G. HULME.

ELEVATOR SAFETY DEVICE.

APPLICATION FILED JULY 9, 1915.

1,190,293. Patented July 11, 1916.

Fig. 1.

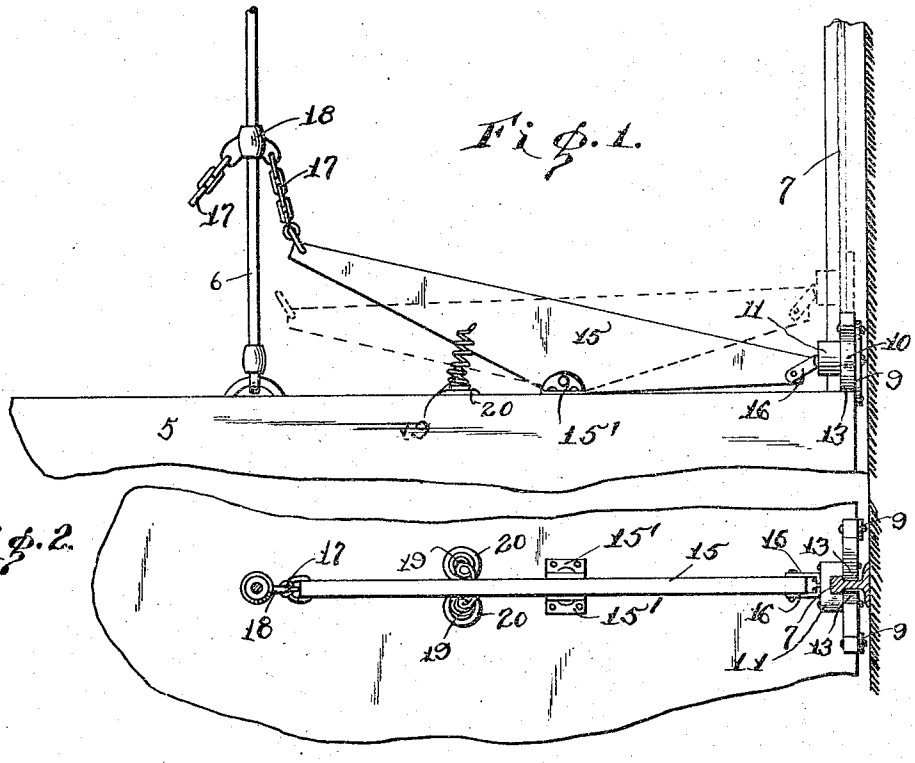


Fig. 2.

Fig. 3.

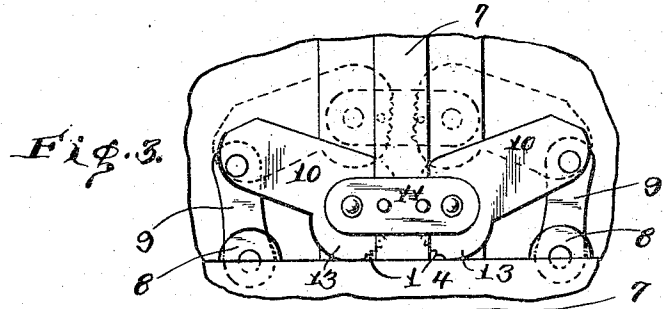
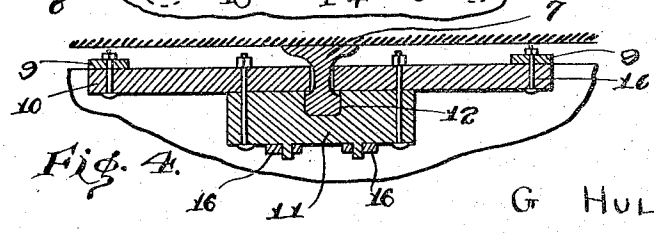


Fig. 4.



Witnesses.

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UNITED STATES PATENT OFFICE.

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ELEVATOR SAFETY DEVICE.

