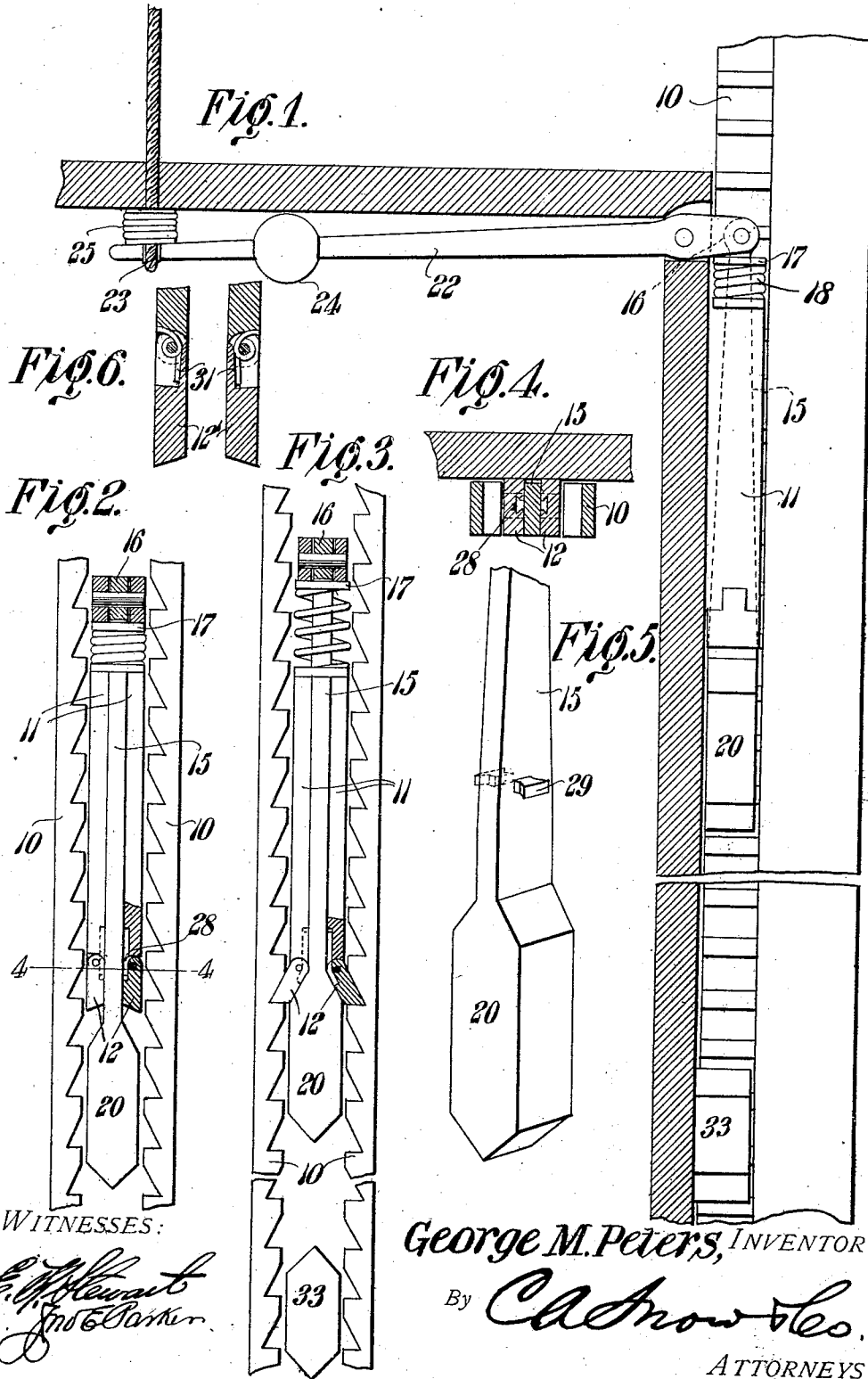


No. 864,029.

