

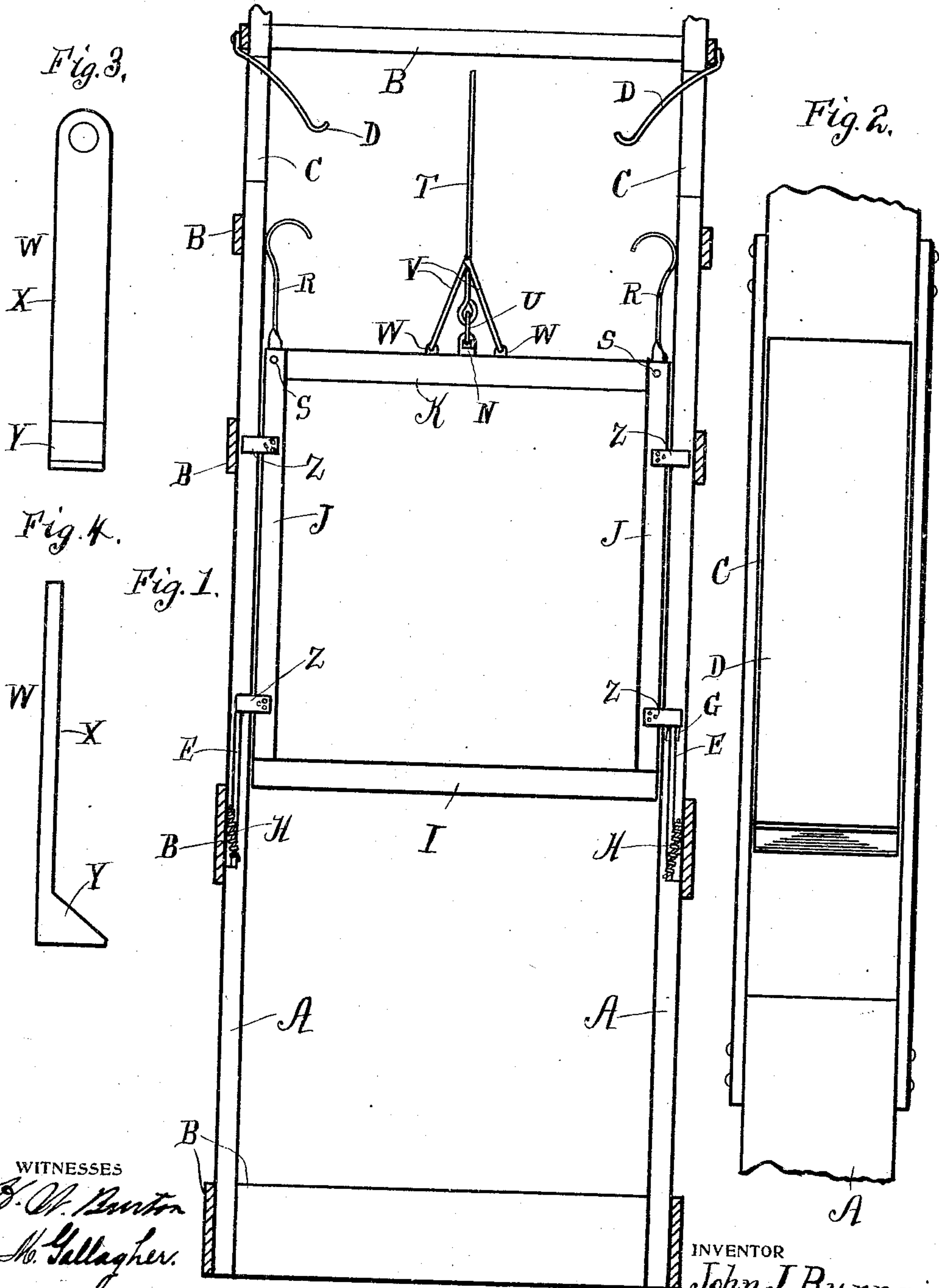
J. J. BURNS.
ELEVATOR.

APPLICATION FILED DEC. 30, 1908.

944,942.

Patented Dec. 28, 1909.

2 SHEETS—SHEET 1.



WITNESSES
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944,942.

Patented Dec. 28, 1909.
2 SHEETS—SHEET 2.

Fig. 5.

