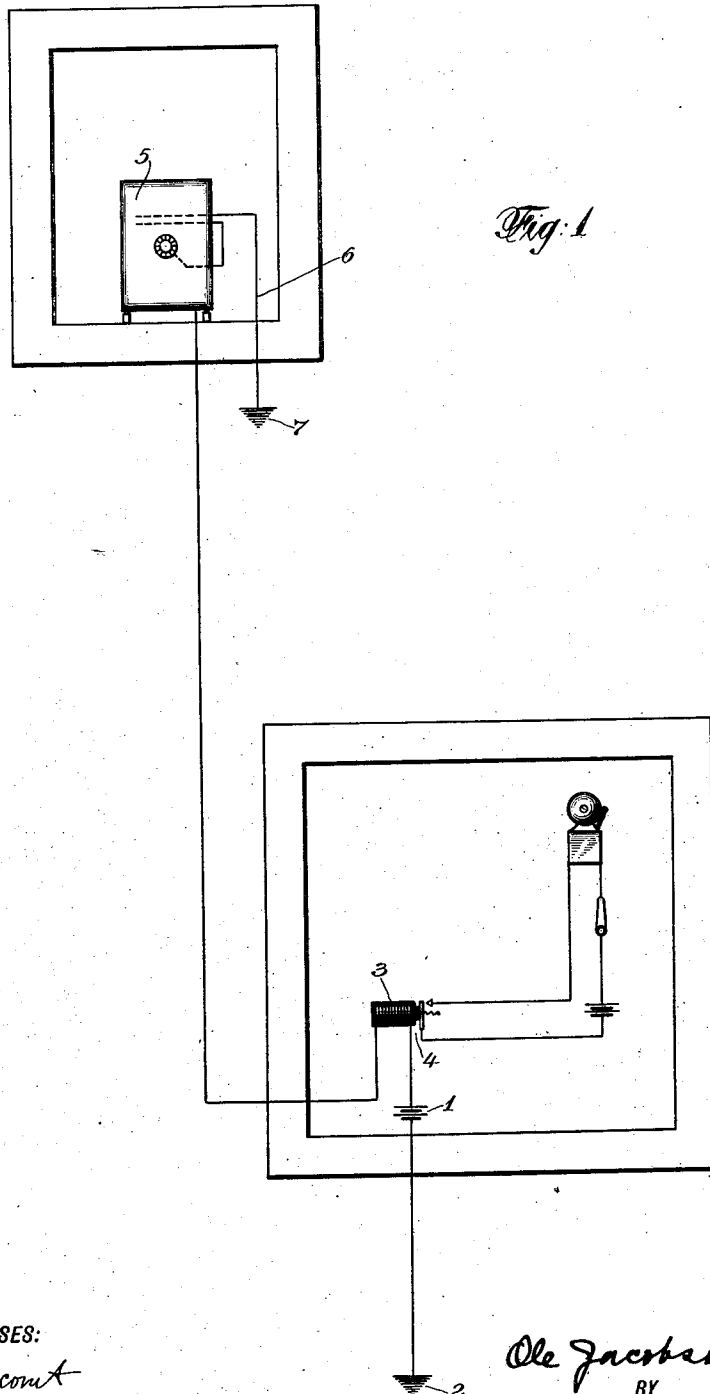


O. JACOBSON.
ELECTRIC PROTECTION SYSTEM.
APPLICATION FILED NOV. 23, 1908.

937,941.

Patented Oct. 26, 1909.

3 SHEETS—SHEET 1.



WITNESSES:

