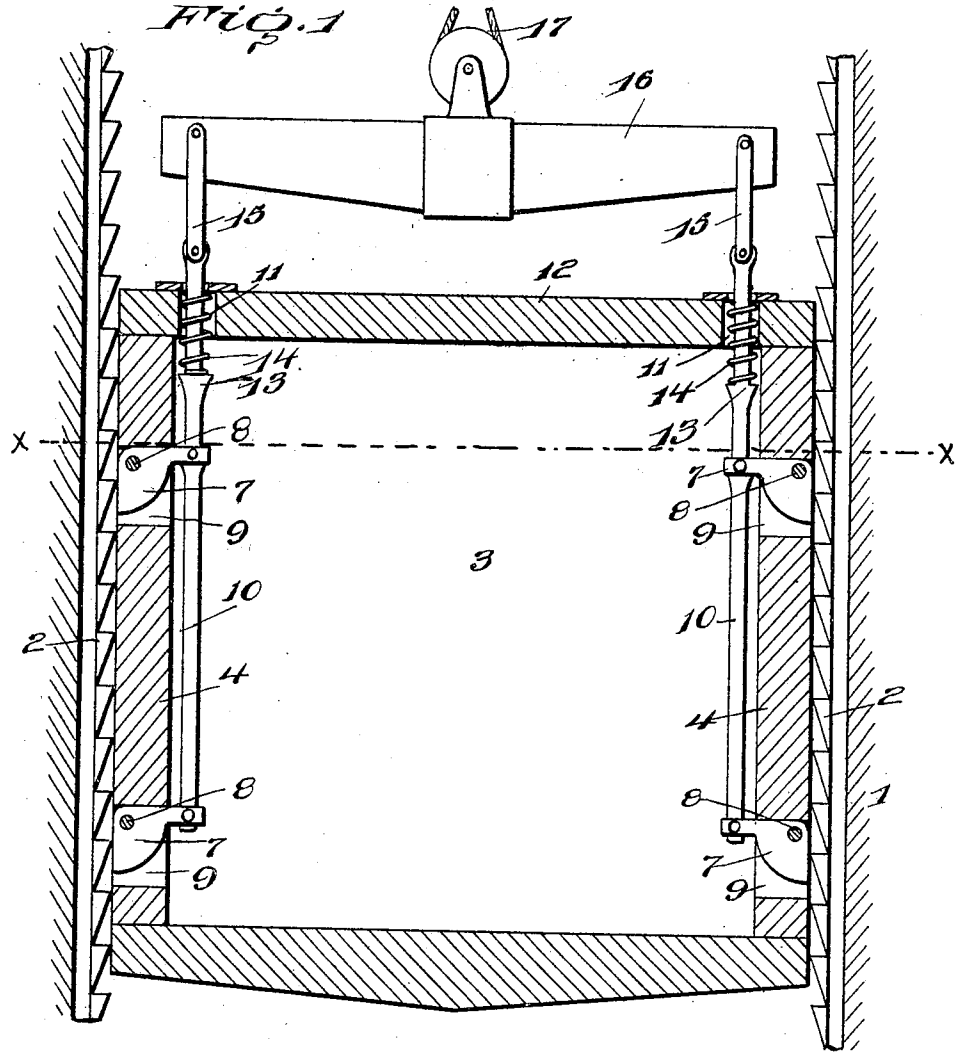
No. 809,285. PATENTED JAN. 9, 1906.

J. R. CONLEY.

SAFETY DEVICE FOR ELEVATORS.

APPLICATION FILED MAR. 21, 1905.

FIG. 1.



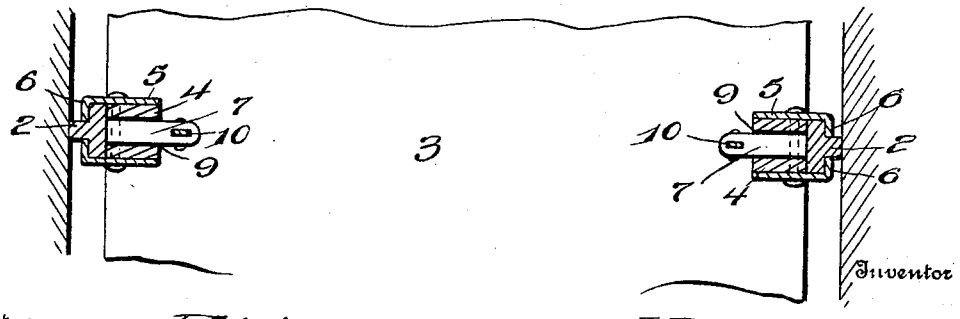


FIG. 2.

Witnesses

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SAFETY DEVICE FOR ELEVATORS.

No. 809,285. Specification of Letters Patent. Patented Jan. 9, 1906.

