No. 669,388. Patented Mar. 5, 1901.

R. B. GORTON.

SAFETY DEVICE FOR ELEVATORS.

(Application filed June 15, 1900.)

(No Model.)

Fig. 1.

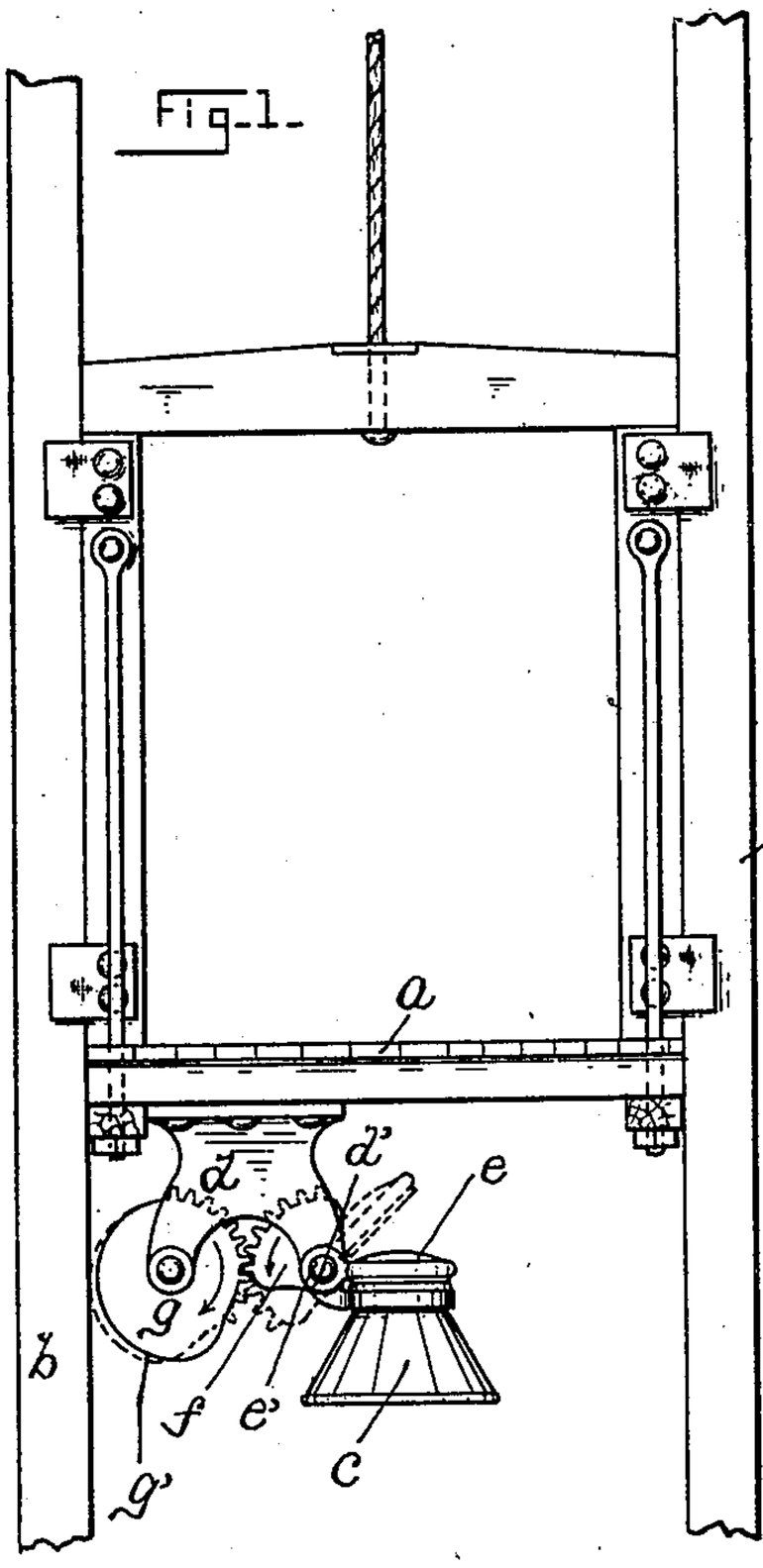


Fig. 2.

