(No Model.)

R. E. OLDS & G. E. DE VORE.

ELEVATOR GATE.

No. 557,219. Patented Mar. 31, 1896.

Fig. 1.

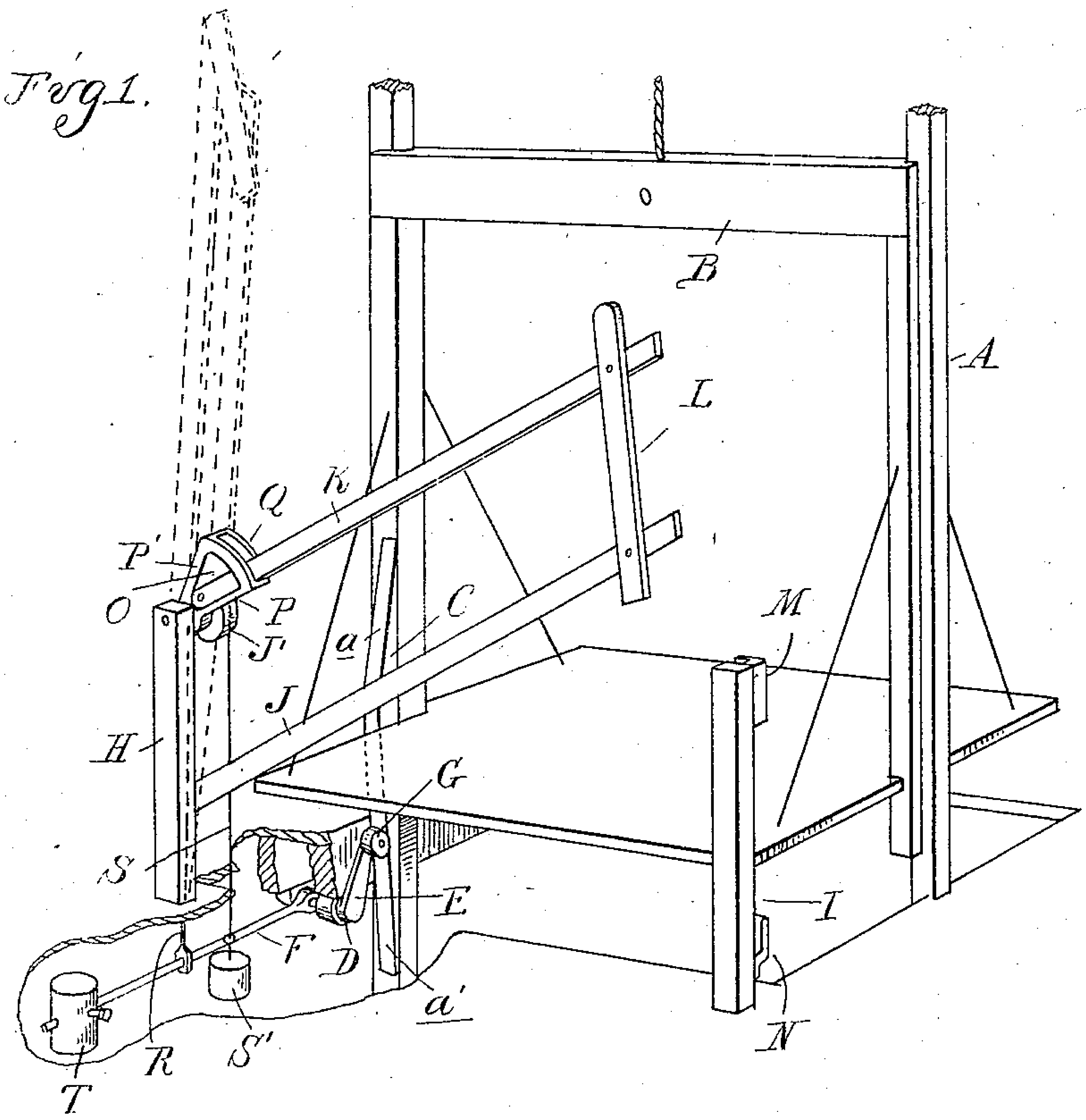


Fig. 2

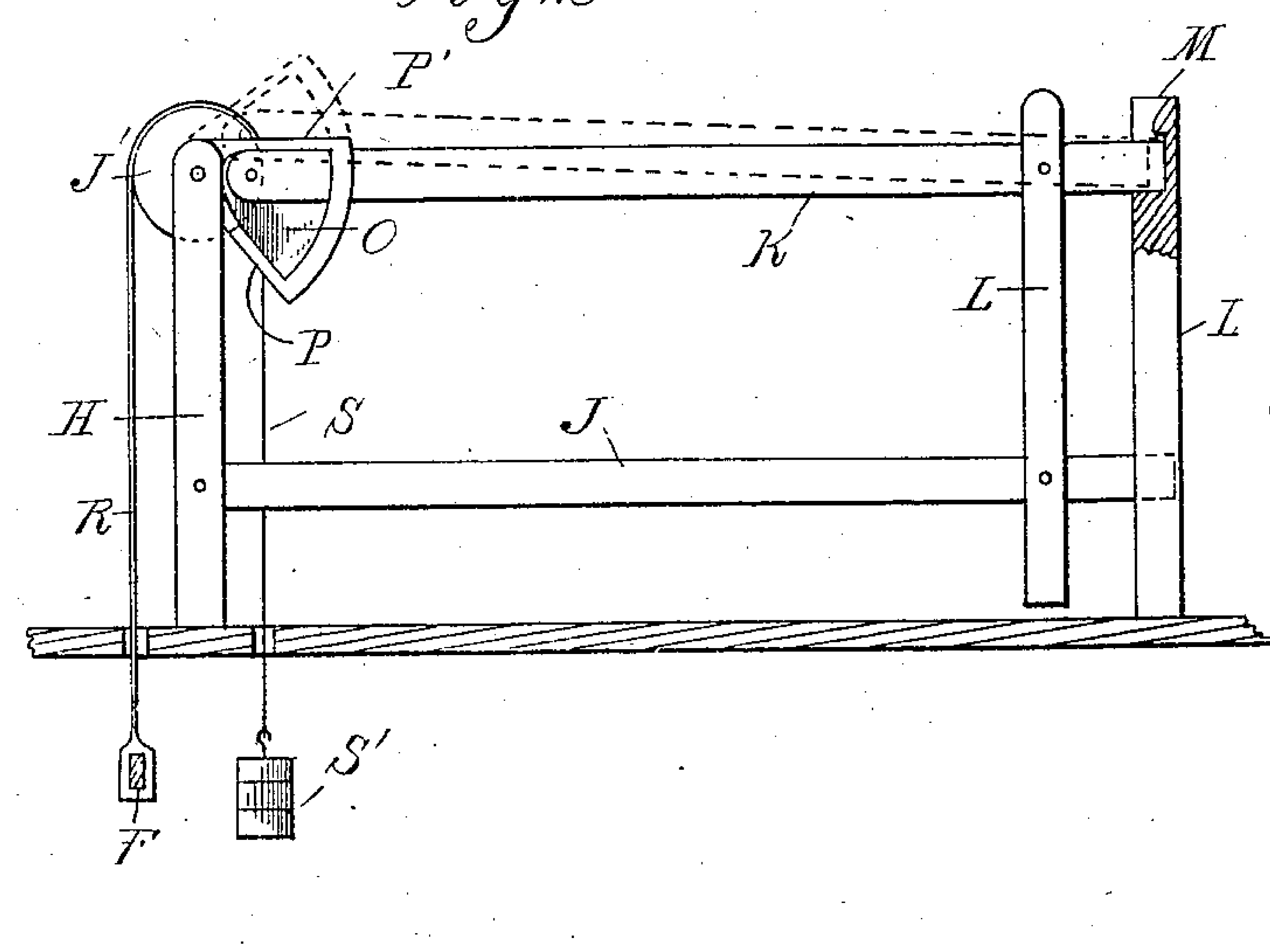
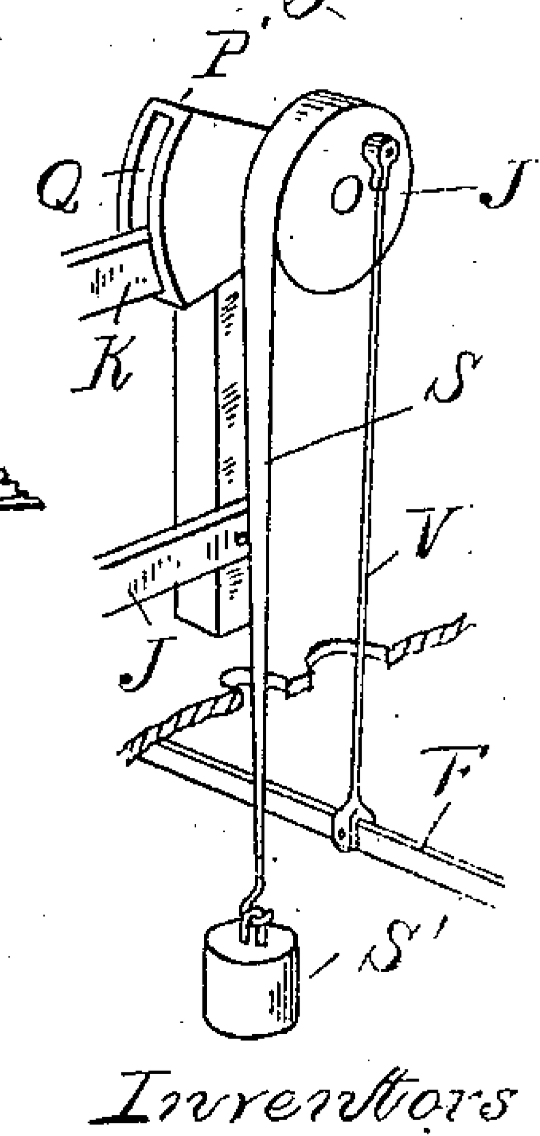


