

Nov. 11, 1924.

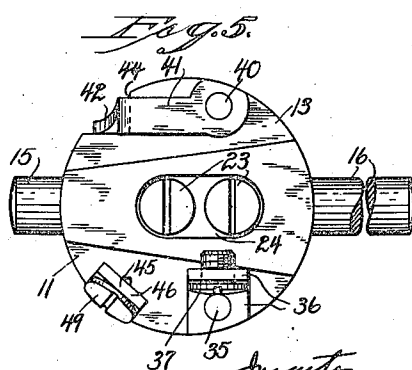
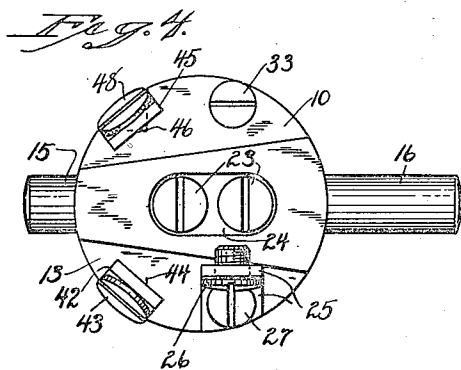
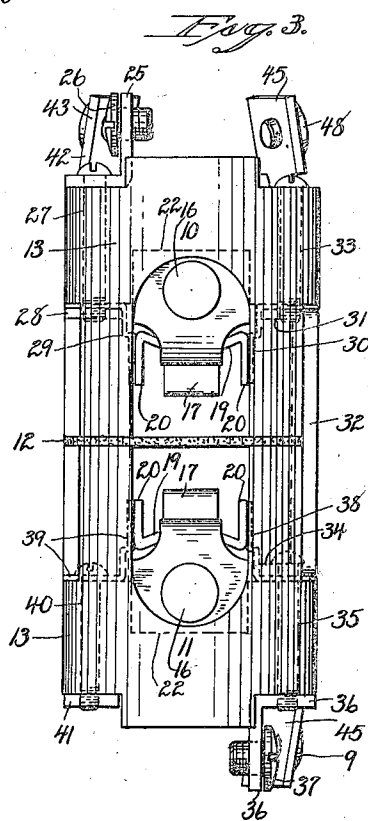
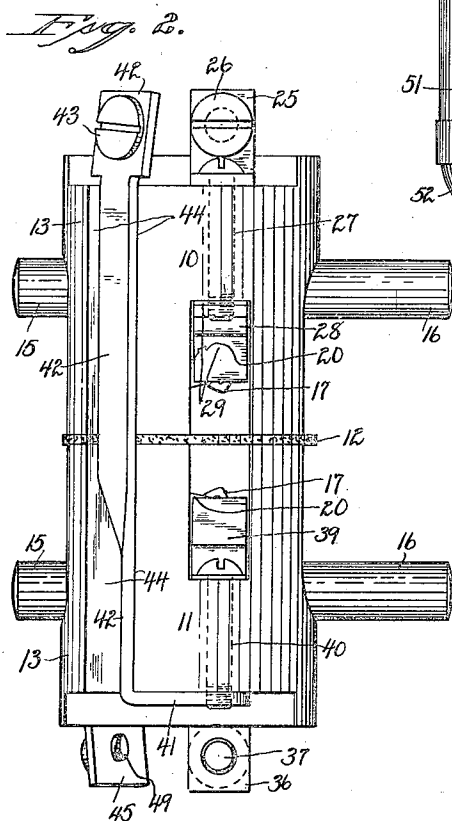
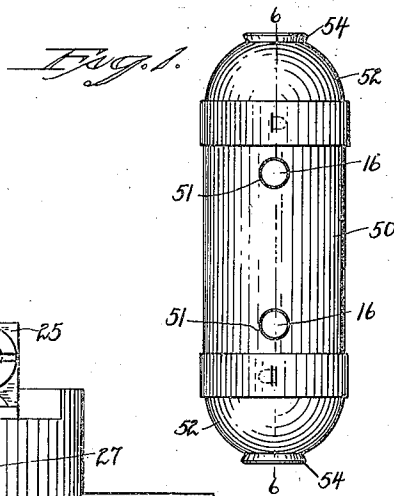
1,515,224

I. R. SELTZER

ELECTRIC SWITCH

Filed March 10, 1922

2 Sheets-Sheet 1



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Fig. 6.

