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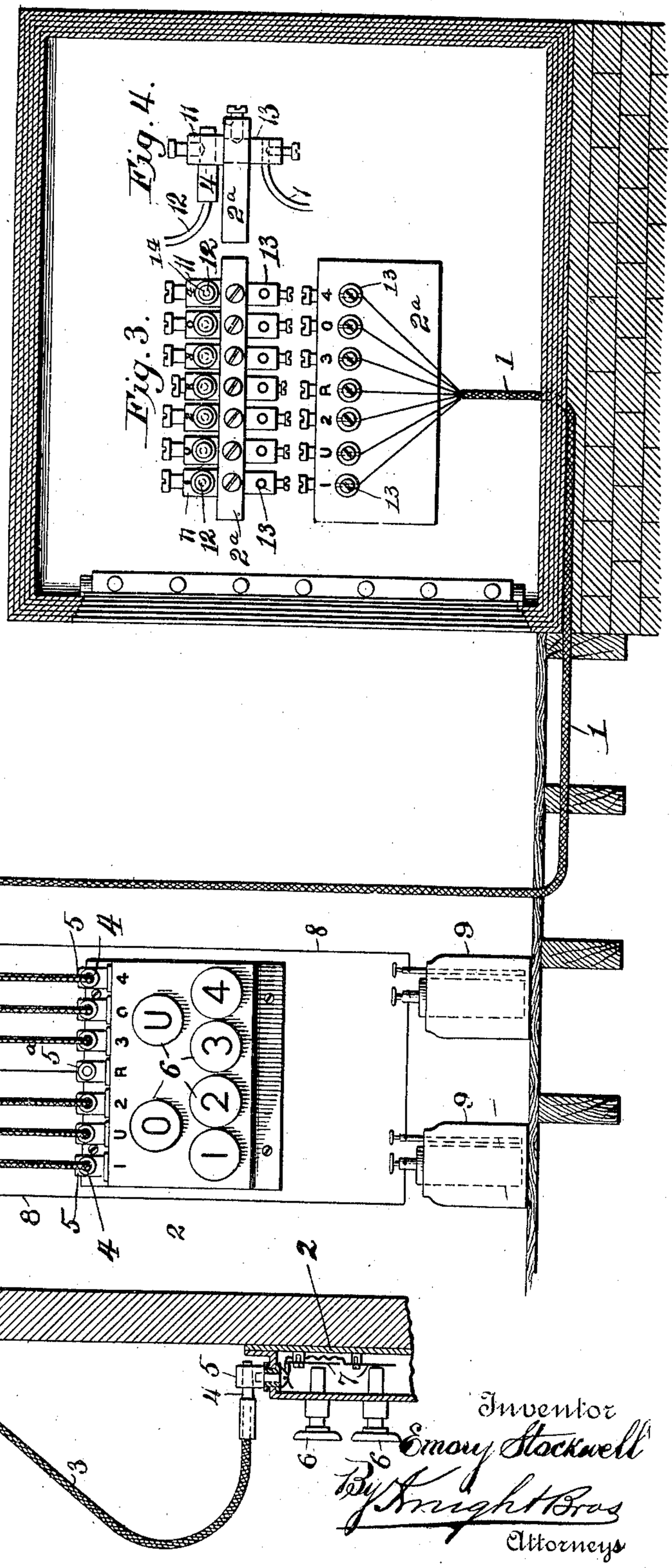
E. STOCKWELL.

DEVICE FOR CONTROLLING THE OPERATION OF ELECTRICAL DEVICES.

(Application filed Dec. 31, 1894.)

(No Model.)



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UNITED STATES PATENT OFFICE.

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DEVICE FOR CONTROLLING THE OPERATION OF ELECTRICAL DEVICES.

SPECIFICATION forming part of Letters Patent No. 681,862, dated September 3, 1901.

Application filed December 31, 1894. Serial No. 533,486. (No model.)

