

F. G. ROEMPLER.

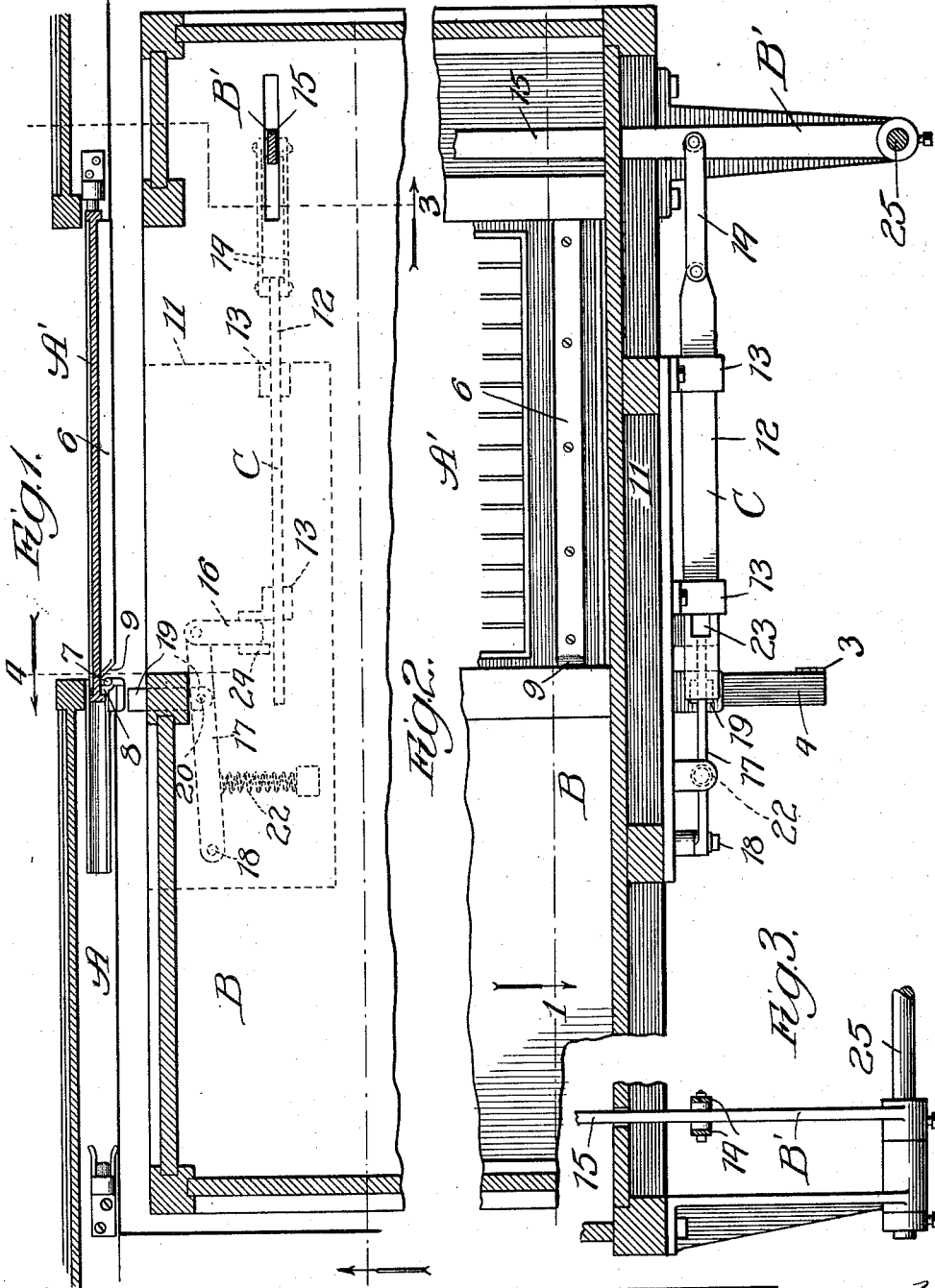
ELEVATOR.

APPLICATION FILED AUG. 11, 1910.

1,018,781.

Patented Feb. 27, 1912.

