

(No Model.)

W. WINKLESS.
SAFETY APPLIANCE FOR ELEVATORS.

No. 490,219.

Patented Jan. 17, 1893.

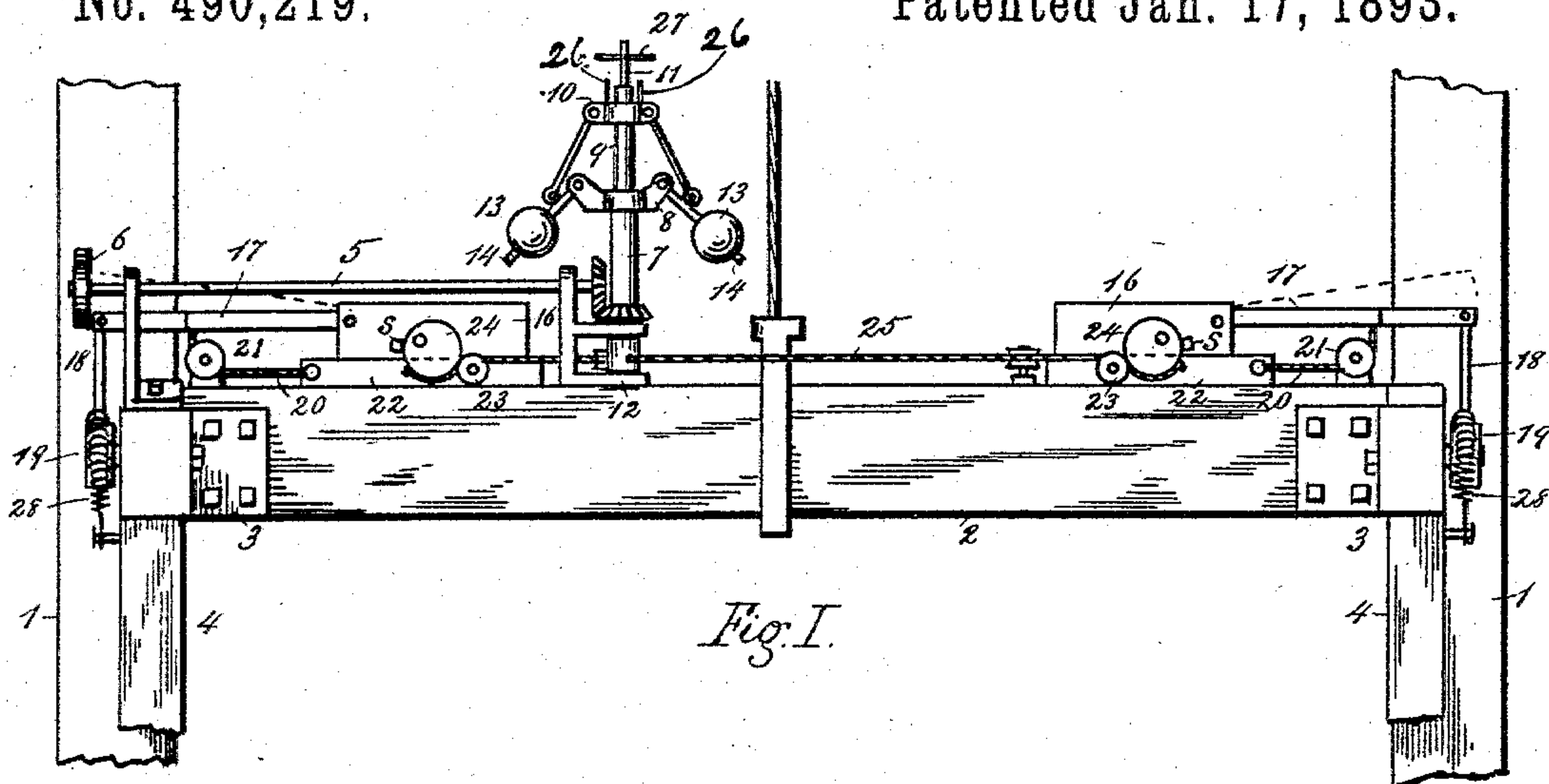


Fig. I.

