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W. D. BAKER.
SAFETY CUSHION FOR ELEVATORS.
APPLICATION FILED NOV. 21, 1902.

NO MODEL.

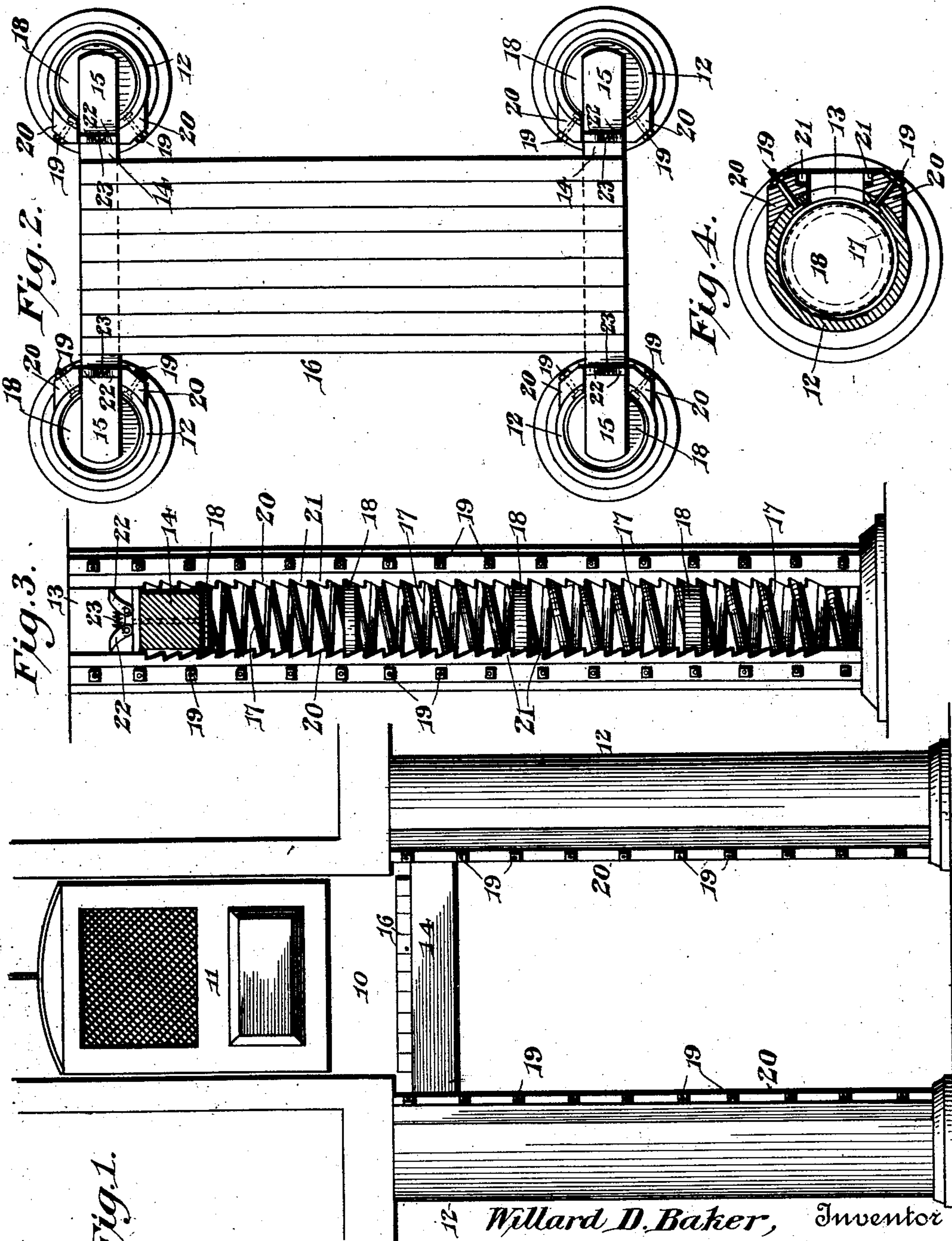


Fig. 1.
Witnesses
Jas. E. McLaughlin
B. G. Foster

By *E. G. Siggers*
Attorney

UNITED STATES PATENT OFFICE.

WILLARD D. BAKER, OF ROGERS, ARKANSAS.

SAFETY-CUSHION FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 747,357, dated December 22, 1903.

Application filed November 21, 1902. Serial No. 132,281. (No model.)

To all whom it may concern:

Be it known that I, WILLARD D. BAKER, a citizen of the United States, residing at Rogers, in the county of Benton and State of Arkansas, have invented a new and useful Safety-Cushion for Elevators, of which the following is a specification.

This invention relates to that class of devices which are placed at the foot of an elevator-shaft and are intended to gently arrest the car should it suddenly drop from any cause—as, for instance, the breaking of the hoisting-cable—thus obviating to a great extent any dangerous shocks or jars to the passengers.

The object of this invention is to provide a structure that will offer a gradually-increasing resistance to the descent of the car, gently destroying its momentum and bring it to a state of rest without any sudden check.

It is also the aim of the invention to prevent the rebounding of the car or cage and to provide a practicable construction that is made up of a few simple elements not liable to become deranged or inoperative.

