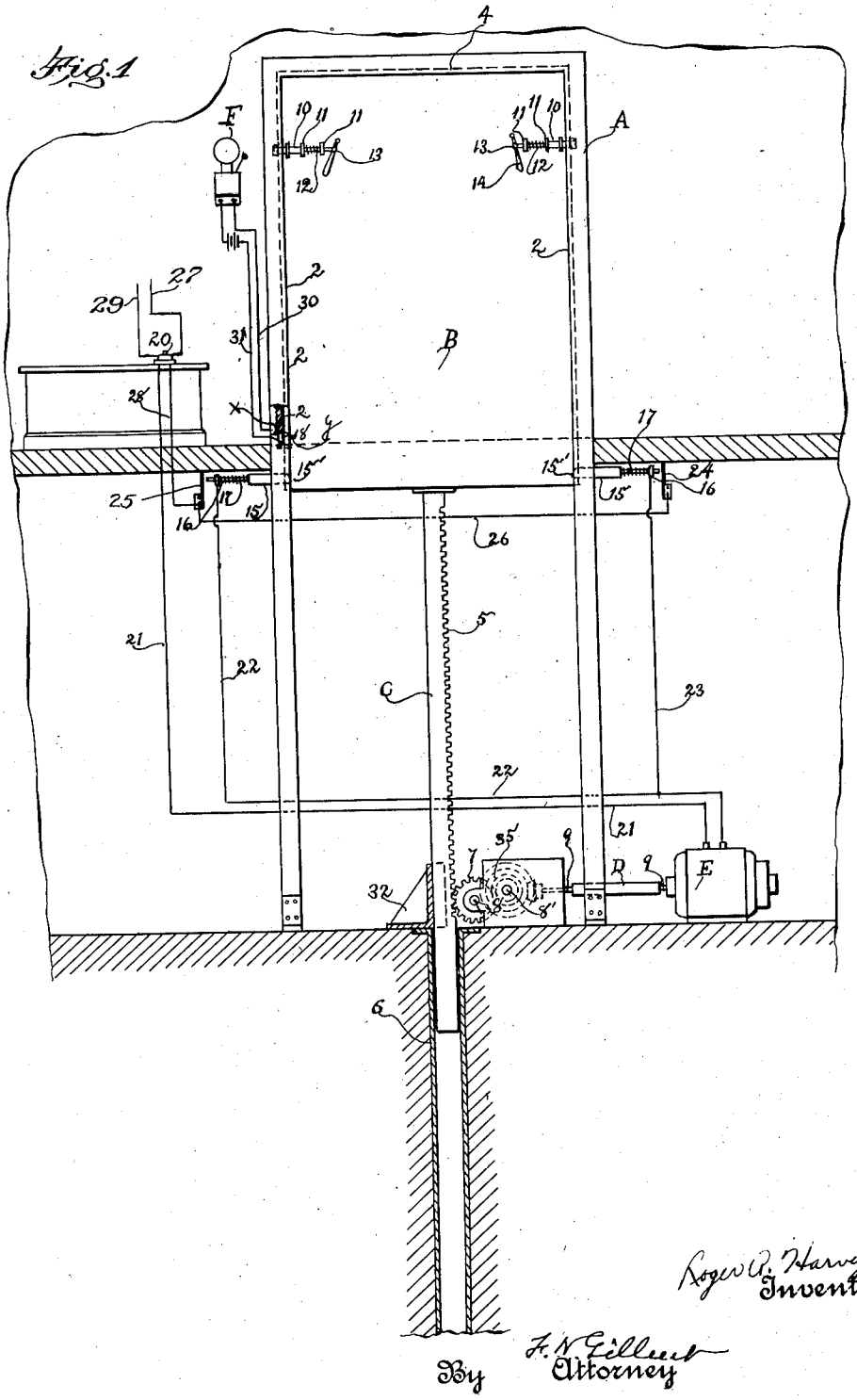
Nov. 27, 1934. R. A. HARVEY 1,982,301

BURGLARPROOF DOOR FOR BANKS

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Fig. 1



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Fig. 2.

