Jan. 29, 1924. 1,482,331

J. VANSLETT

AUTOMATIC ELEVATOR BRAKE

Filed July 26, 1922

Fig. 1.

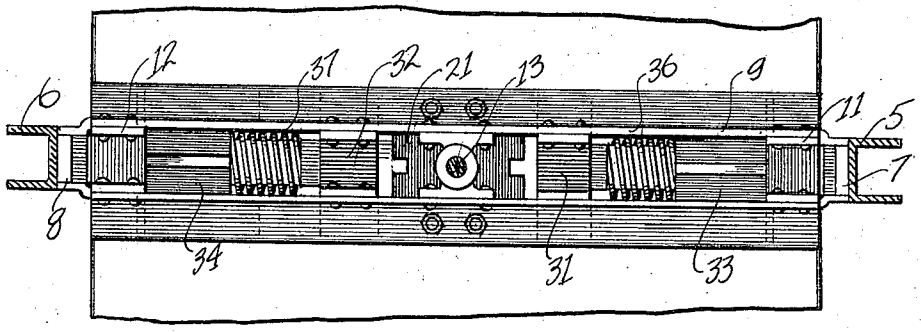


Fig. 2.

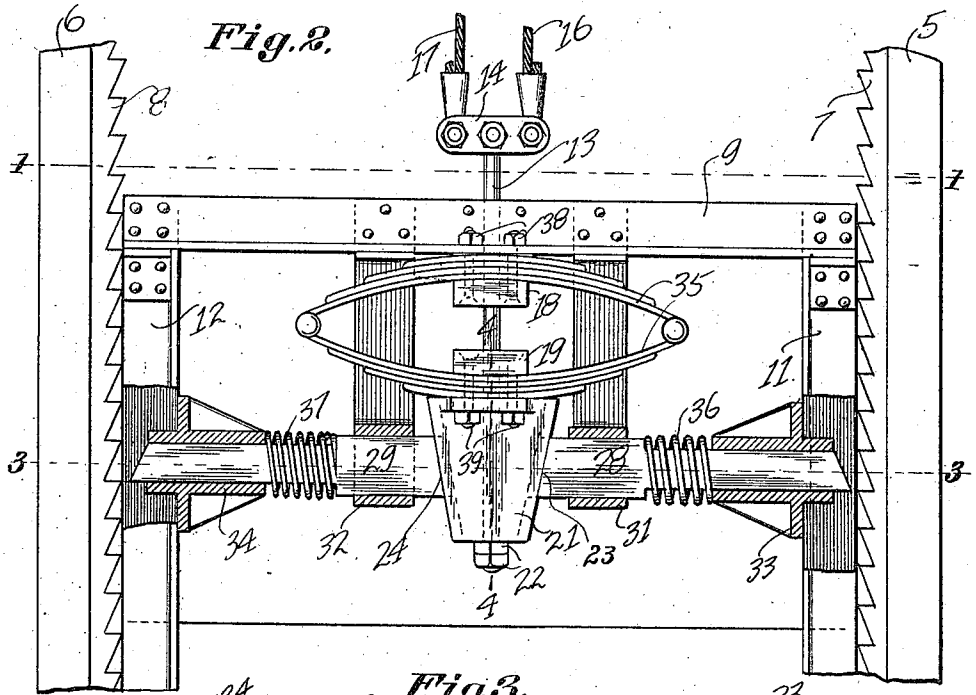


Fig. 3.

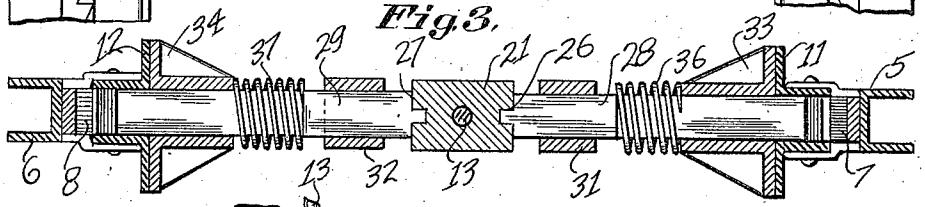
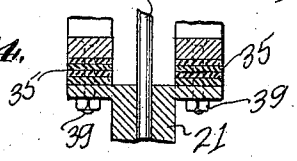


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN VANSLETT, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR OF TWENTY-FIVE PER CENT TO GLENN L. WARING, OF ALAMEDA, CALIFORNIA.

AUTOMATIC ELEVATOR BRAKE.

Application filed July 26, 1922. Serial No. 577,596.

