

No. 788,349.

PATENTED APR. 25, 1905.

T. BOYLAN.
SAFETY BRAKE FOR ELEVATORS.
APPLICATION FILED NOV. 18, 1904.

Fig 1.

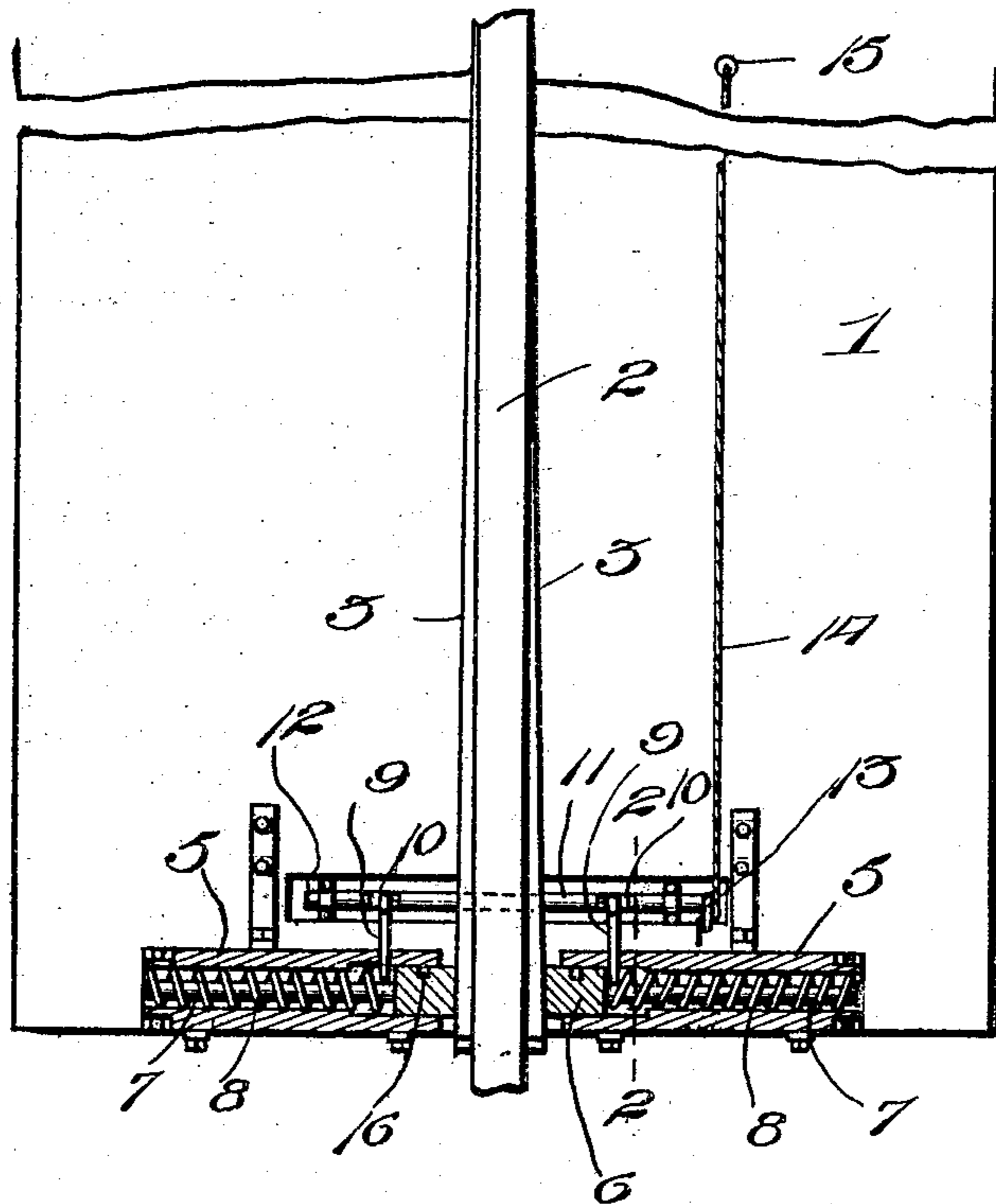
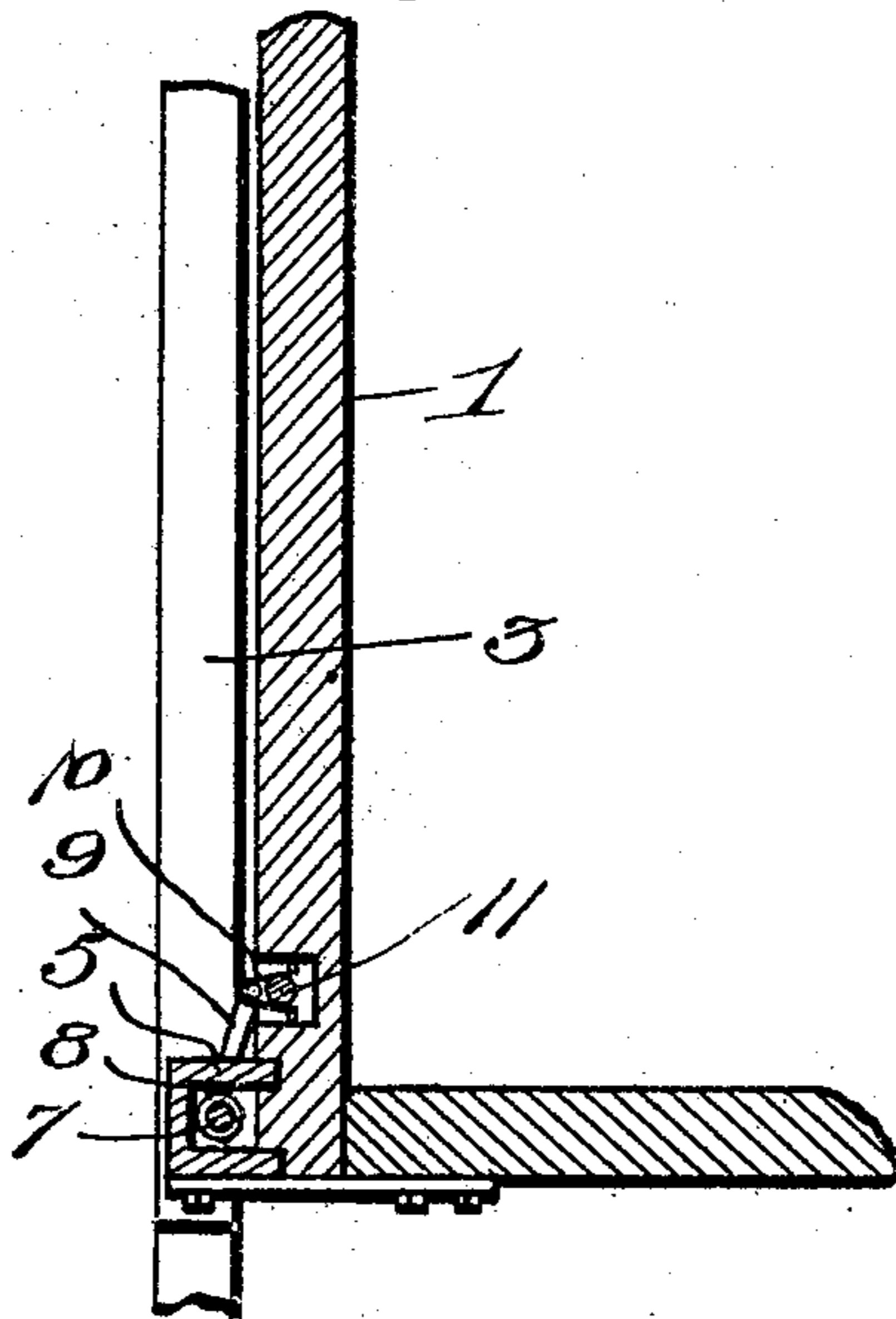


