

(No Model.)

T. HILL.
ELEVATOR CONTROLLING MECHANISM.

No. 497,719.

Patented May 16, 1893.

Fig. I.

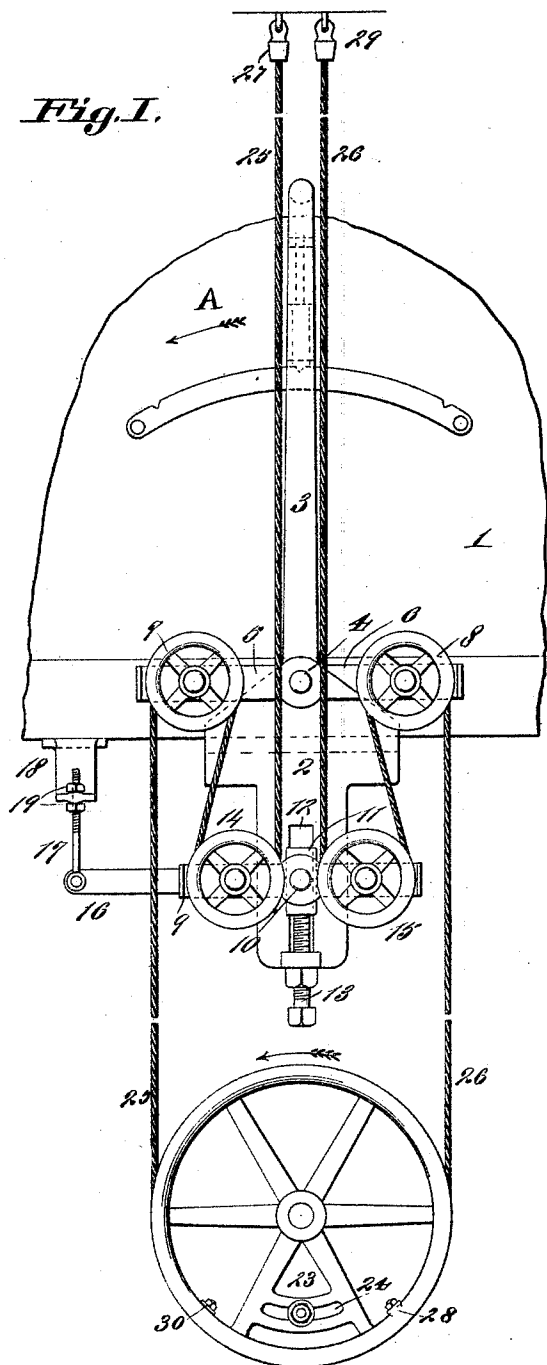
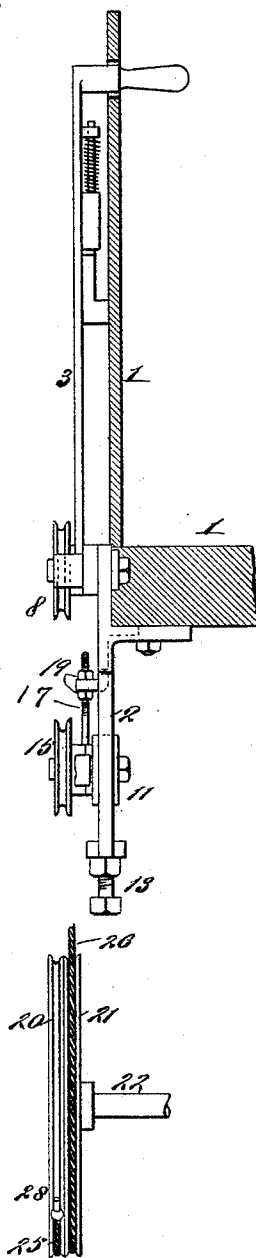


Fig. II.



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ELEVATOR CONTROLLING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 497,719, dated May 16, 1893.

Application filed February 27, 1893. Serial No. 463,879. (No model.)

To all whom it may concern:

Be it known that I, THOMAS HILL, of Quincy, in the county of Adams and State of Illinois, have invented a certain new and useful Improvement in Elevator Controlling Mechanism, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to certain improvements in mechanism for controlling the movement of the cage or cab of elevators; and my invention consists in features of novelty hereinafter fully described and pointed out in the claims.

Figure I is an elevation illustrative of my invention. Fig. II is an edge view.

Referring to the drawings, 1 represents part of the cage of an elevator.

2 represents a bracket depending from the cage or cab, and upon which the shifting mechanism is supported.

3 represents the controlling lever, which is pivoted at 4 to the bracket 2, or to the cage. This lever has lateral arms 5 and 6, to which are journaled grooved sheaves 7 and 8.

9 represents a beam pivoted at 10 to a box 11, fitting and adapted to move in a slot 12 in the bracket 2. The box may be adjusted by a set screw 13.

14 represents a sheave journaled on the beam 9, on one side of the pivot 10, and 15 represents a sheave journaled to the beam on the other side of the pivot 10.

16 represents an arm projecting from the beam 9, and to which is secured a threaded rod 17, which passes through a bracket 18 secured to the bottom of the cab; the rod 17 is provided with nuts 19 by which it may be adjusted.

20 and 21 represent grooved sheaves placed side by side on a shaft 22, to which the valve of a hydraulic elevator, or the shifter of a belt elevator, is connected in any ordinary manner; no mechanism being shown for the reason that such mechanism is well known and forms no part of my invention. The sheaves 20 and 21 are connected by a bolt 23, fitting in a slot 24, so that they may be ad-

justed relatively to each other, and then so clamped together.

