

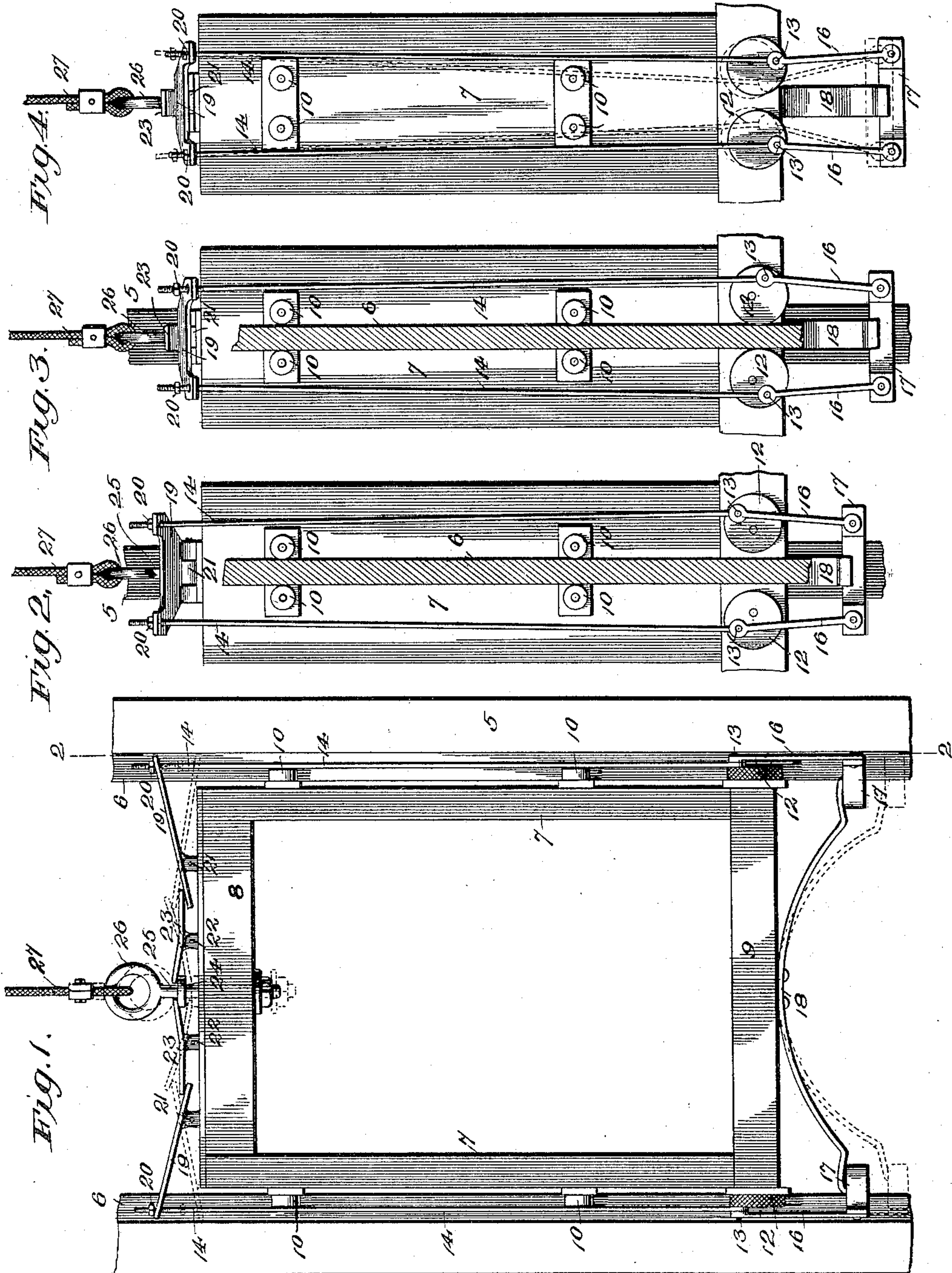
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G. E. & C. L. COOKE.  
SAFETY ATTACHMENT FOR ELEVATORS.

(Application filed July 7, 1897.)

(No Model.)



Witnesses  
Jos. C. Stack  
C. H. Davis

Inventors  
G. E. Cooke & C. L. Cooke  
By Julian C. Soule  
Their Attorney



# UNITED STATES PATENT OFFICE.

GEORGE EDWARD COOKE AND CHARLES LOCKWOOD COOKE, OF  
CLARKSVILLE, TENNESSEE.

## SAFETY ATTACHMENT FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 610,642, dated September 13, 1898.

Application filed July 7, 1897. Serial No. 643,751. (No model.)

