No. 820,076. PATENTED MAY 8, 1906.

J. H. TRUMBULL.

PANEL SWITCH AND CUT-OUT.

APPLICATION FILED MAY 25, 1904.

Fig. 1.

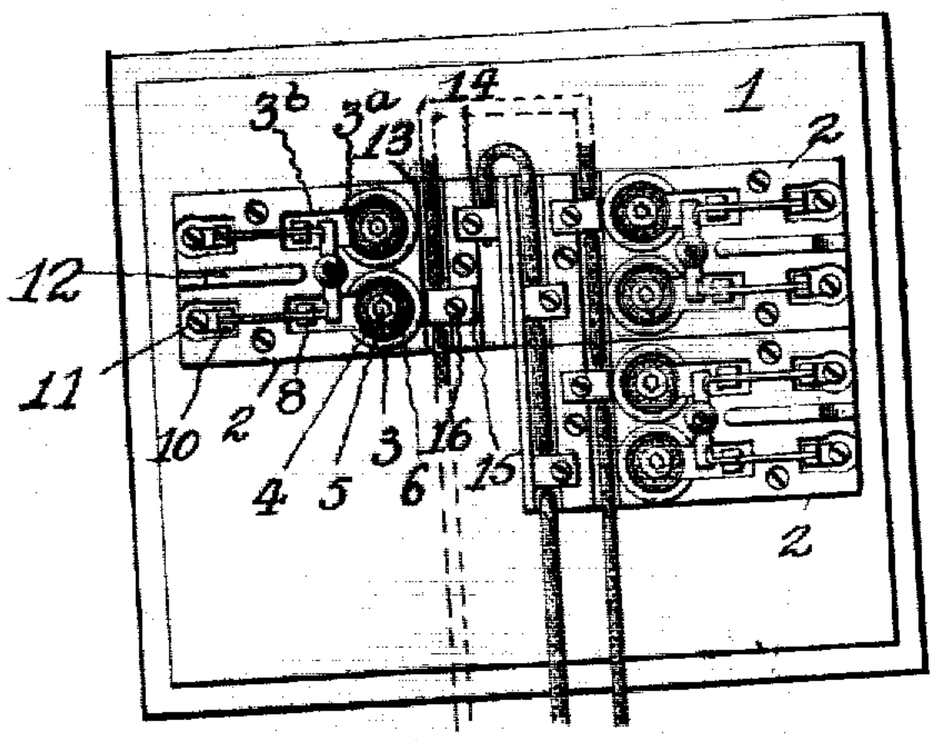


Fig. 2.

