No. 667,404. Patented Feb. 5, 1901.

A. ROBINSON.

ELEVATOR.

(Application filed Oct. 9, 1900.

(No Model.)

2 Sheets—Sheet 1.

Fig. 1

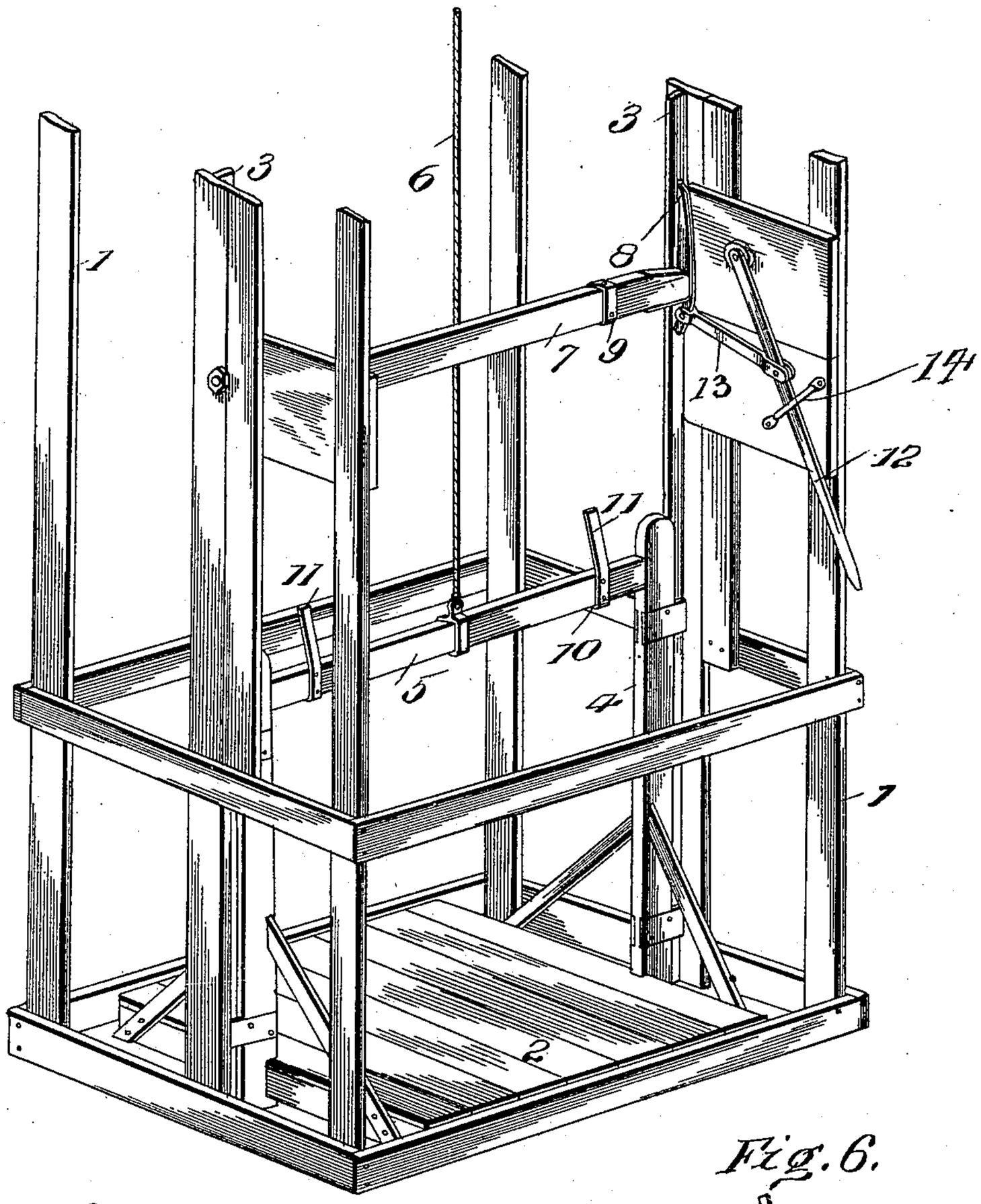


Fig. 6.

