

No. 683,677.

Patented Oct. 1, 1901.

C. W. BALDWIN.  
SAFETY DEVICE FOR ELEVATORS.

(Application filed Jan. 31, 1898.)

(No Model.)

2 Sheets—Sheet 1.

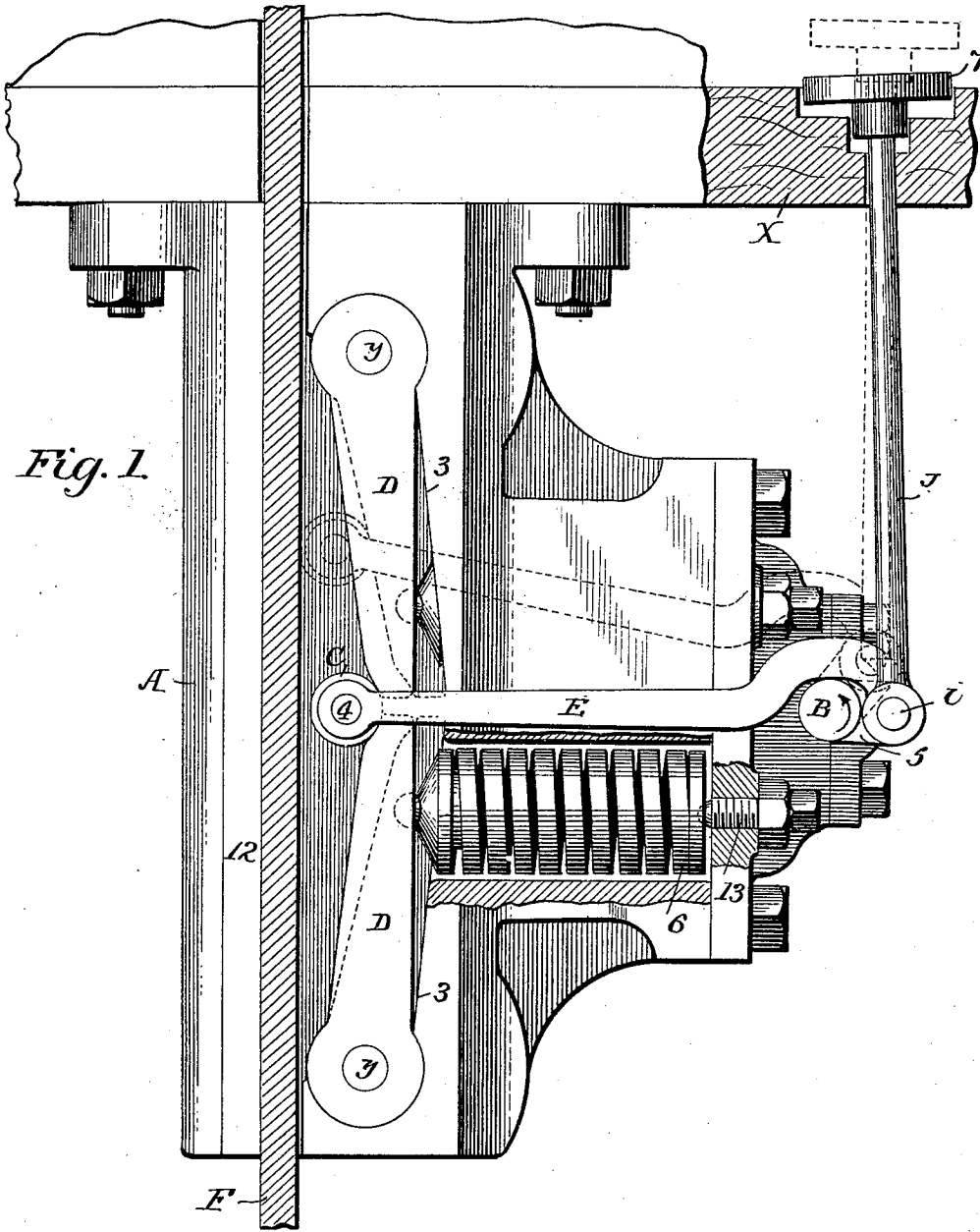


