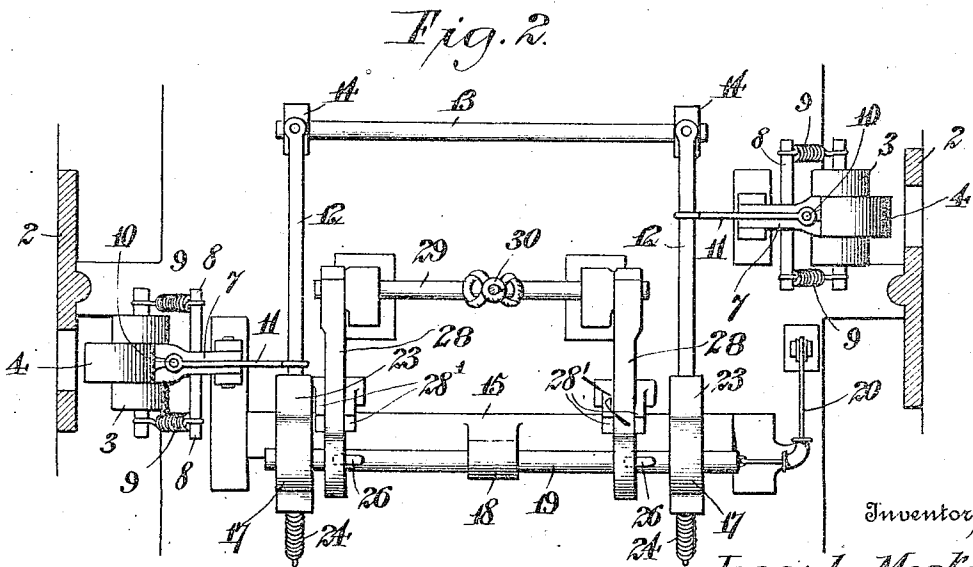
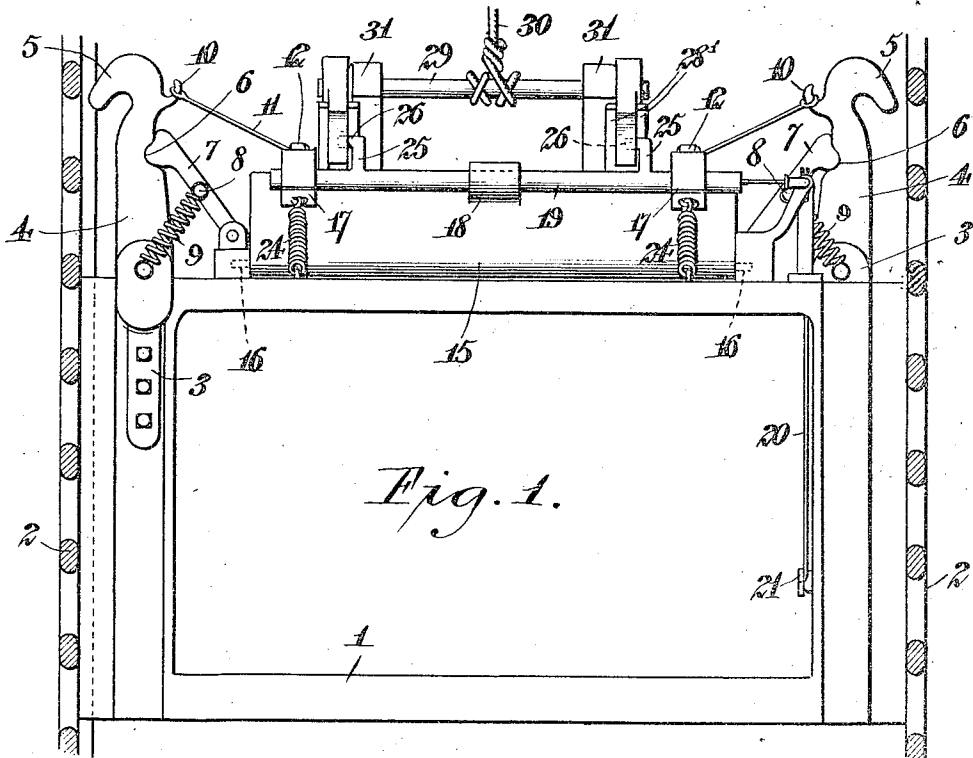


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SAFETY STOP FOR ELEVATORS.
APPLICATION FILED JUNE 4, 1912.

