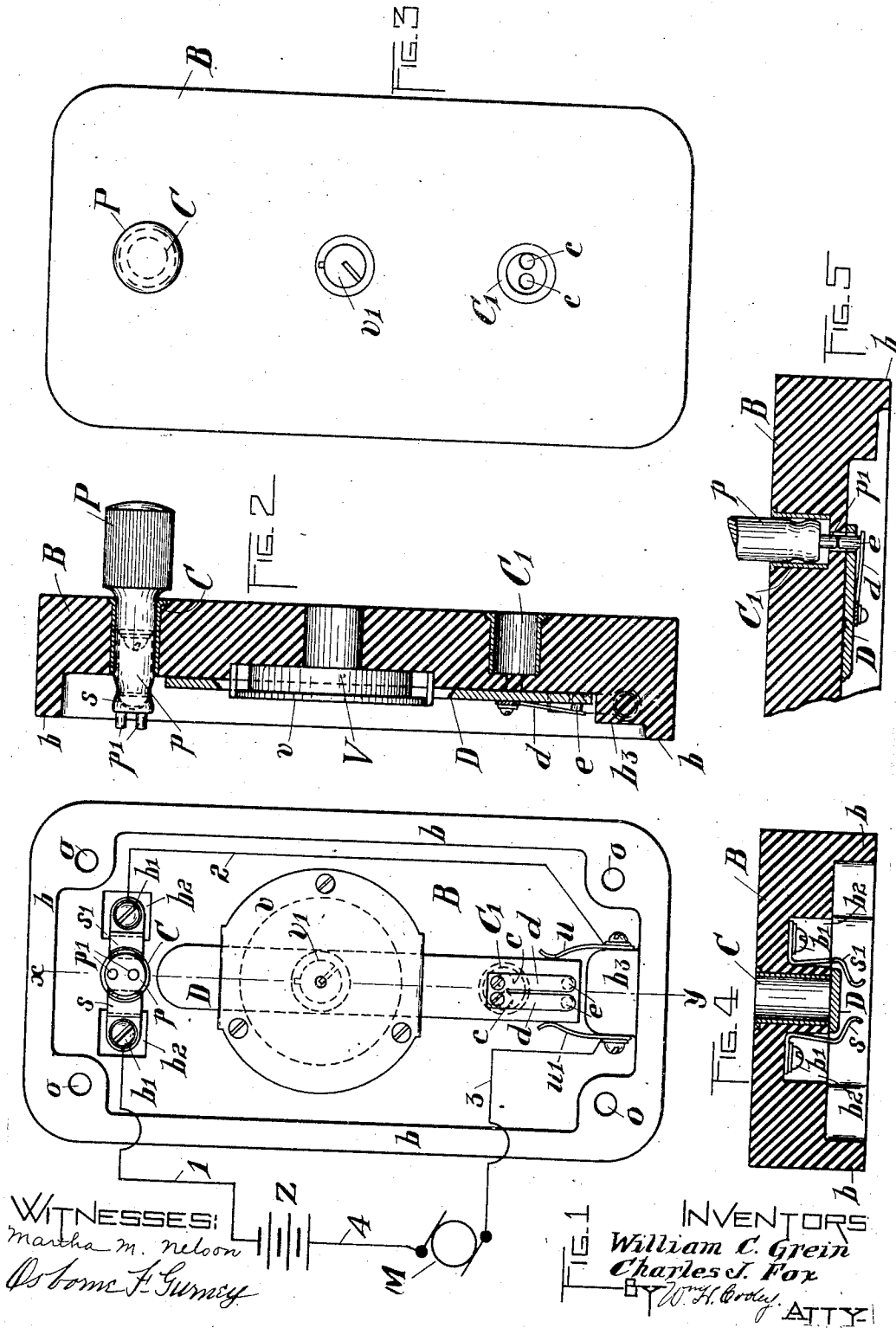


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ELECTRIC CIRCUIT CONTROLLING MEANS.  
APPLICATION FILED JULY 9, 1910.