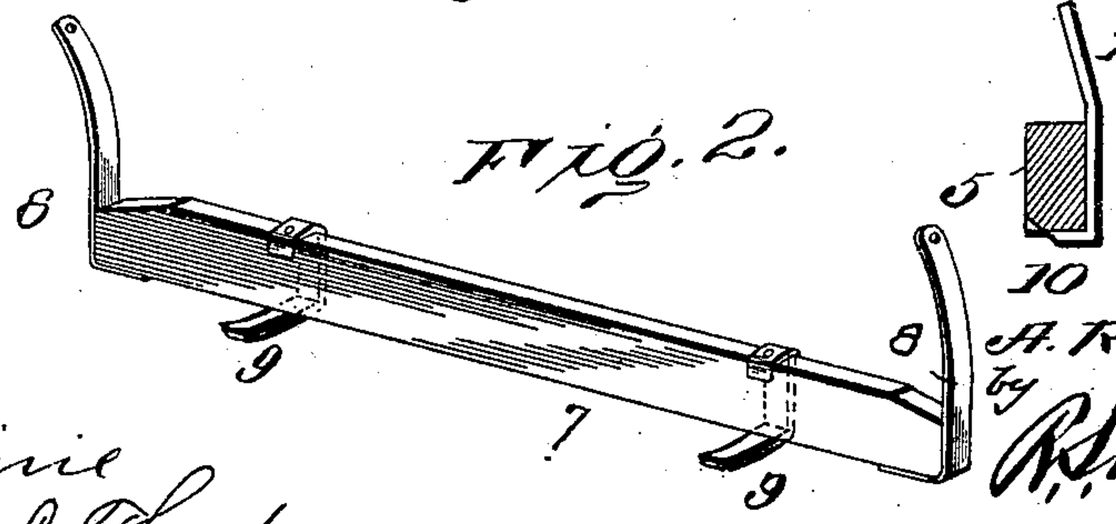


Fig. 2.

Witnesses

Jno. Imirie

Gladys L. Thompson

Inventor

A. Robinson.

by R. H. A. Kacey

Attorneys

No. 667,404. Patented Feb. 5, 1901.

A. ROBINSON.

ELEVATOR.

(Application filed Oct. 9, 1900.)

(No Model.) 2 Sheets—Sheet 2.

Fig. 3.

