

P. N. DAVEY.
ELEVATOR.

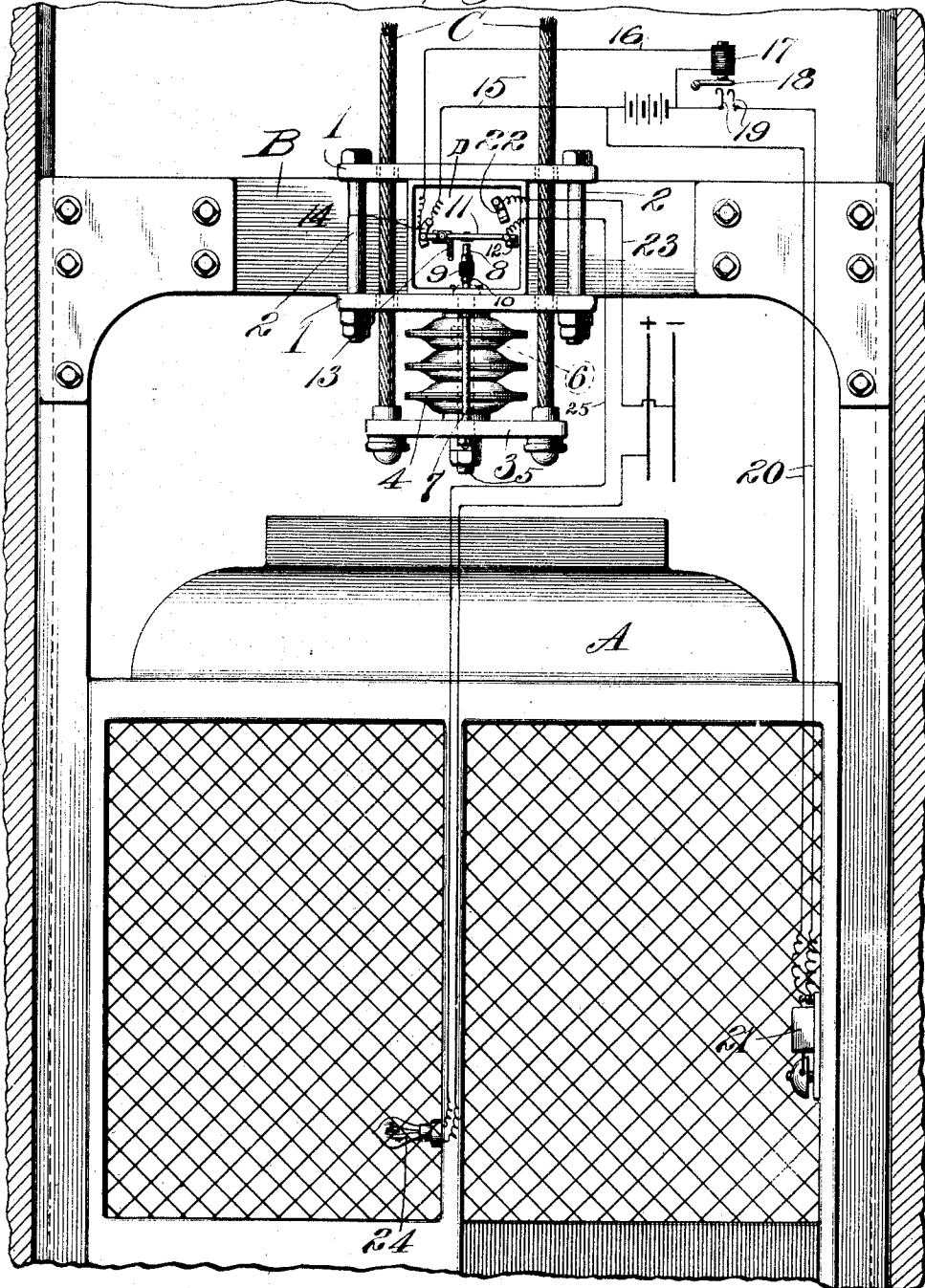
APPLICATION FILED JAN. 14, 1909.

949,266.

Patented Feb. 15, 1910.

2 SHEETS—SHEET 1.

Fig. 1.



