

(No Model.)

C. S. WESTCOTT, Dec'd.

H. S. WESTCOTT, executrix.
GOVERNOR FOR ELEVATORS.

No. 264,386.

Patented Sept. 12, 1882.

FIG. 1.

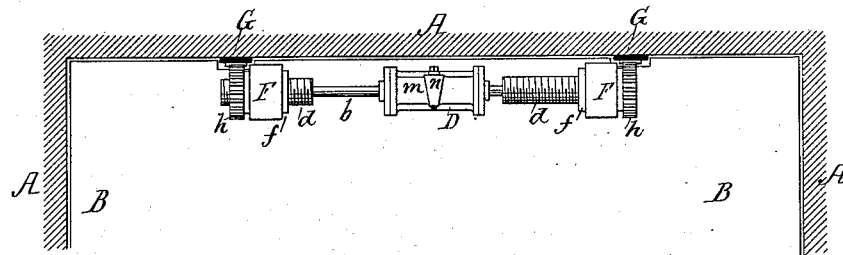


FIG. 2.

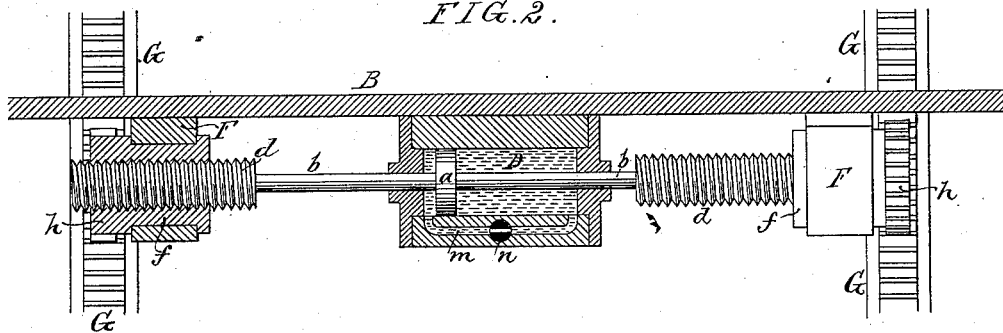


FIG. 3.

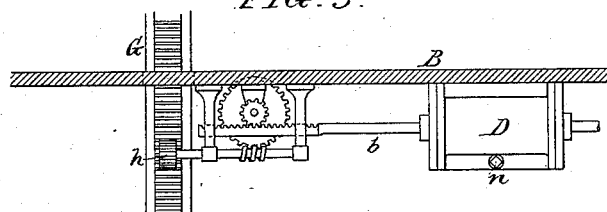
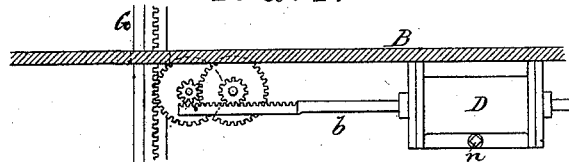


FIG. 4.



Witnesses.
Harry Drury
James J. Tobin

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by his Attorneys.
Hawm and Sons

UNITED STATES PATENT OFFICE.

CHARLES S. WESTCOTT, OF PHILADELPHIA, PENNSYLVANIA; HAMILTON S. WESTCOTT EXECUTRIX OF SAID CHARLES S. WESTCOTT, DECEASED.

GOVERNOR FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 264,306, dated September 12, 1882.

Application filed March 3, 1882. (No model.)

To all whom it may concern :

Be it known that I, CHARLES S. WESTCOTT, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented certain Improvements in Governors for Elevators, of which the following is a specification.

My invention relates to certain improvements in that class of governors for elevators in which the descent of the car or cage is dependent upon the forcing of liquid through a contracted passage from a cylinder or other receptacle, in advance of a piston or diaphragm therein, the movement of said piston or diaphragm being due to the movement of the cage.

The objects of my improvements are to render the movement of the cage uniform and readily controllable, and to prevent falling of the cage in the event of the breaking of the hoisting-rope.

In the accompanying drawings, Figure 1 is an inverted plan view, showing part of an elevator well and cage or platform with my improved governor; Fig. 2, a vertical section on a larger scale than Fig. 1, and Figs. 3 and 4 diagrams showing modifications of the invention.

A represents part of the casing of an elevator-well, and B part of the cage, preferably the roof or one of the upper beams.