1,061,103.

Patented May 6, 1913.

3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 2.

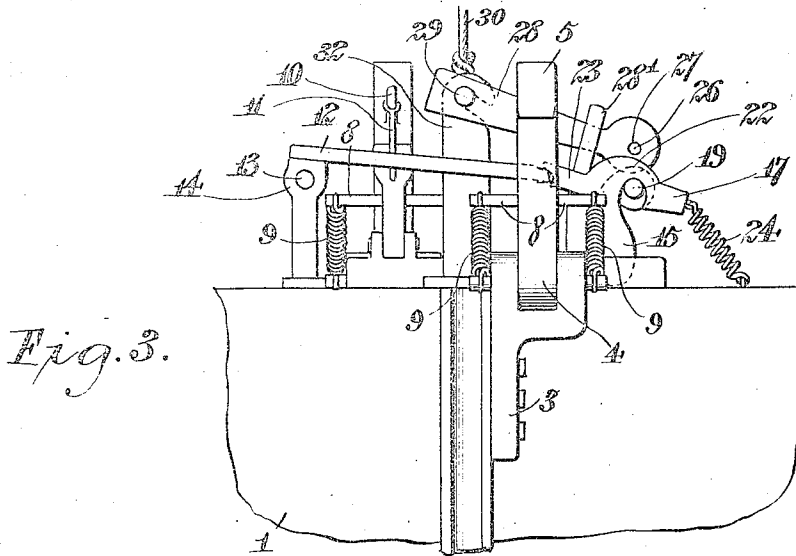
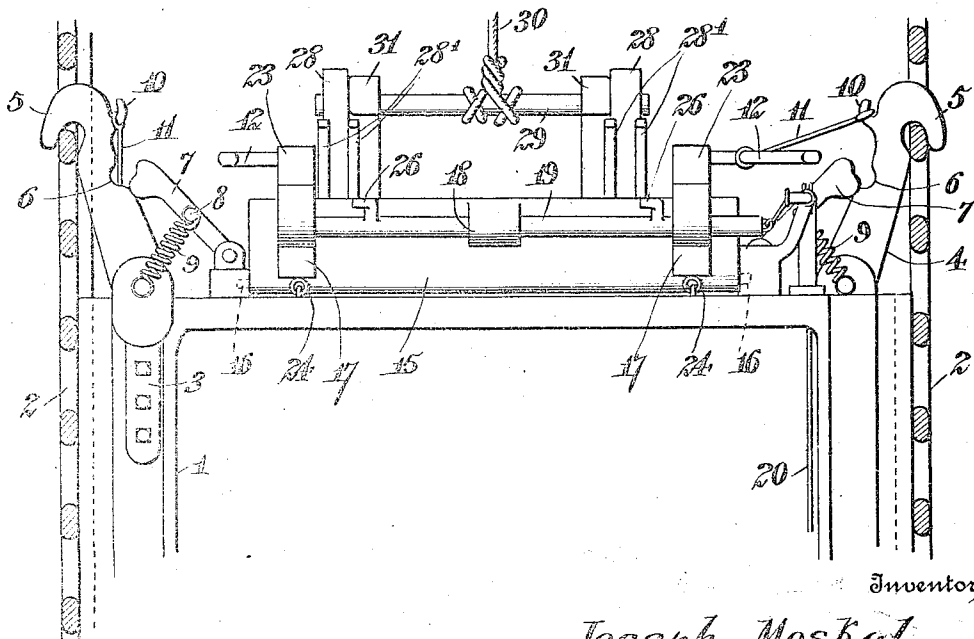


Fig. 4.



