

(No Model.)

3 Sheets—Sheet 1.

J. HODGES.

SAFETY APPLIANCE FOR ELEVATORS.

No. 287,287.

Patented Oct. 23, 1883.

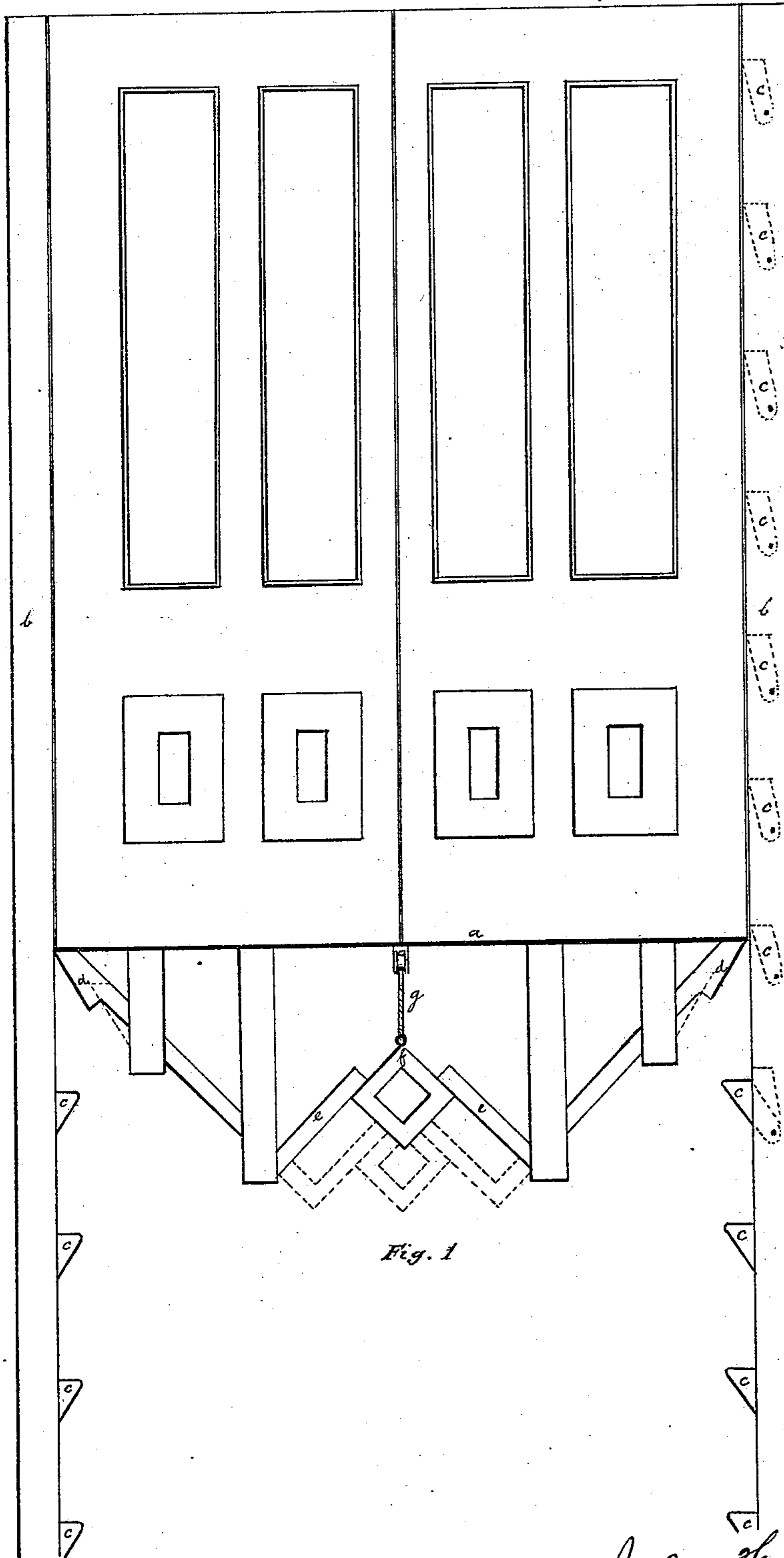


Fig. 1

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J. L. Kimer.