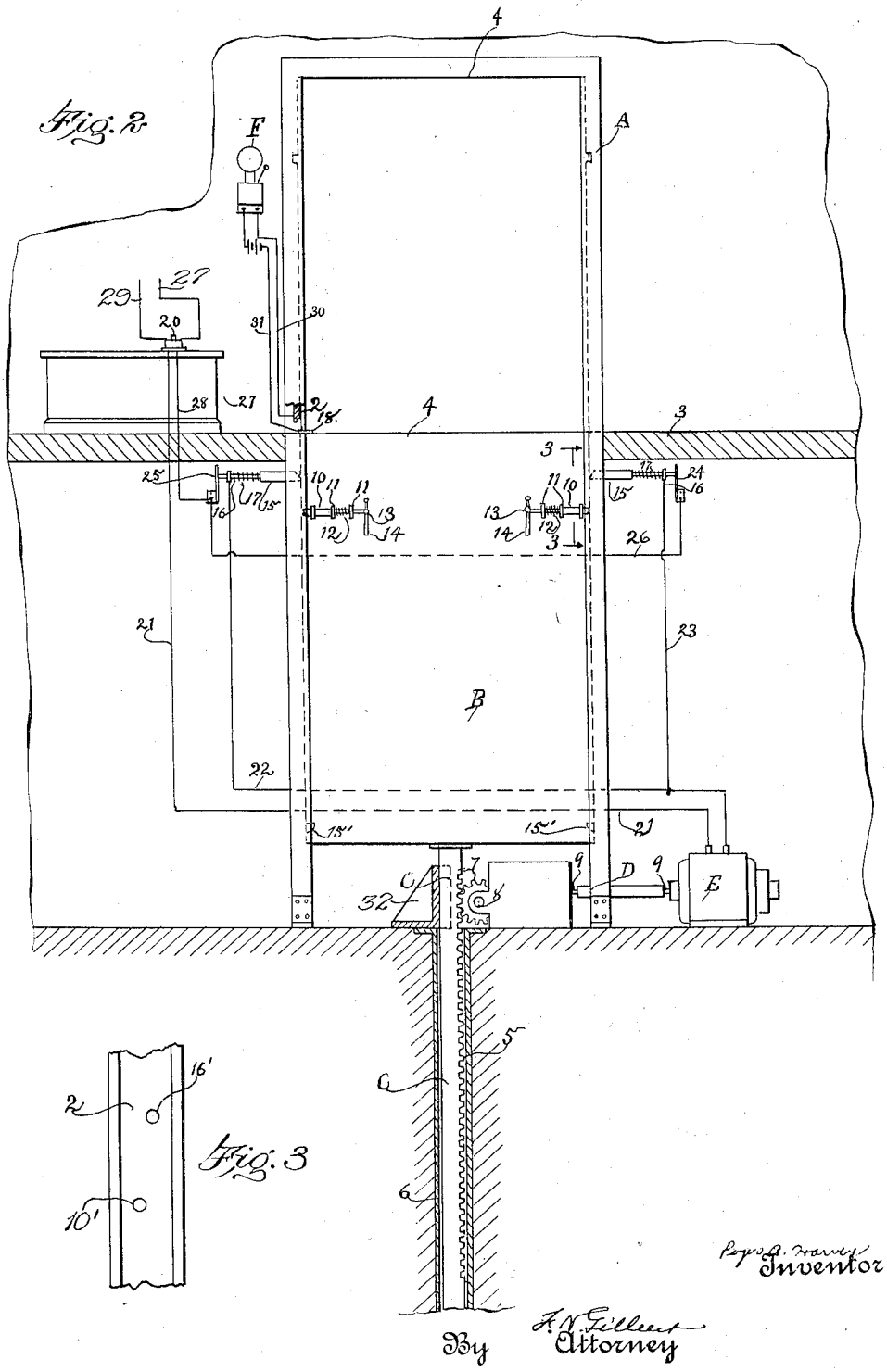


Fig. 3.

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Fig. 4.

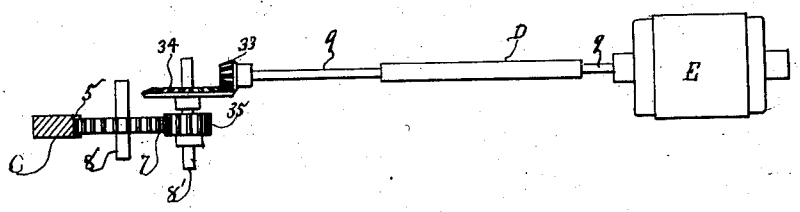


Fig. 5

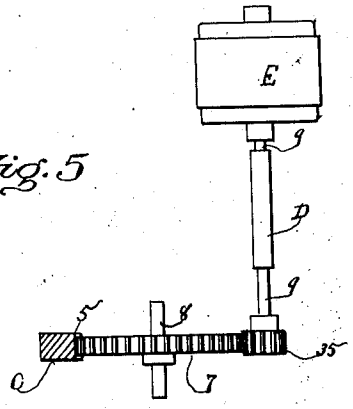
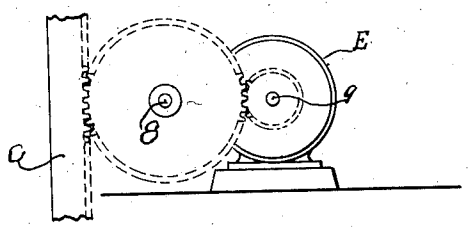