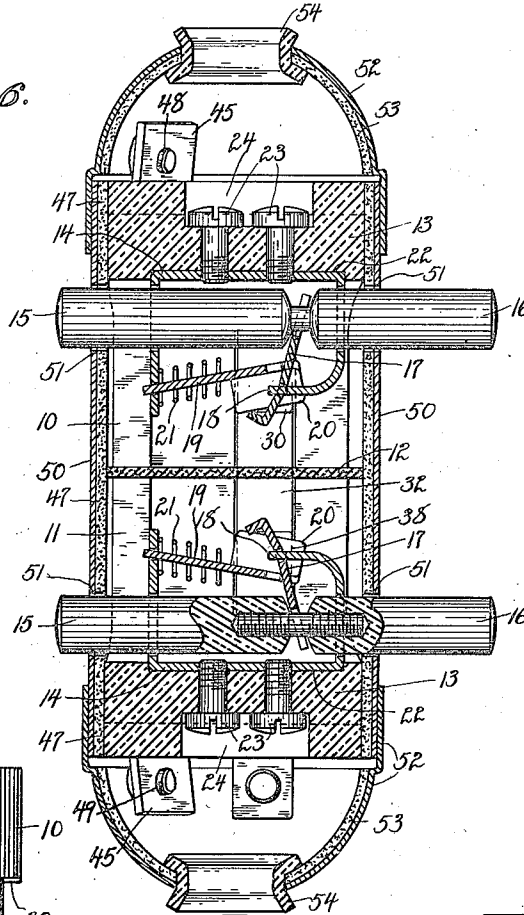


Fig. 7.

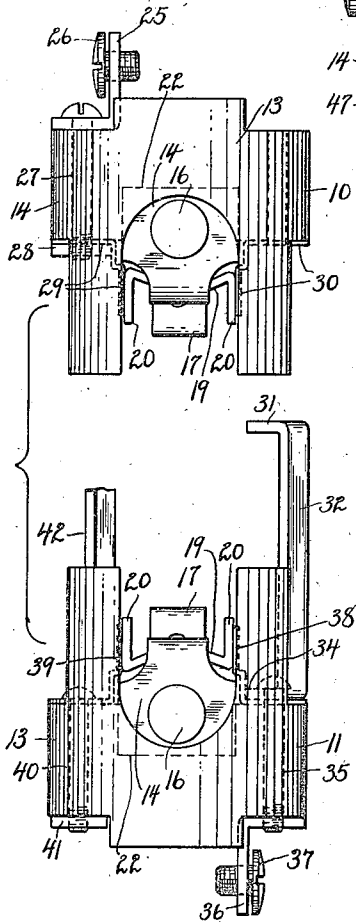
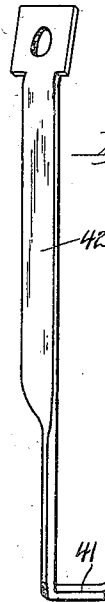


Fig. 8.



Fig. 9.



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UNITED STATES PATENT OFFICE.

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ELECTRIC SWITCH.

Application filed March 10, 1922. Serial No. 542,528.

To all whom it may concern:

Be it known that I, IRA R. SELTZER, a citizen of the United States, residing at Waterbury, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Electric Switches; and I do hereby declare the following, when taken in connection with the accompanying drawings and the characters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this application, and represent, in—

Fig. 1 a view in elevation of an electric switch embodying my invention.

Fig. 2 an enlarged view thereof with the casing removed.

Fig. 3 a corresponding view taken at a right angle to Fig. 2.

Fig. 4 a plan view thereof.

Fig. 5 a reverse plan view thereof.

Fig. 6 a view thereof in central and longitudinal section on the line 6—6 of Fig. 1.

Fig. 7 a detached view of the two switch-units shown in line but separated from each other.

Fig. 8 a detached perspective view of the main-line connecting-bar.

Fig. 9 a corresponding view of the bar-like terminal-extension of one of the switch-units.

This invention relates to an improvement in electric switches of the push-through type, the object being to produce, at a low cost of manufacture, a simple, compact, and reliable switch constructed with particular reference to ease, simplicity, and convenience of manufacture.

With these ends in view, my invention consists in a plurality of complete switch-units arranged in series and electrically interconnected but independently operable. My invention further consists in a switch having certain details of construction and combinations of parts as will be hereinafter described and pointed out in the claims.

In carrying out my invention, as herein shown, I employ two independently operable switch-units arranged in mechanical series in a structure known as a two-circuit or three-heat control switch, such as used for heating electric pads having two circuit-heating elements. For convenience of description, the two switch-units will be generally designated 10 and 11. They are ar-

ranged in mechanical series end to end and insulated from each other by an interposed disk 12 of insulating material. Each of these units has a porcelain or equivalent cylindrical base 13, formed with several recesses, as will be described, and each base carries a transversely arranged push-through switch-mechanism of approved construction and herein shown as consisting of a frame 14, push-buttons 15 and 16 arranged in a line, a rocker or actuator 17, operated by the said push-buttons and carried by a fulcrum 18, forming an extension of the frame 14, and a circuit opening-and-closing member 19, having contact ears 20, and held in its respective off and on positions by means of a helical spring 21. The said switch-mechanisms are located in deep recesses 22 in the bases 13, in which they are held by screws 23, for which centrally arranged recesses 24 are formed in the outer ends of the said bases.