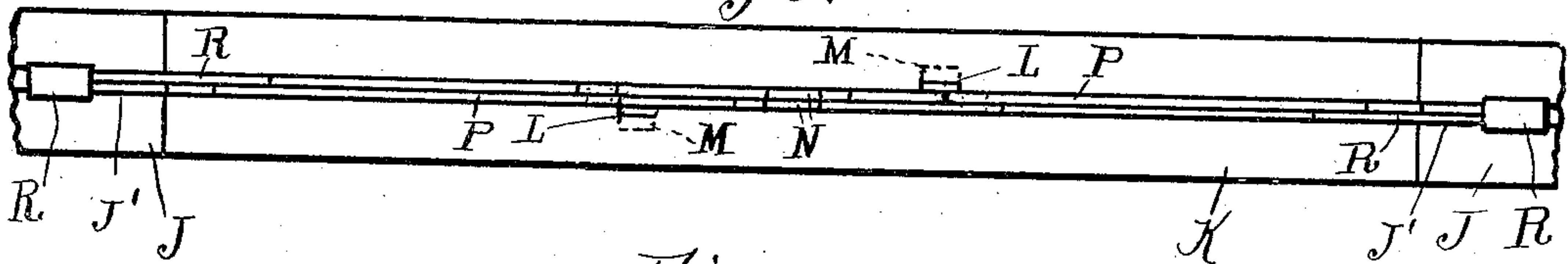


Fig. 6.

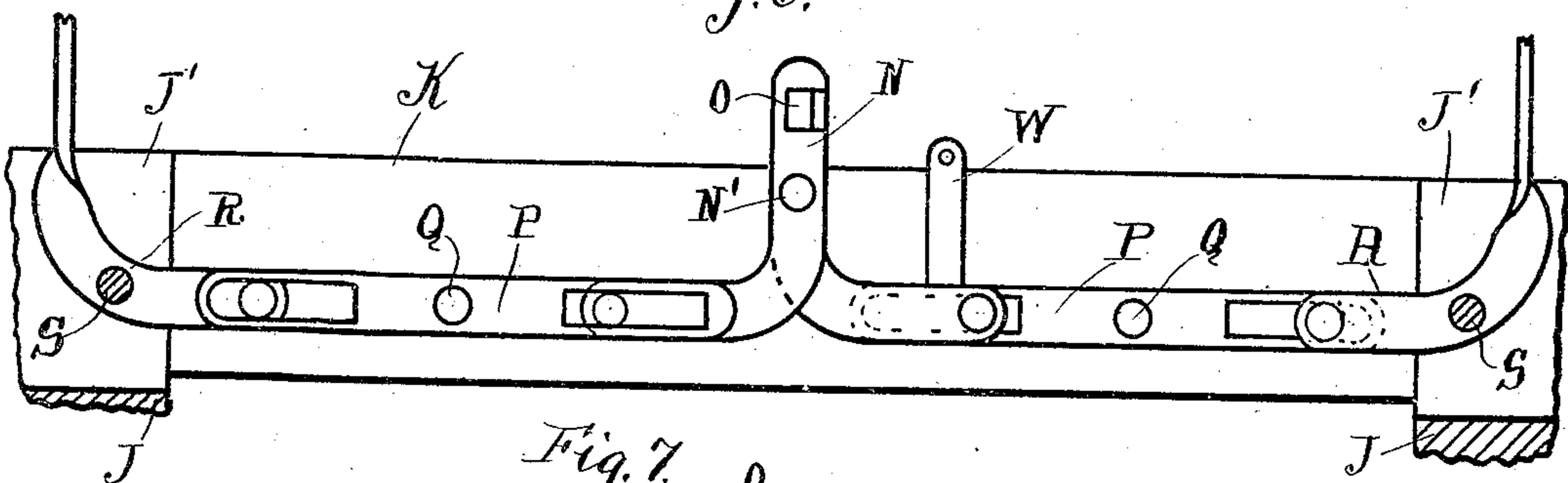


Fig. 7.

