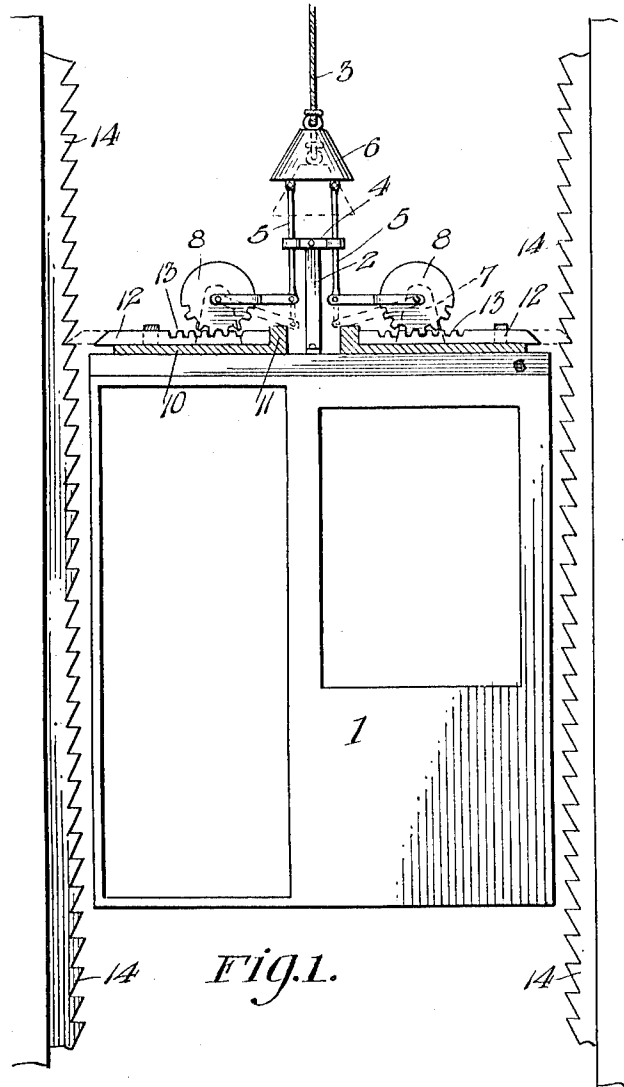


E. J. MOUNTS.
SAFETY BRAKE FOR ELEVATORS.
APPLICATION FILED MAR. 10, 1911.

1,040,734.

Patented Oct. 8, 1912.

2 SHEETS-SHEET 1.



WITNESSES

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INVENTOR

Edison J. Mounts,
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Fig. 2.

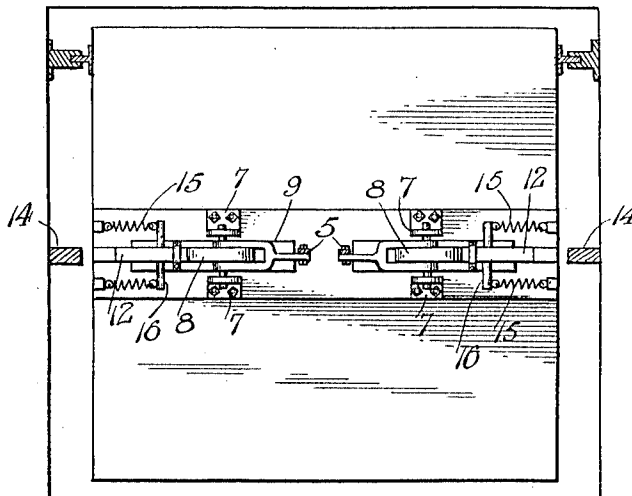
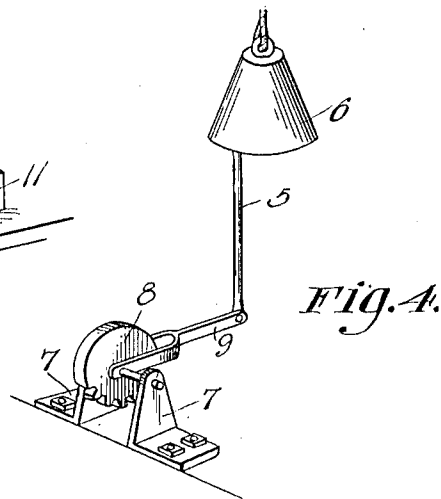
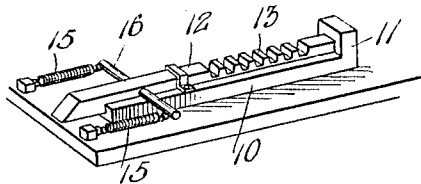


Fig. 3.