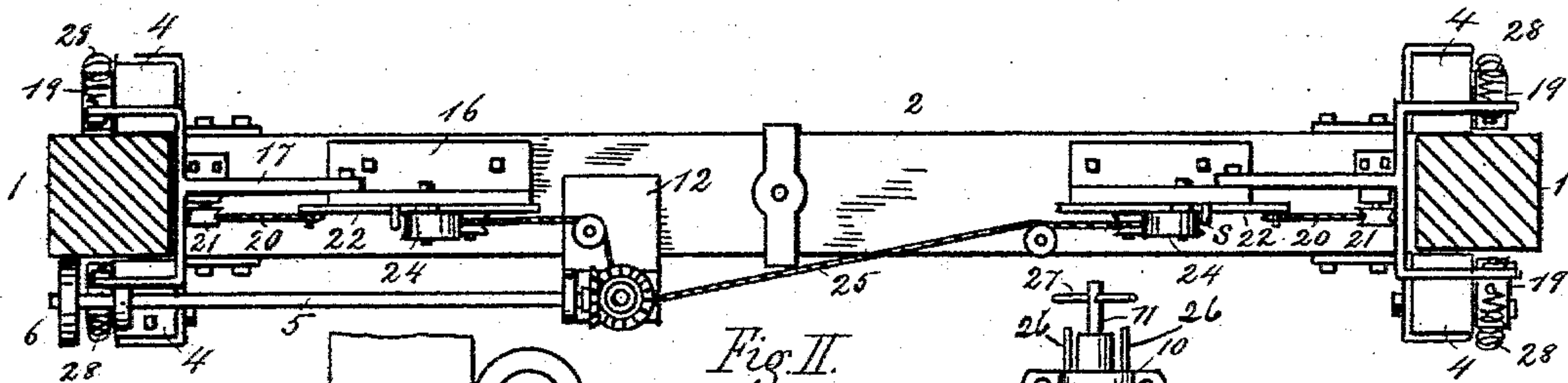


Fig. II.

