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SWITCH OPERATING MECHANISM.

APPLICATION FILED OCT. 30, 1915. RENEWED APR. 26, 1918.

1,306,770.

Patented June 17, 1919.

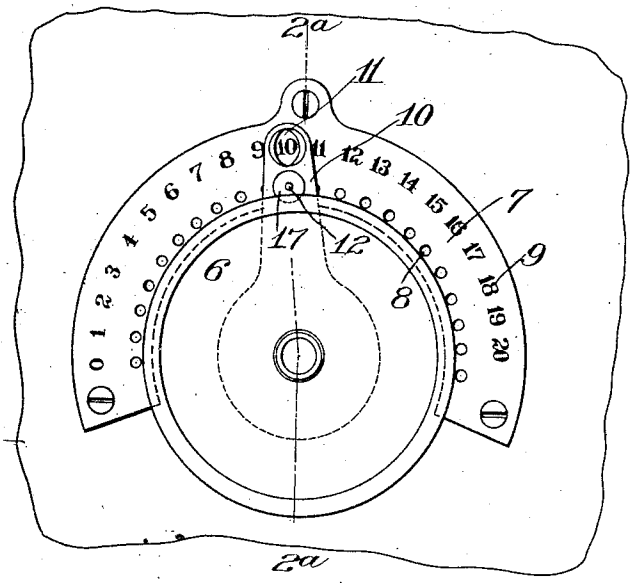


Fig. 1

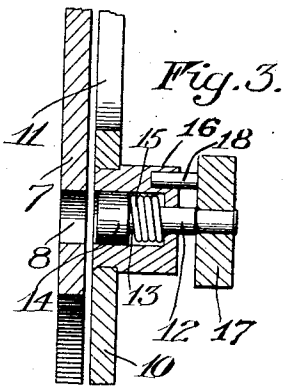


Fig. 3.

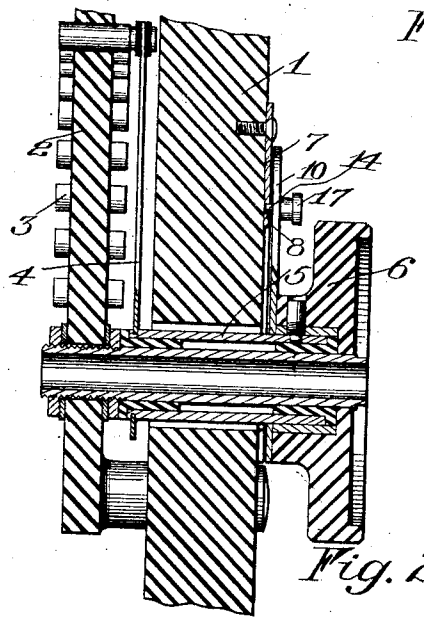


Fig. 2

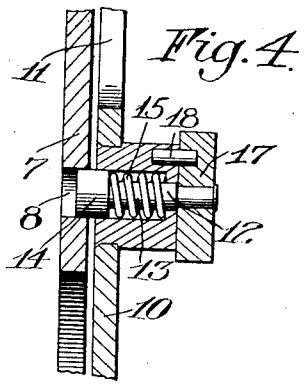


Fig. 4.

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SWITCH-OPERATING MECHANISM.

1,306,770. Specification of Letters Patent. Patented June 17, 1919.

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To all whom it may concern:

Be it known that we, OSCAR H. PIEPER and ALPHONSE F. PIEPER, both of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Switch-Operating Mechanism; and we do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, and to the reference-numerals marked thereon.

Our present invention is in the nature of an improvement of the electrical controlling mechanism disclosed in our Patent No. 1,211,752, dated January 9, 1917, and relates to handle locking mechanisms, more particularly of the character employed in connection with rotary switches of electric controlling mechanisms, and it has for its object to afford a simple structure for holding a handle positively in any one of its adjusted positions to prevent accidental displacement. A further purpose of the structure is to permit ready release of the locking mechanism when the handle is to be adjusted, while an additional advantage is found in the means whereby the position of the handle with relation to the mechanism which it controls is easily determined by means that affords a constant indication, which can be read accurately and without difficulty. To these and other ends the invention consists in certain improvements and combinations of parts all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings:

Figure 1 is a front elevation of a structure, showing the application of the invention according to a preferred arrangement;

Fig. 2 is a vertical sectional view taken on line 2^a—2^a of Fig. 1;

Fig. 3 is an enlarged sectional view of the locking mechanism with the lock in its outermost or unlocked position, and,

Fig. 4 is a similar view with the lock in its innermost or locked position.

