B. W. MACY.

ELECTRIC SWITCH.

APPLICATION FILED SEPT. 20, 1907.

910,835. Patented Jan. 26, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

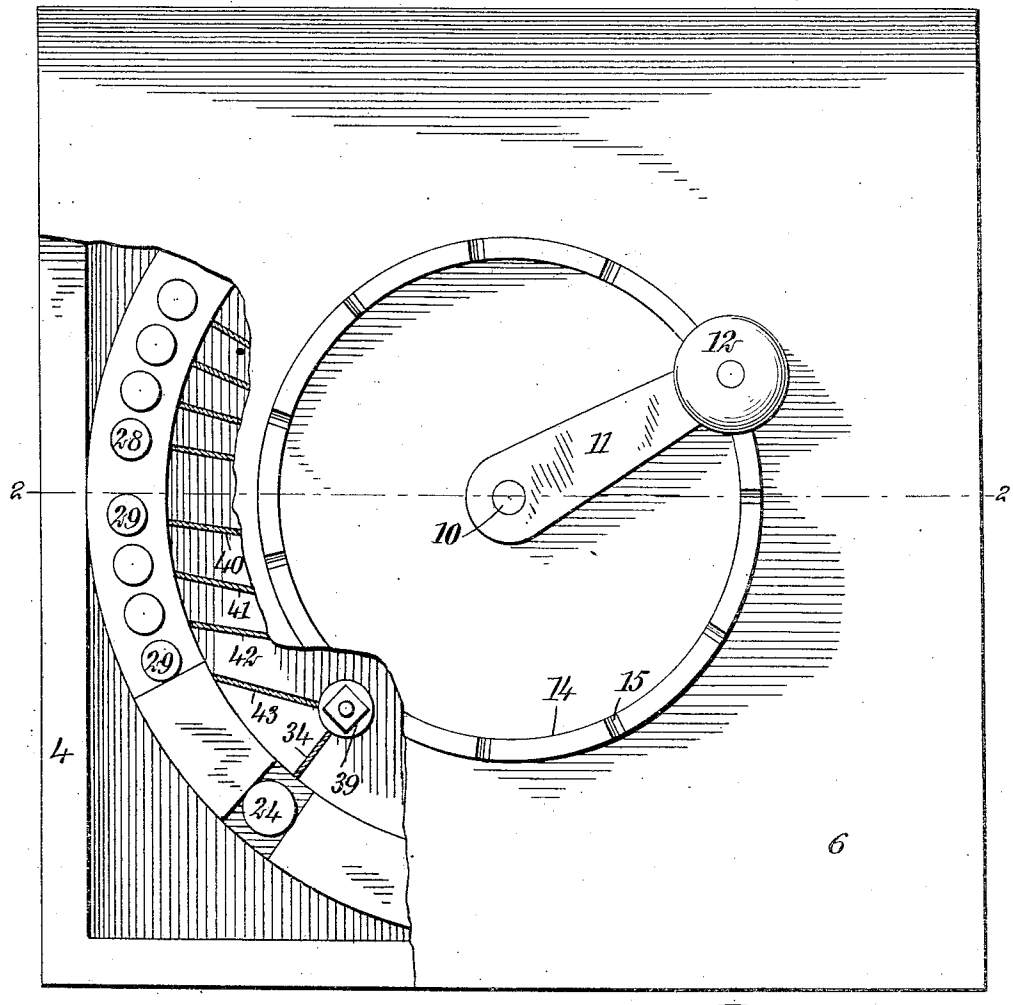
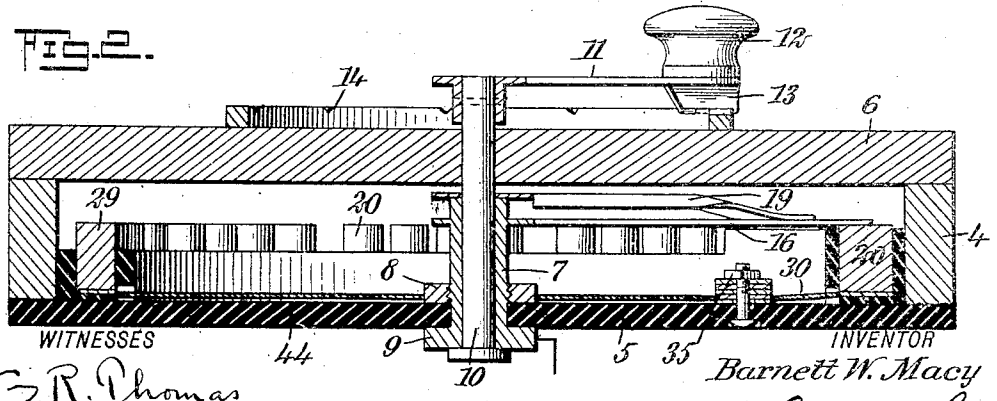


