

Aug. 28, 1923.

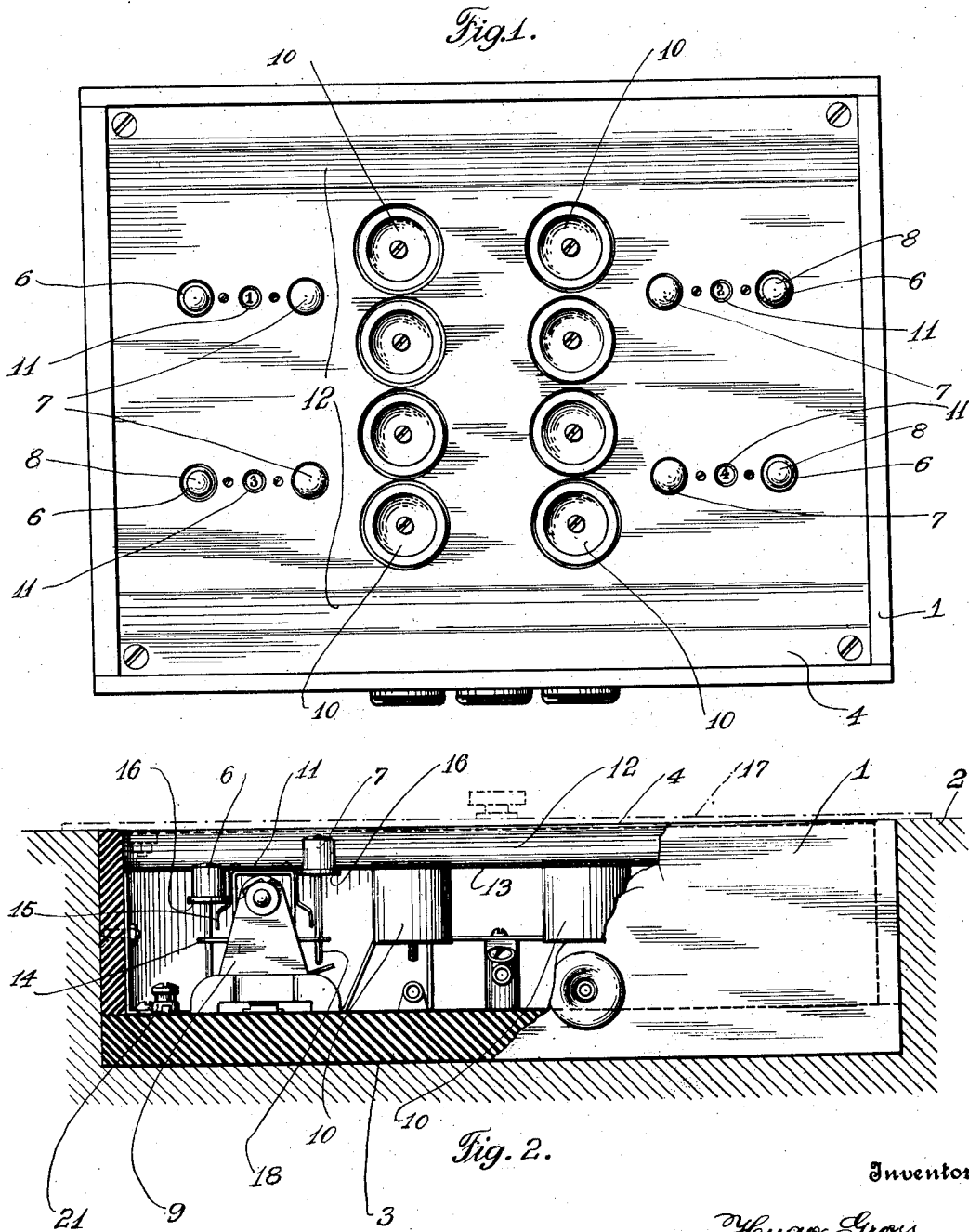
1,466,280

H. GROSS

ELECTRICAL SNAP SWITCH

Filed Oct. 28, 1919

3 Sheets-Sheet 1



Inventor

Hugo Gross

Paul M. Klein

Attorney

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Fig. 3.

