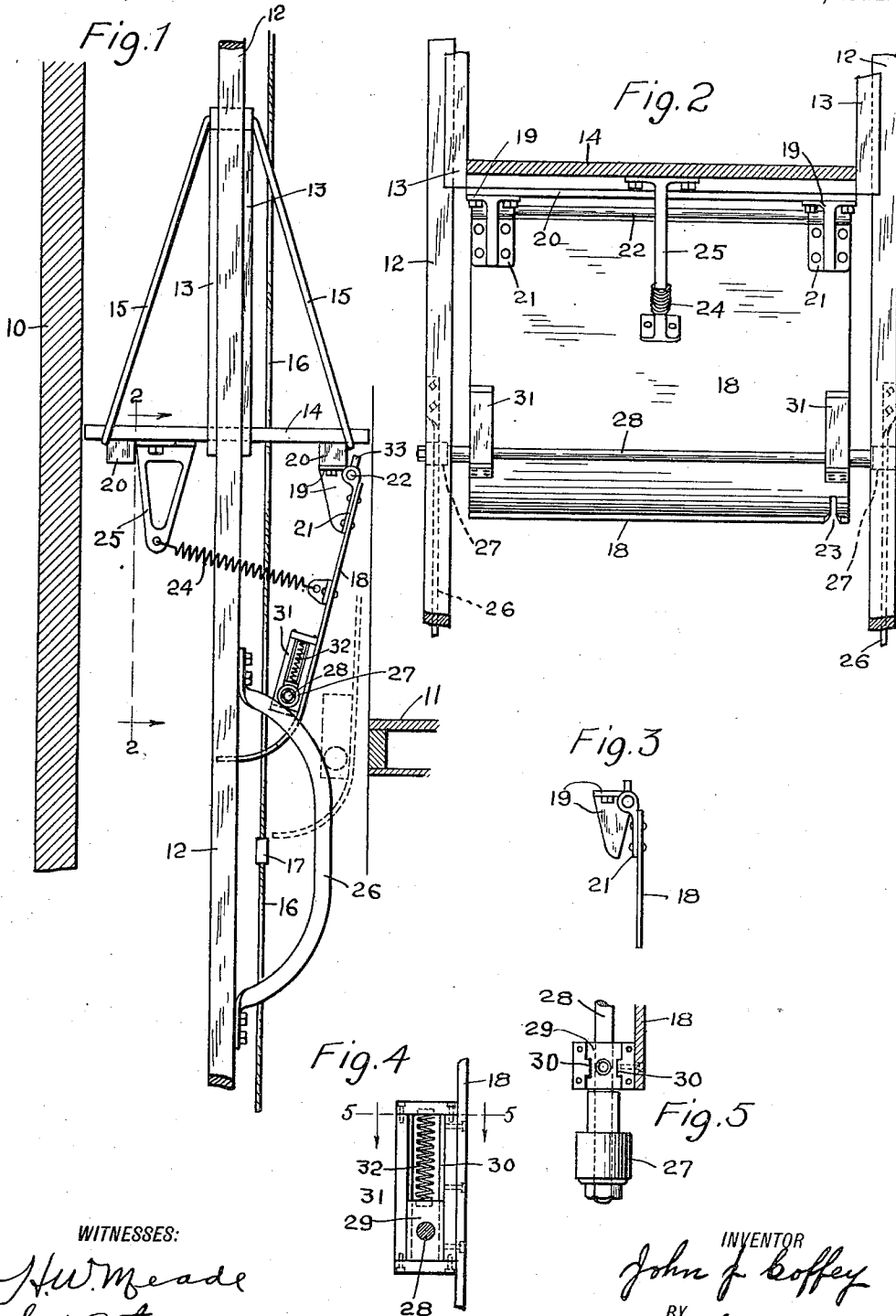


J. J. COFFEY.
FENDER FOR ELEVATORS.
APPLICATION FILED DEC. 5, 1910.

1,004,744.

