

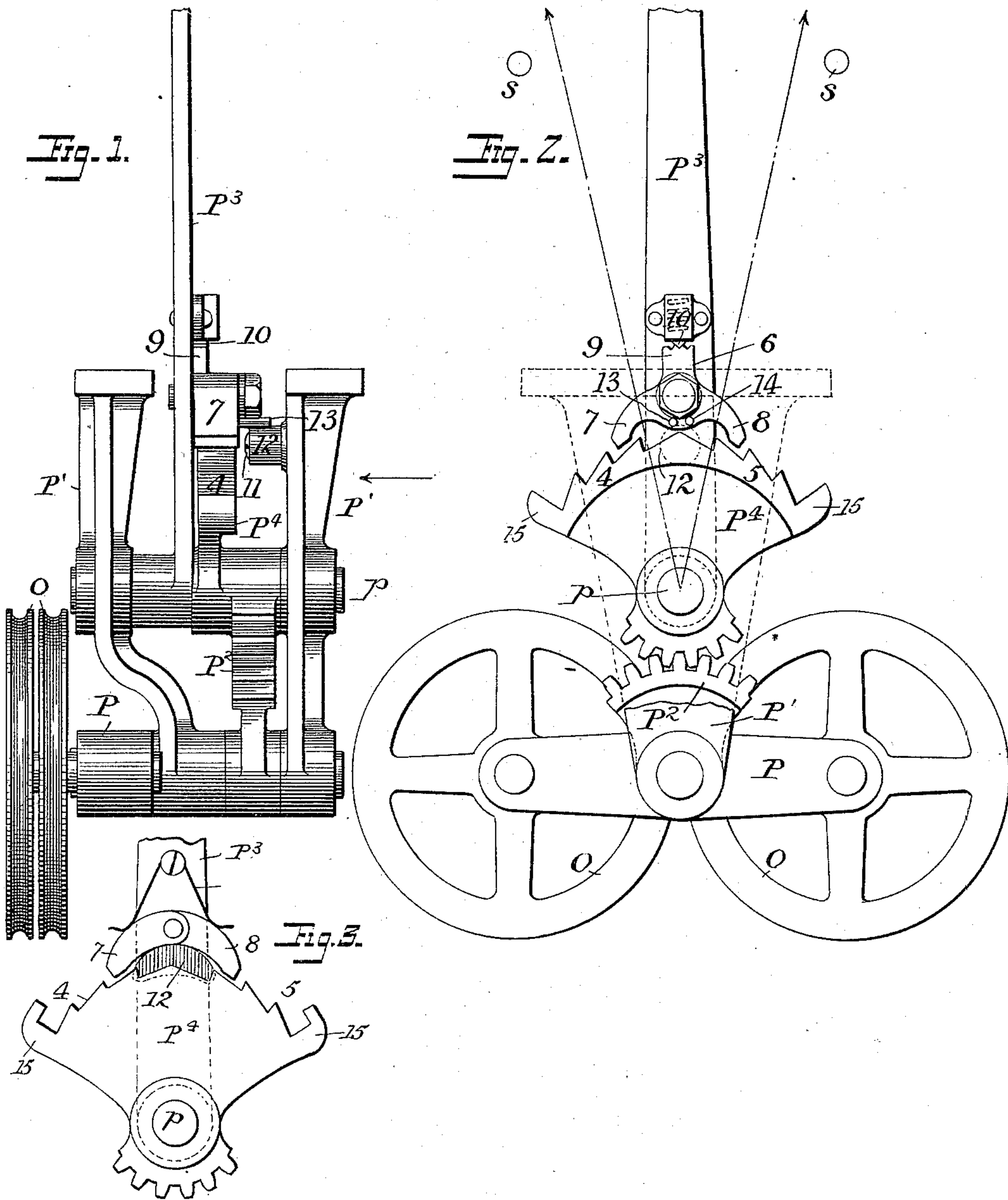
(No Model.)

R. C. SMITH.

STOPPING OR STARTING DEVICE FOR ELEVATORS.

No. 565,696.

Patented Aug. 11, 1896.



Witnesses

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# UNITED STATES PATENT OFFICE.

RUDOLPH C. SMITH, OF YONKERS, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE NATIONAL COMPANY, OF CHICAGO, ILLINOIS.

## STOPPING OR STARTING DEVICE FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 565,696, dated August 11, 1896.

Application filed March 4, 1892. Serial No. 423,770. (No model.)

