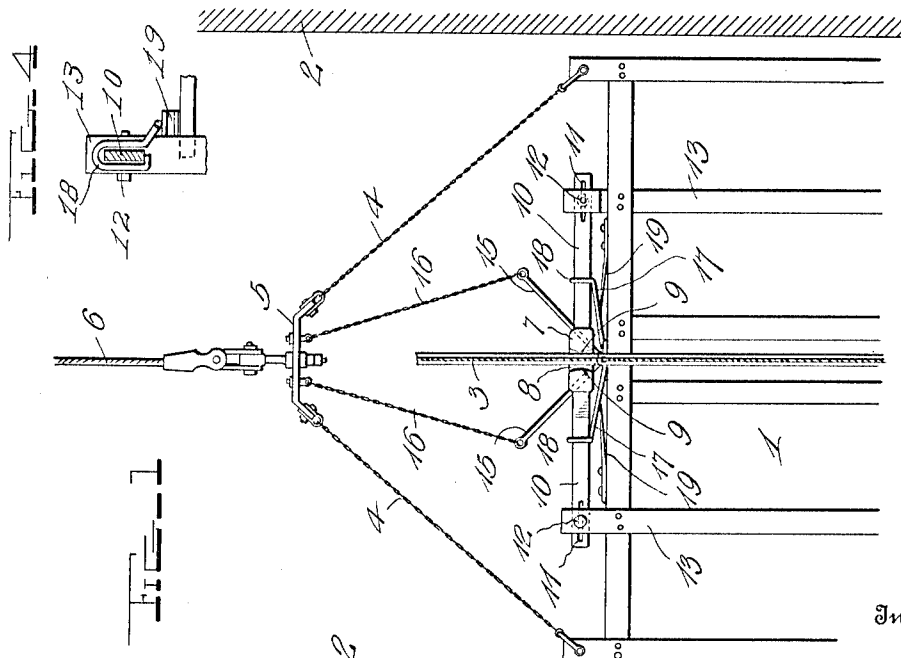
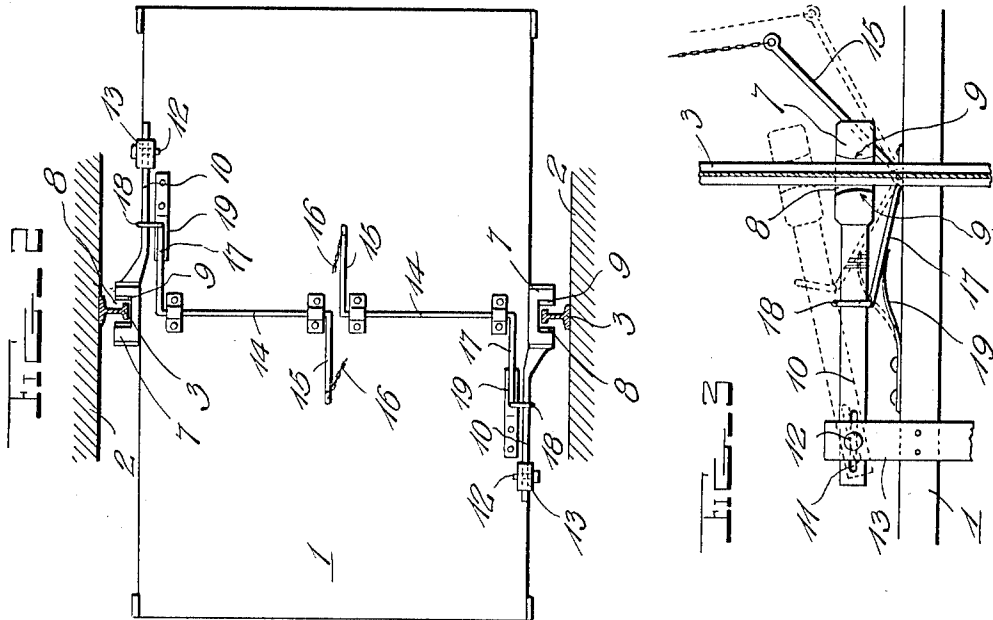


J. TARRO.
SAFETY CATCH FOR ELEVATORS.
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1,064,027.

Patented June 10, 1913.



Inventor

Witnesses

C. Clement
C. E. Hunt.

J. Tarro
By *A. B. Wilson & Co.*
Attorneys

UNITED STATES PATENT OFFICE.

JAMES TARRO, OF CHERRY, ILLINOIS, ASSIGNOR OF ONE-HALF TO WALTER WAITE,
OF CHERRY, ILLINOIS.

SAFETY-CATCH FOR ELEVATORS.

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To all whom it may concern:

Be it known that I, JAMES TARRO, a citizen of the United States, residing at Cherry, in the county of Bureau and State of Illinois, have invented certain new and useful Improvements in Safety-Catches for Elevators; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in safety catches for elevators.

One object of the invention is to provide a catch of this character having an improved construction and arrangement of gripping devices for firmly gripping the guide rails of the elevator and means whereby said devices will be automatically and instantly operated should the hoisting cable of the elevator break.

Another object is to provide a safety device for elevators which will be simple, strong, durable and inexpensive in construction, efficient and reliable in operation and which may be readily applied to elevators now in use.

With these and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts as will be more fully described and claimed.

In the accompanying drawings; Figure 1 is a vertical section through a portion of an elevator shaft showing a side view of the upper portion of the elevator cage with my invention applied thereto; Fig. 2 is a horizontal section through the elevator shaft showing a top plan of the elevator cage and the safety catches; Fig. 3 is an enlarged detail side view of a portion of the elevator cage and one of the catches illustrating in full and dotted lines the operative and inoperative position of these parts; Fig. 4 is a detail transverse section of the rail gripping member and parts cooperating therewith.

