

No. 676,258.

Patented June 11, 1901.

H. JEWELL.

SAFETY CATCH FOR ELEVATORS.

(Application filed Oct. 11, 1900.)

(No Model.)

2 Sheets—Sheet 1.

Fig 1

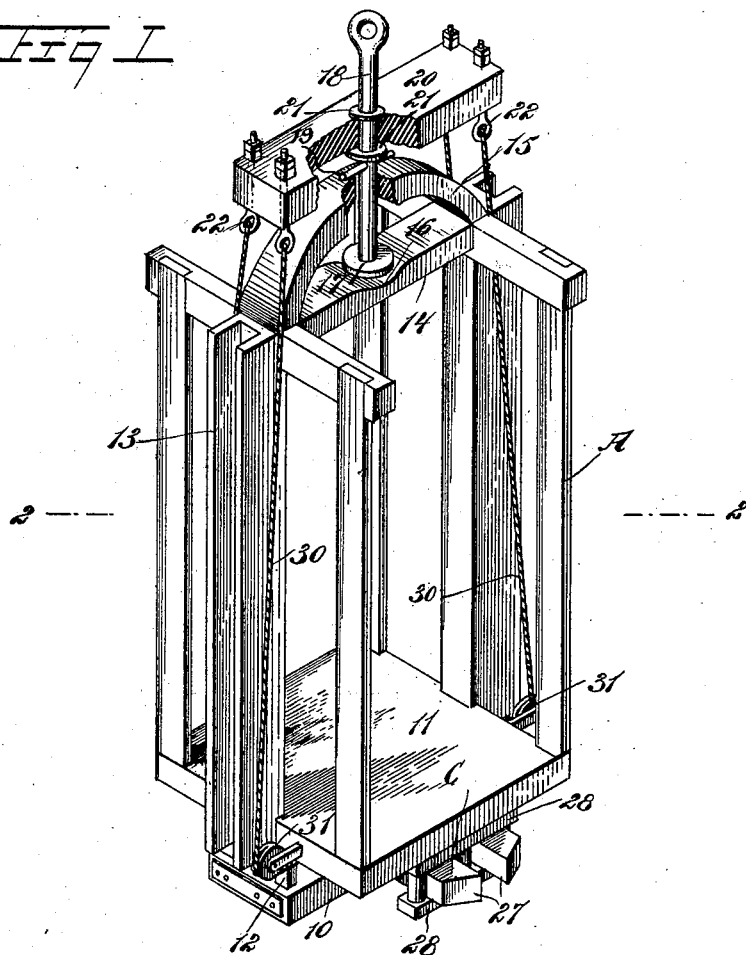
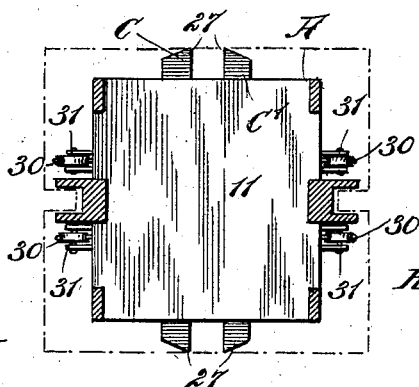