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3 SHEETS—SHEET 3.

Fig. 5.

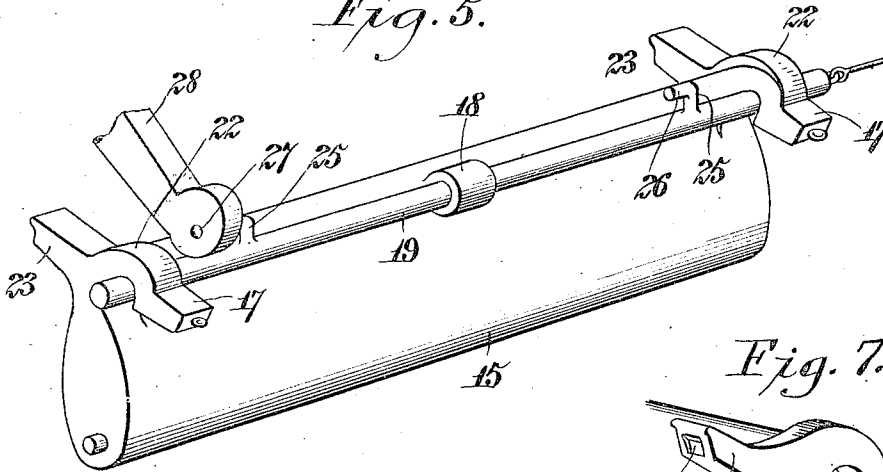


Fig. 7.

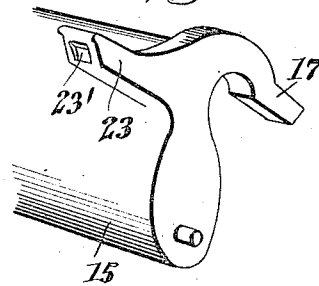
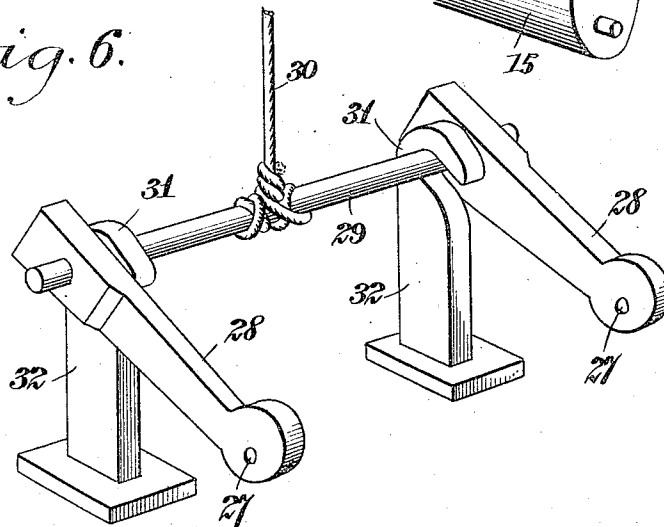


Fig. 6.



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UNITED STATES PATENT OFFICE.

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SAFETY-STOP FOR ELEVATORS.

1,061,103.

Specification of Letters Patent.

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Application filed June 4, 1912. Serial No. 701,550.

To all whom it may concern:

Be it known that I, JOSEPH MOSKAL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Safety-Stops of Elevators, of which the following is a specification.

This invention relates to safety stops for elevators, the object of the invention being to provide simple, reliable and efficient means for locking the car to fixed portions of the elevator shaft when the hoisting cable breaks to prevent the elevator car from falling, which means may also be manually thrown into operation when the hoisting mechanism appears to be out of order.