Inventor:
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by A. H. Blak
his attorney.

(No Model.)

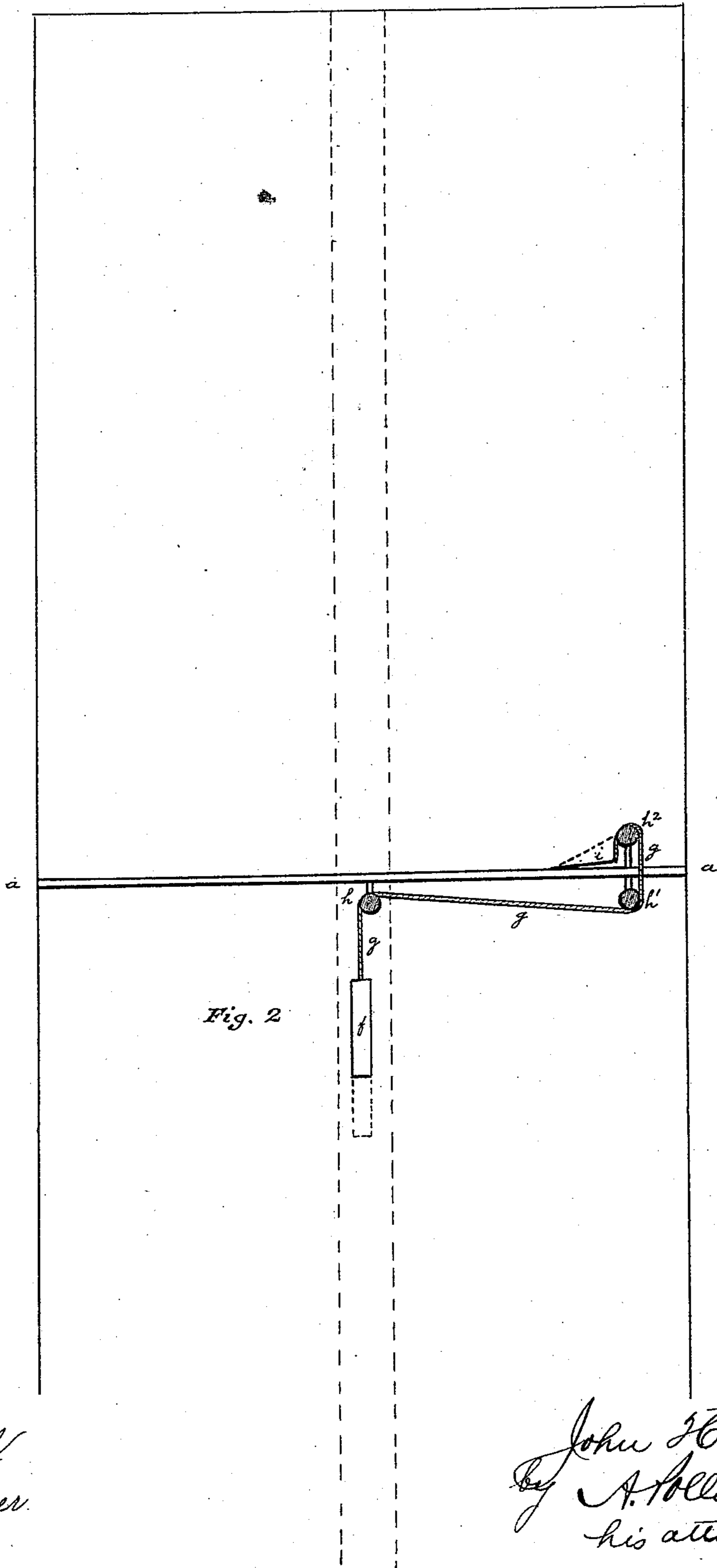
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(No Model.)

