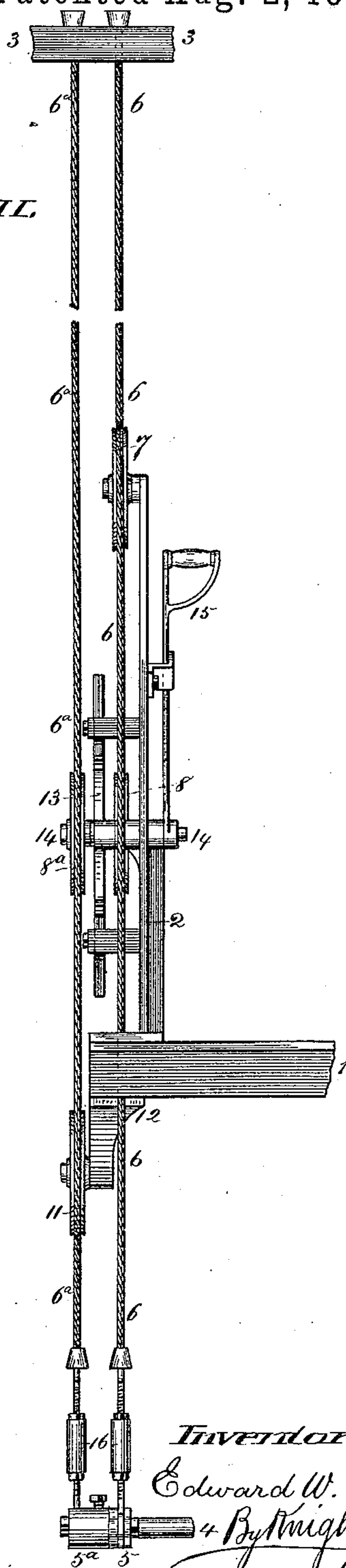


E. W. MOON.  
ELEVATOR.

Patented Aug. 2, 1892.



Attest;  
George E. Cruise.  
Harris T. Rohrer

*Inventor;*  
Edward W. Moon.  
— 4 By Knight Bros.  
Atty.



# UNITED STATES PATENT OFFICE.

EDWARD W. MOON, OF ST. LOUIS, MISSOURI.

## ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 480,202, dated August 2, 1892.

Application filed March 7, 1892. Serial No. 424,066. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD W. MOON, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Elevators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to means for the operation of the reversing-valve of the elevator-engine by means of a lever in the car or cab.

This invention belongs to that class in which the valve-operating ropes do not travel with the cab.

The construction of the device will be fully described, and the novel features of the same set forth in the claims.

Figure I is an elevation showing the device from one side, and Fig. II is an elevation showing the device from another side. Fig. III is a detail horizontal section taken at III III, Fig. I.

1 is a part of the floor of the cab, and 2 is a part of the side of the same.

3 is a joist at the top of the elevator-shaft. 4 is the stem or shaft of the reversing-valve of the elevator-engine, hydraulic motor, or other device by which the cab is raised and lowered.

5 5<sup>a</sup> are arms fast upon the valve shaft or stem 4.

6 is a wire rope or other rope or chain secured at the lower end to the end of the arm 5, extending upward and over a grooved pulley 7, having bearing at the outer side of the cab. From the pulley 7 the rope extends down and beneath the grooved pulley 8, having bearing on a sliding rack-bar 9, working in bearings 10. From the pulley 8 the rope 6 extends up to the joist 3, to which it is fixed.

6<sup>a</sup> is a rope, similar to the rope 6, secured at the lower end to the arm 5<sup>a</sup> and extending upward and over the grooved pulley 8<sup>a</sup>, also having bearing on the rack-bar 9. From the pulley 8<sup>a</sup> the rope 6<sup>a</sup> extends downward and beneath the pulley 11, having bearing on a hanger 12 at the bottom of the cab. From the pulley 11 the rope 6<sup>a</sup> extends up to the joist 3, to which it is fixed. The pulleys 7, 8, 8<sup>a</sup>, and 11 all turn freely, so that the rope remains at rest while the cage is ascending and descending, the only movement of the rope

being in the parts between the pulleys 8 8<sup>a</sup> and the arms 5 5<sup>a</sup>, and this only taking place in the movement of the shaft 4 of the reversing-valve when starting, stopping, or reversing the elevator. This movement is given to the rope by the vertical movement of the rack-bar 9, on which the pulleys 8 8<sup>a</sup> have bearing. A downward movement of the bar will obviously lift the arm 5 and depress the arm 5<sup>a</sup> by carrying the pulley 8 farther from the pulley 7 and the pulley 8<sup>a</sup> nearer to the pulley 11. For each inch the rack-bar 9 moves the arms 5 5<sup>a</sup> move two inches.

13 is a cog quadrant or wheel, whose teeth engage with the teeth of the rack-bar 9. The quadrant is carried on a shaft 14, that passes through the side of the cab and carries within the cab a hand-lever 15, by whose movement it is obvious that the bar 9, and consequently the valve-shaft, may be moved to any extent not only to stop, start, or reverse the engine, but to increase or diminish its speed.

It will be seen that the rack-bar 9 has a rectilinear movement, and owing to this and to the fact that the parts of the ropes or cables between the pulleys 8 8<sup>a</sup> and the pulleys 7 and 11 are parallel with the bar 9, the movement of the bar 9 will not cause any slack in the ropes or cables, even though it may be moved a considerable distance, and by means of this device ample movement may be given to the valve-shaft 4 without any gearing or other intermediate mechanism between the ropes and the arms 5 5<sup>a</sup> of the shaft.

16 are screw-tighteners for the ropes or cables.

I claim as my invention—

1. An elevator comprising a cab, a hanger provided with a pulley and depending from the cab-floor, the valve-shaft having arms, the pulley mounted on the side of the cab, the bearings on the side of the cab, the rack-bar adapted to slide in the bearings having inner and outer pulleys, the rope extending from one of the arms over the pulley on the side of the cab under the inner pulley on the rack-bar to the top joist, another rope extending from the other arm over the outer pulley on the rack-bar under the pulley on the hanger to the top joist, and means for shifting the rack-bar, substantially as described.

2. An elevator comprising a cab, a hanger provided with a pulley and depending from the cab-floor, the valve-shaft having arms, the pulley mounted on the side of the cab, the  
5 bearings on the side of the cab, the rack-bar adapted to slide in the bearings having inner and outer pulleys, the rope extending from one of the arms over the pulley on the side of the cab under the inner pulley on the rack-  
10 bar to the top joist, another rope extending from the other arm over the outer pulley on the rack-bar under the pulley on the hanger to the top joist, and the shaft journaled in the side of the cab having a cog-quadrant meshing with the rack-bar, and a hand-lever, 15 substantially as described.

EDWARD W. MOON.

In presence of—

ED. S. KNIGHT,  
A. M. EBERSOLE.