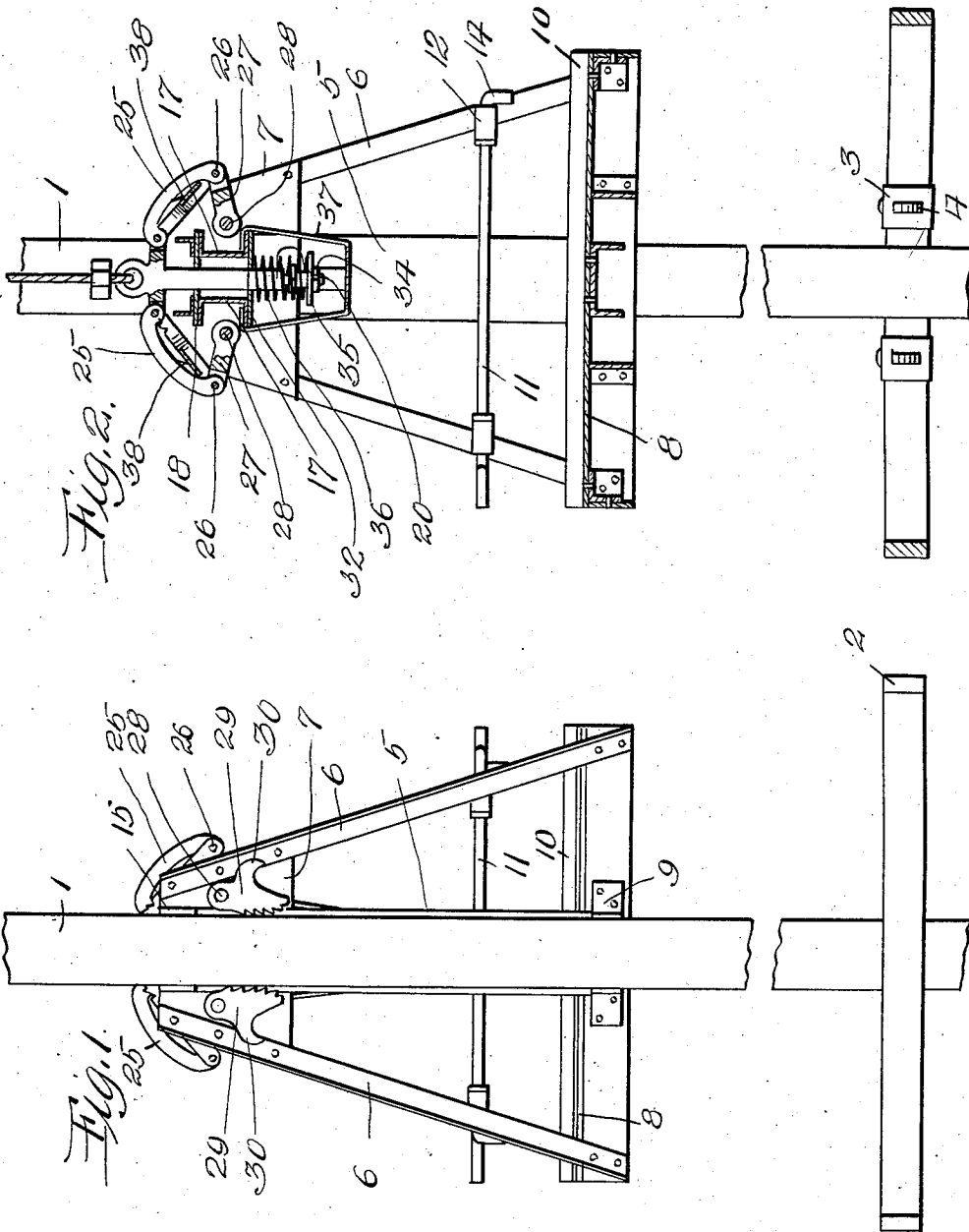


M. NESZTOR.
ELEVATOR SAFETY DEVICE.
APPLICATION FILED OCT. 11, 1911.

1,028,594.

Patented June 4, 1912.