3 Sheets—Sheet 3.

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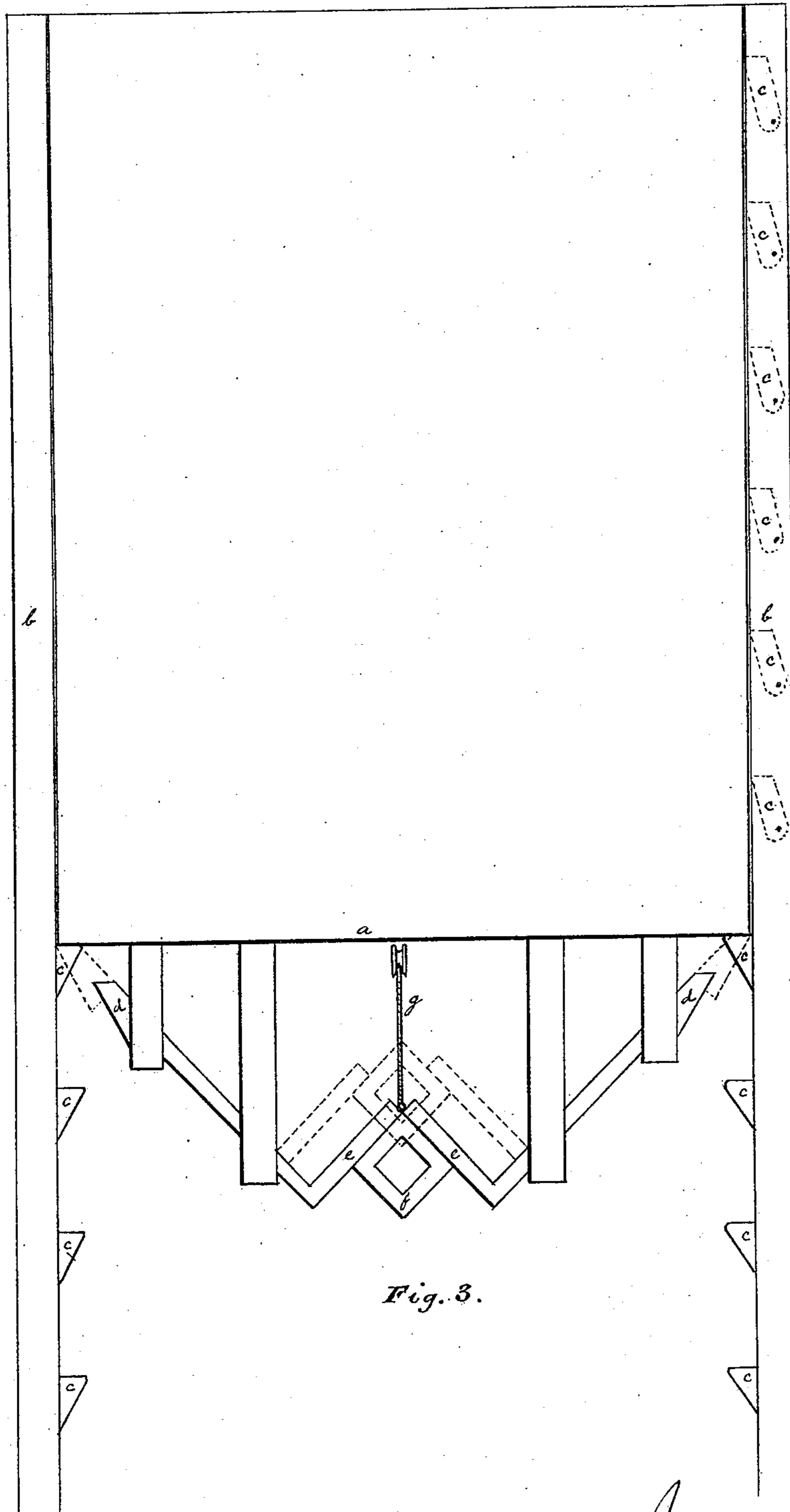


Fig. 3.