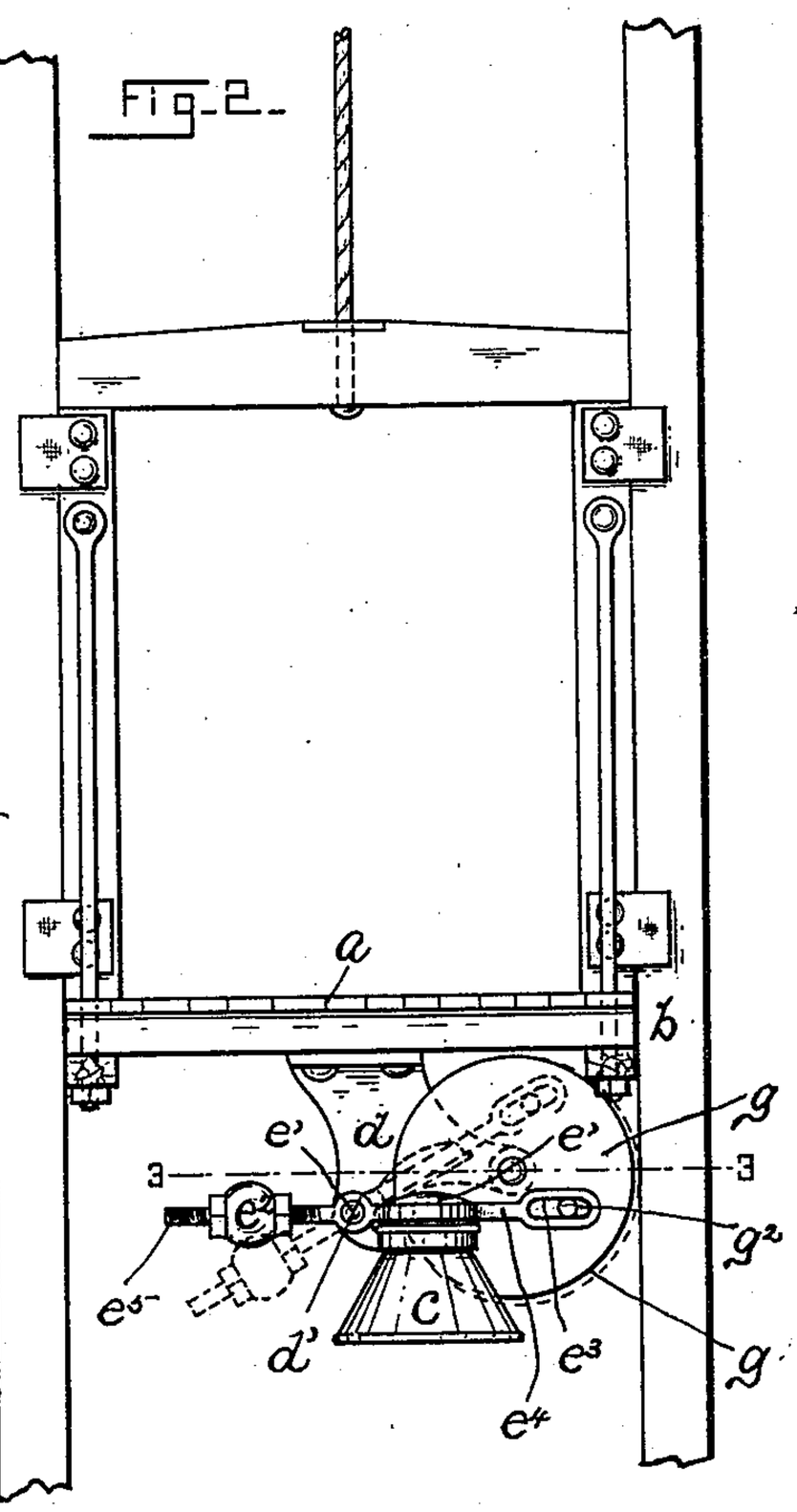
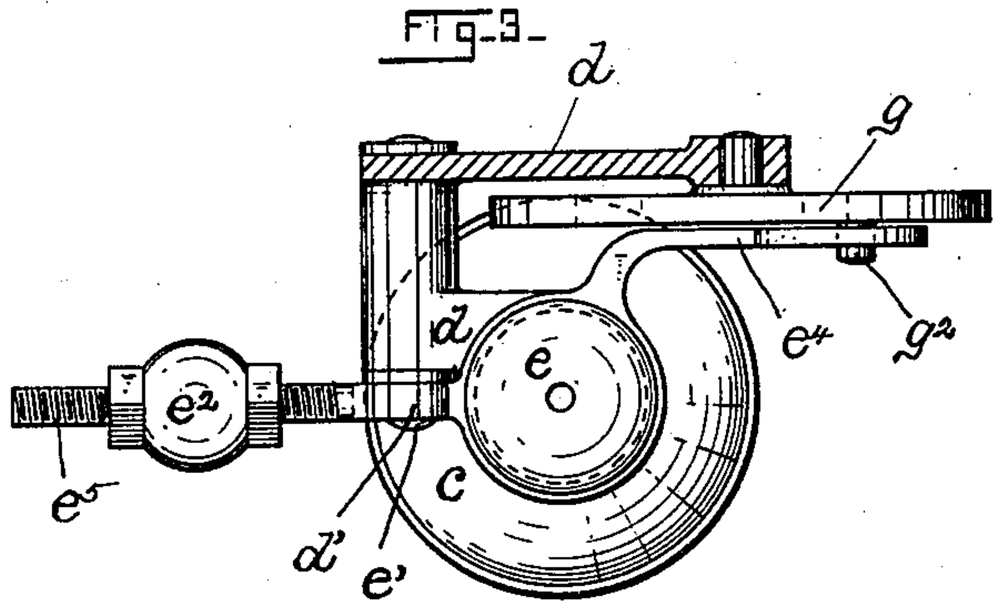


Fig. 3.



