

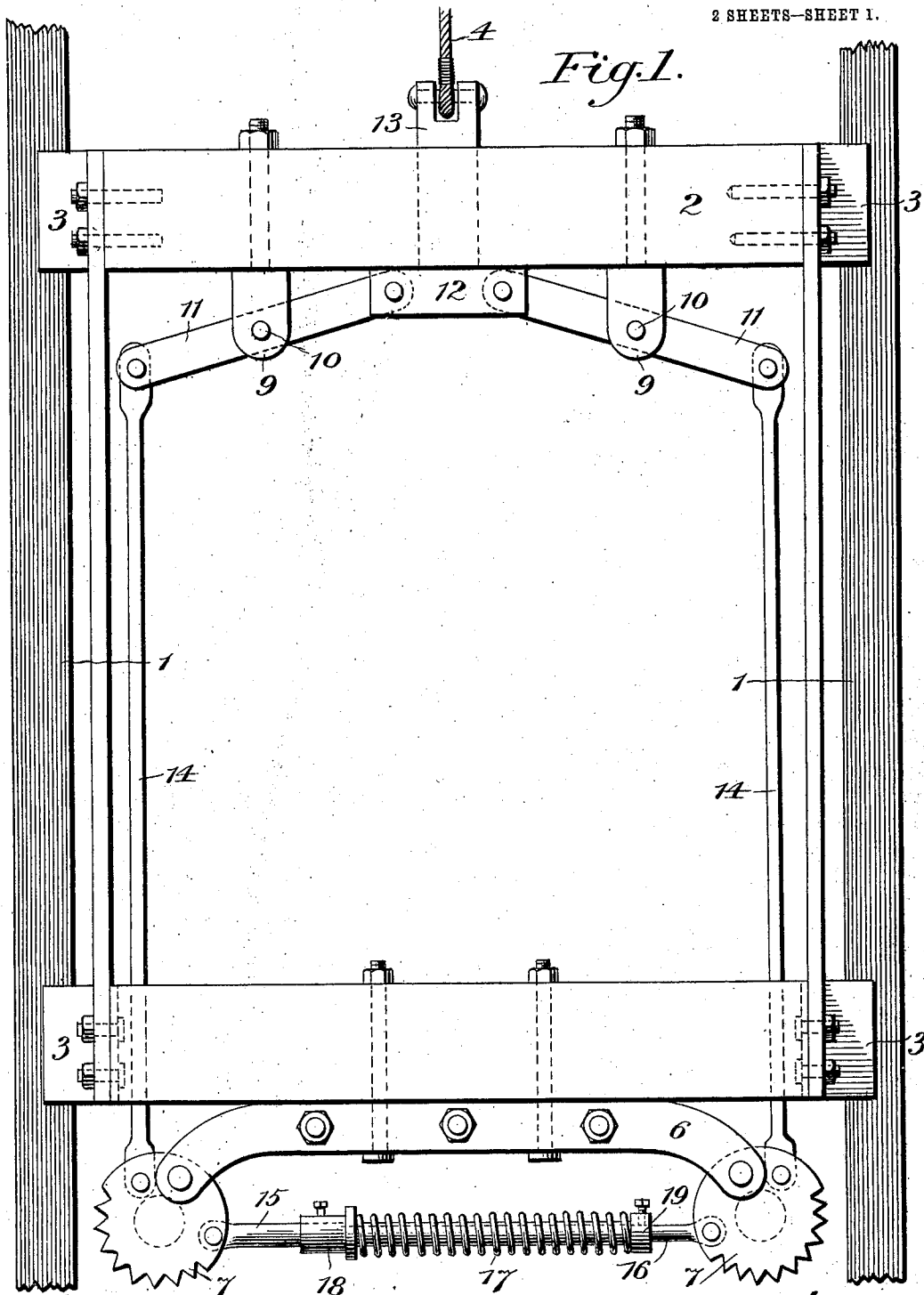
No. 828,307.

PATENTED AUG. 14, 1906.