Attest

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UNITED STATES PATENT OFFICE.

JOHN HODGES, OF WESTFIELD, NEW JERSEY.

SAFETY APPLIANCE FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 287,287, dated October 23, 1883.

Application filed August 22, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN HODGES, of the town of Westfield, county of Union, and State of New Jersey, have invented a new and useful Safety Appliance for Elevators, which invention is fully set forth in following specification.

The figures of the accompanying drawings represent my improvements.

Figure 1 is a front view of an elevator-car and its upright side supports with my improvement attached, as the same appears when the elevator-car is descending. Fig. 2 is a central vertical section of the same. Fig. 3 is a front view of an elevator-car and its upright side supports, with my improvement attached, as the same appears when the elevator-car has been allowed to drop so as to engage the dogs or projections.

The object of my invention is to provide means which will effectually prevent an elevator from falling in case of accident.

In the usual upright supports or posts between which the elevator-car slides, I provide a series of dogs or projections so pivoted or hinged that they will at once fall out by their own gravity and engage the bottom of the elevator-car should it descend against them. Immediately below and on each side of the parts of the floor of the elevator-car which would rest upon the dogs or projecting hinged pieces when they have dropped by their own gravity, I construct of iron or wood a bar or piece, the object of which is to cause the dogs or projections to be raised up out of the way of the floor or bottom of the elevator-car, so as to enable the same to descend. These side pieces are so beveled that when they rest up against the bottom of the car the edges of the hinged projections strike them and are engaged by them as the elevator descends, and are slid back out of the way of the floor of the elevator-car, so as to enable it to proceed. In passing upward the elevator-car itself pushes the projections out of the way; but in descending downward the hinged projections are only pushed out of the way when the beveled pieces above spoken of are in position. A treadle within the elevator-car serves to raise the beveled piece into position against the under side of the floor of the elevator-car, thus enabling it to descend; but the moment the foot is taken

away or the pressure otherwise relieved from the treadle the beveled piece drops at once inward and away from the point at which it would engage the hinged projections, so as to allow them to fall outward in whole or in part, and thus arrest the elevator-car as it moves downward.

In the drawings, *a* is the floor of the elevator-car; *b b*, the vertical supports up and down which it slides. *c c* are hinged dogs or projecting pieces. *d d* are the beveled pieces that serve to press back the dogs into such a position that they will allow the elevator-car to pass downward without being arrested. *e e* are arms attached at right angles to the beveled pieces *d d*. *f* is a piece upon which the parts *e e* rest. *g* is a rope upon which *f* hangs. *h h' h''* are pulleys over which said rope passes into the interior of the elevator, where it is finally fastened to the treadle *i*.

The operation of the mechanism shown in the drawings is as follows: When no weight is resting on the treadle *i*, the piece *f* descends by its own gravity, as do also the pieces *e d* resting upon the sides of the piece *f*. This withdraws the beveled piece *d*, so that it will not press back the projections *c* out of the way of the floor of the elevator-car, so that they are at liberty to fall with their own gravity into such a position that the floor *a* of the elevator-car will engage against the tops of the projections *c*, and thus instantly stop it, as shown in Fig. 3. If, however, the treadle *i* is pressed upon by the foot, the rope *g* raises the piece *f*, which consequently raises the pieces *e d*, so that the beveled part of *d* is thrown into the position shown in Fig. 1, and as the elevator descends the points of the projections *c* slide against the beveled side of *d*, so that they are pressed back out of the way, and the elevator passes freely down. The parts are then in the position shown in Fig. 1. I do not confine myself to the particular mechanism which I have described as being used for the purpose of throwing the parts *d* into position to throw back the projections *c*. A spring or springs controlled by the treadle *i* or other suitable mechanism might be used for the purpose of throwing the parts *d* into position to engage and throw back the projections *c*; but I would consider this use of springs as an inferior equivalent to the construction