2 SHEETS—SHEET 1.



WITNESSES

Samuel Payne
Ralph C. Evert.

INVENTOR

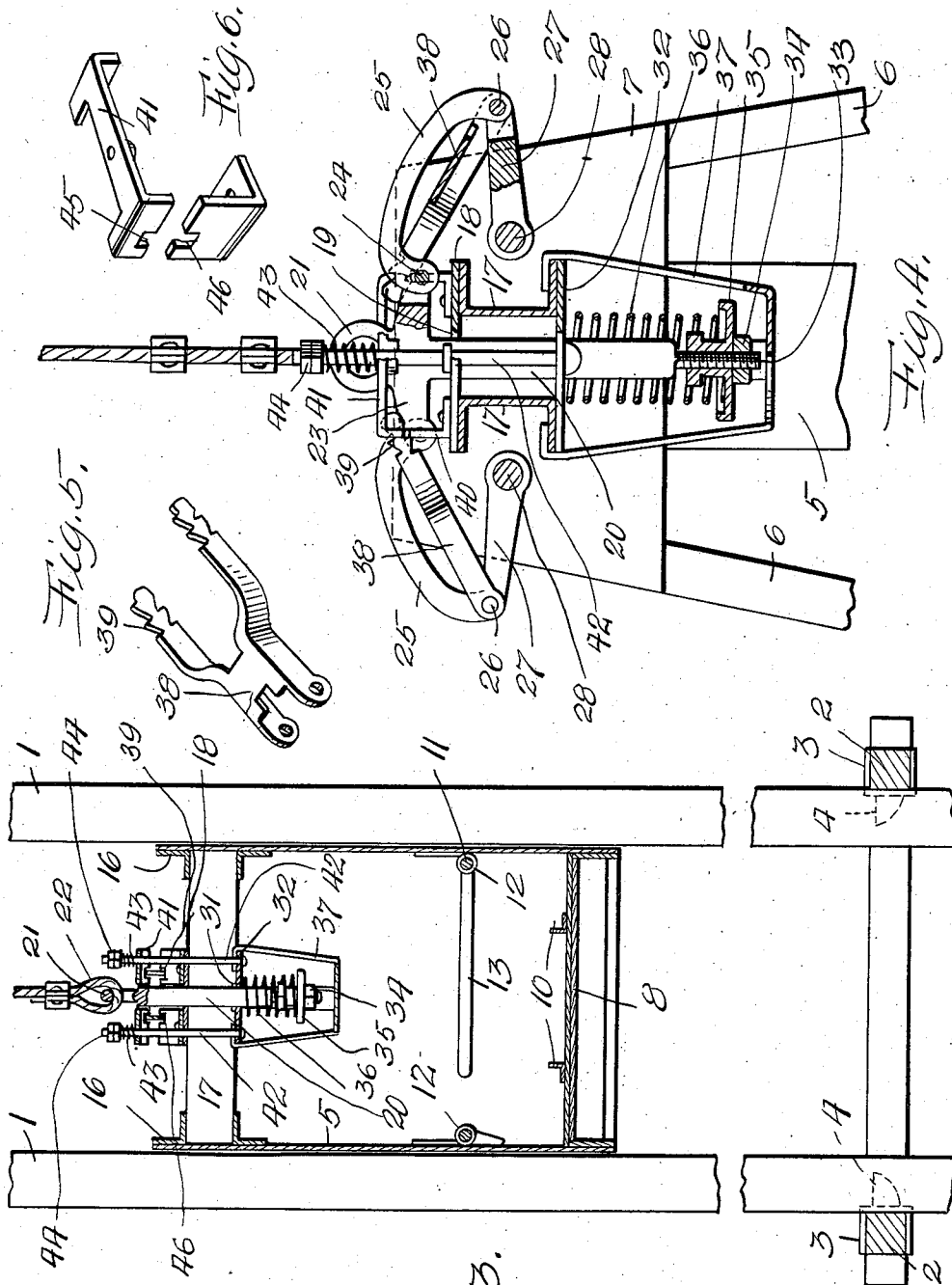
M. Nesztor
BY *McEwen*
ATTORNEYS

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Fig. 3.

