

No. 648,104.

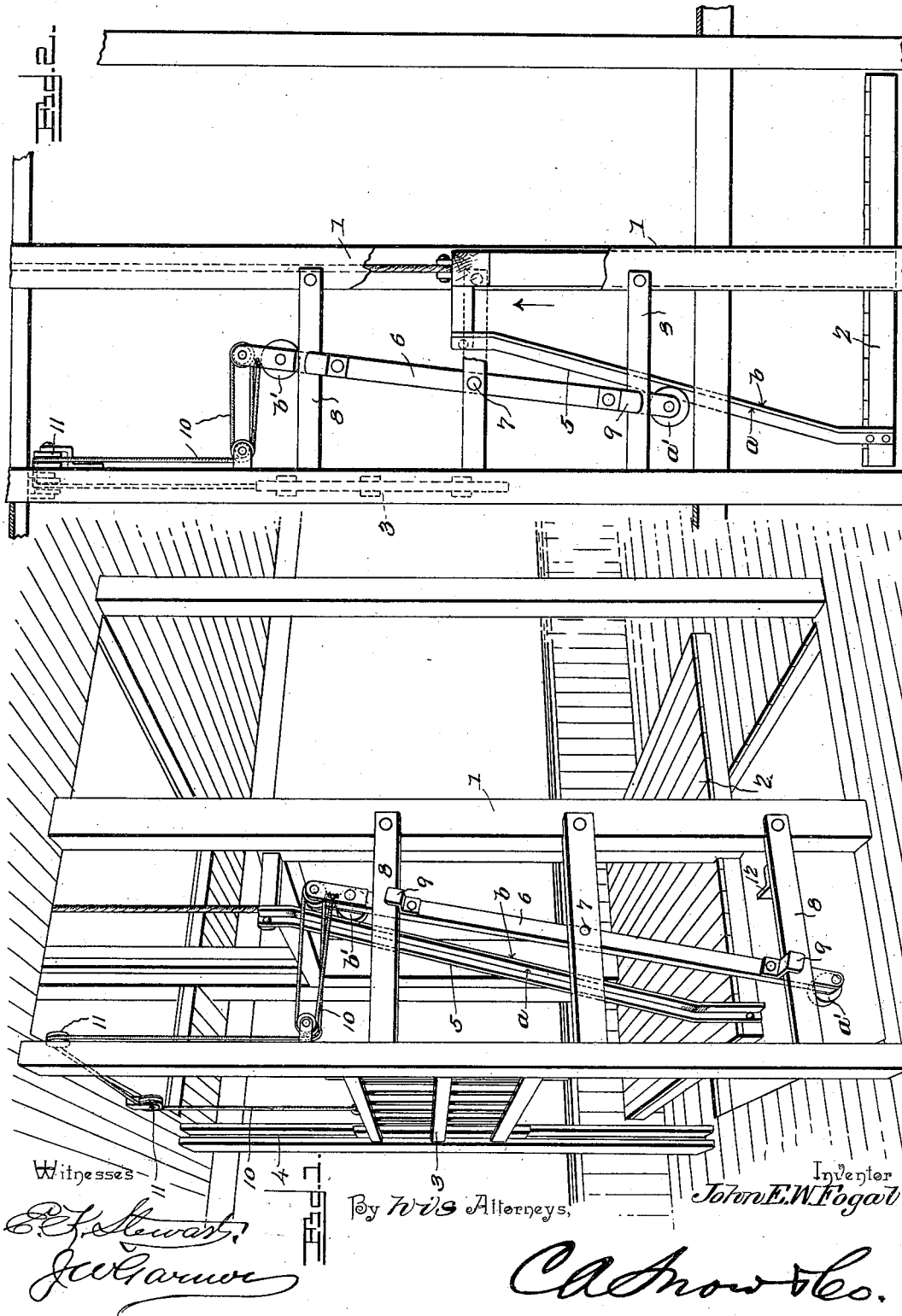
Patented Apr. 24, 1900.

J. E. W. FOGAL.

**AUTOMATIC GATE OPENING OR CLOSING APPARATUS FOR ELEVATORS.**

(Application filed Jan. 16, 1900.)

(No Model.)



# UNITED STATES PATENT OFFICE.

JOHN E. W. FOGAL, OF QUINCY, ILLINOIS, ASSIGNOR OF TWO-THIRDS TO H. B. DINES AND J. C. DUSSAIR, OF SAME PLACE.

AUTOMATIC GATE OPENING OR CLOSING APPARATUS FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 648,104, dated April 24, 1900.