Fig 2



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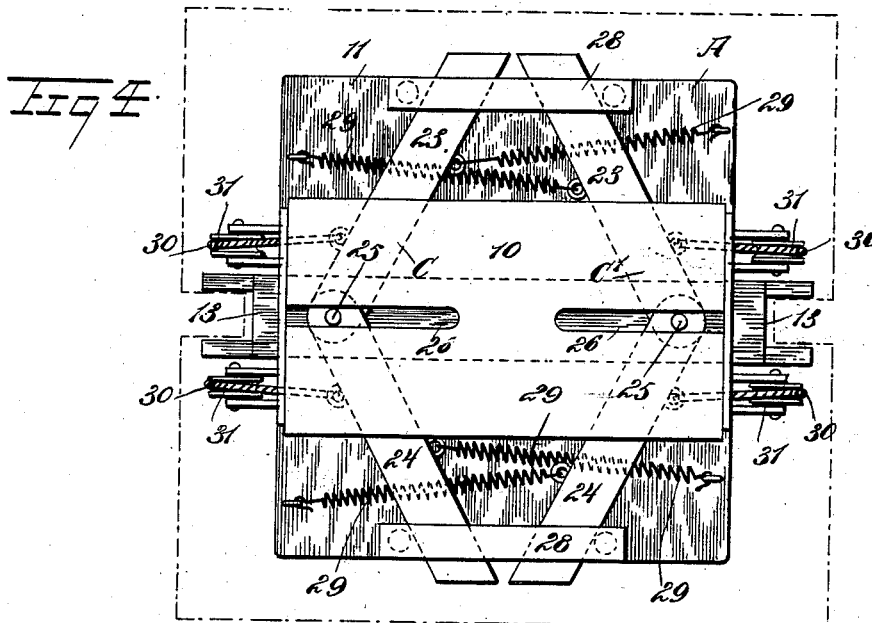
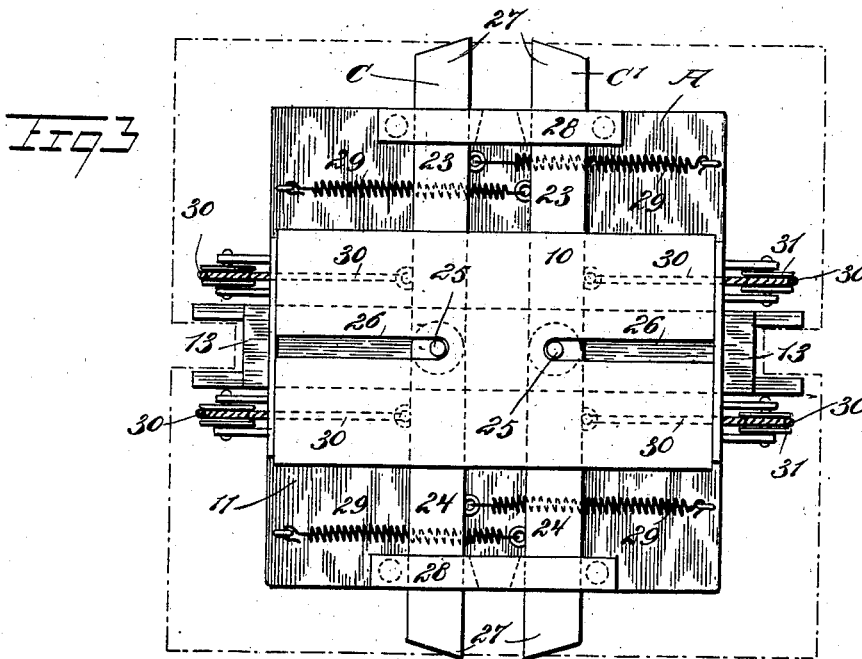
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# UNITED STATES PATENT OFFICE.

HENRY JEWELL, OF BUTTE, MONTANA.

## SAFETY-CATCH FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 676,258, dated June 11, 1901.

Application filed October 11, 1900. Serial No. 32,706. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY JEWELL, a citizen of the United States, and a resident of Butte, in the county of Silver Bow and State of Montana, have invented a new and Improved Safety-Catch for Elevators, of which the following is a full, clear, and exact description.

One purpose of the invention is to provide a safety-catch adapted to be applied to a lower deck or lower portion of a car or cage of all kinds of elevators and to be operated from the king-bolt to which the hoisting-cable is applied.

A further purpose of the invention is to so construct the catches that while the hoisting-cable is in good condition and is supporting a car or cage the catches will be inactive; but the moment the cable breaks the catches will be automatically forced beyond opposite sides of the car or cage to a firm engagement with a wall of the shaft or wall-plates, racks, or their equivalents in said shaft.

The invention consists in the novel construction and combination of these several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a perspective view of an elevator-cage to which the improvement is applied, parts of the cage and parts of the improvements being in section. Fig. 2 is a horizontal section taken practically on the line 2-2 of Fig. 1. Fig. 3 is a bottom plan view of the cage, showing the safety-catches in position to engage with a wall or wall-plate of the shaft; and Fig. 4 is a view similar to Fig. 3, illustrating the safety-catches as withdrawn from engagement with any portion of the shaft.

A represents an elevator-cage of any suitable construction, which cage is shown provided with a single deck 10 below the bottom 11 of the cage. This deck is spaced from the bottom 11 of the cage by suitable uprights 12, and the deck may be secured to the bottom of said cage by a central bolt, if desired. The cage is provided with the customary vertical shoes 13 at opposite sides, and these

shoes extend from the top of the cage and bear upon the bottom 11. These shoes 13 are adapted to receive guide projections formed upon the walls of the shaft in which the cage travels, as is shown in dotted lines in Figs. 2, 3, and 4.

An arch 15 extends across the upper surface of an upper cross-head 14, longitudinally of the same, and preferably this cross-head 14 has a cavity 16 at its center, which receives the lower head 17 of a king-bolt 18, adapted to be connected with a hoisting-cable. The king-bolt has free vertical movement in the arch 15, but is limited in its downward movement by a pin 19 or the like, passed through the king-bolt and adapted to engage with the upper surface of the crown of the arch. The king-bolt 18 is also passed through a head-block 20, which block moves with the king-bolt, being attached to said king-bolt, usually by collars 21, secured on the bolt and engaging with the top and bottom surfaces of the central portion of the head-block, as shown in Fig. 1. The head-block 20 is also provided with eyebolts extending through its ends and held in place by suitable nuts, and these bolts are connected in a manner to be hereinafter described with safety-catches C and C', located between the deck 10 and the bottom 11 of the cage and crossing the said deck.