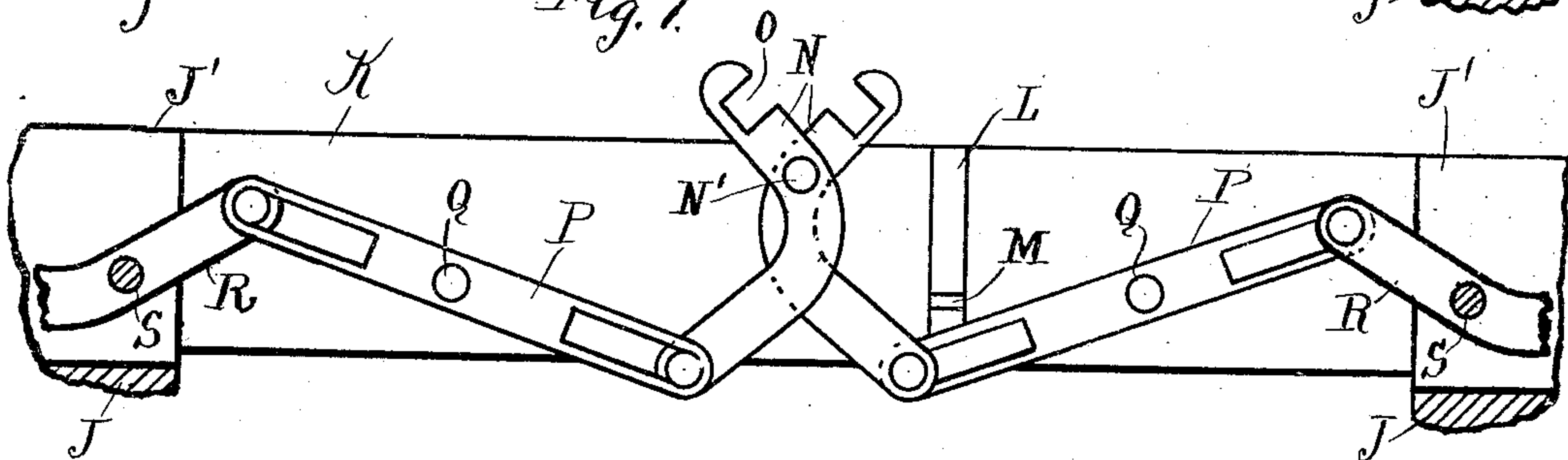


Fig. 8.

