I. L. BRIDGES.

BURGLAR PROOF LOCK.

APPLICATION FILED APR. 10, 1909.

943,647. Patented Dec. 21, 1909.

2 SHEETS—SHEET 1.

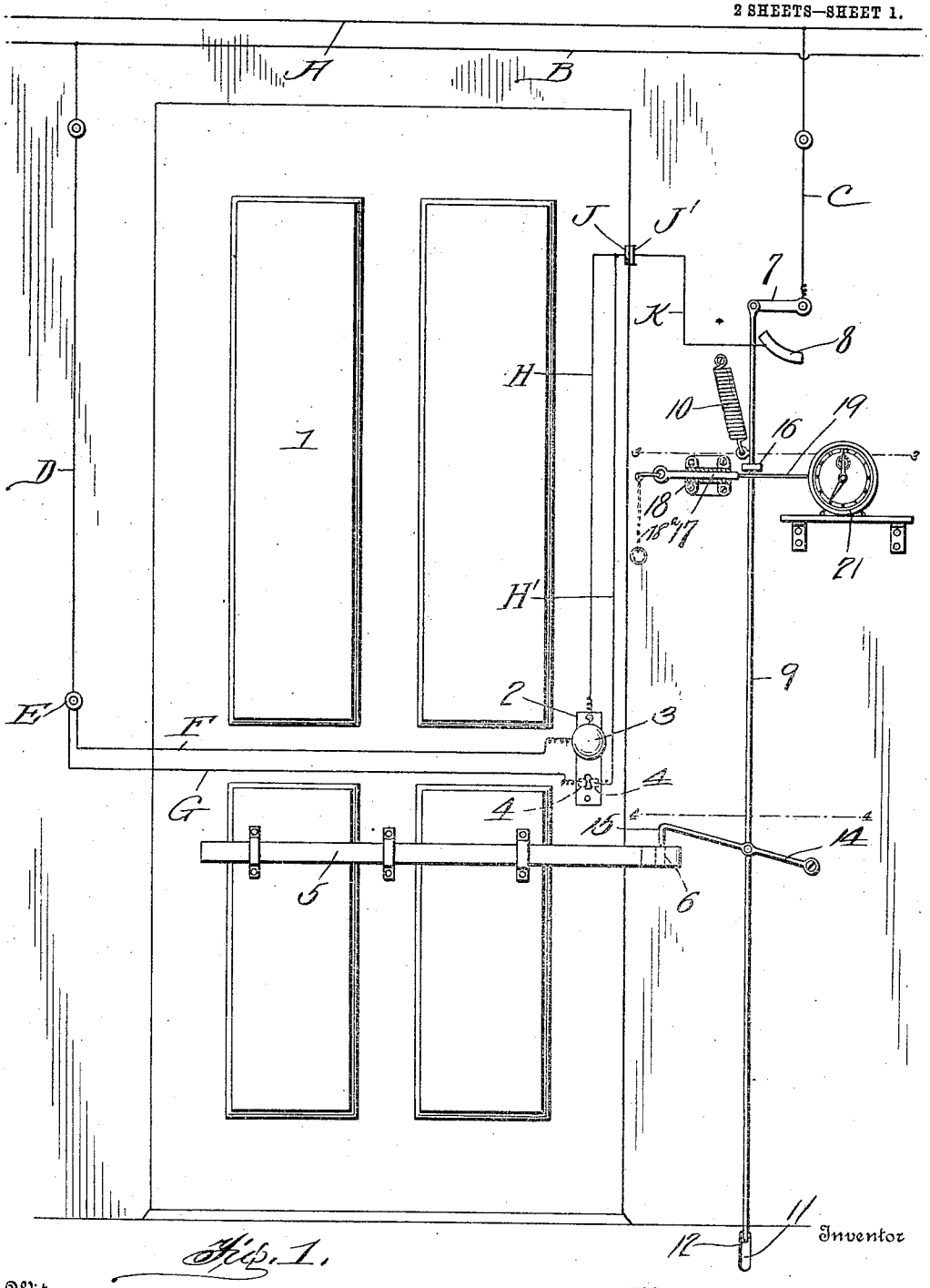

Fig. 1.

