E. F. JOYCE.

AUTOMATIC LOCK FOR ELEVATOR GATES.

APPLICATION FILED NOV. 29, 1907.

935,607. Patented Sept. 28, 1909.

Fig. I

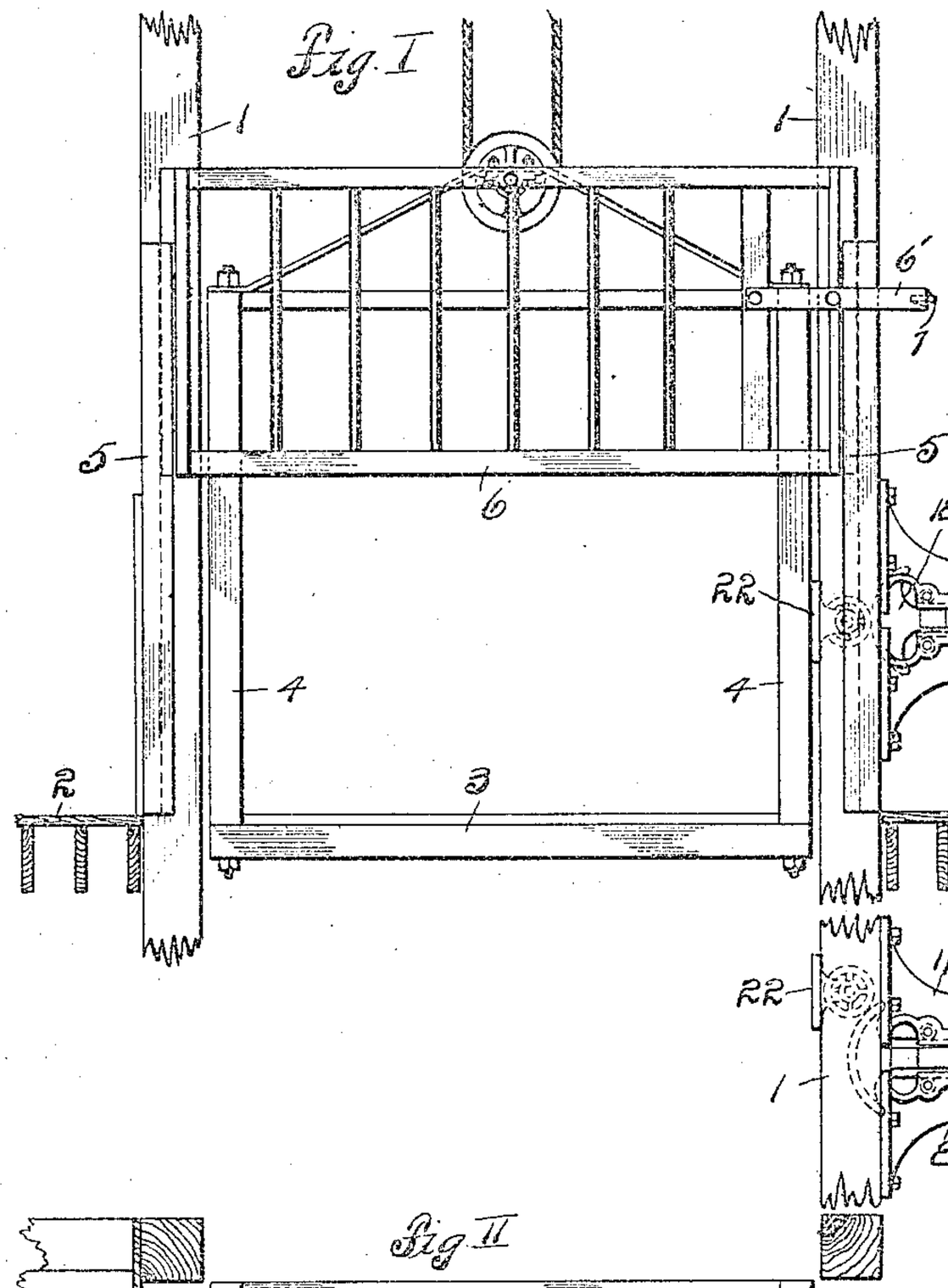
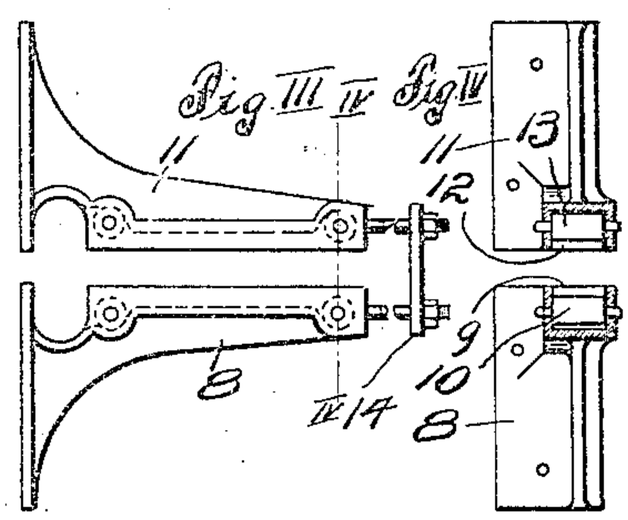


