S. H. DOLPH.

SAFETY CATCH FOR ELEVATORS.

APPLICATION FILED SEPT. 7, 1912.

1,108,723.

Patented Aug. 25, 1914.

2 SHEETS—SHEET 1.

FIG. 1.

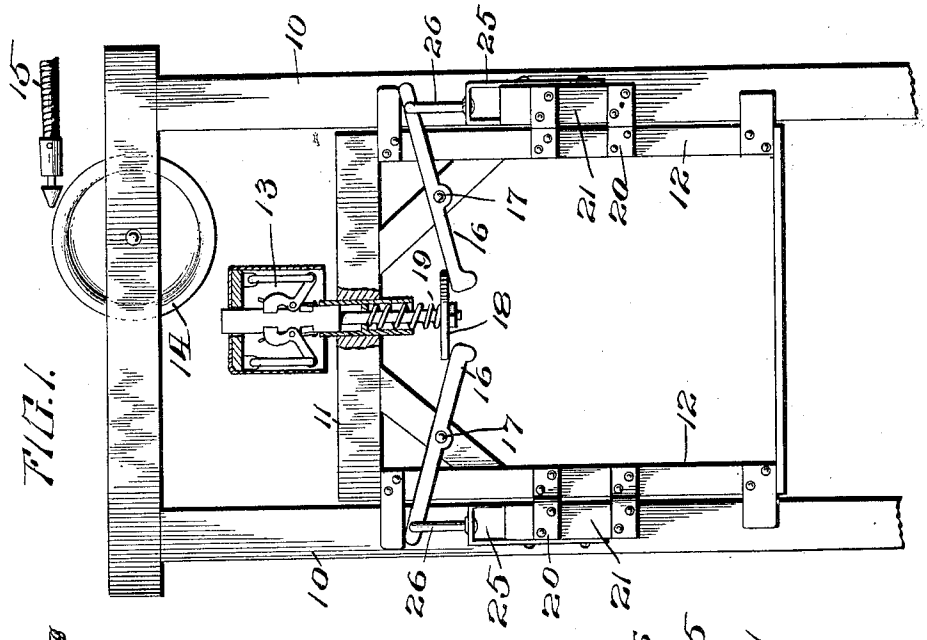
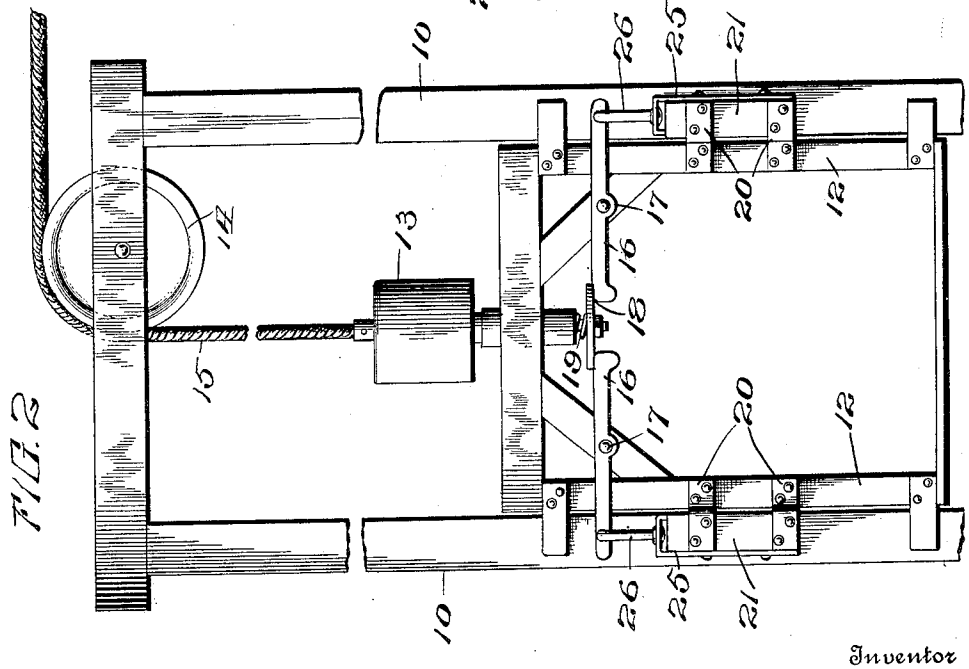


FIG. 2.



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2 SHEETS—SHEET 2.