25, 26 represent the shipping ropes or cables. The rope or cable 25 extends from a fixed point 27, under the sheave 14, thence over the sheave 7, and thence to the sheave 20, around which it extends to a point 28, where it is made fast to the sheave. The cable 26 passes from a fixed point 29, under the sheave 15, thence over the sheave 8, and thence to the sheave 21, around which it extends to a point 30, where it is made fast to the pulley.

The operation of the device is as follows:—

If the lever 3 is moved in the direction of the arrow A, the sheave 7 will be moved downwardly, or nearer to the sheave 14, and the sheave 8 is simultaneously moved upwardly away from the sheave 15. By this operation the cable 25 is paid out, and the cable 26 is taken up, and in so doing the sheaves 20, 21, are turned in the direction of the arrow Fig. I. If the lever 3 is moved in the opposite direction, the motion of the sheaves 20, 21, will also be the reverse, as will be plainly understood, and will accordingly transmit motion through the shaft 22 to the valve or belt-shifter; or, in other words, when the lever 3 is moved in the direction of the arrow A, the valve will be opened, or the belt moved, causing the platform or cab to ascend, and if the lever 3 be moved in the reverse direction, the valve or belts will be moved in the opposite direction, and the platform or cab will descend; but if the lever 3 be placed on the center, as shown in Fig. I, the valve will be closed, or the belts removed to the loose pulleys, and the cage or cab will be at rest. By means of the double sheaves 20 and 21, the controlling ropes can be tightened by merely turning them in opposite directions on the shaft, and then locking them in place, and as these sheaves are usually in a convenient position to take up the slack, it can be done more readily than with the ordinary screw and nut, at the top of the elevator shaft. Should one rope or cable stretch more than the other, which is frequently the case, the operating lever 3 will, of course, be thrown out of ad-

justment. To remedy this, the adjusting screw or rod 17 is provided. By moving the beam 9, through means of the adjusting screw, the rope 25, or 26, according to which end of the beam is moved up, will be paid out, and at the same time the other rope will be taken up. While making this adjustment the double sheaves 23 and 24 remain stationary and consequently the lever 3 will be moved into adjustment, and thus the lever 3 can be adjusted in either direction as the case may require, relative to the valve or belt shifter, the beam 9 being the means by which I adjust the lever 3 in relation to the position of the valve or belt shifter. If both ropes require tightening to the same extent, the set screw 13 can be adjusted to draw the box 11 in a downwardly direction.

The shaft 22 is referred to in the claims as the "shifting shaft," as it is through this shaft that the valve or belt shifter is moved.

I claim as my invention—

1. In a controlling mechanism for elevators, the combination of an operating lever provided with lateral arms, sheaves journaled to the arms, a pivoted beam, sheaves journaled to the beam, a bracket depending from the cage or cab, and with which said beam has pivotal connection, ropes or cables extending from a fixed point over said sheaves, and a pair of sheaves on the shifting shaft, and which are adjustably connected together; substantially as and for the purpose set forth.

2. In a controlling mechanism for elevators, the combination of an operating lever, having lateral arms, sheaves journaled to the arms, a slotted bracket secured to the cage or cab, a sliding box located in said slotted bracket, a set screw for holding the box, a beam pivoted to the box, sheaves journaled on the beam, and ropes or cables extending from a fixed point around said sheaves, and to sheaves on a controlling shaft; substantially as and for the purpose set forth.

3. In controlling mechanism for elevators, the combination of an operating lever pivoted to the cage or cab, and having lateral arms, sheaves journaled to the arms, a bracket depending from the cage or cab, a beam having pivotal connection with the bracket, sheaves journaled to said beam, ropes or cables extending from a fixed point around said sheaves

to the shifting shaft, an arm on said beam, and a screw or rod 17, connected to said arm; substantially as and for the purpose set forth.

4. In a controlling mechanism for elevators, the combination of a shifting lever pivoted to the cage, and having lateral arms, sheaves journaled to the arms, a bracket depending from the cage, a beam having pivotal connection with the bracket, sheaves journaled to the beam, an arm extending from the bracket, means for adjusting the arm, two sheaves secured to the controlling shaft, and ropes or cables extending from a fixed point over said lever and beam pulleys, and extending to the shaft sheaves; said shaft sheaves being adjustably connected; all substantially as described, whereby the ropes may be tightened and adjusted; substantially as set forth.

5. In a controlling mechanism for elevators, the combination of a shifting lever carrying a pair of sheaves, a pivoted beam carrying a pair of sheaves, the shipping ropes, and means for adjusting said beam independently of said lever; for the purpose set forth.

6. In a controlling mechanism for elevators, the combination of an upper and lower pair of sheaves, and shipping ropes, the lower pair of sheaves being mounted on a pivoted beam provided with means for adjusting it independently of said upper sheaves, substantially as and for the purpose set forth.

7. In a controlling mechanism for elevators, the combination of an upper and lower pair of sheaves, shipping ropes and an adjustable beam upon which the lower pair of sheaves are journaled, and means for adjusting said beam from a horizontal line independently of said upper pair of sheaves; substantially as and for the purpose set forth.

8. In a controlling mechanism for elevators, the combination of an operating lever pivoted to the cage, and adapted to carry an upper pair of sheaves, a beam having pivotal connection with the cage, and adapted to carry a lower pair of sheaves, and which is adjustable independently of the operating lever, and shipping ropes, substantially as and for the purpose set forth.

THOMAS HILL.

In presence of—

ERNEST A. HENDERSON,
L. C. EMMONS, Jr.