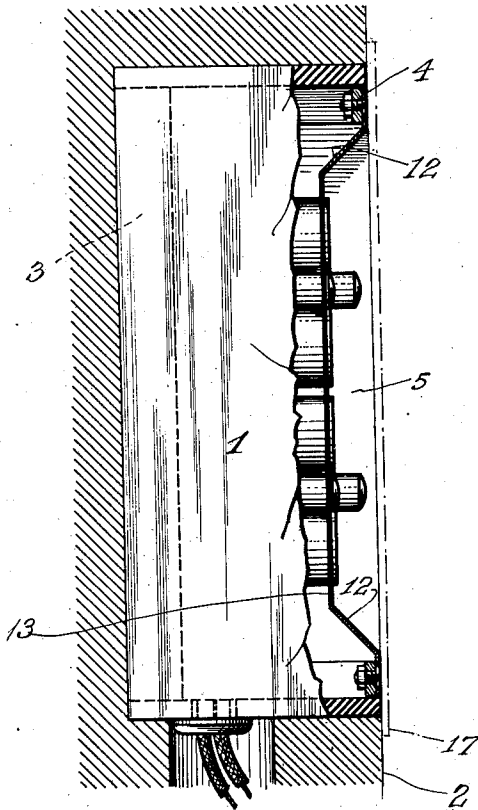
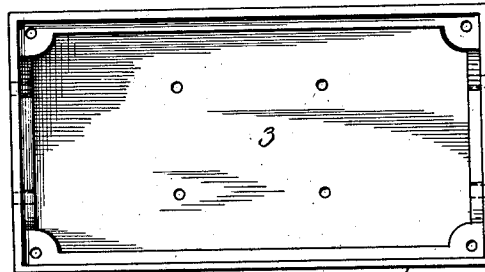


Fig. 4.

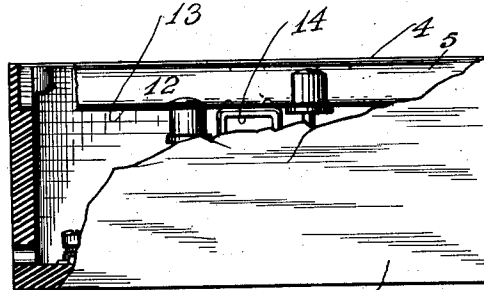


Fig. 5.

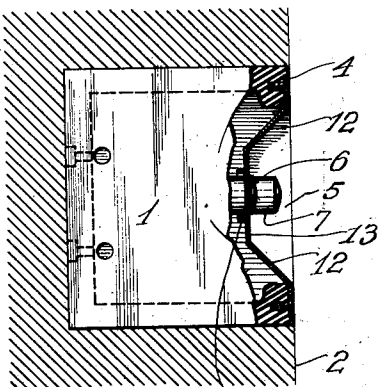


Fig. 7.

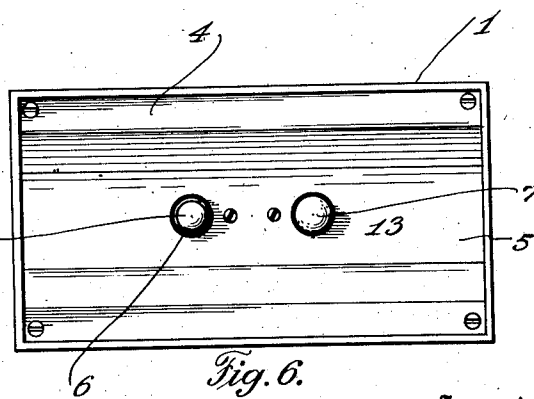


Fig. 6.