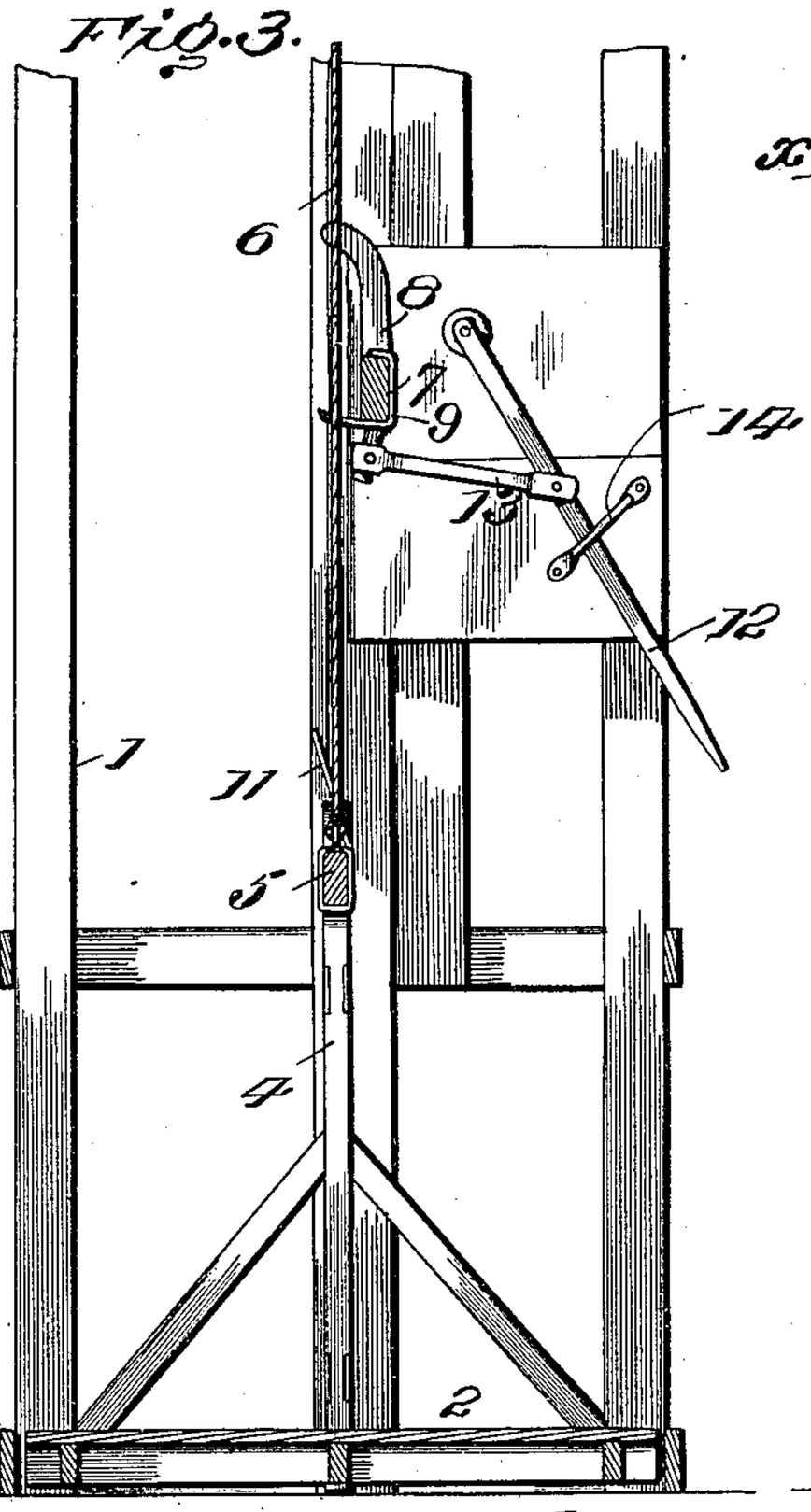


Fig. 4.