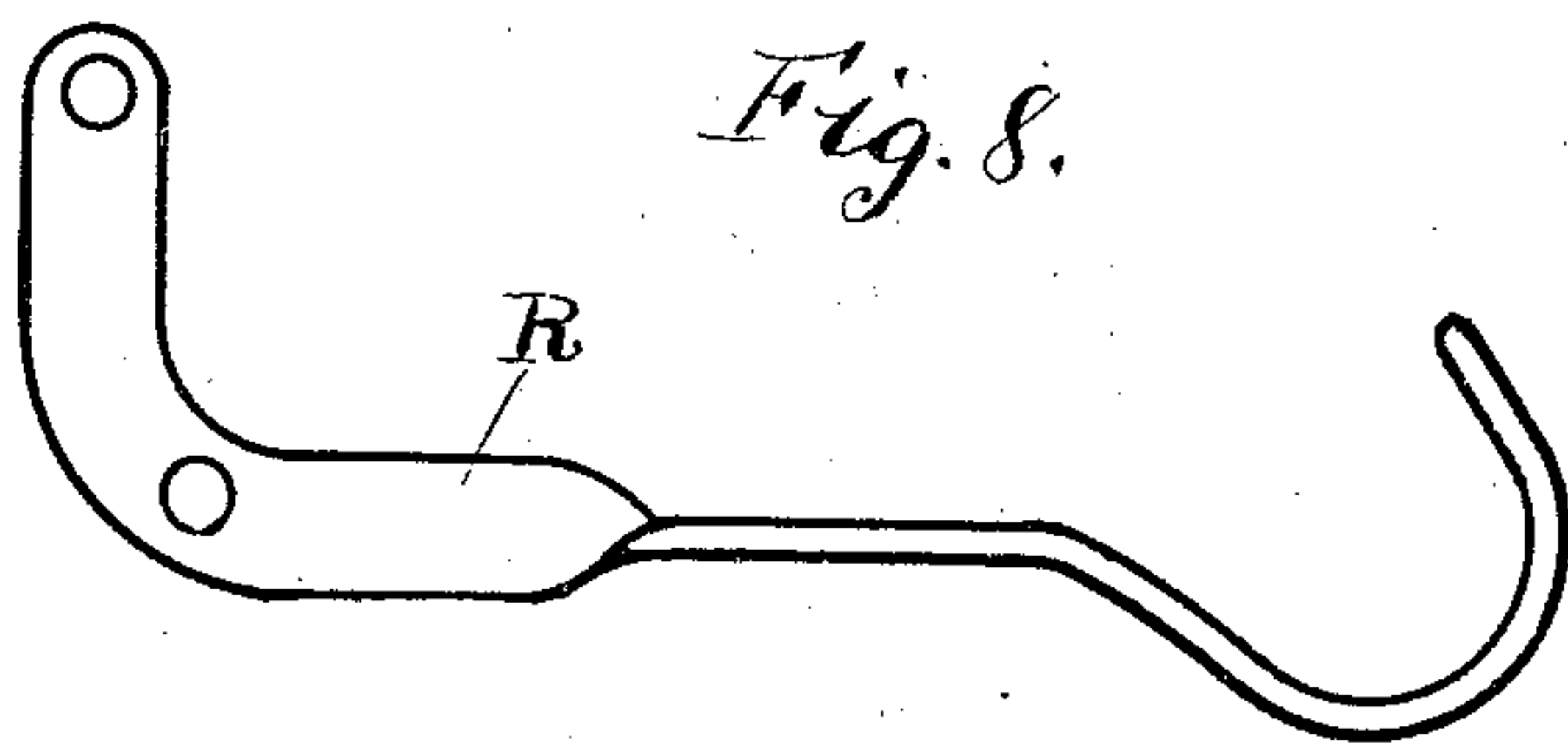
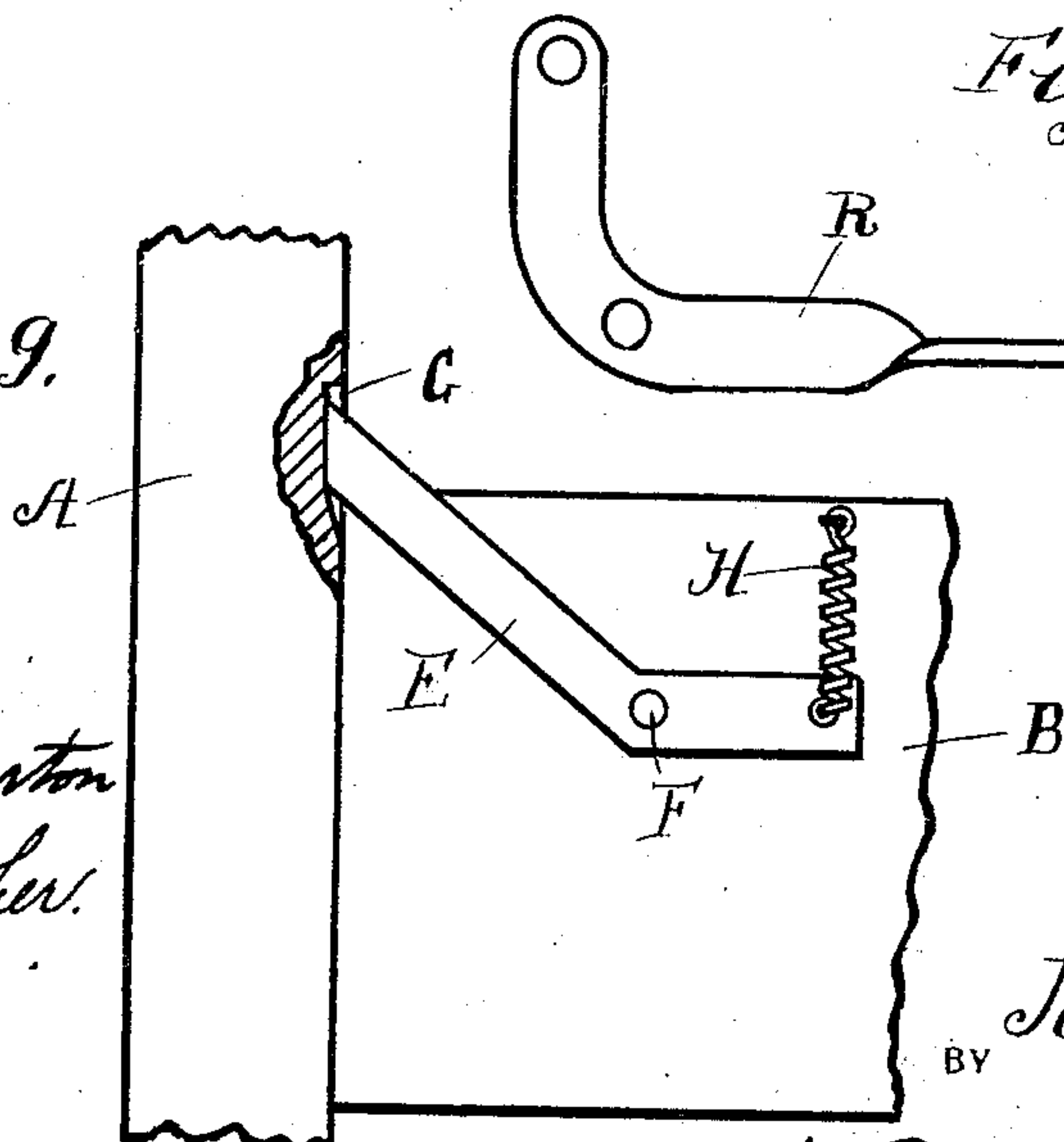


Fig. 9.



