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PATENTED APR. 26, 1904.

C. N. POLLOCK.
SAFETY DEVICE FOR ELEVATORS.
APPLICATION FILED FEB. 20, 1904.

NO MODEL.

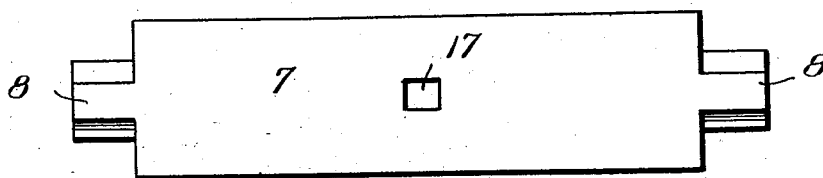
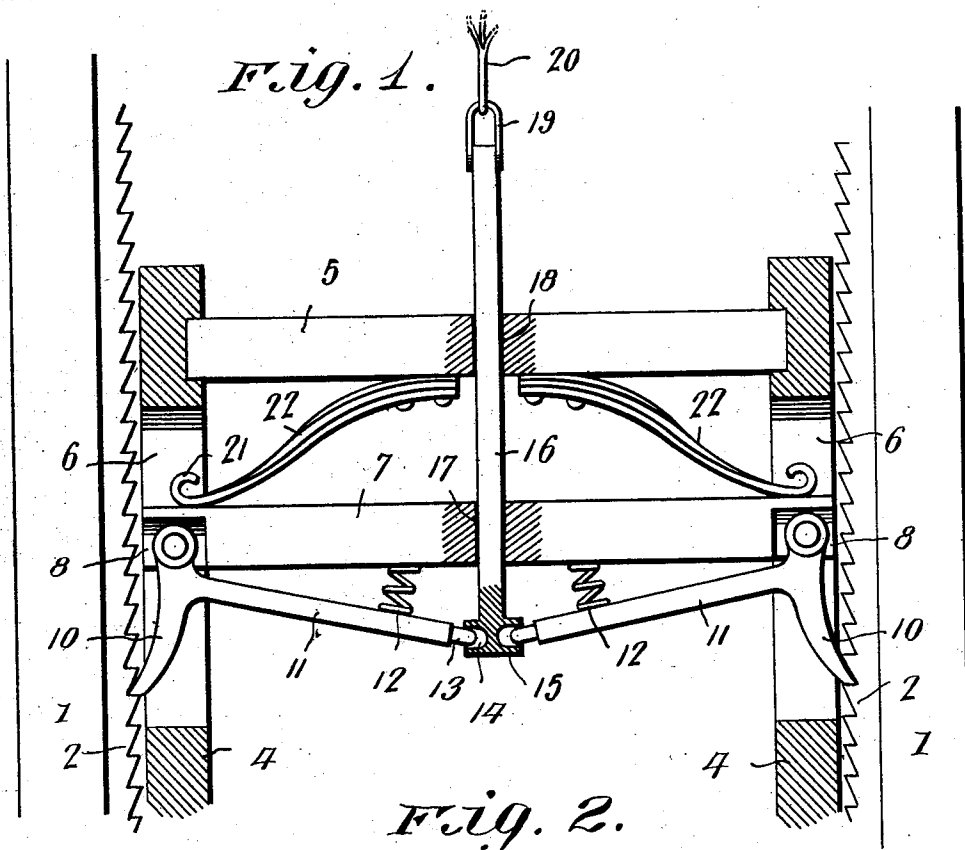
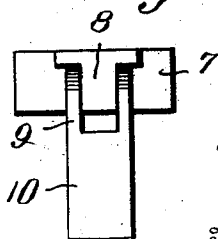


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

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SAFETY DEVICE FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 758,470, dated April 26, 1904.

Application filed February 20, 1904. Serial No. 194,579. (No model.)

To all whom it may concern:

Be it known that I, CHARLES N. POLLOCK, a citizen of the United States, residing at Corinth, in the county of Alcorn and State of Mississippi, have invented new and useful Improvements in Safety Devices for Elevators, of which the following is a specification.

This invention relates to safety devices for elevators or similar hoisting apparatus; and the primary object of the same is to provide a simple and effective organization of elements adapted to be applied to any elevator now in use and positively operating to check the descent of a cage or car in the event of accident to or breakage of the elevating-cable or analogous device.

The invention consists in the construction and arrangement of parts which will be more fully hereinafter set forth.

In the drawings, Figure 1 is an enlarged elevation of a portion of an elevator structure and the improved safety devices, parts of the structure and said devices being shown in section. Fig. 2 is a bottom plan view of an actuating slide-beam forming a part of the safety devices. Fig. 3 is an end elevation of the beam shown by Fig. 2, illustrating the manner of applying one of the dogs thereto.

Similar numerals of reference are employed to indicate corresponding parts in the several views.

