

No. 620,364.

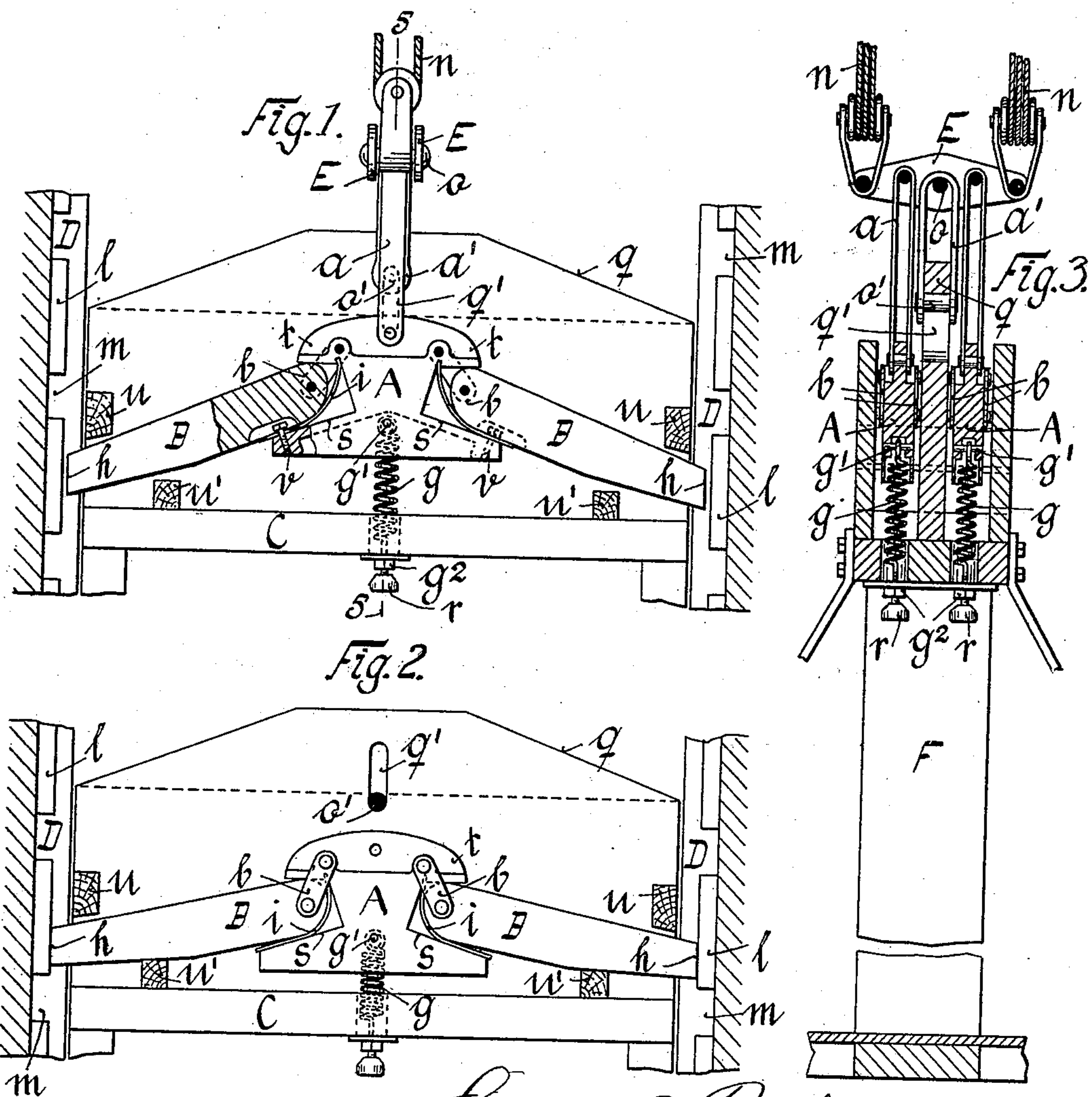
Patented Feb. 28, 1899.

L. W. G. ROLFF.
SAFETY DEVICE FOR ELEVATORS.

(Application filed Feb. 21, 1898.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses
John A. Paulson.
C. C. Nielson.

Louis W. J. Rolff,

Inventor

By Schreiter, Van Idersdine & Mathews, Attys.