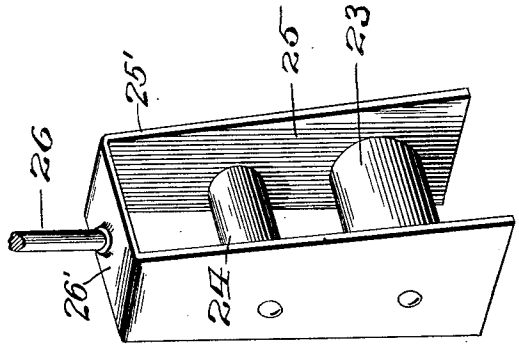

FIG. 5.

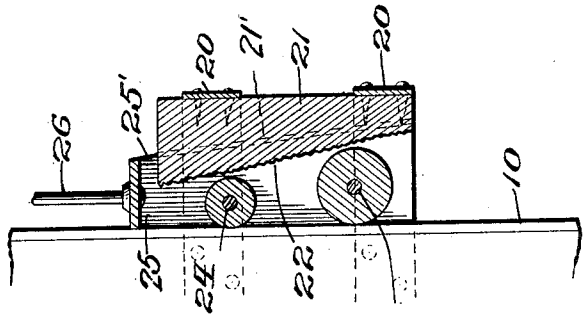

FIG. 4.

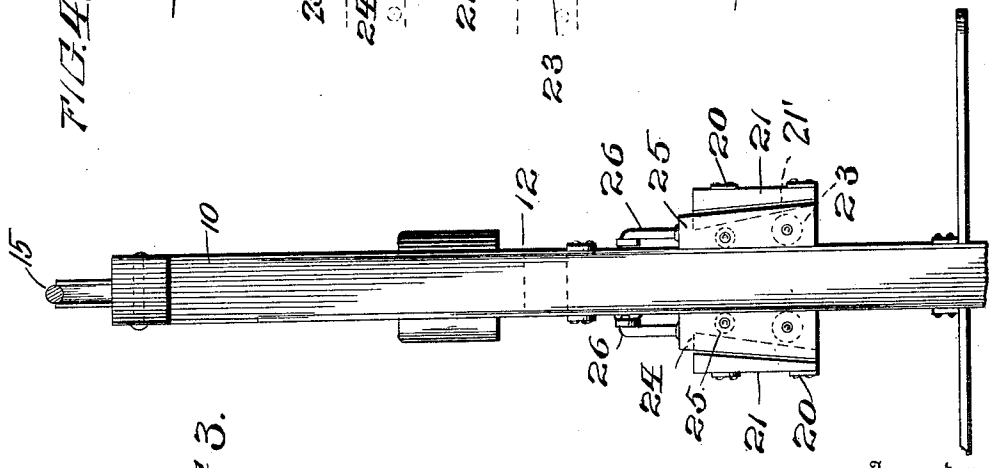

FIG. 3.

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SAFETY-CATCH FOR ELEVATORS.

1,108,723. Specification of Letters Patent. Patented Aug. 25, 1914.

Application filed September 7, 1912. Serial No. 719,124.

To all whom it may concern:

Be it known that I, SELDEN H. DOLPH, a citizen of the United States, residing at Olyphant, in the county of Lackawanna and State of Pennsylvania, have invented certain new and useful Improvements in Safety-Catches for Elevators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to safety catches for elevators and the like and has for an object to provide an improved means for securing the elevator car against dropping when released from the supporting means.

With this in view the invention comprises certain novel constructions, combinations and arrangement of parts as will be hereinafter more fully described and claimed.

In the drawings: Figure 1 is a view of a conventional car in side elevation showing the safety catching means applied thereto, parts being shown in section and all being shown in engaging position. Fig. 2 is a view of a conventional car in side elevation shown in operative or lifting position. Fig. 3 is a view in edge elevation of a conventional car showing in full and dotted lines the blocks and rollers employed for attaching and holding the car. Fig. 4 is a detail sectional view showing the wedging rollers and wedging blocks. Fig. 5 is a perspective view of the wedging rollers and their stirrups.

Like characters of reference designate corresponding parts throughout the several views.

The improved safety catch device which forms the subject matter of this application is adapted to be applied to elevators and lifts of the usual and ordinary construction as mine elevators and cages employing guide-ways 10 and a car shown conventionally at 11 embodying side rails 12 which move in parallelism and adjacent to the guide-ways 10. Connected to the car 11 is a cable releasing device shown as a whole at 13 which forms the subject matter of U. S. Patent 1,073,968, dated Sept. 23, 1913, and whose application Serial No. 719,123, was filed on even date herewith. The releasing mechanism is such that when it engages against the sheave 14 the cable 15 is released and passes over the sheave leaving the car free from the support of the cable. To sustain the car against dropping, the stop or safety catch of the present application is employed comprising levers 16 pivoted as at 17 to any convenient portion of the car structure and actuated by a plate 18 bearing thereon which said plate in turn is actuated by a spring 19 permitted to act when the cable is released.