*To all whom it may concern:*

Be it known that I, RUDOLPH C. SMITH, a citizen of the United States, and a resident of Yonkers, Westchester county, and State of New York, have invented certain new and useful Improvements in Stopping and Starting Devices for Elevators, of which the following is a specification.

My invention relates to stopping and starting devices for elevators, and while it is specially applicable to elevators operated by electric motors, it is applicable also to other motors, and it has for its object to provide mechanical means whereby the operator is required to move the stopping and starting device gradually or step by step, requiring a pause in the movement of the operating-arm before the operation of the stopping and starting device is completed.

Figure 1 is a side view of a segmental lever for operating the starting and stopping device. Fig. 2 is a front view of the same, and Fig. 3 is a front view of a modification.

In the accompanying drawings I have illustrated only the portion of the starting and stopping device which is ordinarily carried on the car, it being understood that the ropes or other devices serve as connectors between this mechanism and the motor.

In the drawings, O O are the sheaves over which the ropes of the stopping and starting device travel, and these sheaves are mounted on a bar P, which is connected with a segmental rack P<sup>2</sup>. There is a lever P<sup>3</sup> loosely mounted on a shaft p, shown above the bar P in the supports P', and on this shaft p is mounted a sector P<sup>4</sup>, having reverse-teeth 4 5. Also mounted on the lever P<sup>3</sup> is a pawl 6, having projections 7 and 8, and the upper portion 9 of the pawl is provided with notches, in one of which the spring-dog 10, also fastened to the lever, normally rests.

Mounted on one of the supports P', which may be attached to the car in any suitable position, is a stud 11, having a friction-roller 12, and projecting from the pawl 6 are the pins 13 14, which normally bear on the roller 12 and maintain the pawl in the position shown in Fig. 2 out of engagement with the teeth of the segmental rack. When, however, the lever P<sup>3</sup> is operated in either direc-

tion, its range of movement being limited by suitable stops S, the pins 13 14, riding over the roller 12, cause one of the projections of the pawl 7 to engage one of the notches of the segmental rack 4, and the sector is moved, turning the segmental plate P<sup>2</sup> and the connector-bar P, to move the controlling-ropes connected with the switch a certain distance. The lever P<sup>3</sup> is then returned to its normal position, and on the next movement the projection 7 engages the next tooth of the sector-bar, and still further moves said bar to further operate the switch. When it is desired to move the switch in the opposite direction, of course the projection 8 will engage one of the sector-teeth 5, and the sector will be moved in the opposite direction one step, and so on until it is restored to its normal or other desired position, and it will be seen that the pins 13 14, riding on the fixed roller 12, will cause the pawl to assume the position shown in Fig. 2 whenever the lever P<sup>3</sup> is in its normal position.

In Fig. 3 I have shown a modified form, in which there are two pawls 7 8 independently pivoted on the same pivot, and spring-pressed, so as normally to rest upon the cam 12, but when the lever is operated in either direction the corresponding pawl engages the ratchet-teeth and moves the switch step by step, as above indicated.

The sector P<sup>4</sup> is provided at its extremities with the upturned projections or lugs 15, and it will be seen that when the lever has been operated to move the sector to the full extent in one direction, the lug 15 will be in position to receive the thrust of the other pawl, and if necessary the switch-arm can be moved by a single movement of the lever far enough to completely cut out the circuit of the motor. It will be observed that when the lever is in its extreme position to one side the pawl on the opposite side rests on the cam 12, and would not be in position to engage the teeth of the sector, but will be in position to engage the lug 15, which projects beyond the teeth, so that the pawl immediately becomes operative on the sector when the lever is moved to return it to its normal position.

From the above it will be seen that when



the lever is moved in one direction or the other to operate the starting and stopping device, the bar P will be gradually operated so as to move step by step, there being a pause  
5 in the movement of the said bar after it has been started before it can be completely moved, as the lever P<sup>3</sup> has to be withdrawn to its normal position and moved forward again, and the motor is gradually started or  
10 stopped without producing undue shock.

What I claim is—

The combination with the ratchet, of the

lever carrying a pawl, and a pawl-holding device, the ratchet being provided with extra lugs which insure contact with the pawl before it passes from the holding device, substantially as described. 15

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

RUDOLPH C. SMITH.

Witnesses:

HENRY L. BRANT,  
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