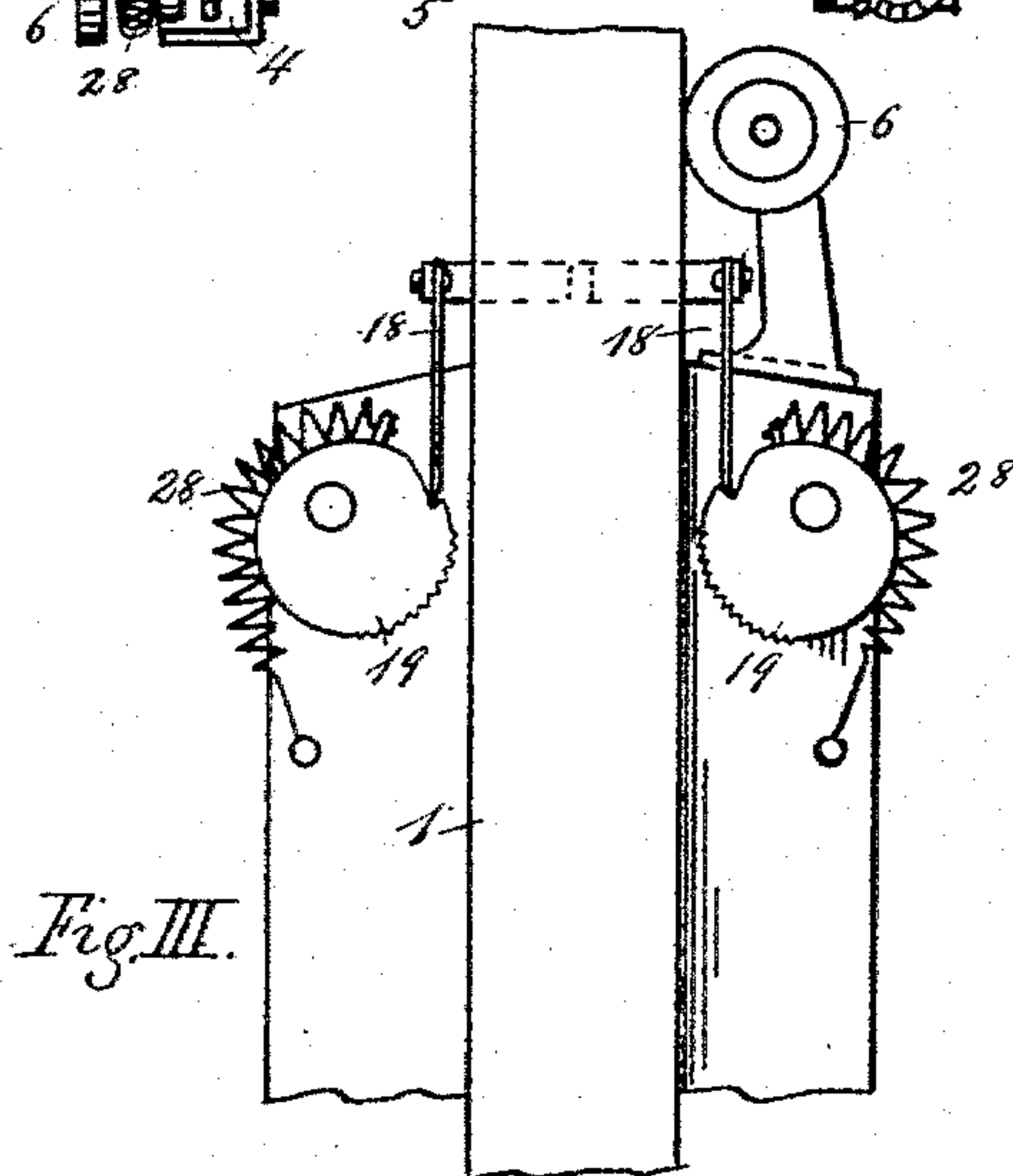


Fig. III.