Fig. 3.



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UNITED STATES PATENT OFFICE.

RANSOM E. OLDS AND GEORGE E. DE VORE, OF LANSING, MICHIGAN.

ELEVATOR-GATE.

SPECIFICATION forming part of Letters Patent No. 557,219, dated March 31, 1896.

Application filed July 11, 1895. Serial No. 555,614. (No model.)

To all whom it may concern:

Be it known that we, RANSOM E. OLDS and GEORGE E. DE VORE, citizens of the United States, residing at Lansing, in the county of Ingham and State of Michigan, have invented certain new and useful Improvements in Elevator-Gates, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention consists in the construction of an elevator-gate and in the construction, arrangement, and combination of the various parts, whereby its construction, manufacture, and operation are simplified and made perfect, all as more fully hereinafter described.

In the drawings, Figure 1 is a perspective view, partly in section, showing our device as in use with the ordinary freight-elevator. Fig. 2 is a front elevation, partly in section, showing in full and dotted lines different positions of the gate. Fig. 3 is a perspective view of the gate-actuating mechanism, showing a slightly-modified construction.

A are the elevator-guides; B, the elevator-car, upon which is a cam C having the two oppositely-inclined bearings a a'.

D is a rock-shaft journaled in bearings beside the elevator and having the crank-arms E and F extending therefrom at substantially right angles to each other. The crank-arm E at its end is provided with the roller G in the path of the cam C and adapted to be struck by the one or the other of the inclined bearings thereon in the movement of the elevator-car in either direction to rock the shaft D. At each side of the opening to the elevator-well are the posts H and I. To the post H is pivoted the bottom slat J of the gate, and to the top of the post is pivoted a block J′, to one end of which is pivoted the upper slat K of the gate. The outer ends of these two slats are connected together by means of the vertical slat L. On the upper portion of the post I is the notched block M, adapted to receive the end of the slat K of the gate, and at the other end of the post is the bar N to receive the lower slat. The block J′ is provided with a lifting device for the gate, such as the segmental plate O, extending from its inner edge and provided with the ribs or stops P P′ on the upper and lower edge and also preferably with the guide-bar Q. The upper gate-slat K projects beyond this guide-bar across the segmental plate and is pivoted, as described, upon the block or disk J′ near its periphery.

