

No. 842,294.

PATENTED JAN. 29, 1907.

H. Y. BALDWIN.  
SAFETY STOP FOR ELEVATORS.

APPLICATION FILED JUNE 2, 1906.

2 SHEETS—SHEET 1.

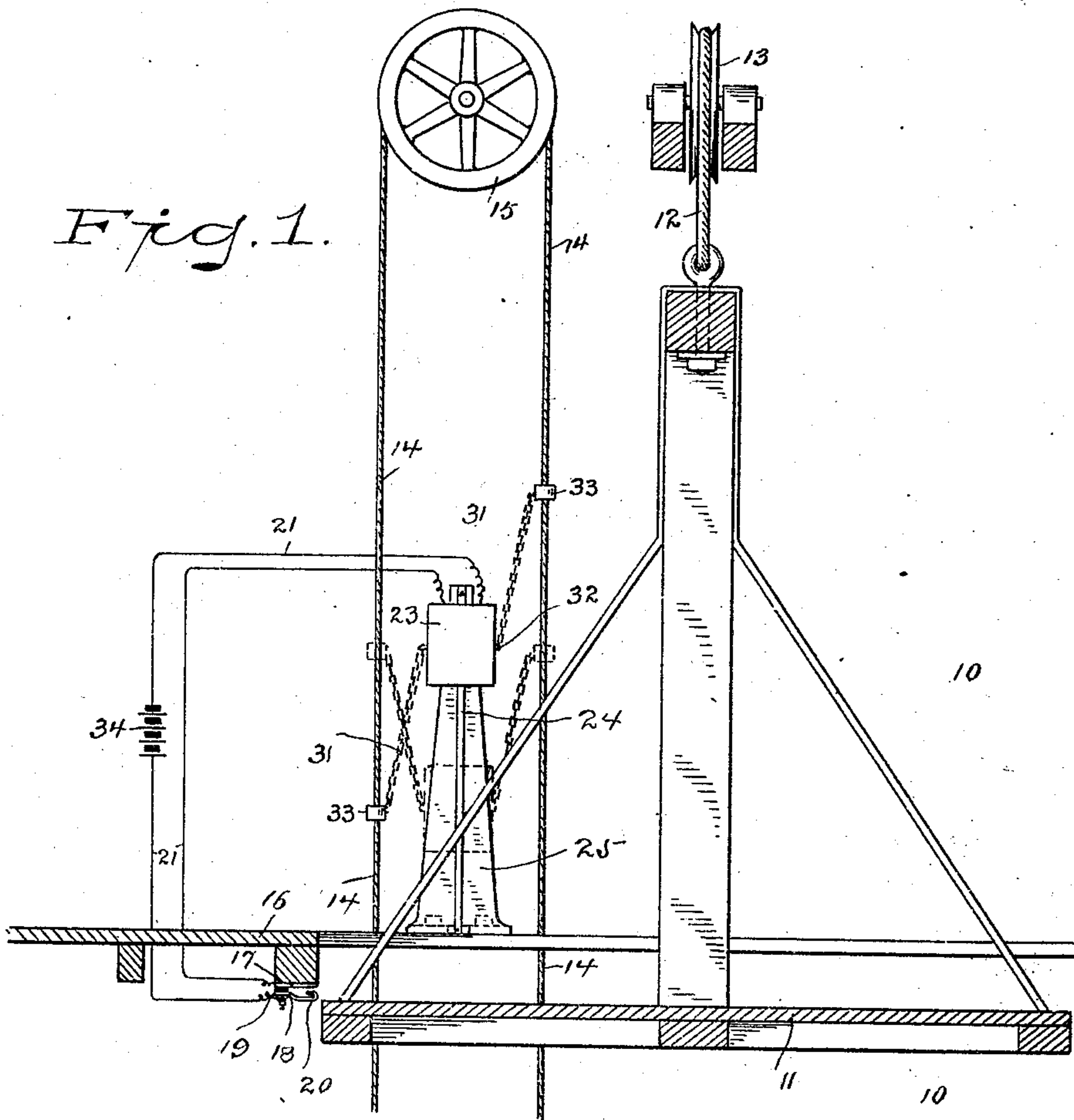
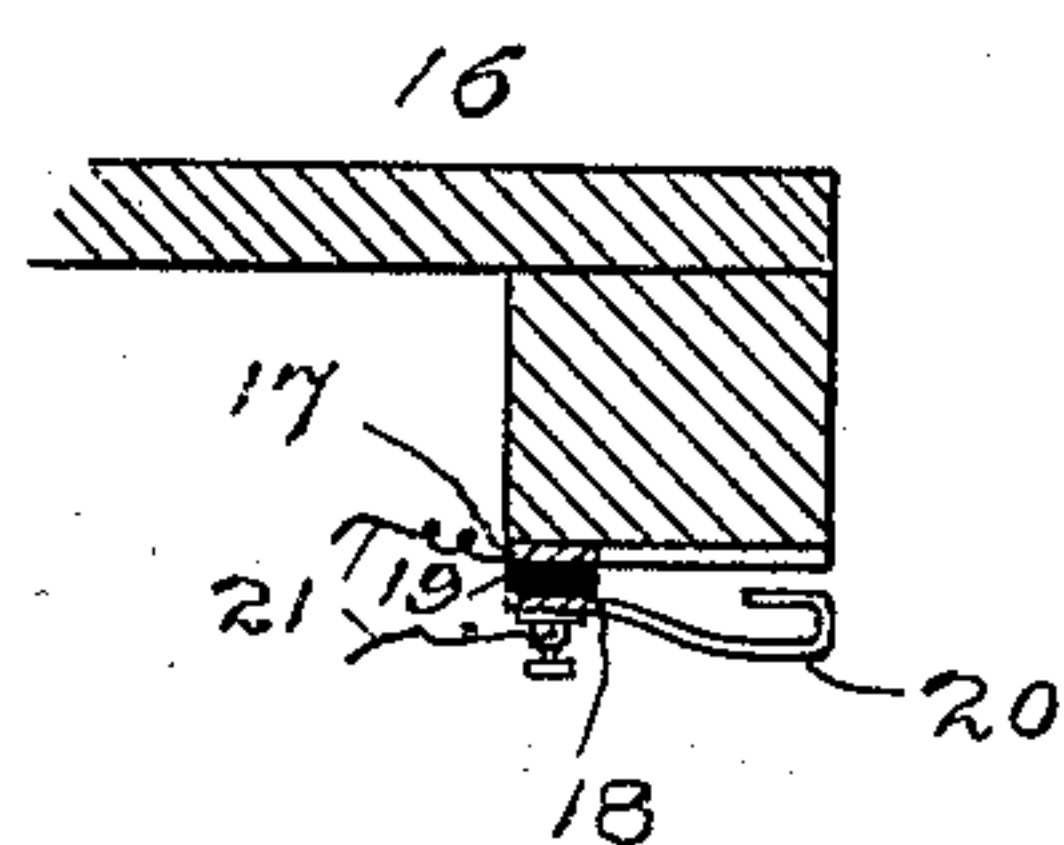