*To all whom it may concern:*

Be it known that we, GEORGE EDWARD COOKE and CHARLES LOCKWOOD COOKE, citizens of the United States, residing at Clarksville, in the county of Montgomery and State of Tennessee, have invented certain new and useful Improvements in Safety Attachments for Elevators, of which the following is a full and complete specification, such as will enable those skilled in the art to which it appertains to make and use the same.

The present invention relates to safety attachments for elevators of the class in which the safety devices are operatively connected with the cable and breakage of the latter or its disconnection from the car is productive of an application of the devices for stopping the car.

One object of the invention is to provide against the contingency of a failure of the gripping device to coact with the guide-strips or other parts of the elevator-shaft by reason of the same being broken out or its yielding at the point where the gripping action should take place.

Other objects of the invention are to improve the details of construction and arrangement of parts to secure the best results in practice.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which—

Figure 1 represents in side elevation a portion of an elevator-shaft and a car with our improvements applied thereto. Fig. 2 is a section on the line II II of Fig. 1, with parts broken away. Fig. 3 is a similar section illustrating the operation of the safety devices. Fig. 4 is a similar view illustrating the effect produced in the absence of a guiding-strip in the shaft.

In the drawings forming part of this specification the separate parts of our improvement are designated by the same numerals of reference in each of the views, and in said drawings we have shown at 5 the central vertical supports which form a part of the elevator-shaft and each of which is provided centrally of its inner side with a vertical rib or guide 6, and we have also shown a part of the frame of an elevator-car, consisting of the

side pieces 7, a top piece 8, and a bottom piece 9. The side pieces 7 of the car are each provided with two sets of rollers 10, and the rollers of these sets bear on the opposite sides of the inwardly-directed ribs or guides 6, as clearly shown in the drawings, to form a guide for the elevator-car, whereby the friction of the car as it moves up and down through the elevator-shaft is reduced and the movement thereof regulated. The bottom 9 of the frame of the elevator-car is also provided at each side with two eccentrically-mounted wheels or rollers 12, which are preferably serrated or corrugated on their perimeters, which are also adapted under certain conditions to bear upon or operate in connection with the ribs or guides 6, and pivotally and eccentrically connected with said wheels or rollers at 13 are rods 14, and pivotally connected with said wheels or rollers at the same point and by means of the same pivot-pins are supplemental rods 16, and the rods 16 are connected at their lower ends by cross-pieces 17, and secured to the central portion of the bottom 9 of the frame of the car is a spring 18, the ends of which bear on the cross-pieces 17. The rods 14 are carried upwardly above the top of the elevator-car, and the upper ends thereof pass through pivoted levers 19 and are free to move in said levers, and the upper ends of the rods are provided with nuts or burs 20, and the levers 19 are pivoted at 21 to the top of the car-frame and extend inwardly in the direction of the center of said car-frame, and pivotally supported at 22 are supplemental levers 23, the outer ends of which bear on the inner ends of the levers 19, and the inner ends of the supplemental levers bear on a collar or flange 24, secured to or formed on a bolt 25, which passes through the upper end piece or cross-head 8 of the car-frame, and the upper end of said bolt is provided with a ring 26, to which the cable 27 is connected.

The wheels or rollers 12 operate as grips, and the operation of the entire apparatus will be readily understood from the foregoing description when taken in connection with the accompanying drawings and the following statement thereof.

It will be understood that the elevator is



raised or lowered in the usual manner and may be operated by any desired device or devices. It will also be seen that the outer ends of the levers 19 are forked, so that they  
 5 may be connected with both of the rods 14, two of which are employed on each side of the elevator, and if at any time the cable 27 should break or said cable should become detached from the elevator-car or said car  
 10 should fall for any reason the spring 18 at the bottom of the elevator will force the rods 16 downwardly, so as to turn the wheels or rollers 12 and cause them to press upon the ribs or guides 6 at each side of the elevator-  
 15 shaft, as illustrated in Fig. 3, and this operation would at once result in stopping the downward movement of the car.

It will be understood that as long as the elevator-car is supported by the cable 27 the  
 20 spring 18 cannot act as above described, the rods 14 being held in their highest position by the levers 19 and 23. It will also be understood that the bolt 25 is vertically movable in the top piece or cross-head 8 of the  
 25 car-frame, the extent of this movement depending upon the space between the collar 24 thereon and the said top piece or cross-head 8, and when the car is suspended by the cable 27 said bolt will be held in the po-  
 30 sition shown in Fig. 1, and when said cable breaks or is otherwise disconnected from the car the bolt 25 will drop or be thrown downwardly by the levers 19 and 23 and the spring 18 will operate, as hereinbefore described.