To the cage B is secured a cylinder, D, and two bearings, F F, the cylinder having a piston, *a*, the rod *b* of which projects through both heads of the cylinder, and is furnished at each end with a screw-thread, *d*, these threaded portions of the rod being adapted to nuts *f*, which can turn in the bearings F, but are furnished with flanges, which prevent any longitudinal movement of the nuts in the bearings. Each nut *f* has at the outer end a pinion, *h*, which gears into a rack, G, on the side of the elevator-well, so that as the cage ascends or descends the nuts are rotated, and the piston *a* is caused to move in the cylinder D in one direction or the other. The cylinder D contains water, oil, or other liquid, which, as the piston reciprocates, is caused to pass from one end of the cylinder to the other through a passage, *m*, in which is a valve, *n*, so that by

the adjustment of this valve the area of the passage may be governed and the flow of liquid through the same regulated as desired, the speed of ascent or descent of the cage being thus controlled, for the rate of speed of ascent or descent is dependent upon the speed at which the racks G are permitted to turn the nuts *f*, the rotation of the nuts causing the reciprocation of the piston *a*, and the rate of movement of the latter being dependent upon the extent to which the flow of liquid through the passage *m* is retarded.

I am aware that governors have been heretofore devised in which the cylinder, with its piston and controllable passage, has been used; but in all such cases, so far as I am aware, the movement of the piston has been effected by connecting-rods and cranks actuated by pinions gearing into racks, the piston making a complete stroke to and fro for each rotation of the crank and a number of strokes for each journey of the cage. Such an arrangement is objectionable on account of the extended movement of the piston and rapid flow of the liquid which it necessitates, but principally because of its irregularity, the cage traveling much faster when the piston is at and near each end of its stroke than when said piston is at and near the center of the stroke, as will be readily understood. My invention overcomes these difficulties, as the piston exercises precisely the same control over the nuts *f* at all points of the stroke, and makes but one stroke for each journey of the cage.

Although I prefer in carrying out my invention to construct the device as shown in Figs. 1 and 2 of the drawings, various modifications of the same within the scope of my invention will readily suggest themselves to those familiar with machinery of this class. For instance, the device may be single instead of duplex, as shown, one rack, pinion, and nut being dispensed with; or other means than the threaded piston-rod and nut may be used. Thus the rack may actuate a pinion the shaft of which carries a worm gearing into a worm-wheel, a pinion on which engages with a rack on the piston-rod, as shown in Fig. 3; or a rack on the piston-rod may mesh into a pinion on a shaft rotated slowly by spur-gearing, which meshes

into the rack in the well, as shown in Fig. 4. Whatever combination of gearing is used, however, it must be such that the piston *a* will at all points in the stroke exercise the same controlling influence over the pinion which gears
5 into the fixed rack in the well.

The pinions *h* may be disconnected from the nuts *f*, if desired, and provided with pawl-and-ratchet devices, whereby on the ascent of the
10 cage they exercise no control over the nuts, but are clutched thereto as soon as the cage commences to descend. I prefer, however, to use the arrangement shown, whereby both the ascent and descent of the cage are governed.

15 Instead of forcing the liquid from one end of the cylinder to the other, the cylinder may be furnished with inlet and discharge pipes suitably valved, whereby on the movement of the piston in one direction liquid is drawn into the cylinder in the rear of the piston, to be
20 forced from the cylinder through the contracted outlet on the reverse movement of the piston. A diaphragm may in some cases take the place of the reciprocating piston, if preferred.

25 I claim as my invention—

1. The combination, in an elevator-governor, of the following elements, namely: the fixed rack in the well, the car or cage, the cylinder or other receptacle of liquid carried thereby, and having a piston or diaphragm and a con-
30 tracted outlet or passage for the liquid, a pinion adapted to bearings on the car or cage and gearing into the rack, and mechanism, substantially as described, whereby the piston or diaphragm is caused to control the rotation of
35 the pinion, said control being uniform at all points in the stroke, as set forth.

2. The combination of the rack *G*, the car or cage having the cylinder or receptacle with contracted passage or outlet, and piston or dia-
40 phragm *a*, the rod *b*, with thread *d*, the nut *f*, with pinion *h*, and the bearing *F*, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

C. S. WESTCOTT.

Witnesses:

HARRY DRURY,
HARRY SMITH.