A. Newcomb
M. Meikle.

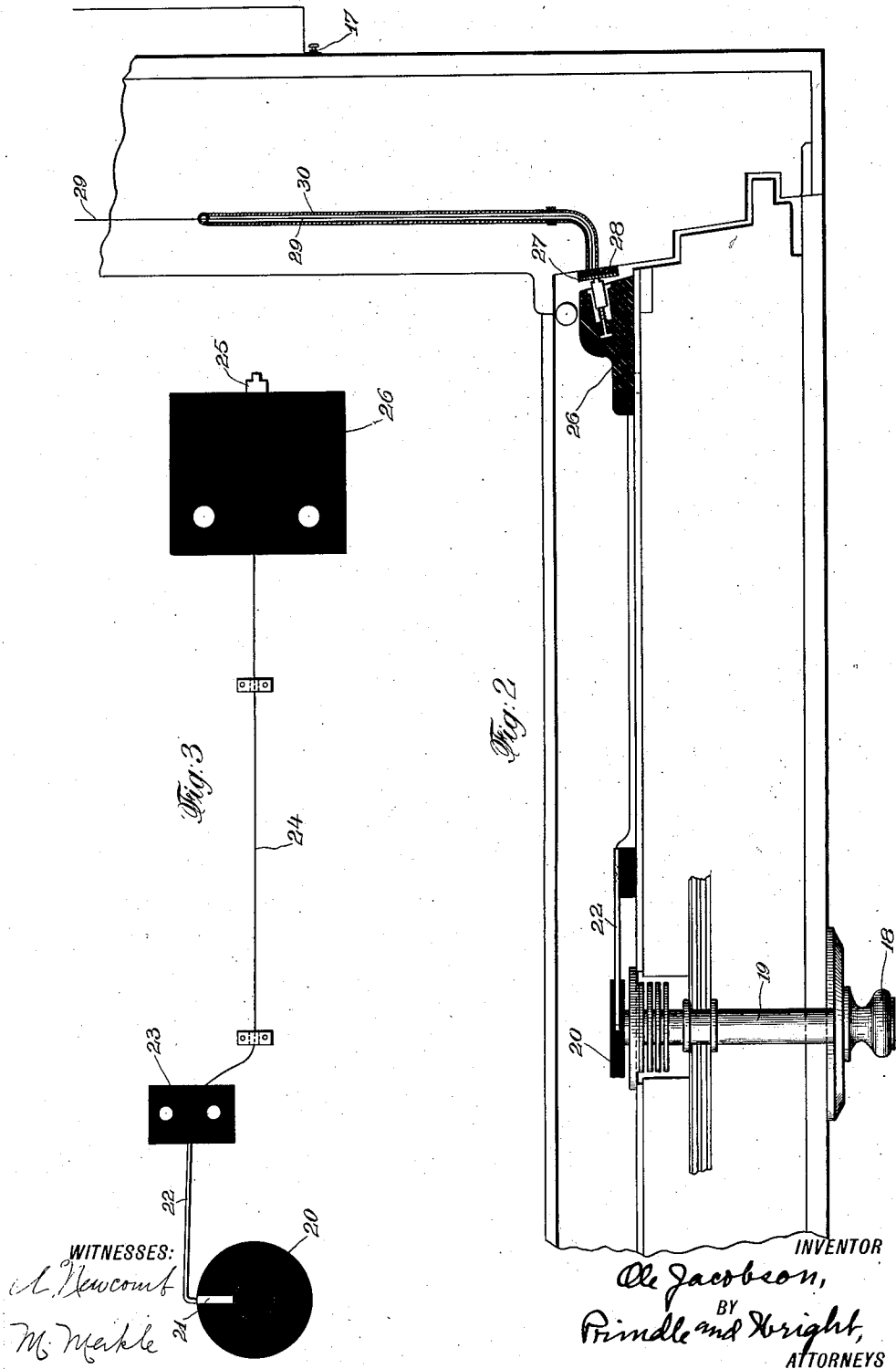
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Fig. 4

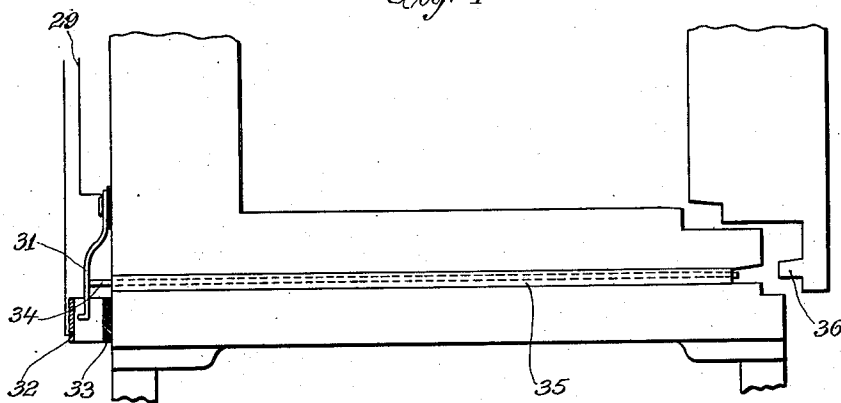
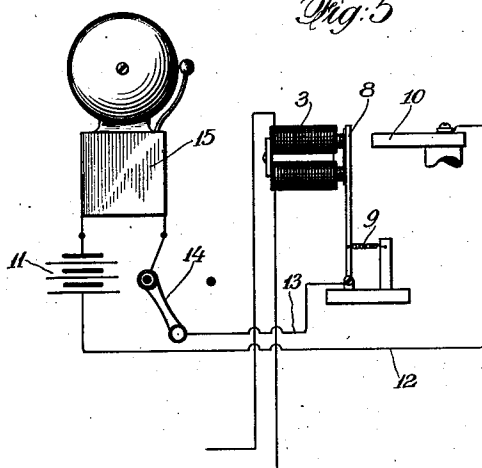