The invention consists of the features of construction, combination and arrangement of parts hereinafter fully described and claimed, reference being had to the accompanying drawings, in which:

Figure 1 is a front elevation of an elevator car provided with my improved safety stop mechanism, the parts appearing in normal position. Fig. 2 is a top plan view of the same. Fig. 3 is a side elevation of the car and stop mechanism as shown in Figs. 1 and 2. Fig. 4 is a vertical section through one of the locking bars in the elevator shaft and the cooperating safety catch, showing the same in locking engagement. Fig. 5 is a detail view of the sliding trip rod or releasing rod and one of the retaining arms. Fig. 6 is a view showing the connection between the central standards and the rod to which the retaining arms and hoisting cable are attached. Fig. 7 is a detail view of one of the arms for holding the controlling rods.

Referring to the drawings, 1 designates an elevator car of any ordinary or suitable construction, and 2 slot plates secured to the side walls of the elevator shaft and forming rack bars with which the safety catches are adapted to interlock. The slots or receiving portions of these rack bars may be arranged at any desired intervals apart.

Arranged upon the top of the car are brackets 3 pivotally supporting the safety catches 4 which are provided with hooked ends 5 to engage the slots in the rack bars. These catches are provided in their rear edges with notches 6 to receive the toothed ends of pivoted dogs or levers 7, which are adapted to project said catches when they

are released for action, and to hold them in projected position. Each dog is provided with arms 8 to which are attached springs 9, operating to swing said dogs outwardly and project the catches when the latter are released.

The catches are provided with projections 10 engaged by rings upon the outer ends of retaining cables 11, the inner ends of which are provided with rings which engage controlling rods 12, the said rods 12 being pivotally connected at their rear ends with a rod 13 carried by brackets 14, whereby said rods 12 are adapted to swing laterally. When said rods 12 are in normal position, as shown in Figs. 2 and 3, the cables 11 are placed under tension and hold the catches 4 retracted against the action of the springs 9.

Arranged in advance of the stationary brackets 14 is a bracket member 15 which is hinged or pivoted, as at 16, to tilt in a fore and aft direction or toward and from the said brackets 14. This bracket 15 carries a pair of detents 17 and is provided with bearings 18 for a releasing or trip rod 19, mounted to slide longitudinally in said bearings. Connected with one end of said rod is a controlling cable 20 leading over suitable guide pulleys down into the car and connected at its lower end with a lever 21 whereby the stop mechanism may be manually thrown into operation to project the safety catches.

The detents 17 are provided with hooked arms 22 which engage the rod or shaft 19 and hold the same from forward movement, and are also provided with retaining arms 23 having recessed free ends 23' adapted to receive and overlap the free ends of the retaining rods 12, whereby the latter are normally held from lateral movement to maintain the cables 11 under tension and the catches 4 in retracted position. Springs 24 are connected with the hooked arms 22 and are adapted when the detents are released from movement, to swing the same forwardly and thus withdraw the arms 23 from engagement with the rods 12. When the rods 12 are so released, they are permitted to swing outward laterally under the action of the springs 9 to relax the cables 11, whereupon under the action of the said springs 9 and the pressure of the dogs or levers 7, the

safety catches 4 will be swung outwardly so that their hooked ends 5 will engage the adjacent slots in the bars 2 and lock the elevator car from descent.

5 The sliding rod or shaft 19 is provided with angular projections 25 having lateral locking pins 26 which engage openings 27 in the outer or forward ends of retaining arms 28, which arms are fitted for vertical
10 movement between suitable guides 28' and held from lateral motion thereby. When the pins 26 are in engagement with the openings 27, the rod or shaft 19 is held supported against downward and forward
15 movement, and in turn acts to hold the detents elevated against the action of the springs 24, by which the arms 23 are maintained in contact with the retaining rods 12.