Fig. III IV Fig. IV



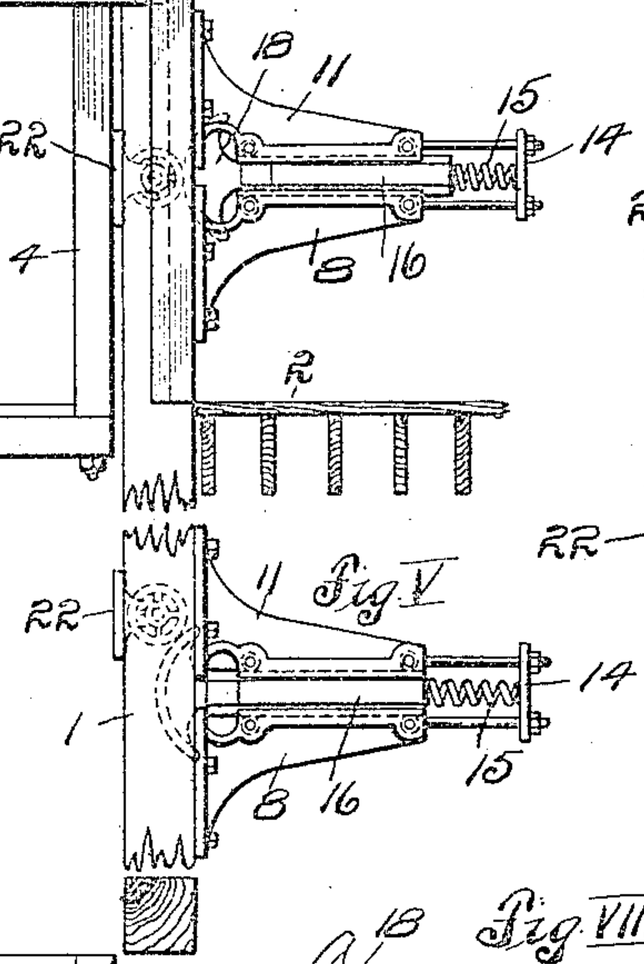


Fig. V

Fig. VI

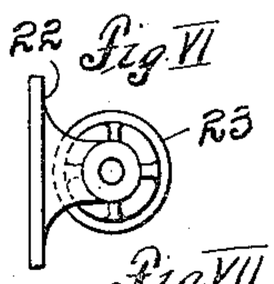


Fig. VII

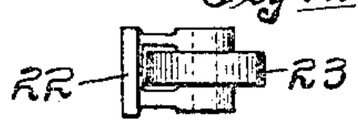


Fig. II

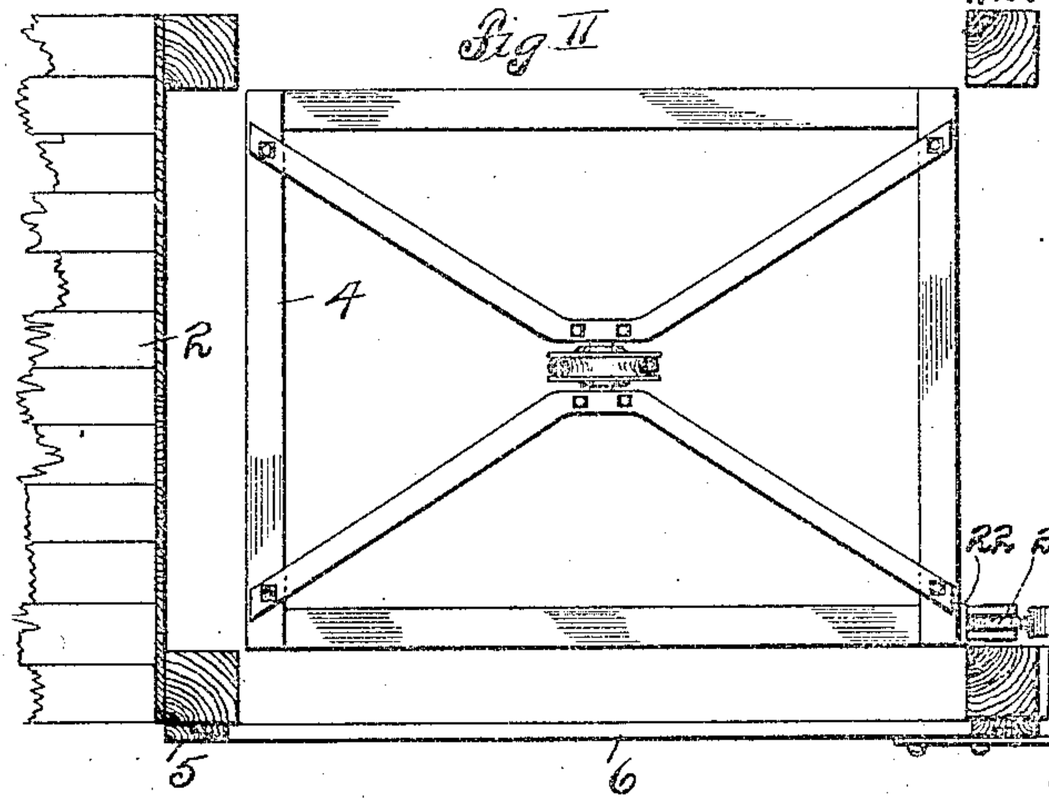


Fig. VIII

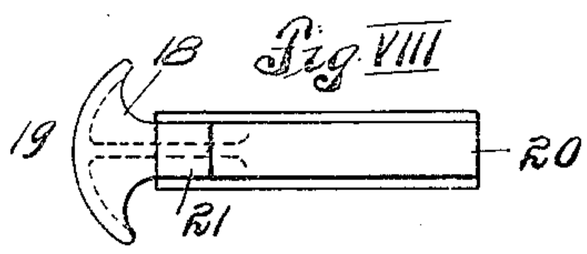
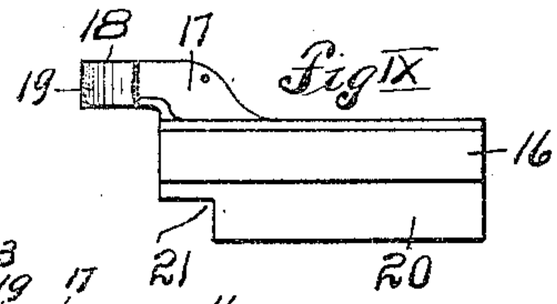
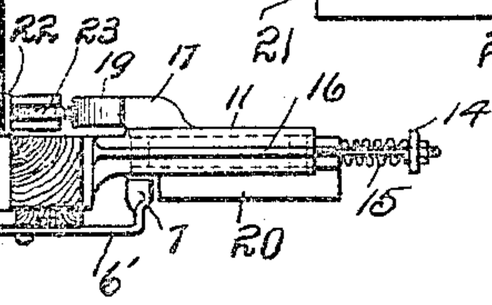


Fig. IX





WITNESSES:

Stanley Savage.
Harold C. Richards

INVENTOR.
Edward F. Joyce.
BY Arthur L. Brown
ATTORNEY.

UNITED STATES PATENT OFFICE.

EDWARD F. JOYCE, OF KANSAS CITY, KANSAS.

AUTOMATIC LOCK FOR ELEVATOR-GATES.

935,607. Specification of Letters Patent. Patented Sept. 28, 1909.

Application filed November 29, 1907. Serial No. 404,373.

To all whom it may concern:

Be it known that I, EDWARD F. JOYCE, a citizen of the United States, residing at Kansas City, in the county of Wyandotte and State of Kansas, have invented certain new and useful Improvements in Automatic Locks for Elevator-Gates; and I do 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to an automatic lock for elevator gates, and has for its object to provide a device of that class which will effectually lock the gate to an elevator shaft while the car is above or below the floor upon which the gate is located, but which will automatically release the gate as the car reaches that floor, and will resume its locking position as the car passes the floor.

A further object is to provide the improved details of structure which will presently be fully described and pointed out in the claims, reference being had to the accompanying drawings forming part of this specification, in which like reference numerals refer to like parts throughout the several views, and in which;—

Figure I is a view, in front elevation, of an elevator, car, and shaft casing equipped with my improved gate lock. Fig. II is a top plan view of same. Fig. III is an enlarged view, in side elevation, of the locking bar frame. Fig. IV is a cross section of same on the line IV—IV, Fig. III. Fig. V is an enlarged detail view of the locking bar, and releasing mechanism. Fig. VI is an enlarged detail view of the releasing wheel. Fig. VII is a top plan view of same. Fig. VIII is an enlarged detail view of the locking bar, in side elevation. Fig. IX is a top plan view of same.