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# UNITED STATES PATENT OFFICE.

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## ELECTRIC-CIRCUIT-CONTROLLING MEANS.

983,817.

Specification of Letters Patent.

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*To all whom it may concern:*

Be it known that we, CHARLES J. FOX and WILLIAM C. GREIN, citizens of the United States, and residents of Rochester, in the county of Monroe and State of New York, have invented a new and Improved Electric-Circuit-Controlling Means, of which the following is a specification.

The object of our invention is to provide means for controlling an electric circuit adapted to use in connection with switches, such that the switch or other circuit closing means is rendered inoperative except to the proper party or the party having the proper means for effecting the closure of the circuit.

In carrying out our invention we preferably combine with circuit closing means of ordinary construction, such as an insertible and removable plug for closing the circuit between two contacts, a key actuated member for obstructing or closing the passage or opening through or into which the circuit closing means, for instance, the plug, is inserted, while at the same time this obstructing means when in its inoperative position, permitting the insertion of the plug, acts to close the circuit at another point whereby when the key operated member is moved to its operative position to prevent the insertion of the plug the circuit is not only opened at the contacts between which the plug may be inserted but it is also opened at another point introducing another element of safety. We also prefer to co-operatively combine with the above mentioned features still another feature comprising a construction normally operating to lock the key actuated member against movement by even the proper key until there has been inserted, in the proper opening therefor, preferably the circuit closing plug which thus operates to remove spring actuated members from engagement with a member locking the key actuated member so as to permit the same to be operated by the key.

In the accompanying drawings we have shown an embodiment of our invention as adapted to close the circuit from a source of electric energy through a translating device, illustrated in the drawings as an electric

motor, without however, limiting ourselves to such or any special embodiment of such invention.

The drawings which are so far as possible diagrammatic are as follows,—

Figure 1 is a view of the device as seen from the under side. Fig. 2 is a sectional view of the device taken along the line of  $x-y$  of Fig. 1 showing the lock and the inserted plug in full. Fig. 3 is a plan view and Fig. 4 is a transverse sectional view of the device taken through the center of the opening C for the plug and shows the key actuated member in position to prevent the insertion of the plug. Fig. 5 is a sectional view taken along the line  $x-y$  of Fig. 1 of the lower part of the device and shows the plug inserted to release the key actuated member.

Similar reference characters designate similar parts throughout the several figures of the drawings.

Referring to the drawings, B is the base piece having a downwardly extending flange  $b$  provided at the corners with bosses having inwardly threaded holes  $o$  to receive screws by means of which the device is secured to any desired structure, as a support and being thus secured from the back side the base portion B is not readily removable to render the parts contained thereunder accessible.

Contact members  $s$  and  $s^1$  are secured in recesses  $b^2-b^2$  in the base piece B by means of screws  $b^1$  from which wires 1 and 2 lead respectively to battery Z and to a spring contact  $u$ . A plug  $p$  having a handle P is provided for insertion in the bushing C secured within the base piece B. This plug  $p$ , when inserted in place, is adapted to engage the contacts  $s$  and  $s^1$  to close the circuit between them. Secured to the under side of the base member B, by the flange  $v$ , is seen a lock V which may be of any suitable construction, preferably, such as adapted to operation by means of a flat key inserted in a rotatable escutcheon member  $v^1$  and adapted to move the bolt D to and fro, that is,—up or down with reference to Figs. 1 and 2. The bolt D is shown in its operative position in Figs. 1 and 2 but, when actuated by the key inserted in the escutcheon member  $v^1$ ,

the bolt D may be thrown thereby to close the opening at the bushing C for receiving the plug *p* in such a way as to prevent the insertion thereof. The bolt D when in its inoperative position is adapted to engage between two insulatingly supported spring contacts *u* and *u'*, secured to the boss *b*<sup>2</sup> to close the circuit between such contacts, while from the spring *u'* a wire 3 leads to any desired translating device, such as illustrated diagrammatically in this case by the motor M, from which connection is made to the battery Z by wire 4.