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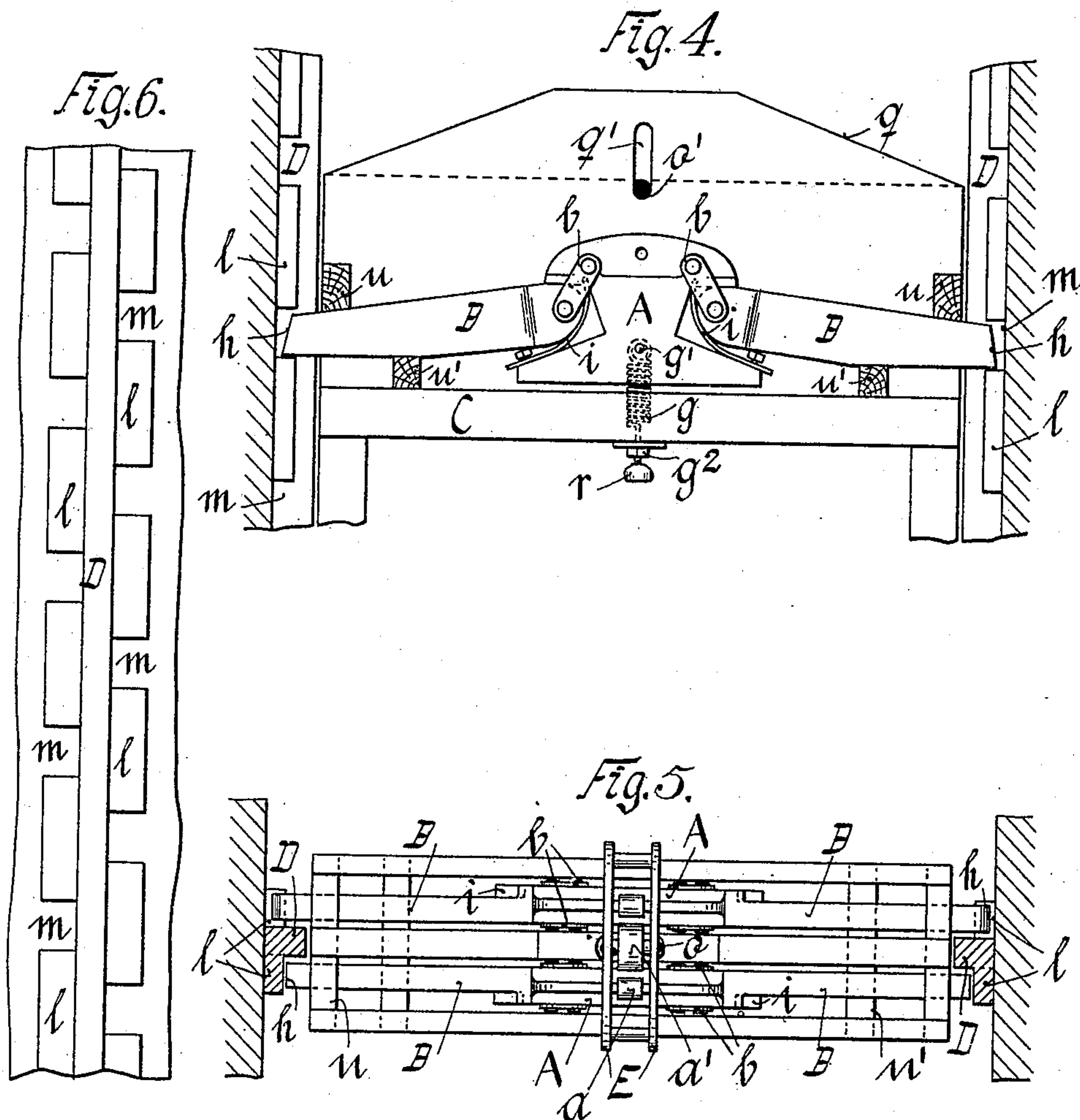
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Witnesses
John A. Paulson.
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UNITED STATES PATENT OFFICE.

LOUIS W. G. ROLFF, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO
AUGUST REHBOCK, OF SAME PLACE.

SAFETY DEVICE FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 620,364, dated February 28, 1899.

Application filed February 21, 1898. Serial No. 671,131. (No model.)

To all whom it may concern:

Be it known that I, LOUIS W. G. ROLFF, of the city, county, and State of New York, have invented certain new and useful Improvements in Safety Devices for Elevators, of which the following is a full, clear, and exact specification, reference being had to the accompanying drawings, wherein—

Figure 1 is an elevation showing my safety device applied to an elevator, and Fig. 2 is an elevation showing my safety device in action stopping the car. Fig. 3 is a sectional view on line 5 5, indicated in Fig. 1. Fig. 4 is an elevation, reverse view of Fig. 2. Fig. 5 is a top view of the safety device in action. Fig. 6 is a front view of one of the guides of the elevator.

Similar letters of reference indicate corresponding parts in all views of the drawings.

