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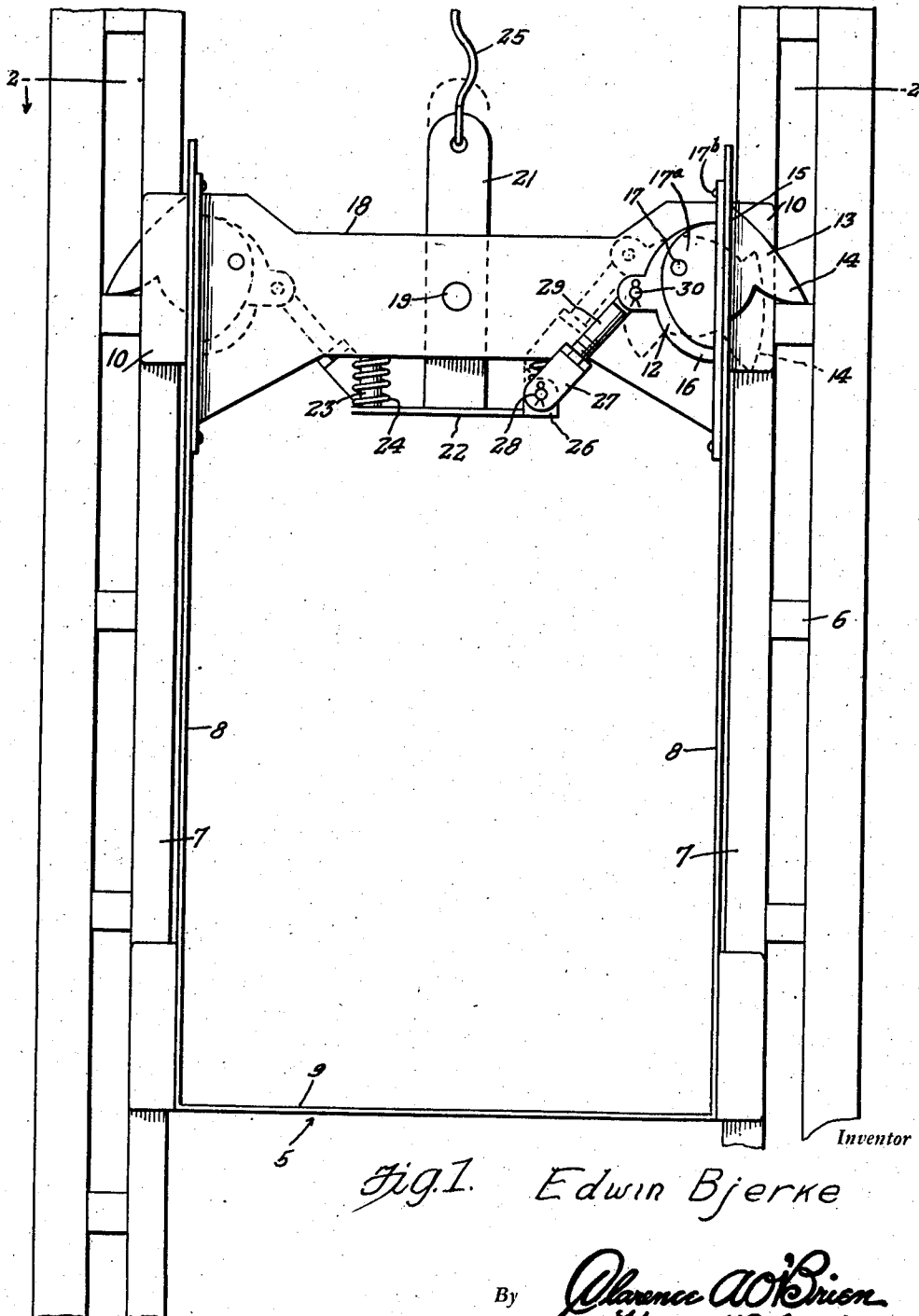
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2,403,333