WITNESSES

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SAFETY DEVICE FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 669,388, dated March 5, 1901.

Application filed June 15, 1900. Serial No. 20,469. (No model.)

To all whom it may concern:

Be it known that I, ROBERT B. GORTON, a citizen of the United States, residing at Niantic, in the county of New London and State of Connecticut, have invented certain new and useful Improvements in Safety Devices for Elevators, of which the following is a full, clear, and exact description.

This invention is in that class of safety devices for elevators in which the force of atmospheric resistance occasioned by the abnormal speed of a descending elevator-car is utilized to automatically call into operation certain safety appliances and to thus stop the said car.

The immediate purpose of this present invention is to provide extremely simple and sensitive mechanism for actuating the said "safety appliances."

The drawings annexed hereto illustrate and aid in explaining my said invention.

Figure 1 is an elevation of an elevator fitted up with my newly-invented safety appliance, and Fig. 2 is a like view showing a modification of my invention. Fig. 3 is a plan view, on an enlarged scale, of the mechanism of Fig. 2.

Referring to the accompanying drawings, the letter *a* indicates the elevator-car, and *b* the vertical ways between which the said car travels. The particular number and arrangement of ways is not material, neither does it matter whether hydraulic, electric, steam, or other power is utilized to operate the car in its vertical movements.

My safety device is secured beneath and travels with the floor of the car. Describing the said device, the letter *c* denotes a vertically-extending conical tube located beneath the car-floor and supported by means of a frame *d*, secured to the said floor. The smaller end of the conical tube confronts the car-floor, and said smaller end is adapted to be closed by a valve or cover *e*, hinged at *d'* in the frame *d*. The hinge-pin *e'* of the valve *e* serves also as a shaft for the support of a gear-segment *f*, which latter meshes with the toothed portion of a wheel *g*. A portion of the periphery of the wheel *g* is provided with gear-teeth, as just mentioned, and the remainder of its periphery is formed eccentric to the axial center of the wheel for a purpose hereinafter described.

The valve or cover *e* when in its normal lower position serves to close the upper (smaller) end of the conical tube *c*, but when the elevator-car travels downward at a faster rate than is desirable, as in the case of a falling car, a current of air rushes upward through the conical tube *c* with sufficient strength to raise the said valve and rock it upon its hinged support. The upward rocking of the cover *e* serves to correspondingly partially rotate the gear-segment *f* and the wheel *g*, the teeth of which latter are engaged by the said gear-segment. When the said upward rocking of the valve *e* effects the partial rotation of the segment *f* and of the wheel *g*, as just mentioned, the eccentric portion *g'* of the latter is brought into engagement with the side post or way *b*, and continued downward travel of the car effects the still further rotation of the wheel *g* because of its frictional engagement with the side post *b*. As the car continues in its downward travel the wheel *g* is rotated until the eccentric portion *g'* becomes firmly wedged against the side post *b*, and thus prevents further downward travel of the car.

In Fig. 2 the gear-segment *f* is done away with and likewise the gear-teeth of the wheel *g*. In this figure the arm e^4 of the valve *e* is provided with a slot e^3, which engages a pin g^2 on the wheel *g*, and upon the upward rocking of the valve and arm such engagement between the latter and the wheel *g* effects sufficient rotation of the said wheel to cause its eccentric portion *g'* to frictionally engage the side post *b*, after which the too-rapid downward travel of the car would be checked in the same manner as above described.

If desired, the valve *e* may be provided with an arm e^5, upon which a weight e^2 is adjustably located, thereby making it possible to readily control and regulate the amount of air-pressure necessary to rock the said valve.

The valve *e* of the conical tube is ordinarily of sufficient weight to remain closed during the downward travel of the car when the latter is moving at a proper and safe speed

and only operates in the manner described when the car travels at such speed that the current of air is sufficiently strong to raise the said valve, which occurs only when the car is beyond control and travels too fast for safety; but, as above described, the adjustable weight e^2 is preferably provided, by means of which the degree of air-pressure necessary to operate the valve *e* may be readily varied and controlled. I preferably form the eccentric portion of the wheel *g* of leather, rubber, or similar yielding material that will serve to cushion the otherwise rigid action of the said eccentric when the latter is brought into service.

I claim as my invention—

In combination with, and mounted beneath, an elevator-car, an air-tube, a valve hinged to and normally closing the said tube, an eccentric-wheel adjacent the elevator-ways, connections as herein set forth between the said valve and wheel, and adjustable means consisting of a weighted counterbalance for regulating the resistance of the said valve.

Signed at Niantic, Connecticut, this 5th day of June, 1900.

ROBERT B. GORTON.

Witnesses:

GEORGE R. PORTER,

ORREN B. GORTON.