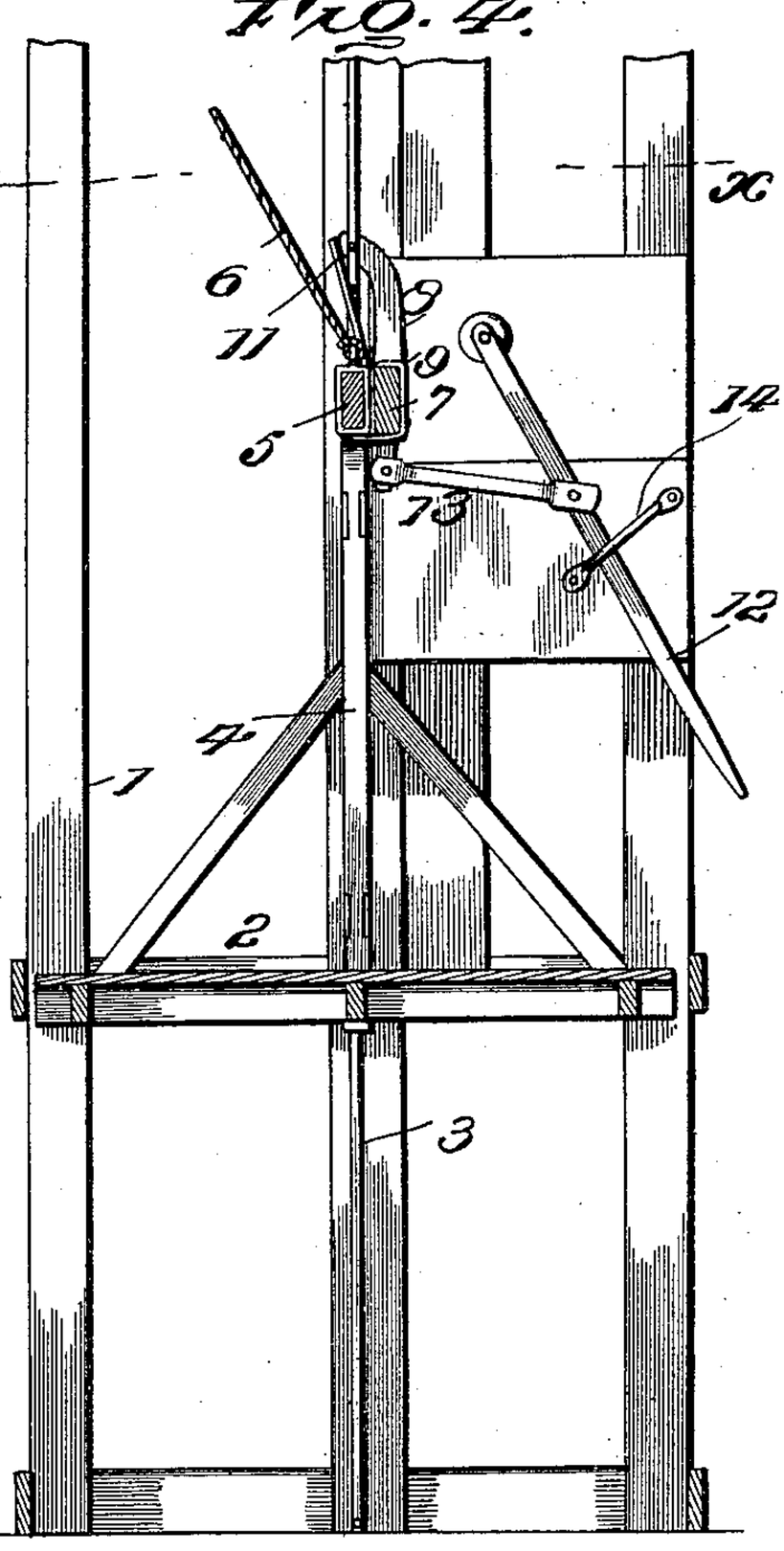
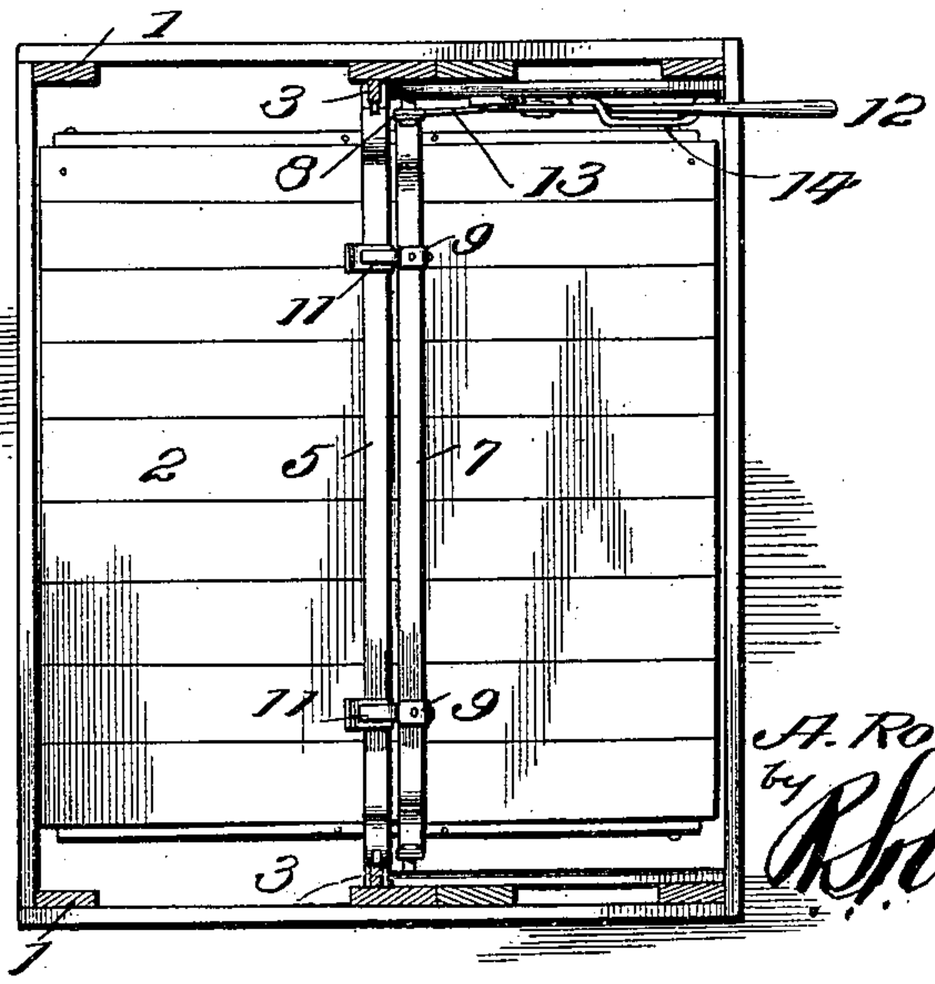


