

UNITED STATES PATENT OFFICE

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LOCKING DEVICE

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2 Claims. (Cl. 200—50)

This invention relates to locking devices and more particularly to a locking device for use in connection with switching keys for locking them in a number of engaged positions with respect to associated contacting elements.

In open wire program transmission circuits, for example, a relatively great number of switch keys are used for effecting changes in circuit connections so as to switch in and out so-called equalizer elements. These keys are generally mounted in groups on a mounting plate in a manner to give maximum accessibility to the operator for moving the keys in different combinations of circuit connections in a minimum of time.

In such switching apparatus, however, it often happens that a number of these switch keys are moved in other switching positions accidentally, thus preventing the proper operation of the apparatus associated therewith.

The object of this invention is the provision of a locking device which will be simple, cheap to manufacture and wherein a number of switch keys are locked in any of a plurality of adjusted contacting positions in a positive manner.

According to this invention, a group of switch keys, which are disposed in rows on a mounting plate, are held in a number of adjusted contacting positions by a cover member having holes in which the operating knobs of the switch keys engage. Means is provided for yieldably holding the cover in engaged relation with the keys, with means for holding the cover member in the closed position to prevent the operation of the switch keys by unauthorized operators, the cover permitting at any time, the visual observation of the keys in their adjusted contacting positions.

Other features of the invention will appear from the following description and by the claims appended thereto, reference being had to the accompanying drawing in which;

Fig. 1 is a perspective view of the cover lock with portions cut away; and

Figs. 2, 3, 4, 5, 6 and 7 are diagrammatic views showing the keys locked in a number of adjusted positions.

In the drawing 11, 12, 13 and 14 are groups of switch keys pivotally mounted in the rear of a plate 15 which is in turn secured to a supporting frame 16 by a number of screws such as 17, 18 and 19. Each of these keys generally consists of a metallic disc 20 and a stem portion 21 which is fitted with an operating knob 22, these keys being connected by pairs through a yoke member 23 as shown.

The disc portion 20 of each key carries on each side thereof insulating segment shaped portions

such as 24 fitted with contact elements, 25 and 26, for engagement with sets of associated contact springs, such as 27, 28 and 29 for changing circuit connections upon the angular movement of the keys, these springs being secured to a supporting bracket 30 in turn held on the plate 19 by a number of screws 31, 32, 33 and 34.

On frame 16 is mounted a bracket 35 which is secured thereon by screws 36 and 37 and to this bracket is hinged a cover 38 which is resiliently held in the closed position on the plate 16 by springs 39 and 40. Cover 38 is provided with a plurality of aperture X, X1 disposed in parallel rows and registering with the pair of keys 11, 12, 13 and 14 for engaging them when this cover is closed in any one of two adjusted positions for locking them against movement in any one of the combinations indicated in Figs. 2 to 7, inclusive, of the drawing. A handle in the form of a lug 41 which is formed with the cover 38 is provided for moving the cover to the open position as shown by dotted line in Fig. 1 for disengaging the sets of keys 11, 12, etc.

I have thus provided one simple locking device for all the keys which effectively prevents the accidental operation of the switch keys and thereby assures the proper circuit connections, and the proper operation of the apparatus controlled thereby, while permitting at any time the visual observation of the keys in their adjusted contact position without the necessity of providing a lock for each key as has been the practice heretofore. This invention permits the use of standard keys, instead of complicating each key with a separate lock.

What is claimed is:

1. In a locking device, a supporting member, a group of switch keys disposed in rows on said supporting member and having operating knobs, a plate pivotally mounted on said supporting member, means carried by said plate for engaging the knobs of the keys for holding them in any of a number of contacting positions, and means for holding said plate in engaged relation with the knobs of the keys.

2. In a locking device, a supporting member, a group of switch keys disposed in rows on one side of said supporting member, the keys having operating knobs, a cover plate pivotally mounted on said member and having means for engaging the knob of the keys for locking them collectively in adjusted positions, means for yieldably holding said plate in engaged relation with the keys, and means for manually moving said locking plate in disengaged relation from said keys.

