

M. C. HUTCHINGS.
 BREAKAWAY CLUTCH FOR ELEVATORS AND MINE CAGES.
 APPLICATION FILED DEC. 4, 1908.

914,841.

Patented Mar. 9, 1909.

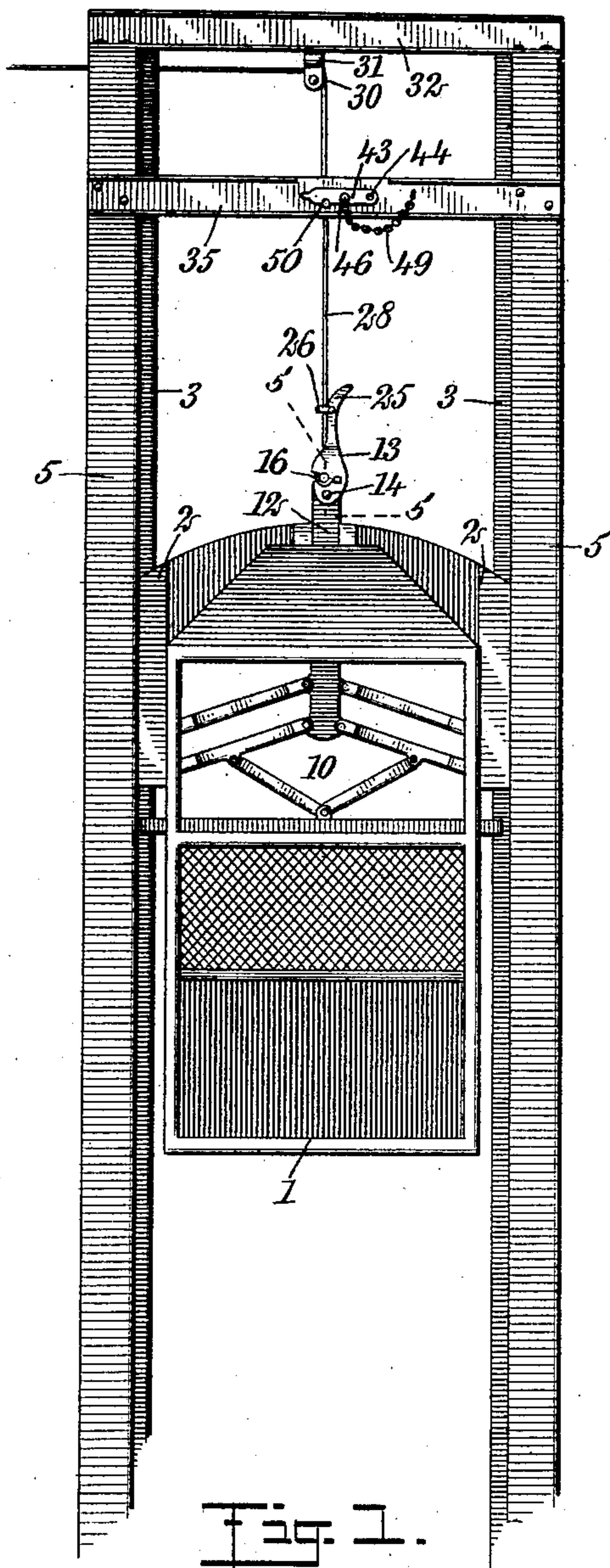


Fig. 1.