Fig. 1

Witnesses

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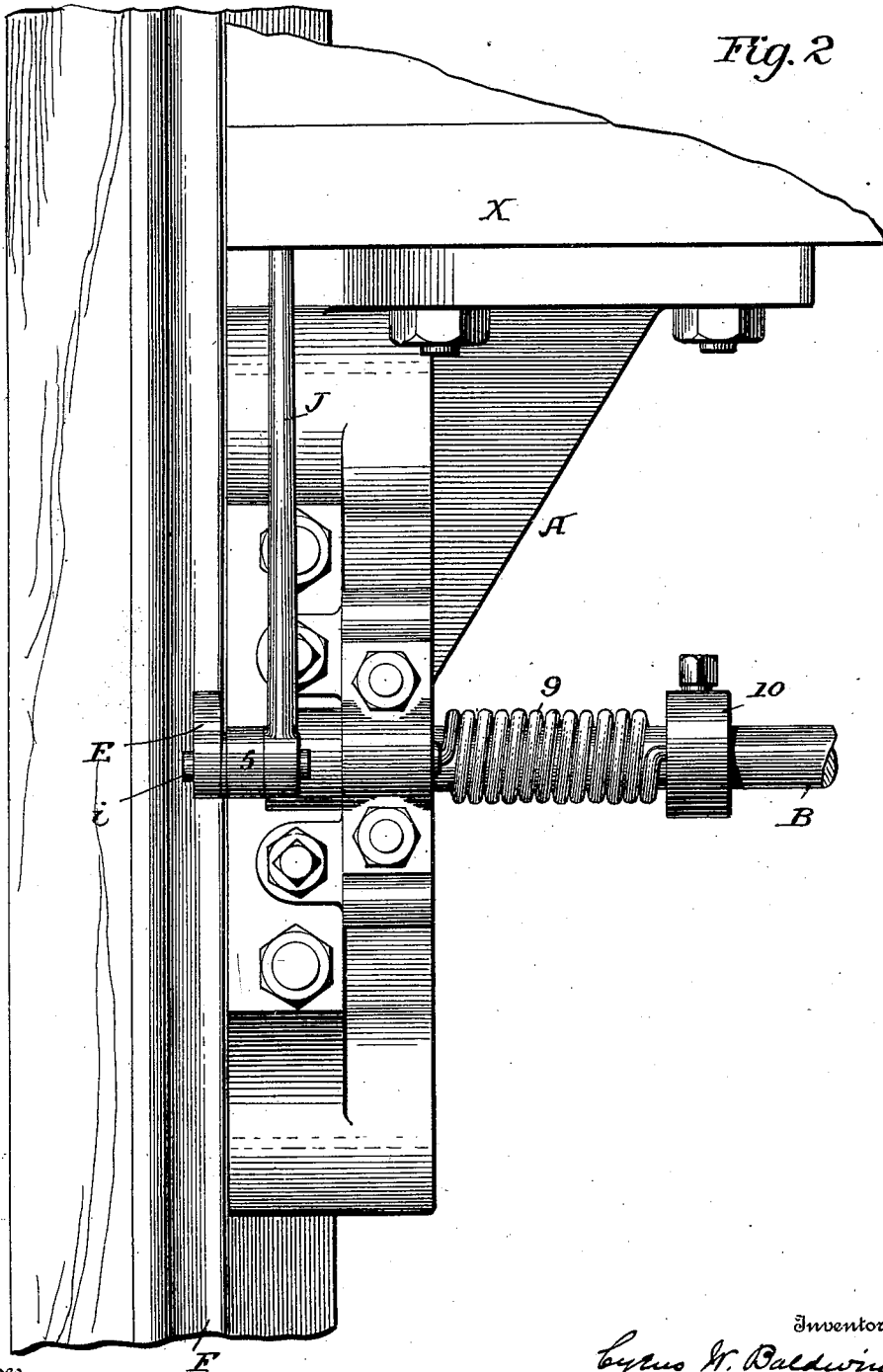
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2 Sheets—Sheet 2.