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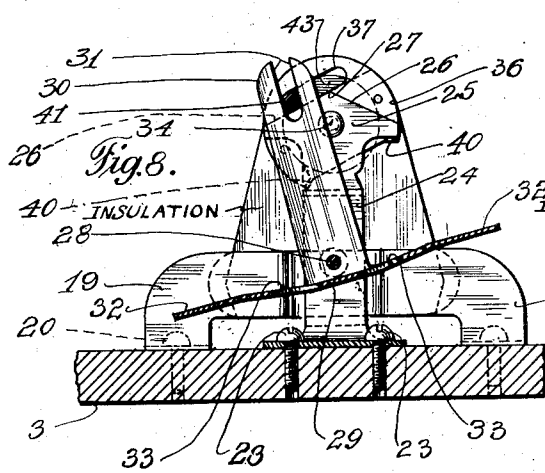
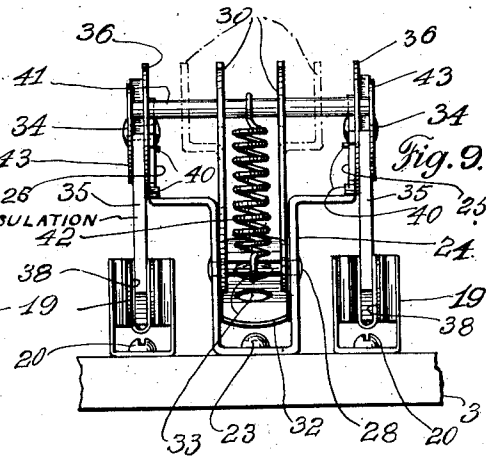
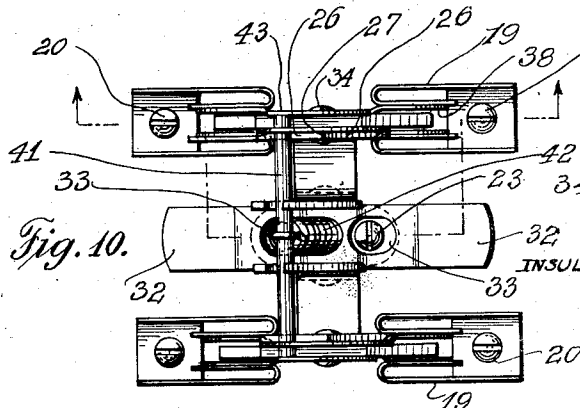
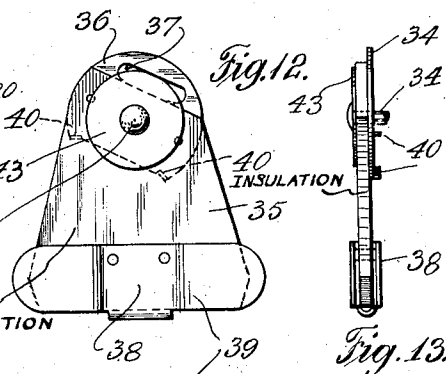
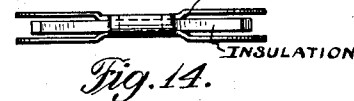
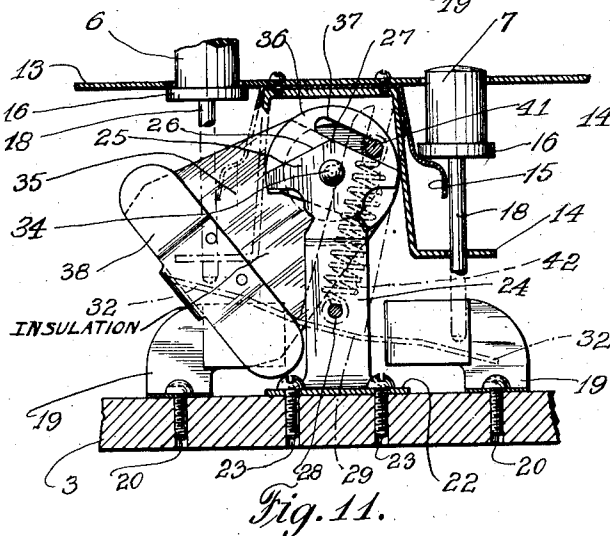
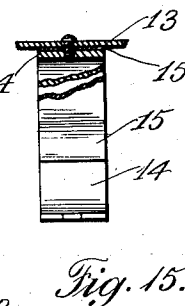
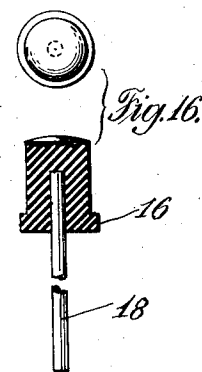
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H. GROSS

ELECTRICAL SNAP SWITCH

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3 Sheets-Sheet 3



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Patented Aug. 28, 1923.