Application filed March 21, 1905. Serial No. 251,343.

To all whom it may concern:

Be it known that I, JOHN R. CONLEY, a citizen of the United States, residing at Oakland, in the county of Shawnee and State of Kansas, have invented certain new and useful Improvements in Safety Devices for Elevators, of which the following is a specification.

This invention relates to that class of automatic-operating safety devices applied to elevators for preventing falling or dropping of the car upon breaking of the elevating cable or rope. The invention involves improvements in that type of these devices which utilize vertical toothed rails arranged in the elevator-shaft to be automatically engaged by safety-catches upon the elevator, the operation of the latter being governed by the hoisting-cable, as above premised.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and accompanying drawings, in which—

Figure 1 is a vertical sectional view showing an elevator in a shaft, the former showing the application of the invention. Fig. 2 is a sectional view on the line X X of Fig. 1.

Corresponding and like parts are referred to in the following description and indicated in both views of the drawings by the same reference characters.

The shaft of the elevator is indicated at 1, and at opposite sides of the shaft is located a vertical toothed rail 2. The rail 2 is of approximately T form in cross-section for purposes which will be apparent hereinafter. The construction of the elevator is immaterial within the contemplation of the invention, a conventional form of cage 3 being illustrated merely to show the application of the parts comprising the invention. At opposite sides of the cage 3 adjacent the rails 2 of the shaft 1 are located vertical bars 4, to the sides of which are attached spaced members 5, which are preferably plates. The bars 4 may be of wood and attached in any substantial way to the framework of the cage 3, and the spaced members 5 of each of the bars 4 are likewise attached to opposite sides thereof by substantial fastenings, such as bolts or the like. The outer edge portions of the plates 5 project from the bar 4, said outer portions having laterally-extending flanges 6. The flanges 6 of the plates 5 extend toward each other and engage in rear of the head of the T-rails 2, affording a connection between the parts 5 and the rails 2 which will effectively obviate all likelihood of separation of the rails 2 and improper working of the safety-catches of the elevator with respect thereto, and this will be seen to be of no small importance in a device of this class. The inner portions of the plates 5, which project from the bars 4, afford a space in which the catches 7 of the elevator-cage 3 are mounted, pintle-rods 8 connecting the plates 5 and having the catches 7 pivotally mounted thereon. An end of each catch 7, two of which are provided for each vertical bar 4, projects through a horizontal opening 9 in the bar 4, so as to engage an adjacent rail 2. The outer ends of the catches 7 engage the rails 2, and the inner ends of the catches are connected by draw-bars 10, the latter having pivotal connection with the catches at each side of the elevator-cage. The draw-bars 10 are vertically arranged and project through openings 11 near the ends of the horizontal bar 12, which is connected with the plates 5 at the upper ends of the latter. The bars 10 are provided with shoulders 13 just above the upper catches 7, and springs 14 are interposed between the shoulders aforesaid and the bar 12, said springs normally tending to throw the catches 7 into engagement with the teeth of the rails 2.

The upper ends of the draw-bars 10 are connected by links 15 with a cross-head 16, with which the hoisting-cable 17 of the elevator is connected. The cable 17 connects with the head 16 at a point between the ends of the latter, the bars 10 being connected with the part 16 at its extremities preferably. In the actual operation of the invention the weight of the cage 3 is such that the tension of the springs 14 is overcome and the catches 7 are held out of engagement with the rails 2. When the cable 17 breaks, however, the pulling force upon the head 16 is relieved and the springs 14 instantly force the bars 10 downwardly with respect to the bar 12, causing the catches 7 to engage the rails 2 and hold the cage from dropping or falling to the bottom of the shaft 1, thereby obviating likelihood of serious accident to those who are in the elevator. It will be understood that two or more of the rails 2 may be employed and that under some conditions it may be desirable to use four, the number of the bars 10 and catches 7 being correspondingly increased.

Having thus described the invention, what is claimed as new is—

In a safety device for elevators the combination of an elevator-shaft, vertical toothed rails arranged in said shaft at opposite sides thereof, a cage, the safety-catches 7 pivoted at opposite sides of the cage, a horizontal bar at the upper portion of the cage and having vertical openings therethrough, the draw-bars 10 arranged at opposite sides of the cage and pivotally connected with the inner ends of the safety-catches, the shoulders 13 pivoted upon said draw-bars, the cross-head 16, the links 15 connecting the upper extremities of the draw-bars 10 and the cross-head 16, the cable 17 connected with the cross-head 16, and the springs 14 coacting with the draw-bars 10 and bearing against the shoulders thereof and normally tending to force the safety-catches into engagement with the toothed rails aforesaid.

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

JOHN R. CONLEY. [L. S.]

Witnesses:

CHARLES S. CONLEY,

SARAH J. WILLIAMS.