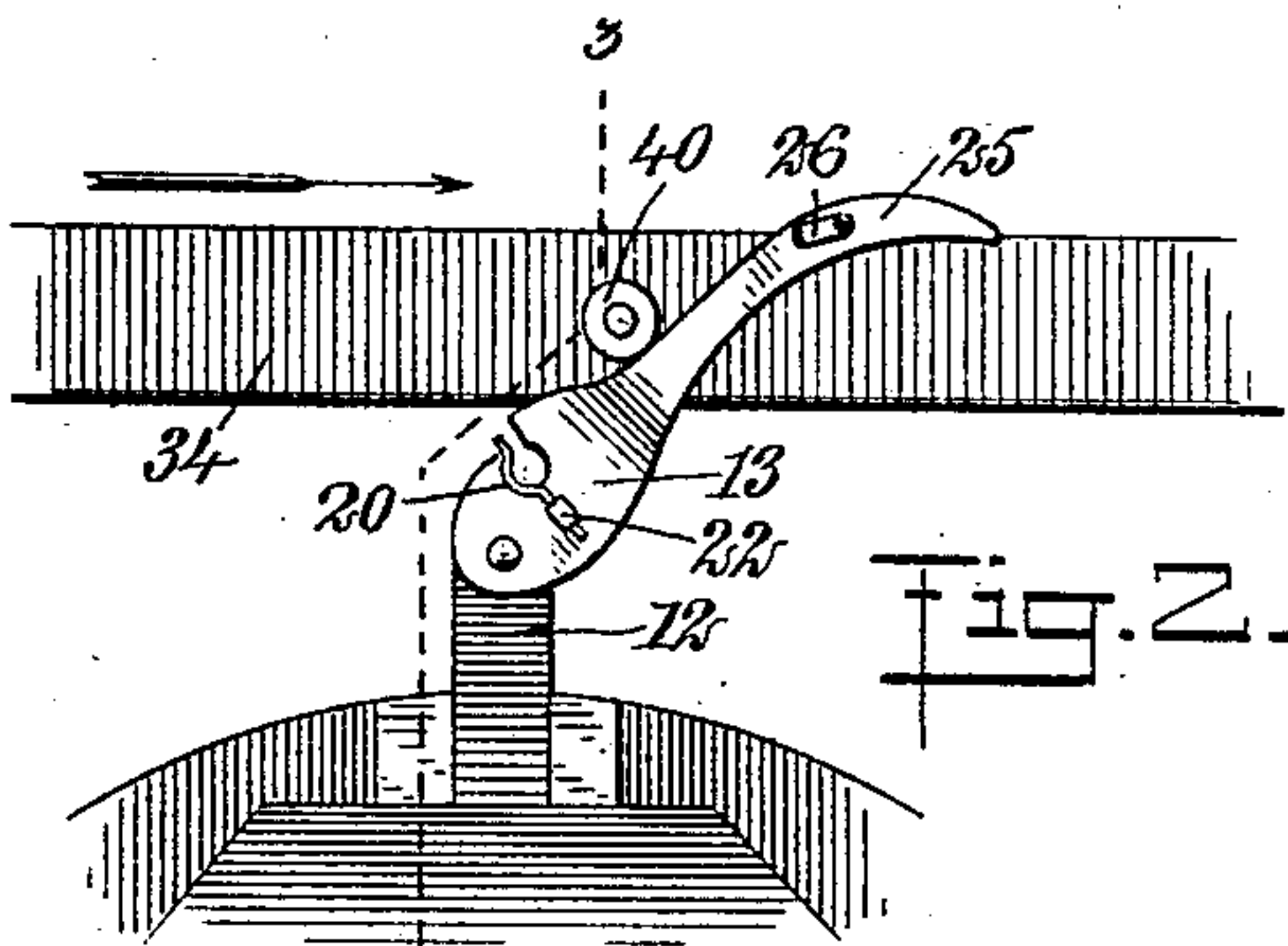


Fig. 2.