To all whom it may concern:

Be it known that I, EMORY STOCKWELL, a citizen of the United States, residing at Stamford, Fairfield county, and State of Connecticut, have invented certain new and useful Improvements in Devices for Controlling the Operation of Electrical Devices, of which the following is a specification.

My invention relates to the means employed for actuating those electrical locks which require separate manipulation of a number of independent electric circuits in the operation of unlocking—as, for instance, the lock shown in Patent No. 541,024, granted June 11, 1895; and my invention, which consists in certain novel features particularly pointed out in the claims, is carried out by interposing in said circuits switchboards, which adapt the wires to be shifted, making it possible to select which wires shall lead to the respective electrically-operated devices in the vault which control the unlocking, and thus making it necessary for the operator to have a knowledge of the arrangement of the wires within the vault and for him to correspondingly adjust the wires on the outside before commencing the special manipulation of the circuits for effecting the unlocking. If a switchboard is likewise used within the vault, this makes it possible to change the combination of wires within the vault, and consequently the arrangement required on the outer board, as often as desired.

My invention will be understood upon reference to the accompanying drawings, in which—

Figure 1 represents the application of my invention to a vault or safe, showing the internal switchboard in elevation and some of the parts being exaggerated in scale for the sake of clearness. Fig. 2 is a vertical section illustrating the connection on the exterior switchboard. Figs. 3 and 4 are a top and an end view, respectively, of the switchboard within the safe.

In carrying out my invention I employ a group of wires, preferably in the form of a cable for convenience, extending into the safe or vault and connected, respectively, with individual parts of the electrical apparatus (not shown) within the safe for controlling them, and a switchboard 2, with which the terminals of the wires 1 are detachably and interchangeably connected, provided with means for closing a circuit through any one of the wires at will. For convenience in rendering the wires 1 detachable and interchangeable on the switchboard 2 said wires are provided with flexible terminals 3 and plug ends 4, and the switchboard 2 has mounted upon it a series of socket-posts 5 5^a. The means for closing a circuit through either one of the wires at will consists, preferably, of a corresponding number of push-buttons 6 and contacts 7, upon which the push-buttons may be respectively depressed and which are in electrical connection with the socket-posts 5 5^a. In order to have as many circuits as there are wires 1 and to avoid the necessity of depressing two buttons to obtain a circuit, I employ, in addition to the main-circuit wires 1, a common return-wire 8, which is connected to one of the posts 5^a for which there is no push-button, but which has electrical connection with all the push-buttons through the metallic mounting of the device, from which mounting the remaining posts 5 are insulated. The wire 8 connects with the battery 9 and passes through the cable to the safe, where it may have connection with and serve as a common return for all the electrical devices through the medium of a metallic portion of the safe with which said devices are connected in any convenient manner. For convenience I likewise employ a series of binding-posts 10, through the medium of which the upper ends of the terminals 3 are electrically connected with the respective wires 1. Obviously this upper series of binding-posts could be substituted by permanent connections between flexible terminals 3 and their wires 1.

From the above description it will be obvious that when the ends of the wires 1 within the safe are connected to the different parts of the switchboard 2^a therein, which must be separately manipulated in different ways, and the terminals 3 on the outside switchboard are mixed up in a very different man-

ner before the process of unlocking can be accomplished it will be necessary to rearrange the terminals 3 in an order corresponding to the arrangement of wire ends within the vault.

To enable the operator to know the order in which the series of wire terminals are paired with the electrical devices, together with their return connections within the vault, each of said parts is identified by a distinguishing-mark. Preferably the same series of marks is selected for such group of parts—such, for instance, as "1, U, 2, R, 3, O, 4." If in connecting the wires they are distributed arbitrarily among the electrical devices designated as above, we may indicate the combination selected as follows:

1, U, 2, R, 3, O, 4, electrical devices.
U, 3, 2, R, 4, O, 1, wires.