SAFETY MEANS FOR MINE CAGES

Filed March 1, 1944

2 Sheets-Sheet 1



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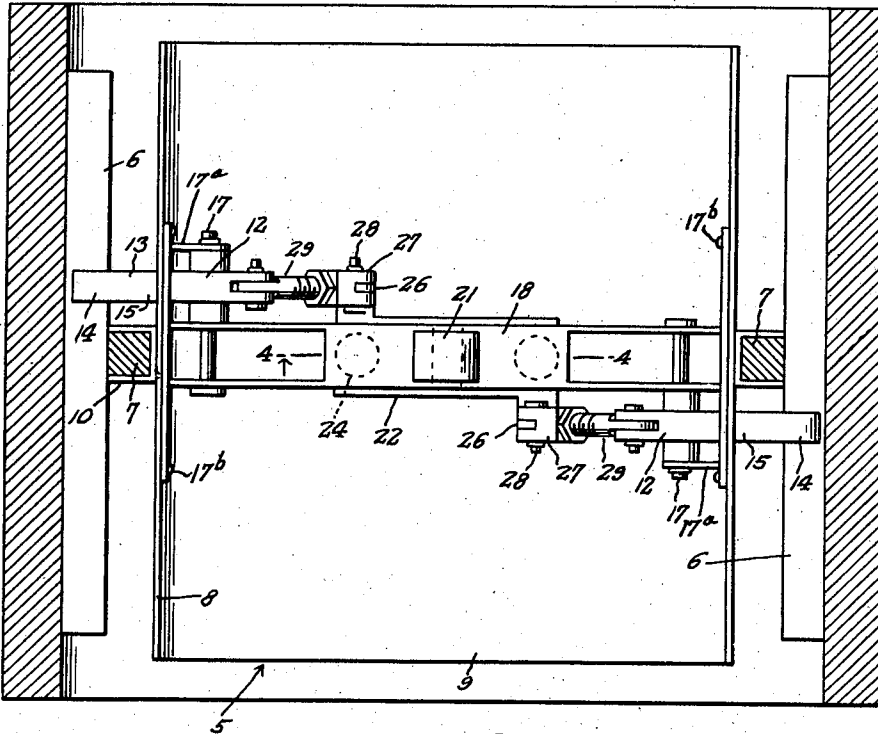


Fig. 2.

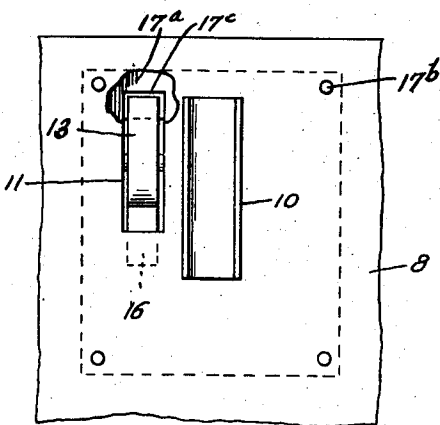


Fig. 3.

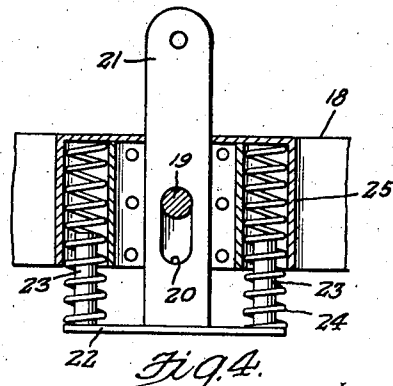


Fig. 4.

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SAFETY MEANS FOR MINE CAGES

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1 Claim. (Cl. 187—82)

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This invention relates to new and useful improvements in safety devices and more particularly to a safety means for mine cages in which workmen and materials are customarily carried.

The principal object of the present invention is to provide safety means for mine cages which will act to stop the cage from falling in the event the usual sustaining cable breaks.

Another important object of the invention is to provide safety means of the character stated which will be quick-acting and fool-proof in operation.

