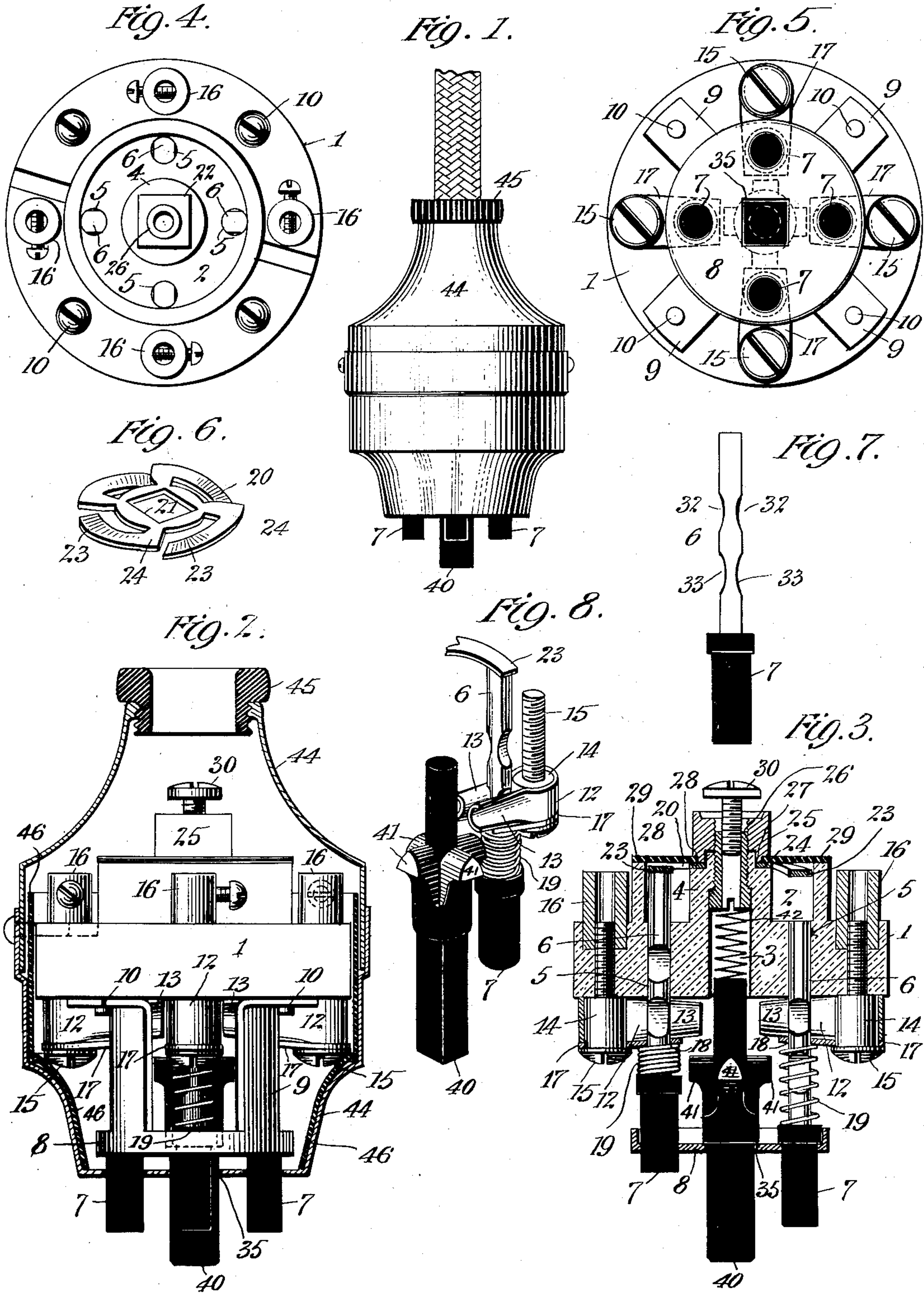


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 MULTIPLE PENDANT SWITCH.
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MULTIPLE-PENDANT SWITCH.

