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F. WEBER

1,961,409

SWITCH

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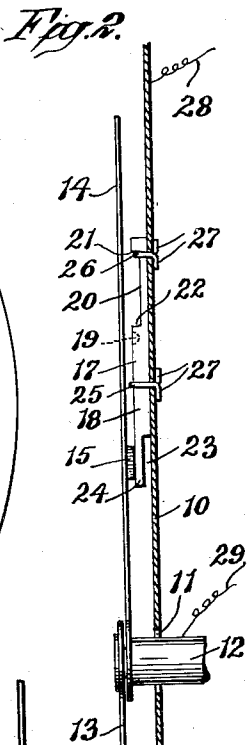
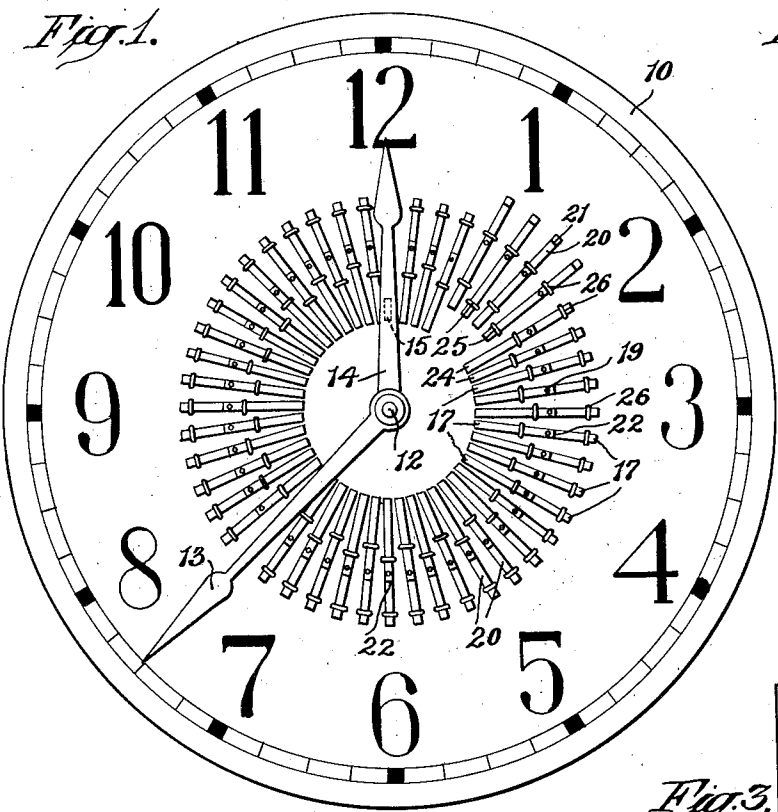
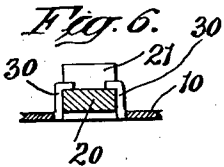
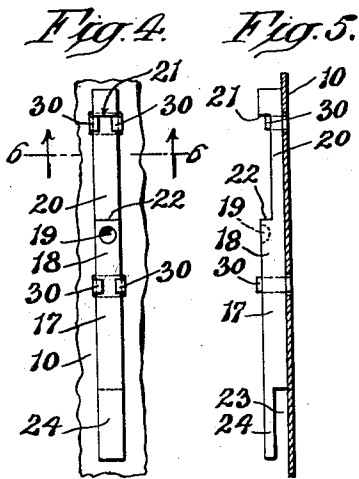
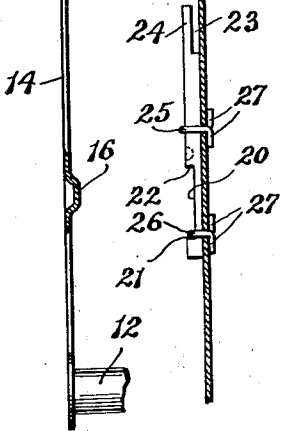


Fig. 3.



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SWITCH

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6 Claims. (Cl. 200—37)

This invention relates to an improvement in switches and particularly those of the so-called clock type wherein one of the hands of the clock will close circuit with a metallic clock dial through spaced contact members which are slidable on the face of the dial to operative or inoperative position.

The object of the invention is to provide a simplified structure and arrangement of these movable contacts which are mounted either directly upon the dial of the clock or upon a supplemental disc which is applied to the dial.

More particularly, the invention contemplates the provision of a plurality of suitably spaced contact bars slidable radially toward or away from the center of the dial and which are held on the dial by guides. The contact members are provided with spaced shoulders which abut against one of the guides and thus limit the sliding movement of the contact members in either of two directions. The arrangement of the contact members and the means by which they are slidably secured to the dial is such that the contacts may be placed close together on the dial and are firmly held thereon, yet are smoothly slidable through the guides to place any selected contact in either "off" or "on" position.

In the accompanying drawing, wherein an embodiment of the invention is shown, Fig. 1 is a front elevation of a clock dial provided with my improvements; Fig. 2 is a sectional view through the dial and associated parts; Fig. 3 is a side elevation partly in section of a modified form of clock hand; Fig. 4 is a front view of a part of the dial showing a modified arrangement of the guides, in which the contacts are moved; Fig. 5 is a vertical sectional view through the structure shown in Fig. 4; and Fig. 6 is a sectional view on the line 6—6 of Fig. 4, looking in the direction of the arrows.