Other objects and advantages of the invention will become apparent to the reader of the following description.

In the drawings:

Figure 1 represents a fragmentary side elevational view showing a portion of a mine cage with the safety means installed.

Figure 2 is a horizontal sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a fragmentary side elevational view showing one side wall of the cage and the safety means installed.

Figure 4 is a fragmentary detailed sectional view of the spring means for the present invention.

Referring to the drawings wherein like numerals designate like parts, it can be seen that the mine shaft in which the cage generally referred to by numeral 5 operates is constructed of timbers, certain of which are horizontally disposed as at 6 and vertically extending along these horizontal timbers 6 are runners serving as guide tracks 7, these tracks being at opposite sides of the shaft.

The frame of the cage, which is shown in the drawings, consists of side walls 8, 8 and a bottom 9, and on the outer side of each side wall 8 is a channeled guide 10 which rides the corresponding track 7, thus requiring the cage to move in a true vertical direction.

Adjacent each of the guides 10, the corresponding side wall 8 has a slot 11 through which a portion of a rotatable plate 12 projects. This plate is substantially circular, the same having a tangentially disposed formation 13 terminating at one end in a timber engageable tooth 14 and at its opposite end in an abutting shoulder 15. A second abutting shoulder 16 is provided on the plate 12 which is adapted to strike the inside of the cage when the tooth 14 is in operated position, while simultaneously the shoulder 15 abuts the outside of the corresponding side wall 8. It can be seen that the plate 12 is fulcrumed on a bolt 17 having one end supported in a bracket 17a suitably fixed, as at 17b, to the adjacent sides of wall 8 and slotted as at 17c for extension of the plate 12 there-through.

The other end of the bolt 17 is fixed in one end of a top structure 18 for the cage and between

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which and said bracket 17a, the plate 12 fulcrums, the structure 18 having a cross pin 19 disposed through a slot 20 in a vertically slidable bar 21, which is slidable through the top structure 18.

The lower end of the slide bar 21 has a cross member 22 provided with upstanding plungers 23, 23 at the opposite ends thereof, these plungers extending into the lower convolutions of coiled compression springs 24 which nestle in sockets 25 constructed in the top structure 18.

The usual hauling cable, denoted by numeral 25, is attached to the upper end of the bar 21.

At diametrically opposite corners of the plate 22 are provided upstanding lugs 26 to which bifurcated members 27 are pivotally secured as at 28. Rods 29 provided with threads are adjustably disposed into the bifurcated members 27 and are, in turn, pivotally connected as at 30 to the corresponding rotatable plates 12.

It can now be seen, that when the load of the cage is on the cable 25, the bar 21 will be held in elevated position and this, in turn, will hold the plates 12 rotated so that the teeth or dogs 14 will be held close to the side walls 8 and out of the path of the horizontal timbers 6.

However, should the cable 25 break, the springs 24 will force the plate 22 downwardly and this, in turn, will result in rocking the plates 12, to the end, that the dogs 14 will be thrown outwardly and into the path of the horizontal timbers 6 to the end that the stage is stopped in its fall.

While the foregoing specification sets forth the invention in specific terms, it is to be understood that numerous changes in the shape, size and materials may be resorted to without departing from the spirit and scope of the invention as claimed hereinafter.

Having described the invention, what is claimed as new is:

In a mine, a shaft, provided with side horizontal timbers and central guide tracks, a cage having side walls with guides thereon running on said guide tracks, a hauling line for the cage, a vertically slidable bar on the cage to which the line is attached, substantially circular plates on the cage adapted to be operated from normal position for engaging the side timbers when the hauling line breaks, said plates being rockably mounted on said side walls and staggered relatively laterally to clear said guide tracks, operating connections between said plates and the bar, and spring means for forcing the bar to plate operating position upon breaking of said line, said plates being provided with tangential teeth for hooking over said side timbers, said plates having diametrically opposite shoulders engaging opposite sides of said walls when said teeth are in position to engage said side timbers.

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