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JOHN J. BURNS, OF PITTSBURGH, PENNSYLVANIA.

ELEVATOR.

944,942.

Specification of Letters Patent.

Patented Dec. 28, 1909.

Application filed December 30, 1908. Serial No. 469,973.

To all whom it may concern:

Be it known that I, JOHN J. BURNS, a citizen of the United States, residing at Pittsburgh, in the county of Luzerne and State of Pennsylvania, have invented a certain new and useful Improvement in Elevators, of which the following is a specification.

My invention relates to a new and useful improvement in elevators, and more especially to that class of elevators as are used in the mines for conveying coal and men out of the same, and has for its object to provide an exceedingly simple and effective device of this character which will be prevented from passing over the sheave wheel should the engine drawing the elevator become uncontrollable.

Another object of my invention is to provide a safety elevator in which the lifting rope will be disengaged when the elevator has reached a certain height.

A still further object of my invention is to provide a catch for the elevator which will prevent it from again descending when the rope has been disengaged.

With these ends in view, this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, I will describe its construction in detail, referring by letter to the accompanying drawings forming a part of this specification, in which—

Figure 1 is a vertical sectional view of the upper portion of a mine shaft showing my improvement applied thereto. Fig. 2, a view in elevation of the upper portion of one of the vertical guides showing the trip spring attached thereto. Fig. 3, a front elevation of one of the safety catches. Fig. 4, a side elevation thereof. Fig. 5, a plan view of the two piece transverse beam of the elevator. Fig. 6, a view in elevation of the releasing mechanism, one of the pieces of the transverse beam being removed, the hooks being shown as closed. Fig. 7, a similar view, the hooks being shown open. Fig. 8, a side elevation of one of the trip levers. Fig. 9, a side elevation of one of the cage latches showing how it engages in a groove in the vertical guide beam.

In carrying out my invention as here embodied, A represents the vertical guide beams, and B the cribbing beams, which hold the parts together. In the upper ends of the vertical beams are formed the openings C, through which pass the trip springs D, said springs being secured to the frame work above the openings C. A suitable distance below these openings to opposite cribbing beams are pivoted the virtually L-shaped cage latches E, by means of the screws F. The upper ends of these cage latches rest in the grooves G formed in the vertical guide beams A, and to the opposite end of each of these cage latches is fastened one end of a spiral spring H, the opposite end being attached to the cribbing beam, and these springs will hold the cage latches in engagement with the grooves G until acted upon by some outside force, as will be hereinafter described.

I represents the car having the uprights J in the upper ends of which are formed the grooves J', and to the upper ends is secured the two piece transverse beam K. In each of the pieces of the transverse beam is formed a groove L, the lower end of which is formed deeper than the rest thereof so as to produce an opening M. Between the pieces of the transverse beam are pivoted the coupling hooks N, as indicated by N', having notches O in their upper ends. To the lower ends of the coupling hooks are movably secured one end of the links P, which are pivoted at Q, and to the opposite ends of said links are movably secured the lower ends of the trip levers R, which are pivoted to the uprights J, within the groove J' as indicated by S.

T denotes the rope which is attached to the car and runs over the sheave wheel to the drum of the engine. To this rope is attached the coupling link U, which engages with the notches O, and the upper ends of the coupling hooks N. To the rope T are also attached the safety chains V, to the ends of which are secured the catches W, said catches being formed to produce a shank X and a toe Y, the shank adapted to rest within the groove L and the toe within the opening M formed in the transverse beam. The safety chains V while the coupling link U is being used would be slack, so that there would be no strain brought to bear thereon.

Z denotes the shoes, which are attached

to both sides of the uprights J of the car and are adapted to rest upon the sides of the vertical guide beams A.

