(No Model.)

M. FODOR.

SAFETY CATCH FOR ELEVATORS.

No. 592,772. Patented Nov. 2, 1897.

Fig. 1.

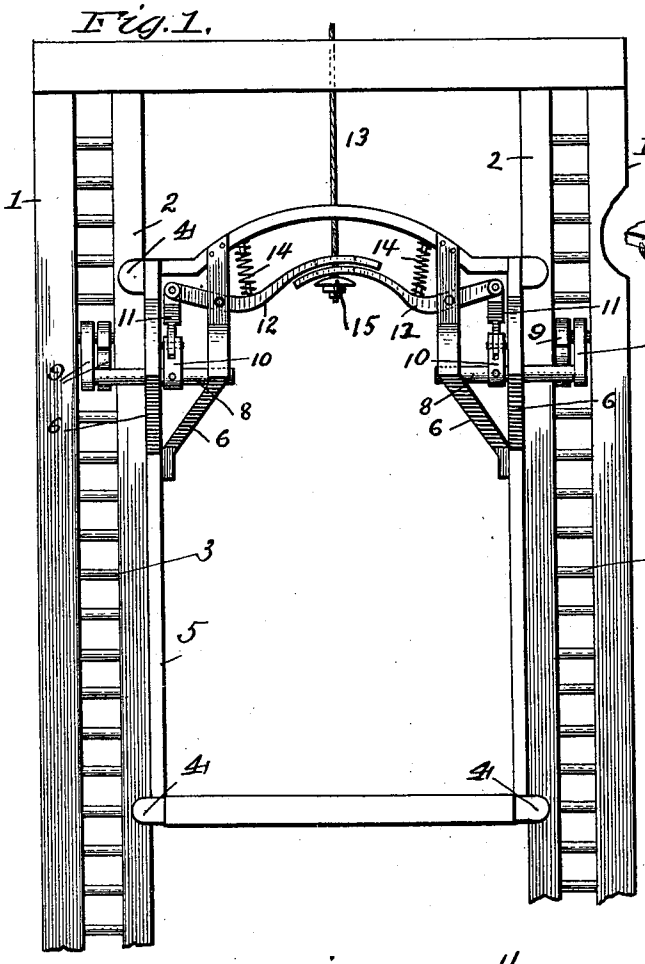


Fig. 3.

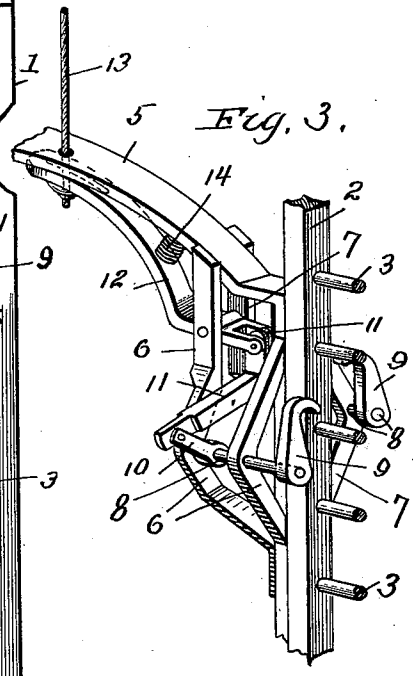


Fig. 2.

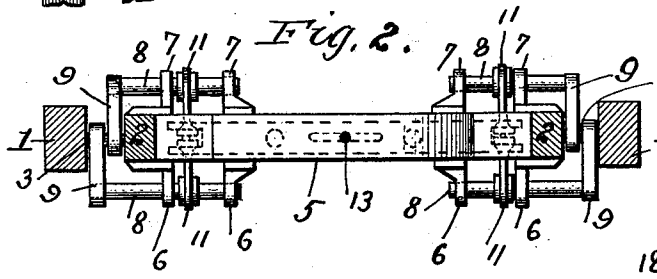
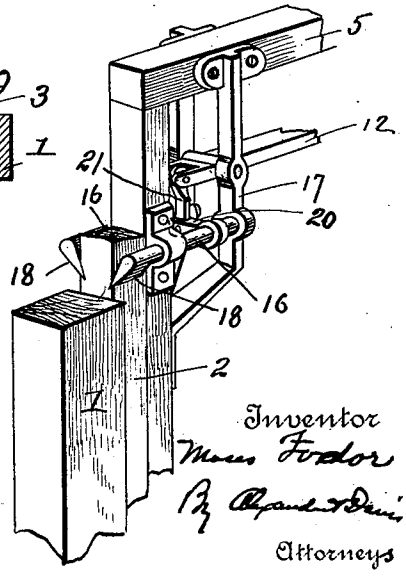