Patented Oct. 3, 1911.



WITNESSES:

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JOHN J. COFFEY, OF BRIDGEPORT, CONNECTICUT.

FENDER FOR ELEVATORS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN J. COFFEY, a citizen of the United States, residing at Bridgeport, county of Fairfield, State of Connecticut, have invented an Improvement in Fenders for Elevators, of which the following is a specification.

This invention has for its object to provide a safety device adapted for elevators generally and especially adapted for freight elevators, which will prevent injury by a descending elevator to a person standing at the well or to an object overhanging the well by pushing the person or object backward out of the way as the elevator descends, and which, if a heavy object projects into the well, will stop the elevator.

With these and other objects in view I have devised the novel safety device or elevator fender which I will now describe, referring to the accompanying drawing forming a part of this specification and using reference characters to indicate the several parts.

Figure 1 is a view partly in side elevation and partly in vertical section, illustrating the construction and operation of my novel fender; Fig. 2 a section on the line 2—2 in Fig. 1, looking in the direction of the arrows; Fig. 3 a detail view illustrating the fender hinge and stop; Fig. 4 a detail view on an enlarged scale of one of the carrying blocks and the ways therefor; and Fig. 5 is a section on the line 5—5 in Fig. 4, looking in the direction of the arrows, the top plate of the box being removed.

10 denotes the back wall of an elevator well, 11 a floor having a well opening through it, 12 the side rails, 13 shoes which travel upon the side rails, 14 the elevator platform, 15 braces extending to the shoes and 16 the operating cable which is provided with a stop 17 rigidly secured thereto in position to stop the elevator at each floor under certain circumstances, as will be more fully explained.

18 denotes the fender or safety device which is shown as curved at its lower end and is hinged to plates 19 bolted to the under side of the elevator. In the present instance I have shown these plates as bolted to a heavy cross piece, indicated by 20. The special construction of the hinges is not of the essence of the invention. In the present instance I have shown eyes formed upon plates 19, corresponding eyes formed

upon plates 21 rigidly secured to the fender and a rod 22 passing through all the eyes and extending the entire width of the fender. The fender is provided with a slot 23 through which the operating rope passes and is retained in its normal position, that is as shown in full lines in Fig. 1, by means of a spring 24, one end of which is connected to the fender and the other to a bracket 25 on the underside of the elevator. Plates 19 are suitably shaped to serve as stops to limit the inward movement of the fender, as will be understood from Fig. 3 in connection with Fig. 1. It will be understood that when the elevator is ascending the fender is wholly out of the way and only becomes operative as the elevator approaches each floor in descending.

26 denotes stationary curved cam rails which are rigidly secured to the side rails contiguous to each floor. These cam rails are engaged by rollers 27 to swing the fender outward against the power of spring 24 (see dotted lines in Fig. 1). These rollers are carried by a shaft 28 journaled in sliding blocks 29, which are adapted to reciprocate on ways 30 in boxes 31 which are themselves rigidly secured to the inner side of the fender. Springs 32 in the boxes act to normally hold the sliding blocks at the bottom of the boxes and yieldingly retain the rollers in engagement with the cam rails.

The operation is as follows: As the elevator descends, rollers 27 engage the cam rails and travel downward and outward thereon, the effect of which is to swing the fender from the full line position in Fig. 1 to the dotted position. The action of the fender is to guard the opening into the well and should an object extend partly over the edge of the floor or should a person be leaning over the well, the object or the person will be pushed backward by the fender and cannot be injured by the elevator as it descends. Should a relatively heavy or immovable object be struck by the fender, which would prevent its being swung outward, springs 32 in the boxes will yield, shaft 28 and the sliding blocks will move upward in the boxes and the fender will not be swung outward but will remain in the full line position in Fig. 1, the operating rope remaining in the slot. Stops 17 on the cable are made large enough so that they will not pass through the slot. The result is that when the fender strikes a stop the walls

of the slot will engage the stop and carry the stop and the operating rope downward until the elevator is stopped, which will be within the limit of movement of the sliding blocks. Except when the elevator is stopped as described, the fender will swing outward and guard each well opening as the elevator descends and then be drawn backward to its normal position by the spring as the rollers pass down the lower curves of the cam rails when the elevator passes the floor ready to guard the next well opening below. When the elevator is ascending the fender of course swings outward and then inward the same as before.