Fig. 5



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Inventor
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UNITED STATES PATENT OFFICE.

OLE JACOBSON, OF HAMILTON, OHIO.

ELECTRIC PROTECTION SYSTEM.

937,941.

Specification of Letters Patent.

Patented Oct. 26, 1909.

Application filed November 23, 1908. Serial No. 463,993.

To all whom it may concern:

Be it known that I, OLE JACOBSON, of Hamilton, in the county of Butler and State of Ohio, have invented a certain new and useful Improvement in Electric Protection Systems, and do hereby declare that the following is a full and exact description thereof.

My invention relates to a means for connecting a safe with an electric protective circuit.

It relates especially to a means for protecting a safe provided with a combination lock by means of such a circuit. The connections are so arranged that the combination lock cannot be moved to any appreciable degree without disturbing the circuit in such a manner as to ring an alarm. Connections are also provided whereby the safe door cannot be opened before moving the combination lock, without such opening resulting in the ringing of the alarm.

In general terms, my invention involves the application to a safe of an electric protective system of an ordinary type, such as a normally closed main protective circuit adapted to operate a relay, the armature of which, when the main circuit is broken, is adapted to close a local alarm circuit containing an alarm situated at any convenient point, such as within the same room with the safe, or at some convenient alarm station. My invention comprises applying the main circuit of such a system or of any similar system to a safe in such a way that one terminal is connected to the outer conducting wall thereof; whence the current is caused to pass through a combination lock, and thence through a movable spring contact connected with the combination lock, any movement of which is adapted to result in ringing the alarm. From this point the circuit is carried to the rear of the safe where contacts are so arranged as to be operated by the opening and closing of the safe door, in such a way that should an attempt be made to open the safe door without manipulating the combination lock, this would also result in disturbing the main circuit so as to ring the alarm.

In the accompanying drawings: Figure 1 is a diagrammatic representation of a sys-

tem to which my invention may be applied; Fig. 2 is a horizontal fragmental section of the safe door and an adjoining wall of the safe; Fig. 3 is a fragmental elevation of the interior of the safe door; Fig. 4 is a fragmental horizontal cross section of the rear wall of the safe showing the method of applying the electric contacts thereto; and Fig. 5 is a diagrammatic representation in detail of the alarm circuit and the relay for actuating the same.

In the drawings, 1 is a battery located in the main circuit, having one pole grounded at 2 and the other pole passing to the magnet 3 of a relay 4 located at the alarm station. The main circuit after passing through the magnet 3, extends to the structure to be guarded, such as a safe 5, which may be located at any desired point but which I have shown in the drawings as located at a distance from the alarm station. The main circuit after leaving the safe passes through the wire 6 and is grounded at the point 7.

The magnet or magnets 3 of the relay 4 are adapted to actuate the armature 8 in the normal closed condition of the main circuit to withdraw the armature in opposition to a spring 9 out of contact with an electric contact 10 forming a portion of the alarm circuit. The current in the alarm circuit proceeds from a battery 11 along a wire 12 to the contact 10, and when the main circuit becomes broken so as to release the armature 8, the current in the alarm circuit then passes through said armature to a wire 13, and thence through a switch 14 to the alarm, which in this instance I have shown as a bell 15, and finally back to the battery 11.