Fig. 5.



Witnesses
Jno. Finnie
Gladys L. Thompson.

Inventor
A. Robinson
by R. S. & A. Lacey
Attorneys

UNITED STATES PATENT OFFICE.

ANDREW ROBINSON, OF UHRICHSVILLE, OHIO.

ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 667,404, dated February 5, 1901.

Application filed October 9, 1900. Serial No. 32,531. (No model.)

To all whom it may concern:

Be it known that I, ANDREW ROBINSON, a citizen of the United States, residing at Uhrichsville, in the county of Tuscarawas and State of Ohio, have invented certain new and useful Improvements in Elevators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to elevators, and most especially to the means for preventing an untimely descent of the car or platform when weighted.

The object of the invention is the provision of safety appliances for elevators which will be effective in operation and easy of manipulation, the locking being automatic and the release of the car being under control of the attendant, thereby minimizing the chances for accident.

For a full description of the invention and the merits thereof, and also to acquire a knowledge of the details of construction of the means for effecting the result, reference is to be had to the following description and drawings hereto attached.

While the essential and characteristic features of the invention are necessarily susceptible of modification, still the preferred embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of an elevator, showing the application of the invention. Fig. 2 is a detail perspective view of the lock-bar. Fig. 3 is a transverse section showing the disposition of the parts when the car is free from the locking mechanism. Fig. 4 is a view similar to Fig. 3, showing the car locked. Fig. 5 is a horizontal section on the line X X of Fig. 4. Fig. 6 is a detail section of the cross-bar at the upper end of the car or platform, showing more clearly the trip and the lower bent end thereof forming a reinforcement.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The well or shaft of the elevator may be of any desired construction, depending upon the location and surroundings of the structure to be equipped with the elevator, and, as shown, it comprises a series of vertical bars or posts 1, joined by longitudinal and transverse tie-bars. The car or platform 2 is guided in its vertical movements by ways 3, located at opposite sides of the elevator-shaft in a manner well understood. The car or platform may be of any pattern and, as shown, is of the type commonly employed in freight-elevators and is provided at opposite sides with posts or uprights 4, which are joined at their upper ends by a cross-beam 5, to which the hoisting cable or rope 6 is attached. The car or platform may be operated by any suitable hoisting mechanism and in practice is one of a pair attached to opposite ends of the hoisting-cable which passes over a sheave-pulley directly above the well or shaft, so that as one car ascends the other correspondingly descends, the empty car being lifted by the load of the descending car.