Fig. 4.



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SAFETY-CATCH FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 592,772, dated November 2, 1897.

Application filed July 16, 1897. Serial No. 644,790. (No model.)

To all whom it may concern:

Be it known that I, MOSES FODOR, a subject of the King of Hungary, residing at Wilkes-Barré, in the county of Luzerne 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, in which—

Figure 1 is an elevation of a portion of an elevator-shaft, showing the car-frame and the safety device in side elevation. Fig. 2 is a horizontal sectional view showing the device in plan view. Fig. 3 is a perspective view of one set of safety-hooks. Fig. 4 is a similar view showing a modified form of means for gripping the guide-beams to support the car.

This invention relates to safety attachments to be applied to elevator-cars for the purpose of stopping the descent of the car in case of breakage of the rope or cable, or of the slacking of such cable from any cause; and it has for its object to provide a safety attachment which can be readily applied to elevators of the ordinary construction, and which in operation will positively stop the descent of the elevator-car simultaneously, or nearly so, with the breaking of the supporting-cable.

A further object of the invention is to so construct the device that all lateral and twisting strain which would tend to displace the guide-timbers and rack the car will be avoided, the car being supported at each of its sides and on each side of the guide-timbers, all the points of support being in a horizontal line with each other.

Referring to the various parts by numerals, 1 1 designate the main timbers of the elevator-shaft, one of which is placed at each side thereof, and 2 2 the guide-timbers, which are arranged parallel with the timbers 1 and and between them, a slight space being left between each of the shaft-timbers and the adjacent guide-timbers 1. Bridging these spaces are a series of rigid horizontal pins or stops 3, which are placed a short distance from each other, the pins of one series being in horizontal line with corresponding pins in the other series.

Working between the timbers 2, and provided with suitable guides 4, which run thereon, is the car-frame or central yoke 5. The front and rear faces of this frame, at the upper corners thereof, are provided with forward-extending and rearward-extending brackets 6 and 7. Mounted in the outer ends of these brackets are short horizontal rock-shafts 8, the shafts on the front of the frame being axially in line with each other and those on the rear being also axially in line, all the shafts being in the same horizontal plane. The outer ends of these shafts terminate adjacent the pins 3, and each shaft is provided at said outer end with an inward and upward extending safety-hook 9. The hooks of each adjacent pair of shafts lie side by side and engage the same pin when in operation, one extending over it from the front of the guide-beam and the other extending over from the rear thereof. These hooks form broad and substantial supports for the car, and as they all are operated simultaneously and as each pair grasps the same pin and the pins grasped by the two pairs are axially in line the car will be suspended accurately between the guide-beams and cannot twist or move in any manner which would endanger the shaft-timbers or the car-frame.

Attached to each of the rock-shafts 8, between its supporting-brackets, is an arm 10, which projects upward and outward, and pivotally connecting the end of each arm 10 to the inner end of a lever 12 is a bent rod or link 11, each of these links extending inward and upward from its arm 10 to where it connects with lever 12. There are two of these levers 12, and two of the links at each side of the car connect to each lever. These levers 12 are pivoted between the brackets which form the supports for the inner ends of the shafts 8, their inner ends overlapping and being slotted for the passage of the hoisting-cable 13. To normally depress the inner ends of these levers, a coil-spring 14 is mounted between the upper side of each lever and the car-frame. The hoisting-cable is provided below the levers 12 with a suitable stop or end piece 15.