That is to say, wire marked U is attached to electrical device marked 1, wire 3 to electrical device U, and so on, placing 2 on 2, R on R, (this being return-wire may remain unchanged,) 4 on 3, O on O, and 1 on 4. Likewise have the push-buttons 6 on the outer switchboard the same series of designations, excepting R, (the return-wire, which is connected with all the push-buttons.) If, therefore, after the parts within the vault are paired, as above indicated, it is desired to send a number of impulses to electrical device 1 by a corresponding number of depressions of push-button 6 marked 1, obviously it is necessary that the contact upon which this push-button is depressed must be in electrical connection with that wire, (in this present selection wire U, which has been fixed on electrical device 1 and so on with the remainder of the push-buttons.) This can be done only by one having knowledge of the selected arrangement within the vault. To facilitate selecting the terminals 3 and pairing them with socket-posts 5, which connect with contacts 7 of push-buttons 6 and with the socket-post 5^a, which connects with all push-buttons, said socket-posts are marked, as shown, to indicate which push-button each corresponds to, and the terminals of the wires carry the same marks, each terminal having the same mark that is applied to its opposite end within the vault.

To enable the proper person to select a new distribution of the wires among the electric devices within the vault, I employ a similar switchboard 2^a within the vault. This may consist of a series of socket-posts 11, in which may be inserted terminals 12, corresponding to wires 1, while in the front ends 13 of said posts the actual ends of wires 1 are inserted. It is intended that each terminal 12 shall have marks of designation corresponding to those of the posts 5 and 11, and since it is assumed that the opposite ends of the terminals 12 within the safe are electrically connected with the respective electrical devices to be actuated it is obvious that the terminals 12 may be distributed among the socket-posts 11 at will, and this will connect the wires 1 individually with the electric devices. For example, if it is desired to bring about the relation of terminals 12 within the vault to the posts 11, as indicated by the comparison above given, these inner terminals being connected to the electrical devices, their plug ends are inserted as follows: end 1 in post U, end U in post 3, &c. Therefore the ends of the wires within the safe may be shifted around at will and necessitate the corresponding changes within before the proper electrical impulses can be communicated to the different parts of the device within the safe from push-buttons 6. Inasmuch as the arrangement within is only known by an authorized person or persons, it is obvious that my invention makes an additional element of safety in the operation of safes electrically. If the wires are detachably connected to the parts within and without through the medium of the terminals 3 and 12, it is obvious that the arrangement or combination of circuits may be thrown out of effective relation at either end, it being only necessary to know the arrangement last made within in order to be able to unlock.

My invention is especially adapted for use in combination with electric locks in which a series of electric devices are set at separate operations by different numbers of impulses resulting from successively depressing buttons 6.

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

1. As a means for operating combination electric locks the herein-described internal switchboard having a series of binding-posts, a series of terminals 12 having connection with respective devices to be operated and having ends 4 which adapt them for connection with any of the binding-posts, a series of line-wires 1 also connected with said binding-posts and extending to a point without the safe, the terminal board 10 with which the line-wires are connected with terminals 3 connected with the respective wires 1 through said board 10, switchboards 5 having sockets in which the terminals 3 may be inserted, and the push-buttons having connection with the return-wires and adapted to be depressed upon contacts in electrical connection with the binding-posts 5 of substantially and for the purpose set forth.

2. A device for controlling the operation of electrical devices comprising an exterior switchboard, a series of socket-posts mounted on the exterior switchboard, contacts connected with the socket-posts, the push-buttons for engaging the contacts, the terminals having plugs, connected with the socket-posts, the group of wires connected with the

terminals, the internal switchboard, a series of socket-posts, corresponding to the socket-posts of the exterior switchboard, mounted on the internal switchboard, and with which the group of wires are connected, conducting-wires having plugs connected with the socket-posts of the internal switchboard, a return-wire and a battery; substantially as described.

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