PATENTED AUG. 20, 1907.

G. M. PETERS.
SAFETY DEVICE FOR ELEVATORS.
APPLICATION FILED MAY 8, 1907.



UNITED STATES PATENT OFFICE.

GEORGE M. PETERS, OF ST. LOUIS, MISSOURI.

SAFETY DEVICE FOR ELEVATORS.

No. 864,029.

Specification of Letters Patent.

Patented Aug. 20, 1907.

Application filed May 8, 1907. Serial No. 372,552.

To all whom it may concern:

Be it known that I, GEORGE M. PETERS, a citizen of the United States, residing at St. Louis, in the county of St. Louis City and State of Missouri, have
5 invented a new and useful Safety Device for Elevators, of which the following is a specification.

This invention relates to safety appliances for elevators, mine cages, and the like, and has for its principal object to provide a device of simple construction for positively locking the car or cage from
10 abrupt descent in case of accidental breakage of the hoisting gear or suspension cables.

A further object of the invention is to provide a device of this character which will remain inactive
15 and will form a part of the elevator guiding means during ordinary operation, so that but slight extra expense is necessary to render the guides effective as safety means.

A still further object of the invention is to provide
20 a simple form of lock which will prevent the safety device from moving to operative position and will retain the parts in such position as to form an ordinary guide.

With these and other objects in view, as will more
25 fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size and minor details of the structure may be
30 made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings:—Figure 1 is a
35 sectional elevation of a portion of an elevator showing a guiding and safety device constructed in accordance with the invention. Fig. 2 is an elevation of the guide and safety lock in inoperative position. Fig. 3 is a similar view in operative position. Fig. 4
40 is a sectional plan view on the line 4—4 of Fig. 2. Fig. 5 is a detail perspective view of the locking device. Fig. 6 is a sectional view illustrating a slight modification of the locking tongues.

Similar numerals of reference are employed to indicate corresponding parts throughout the several
45 figures of the drawings.

Arranged at any suitable point or points in the elevator shaft, as, for instance, at the opposite sides or corners, are pairs of vertically-disposed rack bars
50 10, the rack bars of each pair being parallel with each other and provided with inwardly extending teeth, the teeth being arranged opposite each other. Projecting from the elevator car or cage is a pair of guide bars 11 which may be formed of wood or metal,
55 the upper portions of these guide bars being rigidly secured to the sides of the car, and said guide bars

fitting between the rack strips 10, the latter ordinarily forming guide-ways for the reception of the bars in order to maintain the car or cage in the proper path, and to avoid unnecessary wear, the points of
60 the ratchet teeth are preferably flattened, as may be observed on reference to Fig. 2. At the lower ends of the strips 11 are pivoted locking tongues 12 which may be spread in order to engage the ratchet teeth should occasion require. Arranged between
65 the two guide bars 11 is a slidable bar 15, at the upper portion of which is an eye 16, and below the eye is a washer or collar 17. Between this collar and the upper ends of the bars 11 is arranged a coiled compression spring 18 which urges the rod 15 in an up-
70 ward direction. To the lower end of the rod 15 is secured a wedge block 20 which, when pulled upward will enter between the lower ends of the two tongues 12 and will spread the same laterally into engagement with the ratchet teeth in order to form
75 a lock and prevent descent of the car or cage. The lower end of the wedge block is preferably pointed in order to facilitate downward movement between the ratchet teeth, and the width of said block is preferably equal to the distance between the outer faces of
80 the two bars 11.

