

M. M. DA COSTA.
SAFETY DEVICE FOR ELEVATORS.
APPLICATION FILED JULY 23, 1912.

1,060,324.

Patented Apr. 29, 1913.

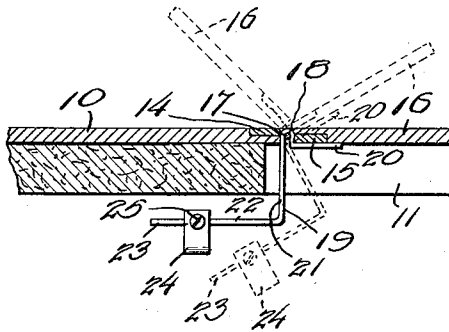
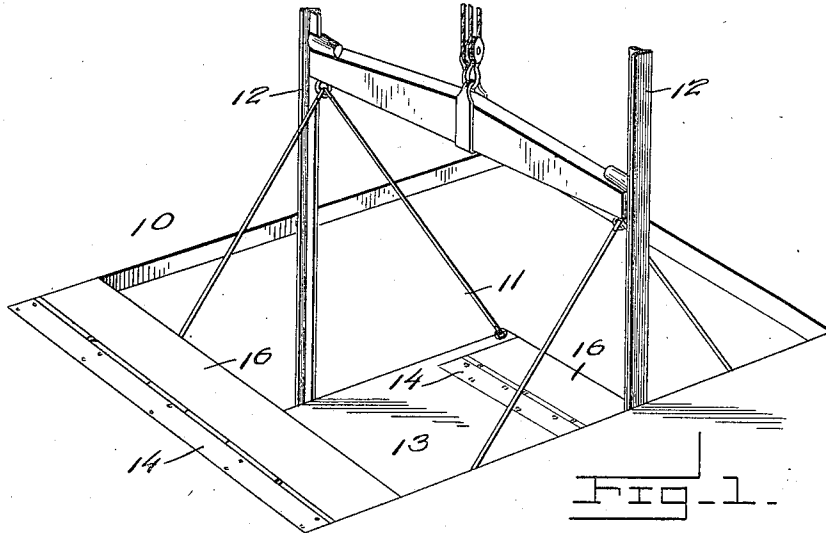


Fig. 2.

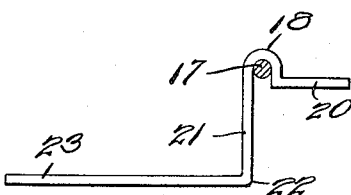
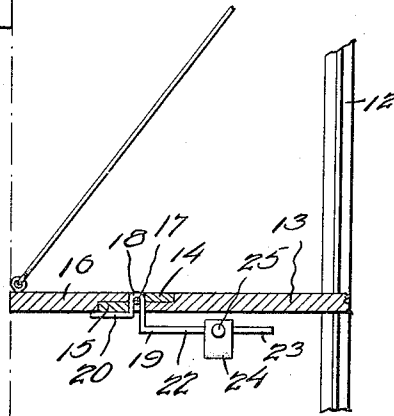


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

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SAFETY DEVICE FOR ELEVATORS.

1,060,324.

Specification of Letters Patent.

Patented Apr. 29, 1913.

Application filed July 23, 1912. Serial No. 711,060.

To all whom it may concern:

Be it known that I, MANUEL M. DA COSTA, a citizen of the United States, residing at New Bedford, in the county of New Bedford and State of Massachusetts, have invented new and useful Improvements in Safety Devices for Elevators, of which the following is a specification.

This invention relates to elevator shaft protective devices, and particularly to means for preventing injury to persons caught between the floor at the edge of a shaft and the floor or roof of the elevator.

It has for an object to improve the hinge and method of balancing the pivoted apron or door such as has heretofore been used at the landing.

It is an object to so arrange a counter balance of simplest form that it will not tend to swing into the opening beneath the landing door when opened fully which might result in damage of one kind or another.

It is also an object to so connect the counter balance with the door, that, while acting directly on the door when in initial position, when the weight passes dead center, it will not retard opening of the door further.

Other objects and advantages will be apparent from the following description and from the drawings, in which,

Figure 1 is a perspective view of a shaft opening through a floor, Fig. 2 is a fragmentary section of a floor, shaft and elevator. Fig. 3 is a detail of the weight arm.

There is illustrated a portion of a building including the floor 10, having the shaft opening 11 therethrough, at the sides of which are mounted any suitable form of guides 12, between which the elevator car 13 travels. At the landing side of the opening 11 there is secured a hinge plate 14, of sheet metal, mortised in the floor 10, the hinge knuckles thereof being curved in the usual fashion in such hinges, toward the lower side. Coengaged therewith there is a similar plate 15 secured in a door 16 on its under side, the knuckles of this plate being curved toward its upper side. By this relative arrangement of the plates 14 and 15 the hinge is without any projecting parts and neither does it cause any undue irregularity of the floor, of which (floor) the door may be considered a part. The knuckles of the two plates are coengaged by a suitable shaft or pin 17, and adjacent each side of the door the knuckles of the hinge are cut to leave a

small space around the pin 17 in which space sets the central U-shaped pivot seat 18, formed intermediately of the length of a balance bar 19. From the seat 18 an arm 20 extends outwardly, resting closely against the under side of the door 16, and from the inner side of the seat there extends downwardly at right angles to the arm 20 the inner member 21 of a weight arm 22 of right angular form, the outer or weight-carrying member 23 extending normally parallel to and below the under side of the floor 10. A similarly balanced and hinged door may be mounted at each side of the shaft if necessary, and preferably at each entrance of the elevator car. If the elevator car has a roof closely abutting the sides of the shaft at the landings, it would also be desirable to have such a door thereon over the entrance or entrances.

It will be apparent that should a person project a part of his body into the shaft or from the elevator car at the landing or entrance, and should be struck by or strike the abutting edge of the elevator car or floor, it will yield quickly and injury be avoided. The weight will bear the door upwardly until it (the weight) reaches the lower dead center, when the door will be relieved from connection therewith, and will be free to move to its fullest open position, without carrying the weight with it.

It will be seen that the device is especially well adapted to use where the floor or frame around the shaft is thick, and the invention permits the connection of the weight carrying arm directly with the door, at least at initial position, whereby a construction of maximum simplicity is attained.

The weight 24 is provided with a suitable passage therethrough receiving the member 23 slidably therethrough, and a suitable binding screw 25 is engaged through the weight to secure it in its adjusted positions. The device is thus adapted to be fitted to doors of various weights without change in manufacture.

I am familiar with the fact that doors have been hinged to the edges of elevator landings, among which is the patent to Ciperly, No. 990,226, April 25, 1911, and do not claim any of the features therein shown or heretofore known.

It is apparent that this invention may be found useful with trap and cellar doors.

What is claimed is:

1. In a device of the class described, the

combination with a pivoted normally horizontal door of a weight carrying member pivoted on a common axis therewith, having a rearwardly extending weight carrying arm, and a forwardly extending arm arranged and adapted to bear upon the under side of the door for counterbalance thereof in normal position.

2. The combination with a horizontally pivoted door including a pivot pin or the like, a counterbalancing device comprising a rod having a U-shaped portion intermediately thereof, a door supporting arm pro-

jecting outwardly thereof and adapted to bear against the under side of the door, and a weight carrying portion extending oppositely from the arm, the U-shaped portion being set upon the pivot pin. 15

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses. 20

MANUEL M. DA COSTA.

Witnesses:

MANUEL ALREES,
CHARLES N. SERPA.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