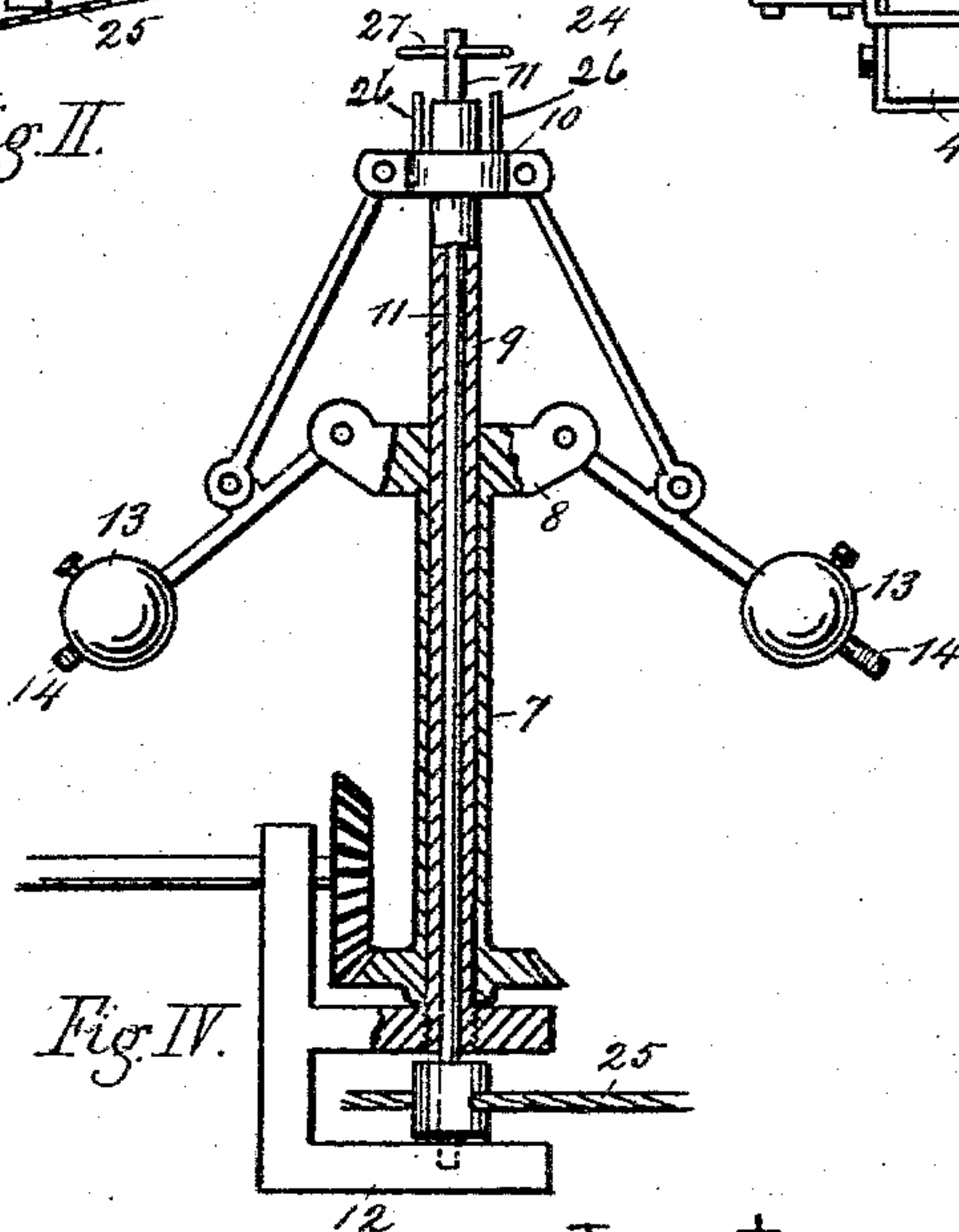


Fig. IV.

Witnesses.

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UNITED STATES PATENT OFFICE.

WILLIAM WINKLESS, OF NEWPORT, KENTUCKY.

SAFETY APPLIANCE FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 490,219, dated January 17, 1893.

Application filed April 18, 1892. Serial No. 429,661. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM WINKLESS, a citizen of the United States, residing at Newport, in the county of Campbell and State of Kentucky, have invented a new and useful Improvement in Safety Appliances for Elevators, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure I is a front elevation of the top of an elevator car provided with my improved safety appliance. Fig. II, a top or plan view of the same. Fig. III, a side view showing the position of the clamps when out of engagement and Fig. IV, an enlarged view of the governor partly in section.

My invention relates to improvements in safety appliances for passenger or freight elevators. It is well known that the devices generally employed to prevent the disastrous effects of a sudden descent of the car in case of accident are called into action by the breaking of the ropes upon which the car is suspended, but it has become equally well known by all who have had experience in the construction and management of elevators that a large proportion of the many accidents that have occurred were due to the derangement of the hydraulic or steam machinery which imparted motion to the car and not to the breakage or failure of the ropes.

The object of my invention is to provide a simple, practical, and reliable device whereby the downward flight of the car may be automatically arrested, whenever by any cause, it is released from its support.

