

E. L. MURRAY.
ELEVATOR GATE CLOSING DEVICE.
APPLICATION FILED DEC. 12, 1911.

1,042,949.

Patented Oct. 29, 1912.

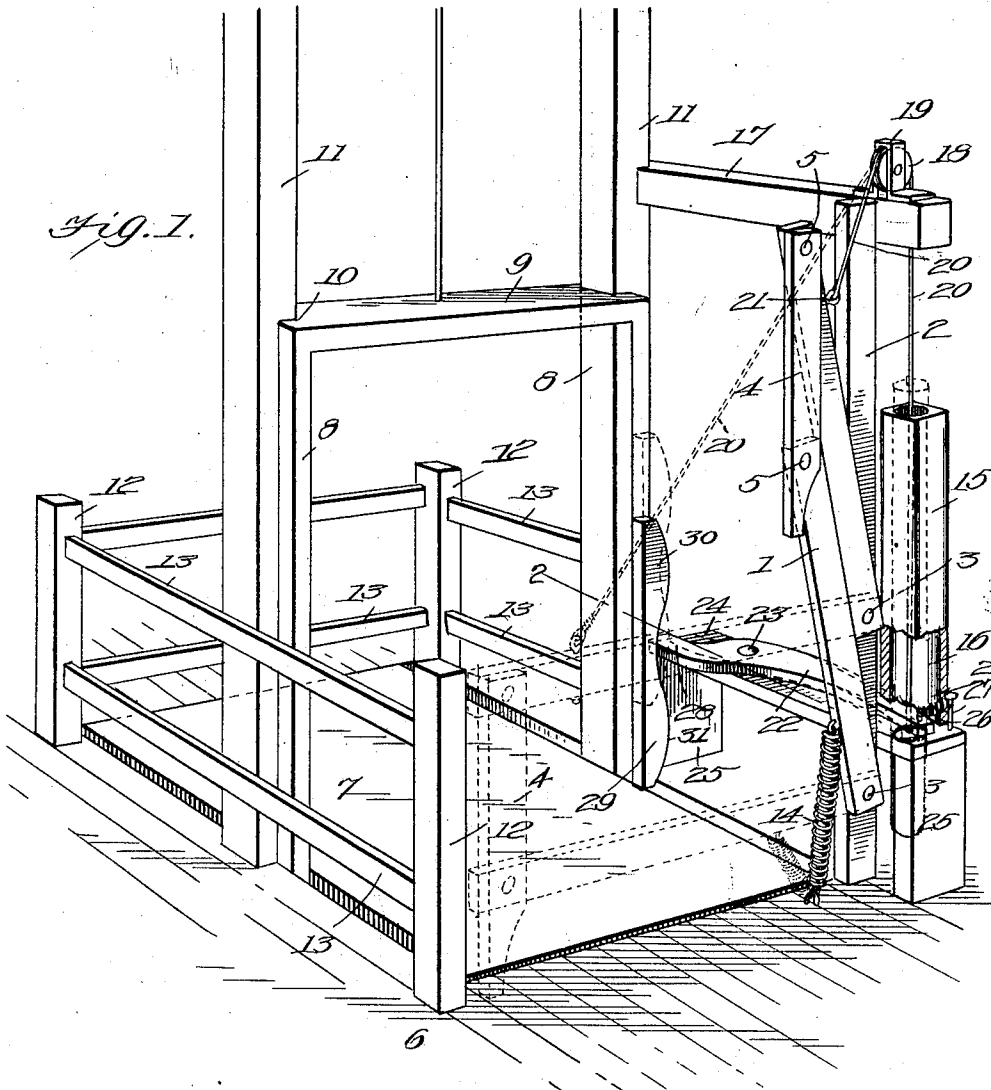
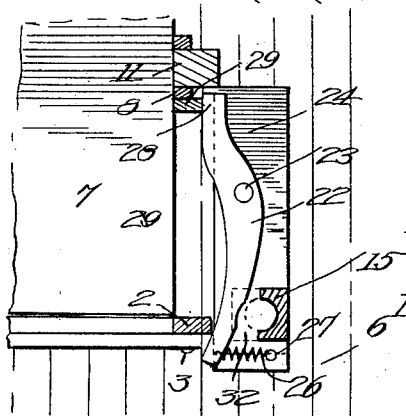


Fig. 2.



WITNESSES
F. E. Barry
O. E. Trainor

INVENTOR
Edward L. Murray
BY *Murray & Co.*
ATTORNEYS

UNITED STATES PATENT OFFICE.

EDWARD L. MURRAY, OF COUNCIL BLUFFS, IOWA.

ELEVATOR-GATE-CLOSING DEVICE.

1,042,949.

Specification of Letters Patent.

Patented Oct. 29, 1912.

Application filed December 12, 1911. Serial No. 665,215.

To all whom it may concern:

Be it known that I, EDWARD L. MURRAY, a citizen of the United States, residing at Council Bluffs, in the county of Pottawattamie and State of Iowa, have invented a new and useful Improvement in Elevator-Gate-Closing Devices, of which the following is a specification.