In Fig. 4 the pins 3 and the hooks 9 are dispensed with. The shafts 16, carrying the safety-catches, are mounted in bearings secured to the front and rear sides of the car-frame and in brackets 17, secured to said

frame. Knives 18, which constitute the safety-catches in this form, are secured to the outer ends of these shafts, the edges thereof extending downward and taking into the guide-beams when in operation. Arms 20 are secured to shafts 16, said arms extending inward instead of outward, as in Fig. 1. Short links 21 connect these arms to the horizontal operating-levers.

While the elevator is in proper operation, the inner ends of the levers 12 are drawn up against the car-frame or any other suitable stop by the hoisting-rope 13, and the springs 14 are thereby compressed and the hooks 9 released and held away from the pins 3, as shown in Fig. 3. While the parts are in this position the car may be raised and lowered at will. When, however, the supporting rope or cable breaks or becomes slack from any cause, the springs 14 depress the inner ends of levers 12 and cause the hooks 9 to immediately engage the pins 3, each adjacent pair of hooks simultaneously engaging the same pin 3, as described. In this manner of catching the car the center of gravity is not disturbed and there is no tendency to jam the guide-timbers out of place. These advantages are of great importance, because when a heavily-loaded elevator-car breaks its supporting-cable its safety-catches must act simultaneously and positively. If the catch on one side of the guide yields slightly more than the one on the opposite side, the guide-timber will be twisted or broken and the catches rendered of no effect. Where one catch only is employed on each side of the car and that is located at the center of the guide-timber, the tendency of the car to swing forward or backward, according to the disposition of the weight therein, will endanger the guide-timbers, and if the guide-timbers are displaced or injured the safety devices will fail to hold.

It is evident that I reserve the right to depart from the specific construction shown and described without departing from the spirit of the invention. For instance, the two rock-shafts on each side of the car being in axial alinement may be connected together to form virtually one shaft without departing from the invention.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a safety device for elevators the combination of a car, a hoisting-rope, guides for the car, rock-shafts carried by the car on each side of the guides, said shafts being in the same horizontal plane, hooks carried by the rock-shafts at each side of the guides, a series of rigid stops, and means connecting the rock-shafts to the hoisting-rope whereby when said rope becomes slack the hooks will simultaneously engage the rigid stops from both sides of the guide-timbers and the points of support will be in the same horizontal plane, substantially as described.

2. In a safety device for elevators the combination of a car, guides therefor, a pair of rock-shafts carried by the car on each side of the guides, a pair of operating-levers carried by the car, said levers being substantially parallel with the rock-shafts their inner ends overlapping at the center of the car, said inner ends being slotted, a hoisting-rope passing through said slots, a stop on said rope below the slotted levers, safety devices carried by the rock-shafts and being adapted to engage an adjacent part of the guides, means for depressing the inner ends of the operating-levers whenever the hoisting-rope becomes slack, means connecting the outer ends of the operating-levers to the rock-shafts whereby when the hoisting-rope becomes slack the safety devices will be simultaneously operated, substantially as and for the purposes described.

3. In a safety device for elevators, the combination of a car, guides therefor, a rock-shaft on each side of the guides, all of said shafts being in the same horizontal plane, hooks carried by the said shafts, a series of rigid stops adjacent each guide, the stops of one series being in horizontal line with the corresponding stops in the opposite series, a pair of operating-levers carried by the car substantially parallel with the rock-shaft, their inner ends overlapping and being slotted, hoisting-rope passing through the slotted ends of the operating-levers, a stop on said rope below the levers, means for depressing the inner ends of said levers whenever the hoisting-rope remains slack, means connecting the outer ends of said levers to the rock-shafts, whereby said shafts will be operated, to throw inward the safety-hooks when the hoisting-rope becomes slack, substantially as described.

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

MOSES FODOR.

Witnesses:
PHILIP O'NEILL,
EDMUND UFFALUSSY.