The safety-catches C and C' consist of two pairs of retaining-arms 23 and 24 of equal length, and the inner ends of each pair of arms interlock and are pivotally connected by suitable pins or bolts 25, the lower ends of which pins or bolts extend down through suitable slots 26, produced in the deck 10, as shown particularly in Figs. 3 and 4. The outer ends of the retaining-arms of the safety-catches extend beyond opposite sides of the bottom of the cage, and the outer ends of the said arms of the safety-catches are beveled, the beveled surfaces of the pairs inclining in direction of corresponding arms, so that sharp outer ends 27 are obtained on the outer extremities of the said arms of the said safety-catches, as shown in Figs. 1 and 2, which sharp ends are adapted when the safety-catches are in action to forcibly engage with the side walls of the elevator-shaft or wall-plates, or the outer ends of the said arms of

the safety-catches may engage with racks secured to the walls of the shaft. The arms 23 and 24 of the safety-catches have guided and sliding movement in stirrups 28, secured to the bottom of the cage, and one end of a spring 29 is attached to the side edge portion of each arm 23 and 24 and to the bottom 11 of the cage, as shown in Figs. 3 and 4. The springs connected with one pair of arms extend in an opposite direction to that of the springs connected with the opposing pair of arms, and these springs serve to bring the pairs of arms of the safety-catches in parallelism when the arms are relieved from outward tension, as shown in Fig. 3, and this outward tension is applied to the arms through the medium of cables 30, which are connected with the outer sides of the arms adjacent to their pivotal connections, and said cables are passed around guide-pulleys 31, supported from the bottom 11 of the cage, and these cables are carried upward at each side of the shoes 13 to a connection with the bolts 22 of the head-block 20.

In operation during the time the hoisting-cable supports the cage the head-block is drawn upward, and the arms of the safety-catches are placed in a position at angles to each other through the action of the side cables 30, between the head-blocks and the arms of the safety-catches, and in this position of the arms of the safety-catch (shown in Fig. 4) the catch may move freely up and down the shaft; but the moment the king-bolt is relieved from the tension of the hoisting-cable, either through breakage of said cable or by reason of the cage being brought to a stand, the arms of the safety-catches are relieved from outward tension, and the springs 29 immediately act to force the arms in parallelism and their outer sharp edges 27 in contact with the sides of the shaft, as shown in Fig. 3.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. An elevator-cage, a deck below the same, tension-controlled safety-catches having guided movement between the deck and cage, the said safety-catches consisting of pairs of retaining-arms in pivotal connection, the outer ends of the safety-catches extending beyond opposite sides of the cage, the members of the safety-catches in one position lying in parallel lines, their outer ends engaging with the wall of the elevator-shaft, or a surface prepared to receive them in the shaft, a suspension-cable for the cage, and a connection between the suspension-cable and the safety-catches, whereby while the suspension-cable is under tension the members of the safety-catches will be at angles to each other and out of engagement with the surfaces in the shaft prepared to receive them.

2. An elevator-cage and a deck below the same, safety-catches consisting of pairs of pivotally-connected arms having guided movement on the deck at their pivot-points and guided movement at the bottom of the cage at their outer ends, which ends extend beyond opposite sides of the cage and in one position of the arms are adapted to engage with the wall of the elevator-shaft, or a surface prepared to receive them in the shaft, tension-springs tending to normally hold the pairs of arms in parallelism, and a connection between the arms of the safety-catches and the suspension-cable of the cage.

3. An elevator-cage, a deck located at the bottom portion of the cage, safety-catches located between the deck and the bottom of said cage, said safety-catches consisting of pairs of arms pivotally connected at their inner ends, the pivots of the arms having guided movement in the deck, guides for the outer ends of the arms, carried by the bottom portion of the cage, the outer ends of the said arms being beveled, forming sharp ends, springs attached to the said arms, tending to normally draw the said arms into such position that the arms of the pairs will be in longitudinal alinement and said pairs of arms in parallelism, cables attached to the said arms, adapted to exert tension thereon in a direction opposite to that of the springs, guides for the cables, and means for operating the said cables from the hoisting-cable of the cage.

4. An elevator-cage, a deck located at the bottom portion of the said cage, safety-catches located between the deck and the bottom of said cage, said safety-catches consisting of pairs of arms pivotally connected at their inner ends, the pivots of the said arms having guided movement in the said deck, guides for the outer ends of the arms, carried by the bottom portion of the cage, the outer ends of the said arms being beveled, forming sharp ends, springs attached to the said arms, tending to normally draw the said arms into such position that the arms of the pairs will be in longitudinal alinement and the said pairs of arms in parallelism, cables attached to the said arms, adapted to exert tension thereon in a direction opposite to that of the springs, a head-block connected at its ends with the cables connected with said arms, and a king-bolt having sliding movement in the upper portion of the cage, which king-bolt is attached to the head-block and receives the hoisting-cable for the cage, as described.

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

HENRY JEWELL.

Witnesses:

JOHN N. KIRK,  
JOHN D. WILSON.