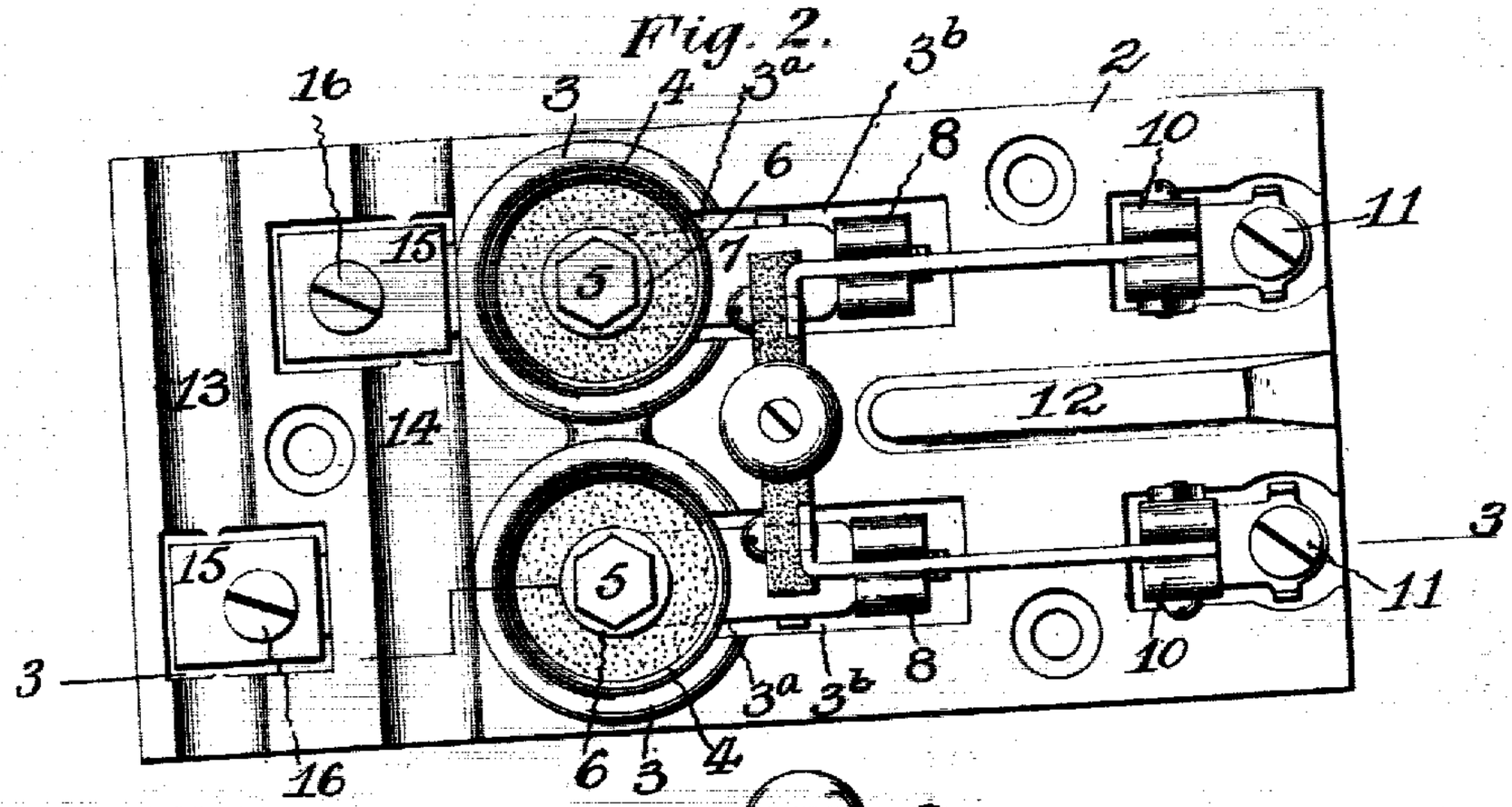
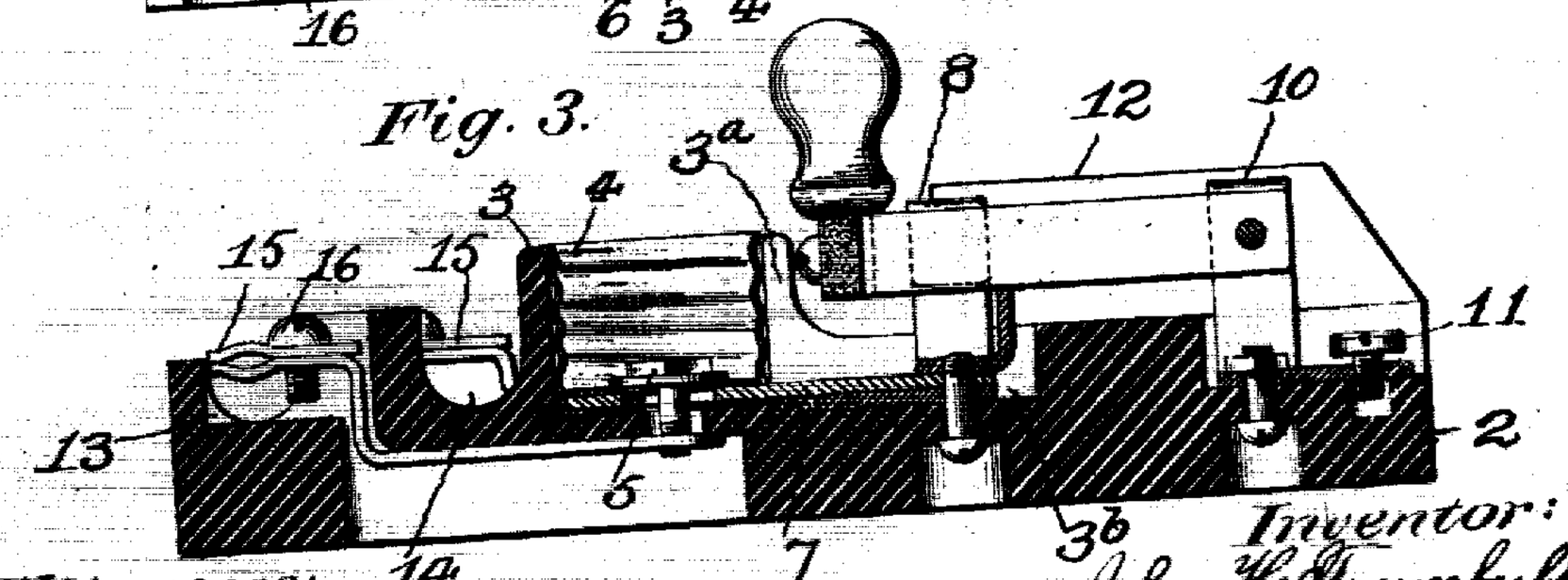