Fig. 2.



WITNESSES

G. R. Thomas

Walton Harrison

INVENTOR

Barnett W. Macy

BY Munn & Co

ATTORNEYS

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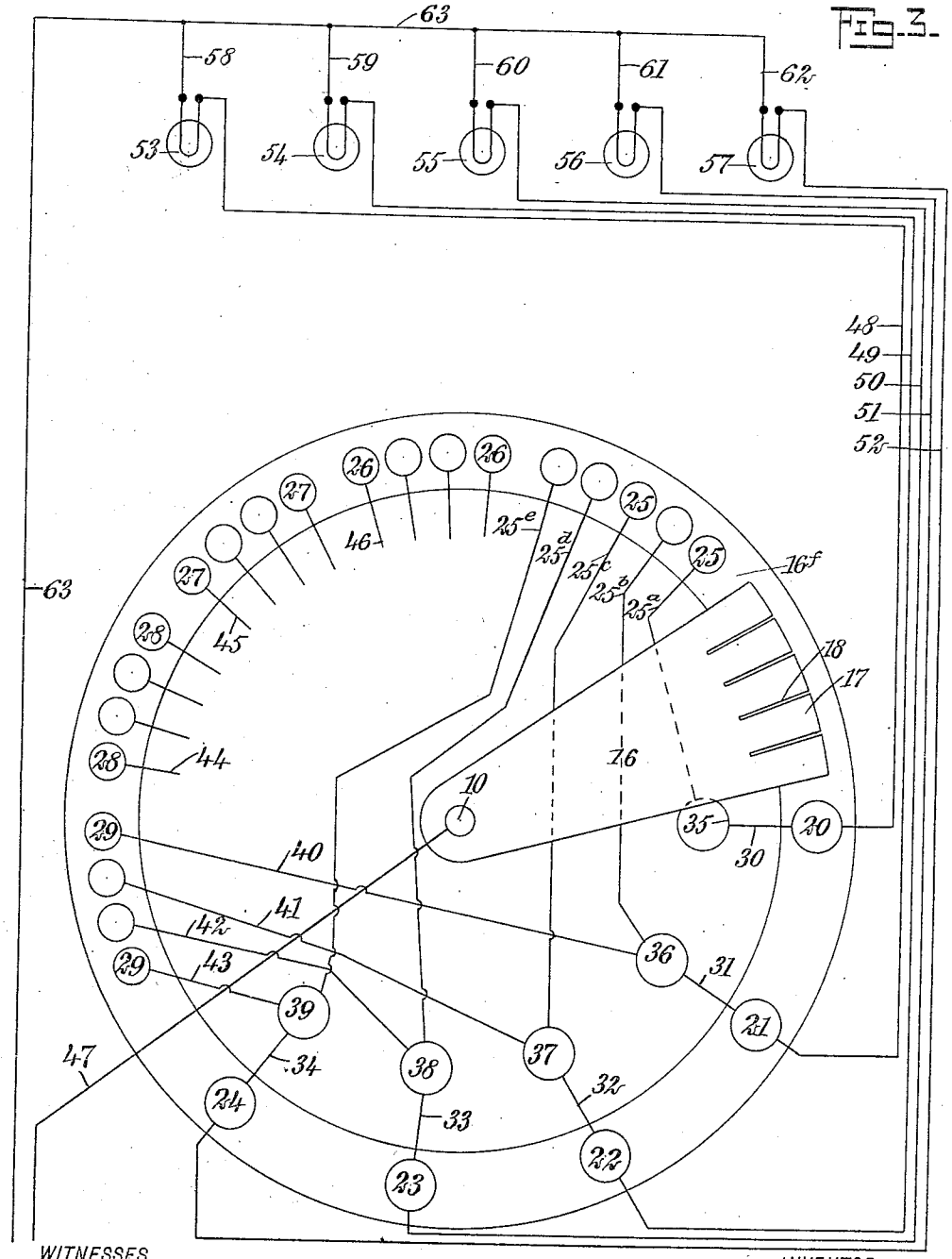
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FIG. 3.