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UNITED STATES PATENT OFFICE.

MIHALY NESZTOR, OF HARTFORD, WISCONSIN.

ELEVATOR SAFETY DEVICE.

1,028,594.

Specification of Letters Patent.

Patented June 4, 1912.

Application filed October 11, 1911. Serial No. 654,027.

To all whom it may concern:

Be it known that I, MIHALY NESZTOR, a subject of the King of Hungary, residing at Hartford, in the county of Washington and State of Wisconsin, have invented certain new and useful Improvements in Elevator Safety Devices, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to an elevator safety device especially designed for large freight elevators or the elevators of mines employed for hauling pit cars from a mine to the top of a shaft.

The primary object of my invention is to furnish an elevator cage with positive and reliable means, in a manner as will be hereinafter set forth, for gripping the guides of the elevator cage and preventing a sudden descent of the cage when the hoisting cable or cables thereof break or become accidentally disconnected from the hoisting drum or the top of the cage.

A further object of this invention is to provide a safety device that is automatic in its action, durable and highly efficient for the purposes for which it is intended.

With the above and other objects in view, the invention resides in the novel construction, combination and arrangement of parts to be hereinafter specifically described and then claimed.

Reference will now be had to the drawings, wherein like numerals denote corresponding parts throughout the several views, in which:—

Figure 1 is a side elevation of an elevator safety device in accordance with this invention, Fig. 2 is a vertical longitudinal sectional view of the same, Fig. 3 is a vertical cross sectional view of the elevator safety device, Fig. 4 is an enlarged longitudinal sectional view of a portion of the safety device, and Figs. 5 and 6 are detail perspective views of parts of the device.

The reference numerals 1 denote vertical guides and these guides, adjacent to the lower ends thereof, are connected by a rectangular frame 2 having straps 3, adjacent to the guides, provided with inwardly projecting lugs 4. The lugs 4 are in the path of the guide gripping members, whereby said members will be thrown outwardly when the elevator cage is at rest at the bottom of the shaft. The elements 2 to 4 inclusive are only used when the hoisting cable of the cage is slack with the cage at the bottom

of a mine shaft, said lugs holding the guide gripping members whereby the hoisting cable can be made taut and the cage elevated between the guides.

The cage comprises A-shaped frames having central vertical plates 5, angularly disposed legs 6, heads 7 and a platform 8 supported by said legs and the center plates 5. The platform 8 is built up of structural steel and the sides thereof are provided with angle bars 9 loosely engaging the sides of the guides 1 to assist in guiding the cage between said guides. The platform 8 is provided with longitudinal angle rails 10 constituting a track to receive pit cars or trucks, and to prevent a car or truck from becoming displaced during the movement of the elevator cage, the legs 6 are provided with gates. These gates are in the form of longitudinal rods 11 frictionally held in bearings 12 carried by the inner sides of the legs 6. One end of each rod is bent outwardly, as at 13 to form a gate and the opposite end of each rod is bent, as at 14 to engage one of the legs 6 and limit the downward movement of the gate, the gates in a closed position being horizontal and when in an open position the gates are swung upwardly in proximity to the upper ends of the legs 6.

The outer sides of the heads 7 are provided with channel bars 15 cooperating with the angle bars 9 in guiding the cage between the guides 1. The confronting sides of the heads 7 are provided with sets of angle bars 16 and arranged between said angle bars is a cross head comprising channel bars 17. Located centrally of the cross head is a bearing plate 18 having a central opening 19 for a coupling pin 20. The coupling pin 20 has the upper end thereof provided with an eye 21 and connected to said eye is the lower end of a hoisting cable 22. The coupling pin 20, adjacent to the eye 21, has oppositely disposed sets of apertured lugs 23 and pivotally mounted between said lugs by pins 24 are the upper ends of curved links 25. The lower ends of the curved links are pivotally connected by pins 26 to cranks 27 mounted upon transverse shafts 28, journaled in the heads 7. The outer ends of the shafts 28 are provided with serrated, toothed or roughened gripping members 29 having hooks 30. The gripping members 29 are adapted to frictionally grip the guides 1 and hold the elevator cage, when the cable thereof is displaced. The hooks 30 are

adapted to engage the lugs 4, for the purpose previously mentioned.