Referring more in detail to the parts;—1 indicates a portion of a shaft casing, and 2 a portion of a floor through which the elevator shaft extends. Adapted for travel in the shaft is an elevator car comprising the platform 3 and side frames 4.

Slidably mounted between the front of the shaft casing and battens 5, carried thereby, is a gate 6, of any ordinary type. Secured to, and projecting from gate 6, at one side, is an arm 6′ which extends a short distance beyond the shaft casing, and has a laterally projecting blade 7. Bolted, or otherwise rigidly secured to the shaft casing is a frame member 8, in the top of which is a channel 9, and revolubly mounted in said channel are the rollers 10. Secured in like manner to casing 1 above member 8 is a second member 11, which is the counterpart of member 8, but in which the slot 12 opens downwardly, and in which are suspended the rollers 13. Bolted to, or secured in a suitable manner to the ends of the frame members 8 and 11 is a plate 14, to which is secured a spring 15. Fitting within the channels in the frame members, and bearing against the rollers 10 and 13 is a sliding bar 16, and projecting from one side of said bar is a flange 17, having a head 18 extending toward the elevator shaft, and provided with a curved bearing flange 19. Projecting from the opposite side of bar 16 is a rail flange 20, which is provided at its inner end with a cut out portion 21. On the side frame 4 of the elevator car is a bracket 22, on which is revolubly mounted a wheel 23, which is adapted for engagement with the sliding bar bearing flange when the car is at or approaching the floor where the gate is hung.

When in use, the gate is closed, the arm 6 being so arranged as to rest below the rail flange of the sliding bar. Under normal conditions the tension of spring 15 forces the sliding bar toward the shaft so that the bearing flange 19 is in the path of the wheel on the car frame, and the rail flange covers the blade 7 on the gate arm. As the elevator car approaches the floor upon which the gate is located, the wheel 23 engages the bearing flange of the sliding bar head and forces said bar backwardly against the tension of spring 15. When the car stops at the floor, the wheel will be in contact with the center of the bearing flange, and the bar forced back to the limit of its travel. When in this position the gate is raised, the blade 7, of the gate arm passing through the cut out portion of the sliding bar flange. Before again starting the car, the gate is closed, the blade 7 passing downwardly through the cut out portion of flange 20. As the car moves away from the floor, the wheel 23 leaves its contact with the sliding bar head, permitting the spring 15 to force the bar toward the elevator shaft, and carrying the rail flange 20 over the blade on the gate arm,

so that should an attempt be made to raise the gate while the parts are in this position, the blade 7 would strike against the under side of the flange 20, and hold the gate in its closed position. As the weight of the gate retains it in its closed position, there is no danger of the gate becoming displaced while the car is passing a floor upon which it is located, as, while the sliding bar is forced outwardly as the car passes, the spring immediately returns it to its locking position.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent is;—

1. The combination with an elevator car and suitable gate, of a slide frame permanently mounted adjacent to said gate, and comprising a pair of frame members, having facing grooves, a bar slidably mounted in the grooves in said frame and having a flange projecting between said frame members, a spring adapted for yieldingly holding said bar toward the elevator shaft, means on said car for actuating said bar, against the tension of said spring, and an arm on said gate adapted for holding engagement with said flange when the bar is in its extended position and for non-engagement therewith when the bar is moved back against the tension of said spring.

2. The combination with an elevator car, a suitable gate, and a shaft casing, of a slide frame mounted on said casing and comprising an upper and lower member having facing grooves, rollers mounted in said grooves, a sliding bar mounted in said grooves and bearing against said rollers, said bar having a head projecting toward said car and provided with a curved bearing flange at its inner end and with a side flange having a cut out portion, an end plate carried by said frame members, a spring carried by said plate and yieldingly retaining said bar toward said car, means on said car for engaging said bearing flange, and an arm on said gate projecting in the direction of said bar, said arm being provided with a blade adapted for engagement with the under face of the bar side flange and for passage through the cut out portion in said flange, substantially as and for the purpose set forth.

3. The combination with the shaft casing, elevator car and a suitable gate, of a slide frame mounted on said casing adjacent to said gate, and comprising a pair of oppositely facing grooved frame members, a bar slidably mounted in the grooves in said slide frame, and having a member projecting between said frame members provided with a cam surface, a spring adapted for yieldingly holding said bar toward the elevator shaft, means on said car for engaging said cam surface to slide back said bar against the tension of said spring, and a member on said gate adapted for holding engagement with said bar when the bar is in its extended position and for non-engagement therewith when the bar is moved back against the tension of said spring.

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

EDWARD F. JOYCE.

Witnesses:
GEO. HORN,
ARTHUR C. BROWN.