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UNITED STATES PATENT OFFICE.

EDISON J. MOUNTS, OF KRUM, TEXAS.

SAFETY-BRAKE FOR ELEVATORS.

1,040,734.

Specification of Letters Patent.

Patented Oct. 8, 1912.

Application filed March 10, 1911. Serial No. 613,559.

To all whom it may concern:

Be it known that I, EDISON J. MOUNTS, a citizen of the United States, residing at Krum, in the county of Denton and State of Texas, have invented new and useful Improvements in Safety-Brakes for Elevators, of which the following is a specification.

My invention relates to safety devices for elevators and more particularly to a device in the form of laterally extending pawls adapted to be projected automatically when the cable of the elevator breaks and to engage racks in the sides of the elevator well.

A large number of lives are lost each year by the breaking of elevator cables and the consequent fall of the cage.

It is an object of my invention to prevent this useless waste of human life by providing the top of the cage with pins or pawls, which are so connected by weighted levers to the elevator cable as to be caused to project outwardly beyond the edges of the cage when the cable breaks and to there engage the teeth of racks disposed on each side of the shaft.

With the foregoing and other objects in view my invention consists in such details of construction and in the arrangement and combination of parts as will be hereinafter more fully described and specifically pointed out in the appended claims.

In describing my invention in detail reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views and, in which—

Figure 1 is a view in elevation of an elevator cage provided with my invention. Fig. 2 is a top plan view thereof the weighted levers and guide therefore being omitted. Fig. 3 is a detailed view in perspective showing one of the pawls, its guide way and operating mechanism, and Fig. 4 is a perspective view of the operating mechanism for projecting the pawls.

In reducing my invention to practice I provide the usual cage 1 of an elevator, with a standard 2, erected upon the roof thereof in a position directly below the perpendicular cable 3, by which the cable is suspended. Said standard 2 is provided with a cross arm 4 at the top thereof which arm has passed through each end thereof rods 5, each of which is connected to a weight 6, said weight being attached to the lower end of the cable 3 in any suitable manner.

Mounted upon the roof of the cage at points to each side of the standard 2 are brackets 7 in which are journaled segmental gears 8, of any suitable construction, the teeth of said gears being on the lowermost side thereof toward the roof of the cage. Extending from said gears are bifurcated levers 9, the inner ends of which are connected to the lower ends of the rods 5 before mentioned.

Directly beneath the gears 8 and between the brackets 7 and also connected to the roof of the cage are guide ways 10 each having a longitudinal groove formed therein and their inner ends extended upwardly as at 11, in order to form stop for a purpose hereinafter more fully described. Slidably mounted in the grooves in said guide ways are pawls 12 which are provided with toothed racks 13, said racks being in engagement with the segmental gears 8 before described.

It will be seen that when the car or cage is suspended by the cable 3 as shown in Fig. 1, the weight 6 is disposed considerably above the arm 4. The weight of the car and its contents is equally divided between the two rods 5, the latter carrying the weight through the bifurcated levers 9 to the segmental gears 8, which gears operating upon the racks 13 of the pawls 12, force said pawls inwardly toward each other thus bringing the weight of the car upon the stops 11. It will be seen therefore that instead of the weight of the car being entirely on one element of its construction in a vertical plane as is usually the case, by my construction the weight is equally distributed between two elements of construction which transforms the vertical tension into horizontal forces each of which acts upon one of the stops 11. If the cable 3 as shown in Fig. 1 should break the weight 6 will of course fall into the position shown in dotted lines in said figure, carrying with it the rods 5, and levers 9 and thus causing the gears 8 to turn so as to project the pawls 12 outwardly beyond the edges of the car as shown in dotted lines. When such projection of the pawls takes place, the latter engage the teeth of racks 14 disposed at either side of the elevator shaft or well, thus supporting the car upon said pawls and preventing the same from falling.

