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S. KACSO.

SAFETY DEVICE FOR ELEVATORS.

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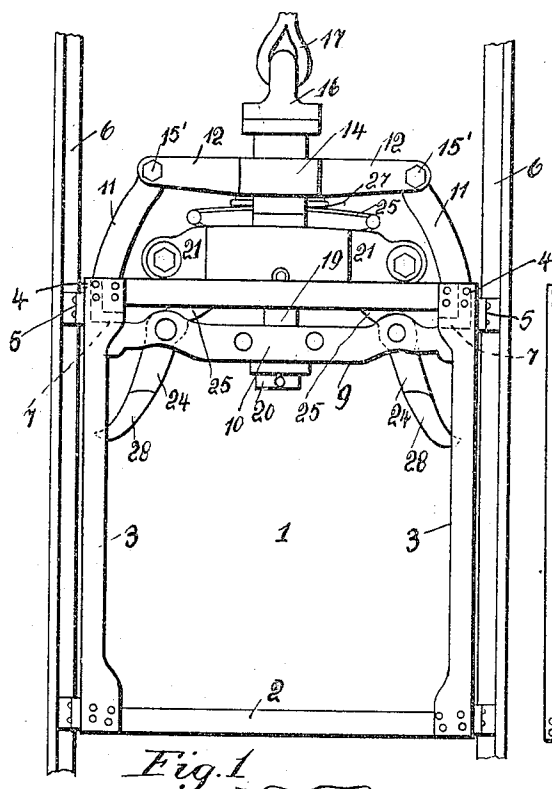


Fig. 1

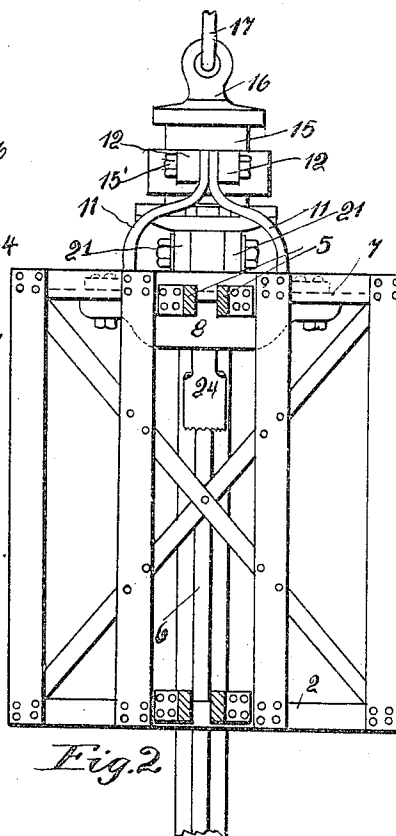


Fig. 2

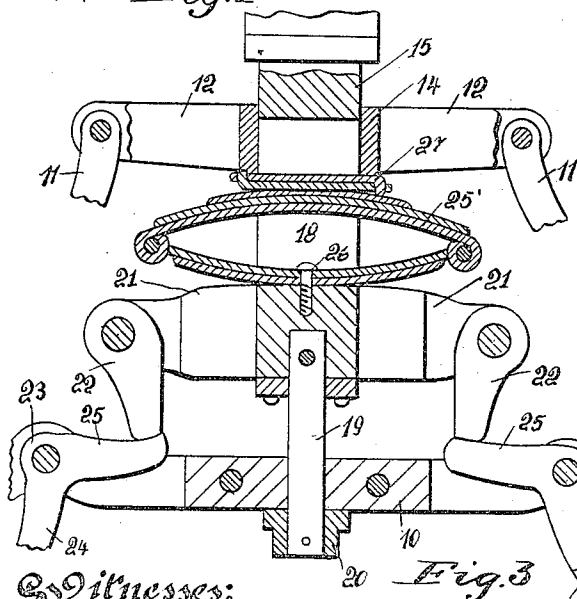


Fig. 3

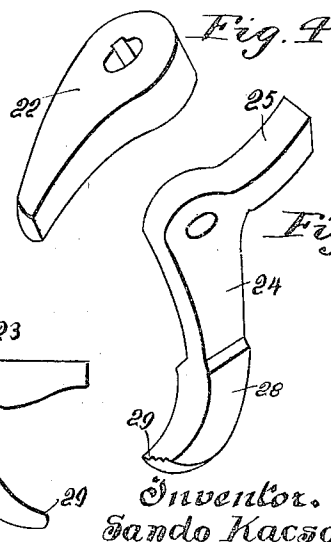


Fig. 4

Fig. 5

Witnesses:

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SAFETY DEVICE FOR ELEVATORS.

No. 816,333.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, SANDO KACSO, a citizen of the United States of America, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Safety Devices for Elevators, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in elevators, and more particularly to a novel safety elevator device adapted to prevent an elevator from dropping or falling when its supporting cable or chain is broken.

Another object of the invention is to provide a safety device for elevators that can be readily installed in connection with the ordinary type of elevator-cage commonly operated in an elevator well or shaft. In this connection I have devised novel and positive means adapted to be actuated by the sudden descent or release of an elevator-cage, said means being adapted to engage the side rails of an elevator shaft or well and prevent the cage from falling or descending until the mechanism has been restored to its proper condition for operation.

A further object of this invention is to provide a safety device for elevators which will be inexpensive to manufacture, simple in construction, and strong and durable.