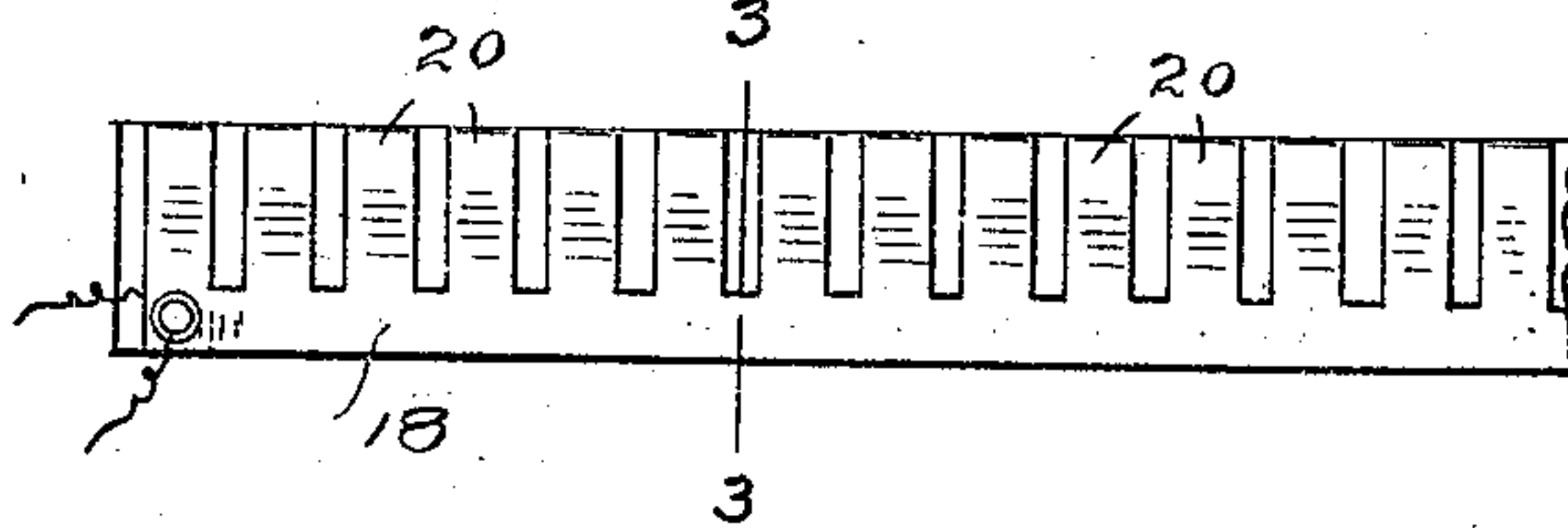
Fig. 3.



