No. 649,168. Patented May 8, 1900.

J. HURRELL, Dec'd.

R. W. & E. HURRELL, Executors.

SAFETY CHECK FOR ELEVATORS.

(Application filed Jan. 6, 1899.)

(No Model.)

Fig. 1.

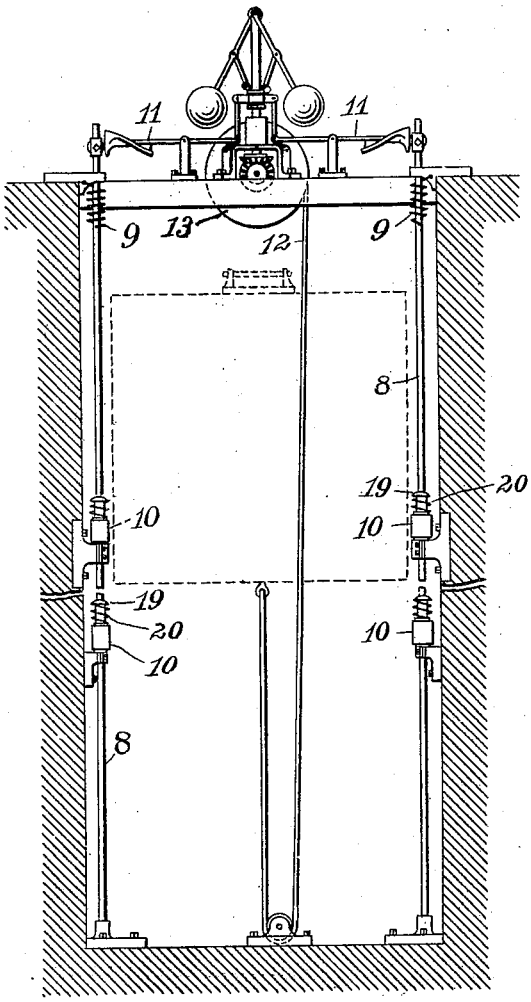


Fig. 2.

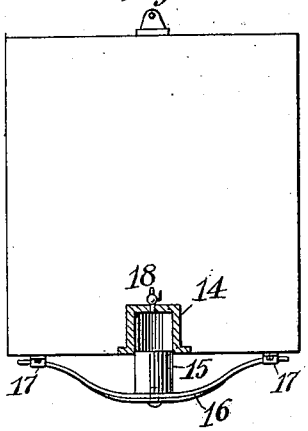


Fig. 3.

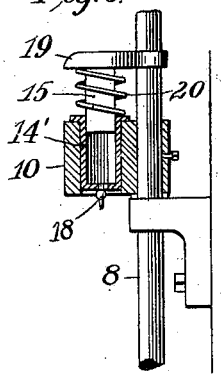


Fig. 4.

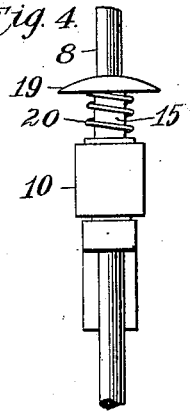
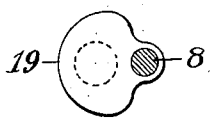


Fig. 5.



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UNITED STATES PATENT OFFICE.

JAMES HURRELL, OF NEW YORK, N. Y.; ROBERT W. HURRELL AND ESTHER HURRELL EXECUTORS OF SAID JAMES HURRELL, DECEASED.

SAFETY-CHECK FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 649,168, dated May 8, 1900.

Application filed January 6, 1899. Serial No. 701,327. (No model.)

To all whom it may concern:

Be it known that I, JAMES HURRELL, a citizen of the United States, and a resident of New York, (Brooklyn,) in the county of Kings and State of New York, have invented certain new and useful Improvements in Safety-Checks for Elevators, of which the following is a specification.

