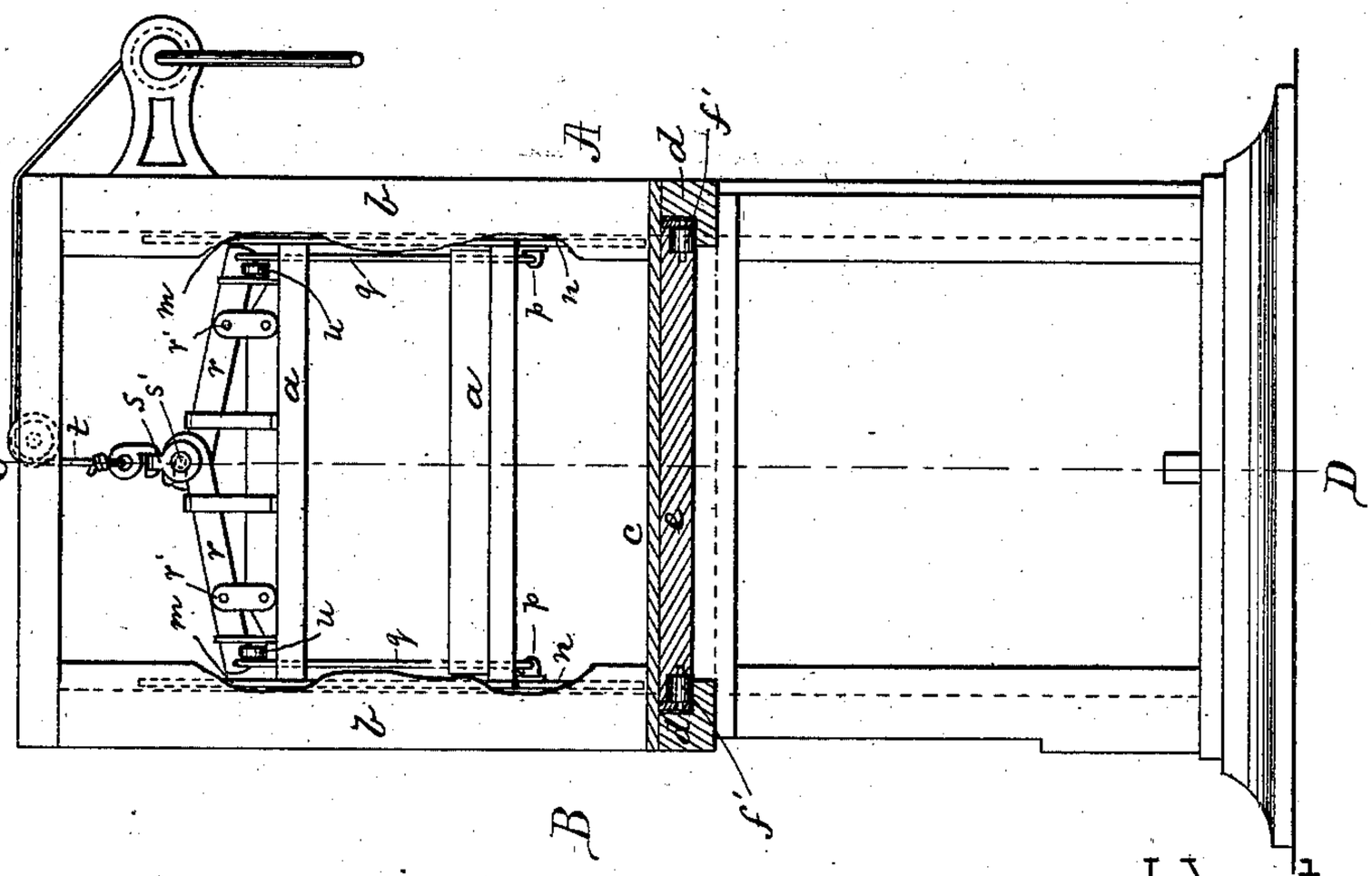


Fig. 1.



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2 Sheets—Sheet 2.

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Fig. 3.