I have shown. The great safety of my invention consists in this, that the elevator-car cannot descend without being arrested by the projections *c* unless the treadle *i* is pressed down. The moment the pressure is relieved from it the descent of the car is arrested. It will be obvious that a very slight descent of the parts *d* will cause at least a portion of the projections *c* to engage with the floor of the elevator, and thus become operative. In case of accident, therefore, the remedy can be applied instantaneously. The distance apart of the projections *c* one above another may be varied. From a foot and a half to two feet would be ample for all practical purposes. The treadle could also act by means of a lever or levers, or other suitable mechanism, instead of that shown. An inferior result could be produced by using a hand-lever or other suitable mechanism to be worked by hand instead of a treadle.

I am aware of Letters Patent of the United States No. 177,290, dated May 9, 1876. The apparatus therein described would not effectually answer the purposes of my invention. In that appliance the projections designed to arrest the elevator-car slide in grooves horizontally by means of a spring, while in my apparatus they must revolve in an arc of a circle by means of a pivot or equivalent means of allowing them so to move in an arc. In this manner a certainty of action is produced in my apparatus that would not be produced in the apparatus described in the patent above mentioned.

I am aware, also, of Reissued Letters Patent No. 10,127, dated May 30, 1882. The construction shown in that patent would not answer the purpose of my invention. In that construction the projections do not get into position to engage and arrest the car until after the accident has happened. This patent does not show projections normally in position to arrest the descent of the car, nor apparatus for removing such projections *seriatim* as the car descends.

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

1. In combination with an elevator-car, a series of projections normally in position to arrest the descent of said car, and adapted to be rotated by said car out of its path as it ascends, substantially as described.

2. Projections adapted to be rotated into position to arrest an elevator-car, in combination with mechanism to engage the projections and throw them out of the way of the elevator-car as it descends, substantially as described.

3. Projections adapted to be rotated into position to arrest an elevator-car, in combina-

tion with mechanism to engage the projections and throw them out of the way of the elevator-car as it descends, and controlling mechanism to throw the mechanism engaging the projections in and out of the position which engages the projections, substantially as described.

4. In combination with an elevator-car, a series of pivoted dogs or projections adapted to fall by their own weight into position to arrest said car as it descends, and to be thrown by said car out of its path as it ascends, substantially as described.

5. The combination, with an elevator-car, of a series of rotatory projections normally in position to arrest the descent of said car, apparatus for engaging and throwing back said projections *seriatim* as the car descends, and means for rendering the apparatus that engages said projections immediately inoperative when desired, substantially as described.

6. The combination, with an elevator-car, of a series of projections normally in position to arrest the descent of said car, and adapted to be thrown by said car out of the way as it ascends, and mechanism, as set forth, under the control of the operator in said car, for throwing said projections out of its way as it descends, substantially as described.

7. The combination, with an elevator-car, of a series of dogs or projections adapted to fall by gravity into position to arrest the descent of said car, beveled pieces carried by said car, and means for moving said pieces into and out of position to throw back said dogs or projections as the car descends, substantially as described.

8. The combination of the elevator-car, the pivoted dogs or projections, the beveled pieces for acting on said dogs or projections to remove them from the path of the car, said beveled pieces being adapted to fall when unsupported out of their operative position, and mechanism under the control of the operator in the car for raising and retaining said beveled pieces in their operative position, substantially as described.

9. The projection *c*, the beveled piece *d*, and the controlling treadle, arranged and operating substantially as described.

10. The projections *c*, the parts *d e*, the pieces *f*, the rope *g*, with suitable pulleys or supports, and a treadle arranged and operated substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JOHN HODGES.

Witnesses:

B. F. LEE,
R. A. PIPER.