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UNITED STATES PATENT OFFICE.

HUGO GROSS, OF RIDGEWOOD, NEW JERSEY.

ELECTRICAL SNAP SWITCH.

Application filed October 28, 1919. Serial No. 332,938.

To all whom it may concern:

Be it known that I, HUGO GROSS, citizen of the United States, and resident of Ridgewood, in the county of Bergen and State of New Jersey, have invented certain new and useful Improvements in Electrical Snap Switches, of which the following is a specification.

This invention relates to switches.

The objects of my invention are to provide an inexpensive, simple and dependable device of this kind which may be not only installed with greater ease than other switches, but which will afford far greater safety in its use.

The above and other objects will be more fully apparent from the following description and the accompanying drawings forming part of this specification, in which:

Figure 1 is a front elevation of a switch board comprising my device.

Figure 2 is a bottom view of the same partially in section.

Figure 3 is a side elevation of the switch board, partially in section.

Figure 4 is a front elevation of a single switch housing.

Figure 5 is a side elevation of a single switch housing with a switch installed.

Figure 6 is a front elevation of same.

Figure 7 is a side elevation of same, partially in section.

Figure 8 is a sectional side view of my switch in contacting position.

Figure 9 is a front elevation of same.

Figure 10 is a top view of same.

Figure 11 is a sectional side view of my switch in disconnected position.

Figures 12, 13, and 14 illustrate a switch member.

Figure 15 is a side view of a push button bracket.

Figure 16 illustrates a push button.

Referring to the drawings, a switch housing 1 is shown seated in a recess of wall 2, the housing having a base-plate 3 made of fiber, slate or any other insulating material upon which the switch mechanisms may be mounted. Covering the housing 1 is a dead front plate 4 made in such a way as to provide a depression or recess 5. In the depressed or dented portion or portions are placed the switch buttons 6 and 7, the one having a white center 8, indicating light, the other being black. In Figures 1, 2 and 3 is shown a switch board having a plurality

of switch mechanisms 9 designed for closing and opening circuits protected by fuses set into the sockets 10. Each circuit switch may be numbered as indicated at 11.

In Figures 5, 6 and 7 is illustrated a single wall switch made in a similar way to the switch board, without fuse protection however.

The general construction is the same for both switch designs or for any other of different size or use. I will therefore describe same collectively. The switch housing 1 is designed to properly receive the dead front plates 4, and placed into the wall longitudinally, that is with the longer side parallel to the floor and with the inclined portions 12 of the plate 4 also parallel thereto. These inclined portions are preferably bent at an angle of 45 degrees so as to prevent the placing of any object for instance tools, upon or within the plate. Attached to the dented or depressed portion 13 of the plate are brackets 14 (see Figures 2, 5 and 11) providing guides for the push buttons 6 and 7.

A spring device 15, also attached to 13 keeps the buttons from voluntarily moving and also serves for limiting the inward movement of the buttons, while the buttons themselves are equipped with means for limiting their outward travel, as indicated at 16. These latter stopping means also prevent the buttons from leaving the front plate and may be designed in any preferred manner. The entire front plate 4 forms together with the push buttons, their guides and stops a unit independent from the switch mechanism, thus facilitating the assembling of the switch in the wall and making easier any repairs or adjustments when the switch is once installed.

The highest portion of the front plate is preferably flush with the wall and may be covered by a door or other means as indicated at 17 in dashed and dotted lines.

