No. 896,270. PATENTED AUG. 18, 1908.

A. A. BROWN.

SAFETY BRAKE FOR ELEVATORS.

APPLICATION FILED OCT. 9, 1907.

Fig. 1.

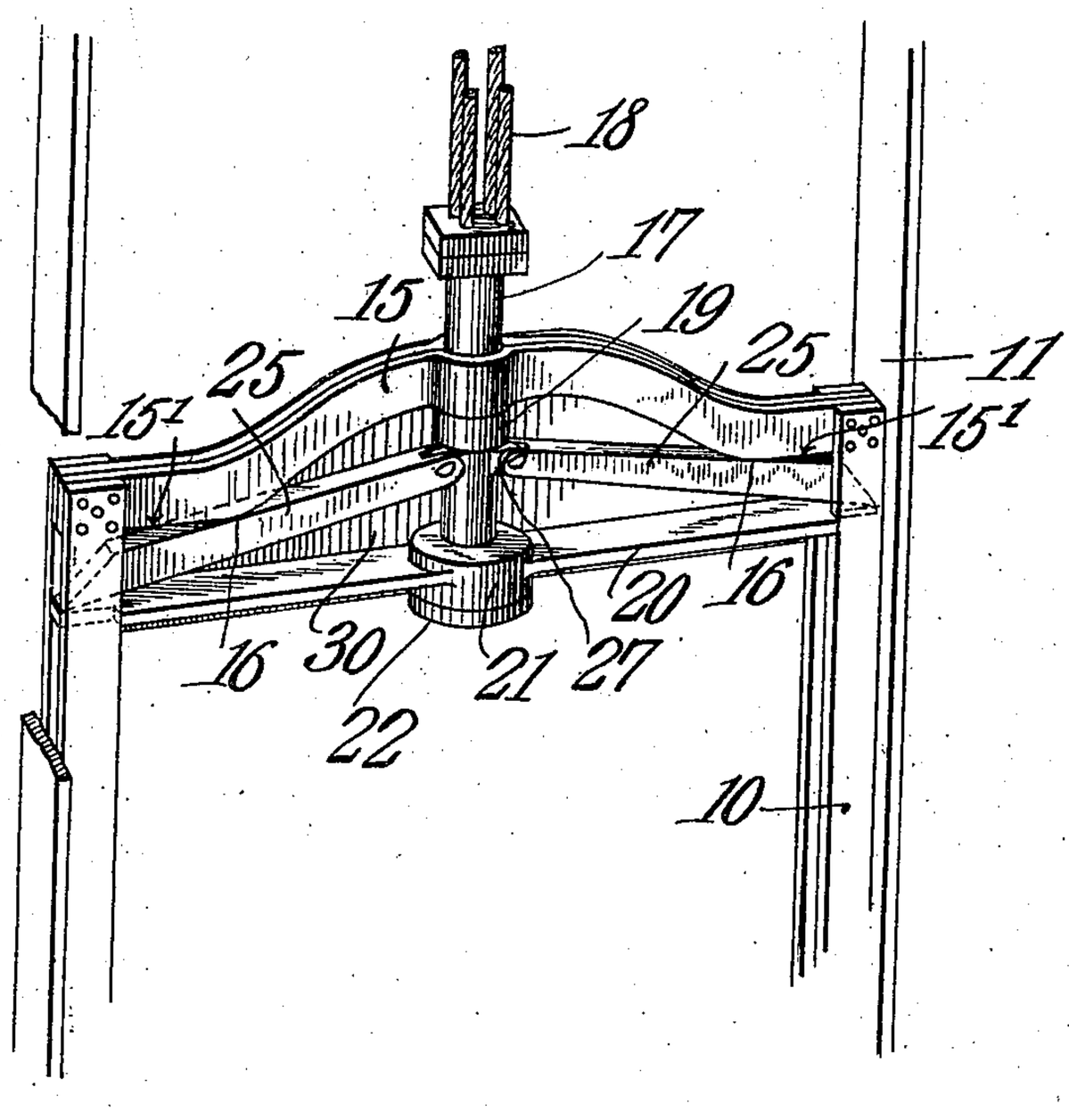
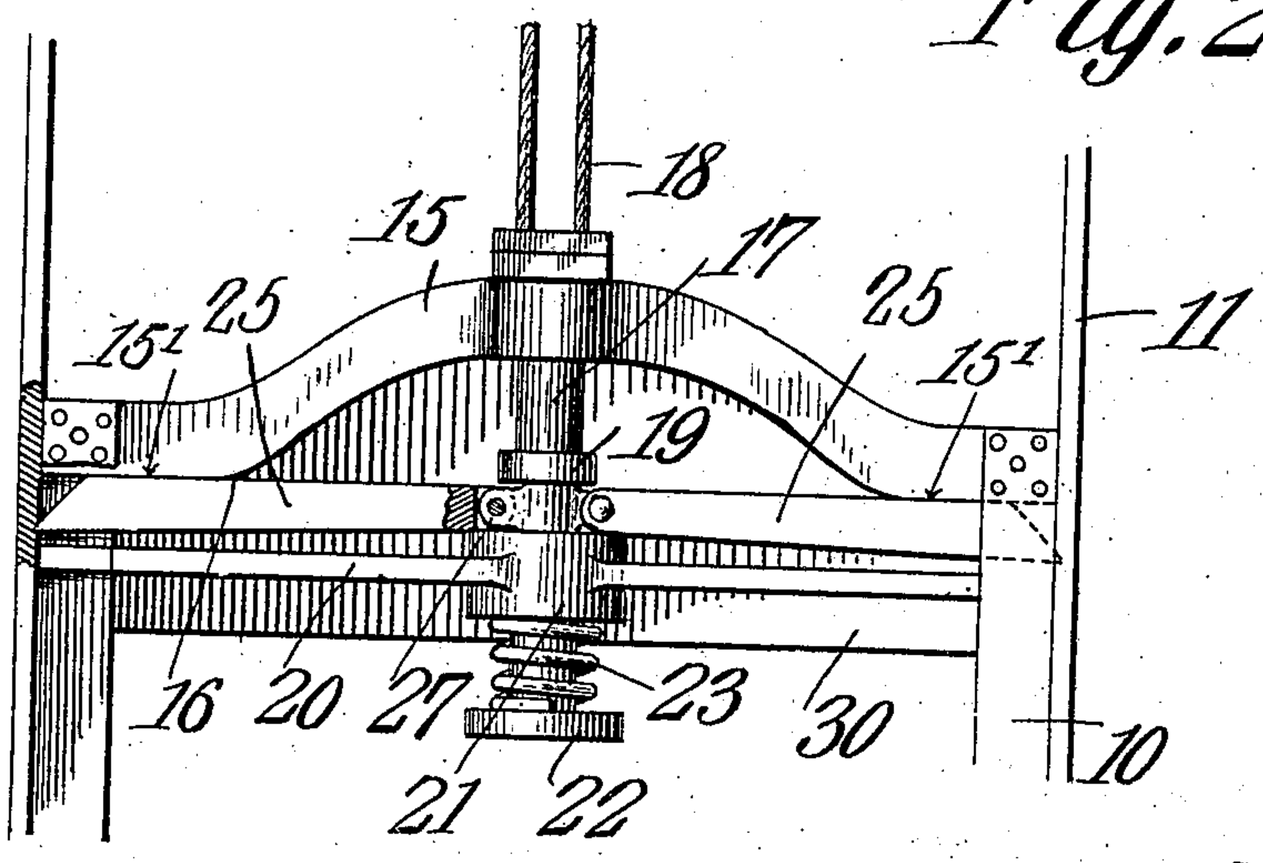



Fig. 2.

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# UNITED STATES PATENT OFFICE.

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## SAFETY-BRAKE FOR ELEVATORS.