Attest:
L. G. Kneeland

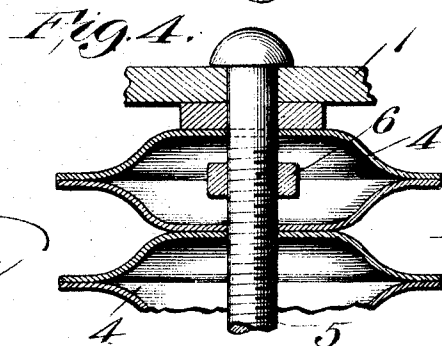
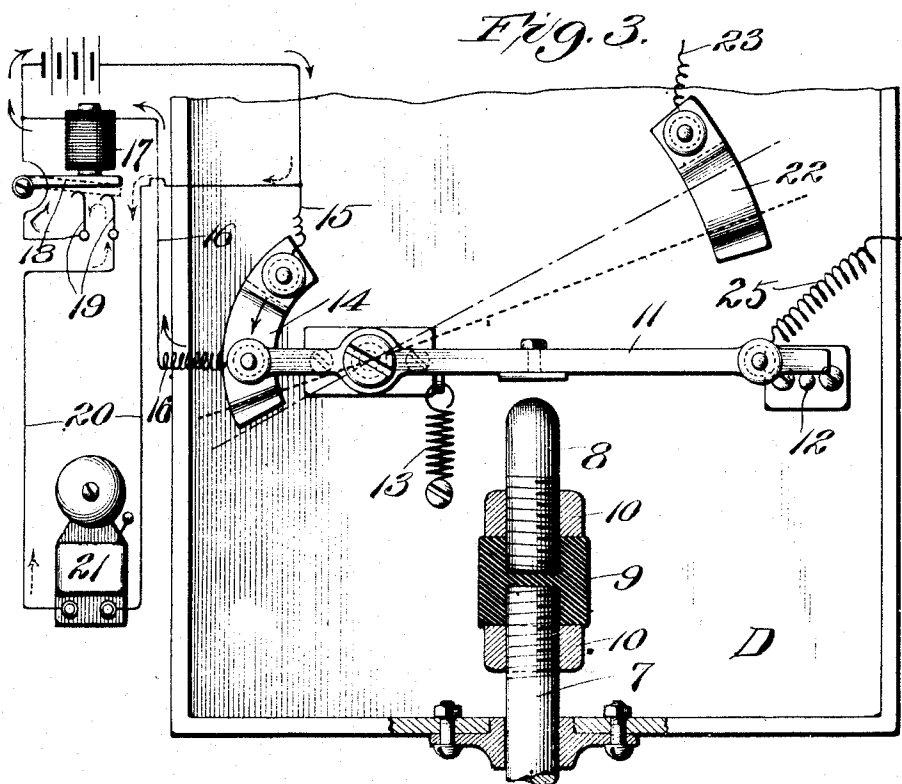
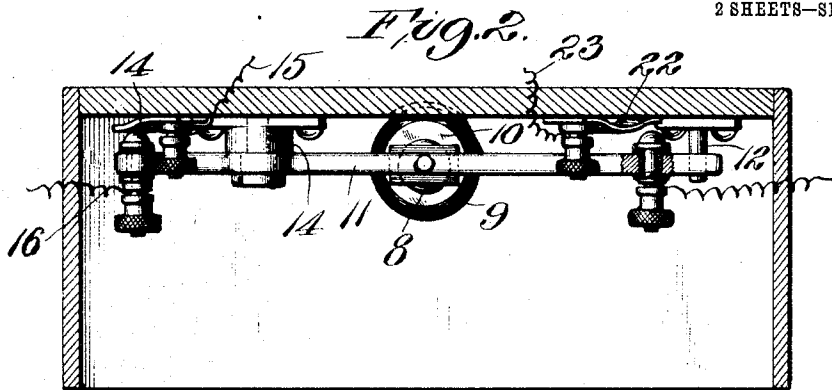
Inventor:
P. N. Davey,
by J. R. Ripley

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2 SHEETS—SHEET 2.



Attest:
M. H. Scott
L. C. Kingland

Inventor:
P. N. Davey
by *J. L. Rippey*
att'y.

UNITED STATES PATENT OFFICE.

PAUL N. DAVEY, OF CARTHAGE, MISSOURI.

ELEVATOR.

949,266.

Specification of Letters Patent.

Patented Feb. 15, 1910.

Application filed January 14, 1909. Serial No. 472,162.

To all whom it may concern:

Be it known that I, PAUL N. DAVEY, a citizen of the United States, residing at Carthage, in the county of Jasper and State of Missouri, have invented a new and useful Elevator, of which the following is a specification.

This invention relates to elevators, and more particularly to signal mechanisms for use in elevators whereby the operator will be informed of the progress of loading; and it consists of a yielding suspension device and a signal arranged to operate at a time when a predetermined weight, which is less than the maximum weight allowed, is in the elevator, and another signal which operates to inform the operator the moment the maximum weight enters the elevator.

With this general statement of the nature of the invention, from which the object and purpose are apparent, I will proceed to describe one embodiment of the invention, reference being made to the accompanying drawings, in which—

Figure 1 is a view illustrating the invention applied to an elevator of ordinary construction. Figs. 2 and 3 are plan and side elevations, respectively, of the switch device controlling the signals. Fig. 4 is a sectional view of the spring plates whereby the elevator is suspended.

A indicates an elevator car of the usual type having the beams B secured to the frame thereof to which the elevator cable C may be connected. These parts are found in all elevators and it is in connection or combination therewith that my invention is to be used.