Referring more particularly to the drawings, 1 denotes the upper portion of an elevator cage which may be of any style or design and 2 denotes a portion of the framework of the shaft in which the elevator is mounted. On the opposite sides of the shaft frame 2 are secured vertical guide tracks 3 upon which the cage 1 travels. Connected

to the upper corners or top of the cage are hoisting chains 4 the upper ends of which are connected to a coupling plate 5 to which is also connected the lower end of a hoisting cable 6 as shown.

Loosely connected to the top of the cage adjacent to its opposite sides and on opposite sides of the guide tracks 3 are my improved safety catches each of which comprise a track gripping block 7 said blocks having in their outer sides rectangular notches 8 the vertical side walls 9 of which are slightly curved or convex as clearly shown in Fig. 3 of the drawings. The blocks 7 are formed on or suitably secured to the inner ends of bars or plates 10 having in their outer ends short longitudinal slots 11 with which are connected pivot bolts 12 arranged in the upper ends of two of the vertical bars or standards 13 forming part of the frame of the elevator cage. The gripping devices when thus connected to the cage have a pivotal and sliding movement which will permit the notched ends of the blocks 7 to shift or move to a limited extent on the tracks 3, whereby said notched ends of the grips are locked into engagement with and released from the guide tracks.

In order to hold the locking members in an inoperative position and to permit the same to be automatically brought to operative position at the proper time, I provide rock shafts 14 which are loosely mounted in suitable bearings on the top of the elevator cage and which have on their inner ends outwardly and upwardly extending crank arms 15 which are connected at their outer ends by chains 16 to the coupling plate 5 of the hoisting chains 4. On the outer ends of the rock shafts 14 are outwardly projecting crank arms 17 the outer ends of which are provided with laterally extending loops 18 which are slidably engaged with the plates or bars 10 of the gripping members. The crank arms 17 on the outer ends of the shafts 14 project in an opposite direction from each other and from the crank arms 15 on the inner ends of the shafts and said inner and outer crank arms are arranged at different angles as shown. Secured to the top of the elevator cage 1 below the outer ends of the crank arms 17 and in contact therewith are flat springs 19 the pressure of which is exerted to swing the crank arms

17 and the gripping members 7 to which they are attached upwardly to the dotted line position shown in Fig. 3 wherein the side walls of the notch in said member will be brought into gripping engagement with the sides of the guide tracks, thereby securely holding the elevator cage against downward movement.

The gripping members are normally held in inoperative positions against the pressure of the springs 19 by the chains 16 which are connected to the crank arms 15 on the inner ends of the rock shafts 14 and to the coupling plate 5 of the hoisting cable 6 and chains 4, as long as said hoisting cable 6 and chains 4 are intact. As soon, however, as the cable 6 or chains 4 break and thus release or slacken the operating chains 16 the springs 19 will become effective and will immediately force the gripping members upwardly in position to bring the curved sides of the notches 8 in the gripping blocks 7 into tight frictional engagement with the guide tracks 3 which are securely wedged between the walls 9 of the notches 8 by the cam action of said walls due to the inclined position of the gripping blocks and members. The gripping members when thus actuated will positively hold the elevator cage at any position in the shaft where the cage may be and said members are brought instantly into operation by the breaking or releasing of the hoisting cable 6 or the hoisting chains 4. As soon, however, as the cable or chains are repaired and weight is again placed in the elevator cage the chains 16 through their connection with the hoisting cable will immediately pull upwardly on the inner crank arms 15 of the rock shafts 14 thereby actuating the shafts 14 in the proper direction or swinging the outer ends thereof downwardly thereby bringing the gripping members downwardly and into the position shown in Figs. 1 and 3 of the drawings wherein the curved walls 9 of the notches 8 of the gripping blocks are disengaged from the guide tracks.

The operation of my improved safety catch is automatic and positive and the parts will become effective the moment the hoisting cable or chains break thus making the elevator absolutely safe at all times and under all conditions.

From the foregoing description taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention as defined and claimed.

Having thus described my invention, what I claim, is:—

1. A safety catch for elevators comprising a sliding and pivotally mounted rail gripping member, a hoisting cable, a releasing shaft mounted on the cage of the elevator, a crank arm on one end of said shaft, a loop forming the end of said arm and having an operative connection with said gripping member, means to connect the opposite end of said shaft with the hoisting cable of the elevator cage, whereby the shaft is rocked and the gripping member thereby held out of locking engagement with the guide track of the elevator, and means to elevate and operatively engage said gripping member with the guide track when the hoisting mechanism of the elevator cage is broken.

2. In an elevator having a shaft provided with vertically-disposed guide tracks, a cage adapted to travel on said tracks, safety catches comprising track gripping blocks having in one side track engaging notches, adapted to engage the opposite edges of the tracks, block attaching bars connected with said gripping blocks and having a pivotal sliding connection with a portion of the elevator cage, rock shafts operatively mounted on the cage and having on their outer ends crank arms, loops forming the ends of the latter, operatively connected to and embracing the attaching bars of the gripping blocks, crank arms on the inner ends of said shafts, a hoisting cable, chains to connect said crank arms with the hoisting cable of the elevator, whereby while the cable is intact, the rock shafts and crank arms will be actuated to hold said gripping blocks in an inoperative position, and springs engaged with the outer crank arms whereby the shafts and said blocks are actuated to grip the tracks of the elevator should said hoisting cable become broken.

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

JAMES TARRO.

Witnesses:

CHAS. L. CONNOLLY,
MARY CONNOLLY.