The main circuit proceeds as described above from the battery 1 to the conducting wall 16 of the safe 5, where it is attached at the point 17. The current is conducted through the outer conducting casing 16 to and through a combination lock 18. The central shaft 19 carries on its inner end an insulating disk 20 in the periphery of which is located a conducting plug 21 in conductive relation with the lock shaft 19. A spring contact 22 is adapted to ride upon the periphery of the disk 20. The spring contact 22 is supported upon the inner face of

the door by means of an insulating plate 23. When the combination lock is moved in such a way as to cause the conducting plug 21 to be moved opposite the end of the spring contact 22, the current proceeds from the combination lock through the spring contact, through a wire 24 connected thereto and finally to a spring pressed plunger 25 supported in an insulating casing 26 carried upon the inner face of the door and located at one edge thereof. The plunger 25 is arranged in such a way that in the closed position of the door, as shown in Fig. 2, its outer end presses against a conducting plate 27 supported upon an insulating plate 28 carried upon the door frame. The conducting plate 27 in this position of the door conducts the current to a wire 29, which I have shown as preferably located within the wall of the safe and insulated from all parts thereof by means of a pipe 30. The wire 29 is led to the rear of the safe where it is connected to the stationary end of an insulated spring contact 31, the end of which is designed to make an electric connection with a conducting plate 32 supported upon the rear of the safe by means of an insulating plate 33. A rod 34 is carried in a longitudinal passage 35 located in the side wall of the safe, the rear end of which is arranged to contact with the under surface of the spring contact 31 so as to cause it at times to make the electric connection with the plate 32 referred to, while the front end thereof is designed to be actuated by the free end of the safe door which carries a projection 36 provided for this purpose.

As shown in Fig. 4, the safe door is open and as a consequence the spring contact 31 has been retracted so as to break the electric connection with the plate 32. It will readily be seen, however, that when the safe door has been closed the rod 34 will be caused to actuate the spring contact 31 so as to cause the latter to form the electric connection with the plate 32.

In the operation of my device it will be seen that the very slightest movement of the combination lock 18, with a view to surreptitiously opening the safe, will result in moving the conducting plug 21 out of contact with the spring contact 22 so as to break the main protective circuit, and as a consequence, close the alarm circuit and ring the alarm. Again, should an attempt be made to enter the safe in some manner by opening the door thereof without operating the combination lock, this could only result in the release of the spring contact 31 so as to break its electric connection with the plate 32, which would also result in the breaking of the main circuit, the closing of the alarm circuit and the ringing of the alarm. It will thus be seen that any attempt of any kind to enter the safe by mov-

ing the door thereof, will invariably result in ringing the alarm.

Whenever an authorized person wishes to enter the safe, he can readily do so without causing the alarm to sound, by moving the switch 14 which is located within the alarm circuit. When this switch has been moved to its open position, a breaking of the main circuit cannot result in ringing the alarm, for the reason that the moving of the armature 8 into contact with the contact 10, would not complete the alarm circuit, as will be obvious.

While I have described my invention above in detail, I do not wish it to be understood that I necessarily limit myself thereby, as the features of my invention are capable of numerous modifications without departing from the fundamental ideas involved therein. Among other changes of this character that might be made, I might apply my invention to a normally open main circuit instead of a normally closed main circuit, in which case, the usual and well-known changes might be made to accomplish this purpose.

I claim:

1. In a device of the character described, the combination of an alarm circuit, a main protective circuit controlling the same, a safe in said main circuit, a combination lock thereon, one terminal of the main circuit being electrically connected by means of the wall of the safe with the combination lock and the other terminal being electrically connected with a contact resting upon a disk carried upon the inner end of the shaft of the combination lock.

2. In a device of the character described, the combination of an alarm circuit, a main protective circuit controlling the same, a safe in said main circuit, a combination lock thereon, one terminal of the main circuit being electrically connected by means of the wall of the safe with the combination lock and the other terminal being electrically connected with a contact resting upon a conducting plug located within an insulating disk carried upon the inner end of the shaft of the combination lock.

3. In a device of the character described, the combination of an alarm circuit, a main protective circuit controlling the same, a safe in said main circuit, a combination lock thereon, one terminal of the main circuit being electrically connected with the combination lock and the other terminal being electrically connected to a movable contact carried by the combination lock, the main circuit being led also through a movable contact adapted to be operated to break the circuit when the door is swung open.

4. In a device of the character described, the combination of an alarm circuit, a main protective circuit controlling the same, a

safe in said main circuit, a combination lock thereon, one terminal of the main circuit being electrically connected by means of the wall of the safe with the combination lock and the other terminal being electrically connected to a movable contact carried by the combination lock, the main circuit being led also through a movable contact adapted

to be operated to break the circuit when the door is swung open.

In testimony that I claim the foregoing I have hereunto set my hand.

OLE JACOBSON.

Witnesses:

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HENRY C. HENNEBERGER.