

(No Model.)

2 Sheets—Sheet 1.

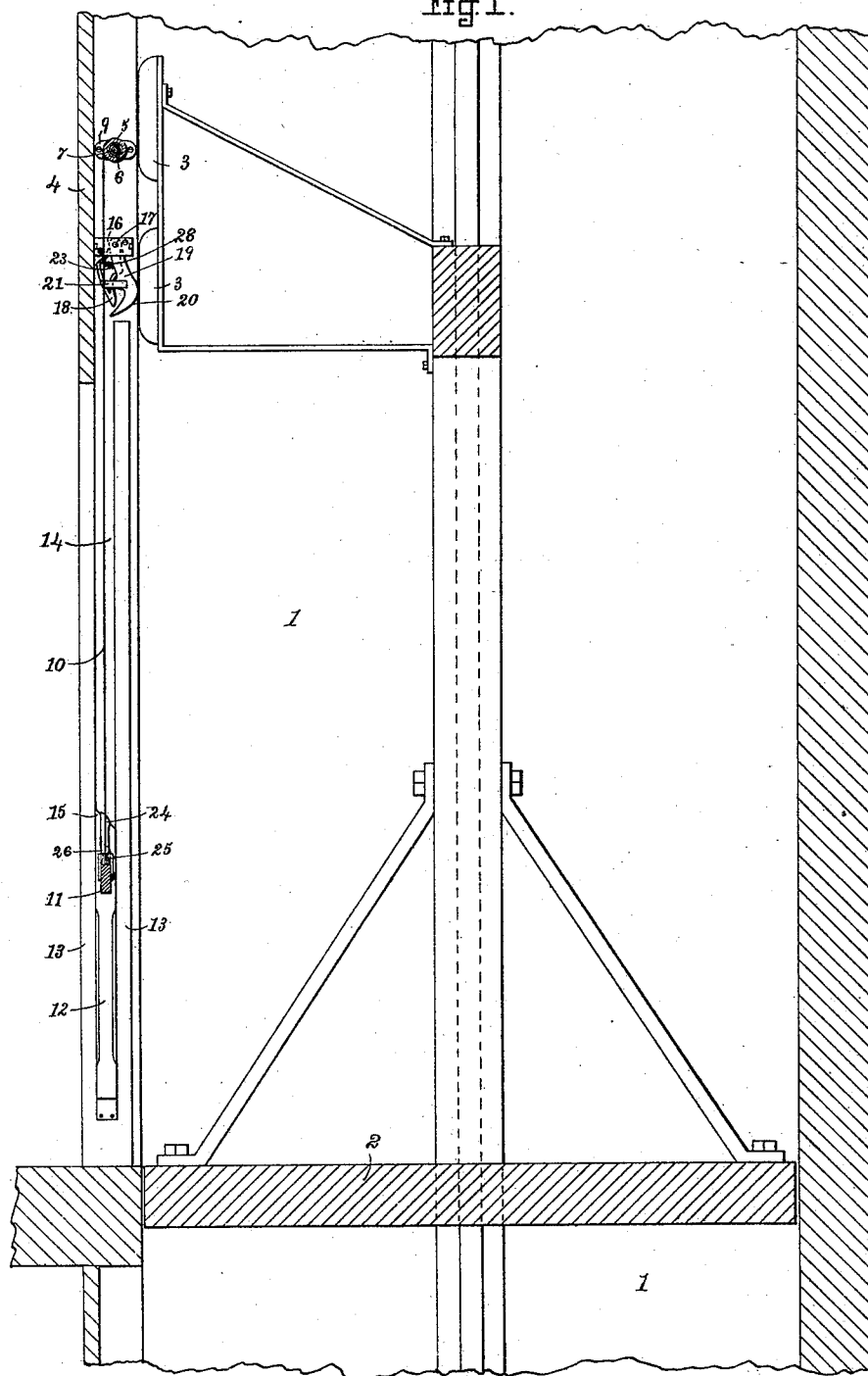
J. ADDIE.

HATCHWAY GUARD FOR ELEVATORS.

No. 272,932.

Patented Feb. 27, 1883.

Fig. 1.