In the embodiment of my invention shown in Figs. 1 and 2, 10 indicates the clock dial, which is made of a sheet of metal. The dial is centrally apertured at 11 and extending through this aperture and either spaced or insulated from the edge of the same, is a shaft 12 which acts as a mounting for the clock hands 13 and 14. The hand 14 is the smaller or hour hand and on its inner face is provided with a projection 15 which may be in the form of a small block of metal, soldered or otherwise attached to the back face of the hand, or it may be produced, as shown in Fig. 3, by distorting or forcing outward a part of the hand to form a rounded projection 16, which will ride smoothly over the faces of a

plurality of radially arranged contact members 17 which are slidably secured on the outer face of the dial.

Each of the contact members 17 is in the form of an elongated bar or strip having a thick portion 18 provided with a depression or recess 19 which is adapted to be engaged by a pointed instrument to enable the contact to be slid to its "in" or "out" position. Near its outer end, the contact is formed with a thin or reduced portion 20, the ends of which form the shoulders 21 and 22. The inner face of the contact is cut away at its opposite end, as at 23, to provide a thin portion 24, which forms the contacting surface of the contact member.

Each of the contact members is held in a pair of guides which, in the structure shown in Figs. 1 and 2, consists of a pair of spaced wire loops 25 and 26. The loop 25 nearest the dial center is larger in diameter than the outer loop 26, and said loop 25 embraces the thick portion 18 of the contact. Each loop consists of a piece of wire bent to conform to the shape of the portion of the contact which it embraces and the legs of the loops are bent over on the back of the dial, as indicated at 27 in Fig. 2. The smaller loop 26 overlies the thin portion of the contact and acts as an abutment for either one of the shoulders 21 and 22. That is to say, when a contact is slid outwardly and away from the center of the dial, its outward sliding movement is limited by the loop 26 abutting against the shoulder 22. When the contact is slid inwardly to its "on" position, its inward movement is limited by the loop 26 abutting against the shoulder 21, as is clearly shown in Fig. 2.

The operation of the switch is briefly, as follows:

The dial 10 is connected, as by the wire 28, into an electric circuit while the shaft 12 on which the hand 14 is secured is connected also into the circuit, as by the wire 29. Circuit is closed between the dial 10 and the shaft 12 by means of the hand 14, which has its projection 15 normally riding on one or the other of the contacts 17 when they are located in their innermost position, shown in Fig. 2 and at the left part of Fig. 1. When it is desired to break the circuit and hold it open for any particular period of time, the required number of contacts are slid outwardly in their guides as indicated, for example, at the upper right hand portion of Fig. 1. The hand 14 will, on reaching the space thus produced by the outward movement of one or more contacts, break the circuit and the circuit will remain open as long as the hand is

travelling across the space formed by the outwardly moved contacts. It will be seen that by this arrangement a circuit can be opened or closed and will remain open or closed as desired for any selected period of time. The contacts are provided with the thin inner end 24 on which the projection 15 on the hand 14 rides, for the purpose of holding the contacting surface of each contact spaced from the face of the dial so that warping or distortion of the dial near its center will not tend to place undue pressure against the hand 14 and tend to retard its progress, or even stop the operation of the clock.

In Figs. 4 to 6, inclusive, the contacts 17 are held on the dial by means of guides formed by slitting the body of the dial and bending tongues 30 out of the material of the dial and forming them into suitable shape to form guides for the contacts. In the arrangement herein disclosed, each contact member 17 is held by its own set of guides and should any contact become damaged, bent or broken, it can easily be removed and replaced without disturbing the position of any of the other contacts on the dial.

While I have shown the contacts as being applied directly to the dial of a clock, it will be understood that they can, if desired, be applied to a supplemental metal plate secured in proper position at the centre of the dial so that should the switching device be not required at any time, it can be removed, leaving the clock in its former condition. With such an arrangement, the operation of the device is similar to that where the contacts are secured directly on the dial.

What I claim is:

1. In a clock switch, a dial, a movable contact mounted thereon, guides within which the contact is slidable, said guides consisting of wire loops extending outwardly from the face of the dial.

2. In a clock switch, a dial, a movable contact mounted thereon, said contact consisting of a

metal bar provided with a portion reduced in thickness, guides within which the contact is slidably mounted, said guides consisting of wire loops extending outwardly from the face of the dial, one of said guides extending over the reduced portion of the contact and limiting the sliding movement of the contact by abutment with one or the other of the ends of the reduced portion.

3. In a clock switch, a dial, a movable contact mounted thereon, guides within which the contact is slidably mounted, said guides consisting of spaced loops extending outwardly from the face of the dial, one of said loops acting as a stop to limit sliding movement of the contact in opposite directions.

4. In a clock switch, a dial, a movable contact member mounted thereon, guides within which the contact member is slidably mounted, said guides consisting of spaced loops extending outwardly from the face of the dial, each contact member being provided with a pair of spaced shoulders, one of the loops being located between said shoulders and acting as a stop to limit sliding movement of the contact by abutting against one or the other of the shoulders.

5. In a clock switch, a dial, a movable contact mounted thereon, guides within which the contact is slidable, said guides consisting of tongues forced from the body of the dial and bent into loop shape.

6. In a clock switch, a dial, a movable contact mounted thereon, loop-shaped guides within which the contact is slidable, the contact being slidable within at least two guides, the contact having thin and thick portions, the guides being large and small loops, the smaller loop overlying the thinner portion of the contact and abutting against parts thereof to limit sliding movement of the contact.

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