July 12, 1932. A. DIODATI 1,867,212

ELECTRICAL CIRCUIT SYSTEM

Filed July 14, 1927 2 Sheets-Sheet 1

Fig. 1.

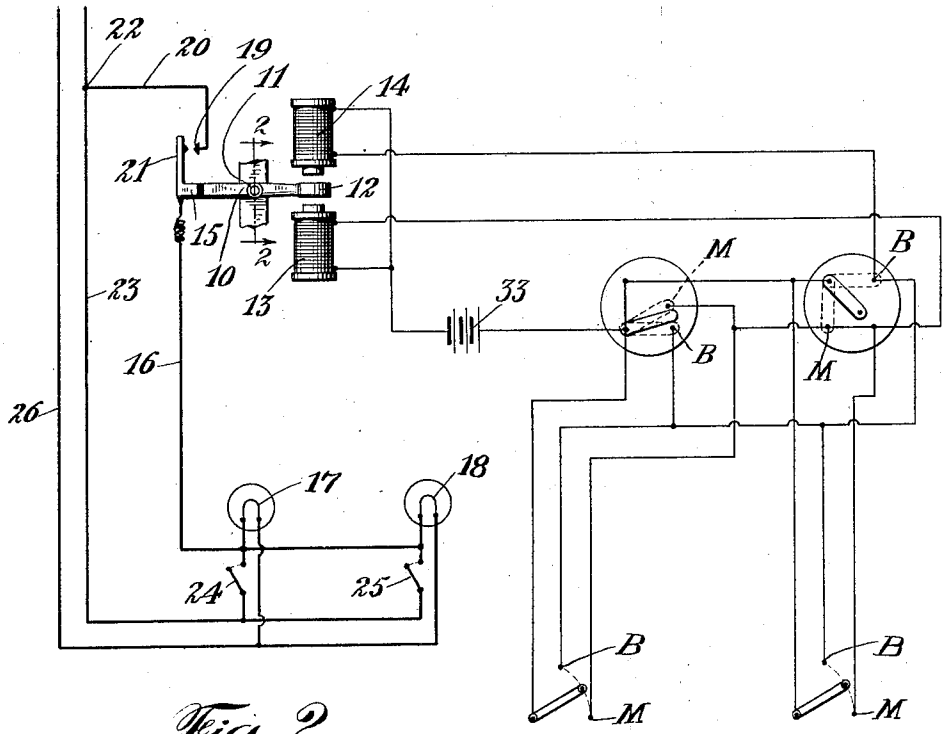


Fig. 2.

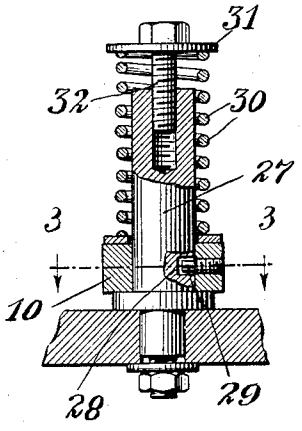
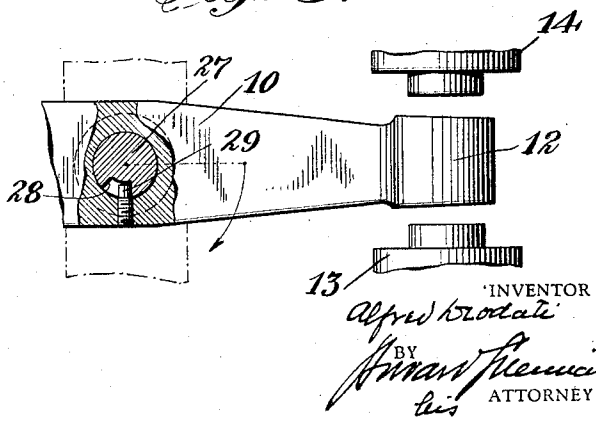


Fig. 3.