No. 928,597.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES D. GERVIN, a citizen of the United States, residing at the city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Multiple-Pendant Switches, of which the following is a full, clear, and exact description.

My invention relates to a form of switch or circuit controlling device for lighting and other circuits.

More particularly the invention covers a form of multiple pendant switch in which a plurality of circuits are separately controllable by different buttons or parts, all being opened or broken simultaneously by a single release button or device.

A switch of this character is particularly advantageous in offices and dwellings where the lamps are wired in groups, different of which are required at different times. For example, a suite may have four rooms, the circuits of which are separately controllable by a pendant switch in the hallway.

With a switch constructed according to the present invention any selected rooms may be lighted from the single pendant switch in the hallway, but all the lamps are always extinguished by the manipulation of the release button. It is best to have all the circuits opened simultaneously in this way to insure against some group being left unintentionally illuminated.

In carrying out the present invention I aim to accomplish the above control of the circuits by a switch which is extremely compact and neat in appearance, and in which parts of opposite polarity are effectively separated by insulating barriers. I also aim to make and break the circuits in a very abrupt and positive manner, the circuit rupture being accomplished in a completely inclosed refractory chamber, so that no possible damage can result from the sparking.

With these and various other objects in view the invention consists in the features of construction and combination as hereinafter set forth and claimed.

In the drawings: Figure 1 is a side elevation of a multiple pendant switch embodying the principle of my invention. Fig. 2 is a vertical sectional view of the same; Fig. 3 is a sectional view of what I shall term the base or main supporting block and its associated parts; Fig. 4 is a top view of the same; Fig. 5 is a bottom plan view; Fig. 6 is a detail view

of the common return circuit closing element; Fig. 7 is a side view of one of the circuit closing buttons; and Fig. 8 is a detail perspective view showing the action of the release button.

Referring to the drawings in which like parts are designated by the same reference sign, 1 indicates the base or main supporting block, which is preferably of circular outline, with an annular chamber 2, on its upper face.

3 designates a central or axial hole extending completely through the base 1, and through the boss or protuberance 4, at the center of the annular chamber 2.

5 designates additional holes or openings extending downward from the chamber 2 completely through the base. As many of these holes are provided as there are circuits to be controlled, and they are preferably disposed in equal angularly spaced apart relation, as shown in Fig. 4. Within each of the holes 5 there is guided a metallic plunger 6, at the lower extremity of which is provided a button 7, preferably of insulating material.

8 designates a metallic frame or plate with openings in alinement with the holes 5 and acting to guide the buttons 7. The frame or plate 8 has extensions 9, which are securely fastened to the lower face of the base 1, at the points 10.

The base 1 has certain metallic spring clips 12, upon its lower face, which exert a treble function in the device. I prefer to construct these clips of sheet metal bent into a U-shape, as best shown in Fig. 8, the prongs 13 of the U being embossed to present convex faces toward one another. At the bend of the U, these spring clips embrace an enlarged portion 14, of a screw 15. This screw is received in a post or nut 16, on the top face of the base 1, and which constitutes a binding post for a circuit wire. When the screw 15 is tightened it is evident that both the binding post 16 and the spring clip 12 are tightly fastened in place, and at the same time an electrical connection is made from said binding post to said spring clip. The number and arrangement of the parts is such that a screw 15 with its clip 12 lies radially opposite each plunger 6, the convex prongs 13 of each clip inclosing the proximate plunger.

In addition to its function in supporting the clip 12, each screw 15 additionally holds and supports a metallic tongue 17, which extends inward therefrom, and has a hole 18,

through which the proximate plunger 6 passes.

19 designates springs between the plates 18 and the buttons 7, and which serve to maintain the buttons normally pressed outward in the relation shown at the right-hand side of Fig. 3. The buttons are depressible inward against the tension of their springs to the relation shown at the left-hand side of Fig. 3.