35 It will be seen that by employing gripping members of circular form—i. e., eccentrics—and by arranging the parts so that the lowest part of the eccentric or the peripheral surface at the least distance from the center  
 40 normally confronts the shaft-surface and by connecting the upwardly-extending rod with the eccentric so that said rod normally tends to turn the eccentric in a direction to grip the shaft-surface provision is made for ef-  
 45 fecting a complete rotation of the eccentric in case the shaft-surface gives way or is broken out, and hence the eccentric, instead of taking up and maintaining an inoperative position, will immediately reengage the shaft-  
 50 surface and grip the same as soon as an unyielding portion thereof is reached. In this connection the sliding engagement between the rod and the lever at the upper end of the car is advantageous, for when the eccentric  
 55 continues to turn after the pin 13 has passed its lowest point the rod slides up through the lever, as indicated in broken lines in Fig. 4, and movement of the parts on top of the car is not required. The loose engagement  
 60 between the levers 21 and 23 and between the latter and the bolt 25 may also be of advantage in this connection.

Our improvement is simple in construction and operation and is perfectly adapted to  
 65 accomplish the result for which it is intended, and the same may be made as strong and durable as desired, and it will be apparent

that changes in and modifications of the construction herein described may be made without departing from the spirit of our inven- 70  
 tion or sacrificing its advantages.

Having fully described our invention, we claim as new and desire to secure by Letters Patent—

1. The combination with the elevator car 75  
 and shaft, of an eccentric pivoted on the car adjacent to a surface of the shaft, and adapted to drop by gravity into engagement therewith, a rod connected with said eccentric on the side of its pivot farthest from the said 80  
 shaft-surface, a sliding draft-bolt on the car, and connections between the same and said rod normally sustaining the latter and the eccentric through the weight of the car against  
 85 gravitating tendency, said connections including provisions permitting movement of the rod and eccentric independently of the bolt, substantially as described.

2. The combination with the elevator car 90  
 and shaft, of a gripping member of circular form eccentrically pivoted on the car with that portion of its periphery which is nearest the pivot, normally confronting a surface of the elevator-shaft, a rod pivotally connected with said eccentric on the side of its pivot 95  
 normally farther from said shaft-surface, a sliding draft-bolt on the car, and suitable connections between the same and said rod.

3. The combination with the elevator car 100  
 and shaft, of an eccentric pivoted on the car adjacent to a surface of the shaft, and adapted to drop by gravity into engagement therewith, a rod connected with said eccentric on the side of its pivot farthest from said shaft-sur- 105  
 face, a sliding draft-bolt on the car, and levers slidably engaging the said bolt and rod respectively and also in engagement with each other.

4. An elevator-shaft, the sides of which are provided centrally with vertical inwardly-di- 110  
 rected ribs or guides, an elevator-car mounted in said shaft and provided at its opposite sides with rollers which are adapted to fit on said ribs or guides, said car being also provided at or near the bottom thereof with two eccen- 115  
 trically-mounted wheels or rollers, rods eccentrically and pivotally connected with said wheels or rollers, and extending upwardly above the elevator-car, other rods eccentrically and pivotally connected with said wheels 120  
 or rollers and extending downwardly below the car, a spring secured to the bottom of the car and adapted to operate in connection with said last-named rods at each side of the car, levers connected with the upper part of the 125  
 car, and the outer ends of which are connected with the rods which extend upwardly at each side of the car, supplemental levers pivotally connected with the top of the car, the outer ends of which bear on the inner ends of said 130  
 first-named levers, and a vertically-movable bolt connected with the top of the car, and with which the suspending-cable is connected, the inner ends of said supplemental levers



being adapted to operate in connection with said bolt, substantially as shown and described.

5 An elevator-shaft the sides of which are provided with inwardly - directed ribs or guides, a car mounted in said shaft and provided with guide-rollers which operate in connection with said ribs or guides, said car being also provided at or near the lower end thereof, and at each side with a pair of eccentrically-mounted wheels or rollers which are also adapted to operate in connection with said ribs or guides, rods eccentrically connected with said wheels or rollers and extending upwardly above the car, other rods also eccentrically connected with said wheels or rollers, and extending downwardly below the car, a spring connected with the bottom

of the car and operating in connection with the lower ends of said last-named rods to depress the same, and levers connected with the upper ends of the rods which extend upwardly, and adapted to operate in connection with a vertically-movable bolt connected with the top of the car, and with which the suspending-cable is connected, substantially as shown and described. 20 25

In testimony that we claim the foregoing as our invention we have signed our names, in presence of the subscribing witnesses, this 1st day of July, 1897. 30

GEORGE EDWARD COOKE.

CHARLES LOCKWOOD COOKE.

Witnesses:

J. L. LOCKUT,

MAURICE ANDERSON STRATTON.