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ATTORNEYS

UNITED STATES PATENT OFFICE.

BARNETT WRIGHT MACY, OF ORLANDO, FLORIDA.

ELECTRIC SWITCH.

No. 910,835. Specification of Letters Patent. Patented Jan. 26, 1909.

Application filed September 20, 1907. Serial No. 393,823.

To all whom it may concern:

Be it known that I, BARNETT W. MACY, a citizen of the United States, and a resident of Orlando, in the county of Orange and State of Florida, have invented a new and Improved Electric Switch, of which the following is a full, clear, and exact description.

My invention relates to switch boards, my more particular object being to provide a type of switch controllable by motions of a hand crank and adapted to transpose, merge and separate a number of distinct circuits at will, so as to greatly simplify the wiring.

My invention may be used, for instance, in connection with electric lights and house wiring, in such manner that the various electric lamps in the house may be lighted either severally or collectively, and any group or combination of such lights, chosen arbitrarily at will, may be lighted to the exclusion of the other lamps.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of the switch-board, the top being partly broken away for the purpose of showing the contact mechanism; Fig. 2 is a central section upon the line 2—2 of Fig. 1, showing the arrangement of the contact arm, the hand-crank for turning the same and the various contact members engaged by the contact-arm, and Fig. 3 is a diagram of the wiring of the entire system, including the lamps.

A casing 4 is provided with a bottom 5 of insulating material and with a top 6. A sleeve 7 of conducting material is connected centrally with the bottom 5, and encircling this sleeve is a nut 8. The lower end of the sleeve is provided with an annular head 9. Mounted centrally within the sleeve is a stub-shaft 10, and upon the upper end of this stub-shaft is a hand-crank 11, provided with a knob 12, and a detent 13 is mounted upon the under side of the hand-crank 11. A ring 14 of metal is mounted centrally upon the top 6, and is provided with notches 15, into which the detent 13 is adapted to engage, for the purpose of holding the handle 11 in various predetermined positions. A contact-arm 16 of substantially sector shape, is provided with contact-fingers 17, integral therewith and separated from each other by radial slots 18 (see Fig. 3).

A leaf-spring 19 is secured to the stub-shaft 10 and engages the contact-arm 16 for the purpose of pressing the same downward. A number of contact-buttons 20, 21, 22, 23, 24 are spaced some distance apart, so that by turning the contact-arm 16 it may be readily brought into communication with them separately. A number of smaller contact-buttons 25, 26, 27, 28, 29 are arranged in groups, as shown. Connected with the contact-buttons 20, 21, 22, 23, 24 are wires 30, 31, 32, 33 and 34. These wires are connected also with fastenings 35, 36, 37, 38 and 39, as shown in Fig. 3. Other wires 40, 41, 42, 43 lead from the contact-buttons 29 of a group to the fastenings 36, 37, 38, 39. Similarly other groups of wires 44, 45, 46 lead from the various groups of contact-buttons 28, 27, 26 to the various fastenings 35 to 39 inclusive. The idea is that any one of the groups 26, 27, 28 may be connected by a wire 46, 45, 44 to the various fastenings, such as 35, 36, 37, 38, in such manner that any particular group of buttons 26, 27, 28 represents any arbitrary collection of lamps distributed in various parts of the building, as hereinafter described.

The contact buttons 25 (five in number) are connected by wires 25^a, 25^b, 25^c, 25^d, 25^e with the various fastenings 35, 36, 37, 38, 39. Int rmediate the contact-button 20 and the first contact button 25 is a space 16^f of proper width to accommodate all of the contact fingers 17. This space I designate as the dead point, the expression meaning that when the contact arm is in the position indicated in Fig. 3, or in other words, occupies the space 16^f, none of the circuits are closed, and consequently all of the lights are extinguished.