No. 896,270. Specification of Letters Patent. Patented Aug. 18, 1908.

Application filed October 9, 1907. Serial No. 396,682.

*To all whom it may concern:*

Be it known that I, AARON AUGUST BROWN, a citizen of the United States, residing at Salt Lake City, in the county of Salt Lake and State of Utah, have invented a new and useful Safety-Brake for Elevators, of which the following is a specification.

This invention relates to elevator safety mechanisms, and has for its principal object to provide a device of simple construction for automatically stopping the downward movement of elevator cages or cars in case of breakage of the hoisting cable.

A further object of the invention is to provide a device of this type in which the braking members will be quickly thrown out into engagement with the elevator guides and will be firmly held against the same in such manner as to offer resistance to the descending movement.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings:—Figure 1 is a perspective view of a safety mechanism constructed and arranged in accordance with the invention, showing the same in release position. Fig. 2 is an elevation showing the parts in operating position.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The elevator car or cage 10 is arranged to travel in a suitable shaft having vertical guide rails 11 of the ordinary type. The frame of the cage includes a cross bar 15 having a centrally arched portion and curved to present shoulders 16 at its lower face. The central portion of the cross bar is provided with a guiding opening for the passage of a vertically movable rod 17 to which the hoisting cable 18 is firmly secured. The bar 15 has elongated flat bearing surfaces 15′ extending in opposite directions from the central arched portion. This rod is provided with a rigid collar 19 which normally bears against the lower face of the bar 15, and supports the weight of the car.

Arranged below the cross bar 15 is a second cross bar 20 at the central portion of which is arranged a cylindrical casing 21 open at the bottom and provided at the top with a central opening for the passage of the rod 17, and to the lower end of this rod 17 is secured a disk 22 which fits upon and normally forms the bottom of the casing 21. Between the top of the casing and the disk 22 is arranged a coiled compression spring 23 that tends at all times to force the disk and rod 17 downward. The movement of the spring, however, is normally checked by the weight of the car as it hangs on the hoisting cables 18.

Arranged loosely between the two bars 15 and 20 are two brake shoe bars 25, the outer ends of which pass through guiding openings formed in the side frame of the elevator cage, and the ends of said brake bars rest on the upper face of the bar 20. The bars are normally inclined upward toward the center, and their inner ends are pivotally connected to ears or lugs 27 projecting from the opposite sides of the rod 17, while the outer ends of the brake bars rest on the cross bar 20.

The mechanism as a whole is inclosed by suitable side plates 30 forming a casing which prevents the entrance of dust and dirt.

So long as the hoisting cable remains intact, the parts will remain in the position shown in Fig. 1, but in case of breakage of the cable or cables, the spring 23 will act against the disk 22 forcing the rod 17 downward and as a result the outer toothed ends of the brake bars 25 will be forced into engagement with the guide strips and their downward movement cease. The inner ends of the bars will continue to move down, the weight of the car being applied to the bars at the shoulders 16, and said bars will finally assume positions upon the elongated flat bearing surfaces of the main bar so that breakage of the bars 25 will be prevented.

As the outer ends of the brake bars are thrust outward they engage with the guide strips 11 and bite into the same with sufficient force to arrest downward movement of the car, the degree of force exercised on the brake bars being in proportion to the weight of the car and its load.

I claim:—

In an elevator safety device, an elevator car having spaced cross bars, the lower face

of the upper bar having a pair of curved shoulders and elongated flat bearing surfaces, a hoisting cable attaching rod extending through the bars, a compression spring for directing the rod downward when relieved of the weight of the car, and a pair of brake bars extending between the spaced bars of the car and having their outer ends slidably mounted upon the lower bar of the car, said brake bars being shiftable laterally by the spring rod and disposed to swing upon the shoulders and assume positions upon the flat bearing surfaces of the upper bar of the car.

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

AARON AUGUST BROWN.

Witnesses:
J. P. MAHAN,
W. E. BAIRD.