Fig. 6



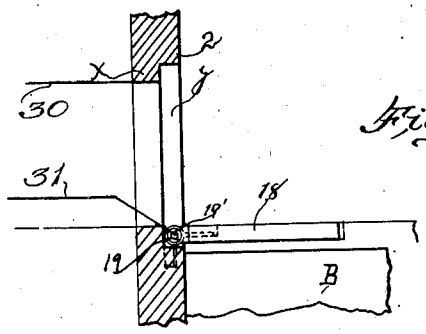


Fig. 7

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UNITED STATES PATENT OFFICE

1,982,301

BURGLARPROOF DOOR FOR BANKS

Roger A. Harvey, Binghamton, N. Y.

Application October 8, 1929, Serial No. 398,246

4 Claims. (Cl. 20—1.01)

My invention relates to a burglar proof door for banks and provides a motor operative door in which the power for its motion is conveyed by a flexible shaft.

One of the objects of my device is to provide a simple and effective mechanism for raising and closing the doorway leading out of a bank building.

A further object of my invention is to provide an exit closing device, comprising a plurality of removable means arranged and concealed, adjacent to a doorway; also to provide a doorway including a door with a plurality of members on the opposite side of the doorway, so as to operate in contact with the door on the movement of the same.

Another object is to provide a door described, which may be lowered and raised under the action of an electric motor under control of switches located at different parts of the structure in which the doors are installed.

With these objects in view my invention consists of the following details of construction and arrangement of parts as are more clearly hereinafter described, and pointed out in the claims, reference being had to the accompanying drawings, in which:—

Fig. 1 is a front perspective view of my device.

Fig. 2 is a rear perspective view of my device.

Fig. 3 is a front view of a fragmentary part of my device.

Fig. 4 is a side view of a detailed part of my device.

Fig. 5 is a plan view of a modified form of driving gearing.

Fig. 6 is a perspective view of the gearing in my device.

Fig. 7 is a detailed part of my device in cross section.

The same reference characters denote like parts in each of the several figures of the drawings.

In carrying out my invention, as indicated in the drawings, A represents a doorway leading into a bank or other building, and has mounted in the casing thereof parallel guides 2, 2, adapted to guide the movement of a door B, which is normally positioned below the floor 3 of the bank building.

The top 4 of the door B is adapted to be positioned flush with the floor 3 of the bank building when the door B is concealed in the lower pocket of the doorway.

Secured on the lower end of the door is a shaft C provided with a rack 5 which may extend, if desired, to the very end of the shaft. The shaft C travels in a casing 6. Two forms of mechanism may be employed to impart movement to the door. One form is shown in Figures 1, 2 and 5, and another form is shown in Figure 6. In the form shown in Figures 1, 2 and 5, a gear 7 mounted on a countershaft 8 meshes with the rack 5. This gear 7 is engaged by a smaller gear 35 mounted on a second countershaft 8', on which shaft is also mounted a bevelled gear 33 on the end of the shaft 9 having a flexible portion D. This shaft 9 is the driven shaft of the motor E. In the form of driving gearing shown in Figure 6, bevelled gears are not employed and it is unnecessary to employ the second countershaft 8'. The gear 35 on the end of shaft 9 meshes directly with the gear 7. In this arrangement the motor may be disposed at right angles to the plane of gear 7.

Mounted upon the inner side and opposite the edges of the door B, are the lock bolts 10 supported by lugs 11, which bolts are adapted to pass into recesses in the guides 2, as shown in Figure 1. Surrounding each bolt 11 are coiled springs 12, and at the inner end of each bolt 10 are pivoted handles 14 for withdrawing the bolts 11 when they have been projected into locking engagement.

As a further part of my device, I have mounted in any convenient manner beneath the floor 3, and outside the casing A on a line parallel with the under floor surface, the bolts 15, 15, adapted to pass thru the casing A, and thru openings in the guides 2, 2 and adapted to enter into recesses in the outer edge of door B. The bolts 15, 15 are slidably mounted in the casing A, and in the lugs 16, 16, and have mounted about them the coil springs 17, 17.