1,190,293. Specification of Letters Patent. Patented July 11, 1916.

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To all whom it may concern:

Be it known that I, GEORGE HULME, a citizen of the United States, residing at McDonald, in the county of Washington, State of Pennsylvania, have invented certain new and useful Improvements in Elevator Safety Devices; and I do hereby 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 new and useful improvements in safety devices for elevators or the like and is particularly directed to the provision of a safety catch for that type of elevator used in mines and comprising a cage or car suspended from and operated by a cable and held during its movement by guide rails at its sides, said catch being automatically operated to engage the guide rails to stop the car upon the cable being broken or slackened.

It is the object of the present invention to provide such a device of which comprises a relatively simple structure which is positive in action, and wherein that portion of the device which is adapted to engage the guide rails serves to operate the gripping devices upon movement vertically to or from the cage.

With the above and other objects and advantages in view, the invention resides more particularly in the novel combination, formation and arrangement of parts as more fully described hereinafter and pointed out in the appended claim.

Reference is had to the accompanying drawings, wherein similar characters of reference designate corresponding parts throughout the several views, and in which:—

Figure 1 is a side elevational view of an elevator of the type used in mines, and showing the improved safety catch associated therewith, only one side portion of the structure being shown, as the structure is duplicated on other side; Fig. 2 is a top plan view of what is shown in Fig. 1; Fig. 3 is a sectional view on the line 3—3 of Fig. 1, and showing the mechanism engaging the guide rail in full lines in normal position and in dotted lines in a position engaging the rail to stop the cage; Fig. 4 is a transverse sectional view on the line 4—4 of Fig. 3.

Referring now more particularly to the accompanying drawings, 5 designates the cage or body member of the elevator to the central portion of which is connected the suspension cable 6 whereby it is operated. Guide tracks 7 are provided at the sides of the shaft in which the cage moves, only one of these tracks being shown and preferably comprising a steel beam.

Pivoted to lugs 8 at the sides of the car adjacent the track are a pair of links 9 which extend upwardly and have their free ends pivoted to the ends of arms 10 disposed at the sides of the track and a link 11 is pivoted to the ends of the arms to thus form a structure embracing the track whereby the cage is properly guided. The guide beam 7 is preferably of a cross sectional shape similar to a railroad track rail, and the link 11 is provided with a vertical recess 12 which receives the ball portion of the beam. The stopping means comprises cam heads 13 formed on the inner ends of the arms 10 and provided with series of teeth 14 whereby upon the link 11 being moved upwardly, the arms will swing to grip the rail at its web portion. This link is normally held in a position holding the arms out of locking engagement by a rock bar 15 pivoted intermediately to lugs 15′ on the top of the cage between the cable and the said links, and connected to the link 11 by a pair of links 16. This rock bar has its inner end held in an elevated position by a chain section 17 secured thereto and to a suitable connecting member 18 on the cable. Thus, should the cable break or otherwise become slackened, the bar 15 may swing to allow the arms 10 to move upwardly and engage their cam heads with the track. Springs 19 are secured to the inner end of the bar and to a screw member 20 carried by the adjacent portion of the cage top to provide a positive means whereby the bar is rocked. A comparatively simple device has thus been provided which acts normally to properly guide the cage on the guide tracks and which upon breakage of the suspension cable of the cage will automatically act to lock the cage against dropping.

What is claimed is:—

The combination with an elevator cage and its hoisting cable, levers pivoted to the top of the cage at opposite sides of the hoisting cable, springs urging the outer ends of the levers upward from the cage, chains connecting the inner ends of the levers and the

cable and normally preventing the action of the springs, guides carried by the outer ends of the levers, links pivoted to the cage and extending upwardly therefrom on opposite sides of the guides, bell crank levers pivoted to the guides adjacent their angles and having the links pivotally connected each to one arm of a lever, and gripping faces formed on the remaining arms of the bell crank levers.

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

GEORGE HULME.

Witnesses:
THOMAS HULME,
WM. LIDSTER.

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