No. 651,696. Patented June 12, 1900.

# P. F. CANTLION.

## CUT-OFF VALVE FOR HYDRAULIC ELEVATORS.

(Application filed Dec. 20, 1899.)

(No Model.)

FIG. 2.

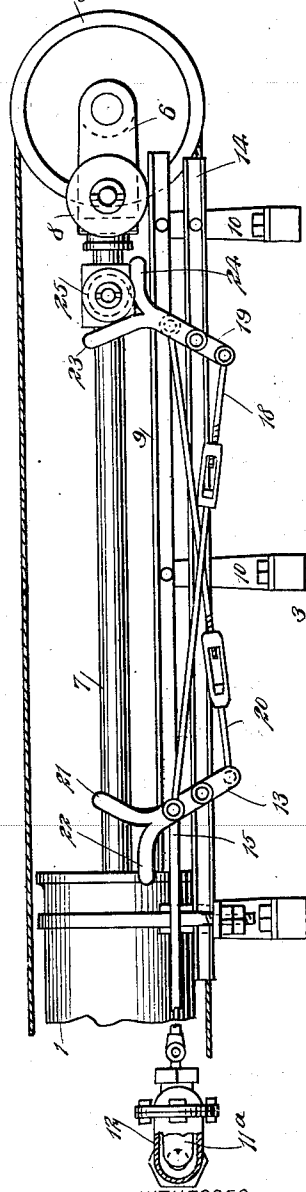


FIG. 1.

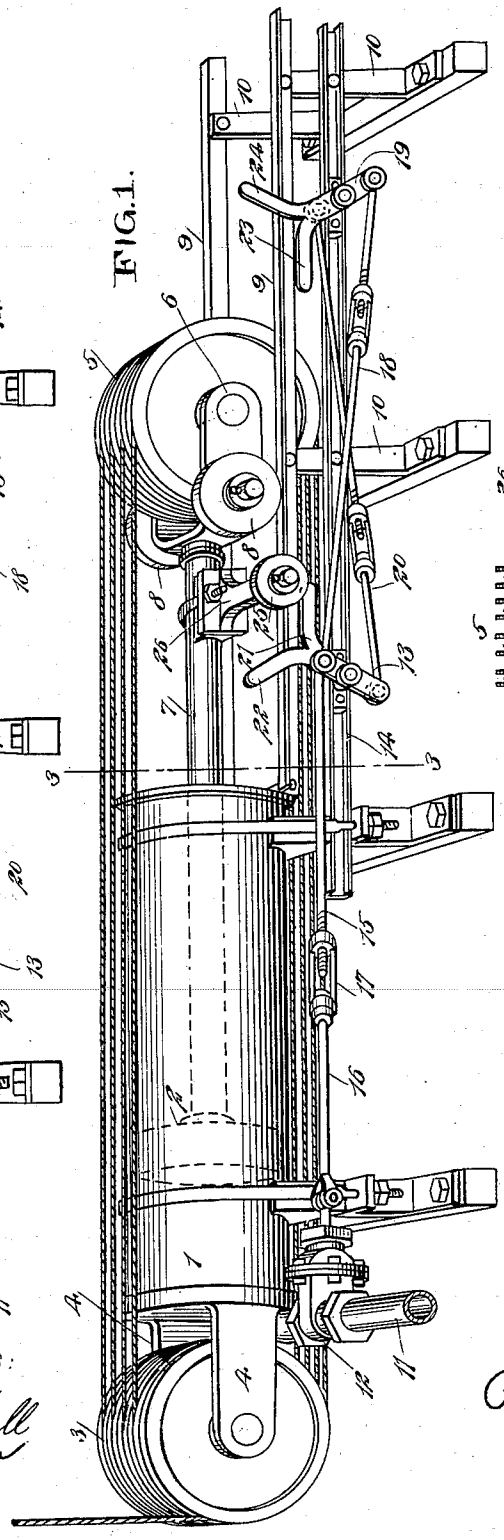
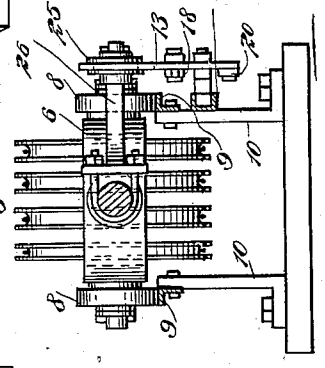


FIG. 3.



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# UNITED STATES PATENT OFFICE.