Each of the self-contained or unitary switch-units above described is provided with a pair of electric connections. Thus, the switch-unit 10 is provided with a terminal-plate 25, carrying a binding-screw 26, and secured to the base 13 by a long screw 27 passing inward through the base and receiving a nut 28, by means of which one of the spring contact-fingers 29 of the unit 10 is secured in place. The complementary spring contact-finger 30 which engages with the opposite ear 20 of the said part 19, is held in place by the inwardly turned end 31 of the coupling-bar 32, which, in turn, is held in place by a long screw 33, entered into a threaded opening in the said end 31 of the said bar 32, the opposite end of which is formed with a corresponding inwardly turned end 34, having an opening for the reception of the inner end of a long screw 35, which secures the terminal-plate 36 to the base 13 of the switch-unit 11, the said plate 36 carrying a binding-screw 37. Under this construction, the plates 25 and 36 form the terminal connections of the switch-unit 10. The said plate 36 also has the additional function of acting as one of the two terminals of the switch-unit 11, by virtue of the fact that it is electrically connected with one of the two spring contact-fingers 38 thereof, the said finger being secured in place by being pinched between the inwardly turned end 34 of the bar 32 and the base

13 of the switch 11. The contact-finger 38 engages with the adjacent ear 20 of the circuit opening-and-closing member 19 of the switch-mechanism of the switch-unit 11.

5 The opposite ear 20 of the said member 19 coacts with a corresponding contact-finger 39 which is held in place against the base 13 of the unit 11 by the head of a screw 40, the outer end of which enters a threaded opening in the arm 41 of the bar-like terminal-extension 42 of the unit 11, the said arm being held at a right angle to the extension 42, as clearly shown in Fig. 9. The opposite end of the said extension 42 is slightly bent out of line and carries a binding-screw 43. The said extension 42 lies in aligned longitudinal grooves 44, in the peripheries of the bases 13 of the respective units 10 and 11, as shown in Fig. 2. The said extension 42 and the plate 36 constitute the two terminals of the unit 11, just as the plate 25 and the plate 36 constitute the two terminals of the unit 10.

The connections thus far described are the terminal connections of one side of the two circuits. The main-line side of the respective circuits is provided for by a main-line connecting-bar 45 lying in aligned longitudinal grooves 46 in the peripheries of the respective bases 13, held in place by means of an insulating tube or lining 47 and provided at its respective ends with binding-screws 48 and 49 to which the line wire connections are attached.

35 The two switch-units are enclosed within the said insulating lining 47, which in turn is located within a one-piece tubular shell 50, formed with perforations 51 for the passage of the push-buttons 15 and 16, and having its ends closed by domical caps 52, each having an insulating lining 53 and an insulating bushing 54. It is a feature of my present construction that when the caps 52 are removed, all the switch and main-line connections described are exposed and available for the attachment of the proper wires, which is a marked advantage, since it avoids the necessity of any disassembling of the mechanism, such as the removal of the shell 50 forming the main member of the housing.

It will be seen from the foregoing description that my improved electric switch embodies two independently organized and independently operable switch-units arranged in mechanical series, but electrically connected so as to permit them to be used independently or in conjunction so as to use either circuit or both.

60 I claim:

1. In an electric switch, the combination with a casing therefor, of a plurality of independently-organized, independently-operable switch-units axially arranged within the said casing in mechanical series, and

electrically connected for their operation independently or together and a main-line connector located within the said casing and extending beyond the outer ends of the said axially-arranged switch-units therein.

2. In an electric switch, the combination with a casing therefor, of a plurality of independently-organized, independently-operable switches axially arranged within the said casing in mechanical series and electrically connected for their operation independently or together, and a main-line connecting-bar located within the said casing, extending beyond the outer ends of the outer units therein, and provided at its ends with binding-posts.

3. In an electric switch, the combination with a tubular casing therefor, of a plurality of independently-organized and independently-operable switch-units axially arranged within the said casing in mechanical series and electrically connected for their operation independently or together, with their terminal connections arranged at the opposite ends of the line of units so axially arranged, whereby the switch may be hooked up without removing it from its casing, and a main-line connecting-bar located within the said casing and extending beyond the outer ends of the outer units of the line thereof, and provided at its ends with binding-posts.

4. An electric switch having a plurality of complementary independently organized and independently operable switch-units arranged in mechanical series, a shell enclosing the said units, and removable caps at the ends of the shell, the terminals of the units being located at their outer ends, so as to be exposed on the removal of the caps without the removal of the shell.

5. An electric switch having a plurality of independently organized and independently operable switch-units arranged in mechanical series with their attaching terminals at their ends, a casing enclosing the said units, and a main-line connecting-bar applied to the exterior peripheries of the said units and interposed between the same and the casing and reaching to the opposite ends of the combined units.

6. A switch having a plurality of independently organized and independently operable switch-units arranged in mechanical series with their attaching terminals exposed at the ends of the structure, a casing for the said units when so combined, and a main terminal connecting-bar extending to the ends of the structure.

7. In an electric switch, the combination with a casing therefor, of a plurality of independently-organized, independently-operable switch-units, insulated from each other, axially arranged within the said casing in mechanical series, and electrically con-

5 nected for their operation independently or together for their independent or conjoint operation, a terminal, located at the outer end of one unit, being connected with the switch-mechanism of the other unit, and vice versa. operable switch-units arranged in mechanical series and each having a push-through switch-mechanism, the terminal connections of the said units being exposed at their outer ends, and a terminal connection of one unit being connected with the switch-mechanism of the other unit, and vice versa. 10

8. An electric switch having two independently organized and independently

IRA R. SELTZER.