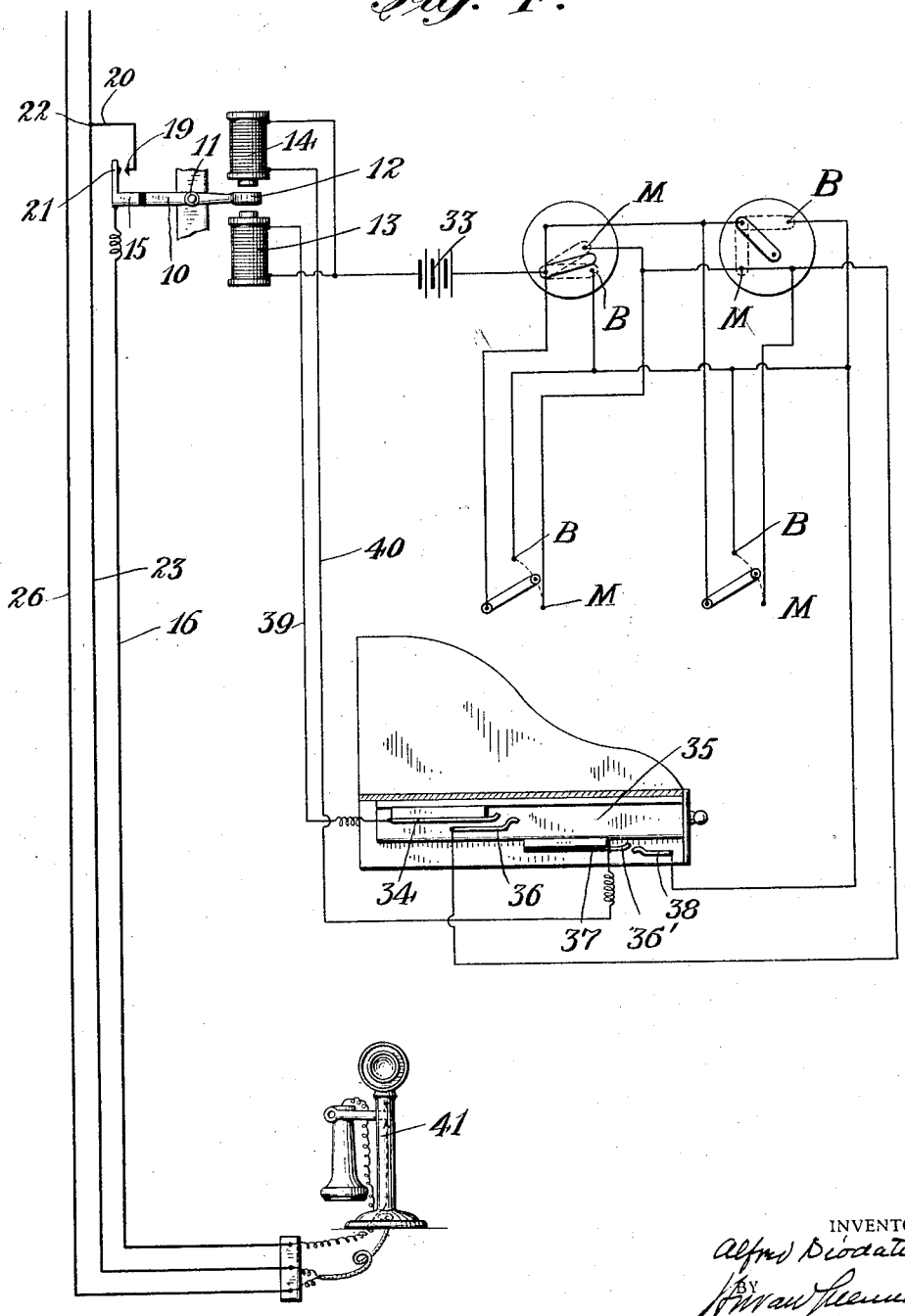
INVENTOR
Alfred Diodati
BY
Howard Flemming
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ELECTRICAL CIRCUIT SYSTEM

Filed July 14, 1927 2 Sheets-Sheet 2

Fig. 1.



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Patented July 12, 1932 1,867,212

UNITED STATES PATENT OFFICE

ALFRED DIODATI, OF NEW YORK, N. Y.

ELECTRICAL CIRCUIT SYSTEM

Application filed July 14, 1927. Serial No. 205,758.

My invention relates to electrical circuits and refers particularly to means for opening and closing electric circuits of high voltage by means of low voltage circuits.

It is frequently desirable to open and close high voltage circuits such as electric light circuits, from a plurality of distant points, thus requiring a considerable amount of wiring.

Under the present adopted methods of passing the high voltage current through the make and break switches, the entire wiring system must be of such a character as to safely carry high voltages, thus necessitating the expense incident to wires of this character and increasing the fire hazard because of the additional wiring required.

Further, high voltage wires with their required conduits must be placed within the walls to prevent the unsightliness of their appearance, thus occasioning the expense incident to expert workman and the breaking of walls and partitions.

My invention overcomes all of the above, and other, objectionable features incident to the installation and operation of high voltage control and presents a means whereby wiring of low voltage dry battery currents can be employed with which to make and break high voltage currents from distant points.

By means of my invention therefore, ordinary battery wire can be employed, thus reducing the wiring cost very considerably, no conduits are required, the wires can be used without the expense necessary to interior wall installation and the fire risk is very greatly reduced and is in effect practically eliminated.

My invention is not limited to electric lighting but has many other valuable applications as is instanced in the production of a burglar alarm which may be set for operation from any one of a number of hidden points, and in which the discovery of the particular setting-point must be made in order to disconnect the alarm system.

The many advantageous properties of my invention and its many valuable applications will be evident upon a consideration of my specification and its accompanying drawings.

In the accompanying drawings illustrating modified forms of my invention, similar parts are designated by similar numerals.

Figure 1 is a side view of one form of my device with diagrammatic scheme for its application.

Figure 2 is an enlarged section through the line 2—2 of Figure 1.

Figure 3 is a section through the line 3—3 of Figure 2.

Figure 4 illustrates diagrammatically a modification of the electrical circuit system more particularly in its application to a telephone burglar alarm.