Secured on the under side of the bolt D are seen two spring members *d* held in place by means of screws as indicated and each carrying a pin *e* normally engaging through a hole aligned therewith in the body of the bolt D and into a hole *c* in the base member B sufficiently to prevent a longitudinal movement of the bolt D by means of the key inserted in the escutcheon member *v*<sup>1</sup>. The holes *c* for receiving the pins *e* are positioned, as indicated in Fig. 5 to receive such pins when the bolt D is moved to its operative position and extending over the opening for the plug *p* and therefore out of engagement with the contacts *u* and *u'* thus leaving the circuit open between such springs. The plug *p* carries on its lower end two pins *p'* adapted, when inserted, in the bushing C<sup>1</sup>, to engage the pins *e* and force them downwardly out of engagement with the base member B, immediately upon which the bolt D may be moved to its inoperative position, being that shown in Figs. 1 and 2.

The method of using our circuit controlling device is as follows,—supposing the parts to be in the positions shown in Figs. 1 and 2, the insertion of the key and the operation thereof moves the bolt D to its operative position preventing the insertion of the plug *p* which, however has of course first been removed, and it also opens the circuit between the contacts *u* and *u'* and at the same time the pins *e* engage through the holes therefor in the bolt D and into the holes *c* in alignment therewith in the base member B preventing the operation of the bolt D even by means of the proper key. For closing the circuit the plug member *p* is inserted in the bushing C<sup>1</sup> therefor, and it will be noticed, by reference to Fig. 3, that the holes *c* are so positioned as to receive the pins *p'* only for one angular position of the plug *p* which, when thus properly inserted, forces the pins *e* out of engagement with the base B and the key being then inserted in the escutcheon member *v*<sup>1</sup> the bolt D may be thrown to the position indicated in Figs. 1 and 2 closing the circuit between contacts *u* and *u'* and permitting the insertion of the

plug *p* to close the circuit between the contacts *s* and *s'*. The operation is of course reversed except as to the insertion of the plug *p* in the bushing C<sup>1</sup> for operating the bolt D to prevent an improper closing of the circuit.

What we claim is:

1. In a device of the character described, a base; two pair of insulated contacts spaced apart mounted on the base; a plug adapted to engage through an opening in the base and between the contacts of the first pair to electrically connect them; a key actuated member movably mounted on the base and adapted in one position to extend over the opening for the plug in the base to prevent the insertion thereof and means whereby, when the key actuated member is moved to its other position, electrical connection is established between the second pair of contacts.

2. In a device of the character described, a base; two pair of insulated contacts spaced apart mounted on the base; a plug adapted to engage through an opening in the base and between the contacts of the first pair to electrically connect them; a key actuated member movably mounted on the base and adapted in one position to extend over the opening for the plug in the base to prevent the insertion thereof; means whereby, when the key actuated member is moved to its other position, electrical connection is established between the second pair of contacts and a locking means for holding the key actuated member in such last named position adapted to be released by the plug in engagement therewith.

3. In a device of the character described, a base; two pair of insulated contacts spaced apart mounted on the base; a plug adapted to engage through an opening in the base and between the contacts of the first pair to electrically connect them; a key actuated member movably mounted on the base and adapted in one position to extend over the opening for the plug in the base to prevent the insertion thereof and means whereby, when the key actuated member is moved to its other position, electrical connection is established between the second pair of contacts, such first and second pair of contacts located in series with each other in an electric circuit.

4. In a device of the character described, a base; two pair of insulated contacts spaced apart mounted on the base; a plug adapted to engage through an opening in the base and between the contacts of the first pair to electrically connect them; a key actuated member movably mounted on the base and adapted in one position to extend over the opening for the plug in the base to prevent

the insertion thereof; means whereby, when the key actuated member is moved to its other position, electrical connection is established between the second pair of contacts  
5 and a locking means for holding the key actuated member in such last named position adapted to be released by the plug in engagement therewith, such first and second pair

of contacts located in series with each other in an electric circuit.

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