2 SHEETS—SHEET 1.



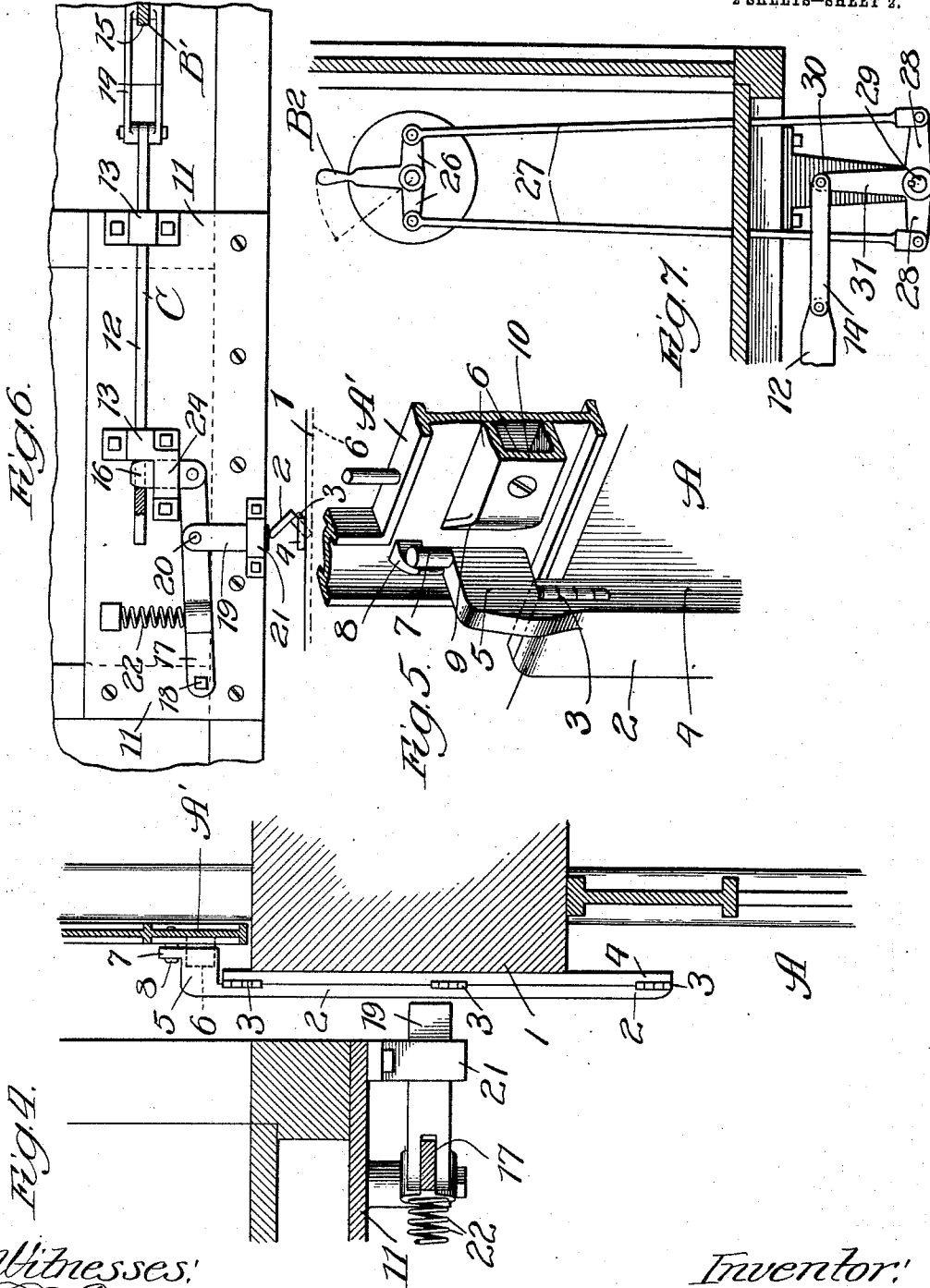
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

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ELEVATOR.

1,018,781.

Specification of Letters Patent.

Patented Feb. 27, 1912.

Application filed August 11, 1910. Serial No. 576,657.

To all whom it may concern:

Be it known that I, FREDERICK G. ROEMPLER, a citizen of the United States, residing at 2137 Hastings street, Chicago, in the
5 county of Cook and State of Illinois, have invented a new and useful Improvement in Elevators, of which the following is a specification.