In order to expedite the operation of the pawls 12 tension springs 15 are connected

near the edges of the roof of the cage and the other ends are attached to laterally extending pins 16 which are carried by said pawls. It will be seen that this construction aids the weight 6 in causing said pawls to be projected when the cable snaps.

From the foregoing it will be readily appreciated that I have provided a cheap, yet efficient construction by means of which the fall of elevators will be positively prevented when the cable breaks. The parts are few and not liable to get out of order, and are in such a position as will enable them to be easily inspected at any time, although practically no care need be taken of my device.

I desire it to be understood that slight changes in the construction and in the arrangement and combination of various parts may be resorted to without departing from the spirit of my invention, provided such changes fall within the scope of the appended claims.

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

1. In a device of the character described, the combination with a cage, a supporting cable therefor, and racks at each side at said cage, of pawls slidably mounted on the roof of said cage, brackets on said roof, segmental gears journaled in said brackets and in engagement with said pawls, levers extending from said segmental gears, means for operating said levers when the supporting cable of the cage breaks whereby said pawls are projected outwardly into engagement with said racks, and means for aiding the projection of the pawls.

2. In a device of the character described, a combination with a cage, a supporting cable therefor, and an elevator shaft having racks therein, of guides on said cage, pawls slidably mounted in said guides, brackets disposed in proximity to said guides, segmental gears journaled in said brackets, lever arms extending from said gears, a weight connected to the lower end of the supporting cable, rods connecting said weight to each of said lever arms whereby the fall of said weight causes said segmental gears to move said pawls into engagement with said rack, and means for aiding such movement of said pawls.

3. In a device of the character described, the combination with an elevator shaft having racks therein, a cage, and a cable supporting said cage within said shaft, of a weight connected to the lower end of the cable, segmental gears journaled on the roof of said cage, levers extending from said segmental gears, rods connecting said weight with each of said levers, whereby the weight

of the car is evenly distributed at a plurality of points of support, means for guiding said rods, and pawls slidably mounted upon the roof of said cage and in engagement with said gears, whereby the breaking of the cable and the consequent fall of the weight causes said pawls to be projected into engagement with said racks and means for aiding the movement of said pawls.

4. In a device of the character described, a combination with an elevator shaft having racks therein, a cage, and a supporting cable, of a weight at the lower end of said cable, brackets on the roof of said cage, segmental gears journaled in said brackets, lever arms extending from said gears, rods connected to said lever arms and to said weight, grooved guide-ways on said cage, toothed pawls slidably mounted in the grooves in said guide-ways and in engagement with said segmental gears, stops formed at the inner ends of said guide-ways whereby the inward movement of said pawls caused by the weight of the car is limited, springs connected to said pawls, said springs adapted to project said pawls into engagement with said racks when said cable breaks, and means carried by said guides for preventing upward movement of said pawls.

5. In a device of the character described, a combination with an elevator shaft having racks therein a cage and a cable supporting the cage, of a weight at the lower end of said cable, brackets on the roof of said cage, segmental gears journaled in said brackets, guide plates on the roof of said cage, pawls slidably mounted on said guide plate, means on said guide plates adapted to limit the backward movement of said pawls, said pawls adapted to be operated by said segmental gears when said weight falls, and means for aiding the movement of said pawls.

6. In a device of the character described, a combination with an elevator shaft having racks therein, a cage and a cable supporting the cage, of a weight at the lower end of said cable, brackets on the roof of said cage, segmental gears mounted in said brackets, guide plates on the roof of said cage, pawls slidable on said guide plates, means upon said guide plates adapted to limit the backward movement of said pawls, springs secured to each of said guide plates, said springs connected to said pawls, and means connecting said weight with said gears whereby said pawls may be moved by said segmental gears when said weight falls.

EDISON J. MOUNTS.

Witnesses:

E. D. FOX,
P. B. HAWKES.