Fig. 3.



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UNITED STATES PATENT OFFICE.

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PANEL SWITCH AND CUT-OUT.

No. 820,076. Specification of Letters Patent. Patented May 8, 1906.

Application filed May 25, 1904. Serial No. 209,674.

To all whom it may concern:

Be it known that I, JOHN H. TRUMBULL, a citizen of the United States, and a resident of Plainville, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Panel Switches and Cut-Outs, of which the following is a specification.

The invention relates to cut-outs, and more particularly to a specific form of cut-out which combines both an automatic cut-out feature and a manually-operated cut-out for electric circuits.

The object of the invention is to form a compact simple device which may be arranged in several combined units for controlling various circuits and which may be used either with a two-wire system or three-wire system of electrical distribution without change in the arrangement of the specific parts.

A further object is to combine in a single structure an automatic cut-out and manually-operated cut-out for controlling an electric circuit and to arrange the line-wire connections for said combination so that they will lie in parallelism.

Referring to the drawings, Figure 1 illustrates a panel with several of the units applied thereto. Fig. 2 is a plan view of one of the units. Fig. 3 is a sectional view through the line-wire connection and automatic cut-out.

It has long been the practice to provide automatic cut-outs, and of course it is common practice to provide a switch for controlling an electric circuit.

It is one of the objects of the present invention to combine in a single structure an automatic cut-out and switch and so arrange the parts that the device may be used with other similar devices for controlling various circuits and may be used either on a two-wire or three-wire system of electrical distribution without change in the structure.

In the accompanying drawings, the numeral 1 denotes a panel, such as is ordinarily used to support cut-out devices or controlling devices for a number of circuits. Upon this panel 1 are mounted a number of base-pieces 2, formed of insulating material and with their line-wire connections arranged adjacent to each other.

For the purposes herein required a single base-piece and appurtenant parts are described. Each base 2 of insulating material has formed upon it insulated cup-like projections 3, within which are arranged contact-cups 4. These cups are held within the recesses by studs 5, coöperating with washers 6, and suitable insulating-plates. The cups form one of a pair of contact members and are connected with bars 7, which terminate at one end in switch-contacts 8. These switch-contacts coöperate with switch-blades pivoted in clips 10, the latter provided with binding-screws 11 for the attachment of circuit-wires. The cup-like recesses 3 are open at one side, as at 3^a, and have a groove at their base which extends without the recess and forms a pocket 3^b, within which the bars 7 are arranged. A web of insulating material 12 is arranged between the two blades of the switch and separates the two blades of the switch as well as the contacts therefor.