WITNESSES

H. A. Lamb.  
S. W. Atherton.

Fig. 2.



INVENTOR

Herbert G. Baldwin

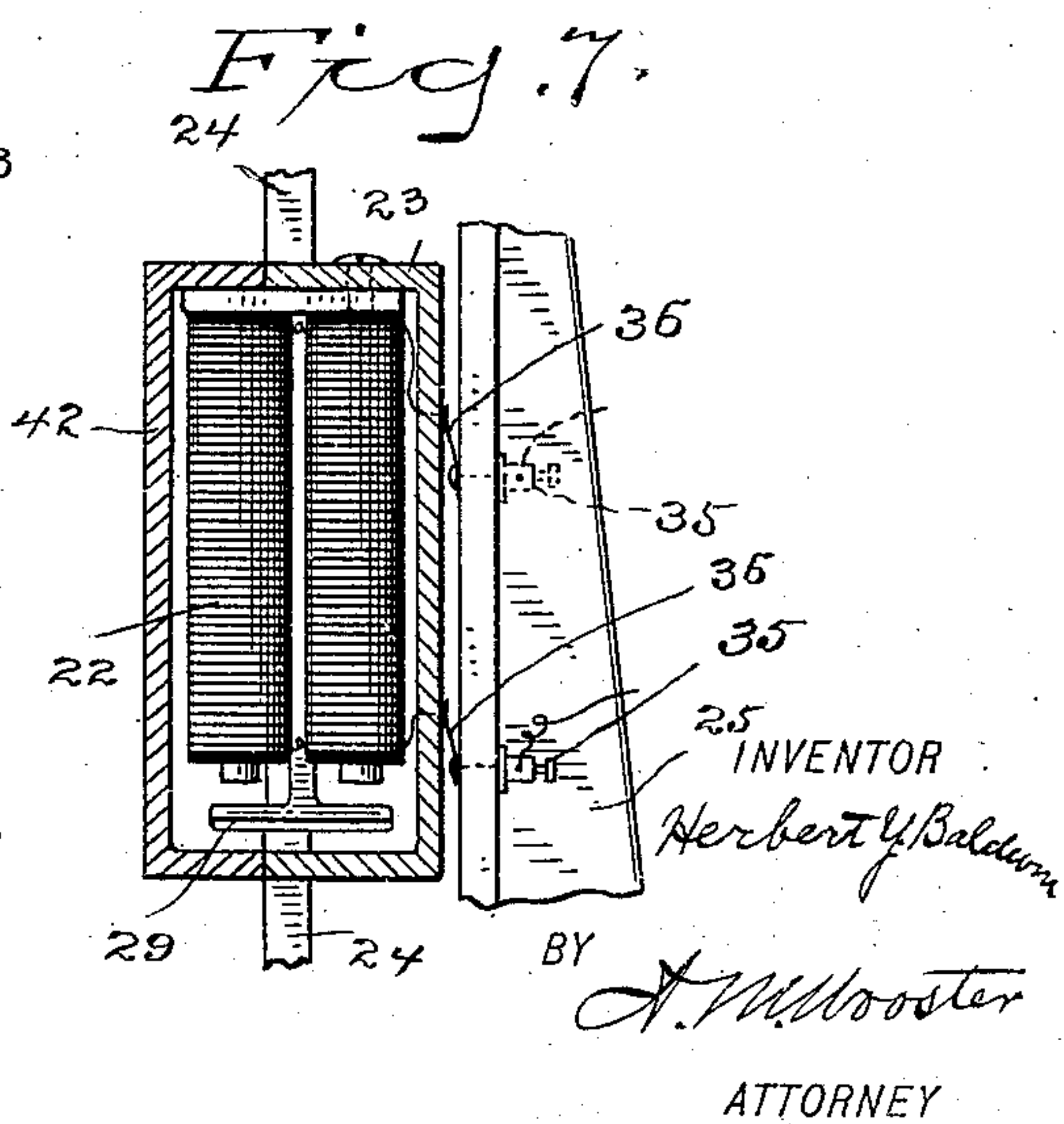
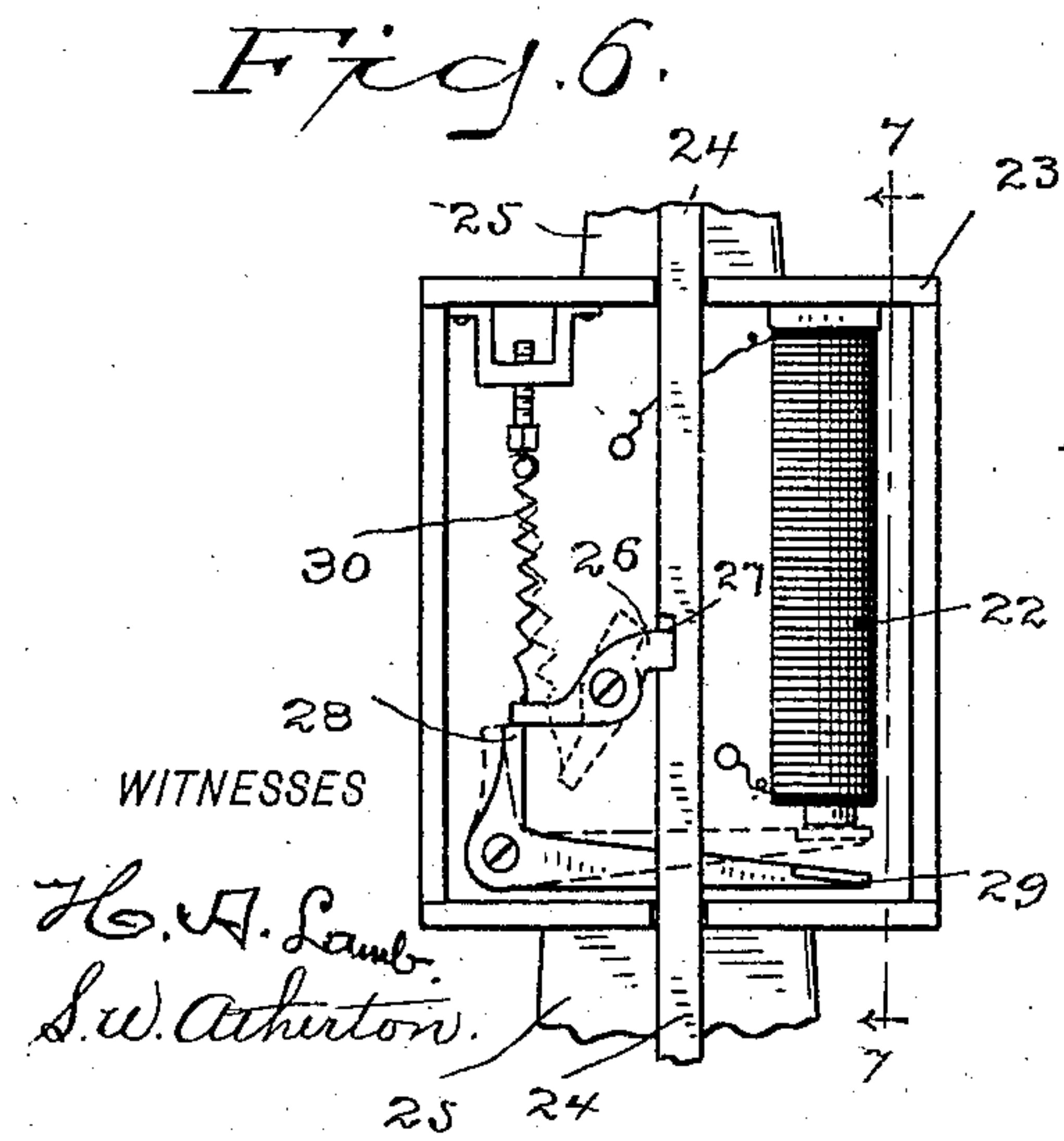