With the above and other objects in view, which will more readily appear as the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts to be hereinafter more fully described, illustrated, and then specifically pointed out in the claims.

The essential features of my invention are illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of an elevator-cage constructed in accordance with my invention. Fig. 2 is a side view of the same. Fig. 3 is an enlarged detail vertical sectional view of a portion of my improved safety operating mechanism, and Figs. 4 and 5 are detail perspective views of parts of the same.

Throughout the several views of the drawings like numerals of reference designate corresponding parts.

It will be observed from the accompanying drawings that I have illustrated the frame of an elevator-cage, and in this connection I do not care to confine myself to either a passen-

ger-elevator or a freight-elevator or to the specific construction of the cage in connection with which it is used.

The cage which I have illustrated comprises a substantially rectangular or box-shaped frame 1, consisting of a platform 2, supported by upright beams or standards 3 3, which are connected to the top frames of the cage. The side rails 4 4 of the top of the cage are provided with brackets 5 5, which serve functionally as guides, said brackets being adapted to embrace the vertically-disposed rails 6 6 of the elevator shaft or well in which the cage 1 operates. Mounted adjacent to the side rails 4 4 I provide frames 7 7, to each of which is secured a depending bracket 8. Supported by said brackets is a cross-head consisting of bars 9 9, said bars being arranged centrally of the elevator-cage. The bars are braced by a central pierced block 10.

Each frame 7 is provided with two upwardly-extending curved arms 11 11, which are preferably constructed of durable resilient steel, the object of which will be presently described. The upper ends of the arms 11 11 are secured together between the outwardly-extending lugs 12 12 of a yoke 14 by nuts and bolts 15' or the like fastening means. Mounted in the yoke 14 is a vertically-disposed king-pin 15, the upper end of which is provided with a suitable pierced head 16, to which is attached the supporting cable, chain, or rope 17, by means of which the elevator-cage is raised and lowered. The king-pin 15 is provided with a transversely-disposed slot 18, and the lower end of said pin is provided with a depending rod 19, which passes through the pierced block 10 and is provided with a detachable head or nut 20 upon its lower end. The end of the pin 15 is provided with outwardly-extending arms 21 21, coinciding with one another, and between the outer ends of said arms are mounted depending members 22.

Between the bars 9 9 I pivotally mount substantially L-shaped locking-levers 23 23, the longer arm 24 of said levers being curved and adapted to engage the side rails 6 6 of the elevator-cage when the cable or chain 17 is broken. The shorter arms 25 25 of said levers engage the ends of the depending members 22 22, and the manner in which these members actuate the levers 23 23 will be presently described.

In the slot 18 of the king-pin 15 I mount an

elliptical band - spring 25', the bottom of which is secured by a suitable screw 26 to the end of the pin, while the top of said spring is provided with metallic plates 27, normally engaging the lower sides of the yoke 14.

In Figs. 4 and 5 of the drawings I have illustrated the member 22 and the locking-lever 23, and it will be observed that the contacting end of the locking-lever is preferably enlarged, as indicated at 28, the extreme end of said lever being serrated or roughened, as indicated at 29, to further facilitate the lever in engaging the side rail of an elevator shaft or well.

The normal position of my improved safety elevator device is illustrated in Fig. 1 of the drawings, it being assumed that the cage is suspended from a suitable chain, cable, or rope 17. The safety mechanism of the device is normally held in an inactive position by the cable 17, that is normally held taut by the weight of the elevator-cage. Should the cable break and suddenly release the elevator-cage, the spring 25' will immediately force the pin 15 downwardly, causing the members 22 22 to move the operating-levers 23 23, forcing the serrated enlarged ends of said levers into engagement with the rails 6 6, preventing the cage from further descending within the well.

In operation the cable 17 supports the cage 1 through the medium of the arms 11, yoke 14, which rests upon the top of the spring 25', also through the medium of the pin 15 and the headed rod 19, which engages the central block 10 of the bars 9 9. After the elevator-cage 1 has been stopped by my improved device upon again attaching the cable 17 the operating parts of the device will assume their normal position ready to be actuated again by the breaking of the cable 17. The resilient arms 11 11 are employed to permit the yoke 14 to recede slightly when the head

of the king-pin 15 strikes the same by the breaking of the cable which supports the cage.

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

1. In an elevator safety device, the combination with a cage and rails for guiding the same, said cage being supported by a hoisting-cable, of a yoke carried by the top of said cage, a cross-head carried by said cage, a vertically-movable king-pin mounted in said yoke and said cross-head and connected to said hoisting-cable, said pin having a slot formed therein, a spring mounted in said slot and adapted to engage said yoke, depending members carried by said pin, and locking-levers pivotally mounted on said cross-head and adapted to engage said members, the ends of said levers being enlarged and serrated and adapted to engage said rails when said pin moves downwardly within said yoke and said cross-head, substantially as described.

2. In an elevator safety device, the combination with a cage and rails for guiding the same, said cage being supported by a hoisting-cable, of a yoke carried by the top of said cage, a cross-head carried by said cage, a vertically-movable pin mounted in said yoke and said cross-head and adapted to be connected to said cage, depending members carried by said pin, locking-levers pivotally mounted in said cross-head and adapted to be actuated by said members, and means carried by said pin to operate said levers when said pin is released by said cable, substantially as described.

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

SANDO KACSO.

Witnesses:

GEORGE DOOGAN,
H. C. EVERT.