Transversely arranged on one end of the insulating-base 2 are grooves 13 14, and into these grooves project contact members of clamp form which are connected with the stud-contacts 5 of the cut-out members which are arranged in the cup-like projections. One of these contacts projects under one of the grooves through the base of insulating material, and thus the two grooves are each provided with means for attaching line-wires and at the same time said wires where the insulation is cut off to effect a contact are isolated one from the other. The clamp members 15, which lie in these grooves, are preferably formed in two parts, one of which bends downward and extends through the base to connect with the cut-out contact-stud and the other being loosely attached thereto by screws 16, which also serve for clamping the parts together and securing the line-wires. In use the insulated bases, with their appurtenant parts, are placed end to end with their line-wire grooves parallel with each other. By this arrangement a number of these combined cut-outs and switch devices may be readily used either on two-wire connections, as shown in full lines in Fig. 1, or for three-wire circuits, as indicated in dotted lines.

Of course it is understood that plug members bearing a suitable fuse are arranged to be inserted in the cylindrical contact mem-

bers 4, which lie within the tubular or cup-like projections 3 of the base, and these of course are located intermediate the line-wires and the service-wires at the opposite end of the base, so that the service-lines are amply protected by the automatic fuses.

The fuse-plugs are not shown herein, they being well known in the art, and it is deemed sufficient to state that said plugs form a connection through a fuse-wire between the contact-cups 4 and the studs 5, so that there is an electrical connection between the clips of the wire-grooves of the base and the switch.

Obviously changes might be made in the details of the construction and arrangement without departing from the spirit or intent of the invention, which contemplates the combination of a manually-operated circuit-breaker, an automatic circuit-breaker, and isolated line-grooves appurtenant thereto and transversely arranged with respect to the connections between the automatic breaker and manually-operated breaker or switch. It is to be noted also that the transverse arrangement of the line-wire grooves in the insulated base is such that the connections from said line-wires are absolutely isolated one from the other, though they pass directly to the automatic circuit-breaking cups, and in the same way the conductor members from said cups are located within recesses in the base of insulating material and extend directly to the contact members of the switch.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a circuit-controlling device, in combination, a base or panel, separately formed, and removable bases or panels mounted thereon in extension one of another each having grooves for line-wires arranged transversely thereof near their adjoining ends, circuit-wire terminals at opposite ends of each of said removable bases from said grooves, and electrical connections between the circuit-wire terminals and line-wire grooves for conducting a current from the line-wires to the circuit-wires.

2. In combination in a circuit-controlling device, a panel, a plurality of removable insulating-bases mounted side by side thereon with transversely-arranged registering line-wire grooves, means for securing line-wires in the said grooves, circuit-wire terminals at the opposite end of each of the removable insulated bases from the grooves, and electrical connections between the circuit-terminals and line-wire grooves for conducting a flow of current from the line-wires to the circuit-wires.

3. In a circuit-controlling device, in combination, a base or panel, a plural number of removable insulated bases arranged on said panel side by side and in rows touching each other, the adjacent ends of the panels in each row having transversely-arranged line-wire grooves, circuit-wire terminals at the opposite end of each of the removable bases, electrical connections between the circuit-wire terminals and line-wire grooves for controlling the flow of current from the line-wires to the circuit-wires.

4. In a circuit-controlling device, a base of insulating material, cup-like recesses formed on said base, open on one side and communicating with a pocket in the base, switch-contacts arranged in said pockets, a pair of contact members insulated one from the other arranged in each of the cup-like recesses, conductors extending from one of said contact members to the switch-contacts and from the other to wire-clamping devices, and line-wire grooves extending parallel to each other transversely across the base.

5. In a circuit-controlling device, a base of insulating material having circuit-contact-wire recesses formed at one end and transversely-arranged parallel line-wire grooves extending thereacross, cup-like recesses formed on the base and open on one side communicating with pockets in the base, a projection from the upper surface of the base extending from between the circuit-wire recesses to a point between the switch-contact pockets, terminals secured within the circuit-wire recesses, knife-switch contacts within their pockets, a knife-switch pivoted to the circuit-wire contacts, a pair of contact members arranged in the cup-like recesses, conductors extending from one of said contact members to the switch-contact and from the other of said contact members to wire-clamping devices in the line-wire grooves, and the wire-clamping devices.

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