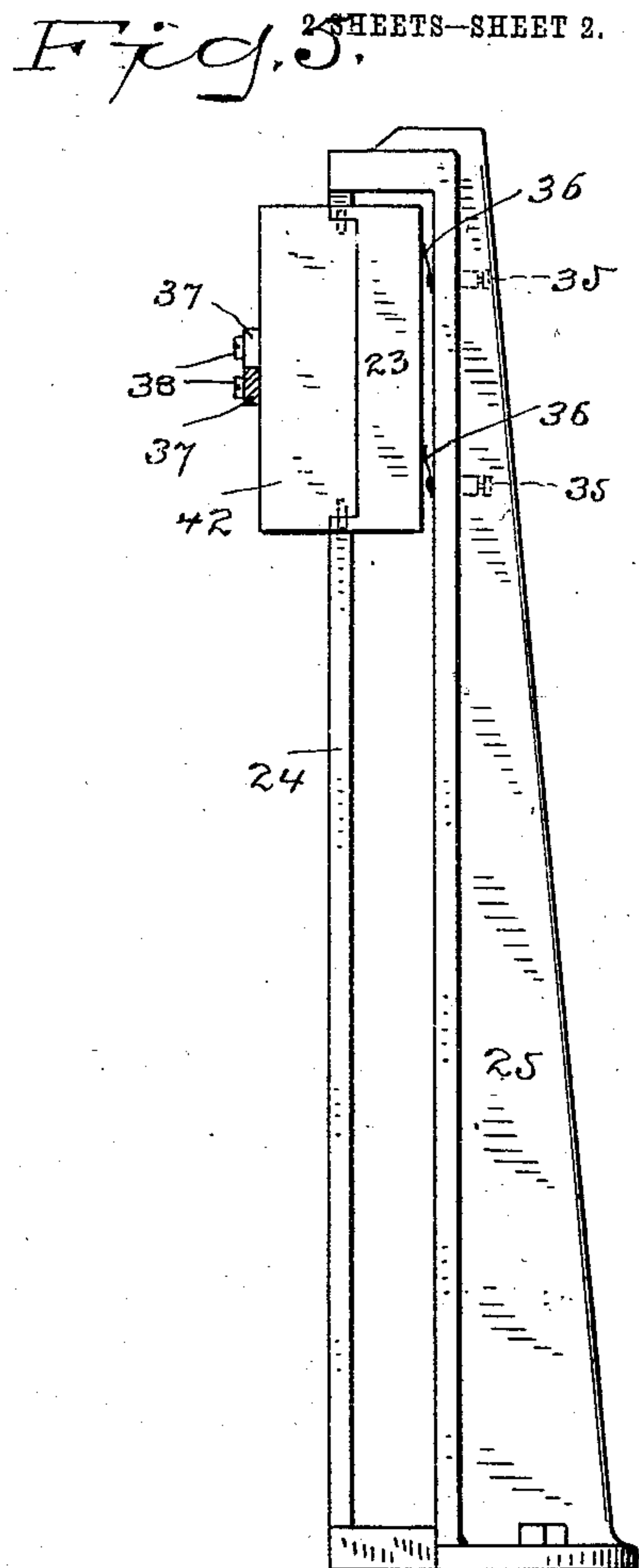
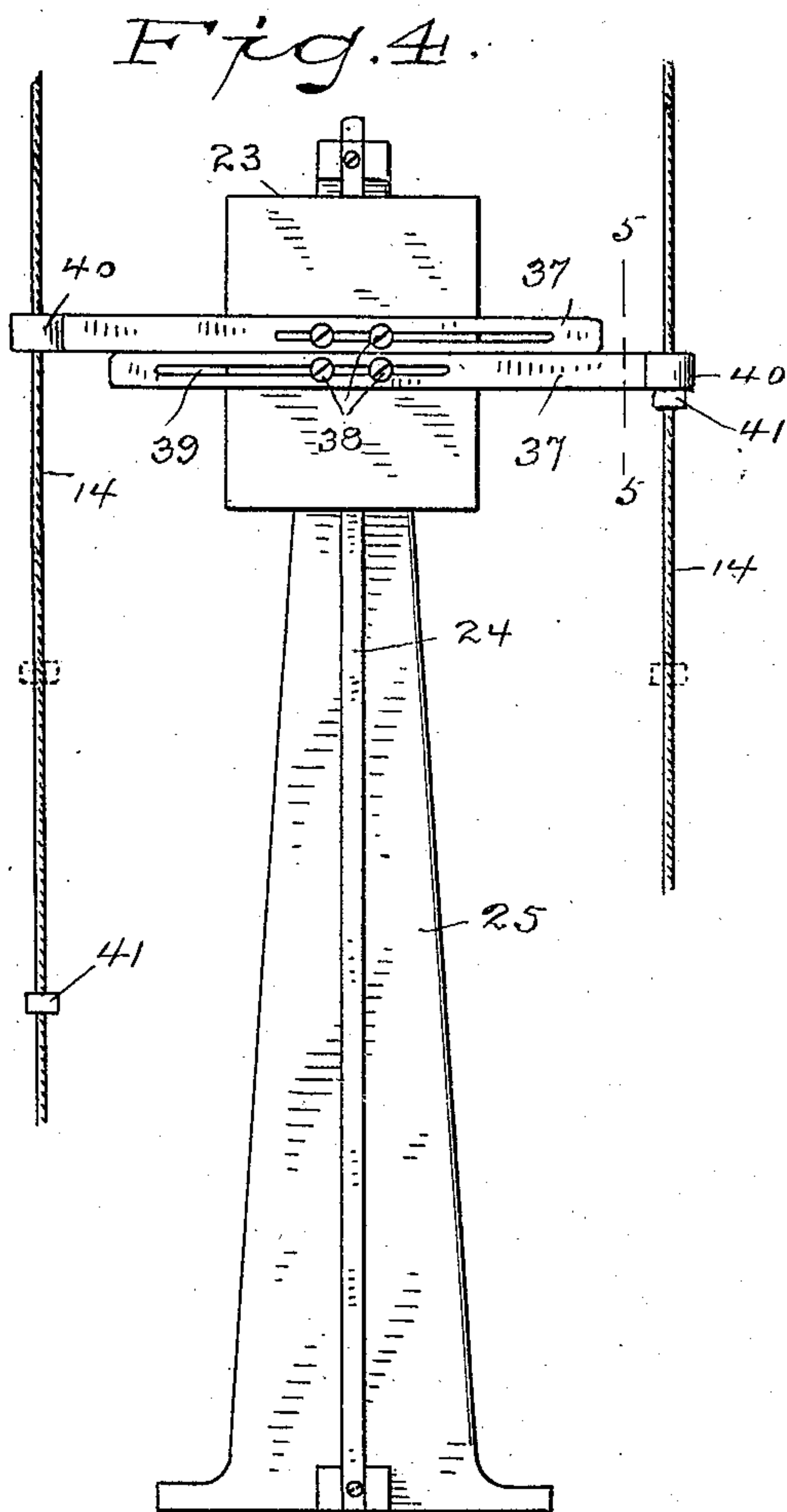
BY