In practice the vertical guide beams A will hold the trip levers R in a vertical position, which will keep the links P in a horizontal position and the coupling hooks N closed, thus the coupling link U would be retained therein. At the same time the links P would rest against one face of the catches W, which would press the toe portion Y thereof into the opening M, and prevent it from pulling out. Should the link U in any way become broken the safety chains V with the catches W would still hold the rope T to the car I. Should the engineer lose control of the engine and the car be drawn up above its normal position the shoes Z would come in contact with the car latches E moving them away from the vertical guide arms A against the action of the springs H, and when these shoes have passed by the car latches E, said latches will at once be drawn back to their normal position by the springs H, at which time the upper ends will be resting in the grooves G, so that as the car descends the shoes will come in contact with the latches E, preventing the car from descending farther. If the car should ascend to the point where the trip levers R would come in contact with the trip springs D, said trip springs D would force the upper ends of the trip levers R outward through the openings C, thus bringing the detaching mechanism to the position shown in Fig. 7, which would open the coupling hooks N allowing the coupling link U to be detached therefrom; at the same time the links P would be disengaged from the catches W, which would allow said catches to be disengaged from the openings in the two piece transverse beam K. This would allow the rope P to pass over the sheave wheel leaving the car between the guides A, and as the car descends the shoes Z will come in contact with the latches E, as above stated.

Of course I do not wish to be limited to the exact details here shown as these may be varied within certain limits without departing from the spirit of my invention.

Having thus fully described my invention what I claim as new and useful, is—

1. In combination with an elevator car, the upper ends of the uprights of which have grooves formed therein having a two piece transverse beam, in each piece of which is formed a groove, the lower end being deeper than the rest thereof, of a hoisting cable, a coupling link secured thereto, safety chains attached to the hoisting cable, catches fastened to the ends of the safety chains, said catches adapted to fit in the grooves in the cross beam, a pair of coupling hooks pivoted between the two parts of the transverse

beam, a pair of links pivoted between the parts of said beam, one end of each of which is connected to the lower end of one of the coupling hooks, trip levers pivoted in the grooves formed in the upper ends of the uprights, the lower ends of which are connected to the opposite ends of the links and means for operating the trip levers, as shown and described.

2. The combination with an elevator car, of a hoisting cable, a coupling link carried thereby, safety chains secured to said hoisting cable, catches attached to the ends of said safety chains, a pair of coupling hooks pivoted to the car and arranged for the reception of the coupling link, means for disengaging the coupling link from the coupling hooks and means for detachably securing the catches to the car, as specified.

3. The combination with an elevator cage, of a hoisting cable, a coupling link secured thereto, safety chains attached to said hoisting cable, catches fastened to the ends of the safety chains, a pair of coupling hooks pivoted to the transverse beam of the car and arranged for the reception of the coupling link, links pivoted to the transverse beam, one end of each being movably secured to the lower end of one of the coupling hooks, said links adapted to hold the catches in engagement with the transverse beam, trip levers pivoted to the upper ends of the uprights of the car, their lower ends being movably secured to the opposite ends of the links and stationary trip springs for engaging the trip levers and moving the links from engagement with the catches and the coupling hooks from engagement with the coupling links.

4. The combination of a pair of vertical guide beams having openings formed in proximity to their upper ends, cribbing beams secured to said vertical guide beams, an elevator car having grooves formed in the upper ends of the uprights having a two piece transverse beam secured to said uprights, having a groove formed in each piece and an opening at the lower end of said groove, shoes fastened to the sides of the uprights adapted to engage with the sides of the vertical guide beams, a hoisting cable, a coupling link secured thereto, safety chains attached to said hoisting cable, catches fastened to the ends of the safety chains, said catches so formed as to produce a shank and toe, a pair of coupling hooks pivoted between the two pieces of the transverse beam and arranged for the reception of the coupling link, a pair of links pivoted between the parts of the transverse beam, one end of each being movably secured to one of the coupling hooks, said links adapted to hold the catches within the grooves in the transverse beam, a pair of trip levers pivoted in the grooves in the upper ends of the uprights,

their ends movably secured to the opposite
ends of the links, trip springs secured to the
vertical guide beams above the openings
formed therein, and extending inward
5 through said openings, said trip springs
adapted to engage with the trip levers for
disengaging the coupling link from the
coupling hooks and the latches from the
grooves in the transverse beam and means
10 for preventing the car descending when the

coupling link and catches have been dis-
engaged.

In testimony whereof, I have hereunto af-
fixed my signature in the presence of two
subscribing witnesses.

JOHN J. BURNS.

Witnesses:

B. N. GILLESPIE,
THOMAS HARRIS.