E. DUNKERLEY, JR.  
SAFETY DEVICE FOR ELEVATORS.

APPLICATION FILED DEC. 5, 1905.

2 SHEETS—SHEET 1.



Witnesses:  
O. W. Edlin  
J. M. Wynn

Inventor:  
Enoch Dunkerley, Jr.  
by Penning & Goldsborough  
attys.

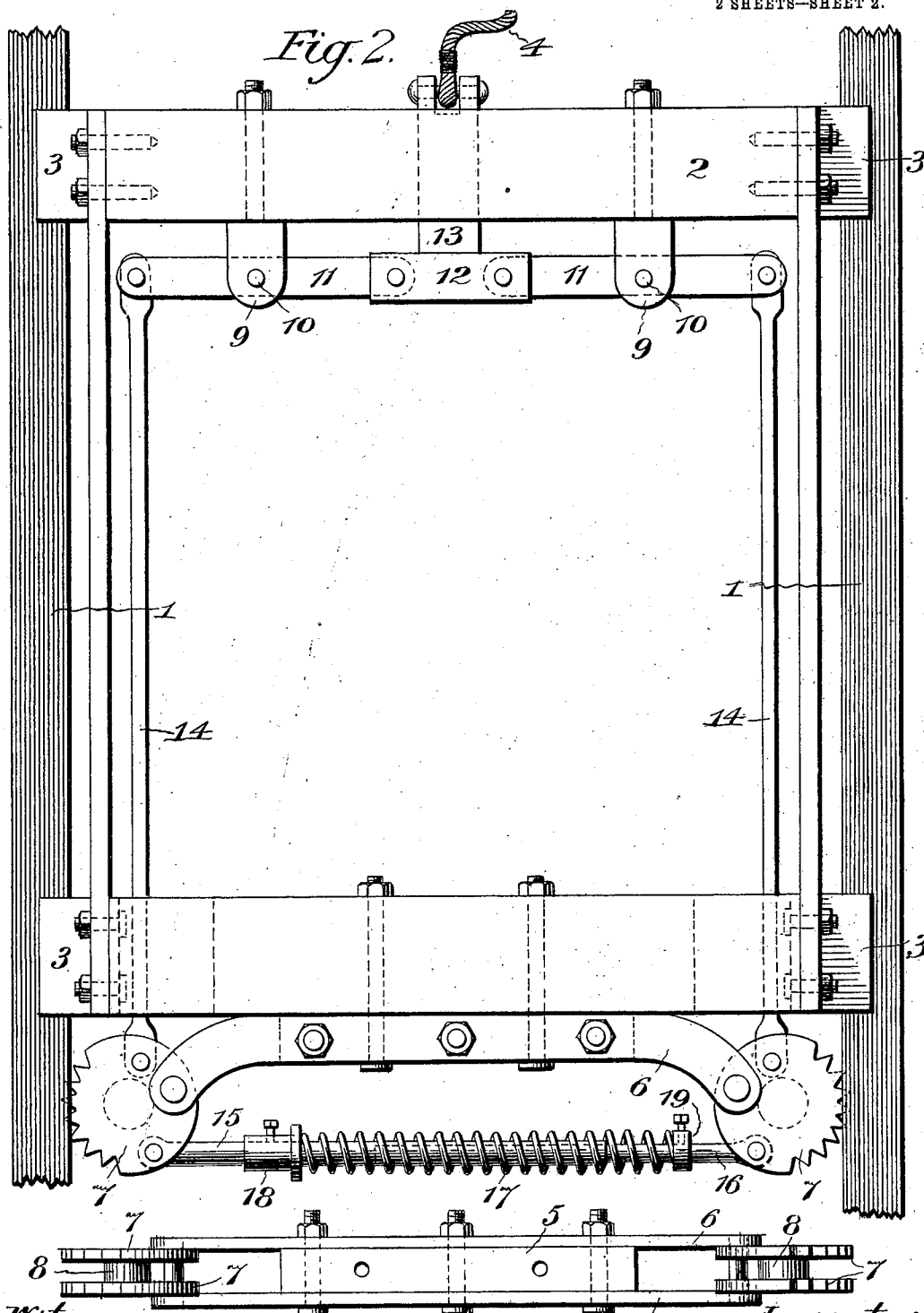
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Witnesses:  
D. W. Edlin.  
J. M. Krumm

Fig. 3.