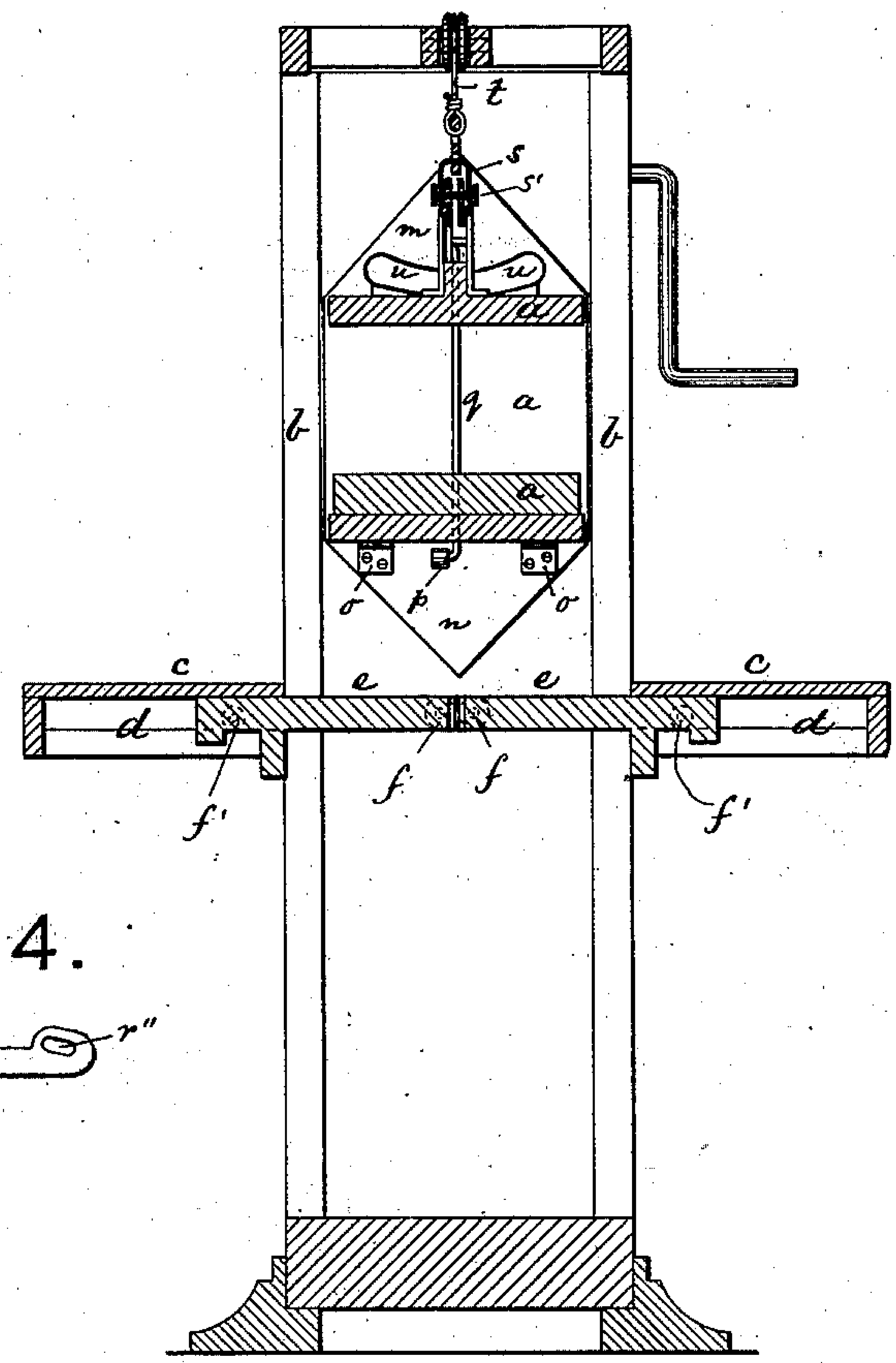
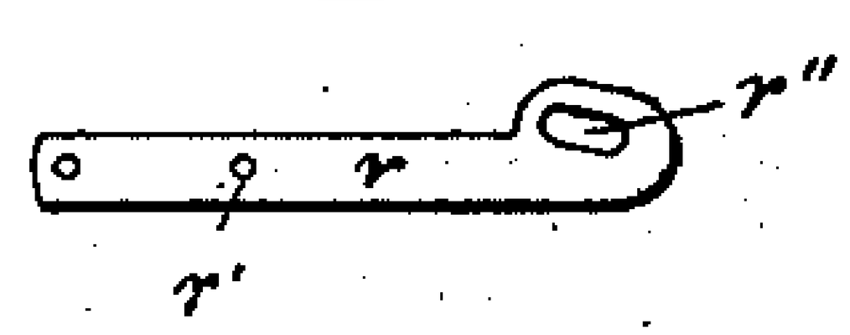


Fig. 4.



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UNITED STATES PATENT OFFICE.

ALCIBIADES J. WHITTIER, OF CHELSEA, AND REUBEN S. WHITTIER, OF HYDE PARK, MASSACHUSETTS.

ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 227,866, dated May 18, 1880.

Application filed February 28, 1880.

To all whom it may concern:

Be it known that we, ALCIBIADES J. WHITTIER, residing at Chelsea, in the county of Suffolk and State of Massachusetts, and REUBEN S. WHITTIER, residing at Hyde Park, in the county of Norfolk and State of Massachusetts, both citizens of the United States, have jointly invented certain new and useful Improvements in Elevators; and we do hereby 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 letters or figures of reference marked thereon, which form a part of this specification.