Witnesses

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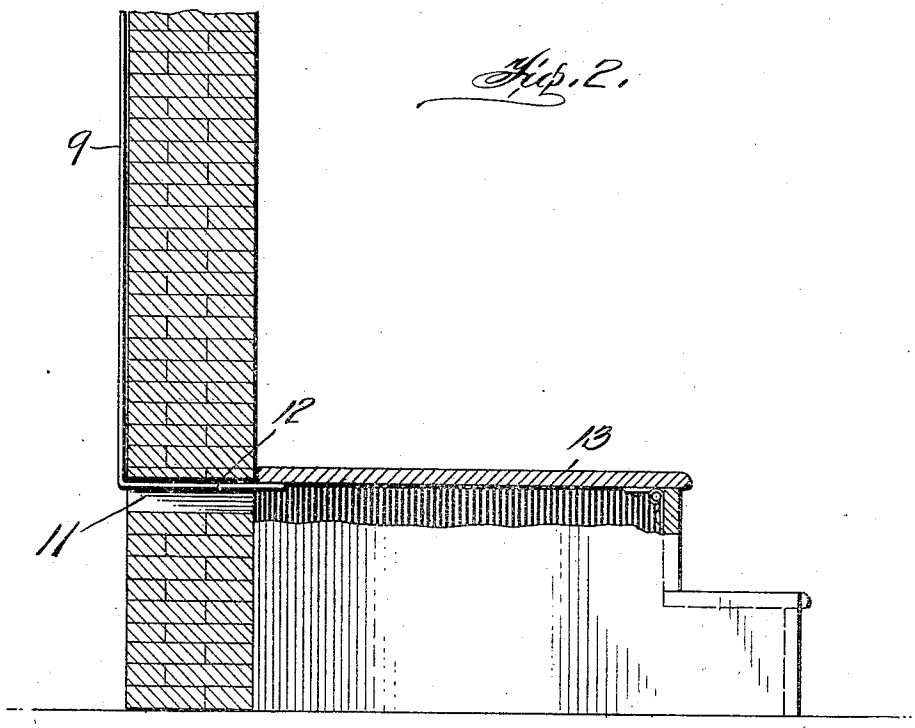

Fig. 2.

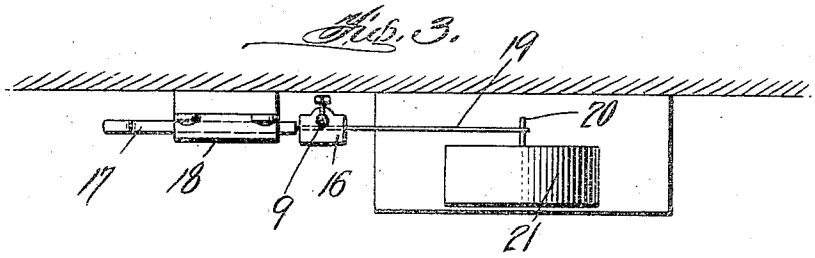

Fig. 3.

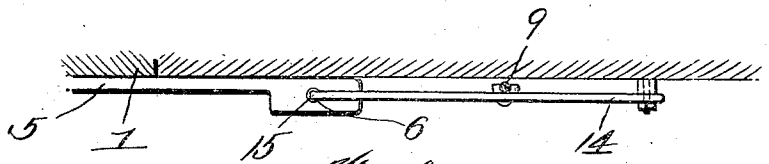

Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

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BURGLAR-PROOF LOCK.

943,647. Specification of Letters Patent. Patented Dec. 21, 1909.

Application filed April 10, 1909. Serial No. 489,195.

To all whom it may concern:

Be it known that I, ISAAC L. BRIDGES, a citizen of the United States, residing at Powersville, in the county of Putnam and State of Missouri, have invented a new and useful Improvement in Burglar-Proof Locks, of which the following is a specification.

This invention relates to a safety device adapted to be applied to locks of bank, vault or safe doors, and is also capable of use in connection with doors of warehouses, stores and other buildings.

The object of the invention is to prevent tampering with a lock by causing an electric current of considerable strength to pass through the lock or some portion of its mechanism upon the occurrence of a particular event during a predetermined period of time.

In the form shown by me I have arranged a device by which an electric current is caused to pass through a door knob, which knob may be one of the ordinary exterior door types, or it may be the rotatable knob or dial handle found in connection with combination safe locks. The passage of this current is dependent upon the completing of a normally open circuit, and in order to complete the circuit I place a hinged door step in advance of the door to be protected and upon which any one attempting to open the lock must stand the weight of said person forcing the step downwardly a sufficient distance to close an electric circuit. In order however to permit the ready opening of the door by the proper parties I arrange an alarm clock mechanism which when operated at the time set interposes an obstacle to the completing of such circuit, thereby providing a device by means of which an electric circuit is completed through the lock mechanism or through some part of it during a certain time as for example from the close of business for one day until a certain hour the next morning. To further safe-guard the door I also show means for dividing the circuit so that a portion of the current would pass through a key if inserted in the lock at a time when downward movement of said hinged step would complete the circuit.

In the accompanying drawings, Figure 1 is an inside elevation, certain wiring being shown in diagram, illustrating the application of the invention to a door. Fig. 2 is a side elevation of a front step illustrating that portion of the device which is upon the outer side of the door. Fig. 3 is a detail view partly in section showing the manner of connecting the winding stem of the alarm mechanism to a certain slidable bolt. Fig. 4 is a detail section on the line 4—4 of Fig. 1.