20 The retaining arms 28 incline upwardly and rearwardly and at their upper ends are attached to a cross rod 29 to which the hoisting cable 30 is connected, and from which the weight of the car is normally suspended. This rod 29 fits within the hooked or slotted
25 upper ends 31 of a pair of brackets or standards 32, in which said rod is normally held, thus maintaining the retaining arms in a determined normal position.

30 In the operation of the safety stop mechanism, if the elevator conductor or operator, or other person familiar with the working of the apparatus, should perceive anything wrong with the hoisting mechanism, he may
35 by manipulating the lever 21, transfer motion through the cord or cable 20 to slide the rod 19 so as to withdraw the locking pins 26 from engagement with the openings 27 in the retaining arms. The rod and detents
40 being then no longer supported and held from pivotal movement, will be pulled forwardly and downwardly by the springs 24, whereby the arms 23 will be withdrawn from engagement with the retaining rods 12. As a result, the springs 9, being free for action,
45 will draw the dogs or levers outward and thus throw the safety catches into locking position, arresting the descent of the car before liability of danger occurs. If the hoisting cable 30 should break, or damage
50 occur to any part of the hoisting mechanism, the release of the rod 29 by the cable will cause it to be drawn out of engagement with the slotted ends of the standards 32 by the springs 24, thus causing the retaining arms
55 to slide downwardly and forwardly and permit the shaft 19 and detents to have like movement, with the result that the retaining arms 12 will be automatically released and the safety catches thrown into operation.

60 After the mechanism has been operated to lock the car from movement in the shaft, the parts may be reset for subsequent action by swinging the detents and shaft 19 back to normal position and engaging the locking
65 pins 26 with the openings 27 in the retaining

arms, and finally swinging the retaining rods 12 back into engagement with the arms 23, as will be readily understood.

It will be apparent from the foregoing description that the invention provides a
70 safety stop mechanism which may be applied to any ordinary type of elevator, which is simple, reliable and efficient in construction and operation, and which is adapted to
75 be manually thrown into operation when liability of danger occurs or will be automatically thrown into operation when the hoisting cable breaks or is slackened owing to derangement of the hoisting mechanism.

I claim:—

80 1. A safety stop mechanism for elevator cars comprising spring actuated latches, retaining devices for holding the same retracted, detents for maintaining said retain-
85 ing devices in latch retracting position, retaining members, means for connecting said detents with and disengaging the same from said retaining members, means for retract-
90 ing said detents when released, means for operating the first-named means for manually throwing the safety catches into operation, and means for permitting movement of
95 said retaining members for retracting the detents for automatic projection of the latches upon derangement of the hoisting mechanism.

2. A safety stop mechanism for elevator cars comprising spring actuated catches, means for automatically projecting the same,
100 retaining members connected with the catches, pivoted detents for normally holding said retaining members in catch retracting position, retaining elements, a movable
105 member adjustable into and out of engagement with said retaining elements to hold or release the detents, and means for manually or automatically adjusting said movable member.

3. A safety stop mechanism for elevator cars comprising spring actuated latches, retain-
110 ing members connected therewith, detents for normally holding said retaining members in latch retracting position, springs for retracting said detents, retaining elements, a sliding rod engaging said detents
115 and provided with locking members movable into and out of engagement with the retaining elements to hold the detents in normal position or release them for retraction, and means for operating said sliding
120 rod.

4. A safety stop mechanism for elevator cars comprising spring actuated latches, retain-
125 ing elements connected therewith, detents for normally holding said retaining elements in catch retracting position, springs for retracting said detents, a rod slidably engaging said detents, supports, a hoisting
130 cable, retaining elements normally held in engagement with said supports by the hoist-

ing cable and adapted to be released there-
from when said cable breaks, locking devices
on the rod adapted to engage said retaining
members to hold the detents in normal posi-
tion and releasable therefrom to permit of
their retraction and means for sliding said
rod.

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

JOSEPH MOSKAL.

Witnesses:

FRANK BOGARZ,
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