Pivoted to the upper portion of the elevator car or cage is a lever 22, the shorter arm of which is connected to the eye 16. This lever extends inward toward the center of the car or cage, and its inner end is connected
85 to the hoisting means, as indicated at 23, this in the present instance representing a simple hoisting cable, although any suitable connections may be employed for the purpose. The inner longer arm of the lever 22 is preferably provided with a counter-weight 24 to
90 assist in the upward movement of the rod 15, and the inner end of said lever is also urged downward by a coiled compression spring 25. So long as the weight of the car is suspended from the hoisting means and the cable 23 remains taut, the two springs 18 and 25 will be
95 compressed and the wedge block will be held below the ends of the tongues 12. Should the cable break from any cause, the two springs will expand, and with the weight 24 will tend to move the inner end of the lever downward so that the rod 15 will be pulled up and the
100 wedge block will be forced between the lower ends of the tongues 12, spreading the same into engagement with the ratchet teeth and thus locking the car or cage from downward movement. In order to hold the tongues 12 from moving to locking position, the tongues
105 and the lower ends of the bars 11 are provided with dove tailed slots 28 which are arranged to be engaged by dove tailed nuts 29 that project from opposite sides of the rod 15, and when the rod and wedge 20 are in the lowest position, the lugs will be in engagement with
110 the dove tailed slots of the tongues, and will hold said tongues from opening movement, so that there will be

- no danger of accidental spreading and stopping the movement of the car or cage. As soon as the bar 15 starts to move up independently of the side bars, the two lugs will be raised from engagement with the slots 5 of the tongues 12 and will move into the alining slots of the bars 11, so that by the time the wedge reaches the tongues, the latter will be free to spread and will be moved outward into engagement with the rack teeth.
- 10 In the construction shown in Fig. 6, the dove tailed lugs and slots are omitted, and the tongues 12' are provided with springs 31 that tend to hold said tongues in inoperative position, so that they cannot move outward unless engaged by the wedge stop.
- 15 The safety device is preferably arranged near the top of the car or cage, and projecting from the lower portion of the car or cage are auxiliary guides 33 which enter between the rack bars for the purpose of preventing lateral play of the cage during ascent and descent.
- 20 With a device of this class it is practically impossible for the cage to move any appreciable distance before the bars will be spread and locked to the guiding strips.
- I claim:—
- 25 1. In safety devices for elevators, rack bars arranged in the elevator shaft, a pair of guide bars projecting from the side of the car or cage and fitting between said rack bars, locking tongues at the lower ends of the guide bars, a wedge for spreading said tongues, a rod carrying the wedge, a lever pivoted to the car and connected at one end to the rod and at its opposite end to the hoisting mechanism, a counter-weight arranged on said lever, and springs 30 tending to assist the counter-weight in raising the rod and moving the wedge to operative position.
2. In safety devices for elevators, rack bars arranged in the elevator shaft, the teeth of said bars facing each other 35 and being flattened to form guiding surfaces, a pair of guide bars projecting from the side of the car or cage and fitting between said guide bars to guide the car during its upward and downward movement, locking tongues at the lower ends of the guide bars, a wedge for spreading said tongues into engagement with the teeth, the lower end 40 of said wedge being pointed to facilitate downward travel between the rack bars, and means connecting the wedge to the hoisting mechanism.
3. In safety apparatus for elevators, rack bars in the 45 elevator shaft, guide bars projecting from the car or cage, tongues pivoted to the guide bars, the tongues and the guide bars being provided with alining undercut grooves, a locking member entering said grooves and normally holding the tongues from spreading movement, a wedge for 50 separating said tongues, and means under the control of the hoisting mechanism for actuating the wedge and the locking members.
4. In safety apparatus for elevators, rack bars arranged 55 in the elevator shaft, a pair of guide bars projecting from the car or cage, locking tongues at the lower ends of said guide bars, the tongues and guide bars being provided with alining dove tailed grooves, a rod arranged within the guide bars and connected to the hoisting mechanism, dove 60 tailed lugs projecting from said rod and arranged to enter the grooves, and a wedge carried by said rod and serving to spread the tongues after the lugs have passed from the grooves of said tongues.
- In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two 65 witnesses.
- GEORGE M. PETERS.
- Witnesses:
B. H. STRICKLER,
HARRY H. WILSON.