Fig. 2



Witnesses

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# UNITED STATES PATENT OFFICE.

CYRUS W. BALDWIN, OF YONKERS, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE OTIS ELEVATOR COMPANY, OF EAST ORANGE, NEW JERSEY.

## SAFETY DEVICE FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 683,677, dated October 1, 1901.

Application filed January 31, 1898. Serial No. 668,631. (No model.)

To all whom it may concern:

Be it known that I, CYRUS W. BALDWIN, a citizen of the United States, residing at Yonkers, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Safety Devices for Elevators, of which the following is a specification.

My invention relates to safety devices for elevator cages or platforms; and it consists of a contact-piece and means for holding it normally out of contact with the guide and means for resisting the movement of the contact-piece in either direction after it is thrown in contact with the guide, all as fully set forth hereinafter, whereby whether the cage be moving in one direction or the other the contact of the contact-piece with the guide will cause a constantly-increasing resistance to the movement of the cage, and finally, if necessary, bring it to a state of rest, all as fully set forth hereinafter and as illustrated in the accompanying drawings, in which—

Figure 1 is a vertical elevation showing part of one of the guides and of the platform of an elevator apparatus with one of the clamps of the safety device in part section. Fig. 2 is an inverted plan view of the parts shown in Fig. 1.

The cage or platform X is constructed in any suitable manner and combined with any suitable appliances for raising and lowering the same.

At each side of the well is a guide F of usual construction, and with each guide coöperates a clamping device. As shown each clamping device has a bracket A, with a rib 12 parallel to one side of the guide F, and at the oppositeside of the said guide F are two diverging faces 3 3, and between these faces and the opposite face of the guide F is interposed a contact-piece, which may be a roller C, as shown in the drawings, either plain or serrated, but preferably serrated, or it may be a block with a serrated face. Above and below the block between the guide and the faces 3 3 are pivoted at *yy* two arms D D, constituting bearings for the contact-piece C, as set forth hereinafter, and forced against the inner side of the latter by springs

6 6, which may be adjusted to any desired degree of tension by set-screws 13 13. Normally when the contact-piece C is out of contact with the guide the inner edges of the bearing-arms D D are out of contact with the edges 3 3 of the bracket A, as shown in Fig. 1. Any suitable means may be employed for holding the contact-piece C out of contact with the face of the guide F, maintaining the bearing-arms D D in their retracted position and the springs 6 6 under compression. As shown, the contact-piece C when in the form of a roller is upon a pin 4, projecting from an arm E, connected at the rear end to the pin of a crank 5 upon a shaft B, having its bearings beneath the platform of the cage, and around which shaft there is coiled a spring 9, one end bearing in a socket upon a collar 10, clamped to the shaft B, and the other in a socket in one of the fixed bearings upon the cage. The spring 9 is so arranged as to normally tend to turn the shaft B in the direction of the arrow, Fig. 1, so as to lift the crank-pin *i* of the crank 5 above the axis of the shaft *b*, thereby permitting the springs 6 6 to force the bearing-arms D D and the contact-piece C with them toward the opposite face of the guide F. When this takes place, whether the car is moving either up or down, the frictional adhesion of the contact-piece C to the face of the guide causes the said contact-piece to move in between the guide and one of the bearing-arms D, the edge of which is then inclined, compressing the springs 6 6 more and more with a gradually-increasing resistance until the speed of the car is reduced to the proper extent or, perhaps, its movement arrested altogether. Should the cage be under such headway at the time the brake is applied that the compression of the springs 6 is not sufficient to arrest the movement of the cage, this compression will continue, the bearing-arm D being gradually forced back until the arm D is brought against the inclined bearing edge 3 and the contact-piece C is wedged between the arm D and the opposite face of the guide, thus bringing the cage absolutely to a stop.