My invention relates particularly to
10 means for locking the controlling-mechanism of an elevator against actuation when the elevator-door is thrown open, and maintaining the controlling-mechanism in such condition until the door is fully closed, thus
15 preventing careless starting of the elevator and obviating the danger attendant thereon.

My primary object is to provide improved and simplified mechanism which can be manufactured and installed at moderate expense, and which is operative to accomplish
20 the purpose indicated.

The invention is illustrated in its preferred embodiment in the accompanying drawings, in which—

25 Figure 1 represents a broken plan sectional view of an elevator-shaft and elevator-cage equipped with my improvements; Fig. 2, a broken vertical section taken as indicated at line 2 of Fig. 1 and
30 illustrating the cage-carried portion of my device; Fig. 3, a broken vertical section taken as indicated at line 3 of Fig. 1; Fig. 4, a broken vertical section taken as indicated at line 4 of Fig. 1; Fig. 5, a broken perspective
35 view showing a portion of an elevator-shaft, the elevator-door and the portion of my device attached thereto; Fig. 6, a broken bottom view of the cage with my mechanism applied, the view showing also the door-actuated member which actuates the locking
40 device carried by the elevator-cage; and Fig. 7, a broken vertical section showing a different form of elevator-controlling mechanism (electric-controller) and the manner
45 in which the same may be connected with the locking-mechanism which I employ.

In the preferred construction, A represents an elevator-shaft provided with doors
50 A' (one shown); and B, an elevator-cage suspended in the shaft in the usual manner (not shown), and equipped with controlling-mechanism B' of the usual construction.

The elevator-shaft A may be of any usual
55 construction. At each floor is a beam, or sill,

1 to which is attached a vertically-disposed door-actuated rock-member 2. The rock-member 2 is connected by vertical hinges 3 to a vertically-disposed bar 4 which is secured
60 in any suitable manner to the vertical surface of the sill 1, the rock-member 2 and supporting-member 4 being thus disposed within the elevator-shaft, preferably immediately below the rear portion of the
65 door in the closed position thereof, but slightly back of the plane of the door. Said rock-member 2 has a laterally-projecting arm 5 adapted to be engaged by a cam-member 6 when the door is thrown open.
70 The arm 5 is equipped at its extremity with an upwardly-projecting stud 7 which is adapted to be engaged by a hooked-projection 8 attached to the rear lower corner of the door, the member 8 being located slightly
75 in the rear of the rear end of the member 6 and somewhat above the member 6. The member 6 extends horizontally across the bottom portion of the door and has a beveled surface 9 at its rear end which is
80 adapted to engage the arm 5 when the door is thrown open, thereby to swing the member 2 away from the wall of the elevator-shaft and cause it to actuate the controller-locking mechanism carried by the cage.
85 The member 2 is elongated vertically, so that it will serve its function, even though the car does not stop exactly at the landing, preparatory to opening the door to the elevator-shaft. The cam-member 6 may comprise a channel-bar whose flanges abut
90 against the lower member of the door-frame and whose web 10 is thus disposed at some distance from the door. The flanges of the member 6 are cut away at their rear ends adjacent to the web, and the projecting portion
95 of the web is bent to an oblique position, as shown in Fig. 5, thereby to provide the beveled surface 9.

The rock-member 2 coacts with the controller-locking mechanism C carried by the
100 elevator-cage and disposed beneath the floor thereof. The mechanism C comprises a mounting, or plate, 11 which is securely fastened to the floor of the elevator-cage at the lower side thereof; a slide-bar 12 movable in
105 guides 13 depending from the lower side of the plate 11, said bar 12 being connected by links 14 with the lever 15 of the controlling-mechanism; a locking-bolt 16 for the bar 12 which is pivotally connected with the free
110

end of the lever 17 whose opposite end is joined by the pivot 18 to the supporting-plate 11; and an actuating-member 19 for the lever 17, said member 19 comprising a bar, or plunger, having one end connected by a pivot 20 to the intermediate portion of the lever 17 and having its opposite end movable through the guide 21 carried by the edge-portion of the plate 11 which is disposed adjacent the wall of the elevator-shaft, the extremity of the member 19 being thus in position to be engaged by the rock-member 2 when the latter is turned to project into the elevator-shaft in the manner shown in Fig. 6. The spring 22 acts upon the lever 17 and serves normally to project the bar 19 through the guide-member 21, so that the extremity of the member 19 will be adjacent the rock-member 2 when the floor of the cage is at or near the level of the landing, as shown in Fig. 4.