This invention relates to safety-checks for elevators, and particularly to detail improvements in the safety-check patented to myself and R. W. Hurrell, April 26, 1898, by Letters Patent No. 602,944.

The object of the present invention is the construction of buffers or cushions by means of which the elevator-car may be gradually brought to rest when stopped by the safety-check.

In the accompanying drawings, which form a part of this specification, Figure 1 represents the principal features of the safety-check as shown in the patent above mentioned, the location of the present improvements being indicated therein. Fig. 2 is a side elevation of an elevator-car, showing one form of my improvement adapted thereto. Fig. 3 is a sectional side elevation of one of the improved safety checks or stops. Fig. 4 is an edge view of the same, while Fig. 5 is a plan thereof.

For a detail description of the construction and operation of the parts shown in Fig. 1 reference may be had to the patent above referred to. Said construction will be referred to here to such an extent only as is necessary for a full disclosure of the improvements.

In the elevator-well there are located, at the sides thereof, vertical shafts, as 8, which are mounted in suitable step and lateral bearings in a manner to allow them to be rotated. The rotation of said shafts may be effected by the springs 9 or in any other suitable way. On these shafts are mounted at suitable intervals stops or checks. (Represented at 10.) These are secured to the shafts 8 in any suitable manner and are adapted, when the shafts are rotated, to be swung out under the elevator-car and when in normal position to stand out of the path of the car and be there retained by any suitable device—such, for instance, as levers 11. These levers may be tripped by an automatic mechanism when the car starts to fall or when it has attained a dangerous speed. This automatic mechanism may consist of a ball-governor, as shown, and this governor may be actuated by means of a rope or cable 12, passing over the drum 13, to which the governor mechanism is geared, as indicated. When the car travels beyond the fixed speed limit, the governor will drop the levers 11 and allow the springs 9 to rotate the shafts 8 and carry the stops 10 into the path of the car. The car in said figure is indicated in dotted lines.

To ease the shock of the car when stopped by the safety mechanism, cushioning devices may be attached to the car or to the stops 10, or to both. The cushions or buffers for attachment to the car or to the stops 10 may be of any suitable construction, but are preferably of the pneumatic or dash-pot pattern, as illustrated. The cushioning device may be attached to the car substantially as shown in Fig. 2. Therein a cylinder, as 14, is secured to the car, and a piston 15 is fitted thereto and mounted upon a spring, as 16, which is attached to the car by the keepers 17. A suitable air-outlet, as 18, is placed in the end of the cylinder. The cushioning device may be applied to the stops 10 in the manner indicated in Figs. 3 to 5. Therein the stop 10 is shown provided with a vertical opening therethrough, in which is seated a cylinder, as 14′, for the reception of the piston 15. On the upper end of the piston 15 is a plate or cap 19, which by preference has an opening therethrough, by which it may be guided upon the shaft 8. Between the stop 10 and the head 19 there may be interposed a spring, as 20, and in the bottom of the cylinder 14′ there may be located an air-outlet 18. These air-outlets may be provided with a suitable cock to regulate the action of the piston. The air-cushions shown in Figs. 2 and 3 are designed for joint use, though obviously either one may be used effectively alone.

The invention claimed is—

1. In a safety-check for elevators, the combination with an elevator-car, of a vertical shaft carrying laterally-swinging stops and a

pneumatic cushioning device for deadening the shock when said stops intercept the car.

2. The combination with the vertical shafts 8, and pneumatic stops thereon, of a pneumatic cylinder in each stop, and a spring-supported piston fitted to said cylinder.

3. The combination with vertical shafts 8, and pneumatic stops mounted thereon, of spring-mounted pistons attached to the car in the path of said stops, and suitable cylinders also attached to the car for receiving said pistons, substantially as and for the purpose set forth.

Signed in the borough of Brooklyn, in the county of Kings and State of New York, this 24th day of December, A. D. 1898.

JAMES HURRELL.

Witnesses:
JOHN REIS,
D. H. DECKER.