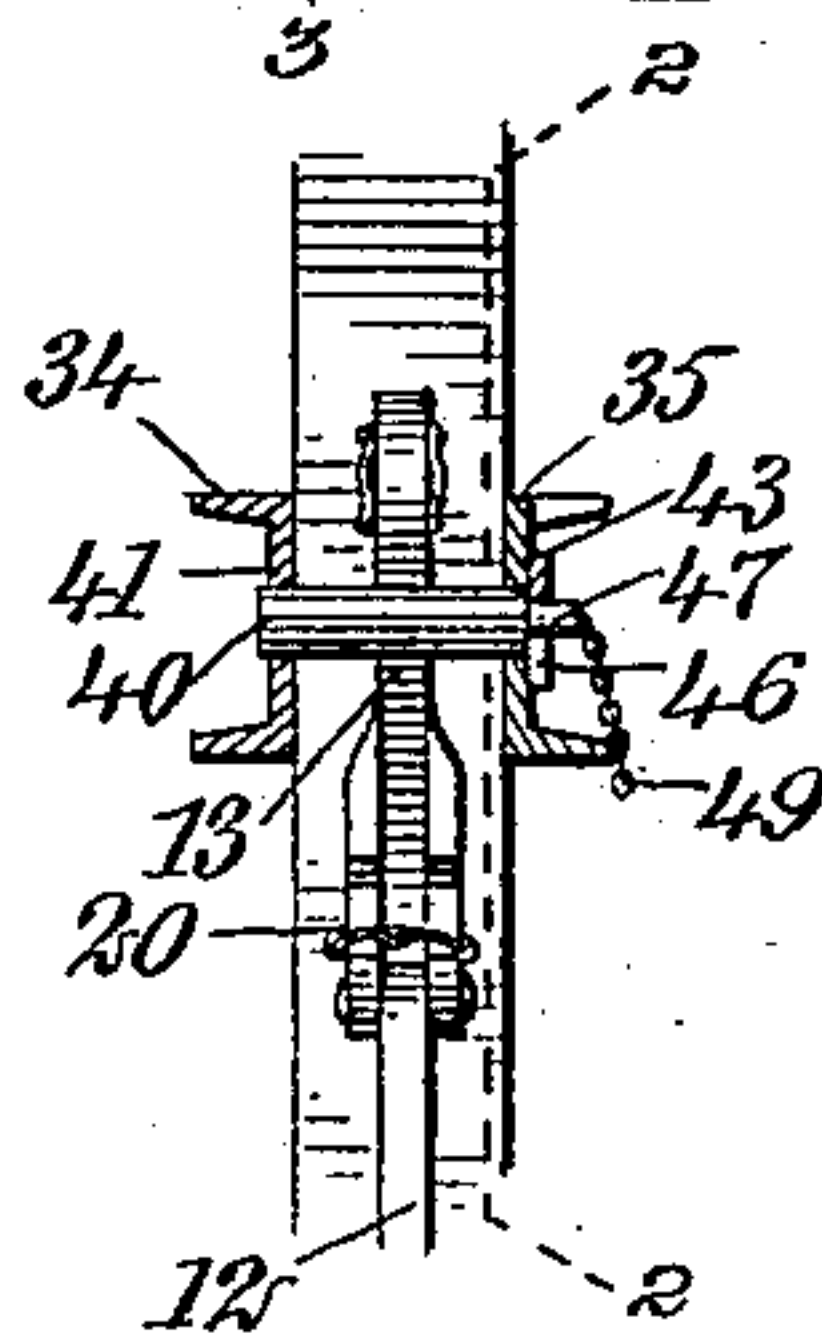


Fig. 3.