The particular form of the device of my invention shown in Figures 1, 2 and 3 comprises an armature 10, pivoted at 11, one end 12 of which is positioned between the make magnet 13 and the break magnet 14. The other end 15 of the armature 10 is connected by means of the auxiliary conductor 16 to the electric light bulbs 17 and 18. The one end 19 of the bridge conductor 20 is spaced from the extended end 21 of the armature 10, while the other end 22 is connected to the ordinary electric light conductor 23, which in turn is connected or disconnected to the bulbs 17 and 18 by switches 24 and 25 respectively. The bulb circuits are completed by the conductor 26, the two conductors 23 and 26 being connected to a source of electric power.

The wiring shown in Figure 1 is for the operation of four make and break push buttons, the make position being marked M and the break position being marked B in each case.

The construction of the armature 10 is shown in Figures 2 and 3. The stationary pivot 27 has a recess 28, within which the pin 29 carried by the armature 10 is movable and hence the movement of the armature is limited by the movement of the pin 29 within the recess 28, and the end 12 of the armature can contact only with the make magnet 13.

A spiral spring 30 abuts upon the armature 10 and the head 31 of the threaded bolt 32 which meshes with the threaded interior of the pivot 27, and hence the force necessary to move the armature can be controlled by screwing the member 32 inwardly or outwardly.

The operation of the device is as follows, supposing the two switches 24 and 25 to be open:—If any one of the make and break buttons be placed in make position, the armature end 12 will move downwardly into contact, or make, position with the make magnet 13, thus bringing the end 19 of the bridge conductor 20 and the end 21 of the armature 10 into contact and completing the electric circuit of the bulbs 17 and 18, the current passing through the conductors 26, 16, 20 and 23. If the push button be released to neutral, the lights will remain, due to the spring pressure exerted upon the armature, until the push button is brought to the break position to operate the corresponding break magnet 14 and lift the armature.

It will thus be seen that the main electric circuit can be put into operation by a momentary action of the battery 33, and will remain in operation even when the button circuit is broken.

The device of my invention does not interfere with the operation of the socket buttons 24 and 25 which can be employed in the ordinary manner if desired.

The application of my device for a telephone burglar alarm is shown in Figure 4, as specifically applied to a cash drawer. A contact 34 attached to the slidable drawer 35 is spaced from, but capable of slidable contact with, the stationary contact 36. The drawer 35 also carried a contact 36′ which is extended into the insulated member 37 and is spaced from, but capable of slidable contact with the stationary contact 38.

The make conductor 39 is connected with the contact 34, and the break conductor 40 is connected with the contact 36′.

The wiring is shown for four different switch operations, in each of which the make position is marked with M and the break position with B.

In this case the wire 16 is connected with the telephone instrument 41, so that when the telephone circuit 23—26 is closed at 19—21 notice will be recorded at the telephone central.

The operation of the device is as follows assuming that the drawer is closed and any one of the switches in make position:—As the drawer 35 is drawn outwardly, the contacts 36′ and 38 will abut upon each other to close the circuit at this point, but as only a "make" switch is in position, the "break" circuit in which these contacts 36′, 38 are included will remain inoperative; and as the contact 38 passes the contact 36′, the contacts 34 and 36 abut upon each other completing the make circuit, operating the armature and connecting the points 19 and 21, thus giving warning over the telephone 41. As the drawer is returned, the contacts 36′ and 38 break the circuit but do not interrupt the continuance of the warning through the second closing of the contacts 36′, 38.

It will thus be seen that by means of my device electric light bulbs may be lighted from any number of distant sources and that an electric alarm may be placed in operative position by means of any number of distant switches and that in the latter case when one switch is in make position the circuit cannot be changed to the break position by the movement of any other switch.

It is to be particularly noticed that the operation of my device can be accomplished by the use of ordinary battery wire, that causing a very considerable saving in wire and overcoming the necessity of electric wire conduits.

My device, therefore, presents a means of completing a heavy voltage circuit from a plurality of distant sources through a medium of a low voltage circuit, with the consequent saving in expense and without the dangers incident to heavy voltage wires.

I do not limit myself to the particular size, shape, number or arrangement of parts, nor for the particular purposes, as shown and described as these are given simply as a means of clearly describing my invention.

What I claim is:—

In an electrical circuit system, in combination a main normally-open electric circuit connected with a source of relatively high voltage electric current, instrumentalities included in said circuit to be energized when the same is closed, a pivotal make-and-break armature adapted to respectively complete and interrupt said main circuit, a pair of electromagnets associated therewith for moving said armature to its circuit completing and circuit interrupting positions, and control circuits including a source of relatively low voltage electric current and connected with the respective electromagnets, said circuits embodying a plurality of circuit closing elements each having a make and a break point and so interconnected that when a circuit is closed thereby at the make point, the main circuit will be closed by said armature and will remain closed thereat notwithstanding a subsequent disconnection at the said make point and until a circuit closing element closes its circuit at a break point, and an additional circuit closing element for the control circuit to the electromagnet for completing the main circuit and in series with the make points of the plurality of circuit closing elements.

Signed at New York, in the county of Bronx and State of N. Y. this 7th day of July, 1927.

ALFRED DIODATI.