Application filed January 16, 1900. Serial No. 1,623. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN E. W. FOGAL, a citizen of the United States, residing at Quincy, in the county of Adams and State of Illinois, have invented a new and useful Automatic Gate Opening or Closing Apparatus for Elevators, of which the following is a specification.

My invention is an improved automatic gate opening and closing apparatus for elevators, one object of my invention being to provide an elevator car and gate with improved devices for automatically opening and closing the gate as the car approaches and recedes therefrom in ascending and descending.

A further object of my invention is to provide an improved gate opening and closing lever fulcrumed at a fixed point and having engaging tappets at opposite ends and a novel form of cam carried by the car and having two engaging faces, one for each lever-tappet, whether the car be ascending or descending, so disposed as to avoid necessity for adjustment of the lever and to render the latter operable by the cam under all conditions, and hence avoid accidental jamming of the lever and cam and attendant disastrous consequences.

To these ends my invention consists in the peculiar construction and combination of devices hereinafter fully set forth, and particularly pointed out in the claim.

In the accompanying drawings, Figure 1 is a perspective view of an automatic gate opening and closing apparatus for elevators embodying my improvements, showing my improved cam and lever in operable position with relation to each other. Fig. 2 is a side elevation of the same, illustrating the lever in another position.

The vertical elevator guide frame or well 1 and the elevator car or platform 2 may be of any suitable form or construction. The gate 3 is of the vertically-movable type, is mounted and adapted to move in vertical guides 4, and is adapted for closing the entrance to the well or hatchway after the car has passed the level of the floor on which the gate is located.

Rigidly secured to the car on one side thereof and carried thereby is an inclined cam-bar

5, which is obliquely disposed, as here shown, and is of right-angular form in cross-section. The opposite sides of the inclined cam-bar constitute engaging faces *a b*.

A lever 6 is fulcrumed at one side of the guide frame or well, as at 7, and is disposed in the path of the cam-bar as the latter ascends and descends with the elevator car or platform. Horizontally-disposed guides 8 bear against the outer side of the lever, near the ends thereof, and angled yokes 9 may, as here shown, be bolted to the outer side of the said lever and caused to engage said horizontal guides. The employment of said guides and yokes is optional and is not imperative, the only function of said guides and yokes being to counteract any tendency of the lever to tilt on its pivot. A stop-bracket 12 limits the stroke of the lever. Near the upper end of the lever is a tappet *b'*, which, as here shown and preferably, is an antifriction-roller which is adapted to engage and operate on the face *b* of the cam-bar. At the lower end of the lever is a tappet *a'*, which, as here shown and preferably, is an antifriction-roller adapted to engage and operate on the face *a* of the cam-bar. The upper end of the lever is connected to the gate 3 by a rope or chain 10, which is guided on suitably-disposed sheaves 11, and the said gate is thereby rendered operable by the said lever, as will be readily understood, the said lever raising the gate when it is moved in one direction and permitting the gate to descend when it is moved in the opposite direction.

When the elevator approaches the gate in ascending or descending, one of the tappets of the lever will engage one of the faces of the inclined cam-bar, and thereby turn the lever on its pivot as the cam-bar moves on said tappet, the lever and connecting devices hereinbefore described serving to elevate the gate, and thereby permit access to the car or egress therefrom. The said tappet of the said lever will remain in engagement with the said engaging face of the said cam-bar throughout the entire movement of the lever as the said cam passes the said tappet, and as the car continues to move, whether ascending or descending, the other tappet on the lever will become engaged by the opposite face of the

cam, thereby returning the lever to its original position and lowering or closing the gate as the car recedes from the floor on which the gate is located.

5 It will be understood from the foregoing and by reference to the drawings that the lever requires practically no adjustment, will be positively operated by the cam - bar no matter what may be the relative positions of the cam-  
10 bar and lever within the limit of movement of the latter, that the tappets or ends of the lever cannot become jammed with the cam, and hence all danger which might result from an imperfect adjustment of the operating parts  
15 is avoided.

Having thus described my invention, what is claimed is—

The combination with an inclined cam-bar

carried by an elevator-car and having oppositely-disposed duplicate engaging faces, of 20 a gate opening and closing lever fulcrumed at a fixed point and having a single engaging tappet at each end, one of said tappets engaging one of said duplicate faces of said cam on the ascent of the car, and the other tappet 25 engaging the opposite face of said cam on the descent of the car, for the purpose set forth, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in 30 the presence of two witnesses.

JOHN E. W. FOGAL.

Witnesses:

GEO. M. JANES,  
H. L. SIMPSON.