In order to limit the outward movement of the fender and prevent the possibility of its swinging far enough outward to engage the floor should spring 24 break or become detached, I provide one or more of the hinge eyes on the fender with lugs 33 which engage plate 19 or the cross piece and limit the outward swing of the fender.

Having thus described my invention I claim:

1. The combination with an elevator platform and a fender hinged thereto, of means for normally retaining the fender out of operative position, a sliding block carried by the fender and a stationary cam rail engaged by the block, whereby the fender is swung into position to guard a well opening as the elevator descends.

2. The combination with an elevator platform and a fender hinged thereto, of means for normally retaining the fender out of operative position, sliding blocks carried by the fender, rollers journaled on said blocks and stationary cam rails engaged by the rollers, for the purpose set forth.

3. The combination with an elevator platform and a fender hinged thereto, of means for normally retaining the fender out of operative position, boxes on the inner side of the fender, spring-controlled blocks adapted to slide in the boxes, rollers journaled on said blocks and stationary cam rails engaged by the rollers, for the purpose set forth.

4. The combination with an elevator platform and a fender hinged thereto, of a spring connected to the fender and to the platform, for the purpose set forth, spring-controlled sliding blocks on the fender, rollers journaled on said blocks and stationary cam rails engaged by the rollers, for the purpose set forth.

5. The combination with an elevator platform, an operating cable having stops and a fender hinged to the platform and having a slot to receive the cable, the walls of said slot being adapted to engage the stops, for the purpose set forth, of means for normally retaining the fender out of operative position,

spring-controlled sliding blocks carried by the fender, rollers journaled on said blocks and cam rails adapted to be engaged by the rollers to normally swing the fender into operative position, the blocks yielding should the fender be obstructed and the elevator being stopped by engagement of the walls of the slot with a stop on the cable.

6. The combination with an elevator platform, an operating cable having stops and a fender hinged to the platform and having a slot to receive the cable, of means for normally retaining the fender out of operative position and means for swinging the fender into operative position as the elevator descends, the walls of the slot engaging a stop on the cable, for the purpose set forth, should the movement of the fender toward the operative position be obstructed.

7. The combination with an elevator platform having plates on its under side, a fender hinged to said plates and a spring for normally retaining the fender out of operative position, said plates serving as stops to limit the inward movement, of a stationary cam rail engaged by the fender to swing the latter into operative position against the power of the spring.

8. The combination with an elevator platform and a fender hinged thereto, of means for normally retaining the fender out of operative position, means for swinging the fender into operative position as the elevator descends and a stop for limiting the outward movement of the fender.

9. The combination with an elevator platform and a fender hinged thereto, of means for normally retaining the fender out of operative position, means for swinging the fender into operative position as the elevator descends and means for stopping the elevator should the outward movement of the fender be obstructed.

10. The combination with an elevator platform, a curved fender hinged thereto and provided with a slot and an operating cable lying in the slot and provided with stops, of means for normally retaining the fender out of operative position, spring-controlled sliding blocks carried by the fender, a shaft journaled in said blocks and carrying rollers, and cam plates engaged by said rollers to swing the fender outward, the rollers yielding should the fender be obstructed and downward movement of the elevator being stopped by engagement of the fender with a stop on the cable.

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

JOHN J. COFFEY.

Witnesses:

A. M. WOOSTER,
S. W. ATHERTON.