PHILIP FRANCIS CANTLION, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO SARAH C. BELOE, OF SAME PLACE.

## CUT-OFF VALVE FOR HYDRAULIC ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 651,696, dated June 12, 1900.

Application filed December 20, 1899. Serial No. 740,994. (No model.)

*To all whom it may concern:*

Be it known that I, PHILIP FRANCIS CANTLION, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Cut-Off Valve for Hydraulic Elevators, of which the following is a full, clear, and exact description.

This invention relates to improvements in cut-off valve mechanisms for hydraulic elevators; and the object is to provide a simple means for automatically cutting off the water-supply to the pressure-cylinder should the elevator move too far upward and to retard an outflow of water should the elevator move too far downward, thus preventing accidents should the ordinary valve mechanism become inoperative.

I will describe a cut-off valve for hydraulic elevators embodying my invention and then point out the novel features in the appended claim.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a perspective view of an elevator-operating mechanism, showing my invention as applied thereto. Fig. 2 is a side view thereof, and Fig. 3 is a section on the line 3 3 of Fig. 1.

Referring to the drawings, 1 designates a hydraulic cylinder in which the piston 2 operates. At one end of the cylinder 1 are pulleys 3, mounted to rotate independently on a shaft supported in arms 4, extended from the cylinder. Pulleys 5 are mounted on a shaft supported in a frame or yoke 6, attached to the end of the piston-stem 7, and mounted on this yoke or frame are rollers 8, which bear upon tracks 9, supported on uprights 10.

The water-supply pipe 11 for the cylinder 1 is provided with a gate-valve $11^a$, operating in a valve-casing 12, adjacent to the cylinder. A shifting lever 13, pivoted to a bar 14, attached to the uprights 10 at one side, has a rod connection with the gate-valve. This rod consists, as here shown, of two sections 15 16, connected together by a turnbuckle 17, for a purpose to be hereinafter described. The rod connects with the lever 13 above its pivotal point, and from this point a draw-rod 18 extends to a connection with the lower end of another shifting lever 19, pivoted to the bar 14, and a draw-rod 20 connects the lever 19 above its pivotal point with the lower portion of the lever 13. For the purpose of adjustment the draw-bars will each be made in two sections connected by a turnbuckle, as plainly shown. At its upper end the shifting lever 13 has oppositely extended or divergent members 21 22, and the lever 19 has oppositely extended or divergent members 23 24. Adapted to engage with these members under certain conditions is a roller 25, mounted on an arm 26, connected to the piston-stem.

In operation the gate-valve in the pipe 11 will be normally open, the parts being in the position indicated in Fig. 1, and in the ordinary movements of the elevator the movement of the piston will be substantially equal to the distance between the members 22 and 24 of the shifting levers. During an upward movement of the elevator, should the elevator attendant fail to close off the water-supply by the ordinary valve mechanism or at the time the elevator reaches its extreme desired upper position and should the elevator move still farther upward, the roller 25 will engage with the member 24 of the lever 19, shifting said lever to the position indicated in Fig. 2. The shifting of this lever through the medium of the draw-rod 20 will shift the lever 13 into the position indicated in Fig. 2, causing the gate-valve to move toward its closing position. It is to be understood, however, that the valve is not to be entirely closed—that is, as indicated in Fig. 2, a slight leak should remain, so that water may discharge from the cylinder to permit the elevator to lower. The degree of this leak-opening may be adjusted by means of the turnbuckle 17. As the elevator again starts downward the wheel 25 by engaging with the member 23 of the lever 19 will return both the levers to their normal position, opening the gate-valve. Should the elevator move too far downward, the above-described operation will take place, excepting that the wheel 25 will operate in connection with the lever 13.

It is obvious that my invention may be readily applied to hydraulic elevator plants and at a comparatively-small cost.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

In an elevator-operating mechanism, a hydraulic cylinder, a piston operating therein, a supply-pipe leading into the cylinder, a gate-valve for controlling the flow of water through said pipe, two shifting levers, each having oppositely and upwardly inclined members at the upper end, adjustable draw-bars connecting the upper portion of each lever with the lower portion of the other lever, a rod connection with one of the levers and the valve, the said rod being adjustable, and a device carried by the piston-stem for engaging with the members of the levers should the elevator pass beyond its normal movement in either direction, substantially as specified.

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

PHILIP FRANCIS CANTLION.

Witnesses:
F. H. ANDRES,
EDWARD J. CROKER.