Within the chamber 2 there is supported a spring plate 20 (see Fig. 6), which I make of circular outline, with a non-circular central opening 21, fitting over a correspondingly shaped protuberance 22, of the part 4.

23 indicates tongues integral with the plate 20 and capable of yielding resiliently upward. I prefer the arrangement shown in Fig. 6, in which each tongue 23 is of arcuate form and normally deflected slightly downward from a supporting radial sector 24. The plate 20 is positioned on the protuberance 22, so that the extremities of the tongues 23 lie in the path of the plungers 6 when the latter are moved upward. The range or extent of movement of the plungers is such as to depress the tongue 23 upward in use, and make a good electrical contact therewith.

25 designates a nut received on a screw 26, passed upward through the hole 3. The nut 25 has a rim or collar 27, which firmly engages and holds and also makes electrical contact with the plate 20. This nut 25 also has an annular recessed portion 28, in which is received a mica or insulating washer or disk 29, which entirely covers over the annular chamber 2.

30 designates a terminal or binding screw received in the end of the screw 26, and constituting a means for the attachment of a common return circuit wire. It is evident that the circuit wire is electrically connected to the plate 20 in this way.

Each plunger 6 has notches 32 and 33 at separate points along its length. The notches 32 are adapted to lie opposite and receive the legs or prongs 13 of the spring clip 12 when the plunger is in its outermost or undepressed relation, as shown in Fig. 3. The notches 33 are adapted to receive the legs of prongs 13 when the plunger is depressed. As the legs or prongs 13 engage the plungers with considerable force, it is evident that a pronounced pressure must be applied to any button 7 before it can be depressed. After it has been depressed, the engagement of the prongs 13 is sufficient to hold it depressed against the tension of its spring 19. Two desirable functions are secured in this way: First, the considerable force necessarily applied insures a very abrupt movement of the plunger, which makes a quick closure of its circuit; second, the plunger is maintained in circuit closing relation until certain releasing devices come

into action, as I will now particularly describe.

The hole 3 in the base 1, and a central opening 35, in the plate 8, serve to guide a release button 40, which is preferably made of insulating material throughout. The portion of the release button which is guided by the plate 8 is of preferably square or non-circular outline so as to maintain the release button in a predetermined angular relation. The release button has wedges 41, integral therewith and corresponding in number and arrangement to the spring clips 12, each wedge being adapted to enter between the legs or prongs 13 of such spring clip and separate them.

42 designates a spring by which the release button is normally impelled outward. Any suitable exterior casing 44 may be provided, conveniently of spun metal with an insulating bushing 45, through which the circuit wires enter.

46 designates a lining of insulating material which is of the ordinary form in this class of apparatus.

The use and operation is as follows: A terminal of each circuit to be controlled is connected with one of the various binding posts 16 and a common return wire for all the circuits is connected to the central terminal 30. The various buttons 7 are normally undepressed, as shown in Fig. 2, so that all the circuits are interrupted within the annular chamber 2. If now it is desired to complete any circuit, the button 7 corresponding thereto is depressed bringing its plunger 6 into engagement with the tongue 23 of plate 20. As before mentioned, the prongs 13 of the spring clip 12 press tightly against the plunger in this movement, and make a good electrical connection therewith. A circuit is therefore completed from binding post 16 corresponding to such plunger through the screw 15 and said spring clip 12. As many circuits as desired may be completed in this way, and it is evident that each is entirely separate from every other. In order to extinguish the lamps, it is merely necessary to depress the release button 40, the wedges 41 of which enter between the various prongs 13, and separate them, so that the plungers 6 are released and permitted to move downward under the influence of their impelling springs 19. This spring-impelled movement is obviously very abrupt when the release has been accomplished, so that the circuit rupture is made in an abrupt and positive manner as is required. The distance of separation of the switch contacts can be made as great as desired, depending on the range of movement of the plungers 6.