Inventor:  
Enoch Dunkerley, Jr.  
by Levine & Goldsborough  
Attys.

# UNITED STATES PATENT OFFICE.

ENOCH DUNKERLEY, JR., OF VILAS, PENNSYLVANIA.

## SAFETY DEVICE FOR ELEVATORS.

No. 828,307.

Specification of Letters Patent.

Patented Aug. 14, 1906.

Application filed December 5, 1905. Serial No. 290,371.

*To all whom it may concern:*

Be it known that I, ENOCH DUNKERLEY, Jr., a citizen of the United States, residing at Vilas, in the county of Lycoming and State of Pennsylvania, have invented certain new and useful Improvements in Safety Devices 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 certain improvements in safety appliances for elevators, and has for its object to produce a device of this character located at the bottom of the elevator-cage and controlled by the supporting rope or cable, so that when the latter breaks the safety devices will immediately become operative to stop and hold the elevator.

With this and other objects in view the invention consists in certain parts, improvements, and combinations, as will be more fully hereinafter described, and pointed out in the claims hereunto appended.

In the accompanying drawings, which form a part of this specification and in which like numerals of reference indicate the same parts, Figure 1 is a side elevation of a portion of an elevator shaft and cage provided with my improved safety devices, the latter being held out of engagement with the side rails of the shaft by the taut cable. Fig. 2 is a similar view illustrating a broken or slack cable or rope, the safety devices being shown as wedged into frictional engagement with the side rails of the elevator-shaft; and Fig. 3 is a detail top plan view of the eccentric wedging or gripping devices and their supporting means.

In the embodiment of the invention selected for illustration, 1 indicates the ordinary guides or rails of an elevator-shaft. 2 indicates the elevator-cage, and 3 the guides carried by the elevator-cage and engaging the rails 1, all of which parts may be of any approved construction.

The elevator-cage is adapted to be raised or lowered by means of a rope or cable 4, the same passing over any suitable pulley at the top of the elevator-shaft and the end of the cable being connected to any suitable source of power.

Various kinds of stopping or friction gripping devices may be used to control the elevator. In the form which has been selected to illustrate the invention the elevator-cage

is provided, preferably on its under side, with a beam or brace made up of a central piece 5, of any suitable material, having bolted or otherwise secured thereto, one on each side thereof, flat metal strips 6 6, the ends of said strips being extended beyond the ends of the central piece 5 and also pointing downward, as clearly shown in the drawings. In these ends are journaled the eccentric wedging or gripping devices, which in the present instance are formed of two disks 7 7, connected together by means of a centrally-disposed hub 8. This form of gripping device I have found to be preferable for the reason that it takes a better hold of the side rails. The disks 7 7, as is usual, are serrated along a portion of their edges, so as to more readily grip the rails in stopping the elevator in case of the cable breaking.

Bolted or otherwise secured to the top frame of the elevator-cage are brackets 9 9, to which are pivoted, as at 10 10, the levers 11 11, said levers being connected together by means of a block 12, which forms a part of the suspending-rod 13. The suspending-rod 13 is mounted to move vertically through the top frame of the elevator-cage and has secured to it at its upper end the supporting-cable 4. The outer ends of these levers 11 are pivotally connected to vertically-disposed rods 14 14, which are in turn pivotally secured to the eccentric-gripping devices at a point to one side of their journals.

It is to be noted that one of the essential features of this invention is the means for operating the eccentric gripping devices at the proper time—that is to say, when the cable breaks. The means herein provided consists of the extensible or telescoping rods 15 and 16, which connect the eccentric wedging devices and which, in combination with a spring 17, coiled about said rods and interposed between an adjustable collar 18 on the rod 15 and a similar collar 19 on the rod 16, serve to force the said rods apart and with them the eccentric gripping devices, so that the said gripping devices firmly grip the guides or rails and hold the elevator in the event the cable should break or become slack for any reason.