To all whom it may concern:

Be it known that I, JOHN VANSLETT, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented new and useful Improvements in Automatic Elevator Brakes, of which the following is a specification.

This invention relates to improvements in automatic elevator brakes, the principal object of which is to provide means whereby, when a cable of an elevator cage breaks, the cage will be immediately stopped so that the occupants thereof will not be injured through falling.

Another object is to provide means which is extremely simple and therefore positive in its action.

Futher objects are to construct a device of this character which is cheap to manufacture and one which may be applied to any elevator cage now upon the market.

Other objects and advantages will be apparent during the course of the following description.

In the accompanying drawing forming a part of this specification, and in which like numerals are employed to designate like parts throughout the same,

Figure 1 is a cross-section taken on the line 1—1 of Figure 2,

Figure 2 is a side elevation of my device as applied to an elevator cage,

Figure 3 is a cross-section taken on the line 3—3 of Figure 2, and

Figure 4 is a cross-section taken on the line 4—4 of Figure 2.

Applicant is aware of the fact that various safety means have been applied to elevator cages for the purpose of preventing the dropping thereof when the cable breaks, but as far as applicant is aware these devices have been exceedingly complicated and therefore easily deranged and are apt to be inoperative at the time when they are most needed. I have therefore provided a very simple means whereby a strong spring presses two bolts outwardly against the side of the rails or ratchets adjacent the cage as soon as the cable breaks.

In the accompanying drawings wherein for the purpose of illustration is shown a preferred embodiment of my invention, the numerals 5 and 6 refer to the usual rails upon which the cage travels and it is upon the surface of each of these rails that I provide a ratchet, as shown at 7 and 8, the teeth of the ratchet being arranged so as to provide a series of flat ledges, the purpose of which will be hereinafter seen. The numeral 9 refers to the top bar of the cage while the numerals 11 and 12 the side bars. It is obvious, however, that the cage might be constructed in any convenient manner.

At 13, I have shown a rod extending through the bar 9 and connected to an equalizing link 14 at the outer extremities of which are attached the cables 16 and 17. This rod extends downwardly through blocks 18 and 19 and terminates in a wedge 21 wherein it is held as by lock washers as shown at 22. The wedge 21 is provided with inclined sides 23 and 24 as best shown in Figure 2. These sides 23 and 24 are dove-tailed as shown at 26 and 27 so as to receive the ends of bolts 28 and 29. These bolts are squared and pass through hangers 31 and 32, respectively, and have their opposite extremities slidably held in brackets as shown at 33 and 34, which brackets are secured upon the side bars 11 and 12. It will be noted that the bolts 28 and 29 are reduced at the point where they project into the brackets 33 and 34 for the purpose of providing a shoulder upon which a spring may contact, which springs are shown at 36 and 37. The opposite end of these springs rests against the brackets 33 and 34 with the result that the natural tendency of the bolts to move toward each other and consequently against the inclined sides of the wedge 21. In order to force the wedge 21 between the ends of the bolts 28 and 29, thereby forcing the same outwardly when the cable breaks, I provide an elliptic spring 35, one half of which is secured as by bolts 38 to the bar 9, while the other half is secured as by bolts 39 to the upper surface of the wedge 21.

The operation of my device is as follows:

Assuming that the parts are in the position shown in Figure 2, the cage will be free to move upwardly and downwardly in accordance with the movement of the cables 16 and 17 which is the normal action of the cage. Should one of the cables 16 or 17 break and the car start to descend out of control, the result will be that the

elliptic springs 35 will be free to expand and will force the wedge 21 downwardly and consequently the bolts 28 and 29 will be moved outwardly against the tension of their springs 36 and 37. As these bolts move downwardly they will in turn contact the shelve-like faces of the ratchets 7 and 8 and will bring the car to a stop thereby locking it against further downward movement. It is of course obvious that this action will take place so rapidly that the car will not move more than a few inches after the cable has parted.

It will thus be seen that I have provided a very simple means for automatically preventing the dropping of an elevator cage through the breaking of a cable.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claim.

Having thus described my invention, I claim:—

In an elevator brake, the combination with an elevator cage, of parallel guides therefor, ratchets mounted on said guides, cables adapted to control the movement of said cage, a downwardly tapering wedge secured to said cable, an elliptical spring mounted between said wedge and said cage for the purpose of moving said wedge with respect to said cage, bolts mounted on said cage and extending in opposite directions toward said ratchets, a shoulder formed on each of said bolts, and a spring interposed between said shoulder and said cage for the purpose of maintaining said bolts in contact with said wedge, substantially as and for the purpose specified.

In testimony whereof I affix my signature.

JOHN VANSLETT.