My invention relates to elevators; and it consists of an improved automatically-acting safety device whereby the car when falling or descending with a greater than a predetermined speed is securely stopped.

My safety device is illustrated in the drawings, wherein C represents the upper beam or tie of the elevator F, and D the guide-rails of the elevator-shaft. Car F is suspended by link *a'* from cross-bar E, to which the hoisting-ropes *h* are suitably secured.

The safety device consists of two independently-acting sets of catches B, each set being connected by links *b* to one block A, which are connected each independently of the other by links *a* to cross-bar E. Adjustable springs *g*, having their upper ends fixed by pins *g'* to the blocks A and their other ends secured to the beam C, draw the blocks A toward the cross-beams. Top girder *q* is provided with slot *q'*, wherein bolt *o'* shifts, and in the position shown in Fig. 1 rests against the upper terminus of the slot. The length of the slot *q'* is governed by the required length of the motion of the blocks A, which are drawn up and catches B receded by the action of the hoisting apparatus when lifting the car. When the hoisting apparatus ceases to act, springs *g* draw the blocks toward beams C, and thereby project the catches B. Such instantaneous action upon the blocks A as is

produced by the springs *g* is very material though not prerequisite or indispensable to the operation of my safety device. The elasticity and the tension of the springs *g* may be tested at any time by a pull on handles *r*, and may be adjusted by setting accordingly the nuts *g''* on the screw-threaded ends of the springs.

Between the rear ends of catches B and the lower inclined faces of the sockets *s* springs *i* are provided. Their upper ends are secured to the blocks A and their lower slotted faces slide on screws *v*, set in the termini of sockets *s*. These springs have a twofold purpose—first, to act as a buffer between the catches B and block A and also as an elastic support for the catches, while they operate as brakes in the manner shown in Fig. 2, and, second, to throw the catches B into recess *m* when their outer ends *h* slide off of the blocks *l*. The springs thus supplement the coaction of the blocks A and catches B and also of the springs *g* in driving catches B outwardly. Stopping-blocks *l* are arranged in alternating rows on both sides of the guides D, as shown in Fig. 6 in front view.

By arranging blocks *l* and recesses *m* in alternating rows and by providing two independently-acting sets of blocks A and catches B the force of the jerk in stopping the car is greatly reduced, because immediately when the pull of the hoisting apparatus on the car is released one, often both, pair of the catches B strike against the blocks *l* and act as brakes, slackening the speed of the car. The second advantage of this arrangement is that even if the shock should be so great as to break the catches striking first the other pair will act immediately and safely stop the car under any possible circumstances. In some instances only one set will act; but mostly both sets will act at the same time, and in this case while the catches of one set act as a brake, retarding the motion of the car, the catches of the other set enter into the recesses *m* and stop it absolutely. When the ends of catches B have entered recesses *m* and support the stopped car, the strain is set upon the blocks A. The view illustrated in Fig. 4 shows that the weight of the car rests upon the ends of

the catches B, between beams *u* and blocks *u'*, which support these ends, and thereby transfer the strain upon the structure of the car.

My safety device will act instantaneously
5 under all conditions. If, for instance, in the arrangement shown in sectional view, Fig. 3, one of the hoisting-ropes *n* should slacken, slip, or break while the other remains intact, the cross-bar E would be disturbed in its hori-
10 zontal (balanced) position, and as the pull upon the block A of the set nearest to the broken or slackened rope would cease the block would then be moved instantaneously downward by the spring *g*, and thereby catches
15 B be set in action. In this case the descent of the car would be checked and stopped, though the other set of the apparatus might not at all be put in operation.

The operative capacity and readiness of the
20 apparatus can be tested by stopping the car on the bottom of the shaft and letting one or both hoisting-ropes *n* slacken or by stopping the hoisting machinery and then lifting the car a few inches from below. When the ap-

paratus is in acting order, the car will stick 25 in the position to which it will be lifted. The car will be movable upwardly, but will not descend.

I claim as my invention and desire to se-
cure by Letters Patent— 30

A safety device for elevators comprising two blocks, links connecting each of the blocks separately to the hoisting apparatus operat-
ing the car, and springs connecting them to the body of the car, catches having their rear 35 ends connected to the blocks, a sliding connection between the elevator-car and the hoisting apparatus, and two sets of stop-blocks, fixed in alternating rows, one row on each side of the guiding-rails of the elevator. 40

In witness that I claim the improvements described in the foregoing specification I have signed my name in the presence of two sub-
scribing witnesses.

LOUIS W. G. ROLFF.

Witnesses:

AUGUST REHBOCK,

ROBERT VALENTINE MATHEWS.