The preferred embodiment of the invention is shown in the accompanying drawings, wherein—

Figure 1 is a side elevation of the same. Fig. 2 is a top plan view. Fig. 3 is an elevation, on an enlarged scale, of one of the standards and the yielding supporting means inclosed thereby; and Fig. 4 is a transverse sectional view through said standard.

Similar numerals of reference designate corresponding parts in all the figures of the drawings.

In Fig. 1 the lower portion of an elevator-shaft is shown and is designated by the reference-numeral 10. In this shaft is arranged the usual car 11, which may be of any desirable construction and in itself forms no part of the present invention. Below and at the corners of the shaft are located four standards 12, which are preferably in the form of hollow cylinders having longitudinally-disposed slots 13 in their inner walls. Beams 14 extend across the spaces between the standards and have their ends 15 projecting through the slots and into the standards, as shown in Fig. 2. Secured to these beams is a platform

or floor 16, that thus extends across the bottom of the shaft. The platform is supported at the upper ends of the standards by means of resistance-spring mechanism located in each standard. This mechanism is constructed as follows: A plurality of separate coiled-spring sections 17 are arranged one above the other within each standard and are separated by bearing-disks 18. The lowest section is the heaviest and forms a greater resistance than those above, which are consecutively made lighter and more resilient, the uppermost sections in the four standards being just sufficient to support the platform 16. Secured to each standard, on opposite sides of the slot 13 by means of bolts 19, are upright rack-bars 20, the teeth 21 of which are arranged contiguous to the edges of the slot. Secured to the upper face of each beam 14 are oppositely-projecting pawls 22, arranged to engage the rack-bars and are normally held in such engagement by coiled springs 23 interposed between them. With this construction should the elevator drop it will strike the platform and carry the same downwardly against the resistance-springs, which resistance will gradually increase until it overcomes the momentum of the car and gently bring it to a stop. At the same time the dogs will be depressed with the platform and will freely ride over the teeth of the rack-bars, but will interlock with the same when the platform stops, thus preventing any rebound due to the compression of the springs. It will be apparent that this structure is entirely practicable and that the parts are not apt to become inoperative through a long period of inaction. In view of the fact that the platform is barely supported it will be evident that there will be little, if any, concussion when the descending elevator strikes it, but that the resistance will rapidly increase until it overbalances the weight of the car.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described invention will be apparent to those skilled in the art without further description, and it will be understood that various changes in the size, shape, proportion, and minor details of construction

may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with an elevator-shaft, of upright hollow standards arranged at the lower end of the shaft and forming a part of the same, said standards having slots in their opposing inner faces and having their opposite outer faces closed; a platform extending across the shaft, and having portions passing through the slots and terminating short of the outer walls, and springs located within the standards and constituting yielding supports for the platform.

2. The combination with an elevator-shaft, of upright hollow standards arranged at the lower end of the shaft and forming a part of the same, a platform extending across the shaft, springs located within the standards and constituting yielding supports for the platform, said springs being made up of sections that are held against lateral displacement by the standards, and bearing devices slidably fitted in the standards between the springs.

3. The combination with an elevator-shaft, of upright hollow standards arranged at the lower end of the shaft, a platform extending across the shaft, and springs located within the standards and constituting yielding supports for the platform, said springs being made up of sections that are of different degrees of resilience and are held against lateral displacement by the walls of the standards.

4. The combination with an elevator-shaft, of upright hollow standards arranged at the lower end of the shaft, a platform extending across the shaft, coiled springs located within the standards and constituting yielding supports for the platform, said springs being made up of sections that are held against lateral displacement by the walls of the standards, and bearing-disks located between the sections, said disks, being also held against displacement by the walls of the standards.

5. The combination with an elevator-shaft, of spaced guideways located contiguous to the shaft, a platform located between and having portions arranged in the guideways,

and spring-sections located in the guideways beneath said portions, said sections being arranged one above the other and consecutively heavier and less resilient.

6. The combination with an elevator-shaft, of upright spaced hollow standards arranged contiguous to the shaft and having slots in their inner walls, a platform having portions projecting through the slots and slidably arranged in the standards, springs located in said standards and constituting yielding supports for the platform being held against displacement by the walls of the standards, rack-bars attached to the standards, and dogs carried by the platform and engaging with the racks.

7. The combination with an elevator-shaft, of upright hollow standards arranged contiguous to the shaft and having slots in their inner walls, a platform having portions projecting through the slots and slidably arranged in the standards, resistance-springs located in the standards beneath the platform portions and constituting yielding supports therefor, rack-bars attached to the standards on opposite sides of the slots, and oppositely-projecting dogs carried by the platform and engaging with the racks.

8. The combination with an elevator-shaft, of upright hollow standards arranged at the corners of the shaft and having longitudinally-disposed slots in their inner walls, cross-beams having their ends slidably mounted in the standards, a platform secured to the beams and extending across the shaft, spring-sections arranged in the standards and constituting yielding supports for the platform, said springs consisting of sections that are consecutively heavier and less resilient, bearing-disks located between the sections, rack-bars attached to the standards on opposite sides of the slots, and oppositely-projecting dogs secured to the bars and engaging the rack-bars.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLARD D. BAKER.

Witnesses:

FRANK MCGAUGHEY,
JOHN L. COTRILL.