My invention is an improvement in elevator gate closing devices, and has for its object, the provision of a simple, inexpensive device of the character specified, for automatically closing the gates of an elevator shaft, whenever the elevator car leaves the floor in either direction, and set in operation by the elevator's movement, and so arranged that the elevator car can not leave the floor without operating the means for closing the gate.

In the drawings, Figure 1 is a perspective view of an elevator, provided with the improvement, parts thereof being broken away, and Fig. 2 is a section on the line 2-2 of Fig. 1.

In the present embodiment of the invention, a collapsible gate is arranged at each floor, and each gate consists of two or more longitudinal bars 1, each pivoted or hinged at one end to an upright 2 connected to the frame of the shaft, as indicated at 3, and the other ends of the bars are connected by a post or cross bar 4.

The post 4 is pivoted to each bar 1, as indicated at 5, and the lower end of the post extends below the lowermost bar 1, and engages the floor 6, when the gate is closed. When the gate is closed, the bars 1 extend approximately parallel with each other and the floor, and close the outlet from the elevator shaft.

The elevator cage is of any desired or usual construction, in the present instance, consisting of a floor 7, to which is connected, at approximately the center of each side, an upright 8. The uprights are connected at their tops by a cross bar 9, and each upright is grooved longitudinally on its outer face, as indicated at 10, to receive the guide bars 11 of the shaft. This shaft is inclosed on three sides, at each floor, by a fence, consisting of posts 12, and connecting bars 13. The gate is arranged at the fourth side, and a spring 14 is secured at one end to the gate, and at the other to the floor, and the springs act normally to hold the gates in closed position.

A well or casing 15 is arranged adjacent to the hinged end of the gate, in vertical position, and the said well or casing is adapted to receive a counterbalance 16 in the form of a weight. The upright 2 is braced against the adjacent guide bar, by means of a cross bar 17, and a pulley 18 is journaled in a stirrup 19 on the upper face of the cross bar, above the well 15. A cord or rope 20 passes over the pulley, and has one of its ends connected to an eye 21 on the gate, the other extending into the well, and being secured to the counterbalance. The counterbalance is not of sufficient weight to lift the gate, and a releasable latch bar 22 is provided for engaging the counterbalance to hold the gate open.

The latch 22 is pivoted at 23 intermediate its ends, to a plate 24, supported by legs 25, below the well. A spring 26 is arranged between the end of the latch adjacent to the weight, and a pin 27 on the plate 24. The spring acts normally to hold the adjacent end of the latch in position above the weight, to prevent upward movement thereof in order to hold the gate in open position. The other end 28 of the latch is offset laterally inward, toward the cage, and into position for engagement by a releasing or tripping cam plate 29 secured to the adjacent upright 8 of the cage. The cam plate is arranged with its widest dimension perpendicular to the latch, and is provided with two cam portions 30 and 31 respectively. The cam portions are formed by rounding the ends of the plate at its outer edge, and removing a portion of the said edge at the center, so that the two projecting rounding cams are provided, either of which will swing the latch to release or trip the weight. The plate 29 is so arranged, that when the floor of the elevator cage is level with the floor of the building, the end 28 of the latch will be between the cams 30 and 31, so that movement of the cage in either direction, upward or downward, will operate the latch to release the gate.

In operation, the gate is opened when the cage reaches the floor, by lifting the same into the full line portion of Fig. 1. When so lifted, the latch engages and holds the weight, and the gate is held open, as long as the cage is at that floor. When however, the elevator cage starts in either direction, the cam 30 or 31 will engage the end 28 of the latch, and will swing the latch to release

the weight. As soon as the weight is released, the spring 14 pulls the gate into closed position, as indicated by dotted lines in the same figure. The well or casing 15 is
5 recessed, in its side wall, as indicated at 32 in Fig. 2, the recess extending approximately half the width of the well, to permit the latch engaging above the weight to prevent upward movement thereof. The counterbalance or weight permits the gate to
10 close without any jar, or shock, being of just sufficient weight to cushion the closing movement of the gate.

I claim,

15 The combination with the elevator cage and the shaft, of a gate at each floor, each gate comprising parallel longitudinal bars hinged to the shaft at one end, a post pivotally connecting the other ends of the bars,
20 a spring arranged between the lowermost

bar and the floor for holding the gate closed, a well arranged adjacent to the hinged end of the gate, a weight in the well a pulley above the well, a cord connected at one end to the gate at the end remote from the
25 hinged connection of the gate and at the other end to the weight and passing over the pulley, latch mechanism for engaging above the weight to hold the gate open, a spring pressing the latch into position to
30 engage the weight, and a double cam on the cage for engaging the latch to open the same, said cam having a portion on each side of the latch when the gate is at the floor.

EDWARD L. MURRAY.

Witnesses:

HERMAN E. WITTLAND,
JOHN H. HENWINKEL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."