The push buttons 6 and 7 operate within the recessed portions of the front plate and, being shorter than the depth of the recess, never protrude beyond the outer surface of the plate or the wall. Thus an accidental contact with the buttons by passing persons or objects is eliminated, and the undue operation of the switches is prevented. The same applies when covers 17 are used. The push buttons being lower than the cover, the latter will not interfere with or cause the buttons to shift.

The push buttons are preferably made in the manner shown in Fig. 16 where the button itself is made of insulating material into which a push-rod 18 is firmly secured.

5 Operated by each pair of such protected push-buttons by way of the push-rods 18 is a switch mechanism 9 consisting of spring-clips 19 attached to an insulating base-plate 3 by way of screws or other devices 20, which
10 may simultaneously serve as connecting contacts as indicated at 21 (Fig. 2).

At the center between the clips a standard 22 is fastened to the base-plate by way of screws or bolts 23. The standard preferably
15 comprises fork-shaped uprights 24, the head 25 of which is cut angularly at 26 to an apex or elevated portion 27. At the lower portion of the standard and between the narrow part of the uprights is pivoted
20 at 28 a rocking or operative T-shaped lever 29, having fork-shaped up-turned portions 30 equipped with slots 31. The lower portion of the rocking lever forms equal-armed wings 32 operated by the push-button rods
25 18. In these wings are apertures 33 for providing access to the screws 23 holding the standard 22 in place.

At the head portions 25 of the standard are pivotally attached at 34 switch members
30 35 made of insulating material and having reinforcing disks 36 adjacent to the outer wall of the head 25. These disks are provided with guide-slots 37, the bottom portion of which aligns itself with the sloping
35 surfaces 26 of the head 25 when the switch members 35 are in either contacting or disconnecting positions.

At the free or swinging part of the switch-members 35 are conductive switch-knives 38,
40 made in spring form as indicated at 39, and registering with the spring clips 19.

For limiting the swinging motion of the switch members 35, logs or stops 40 are provided at the reinforcing disks 36, which en-
45 gage the lower portion of the standard head 25 when the members reach their desired positions for either closing or opening the circuit.

The reinforcing disks may be omitted if
50 desired and stops may be provided in the switch member.

Guided in slots 37 and rolling upon inclines 26 of the head 25 a loose roller or switch rod 41 is engaged by fork-slot 31 of
55 the up-turned lever portion 30 of the operating lever 29.

This roller is held in place under tension

by spring 42 which is attached at its upper end to the roller and at its lower end to the pivot 28. In order to prevent the roller 41
60 from voluntarily slipping out of its guides, end disks or washers 43 are attached at the outer side of the switch members 35.

When either of the buttons is pressed against the corresponding elevated arm 32,
65 the engaged arm descends and swings the up-turned portion 30 in the direction of the pressed-down button.

Simultaneously the roller 41 is moved from the lower end of guide-slots 37 to the
70 upper end thereof by fork-slot 31 and rolls upon the inclined portion 26 of the head 25 toward the apex 27.

While climbing toward the apex the roller stretches the spring 42 thereby increasing
75 its tension. When reaching the apex 27 the roller has nearly engaged the upper end of guide-slot 37. After having passed the apex the roller snaps into the upper end of the guide-slot 37 and, propelled by the increased
80 force of the stretched spring, rolls down instantaneously upon the opposite inclined portion 26 of the head 25, thus causing the switch-member to follow its rapid motion.
85 Based upon the above mentioned principal construction, switches of any kind may be made for single-pole double-pole or multiple-pole use with but slight alterations. The construction being simple and easily
90 adaptable to the various kinds of switches, I have shown but one of the many forms.

It is however understood that improvements or changes may be made in the construction of my device without departing
95 from the broad scope of my invention.

I claim:

1. A switch cover plate having at least two of its edges elevated and its center portion dished or dented, and disposed below the level of said edges, insulated switch operating means permanently attached to the
100 dished or dented plate portion and so arranged as not to protrude above the level of said edges.

2. In combination with a dished switch cover plate, push buttons having insulated push rods permanently fastened thereto and adapted to operate switches covered by said
105 plate.

Signed at New York, in the county of
110 New York, and State of New York, this 18th day of October A. D. 1919.

HUGO GROSS.