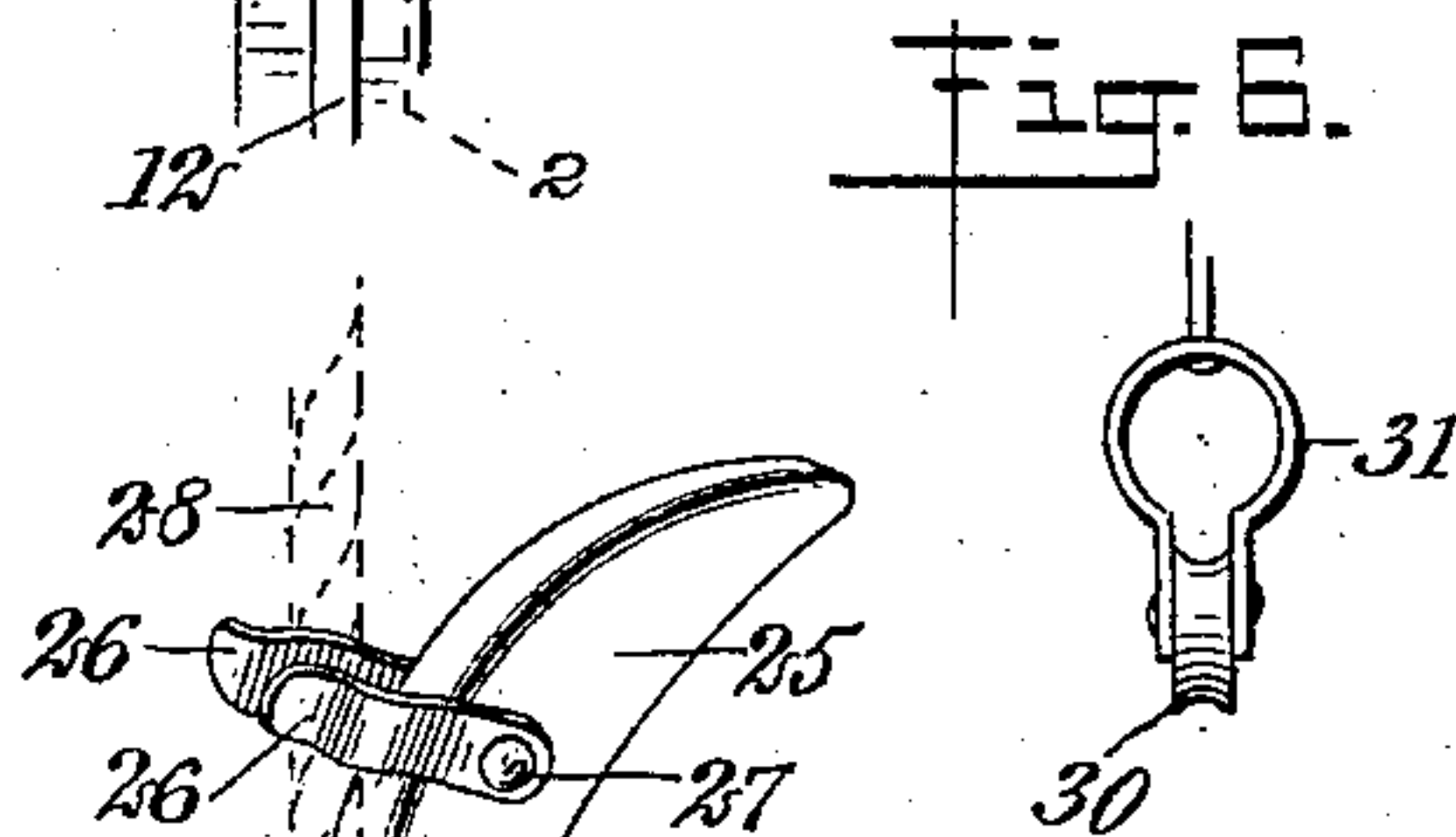


Fig. 4.