Witnesses

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James W. Watson

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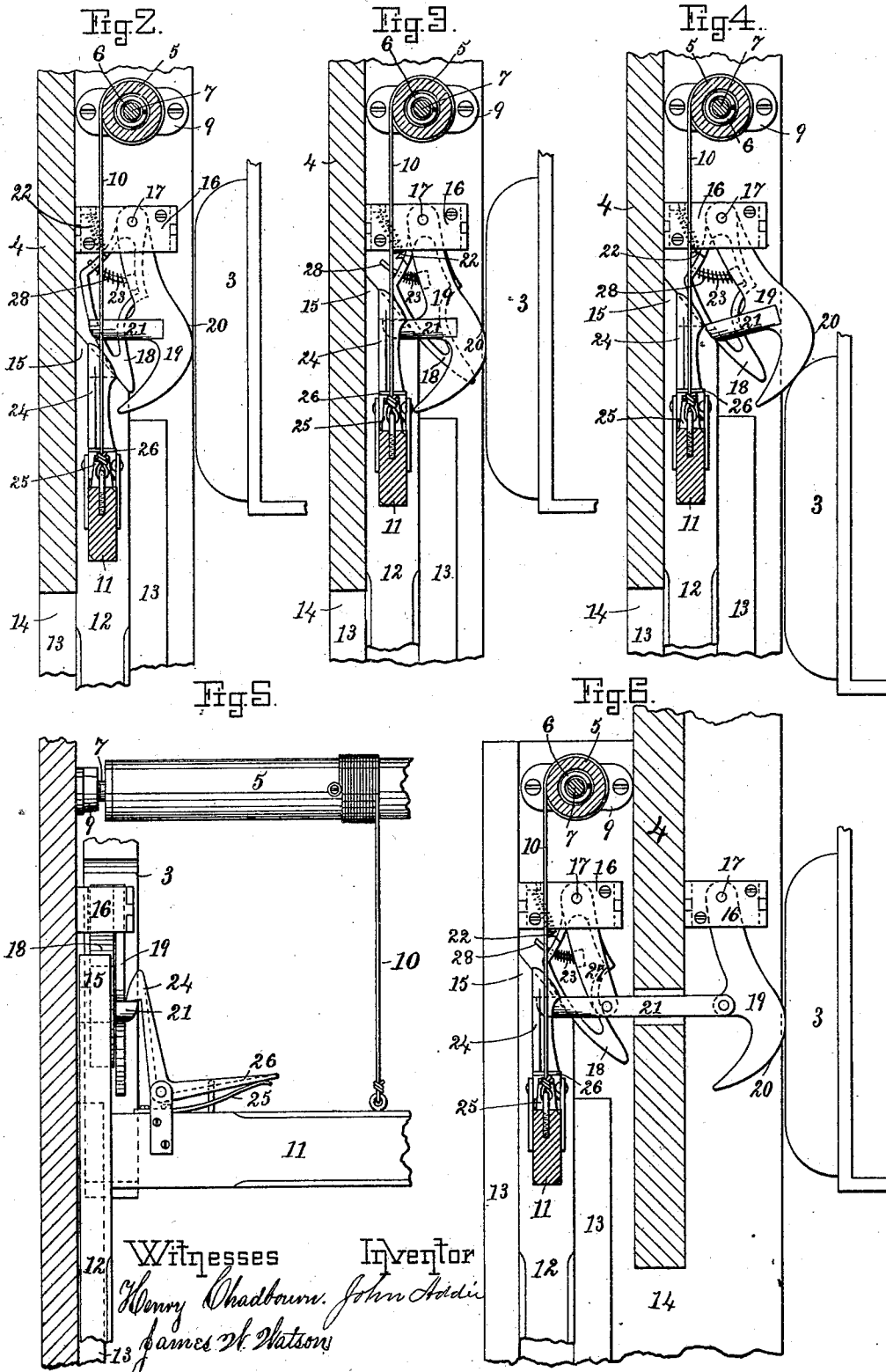
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UNITED STATES PATENT OFFICE.

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HATCHWAY-GUARD FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 272,932, dated February 27, 1883.

Application filed September 16, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOHN ADDIE, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Hatchway-Guards for Elevators; and I do hereby declare that the same are fully described in the following specification and illustrated in the accompanying drawings.

This invention relates to improvements in hatchway-guards for elevators, and has for its object to provide novel and efficient devices for holding the hatchway gate or guard in its elevated or open position and automatically releasing the same at the required moment, to provide novel means, whereby the gate when released from the holding device will be prevented from closing with excessive force, but will gradually and easily assume its closed position, thereby avoiding noise and concussion incident to some vertically-sliding gates, which when released fall with considerable force, and in this respect are objectionable. These objects I accomplish by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a vertical sectional view through a portion of the elevator-well, the car or carriage, and the hatchway guard or gate; Fig. 2, a broken sectional view, showing the position of the holding parts when the elevator is opposite the hatchway-opening and the upper end of the gate is in the act of being engaged with its holding device; Fig. 3, a similar view with the gate engaged and held in its elevated position by the holding device; Fig. 4, a similar view with holding device in the position it assumes to release the gate; Fig. 5, a broken side elevation, partly in section, with the parts in the position shown in Fig. 3; and Fig. 6, a modification showing the gate arranged outside the wall of the elevator-well.