In order to insure in case of the cage acquiring undue speed that the clamps shall at

once be applied instead of providing means whereby the operator applies the clamps, I make use of the automatic devices heretofore described—as, for instance, the spring 9, which is normally under such tension as to throw the shaft B around and cause the clamp to be applied—and I provide means whereby the operator must constantly hold the parts out of operative position, so that the moment he ceases to do so the clamp will be applied. Various appliances may be used for this purpose; but, as shown, I provide the shaft B with an additional crank, or I extend the crank-pin *i* to receive the lower end of a rod J, which extends upward through the floor of the cage and is provided with a footpiece 7, upon which the operator keeps his foot at all times, except when the clamps are to be applied.

While I prefer to make use of the additional features of the bearing-faces 3 3, it will be evident that these may be dispensed with, especially for light cages, using heavy springs 6 6, which will under great compression exert sufficient resistance to cause the contact-piece to be wedged so firmly between the bearings D D and the guide as to arrest the movement of the cage.

Without limiting myself to the precise construction and arrangement of parts shown, I claim as my invention—

1. The combination with an elevator-car and its guide, of a contact-piece arranged upon the car and adapted to move in either direction from a central position, means for applying a constantly-increasing resistance to such movement in either direction, and means for normally holding the contact-piece out of contact with the guide, substantially as set forth.

2. The combination with an elevator-car and its guide, of a contact-piece arranged upon the car and adapted to move in either direction from a central position, and means for applying a constantly-increasing resistance to such movement in either direction, substantially as set forth.

3. The combination with an elevator cage or platform and its guide, of a contact-piece adapted to move in either direction from a central position, means for resisting the movement in either direction to the constantly-changing resistance, and means controlled by the operator within the car for normally holding the contact-piece out of contact with the guide, substantially as set forth.

4. The combination with an elevator car or platform and its guide, of a contact-piece adapted to move in either direction from a central position, means for resisting the movement in either direction to the constantly-

changing resistance, and means for automatically throwing the contact-piece into engagement with the guide, substantially as set forth.

5. The combination with an elevator-car and its guide, of a contact-piece, means for holding the contact-piece normally out of contact with the guide, movable bearings for the contact-piece on opposite sides of the normal position of the contact-piece, and springs arranged to resist the movements of the said bearings under the pressure of the contact-piece, substantially as set forth.

6. The combination of a car, guide, clamping device, provided with a contact-piece, means for holding the contact-piece normally out of contact with the guide, movable spring-actuated bearings bearing against the contact-piece to carry it toward the guide, and fixed inclined bearings 3, 3, arranged at an angle to the guide, substantially as set forth.

7. The combination of a car, guide, clamping device, provided with a contact-piece, means for holding the contact-piece normally out of contact with the guide, of movable spring-actuated arms above and below the central position of the contact-piece and bearing against the contact-piece to carry it toward the guide, and fixed inclined bearings arranged at an angle to the guide, substantially as set forth.

8. The combination of the car, guide, a contact-piece, and means for holding the same normally out of contact with the guide under control of the operator in the car, movable bearings for the contact-piece and springs for forcing the said bearings against the contact-piece, substantially as set forth.

9. The combination with the cage or platform, of a guide, a contact-piece in the form of a roller, movable bearings arranged to bear against said roller at the sides away from said guide, springs pressing against each bearing at its side away from said roller, means for holding each guide-roller normally out of contact with the guide, and means for throwing it in contact with the guide.

10. The combination with an elevator-car and its guide, of a contact-piece, means for holding the contact-piece normally out of contact with the guide, movable bearings for the contact-piece, and springs bearing against said movable bearings, substantially as described.

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

CYRUS W. BALDWIN.

Witnesses:

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