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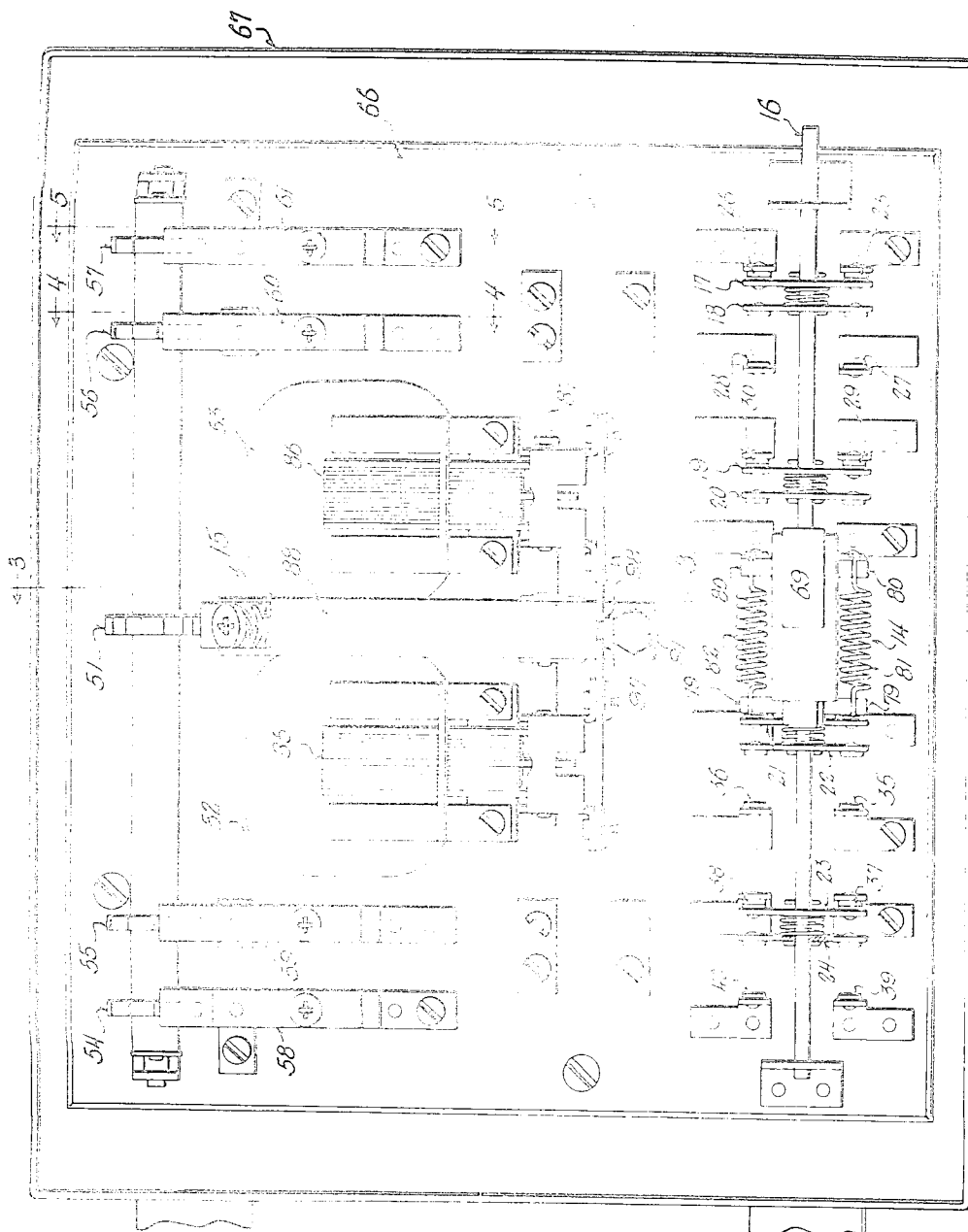
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AUTOMATIC CONTROL SYSTEM FOR ELECTRIC MOTORS

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3 Sheets-Sheet 1



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