Fig 2.



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SAFETY-BRAKE FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 788,349, dated April 25, 1905.

Application filed November 18, 1904. Serial No. 233,373.

To all whom it may concern:

Be it known that I, THOMAS BOYLAN, a citizen of the United States, residing at Widdowfield, in the county of Carbon and State of Wyoming, have invented new and useful Improvements in Safety-Brakes for Elevators, of which the following is a specification.

This invention relates to a safety-brake for elevators, the object of the same being to provide a simple and reliable means under the control of the operator or an occupant of the car whereby the car may be brought to a stop upon the breaking of the hoisting-cable or car-supports and which will operate efficiently without undue jolts or jars.

With this and other objects in view the invention consists of the features of construction, combination, and arrangement of parts hereinafter fully described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a car and one of the shaft-guides embodying my invention, the brake-shoes and their appurtenances appearing in section and in operative position to arrest downward motion of the car. Fig. 2 is a section on the line 2 2 of Fig. 1.

The numeral 1 in the drawings represents the body of a car, and 2 one of the car-guides which extends vertically in the elevator-shaft. On opposite sides of this guide are fixed bars or strips 3, which have a gradual taper toward their lower ends. These bars or strips form fixed braking-surfaces and may be located at intervals apart opposite the several landings in the shaft.

Suitably fixed upon the side of the car 1, adjacent to the bottom thereof, and on opposite sides of the guide 2 are casings 5, in which are arranged sliding brake-shoes 6, which are adapted when projected to engage the inclined surfaces of the bars or strips 3. Each of these brake-shoes is provided with a rearwardly-projecting reduced stem 7, and about each stem and the rear or outer end of the casing is a coiled spring 8, which tends to project or force the shoe 6 outwardly from the casing to engage the bar or strip 3. The two brake-shoes are held retracted within their casings

by dogs 9, pivotally mounted upon crank-arms 10, projecting from a crank-shaft 11, mounted in bearings 12 upon the side of the car and provided at one end with a crank-arm 13, connected with an operating-cord 14, leading through an opening 15 in the side of the car to the interior thereof, so that it may be conveniently drawn upon to rock the shaft 11. The dogs 9 project through and work in openings in the casings 5 and are adapted to engage seat-recesses 16, formed in the shoes 6, whereby the latter will be held retracted against the pressure of the spring 8. The weight of the crank-arms and pawls on the shaft 11 is sufficient to adapt the same to maintain a determined operative position by gravity, and by drawing upon the cord 14 the shaft may be rocked from such position a desired degree to withdraw the dogs 9 from engagement with the seats 16, thus allowing the brake-shoes to be projected by their springs.

In the operation of the apparatus when the hoisting-cable or car-supports break and the car begins to drop down the shaft the motion of the same may be arrested by pulling upon the cord 14, whereby the dogs 9 will be retracted to release the brake-shoes 6, thus allowing the latter in the downward movement of the car to engage the fixed inclined braking bars or strips 3. As the shoes 6 move outwardly the pressure of the springs thereon causes them to exert a certain amount of yielding frictional pressure on the bars or strips 3, which is increased as the car descends, and after the shoes have been projected to the maximum extent the dogs 9 are brought to lie in rear thereof, as shown in Fig. 1, and thus act as stops to prevent retraction of the dogs. Thus as the car continues to descend the dogs in traversing the outwardly tapering or inclined surfaces of the bars or strips 3 will bear with greater force thereon, the degree of force being gradually imparted, so that the car will be brought to a stop without undue jolting or jarring of the same or the occupants thereof. By locating the braking strips or bars at suitable intervals throughout the depth of the shaft the fall of the car will be reduced to the minimum and the car will be brought to a

stop before it has gathered much momentum. After the hoisting-cables or supports of the car have been repaired and the car again in condition for operation the brake-shoes may
 5 be released by again pulling upon the cord 14 to rock the shaft to move the dogs 9 from behind the pawls, forcing the latter backward into their casings in any preferred manner, and again dropping the pawls to cause them
 10 to engage the seats 16 and lock the dogs from outward movement.

The braking bars or strips 3 instead of being secured to the guides 2 may be fastened to any other fixed part of the shaft-frame and
 15 may be disposed in pairs upon opposite sides of the shaft for coöperation with duplicate sets of brake-shoes, as will be readily understood.

From the foregoing description, taken in
 20 connection with the accompanying drawings, the construction and mode of operation of the invention will be understood without a further extended description.

Changes in the form, proportions, and minor details of construction may be made within
 25 the scope of the invention without departing from the spirit or sacrificing any of the advantages thereof.

Having thus described the invention, what
 30 is claimed as new is—

1. In a safety-brake for elevators, the combination with a fixed braking-surface, of a car carrying housings on opposite sides of said

braking-surface, brake-shoes slidably mounted in said housings and adapted to be projected 35 to engage said surfaces, stems carried by said shoes, springs in the housings surrounding said stems and bearing against said shoes, the shoes being provided with seat-recesses, dogs movable in said housings and adapted to 40 engage the seat-recesses to hold the shoes retracted and to engage the rear ends of the shoes to hold them projected, and means for operating said dogs.

2. In a safety-brake for elevators, the combination with a fixed braking-surface, of a car, 45 casings on the car, shoes slidably mounted in said casings and adapted to be projected to engage the braking-surface, said shoes being provided with seat-recesses, stems carried by the 50 shoes, springs surrounding said stems and bearing against the shoes to project them from the casings, dogs slidably fitted in the casings and adapted to engage the seat-recesses to hold 55 the shoes retracted and to engage behind the shoes to hold them projected, a rock-shaft provided with crank-arms to which the dogs are pivoted, and means for rocking said crank-shaft.

In testimony whereof I affix my signature in 60 presence of two witnesses.

THOMAS BOYLAN.

Witnesses:

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