At 47 is shown one of the mains or feed wires from the street. It connects directly to the sleeve 7 of conducting material, as will be understood from Fig. 3.

Wires 48, 49, 50, 51, 52 lead from the respective contact buttons 20, 21, 22, 23, 24, to the respective lamps 53, 54, 55, 56 and 57. These lamps are in turn connected by wires 58, 59, 60, 61, 62, with a wire 63 which serves as a common return and is of opposite polarity from the wire 47; that is to say, the wires 63, 47 represent the two wires which ordinarily lead to opposite terminals of an incandescent lamp.

The operation of my device is as follows: Assuming the various connections to be

made as indicated in Fig. 3, the operator determines what lamps he desires to light. If he determines to light any one of the lamps alone, he simply turns the crank arm 11 by aid of the knob 12 until the contact arm 16 is in such position that one or more of the contact fingers 17 engage the proper contact button 20, 21, 22, 23 or 24, thereby completing a circuit through the appropriate lamp. Assuming that one or more contact fingers 17 rest upon the contact button 22, for instance, the circuit may be traced as follows: main wire or lead 47, sleeve 7, stub shaft 10, contact arm 16, spring fingers 17, contact button 22, wire 50, lamp 55, wire 60, thence to wire 63 and outward to the source of supply, thence back to wire 47. A circuit may similarly be traced through any one of the other lamps. Suppose, however, that the operator desires to light all of the lamps. He moves the contact arm 16 a little to the left, according to Figs. 2 and 3, so that the contact fingers 17 engage the contact buttons 25. In this case the current proceeds as before to the contact arm 16, thence divides and passes into the various contact buttons 25, thence in parallel through wires 25^a, 25^b, 25^c, 25^d, 25^e, to the several fastenings 35, 36, 37, 38, 39, and thence through the several wires 30, 31, 32, 33, 34, contact buttons 20, 21, 22, 23, 24, and wires 48, 49, 50, 51, 52, to the various lamps. From here the circuit proceeds in parallel through the various wires 58, 59, 60, 61, 62 to the wire 63, this course elsewhere being the same as above traced. Suppose further that the operator desires to light only the lamps numbered 54, 55, 56, 57. He ascertains which group of contact buttons have been connected up for the purpose in question. This group, we will say, is the one at the left of Fig. 3 and made up of buttons designated 29. The operator next grasps the button 12 and by its aid turns the stub shaft 10 until the arm 16 reaches such a position that the contact fingers 17 engage the contact buttons 29. The circuit may now be traced as follows: wire 47, stub shaft 10, contact arm 16, contact fingers 17, contact buttons 29, wires 40, 41, 42, 43, fastenings 36, 37, 38, 39, wires 31, 32, 33, 34, contact buttons 21, 22, 23, 24, wires 49, 50, 51, 52, lamps 54, 55, 56, 57, and wires 59, 60, 61, 62, to wire 63, the return circuit being as above described.

As there may be as many groups of buttons as desired, and these groups of buttons may be connected up arbitrarily in any desired combination, with the various fastenings 35, 36, 37, 38, 39, it is obvious that the apparatus may be so arranged that the operator may at will throw in or out of circuit any lamp or group of lamps he may select, and this, too, by merely shifting the position of the handle.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

In an electric switch, the combination of a casing, contact buttons mounted therein, a revoluble shaft disposed centrally of said casing, a contact arm mounted upon said shaft and terminating in spring contact fingers, a leaf spring mounted rigidly upon said shaft and extending radially outward therefrom, said leaf spring at its outer end engaging said contact arm for the purpose of forcing said contact fingers into engagement with said contact buttons, a ring mounted upon said casing and disposed concentrically of said shaft, said ring being provided with notches, a hand crank mounted upon said shaft, and a detent mounted upon said hand crank and adapted to click into said notches as said hand crank is turned.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

BARNETT WRIGHT MACY.

Witnesses:
R. H. MACY,
WALTON HARRISON.