A further part of my device are the openings 10' and 16', respectively, in the guides 2, as shown in Fig. 3, to permit passage through the guides of the bolts 10 and 15 respectively.

The guides 2 may be provided with a recess Y to be engaged by a contact member 18 hinged at 19, and in the movement of the door B upward, adapted to be turned on its pivot upwardly until it contacts with the recess Y in the wall guide 2. This contact member will close the circuit to the bell F, which circuit includes the wires 30 and 31, with a suitable source of electricity such as a suitable battery. The motor circuit includes wires 21 and 22 leading thereto. The wire 22 leads from the motor to lug 16 on the left, while lug 16 on the right is connected by wire 23 to wire 22. Mounted beneath the floor 3, in any suitable manner, on opposite sides of the doorway, are contacts 24 and

25 normally engaging the outer ends of the bolts 15. In the motor circuit there is a switch 20 for controlling a supply of current from a suitable source through the wires 27 and 29. The wire 21 is connected also to the switch, and the wire 28 connects the contact 25 with the switch.

In the operation of my device, the switch 20 is closed, and the current through wires 21 and 22, starts motor E which revolves shaft 9, and flexible shaft D. As is shown in Fig. 6, shaft 9 has mounted upon it gear 35, which meshes with gear 7, which meshes with rack bar C, and starts the door B upward. When the door starts upward, pivoted plate 18 is moved upward and contacts in recess Y in guide 2 by the current passing over wires 30 and 31, causing bell F to ring. The door continues to rise until recess 15' is opposite to pin 15. When recess 15' is opposite pin 15, pin 15 is forced into the recess 15' by the pressure of spring 17. When pin 15 enters into the recess 15' pin 15 is pulled away from contact plate 24 by action of spring 17 and the electrical connection with motor E by means of wires 22, 23 is cut off.

This breaking or separation causes motor E to stop. At the same time pin 10 at top of door B is forced into recess A, by spring 11. If an attempt should be made to lower the door B before switch 20 has been turned off, pins 15, 15 are forced into the normal position against contact plates 24 and 25, which causes motor to start again, raising door B to its raised position. To ordinarily lower door B to its recessed position, switch 20 must be turned off, and pins 10, 10 moved out of recess by pressure on handle levers 14, bolts 15 withdrawn by hand, and the door moved downward by manual pressure. When the door is down, spring 19', in the alarm switch moves plate 18 back to its original position in the recess in the top of door B.

Having thus described my invention, what I claim as new and for which I desire Letters Patent is as follows:—

1. The combination with a motor operated sliding element comprising an electric circuit and switch therefor, of a contact included in said circuit, a locking bolt normally engaging said contact with the circuit closed, and mechanical means for automatically moving said bolt to its locking position and away from said contact to open the motor circuit when the sliding element assumes a predetermined position.

2. The combination with a motor operated sliding element comprising an electric circuit and switch therefor, of a pair of spaced contacts included in said circuit, locking bolts normally engaging said contacts with the circuit closed, resilient means for projecting said bolts away from the contacts to their locking positions when said sliding element assumes a predetermined position to open the motor circuit, additional spring influenced means for locking said element in its last mentioned position, and manually controlled means for releasing said last mentioned means.

3. An automatic closure device comprising a sliding closure element having a recess for receiving a bolt, guides for the closure element having an opening for registration with the recess in the closure element, a movable bolt adjacent the guides and adapted to be projected through a guide and into the recess in the closure element, an electric motor for operating the closure element, an electric circuit for the motor, and a controlling switch in the circuit, a contact member in the circuit normally engaged by the movable bolt, and mechanical means operating to move the bolt through the opening in the guide and into the recess in the closed element, and for opening the circuit to stop the motor when said closure element has been moved into a predetermined position by the motor.

4. An automatic closure device comprising a frame having vertical guides provided with an opening, a bolt adapted to be projected through the opening, a closure operable in the guides and provided with a recess for registration with the opening in the guide to receive the end of the locking bolt, an electric motor for operating the closure, an electric circuit for the motor, and a controlling switch in the circuit, a contact member in the circuit normally engaged by the bolt, and a spring operating to move the bolt through the opening in the guide and away from the contact to open the motor circuit and into the recess in the closure element when said closure element has been raised to permit its recess to register with the opening in the guide.

ROGER A. HARVEY.