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# UNITED STATES PATENT OFFICE.

HERBERT Y. BALDWIN, OF SEYMOUR, CONNECTICUT.

## SAFETY-STOP FOR ELEVATORS.

No. 842,294.

Specification of Letters Patent.

Patented Jan. 29, 1907.

Application filed June 2, 1906. Serial No. 319,907.

*To all whom it may concern:*

Be it known that I, HERBERT Y. BALDWIN, a citizen of the United States, residing at Seymour, county of New Haven, State of Connecticut, have invented a new and useful Safety-Stop for Elevators, of which the following is a specification.

This invention is adapted for use upon elevators generally, and especially adapted for use upon freight-elevators, to prevent accidents which might result from the projection of the head or any member or portion of a human body or any article that was being carried by an elevator-car over the edge thereof—that is, outside of a vertical line intersecting the front or any or all of the edges of the car.

With this and other objects in view I have devised the novel safety-stop, of which the following description, in connection with the accompanying drawings, is a specification, reference characters being used to indicate the several parts.

Figure 1 is a view, partly in elevation and partly in vertical section, illustrating the construction of my novel safety-stop and its mode of operation in connection with a freight-elevator; Fig. 2, an inverted plan view of the electrical contacts; Fig. 3, a detail sectional view on the line 3 3 in Fig. 2; Fig. 4, a front elevation, on an enlarged scale, illustrating a variant form of the invention; Fig. 5, a side elevation corresponding with Fig. 4, one of the rope-guides being in section on the line 5 5 in Fig. 4; Fig. 6, an elevation of the standard and weight with the face-plate removed; and Fig. 7 is a section of the weight on the line 7 7 in Fig. 6, the standard appearing in side elevation.

10 denotes an elevator-well; 11, a car; 12, the carrying-rope; 13, a sheave over which said rope passes; 14, the controlling-rope, and 15 a sheave over which the controlling-rope passes.

In the present instance I have shown my novel safety-stop as applied on the front side only of the well, although it may be applied on any of the other or on all four sides, if required. Under the floor 16 at the edge of the well I provide upper and lower contact-plates, (indicated by 17 and 18, respectively.) These contact-plates are insulated from each other, as at 19. The operative portions of the plates are preferably separated

into contact-fingers, (specifically indicated by 20,) the fingers of the lower contact-plate being spring-fingers and normally self-retaining out of engagement with the upper contact-plate, as clearly shown in Fig. 3.

21 denotes electrical connections which extend to the poles of an electromagnet 22 within a vertically-sliding weight 23. This weight is adapted to slide on a rod 24, rigidly secured to a standard 25, which is itself rigidly secured to the floor.

The releasing mechanism is all housed within the weight, which is retained at its raised or inoperative position on the rod by means of a dog 26, pivoted within the weight and engaging a recess 27 in the rod, which in the present instance is shown as angular. This dog is retained in the locking position, as shown in full lines in Fig. 6, by means of an arm 28, extending from the armature 29 of the electromagnet, also pivoted within the weight. A spring 30 acts to draw the dog to the locking position again after it has been thrown out of the recess by the falling of the weight, when the latter is released by the drawing of the armature into contact with the poles of the electromagnet, the releasing position of the dog, armature, and arm 28 being indicated by dotted lines in Fig. 6. The weight is made in two parts, the cover-plate being specifically indicated by 42.

31 denotes chains, the ends of which are connected, respectively, to the sides of the weight, as at 32, and to collars 33, which are themselves rigidly secured to the opposite runs of the controlling-rope.

The operation will be readily understood from Fig. 1 in connection with Fig. 6. In the position shown in Fig. 1 the car is moving upward and has nearly reached the floor. Anything projecting over the front edge of the car would engage one or more of the fingers of the lower contact-plate and place it in contact with the upper contact-plate. This would close the circuit and energize the electromagnet, the effect of which would be to draw the armature into contact with the poles of the magnet, throw arm 28 to the releasing position, and thus permit the weight to drop. The fall of the weight would shift the chains and collars from the position shown in full lines in Fig. 1 to the position shown in dotted lines and would operate the controlling-rope to stop the car. To set the



stop again, the weight is simply raised to the position shown in full lines, where it is automatically locked. The spring retains the dog in engagement with the rod and causes it to drop into the recess the instant the weight reaches the raised position, where it is locked by arm 28, which passes under the dog, the armature of course dropping away from the poles of the electromagnet as soon as the circuit is opened by the separation of the contact-fingers, as shown in full lines in Fig. 6. The special arrangement of the electrical connections is of course immaterial so far as the principle of the invention is concerned. Electrical connections are indicated diagrammatically in Fig. 1, a battery being indicated by 34. The wires are shown as running to binding-posts 35 in the standard and the connection between the binding-posts and wires within the weight leading to the electromagnet is effected by means of contact-springs 36 on the standard which engage the weight when the latter is at the raised position, as in Fig. 6.