Similar reference numerals in the several figures indicate the same parts.

The invention may be applied in a number of different relations, wherever a mechanism requires holding an adjustable handle in various positions, and in the present arrangement the structure comprises a panel or door 1 upon which is mounted a supplemental panel 2, carrying a series of electrical points or contacts 3 for controlling a transformer or similar apparatus. Coöperating with the contacts 3 is a switch 4 which is mounted on a sleeve 5 extending through the panel 1 and carrying the knob or handle 6, by which the switch is rotated to engage selectively any one of the various contacts.

Mounted on the front of the panel 1 is a stationary locking plate in the form of a segment 7 which is provided with a series of apertures 8, and also with the indications 9 which correspond to the different contacts 3. Arranged for coöperation with the apertures 8 is a locking member that is carried and movable with the handle 6, and to this end we employ a supporting arm in the form of a plate 10 fixed on the sleeve 5 and provided with an opening 11 at its outer end, which travels over the several indications on the plate 7, whereby to indicate the position of the switch with reference to the contacts that it coöperates with. The supporting member or plate 10 carries a locking device which is preferably in the form of a pin 12 having a head 13 movable in a recess 14 and adapted to engage any one of the recesses 8 in the locking plate. 15 designates a spring surrounding the pin 12 in the housing 16, and acting to hold the pin normally in its innermost or locked position, as shown in Fig. 4. The pin 12 carries a knob or handle 17 through the instrumentality of which it may be withdrawn from locking position to its outermost position, as shown in Fig. 3, so as to permit the switch to be turned for a new adjustment. It is also desirable to provide means for retaining the lock in its outermost or unlocked position, and with this in view the handle 17 is recessed to receive a pin 18 which is mounted on the housing 16, and when engaged in the recess of the handle 17, permits the latter to move inwardly in the manner shown in Fig. 4. In order to hold the lock in its outermost position, the handle 17 is withdrawn, compressing the spring 15 and is then turned until the pin 18 is out of alinement with its recess, so that the handle 17 is retained in its outer position, permitting the switch to be adjusted as desired. By turning the handle 17 until the pin 18 is in alinement with its recess, the

lock is free to move inwardly to permit the head 14 to engage one of the recesses 8 and thereby hold the switch against movement.

The structure described embraces a novel and unique arrangement possessing the advantages of affording an extremely efficient locking means for holding a handle in its selected position, and at the same time an effective indicating mechanism which permits the operator to readily determine the relative position of the handle and the member controlled thereby.

We claim as our invention:

1. The combination with a rotary handle, of a supporting plate fixedly attached to the handle and extending laterally beyond the the same, a stationary locking plate having a series of apertures, a housing on the supporting plate, a locking pin slidable in said housing of the supporting plate into engagement with any of said apertures, a spring actuating the locking pin toward the locking plate, a handle carried by the locking pin and having a recess on its inner surface, and a supplemental pin fixed upon the aforesaid housing in position to engage the recess in the last mentioned handle.

2. In a switch operating device, the combination of a support, a plurality of spaced contacts on one side of said support, a sleeve revolubly mounted in said support, a switch movable by said sleeve into successive engagement with said contacts, an arm on said sleeve, interlocking devices on said arm and said support for locking the sleeve against rotation when the switch engages a selected one of the spaced contacts, and a finger piece for rotating said sleeve.

3. In a switch operating device, the combination of a support, a plurality of spaced contacts on one side of said support, a sleeve revolubly mounted in said support, a switch movable by said sleeve into successive engagement with said contacts, a plate on the opposite side of said support having a plurality of apertures spaced to correspond to the spacing of said contacts, a handle for rotating said sleeve, an arm on said sleeve, a locking device on said arm adapted to engage said apertures and means for rendering said locking device inoperative.

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Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."