The side pieces 12 of the car are provided with clips or straps 20 to which are rigidly secured blocks 21, standing astride the guide-ways 10 and spaced therefrom and provided with serrated, milled or roughened inner faces which diverge downwardly as indicated at 22. The blocks 21 are carried by the car at immovable distances from the guide-ways 10 and between said blocks and the guide-ways 10 rollers 23 and 24 are positioned, such rollers being journaled to rotate in stirrups 25 which are connected with the outer ends of the levers 16 by links 26 whose lower ends engage the heads 26′ of said stirrup as seen in Fig. 5. When the cable is released so that the plate 18 is depressed by the spring 19, depressing thereby the inner ends of the levers 16 and raising the outer ends of said levers, the stirrups 25 will likewise be raised to draw the rollers 23 and 24 into engaging position between the serrated faces 22 of the blocks 21 and the guide-ways 10.

The sides of the block 21 have inclined shoulders 21′, and the rear edge of each side plate of the stirrup is inclined as seen at 25′ in Fig. 5, this inclination being the same as that of the shoulder but the inclination of both of these parts being slightly different from that of the beveled face 22. The result is that when the stirrup starts upward under the impulse of the spring 19 the inclines 25′ and 21′ being in contact the entire stirrup is borne inward toward the guide-way 10 so that the rollers are thrown into contact with faces of said guide-way, and soon said rollers come into contact with the serrated face 22 of the block as seen in Fig. 4. As the weight of the car tends to move the same downwardly and the tension of the spring 19 tends to move the rollers 23 and 24 upwardly it will be apparent that the rollers 23 and 24 will become firmly and rigidly wedged between the blocks 21 and the guide-ways 10 thereby preventing the dropping of the car but permitting its ready release when power is again applied to the raising mechanism, as the car will then be lifted and simultaneously the rollers depressed. Under normal

conditions, as shown at Fig. 4, the rollers are free to roll by frictional engagement with the guide-ways 10 but such rolling has no function and performs no part of and is only incidental to such engagement. By reason of the serrated or roughened faces of the blocks 21 the rollers are rigidly held against rotation so that they practically become rigidly connected with the blocks and not rotatable under the weight of the car when released.

When the cable is again attached to the car and tension exerted thereon, the car begins to rise at the same time that the levers 16 are released by the rise of plate 18. The downward movement of the links permits the stirrups to fall so that their heads 26′ drop onto the upper ends of the blocks 21, and the parts assume the normal position shown in Fig. 2. As each stirrup falls its rollers pass out of contact with the serrated face 22 of the block 21 and the binding action between the edges 25′ and the shoulders 21′ on the blocks is released so that when the parts come to rest the stirrup is supported upon the blocks and the rollers hang free between the latter and the guide-way 10 and will rotate idly if they stand in contact with said guide-way.

I claim:

1. The combination with the upright guide-ways of an elevator shaft, a car having side rails movable along said guide-ways, a cable, spring-actuated cable releasing mechanism, and a pair of levers pivoted on the car frame and adapted to be depressed at their inner ends by the movement of said releasing mechanism; of a pair of blocks carried by each side rail and standing astride one of said guide-ways, the inner faces of said blocks diverging downwardly and being serrated and their bodies having guide shoulders also diverging downwardly but on a lesser angle than their inner faces, a stirrup of inverted U-shape for each block, its head overlying said block and the rear edges of its side plates being beveled to correspond with the bevel of said shoulders, a link connecting the head with one of said levers, and a pair of rollers journaled within the side plates of the stirrup and adapted to make contact with said serrated face of the block when the stirrup is raised.

2. The combination with the upright guide-ways of an elevator shaft, a car having side rails movable along said guide-ways, a cable, cable releasing mechanism, and a lever pivoted on the car frame and adapted to be moved by the actuation of said mechanism; of a pair of straps secured to the side rail of the car, a block carried by said straps and having its inner face diverging downwardly from the guide-way and its body provided with a shoulder also diverging downwardly from the guide-way, a stirrup loosely inclosing said block and slidable along said shoulder, connections between the stirrup and lever, and a roller journaled in the stirrup and standing between the block and guide-way.

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

SELDEN H. DOLPH.

Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."