What I claim, is:

1. A multiple switch comprising an insulating base having a chamber on one face, a plurality of plungers movable through said

base to enter said chamber, and a common central terminal having spring tongues engaged by the said plungers and depressed in the direction of movement thereof.

2. A multiple switch comprising an insulating base having a chamber on one face and longitudinally extending holes communicating therewith, a plurality of plungers movable through the holes of said base to enter said chamber, a common terminal in said chamber engaged by said plungers, and spring clips secured on the under side of said base for initially resisting the depression of the plungers, whereby they move abruptly.

3. A multiple switch comprising an insulating base having an annular chamber on one face, said base having a protuberance extending centrally into said chamber, a metallic plate having spring tongues carried by said protuberance, plungers movable through said base to engage said tongues, and spring clips for normally resisting movement of said plungers and acting to complete electrical circuits therewith.

4. A multiple switch comprising an insulating base having an annular chamber extending inward from its end face, a plurality of binding posts on said face surrounding said chamber, a common terminal within said chamber, a plurality of plungers movable in parallel directions through said base to engage said terminal, metallic clips fixed on the under face of said base for normally resisting movement of said plungers and electrically connected to said binding posts whereby electrical connection is made to said plungers from said binding posts.

5. A multiple switch comprising an insulating base a common terminal carried on one face thereof, a plurality of notched plungers movable therethrough, clips constituting electrical connections to said plungers and acting in conjunction with said notches to normally restrain movement thereof, and means for displacing said clips whereby the plungers separate from said terminal.

6. A multiple switch comprising an insulating base, a terminal carried on one face thereof, plungers movable through said base to engage said terminal, spring clips engaging said plungers to normally restrain movement thereof, and a release button having wedges to displace said clips to release said plungers.

7. A multiple switch comprising an insulating base having longitudinally extending holes and a completely inclosed insulating chamber extending annularly inward from one end face, a plurality of plungers movable through the holes of said base to enter said chamber, a terminal within said chamber,

means on the under face of said base for normally restraining said plungers and establishing electrical connection therewith, and a release button for disengaging the plungers to separate them from said terminal.

8. A multiple switch comprising an insulating base having a protuberance on one face, a plurality of plungers movable through said base around said protuberance, a terminal arranged on said protuberance in the path of all of said plungers, a nut for holding said terminal in place and establishing electrical connection therewith, and separate circuit connections to said plungers.

9. A multiple switch comprising an insulating base, a plurality of notched plungers movable therethrough, a common terminal engaged by said plungers, U-shaped spring clips engaging the notches of said plungers and establishing electrical connection therewith and acting to normally restrain movement of said plungers, and a release button having wedges to separate the prongs of said clips to disengage said plungers from said terminal.

10. A multiple switch comprising an insulating base, a plunger movable therethrough, a binding post carried on one face of said base, a U-shaped spring clip on the other side of said base and embracing said plunger, a screw passed through said clip and entering said post to fasten said clip and post in place, and a terminal engaged by said plunger.

11. A multiple switch comprising an insulating base having plungers movable therethrough, a terminal engaged by said plungers, a plurality of posts carried on said base on the face corresponding to said terminal, spring clips on the opposite face of said base, means for connecting said clips to said posts, tongues supported by said clips, and springs surrounding said plungers and engaging said tongues, whereby the plungers are pressed to separate from said terminal.

12. A multiple switch comprising an insulating base having an annular chamber on one face, said base having a protuberance extending centrally into said chamber, a metallic plate having spring tongues carried by said protuberance, plungers movable through said base to engage said tongues, and spring clips for maintaining said plungers in such engaging relation and acting to complete electrical circuits therewith.

In witness whereof, I subscribe my signature, in the presence of two witnesses.

CHARLES D. GERVIN.

Witnesses:

WALDO M. CHAPIN,
JAMES D. ANTONIO.