The modified form illustrated in Figs. 4 and 5 differs from the form described only in that in lieu of a chain connected to the weight and to the opposite runs of the controlling-rope I substitute slides 37, which are adjustably secured to the weight by means of screws 38 passing through slots 39 in the slides and are provided at their outer ends with eyes 40, through which opposite runs of the controlling-rope slide freely. Both runs of the controlling-rope are provided with blocks, knots, or other fixed protuberances 41, which are engaged by the eyes upon the slides when the weight is released and drops to the stopping position, the normal or operative position of the protuberances relatively to the eyes being shown in full lines and the stopping position being indicated by dotted lines.

It is to be understood that with the contacts arranged as shown in Fig. 1 it would not be expected that the car would stop before reaching the position shown in said figure if a projecting object or article were small and close to the floor of the car 11 unless the car is one that travels very slowly. Said figure is designed to show a suitable position for the contacts relatively to the path of travel of the car-floor rather than the position or height of the car-floor at the moment of actuating the contacts. The object that will actuate the contacts may obviously be at any height above the car-floor. For instance, if a person standing on the said floor is leaning out, so that the top of his head actuates the contacts, the weight will be almost instantly released, so as to effect the stoppage of the car before the body of that person could be injured by being caught between the edge of the car-floor 11 and any fixed part of the structure, such as the edge of the floor 16.

Having thus described my invention, I claim—

1. A safety-stop for elevators comprising a weight having housed within it an electromagnet, a pivoted armature therefor and locking means controlled by the armature, electrical connections, contacts adapted to close the circuit lying in the path of anything projecting from an elevator-car and connections between the runs of a controlling-rope and the weight, so that when the circuit is closed the armature will release the weight which will operate the controlling-rope to stop the car.

2. The combination with an elevator-car and the runs of a controlling-rope, of a weight, a connection between the weight and the controlling-rope whereby the latter is operated to stop a car, contacts adapted to be placed in engagement by anything projecting from the car, electrical connections extending to the weight and an electromagnet, a pivoted armature and locking means for the weight controlled by the armature and housed within the weight, substantially as described, for the purpose specified.

3. The weight 23 having housed within it an electromagnet, a pivoted armature having an arm extending therefrom and a locking-dog adapted to be retained in the locking position by said arm and released by the armature when the magnet is energized, substantially as described, for the purpose specified.

4. The weight 23 having housed within it an electromagnet, a pivoted armature having an arm extending therefrom, a locking-dog adapted to be engaged by said arm, for the purpose set forth, and a spring for retaining the dog in the locking position.

5. The combination with an elevator-car, a controlling-rope and a weight connected to both runs of said rope, of an electromagnet, a pivoted armature and a locking-dog adapted to be engaged thereby, all housed within the weight.

6. The combination with an elevator-car, a controlling-rope and a weight connected to both runs of said rope, of a rod upon which said weight is adapted to slide and which is provided with a locking-recess, a locking-dog in said weight adapted to engage the recess, an electromagnet and an armature adapted to engage the dog to retain it in the locking position.

7. The combination with an elevator-car, a controlling-rope and a weight connected to both runs of said rope, of a vertical rod upon which the weight slides, a standard by which the rod is supported, a locking-dog in said weight, an electromagnet, an armature having an arm extending therefrom and adapted to engage the dog to retain it in the locking position and a spring for retaining the dog in operative position.



8. The combination with an elevator-car, a controlling-rope, a weight and chains connected to the sides of the weight and to the controlling-rope, of an electromagnet, a piv-  
5 oted armature having an arm extending therefrom and a locking-dog adapted to be engaged by said arm, all housed within the weight.

9. The combination with an elevator-car, a controlling-rope and a weight connected to  
10 both runs of said rope, of an electromagnet, a pivoted armature and a locking-dog en-

gaged thereby, all housed within the weight, electrical contacts in position to be engaged by anything projecting from the car and  
15 electrical connections including the contacts and the electromagnets, substantially as described, for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

HERBERT Y. BALDWIN.

Witnesses:

CORNELIUS HEALEY,

THEO. D. L. MANVILLE.