R is a strap or connecting-rod connecting the opposite point of the block or disk J′ with the crank-arm F. Opposite the strap or connecting-rod R is a strap or rod S, carrying at its lower end the counterweights S′.

Upon the lever F is the adjustable counterweight T.

The parts being thus constructed, their operation is as follows: When the gate is closed, the counterweight S′ will act to rotate the disk or block J′ until the upper stop P′ of the plate O strikes the upper face of the rail K, the parts being in the position shown in full lines in Fig. 2. In this position of the parts the end of the upper rail K is engaged in the notched locking-block M on the post and prevents the opening of the gate except when operated by the elevator-car or through the elevator-car connections. As the elevator-car approaches the floor from above or below, the inclined bearings a a' will strike the roller on the end of the crank-arm E and rock the arm or lever F downward, which through its connections will rotate the disk J′. During the first part of the rotation of that disk or block the gate will not be raised, but the upper rail will be withdrawn laterally by the movement of its pivotal point on the disk, as shown in dotted lines in Fig. 2, withdrawing the end of the upper rail from the locking-block M. Further movement of the disk J′ will cause the lower stop P to impinge upon the upper rail of the gate and carry the gate upward, as shown in Fig. 1, the gate folding back upon itself in the well-known manner of such folding gates until it reaches the well-known vertical position shown in dotted lines in Fig. 1, leaving the entrance to the elevator-well perfectly free.

As the elevator-car moves from the floor, either up or down, the roller on the crank-arm E will run down the incline, and the counterweights S′, through the connections described, will return the parts to the position shown in full lines in Fig. 2, locking the gate in its closed position. We find that it is much more convenient to adjust the counterweight T along the lever F to get the desired adjustment or weight for operating the gate than to be obliged to take away or add the weights S'. Instead of the strap connection R between the lever F and the disk J' we may use the connecting-rod V, as shown in Fig. 3, and obtain the same movement of the parts.

What we claim as our invention is—

1. The combination with the elevator, of a folding gate controlling the entrance thereto, a disk or block to which one slat of the gate is pivoted, a lifting device for the gate connected with the disk and connections actuated by the elevator-car for rocking the disk to open the gate, substantially as described.

2. The combination with the elevator, of a folding gate controlling the entrance thereto, posts for the gate, a disk or block pivoted to one post, and to which one slat of the gate is pivoted, a lifting device for the gate connected with the disk connecting devices actuated by the elevator-car for rocking the disk to open the gate, and a counterweight for rocking the disk for closing the gate, substantially as described.

3. The combination with the elevator-car, of the double inclined cam thereon, a rock-shaft, a rock-arm thereon actuated by the cam, a second rock-arm thereon, a disk, to which said latter arm is connected, pivoted to the post beside the elevator, a folding gate, one slat of which is pivoted to the disk, a lifting device for the gate secured to said disk, and a counterweight for the disk, substantially as described.

4. The combination with the elevator-car, of the double inclined cam thereon, a rock-shaft, a rock-arm thereon actuated by the cam, a second rock-arm thereon, an adjustable counterweight thereon, a disk pivoted to a post beside the elevator, a connection from the rock-arm to the disk to rock the latter, a counterweight acting to oppositely rock the disk a folding gate, one slat of which is pivoted to the disk, and a lifting device for the gate carried by the disk, substantially as described.

5. The combination with an elevator-car and gate-actuating mechanism actuated thereby, of a folding gate comprising slats connected together, an end post supporting the gate, an opposite post having a locking-bearing the disk J to which the upper slat is pivoted, the plate O and the stops P' on the edges of the plate adapted to strike the slat after a limited movement, substantially as described.

6. The combination of a gate comprising the slats J, K, the connecting-slat L, the disk J' pivoted to the post and to which the slat K is pivoted, the locking-bearing M for the free end of the slat K, and separated bearings on the disk above and below the slat K, for permitting a limited lost motion of the disk in relation to the slat, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

RANSOM E. OLDS.
GEORGE E. DE VORE.

Witnesses:
CHARLES F. HAMMOND,
CHARLES B. COLLINGWOOD.