The lock-bar 7 is attached at its ends to hangers 8, which are pivoted at their upper ends to the sides of the shaft or well in line with the ways or vertical guides 3. Suspending-hooks 9 are rigidly attached to the end portions of the lock-bar 7 and engage with the cross-piece 5 or like part of the car or platform, holding the latter in suspension when elevated to the predetermined point. The upper ends of the hooks 9 are bent to engage over the top edge of the part 7 and their lower or horizontal portions curve slightly, so as to prevent casual disengagement thereof from the cross-piece 5 when the car is supported thereby. When the car is elevated and held suspended, the lock-bar 7 lies beside the cross-piece 5, as shown most clearly in Fig. 4, and the lower portion of the hooks 9 engages under the cross-piece 5. In order to prevent wear upon the lower edge of the cross-piece 5, it is reinforced by the bent end 10 of a trip 11, located in the plane of the hooks 9. The trips 11, one for each hook 9, are secured to the cross-piece 5 and their upper ends incline and their lower bent ends 10 fit under said cross-piece to sustain the wear incident to the hooks 9 engaging therewith. The purpose of the trips 11 is to engage with the terminals of the hooks 9 and move them aside to permit the cross-piece 5 to pass thereby, and when said cross-piece has cleared the

hooks the lock-bar 7 will assume a normal position and cause the hooks 9 to engage under the cross-piece 5 and support the car or platform, as shown most clearly in Fig. 4.

The releasing mechanism for the lock-bar consists of a lever 12, fulcrumed at its upper end to a side of the elevator-shaft and connected with the lower end of the adjacent hanger 8 by means of a link 13. The lever 12 normally inclines downwardly from its pivotal end and acts in the capacity of a weight to supplement the weight of the lock-bar and holds the latter in a normal position when the hooks 9 are in engagement with the cross-piece 5. A keeper 14, secured to a side of the elevator-shaft, receives the outer end portion of the operating-lever 12.

When the parts are properly assembled, the lock-bar 7 is suspended by means of the hangers 8, with the hooks 9 projecting across the path of the cross-piece 5, and when the elevator is hoisted the trips 11 engage with the hooks 9 and swing the lock-bar to one side, so as to admit of the said cross-piece passing thereby, after which the lock-bar returns to a normal position and causes the hooks 9 to engage under the cross-piece and hold the car or platform in suspension. After the car has been loaded it is released by the attendant grasping the outer end of the lever 12 and moving the same upward, which swings the lock-bar to one side and withdraws the hooks 9 from under the cross-piece 5, when the car or platform can descend.

Having thus described the invention, what is claimed as new is—

1. In an elevator, and in combination with the car or platform having a cross-piece, a transversely-disposed lock-bar pivoted so as to swing laterally, suspending devices attached to the lock-bar and adapted to engage under the cross-piece of the aforesaid car or platform, and trips attached at their lower ends to the said cross-piece and having their upper ends inclined and adapted to ride upon the said suspending devices to permit the cross-piece to pass thereby, substantially as specified.

2. In combination with an elevator car or platform having a cross-piece, a lock-bar, hangers pivoted at their upper ends in vertical line with said cross-piece and having their lower ends attached to the lock-bar, suspending devices applied to the lock-bar and projecting laterally therefrom across the path of the aforesaid cross-piece to engage thereunder, upwardly-inclined trips attached to the cross-piece and adapted to ride upon the suspending devices to permit the passage of the cross-piece thereby, and an operating-handle having link connection with the said lock-bar and forming a counterbalance therefor and limited in its downward movement, substantially as specified.

3. In combination, a car or platform provided with a cross-piece, a transversely-arranged lock-bar, hangers pivoted at their upper ends and having the said lock-bar attached to their lower ends, suspending-hooks attached to the lock-bar, trips applied to the cross-piece of the car or platform and having their upper ends inclined and their lower ends bent to engage under the cross-piece and formed with reinforcements to sustain the wear of the suspending-hooks, an operating-lever normally inclined downwardly at its pivotal end, and a link connecting said operating-lever with the adjacent hanger, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

ANDREW ROBINSON. [L. S.]

Witnesses:
W. KRUPPS,
J. M. COOPER.