Our invention relates to improvements in safety devices for elevators; and it consists in the combination and arrangement of parts, as will hereinafter be more fully shown and described.

For this purpose the invention is carried out as follows, reference being had to the accompanying drawings, on which—

Figure 1 represents a front elevation of the invention. Fig. 2 represents an end elevation, seen from A in Fig. 1; and Fig. 3 represents a longitudinal section on the line C D, shown in Fig. 1. Fig. 4 represents a side elevation of one of the draw-levers on the elevator-car.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

a a represent the elevator-car, movable up and down within the space inclosed by the walls *b b*, as usual. *c c* represent a floor in the building, and *d d* represent guides below said floor, in which the floor-sections *e e* are movable, and to overcome a sliding frictional resistance we provide the said floor-sections with inside rollers, *f f*, and outside rollers, *f′ f′*, as shown. To close the well-space by means of said movable floor-sections *e e*, we employ a weight, *g′*, having its lower end resting upon the inner ends, *k′ k′*, of the curved levers *k k*, supported on the fulcra *k″ k″*, and having slotted perforations *k‴ k‴* in their upper ends, as shown in Fig. 2.

l l are pins or bolts secured to the floor-sections *e e*, which pins or bolts project through the said slotted perforations *k‴ k‴* on the levers *k k*, to allow for the swinging motion of the said levers.

For the purpose of automatically moving the floor-sections *e e* away from each other to allow for the free passage of the elevator-car, we provide the latter in its upper end with the rigid and tapering wedges *m m*, that act upon the inner rollers, *f f*, on the floor-sections *e e* as the car is raised, and thus spread apart the said movable floor-sections, so as to leave the well-space unobstructed for the passage of the elevator-car.

Similar wedges or tapering projections *n n* are connected to the under side of the car *a a;* but instead of being rigidly attached thereto, they are hinged to it by means of the hinges *o o*, as shown, and each of said hinged wedges *n* is further provided with an inwardly-projecting eye, *p*, to which the lower end of the rigid bar *q* is jointed, as shown. We employ two such rigid connecting-bars, *q q*, one for each of the hinged wedges *n n*, as shown. The upper ends of said bars *q q* are jointed, respectively, to the draw-levers *r r*, movable on the fulcra *r′ r′* on the top of the car *a a*, as shown.

s is an ordinary shackle, with its bolt *s′* projecting through the slotted perforations *r″ r″* shown in Fig. 4 in the inner ends of the draw-levers *r r*. We make the slotted perforations *r″ r″* in the inner ends of the draw-levers *r r* for the purpose of allowing free play for the shackle-bolt *s′* during the swinging of said levers on their fulcra, so as to prevent said levers from being forced outward against the rigid wedges *m m*.

t is the rope by which the car is hoisted and lowered. *u u* are elliptic springs located between the top of the car *a a* and the under side of the outer ends of the draw-levers *r r*, as shown.

When the rope *t* is in its ordinary condition and the car *a a* descending the wedges *n n* are firmly held in a vertical position by the weight of the car acting upon the yielding draw-levers *r r*, connecting-bars *q q*, and eyes *p p*, and in such condition and position the wedges *n n* serve the same purpose as the rigid wedges *m m*—that is, to spread apart the mov-

able floor-sections *e e* to allow for the free passage of the car, with this difference, that the wedges *m m* act upon the floor-sections *e e* to open them during the ascent of the car, and the wedges *n n* during the descent of the same. In case the rope *t* should break from any cause, either during the ascent or descent of the car, the elliptic springs *u u* will instantly act upon the under side of the outer ends of the levers *r r*, which are thus thrown upward, causing the connecting-bars *q q* also to move instantly upward, and by their connection to the hinged wedges *n n*, as described, the latter are instantly swung into horizontal positions below the car *a a*, so as to prevent the car from descending any farther than the next floor-sections, which, of course, remain closed on account of the horizontal positions of the hinged wedges *n n*, as described, and in this manner serious accidents caused by the fall of elevators to the bottom of the well are prevented.

What we wish to secure by Letters Patent, and claim, is—

1. In combination with an elevator-car, *a a*, the laterally-movable floor-sections *e e*, the weight or weights *g'*, and curved levers *k k k' k'*, having slotted ends *k''' k'''*, as and for the purpose set forth.

2. In combination with an elevator-car, *a a*, and its lower hinged wedges, *n n*, the connecting-rods *q q*, slotted levers *r r r'' r''*, and elliptic springs *u u*, or their equivalents, as and for the purpose set forth and described.

In testimony whereof we have affixed our signatures in presence of two witnesses.

ALCIBIADES J. WHITTIER.
REUBEN S. WHITTIER.

Witnesses:
ALBAN ANDRÉN,
HENRY CHADBOURN.