It will be understood that the above mentioned drawings disclose only one of many forms of the invention, and are illustrative only of the broad idea.

In these drawings 1 represents a door provided with a lock casing 2, knob 3 and upon opposite sides of the keyhole plates 4 which are insulated from the lock casing 2, and which are contact plates spaced from each other by the keyhole, a circuit being established between said plates upon the insertion of a key, provided other portions of the circuit have also been closed. Upon the inside of the door is secured by means of suitable brackets, or in any other way, a fixed bar 5 which projects upon the inner face of the door on one side. This bar has its projecting end portion widened and is provided with a vertical bore 6. Upon one side of the door is placed an electric switch consisting of a pivoted lever 7 and a curved contact plate 8, over which the lever can be moved. The lever 7 which is normally out of contact with the plate 8 has pivoted to it a depending rod 9 normally held in raised position by a spring 10. The lower end of this rod is in alinement with the wall opening 11 through which extends a lever 12, the outer end of said lever being secured to a hinged step 13, said step being of such a width that it will be necessary for a person to stand thereon while manipulating the lock. A pivoted lever 14 is provided at its free end with a hooked member 15 which engages the vertical bore 6 of the bar 5, and this lever is also loosely connected to the rod 9. A collar 16 is fixed upon the rod 9 and a bolt 17 slides in a guide way 18 which is connected by means of a cord 19 to the winding stem 20 of an alarm clock 21. The electric circuits may be run in many different ways but for convenience of illustration I have shown diagrammatically line wires A and B from which run, respectively, a wire C to the switch lever 7 and a wire D to a suitable socket E from which wires F and G run respectively to the door knob and to one of the contact plates 4. From the knob 3 and the other contact plate 4 wires H and H'

lead to a copper contact plate J carried by the door and which when the door is closed makes contact with a plate J′ from which a wire K leads to the curved contact plate 8. It will be obvious that there is no current through any of these wires other than the two line wires unless the step is depressed, and the depression of this step will cause the lever 12 to draw down the rod 9 which will bring the hook 15 into engagement with the bar 5 and will draw the switch 7 into engagement with the plate 8. This will complete a circuit from line wire A through wires C, K, J′ and J, H, the knob 3, wire F, socket E, and wire D, to line wire B. If a key is inserted in the keyhole of the door a circuit will also be completed through wires H′ and G. It will therefore be obvious that after the completing of this circuit any one placing his hands upon the knob 3, which is of metal, or any one inserting a key in the said keyhole will receive a shock, which may be strong enough to entirely disable the person endeavoring to tamper with the lock. In order however to enable proper persons to unfasten the lock or open the door the time clock 21 is set, and if set for 8 a. m., the rotation of the winding stem 20 will wind the cord 19 and draw the bolt 17 under the collar 16 thus preventing downward movement of the step, or the drawing down of the rod 9, the circuit remaining broken at the switch. Also in order that the parts may be returned to their normal positions after having been depressed the spring 10 is connected at one end to the wall and at the other end to the rod 9, and draws the rod and step to their positions.

What I claim is:—

1. The combination with a lock, of an electric circuit normally open and including the lock, a movable step, means operated by movement of the step for closing the circuit, a bolt for locking the circuit closing means in an inoperative position, means for actuating said bolt at a predetermined time, and means for returning the parts operated by the step to their normal positions.

2. The combination with a lock, an electric circuit including an accessible portion of said lock, said circuit being normally open, a switch for closing said circuit, a movable door step operated by the weight of a person standing thereon, means connecting said switch and said door step for moving the switch into closed position, a spring for returning the parts to their normal positions when the step is relieved of its extra weight, a slidable bolt for holding said movable parts in their normal position, and means including the winding stem of an alarm clock for drawing said slidable bolt into operative position.

3. The combination with a door having a lock, and a metal knob, an electric circuit including said knob, said circuit being normally broken, a bar carried by the door and having a projecting perforated end portion, a pivoted hook lever for engaging said end portion, a switch for closing the electric circuit, a downwardly movable door step, a rod pivoted to the switch and connected to the door step, said rod being movable downward upon depression of the step, said rod being pivotally connected to the hook lever, downward movement of the rod throwing said lever into engagement with the perforate bar, and a spring secured to a fixed support at one end and at the other end to said rod and drawing the same upwardly after depression of the door step.

4. The combination with a door having a lock, an electric circuit including the exterior portion of said lock, a pivoted switch for closing said circuit, the circuit being normally open, a movable door step, a rod connected at one end to the door step and at the other end to the switch, the rod being drawn downwardly upon depression of the step, a collar fixed upon the rod, a bolt slidable beneath said collar, an alarm clock having a winding stem, and a cord connected at one end to said stem and winding thereupon and at the other end to said bolt.

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Witnesses:
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