The lower end of the pin 20 extends through an opening 31 provided therefor in a guide plate 32 secured to the under side of the channel bars 17. The lower end of the pin 20 is reduced to provide a screw threaded stem 33 and retained upon said stem by a nut 34 is a cup 35. Encircling the pin 20, between the cup 35 and the guide plate 32, is a coiled compression spring 36 and the object of this spring is to immediately lower the pin 20 relatively to the cross head when the hoisting cable 22 becomes displaced. Surrounding the spring 36 and the lower end of the pin 20 is a cage or skeleton frame 37 that is suspended from the flanges of the channel bars 17. Associated with the cranks 27 are locking members 38 having the ends thereof bifurcated, with the lower ends apertured and pivotally mounted upon the ends of the pins 26. The upper bifurcated ends of said members are provided with teeth 39 and these teeth are adapted to engage angle stops 40 mounted upon the bearing plate 18, also keepers 41 movably mounted upon the upper ends of tie rods 42 connecting the bearing plate 18 and the guide plate 32. The upper ends of the tie rods 42 are encircled by coiled compression springs 43 that bear upon the keepers 41, said springs being retained under tension by nuts 44 mounted upon the upper ends of said tie rods. The outer ends of the keepers are notched, as at 45 to receive the toothed ends of the locking members 38 and the upper ends of the angle stops are notched, as at 46 for the same purpose.

In the operation of the elevator safety device, the spring 36 immediately lowers the pin 20 relatively to the angle bars 17, when the cable 22 is displaced, and such movement of the pin 20 causes the links 25 to push downwardly upon the cranks 27, partially rotate the shafts 28 and swing the gripping members 29 into engagement with the guides 1. As the outer ends of the cranks 27 move downwardly, the locking members 38 are pulled outwardly and are held by the angle stops 40 and the keepers 41, thus preventing the cranks 27 from assuming their normal position after the gripping members 29 have been thrown into engagement with the guides 1. The gripping members are locked in their adjusted position and can be only released by manual elevation of the keepers 41 and the locking members 38. Then the cable 22 can be repaired and the pin 20 restored to its normal position to swing the gripping members out of engagement with the guides.

What I claim is:—

1. In an elevator safety device, the combination with guides, a rectangular frame carried thereby adjacent to the lower ends of said guides and provided with inwardly projecting lugs, a hoisting cable, and a cage slidably mounted between said guides and comprising A-shaped side frames having heads, of a cross head connecting said heads, a spring actuated pin arranged centrally of said cross head and adapted to be supported by the hoisting cable, shafts journaled in the heads of said frames, gripping members carried by the outer ends of said shafts and adapted to frictionally engage said guides, hooks carried by said gripping members and adapted to engage the lugs of said rectangular frame for moving said gripping members out of engagement with said guides when said hoisting cable is slack, and connections between said shafts and said spring actuated pin for moving said gripping members into engagement with said guides when the hoisting cable of said pin is displaced.

2. In an elevator safety device, the combination with guides, a rectangular frame carried thereby adjacent to the lower ends of said guides and provided with inwardly projecting lugs, a hoisting cable, and a cage slidably mounted between said guides and comprising A-shaped side frames having heads, of a cross head connecting said heads, a spring actuated pin arranged centrally of said cross head and adapted to be supported by the hoisting cable, shafts journaled in the heads of said frames, gripping members carried by the outer ends of said shafts and adapted to frictionally engage said guides, hooks carried by said gripping members and adapted to engage the lugs of said rectangular frame, for moving said gripping members out of engagement with said guides when said hoisting cable is slack, connections between said shafts and said spring actuated pin for moving said gripping members into engagement with said guides when the hoisting cable of said pin is displaced, and means actuated by a movement of said shafts and including locking members and spring pressed keepers for retaining said shafts in an adjusted position with the gripping members thereof in engagement with said guides.

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

MIHALY NESZTOR.

Witnesses:

STEVE MESRAROSCT,
J. H. SCHNORENBERG.