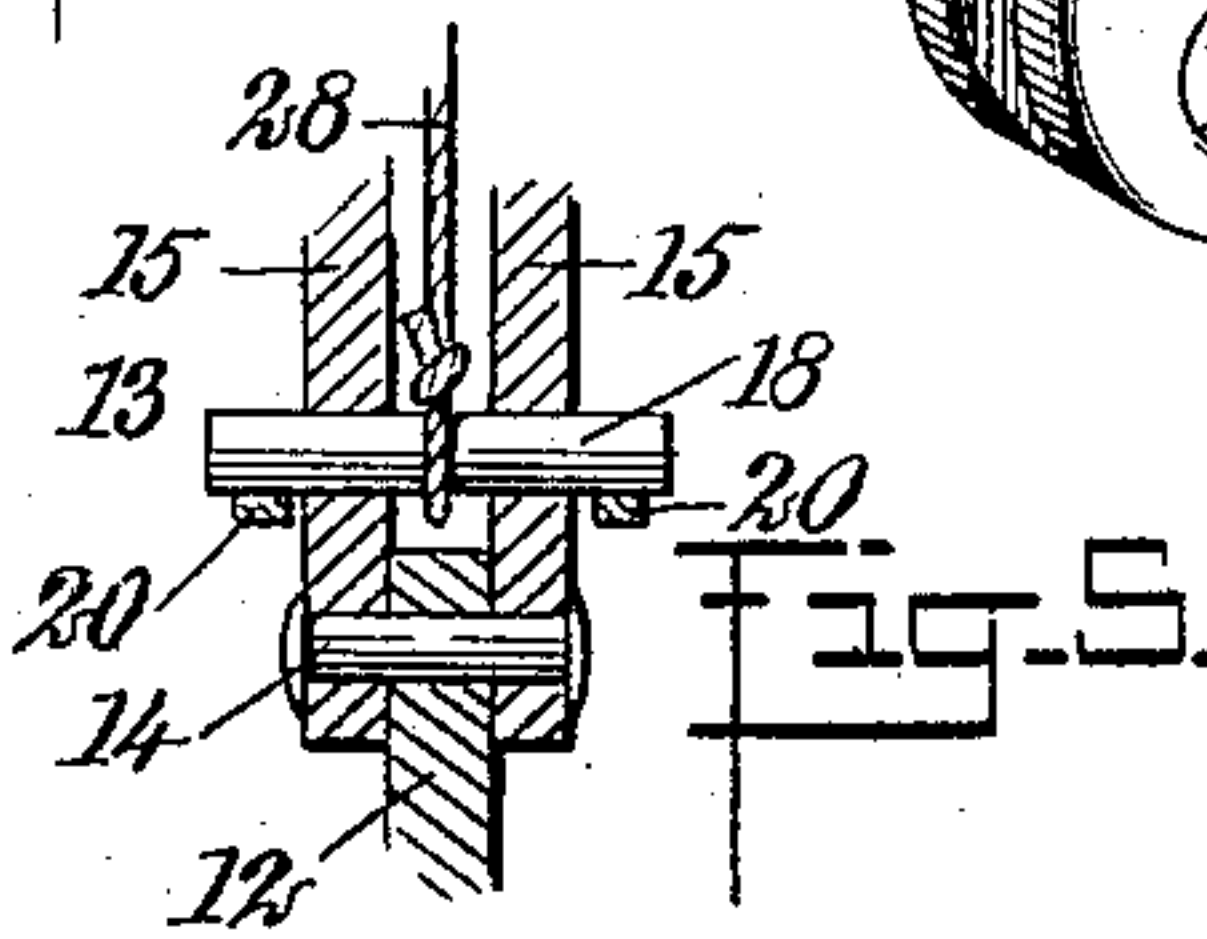


Fig. 5.

WITNESSES

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MARVIN C. HUTCHINGS, OF BOZEMAN, MONTANA.

BREAKAWAY-CLUTCH FOR ELEVATORS AND MINE-CAGES.

No. 914,841.

Specification of Letters Patent.

Patented March 9, 1909.

Application filed December 4, 1908. Serial No. 465,915.

To all whom it may concern:

Be it known that I, MARVIN C. HUTCHINGS, a citizen of the United States, and a resident of Bozeman, in the county of Gallatin and State of Montana, have invented a new and Improved Breakaway-Clutch for Elevators and Mine-Cages, of which the following is a full, clear, and exact description.

This invention relates to safety devices for elevators and mine cages, and more particularly to self-detaching hooks such as are already known for the attachment of shaft cages or the like to the swing-ropes or chains.

An object of the invention is to provide a self-detaching hook which will automatically release the cable-hold when the elevator car or cage has been drawn too high, as, for example, when the engine which operates the winding drum is beyond control.

The invention consists in the construction and combination of parts to be more fully described hereinafter and defined in the appended claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views, and in which—

Figure 1 is a front elevation showing a cage or elevator car with the safety device attached thereto; Fig. 2 is a sectional elevation, taken on the line 2—2 in Fig. 3, and showing the safety device when the cable-hold has been released; Fig. 3 is a sectional elevation, taken on the line 3—3 in Fig. 2; Fig. 4 is a perspective view, on an enlarged scale, showing the hook detached from the car, and the position of the cable in dotted lines; Fig. 5 is a section taken on the line 5—5 in Fig. 1, and Fig. 6 is a detail view of the cable sheave wheel and its supporting bracket.

The car 1 is provided with guides 2, adapted to move upon the ways 3, which are supported by the side members 5 of the elevator well or mine-shaft. The car may be provided with any suitable form of safety catch 10, such, for example as shown in my Patent No. 876,188, dated January 7, 1908. This safety catch is connected to a bar 12, passing through the top of the elevator car. The safety device or hook 13 is pivoted by means of a pin 14 to the upper end of the bar 12. The lower end of the safety device or hook 13 is provided with two laterally - extending

wings 15, each of which is provided with a notch 16, adapted to receive the bar or cable-hold 18. In order to retain the bar 18 within the notches 16 when the cable is slack, a spring 20 is provided, which is secured at its ends in lugs 22 formed upon the sides of the hook 13. Said spring passes across the wings 15 within the notches 16, and is adapted to bear against the under side of the bar or cable-hold 18, said spring being bent to conform to the under side of said bar. The upper end of the hook 13 is formed with a laterally-curved extension 25, to which are pivotally attached spring clips 26 by means of a pin or bolt 27. These spring clips are for the purpose of retaining the cable 28 in proper relation with the edge of the hook.