The elevator-well 1 and the car platform or carriage 2 may be of any known or approved construction or form, and the upper part of the car having an attached lateral projection or arm, 3. Within the well and transversely across the same in rear of the front wall, 4, is ar-

anged a roller, 5, containing a coiled spring, 6, wound around a spindle, 7, all in a manner similar to or the same as the usual spring-roller for automatically winding up a window-curtain. This roller is journaled at its ends in suitable bearings 9, and at or near a point midway of its length is wound and attached one end of a cord or rope, 10, the other or lower end of which is attached at or near the center of the top cross bar, 11, of a vertically-movable gate or guard, 12, which is guided between upright battens 13. This gate may be of any usual construction to serve as a guard to lower part of the ordinary hatchway-opening, 14, and its upper cross-bar, 11, is provided at one end with a vertically-projecting wedge-shaped arm, 15. At one side of the elevator-well is secured a block or bearing, 16, provided with a pin, 17, on which are hung the upper ends of a lever, 18, having a curved outer face and a gate holding-arm, 19, which is curved at its rear edge, as at 20, and is provided with a forward projecting stud or lug, 21, arranged to project in the path of the hooked end of the latch 24 on the gate 12, when the projection 3 on the elevator-car operates on said holding-arm and presses the same outward or toward the front wall, 4, of the well. The lever 18 is normally drawn outward by a spring, 22, while a spring, 23, arranged to operate on both the holding-arm and lever, serves to throw them apart when the former is released by the projection on the elevator-car. The spring 23 is coiled around a curved arm, 23, attached to the holding-arm, and passing through an orifice or aperture in the lever in such manner that said spring will be supported in position so as to act at its opposite ends on the holding-arm and lever, respectively. At one end of the upper cross-bar, 11, of the gate or guard 12 is pivoted a right-angled latch, 24, having a hooked upper end to engage the stud or lug 21 on the holding-arm, and at its lower end operated on by a spring, 25, arranged between its thumb or finger piece 26 and the cross-bar 11, the tendency of which is to cause the automatic engagement of the hook with the holding-arm.

In operation, when the elevator-car is opposite

the hatchway-opening, Fig. 1, the projection 3 will be in such position as to press the holding-arm 19 outward toward the front wall, 4, as in Fig. 3, and if the gate be now raised or elevated the cord or rope will be automatically wound upon the roller 5, and the wedge-shaped arm 15 will press the lever 18 inward or away from the wall 4, so as to compress the coiled spring 23 between the holding-arm and lever, which is rendered possible by reason of the projection 3 preventing inward movement of the holding-arm, which latter will thus be retained with its stud or lug 21 in the path of the hook on the catch 24. This hook, by engaging with the said stud or lug, will thereby retain the gate or guard in an elevated position to permit free access to the elevator-car. If the car is now raised or lowered, the projection 3 will move away from the holding-arm, thereby releasing the same and permitting it to be suddenly thrown inward by the reaction of the spring 23, which movement disengages its stud or lug 21 from the hook-catch 24 on the gate, and thereby permits the latter to descend to its normal position. The descending movement of the gate or guard is retarded by the spring-roller 5, and therefore the gate is prevented from suddenly falling with such force and speed as to create considerable noise and concussion. It will of course be obvious that the tension of the spring in the roller must be so regulated as to permit the gate, when released, to gradually or evenly descend by gravity, the tension necessary only being sufficient to avoid too rapid descent of the gate, which would obviously produce concussion and noise.

In Fig. 6 I have shown a modified arrangement of gate-holding devices, which permits the gate to be arranged outside of the front wall, 4, of the elevator-well. In this example the stud or lug 21, instead of being rigidly attached to the holding-arm 19, is pivoted thereto and projects through an aperture in the front wall, the outer portion of the stud or lug being pivoted to an arm, 27, which is hung on the pivot at the upper end of the lever 18. The remaining parts of the invention and the entire mode of operation are the same as those

hereinbefore described, and therefore I do not deem it essential to recapitulate.

I do not confine myself to any particular construction of spring-balance fixture for permitting the gate or guard to close in the manner set forth, as modifications will naturally suggest themselves to every one. Also, I do not wish to confine myself to a right-angled latch on the gate, as there are many kinds of latches that can be used to equal advantage.

Having thus described my invention, what I claim is—

1. The combination, with a hatchway-gate for elevators, of gate-retaining mechanism, consisting of a pivoted holding-arm, a pivoted lever, a spring operating to throw the arm and lever away from each other, and a catch on the gate, substantially as described.

2. The combination, with a hatchway-gate having a catch, of a pivoted gate-holding arm adapted to come in contact with a projection on the car, and provided with a lateral stud or lug to engage the catch on the gate, and a spring operating to throw the holding-arm inward to disengage the gate when the projection on the car releases the holding-arm, substantially as described.

3. The combination, with a hatchway-gate having a catch, of a pivoted lever having a curved outer edge, a pivoted gate-holding arm having a curved inner edge, and a spring interposed between the lever and the arm, substantially as described.

4. The combination, with a hatchway-gate having an attached wedge-shaped arm and a pivoted spring-catch, of a lever and a holding-arm, a spring operating to throw the lever and arm away from each other, and a stud or lug projecting laterally from the holding-arm to automatically engage and disengage the catch on the gate, substantially as described.

In testimony whereof I have affixed my signature in the presence of two witnesses.

JOHN ADDIE.

Witnesses:

HENRY CHADBURN,
JAMES W. WATSON.