The locking-bolt 16 is adapted to enter a slot, or locking-notch, 23 with which the bar 12 is provided, when the lever 15 is in the neutral position. The locking-bolt 16 is movable through a guide 24 with which the plate 11 is equipped on its under side, and the extremity of the locking-bolt is tapered somewhat, as shown in Fig. 6, to insure the bolt entering the socket in the bar 12, even though the lever 15 should not be exactly at the intermediate position when the door of the elevator-shaft is thrown open, thereby actuating the locking-mechanism C.

The controlling-mechanism B' which controls the actuation of the elevator-cage is of the well known form in which a rock-shaft 25 with which the starting and stopping lever 15 is connected, serves to control the hydraulic means for operating the elevator.

In Fig. 7, B² represents the controlling-lever of an elevator operated by electric power. In this case, the controller-lever is equipped with arms 26 connected by rods 27 with a lever 28 which is supported on a pivot 29 carried by a bracket 30 depending beneath the elevator-cage. The lever 28 is equipped with an arm 31 which is connected with the links 14 of my improved mechanism. The mechanism is in other respects similar to the mechanism already described.

The manner of operation will be readily understood. When the elevator arrives at a landing, the actuating-bar 19 of the cage-carrying locking-mechanism C is brought into the relation with respect to the rock-member of the elevator-shaft equipment which is illustrated in Figs. 1 and 4; and when the door A' of the elevator-shaft is thrown open, the cam 6 engages the arm 5 of the rock-member 2 and turns the rock-member 2 to the position indicated in Fig. 6, in which position the member 2 is maintained by the cam 6 while

the door is open or partially open. When the rock-member 2 is swung inwardly or projected into the shaft, it forces the member 19 inward thereby actuating the lever 17 and projecting the locking-bolt 16 into the locking-notch, or socket, of the locking-bar 12 connected with the controlling mechanism of the elevator, it being understood that the controller-lever is in the neutral position when this action occurs. Before the elevator can be started, it is necessary to fully close the door of the shaft, in which action the finger or projection 8 engages the stud 7 of the rock-member 2 and swings the bar 2 to its normally closed or inoperative position parallel with the adjacent wall of the elevator-shaft.

The foregoing detailed description has been given for clearness of understanding only, and no undue limitation should be understood therefrom, but the appended claims should be construed as broadly as permissible in view of the prior art.

What I regard as new and desire to secure by Letters Patent, is—

1. The combination with an elevator-shaft, its door, an elevator-cage and its controlling-mechanism, of a slidable locking-bar linked to said controlling-mechanism and provided with a socket, a bolt adapted to enter said socket when the lever of the controlling-mechanism is in the neutral position, actuating means for said bolt having a member projecting laterally from the cage toward the door-equipped wall of the elevator-shaft, a rock-member pivotally connected with the elevator-shaft and disposed beneath said door and having an arm projecting toward the door, and a horizontal cam-member carried by the door and adapted to engage said arm.

2. The combination with an elevator-shaft, its door, an elevator-cage and its controlling-mechanism, of a supporting-plate disposed beneath the elevator-cage and attached thereto, a locking-bar mounted in guides carried by said plate and linked to said controlling-mechanism, a locking-bolt and actuating-mechanism therefor mounted on said plate and having a member projecting from the cage toward the door-equipped wall of the elevator-shaft, a rock-member pivoted in the elevator-shaft, and actuating means for said rock-member carried by said door.

3. The combination with an elevator-shaft, its door, an elevator-cage and its controlling-mechanism, of an elongated cam-member extending transversely across the lower portion of said door, a rock-member pivoted in the shaft beneath said door at the rear portion of the door and projecting above the landing and having an arm turned toward the door adapted to be engaged by said cam-member, and cage-carried locking-

mechanism for said controlling-mechanism
comprising a plate depending from the cage,
a locking-bar slidably mounted on said plate
and linked to said controlling-mechanism,
5 and a lever pivoted on said plate and
equipped with a bolt coacting with said
locking-bar, and equipped also with a plun-

ger projecting at the front side of the cage
and coacting with said rock-member.

FREDERICK G. ROEMPLER.

In presence of—

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A. U. THOURN.

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