The cable 28 is fastened about the cable-hold 18, and when said cable-hold is in the notches 16, the cable passes between the wings 15 and the spring clips 26 upwardly to a sheave 30, supported in a bracket 31 suspended from the under side of the beams 32 at the upper extremity of the elevator well or mine - shaft. The portion of the bracket 31 above the shaft 30 is spread apart sufficiently to allow the cable-hold 18 to be drawn through the bracket, thus permitting the cable to be wound upon the winding drum without injuring any of the structure. Said cable passes between a pair of beams 34 and 35 secured to the opposite sides of the frame members 5.

A pin 40 is adapted to rest in holes 41 formed in the beams 34 and 35, which in the present instance are shown as channel beams. A hasp 43 is pivoted at 44 to the beam 35, and is provided with a notch 46 adapted to receive the reduced end 47 of the pin 40. This reduced end 47 is connected by means of a chain 49 to the beam 35. The hasp rests at its outer free end against a pin 50 secured in the beam 35. It will be understood that the cable 28 is connected to a winding drum, which is driven by any suitable source of power.

The operation of the device is as follows:— Assuming the car to be traveling upward, with the apparatus as shown in Fig. 1, the cable-hold 18 is retained within the hook 13, and said hook is held in a vertical position, the spring clips 26 engaging the cable 28. When the car rises too far, as shown in Fig. 2, the curved upper end of the hook engages

the pin 40, which tilts the spring clips 26 downwardly and deflects the upper end of said hook so that the notches 16 open upwardly, whereupon the cable-hold 18 is freed from contact with the spring 20, and passes upwardly between the beams 34 and 35, and may be so arranged as to escape through the upper portion of the bracket which supports the sheave wheel at the top of the main shaft. The elevator car is now free and would tend to drop, but the safety catch 10 prevents such drop, as is well understood. In order to reset the device, the hasp 43 is swung upwardly, so that the pin 40 may be withdrawn from between the beams 34 and 35; whereupon the hook 13 may be swung into its upper vertical position and the cable-hold 18 again inserted in the notches 16. The spring clips 26 may then be raised to engage the cable 28, whereupon the device is ready for another emergency. The pin 40 is then replaced in the beams 34 and 35 and the hasp 43 lowered to maintain said pin within the beams.

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

1. In a safety device for elevators, the combination with a cage, of a member pivotally connected to said cage and having a lateral recess formed therein, a cable-securing member in said recess, yielding means engaging said cable-securing member for retaining the latter within said recess, and means in the path of travel of said member adapted to be engaged thereby, to tilt the latter and thereby free said cable-securing member.

2. In a safety device for elevators, the combination with a cage, of a member pivotally connected to said cage and having a lateral recess formed therein, a cable-securing member in said recess, yielding means passing through said recess, for retaining the cable-securing member therein, and means in the path of travel of said member adapted to be engaged thereby, to tilt the latter and thereby free said cable-securing member.

3. In a safety device for elevators, the

combination with a cage, of a member pivotally connected to said cage and having a lateral recess formed therein, a cable-hold in said recess, yielding means for retaining the cable-hold within said recess, and means in the path of travel of said member, adapted to be engaged by the upper end thereof to tilt the same and thereby free said cable-hold.

4. In a safety device for elevators, the combination with a cage, of a member pivotally connected to said cage and having a lateral recess and a curved upper extension, a cable-hold within said recess, means within said recess for preventing the detachment of said cable when slackened, and means in the path of travel of said extension adapted to be engaged thereby, to tilt said member, whereby said cable-hold may be drawn out of said recess when the cage has risen too far.

5. A safety catch, comprising a body having a curved laterally-extending projection and a lateral recess for receiving a cable-hold, means whereby said body may be pivotally supported, and a spring within said recess for retaining said cable-hold in position when the cable is slack.

6. A safety catch, comprising an apertured body having a curved upwardly-extending projection and two laterally-projecting wings, said wings being each provided with a recess adapted to receive a cable-hold therein, yielding means for retaining said cable-hold in said recess when the cable slackens, and a pair of pivoted guide-fingers for engaging the cable.

7. A safety catch, comprising a body having a curved laterally-extending projection, a pair of wings on said body, each having a lateral recess formed therein and adapted to receive a cable therebetween, and a spring secured to said body and passing through said recess.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MARVIN C. HUTCHINGS.

Witnesses:

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E. E. MUCHUNER.