Referring to the accompanying drawings, 1 designates the vertical guides or timbers between which the car moves. 2 indicates the top cross-beam of the car secured by angle irons 3 to the side stanchions 4. A horizontal shaft 5, journaled as shown, carries on its outer end a friction roller 6, the rim of which is composed of rubber tubing or other elastic material adapted to insure constant frictional contact with the vertical guide. The opposite end of this shaft imparts motion to the governor by means of bevel gearing. The shaft of the governor is composed of an outer sleeve 7 which carries the gear wheel below, and the collar 8 above. An inner sleeve 9 which is stationary, forms an axle for the up-

per collar 10, and an interior spindle 11 which extends through and below the sleeves is journaled in the angle plate 12. It will be seen that the spindle remains stationary except when called into action for the purpose of checking the fall of the car. The balls 13 are adjustable on the threaded arms 14. The peculiar utility and operation of the governor will be hereinafter described. Plates 16, each having a vertical flange, are bolted on top of the cross-beam. An arm 17 is pivoted at its inner end to each of said flanges. Their outer ends are bifurcated and carry dependent fingers 18, which are adapted to engage notches in the eccentric clamps 19. Chains or cords 20 extend from the under side of the pivoted arms 17 and pass under idler pulleys 21 to the outer ends of sliding plates 22, which occupy recesses in the adjoining plates 16. The inner ends of the slides are provided with idlers 23 adapted to engage the grooved eccentric wheels 24 which are pivoted on the faces of the plates 16. The eccentric wheels are kept in operative position by stops S. A chain or cord 25 is attached to the under sides of the eccentric wheels, passes over the idlers 23 and through the foot of the spindle of the governor shaft.

The essential features of the device being specified, their operation will now be described. The eccentric clamps 19 are held out of engagement with the vertical guides 1 by the pressure of the dependent fingers 18, as shown in Fig. III, which fingers are locked by the eccentrics 24 in co-operation with the slides 22 and the chains 20 which are attached to the under sides of the arms 17. The governor being adjusted as described to the desired limit of speed, the car is free to move. If, by reason of any derangement of the motor or other cause, the car should increase its speed beyond the limit fixed by the manufacturer's adjustment, the governor will instantly respond through the action of wheel 6 and shaft 5 causing the collar 10 to rise and bring the vertical spurs 26 into engagement with the cross pin 27 of spindle 11. The spindle will then revolve and wind up the chain 25, thereby lifting the eccentrics 24 over the idlers 23 and releasing the slides 22. The arms 17 being thus set free, the dependent fingers 18 will be thrown upward by the action of the

coiled springs 28, which simultaneously bring the eccentric clamps 19 into engagement with the vertical guides 1.

What I claim as new, is:

5 1. In an automatic safety appliance for elevators, the combination, with spring-actuated eccentric clamps carried by the car and adapted to engage the guide-timbers thereof, of the pivoted arms supported upon the top cross-
10 beam of the car and carrying fingers or pawls adapted to engage said clamps, a governor actuated by the movement of the car and frictional contact with the guide-timbers, and means to provide for the disengagement of
15 said fingers or pawls from said clamps through the action of said governor, substantially as specified.

2. In an automatic safety appliance for elevators, the combination, with spring-actuated
20 eccentric clamps carried by the car and adapted to engage the guide-timbers thereof, of the pivoted arms supported upon the top cross-beam of the car and carrying fingers or pawls adapted to engage said clamps, a governor
25 actuated by the movement of the car and frictional contact with the guide-timbers, slides

connected to said arms, and means adapted to release said slides through the action of said governor, substantially as set forth.

3. In an automatic safety appliance for elevators, the combination, with spring actuated
30 eccentric clamps carried by the car and adapted to engage the guide-timbers thereof, of the pivoted arms supported upon the top cross beam of the car and carrying fingers or pawls
35 adapted to engage said clamps, a governor actuated by the movement of the car and frictional contact with the guide-timbers, slides connected to said arms, eccentrics supported upon said top cross beam of the car, and a
40 chain connected to said eccentrics and passed between them and rolls or stops upon said slides, and said chain adapted to be drawn upon by said governor, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand, this 12th day of April, 1892, in the presence of witnesses.

WILLIAM WINKLESS.

Witnesses:

R. S. MILLAR,
ROBERT KIRK.