When the elevator is in the normal running position, as shown in Fig. 1, the elevator-cage is suspended from the taut rope or cable 4, which causes the suspension-rod 13 to remain at the upward limit of its movement against the tension of the spring 17, so that the levers

11 11 are held at a slight angle with respect to each other and the eccentric gripping devices are held out of contact with or away from the vertical guides or rails of the elevator-shaft. In the event the rope or cable  
5 should break or become slack from any reason whatever the spring 17 will quickly force the two telescoping rods apart and with them the eccentric gripping devices, so that the  
10 said devices will be brought into contact with the faces of the side rails of the elevator-shaft and by the continued pressure of the spring securely wedged and tightly held against the rails, whereby the elevator-cage is suspended  
15 and prevented from falling and causing damage.

Many changes may be made in the details of the various constructions employed for carrying out this invention. It will be understood, therefore, that the invention is not  
20 to be limited to the specific details of construction, but embraces such changes therein as fall within its spirit and scope.

What I claim is—

25 1. In a safety attachment for elevators, the combination with an elevator-shaft and a cage or car, of an operating-cable for the cage or car, gripping devices at opposite sides of the car to engage adjacent parts of the shaft,  
30 means connecting the gripping devices for operating the same, comprising a plurality of extensible members normally held collapsed but adapted to be instantly extended at the time the cable breaks, and a spring adapted  
35 to extend said members in applying the gripping devices.

2. In a safety attachment for elevators, the combination with an elevator-shaft and a  
40 cage or car, of an operating-cable for the cage or car, eccentrically-mounted gripping devices at opposite sides of the lower portion of the car to engage adjacent parts of the shaft, telescoping rods connecting the gripping devices, an adjustable collar on each rod, and a  
45 spring coiled about said rods and interposed between the said collars, whereby the rods are forced apart to apply the gripping devices in the event the cable should break.

3. In a safety attachment for elevators,  
50 the combination with an elevator-shaft and a cage or car, of an operating-cable for the cage or car, eccentrically-mounted gripping devices on said car in position to engage adjacent parts of the shaft when applied, and

means for applying the gripping devices when  
55 the cable breaks, said gripping devices comprising a plurality of disks each having gripping-faces.

4. In a safety attachment for elevators, the combination with an elevator-shaft and a  
60 cage or car, of an operating-cable for the cage or car, eccentrically-mounted gripping devices for said car so positioned as to engage adjacent parts of the shaft when applied, and means for applying the gripping devices when  
65 the cable breaks, said gripping devices comprising a plurality of connected disks each having gripping-faces.

5. In a safety attachment for elevators, the combination with an elevator-shaft and a  
70 cage or car, of an operating-cable for the cage or car, a gripping device carried by said car, means for operating the gripping device, comprising a plurality of extensible members normally held collapsed but adapted to be  
75 instantly extended at the time the cable breaks, and means for extending the members in applying the gripping device.

6. In a safety attachment for elevators, the combination with an elevator-shaft and a  
80 cage or car, of an operating-cable for the cage or car, gripping devices at opposite sides of the car to engage adjacent parts of the shaft, extensible means connecting the gripping devices for operating the same, comprising a plurality of telescoping sections normally collapsed but adapted to be  
85 instantly extended in the event the cable should break, and a spring coiled about said telescoping sections and serving to extend  
90 the same in the event the operating-cable should break, thereby applying the gripping devices.

7. In a safety attachment for elevators, the combination with an elevator-shaft and a  
95 cage or car, of an operating-cable for the cage or car, gripping devices carried by said car to engage adjacent parts of the shaft, an extensible rod connecting the gripping devices, a spring for extending the rod in applying the  
100 gripping devices, and an adjustable stop for varying the tension of the spring.

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

ENOCH DUNKERLEY, Jr.

Witnesses:

Jos. M. HUNT,  
A. D. BINGMAN.