The numeral 1 designates oppositely-disposed frame or guide timbers or uprights having racks 2 secured to the inner opposed sides thereof, the shoulders of the teeth of said racks being horizontally disposed, as in the usual arrangement of elevator structures. Slidably mounted between the timbers or uprights 1 is a car or cage having slide-standards 4 rising from the center of opposite sides thereof and disposed in close relation to the racks 2. The uprights 4 are rigidly connected at their upper ends by a head-beam or cross-sill 5, and close to the said beam the standards 4 are formed with vertical slots 6. A horizontally-disposed actuating slide-beam 7 is arranged below the beam 5 and has oppositely-reduced ends 8 projecting into the slots 6 for free vertical movement within certain limits in said slots. The reduced ends 8 of

the beam 7 are T-shaped in cross-section, as clearly shown by Fig. 4, and the vertical portions thereof are movably embraced by the bifurcated extremities 9 of dogs 10, said bifurcated extremities being pivotally secured to the ends 8. The dogs 9 depend a suitable distance below the beam 7 and have their engaging ends projected outwardly and held in engagement with the teeth of the racks 2, a single dog being applied to each end of the beam 7. Projecting inwardly from each dog at a point below its pivotal point is a downwardly-inclined arm or shank 11, and between the upper edges of the shanks and the under side of the beam 7 near the inner ends of the said shanks coiled springs 12 are arranged at an angle of inclination and operated normally to force the dogs outwardly, as shown in Fig. 2. The inner terminal 13 of each arm or shank 11 is reduced to loosely project into a side socket 14, formed in a head 15 at the lower end of a lifting bar or rod 16, movably extending upwardly through openings 17 and 18, respectively, formed in the centers of the beams 7 and 5, the upper end of the bar or rod 16 having a link or analogous device 19 movably secured thereto for the reception and attachment of the operating-cable or analogous device 20. The sockets 14 in the head 15 are diametrically opposed and are deep enough to permit the inner terminals of the arms or shanks 11 to have unobstructed movement inwardly when the ends of the dogs which engage the teeth of the racks 2 are moving over the inward maximum projecting portions of the said teeth.

The reduced ends 8 of the beams 7 are continually engaged by the lower upwardly-bent ends 21 of leaf-springs 22, secured at their upper enlarged ends to the under side of the beam 5 adjacent to the opening 18. These springs when the lifting strain is relieved from the bar or rod 16 force the actuating slide-beam 7 downwardly, and the springs 12 cause the lower free ends of the dogs to engage the teeth of the racks 2. When the cage or car is elevated by the cable or analogous device 20 under normal conditions, the lifting bar or rod 16 draws upwardly on the inner ends or terminals of the shanks 11 of the dogs

against the resistance of the springs 12 and causes the said dogs to clear the teeth easily, but allowing said dogs to always remain in such position that they may readily take firm
 5 hold in said teeth. This upward movement of the bar or rod 16 exerts a slight pressure against the springs 22, and in the event of breakage or slack movement of the cable or
 10 analogous device 20 the bar or rod 16 is forced downwardly and the dogs pushed outwardly to engage the teeth of the racks 2, the springs 22 cushioning the beam 7 sufficiently to prevent breakage of the dogs in this operation. It will be understood that the movement of
 15 the beam 7 vertically will depend upon the load imposed on the car 3; but said springs will have a maximum resistance sufficient to compensate for the full-weight capacity of the car or cage.

20 It will be seen that the parts of the safety attachment are comparatively few in number and of a strong and durable nature. Furthermore, said parts are easily applied to elevator structures now in use with very little expense.
 25 Changes in the proportions, dimensions, and minor details may be resorted to without departing from the spirit of the invention.

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

30 1. In a safety attachment for elevators, the combination with a frame structure having inner opposing racks, of a car movably disposed between the racks and having slide-standards rising therefrom and connected at their upper
 35 per extremities by a cross-head, an actuating-beam slidably mounted in the standards below the cross-head, springs secured to the said head and bearing on the slidable beam, dogs pivotally connected to the opposite
 40 extremities of the slidable beam to engage the racks and having inwardly-extending spring-engaging arms, and a lifting-bar movably extending through the cross-head and slidable beam and having the lower terminal thereof
 45 engaging the inner ends of the dog-arms.

2. In a safety attachment for elevators, the combination with a frame structure having inner rack devices, of a car movably disposed between the car devices provided with stand-
 50 ards arranged adjacent to said racks and connected at their upper ends by a cross-beam, an actuating slide-beam movable in the standards below the cross-beam, dogs at its opposite ends having inwardly-projecting arms, a lifting-bar
 55 slidably mounted in the cross-beam and slid-

able beam, the inner ends of the dog-arms engaging the lower ends of said bar, and resilient means interposed between the cross-beam and slidable beam.

3. In a safety attachment for elevators, the combination with a frame structure having
 60 inner opposed racks, a car slidably mounted between the racks and having standards connected at their upper extremities by a cross-beam and also provided with slots below said
 65 beam, an actuating-beam having the opposite ends movably extending into said slots, springs attached to the cross-beam and depending over and loosely engaging the slidable beam, a bar
 70 movably extending through the said beams and adapted to have a lifting-cable attached to the upper extremity thereof, the lower end of said bar being provided with oppositely-disposed sockets, dogs pivotally held by the op-
 75 posite ends of the slidable beam and provided with inwardly-extending arms, the terminals of the arms loosely extending into the sockets of the bar, and springs interposed between said arms and the slidable beam to normally throw
 80 the dogs outwardly.

4. In a safety attachment for elevators, the combination with a frame structure having
 85 inner oppositely-disposed racks, a car slidably mounted between the racks and having standards connected at their upper extremities by a cross-beam and also formed with vertical slots below said beam, an actuating slide-beam having
 90 reduced terminals vertically movable in said slots, springs attached at their upper ends to the cross-beam and having their lower ends engaging the terminals of the actuating-beam, dogs pivotally supported by and depending
 95 from the terminals of the actuating-beam and having inwardly-projecting arms, springs interposed between the said arms and actuating-beam to hold said arms normally at downward angles of inclination, and a bar vertically movable through the centers of the said beams and having a lower head with oppositely-disposed
 100 sockets in which the inner ends of the dog-arms loosely extend, the upper end of the bar being adapted to have the lifting-cable attached thereto.

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

CHARLES N. POLLOCK.

Witnesses:

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 F. P. MORRISON.