The beams B are embraced between two plates 1 which are held by bolts 2. The cables C pass through holes in the plates 1 and are attached, at their lower ends, to a plate 3. A disk compression-spring 4, composed of a number of spring plates arranged as shown, is interposed between the lower plate 1 and the plate 3, and held from displacement by a rod or bolt 5 extended through holes in said spring plates and through the lower plate 1 and the plate 3. Said bolt is provided with a nut 6 which is arranged to control the extent of compression and expansion of the spring. While I have shown, and prefer to use, a disk spring, because of

its superior qualities for this purpose, it is obvious that any other type may be employed when the circumstances justify the change.

A vertical rod 7 is attached to and moves vertically with the plate 3 and extends through a hole in the lower plate 1 where it enters a dust-proof box D. An adjustable contact point 8 is secured to the upper end of the rod 7 by means of a collar 9 engaging the adjacent ends of the parts 7 and 8, and lock nuts 10 arranged to bind against the ends of the collar to hold the parts from becoming displaced. The point 8 may be extended or reduced in length, as desired, by adjustment of the collar 9, the nuts 10 being operable to release and bind the parts to permit such adjustment. A switch arm 11 is pivoted above the point 8 and is held in horizontal position on an abutment or stop 12 by means of a retractile spring 13. In its horizontal position one end of the switch arm is in contact with a contact member or terminal 14 in the circuit of an electrically energized wire 15. The other wire 16 of the circuit is connected to the switch arm 11, so that when the arm 11 is in contact with the member 14 the circuit is complete. A magnet 17 is in the circuit thus formed and its armature 18 is held against the core of the magnet and away from the terminals 19 when the circuit is complete. When the switch arm 11 is moved away from the contact member 14 the circuit is broken, the armature 18 drops onto the terminals 19 and forms a circuit through the wires 20. On this circuit is an audible signal 21 which is thrown into operation when the circuit is established.

22 indicates a contact member to which is connected a wire 23 forming part of a circuit on which is located a visible signal 24 which is made operative when the circuit is completed. The opposite end of the switch arm 11 from the wire 16 is connected to a wire 25 forming part of the circuit through the signal light 24, the circuit being completed when the switch arm is thrown into contact with the contact terminal 22. The arrangement is such that, when the switch arm is moved on its pivot, it will contact with the terminal 22 and operate the visible signal before leaving the terminal 14.

In operation, the adjustment point 8 having been regulated as the weight increases in the elevator and approaches the desired limit, the springs 4 yield and the rod 7 operates the switch arm 11 into contact with the terminal 22 thereby causing the signal 24 to inform the operator that the weight in the elevator is nearing the maximum. Further increase of weight in the elevator continues the movement of the switch arm 11 until the circuit through the contact member 14 is broken and the magnet 17 releases the armature which thereupon forms part of a new circuit to operate the audible signal, which is information that the maximum weight allowed in the elevator has been exceeded. In its extended adjustment the point 8 will operate the switch arm 11 with less weight in the elevator than when said point is in a lower adjustment. Various adjustments of said point may be effected as required to cause operation under any desired or predetermined weight in the elevator, so that the signals may be caused to operate with greater or less weight in the elevator, as desired. In any instance, assuming that the resistance of the springs 4 remains constant and unvarying, the weight which can be placed in the elevator prior to the operation of the signals is dependent on the proximity of the point 8 to the switch arm 11, all of which is apparent from Fig. 1 of the drawing. In this way the operator and the passengers, are informed of the condition of the elevator with respect to weight before and after excess of weight is admitted thereon. This invention is adapted for use in various kinds of passenger and freight elevators, and serves as a safeguard against overloading, to which many accidents are attributed.

I am aware that there may be various embodiments of the invention, and variations from the arrangement shown and described, without departing from the spirit and scope

of the invention. I do not restrict myself to details, but

What I claim and desire to secure by Letters Patent is:

1. The combination with an elevator, of a signal, electric mechanism arranged to operate said signal when a predetermined weight which is less than the maximum weight portable by the elevator is on the elevator, and another signal controlled by said electric mechanism effectively to operate when the maximum weight is on the elevator, substantially as specified.

2. The combination with an elevator, of two signals, and electric mechanism controlling both of said signals effectively to operate them, respectively, when two predetermined weights are exceeded in loading the elevator, substantially as specified.

3. The combination with an elevator, of a visible signal, operating means for causing said visible signal to operate when a predetermined weight is on the elevator, and a second signal controlled by said operating means effectively to operate only when the maximum weight to be carried by the elevator is exceeded, substantially as specified.

4. The combination with an elevator, of signal mechanism, electric mechanism causing said signal to operate when a predetermined weight is placed on the elevator, and another signal mechanism controlled by said electric mechanism effectively to operate only after said first-named signal mechanism operates, when additional weight is placed on the elevator, substantially as specified.

In testimony whereof I have hereunto affixed my signature this 31st day of December, 1908, in the presence of two witnesses.

PAUL N. DAVEY. [L. S.]

Witnesses:

R. A. HOCKENSMITH,
EDITH HARKER.