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K. C. ALLISON

2,115,245

INDEX MECHANISM

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Fig. 1

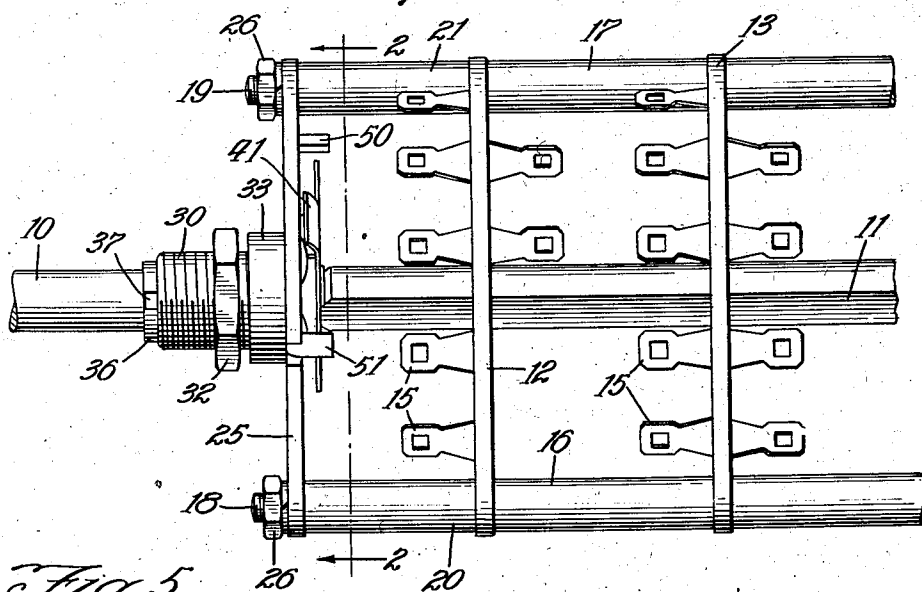


Fig. 5

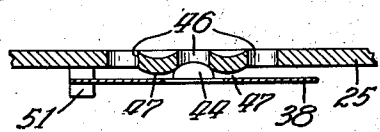
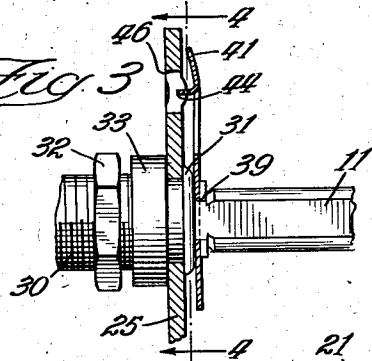


Fig. 3



UNITED STATES PATENT OFFICE

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INDEX MECHANISM

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4 Claims. (Cl. 74-527)

This invention relates to an index mechanism particularly for use in connection with electric switches. An object of this invention is to devise such an index mechanism which will be simple, cheap and effective.

Referring to the drawing:

Figure 1 shows a side view of the index mechanism forming part of a bank of switches.

Figure 2 is a section on line 2-2 of Figure 1.

Figure 3 is a section on line 3-3 of Figure 2.

Figure 4 is a section on line 4-4 of Figure 3.

Figure 5 is a section on line 5-5 of Figure 2.

Referring to Figure 1, a shaft 10 has a portion thereof 11 mutilated to provide a plurality of flats extending through switch sections 12 and 13. These sections comprise stators having stator contacts 15 and rotors carrying suitable contacts not shown. This type of switch is disclosed in United States Patent 2,012,492 to Arnold. The stator sections 12 and 13 are maintained in spaced relation by sleeves 16 and 17 through which bolts 18 and 19 are threaded. Between switch section 12 and the front end of bolts 18 and 19 are sleeves 20 and 21 at the ends of which is an index plate 25. Nuts 26 on bolts 18 and 19 serve to maintain the switch assembly intact.

As shown in Figure 2, index plate 25 is of a generally circular shape and is provided with extensions 28 and 29 through which the bolts 18 and 19 extend. Index plate 25 has maintained therein at the center a bushing 30, the inner end of which is bent over at 31 to make a rigid assembly. Bushing 30 has the front part thereof threaded and is adapted to have a nut 32 cooperate with the threaded portion and a shouldered part 33 to maintain the entire switch on a panel. Shaft 10 is rotatively coupled within bushing 30 and is locked against longitudinal movement by means of a C washer 36 disposed in a suitable slot 37 in the shaft adjacent the front end of bushing 30.

It will be noted that the flat portion 11 of shaft 10 begins just as the shaft emerges beyond peaned portion 31 of the bushing. Locked to the shaft at this portion thereof is a spring plate 38 having a generally circular shape. Spring plate 38 is locked to shaft 11 by forcing the metal into grooves 39 in the shaft. Plate 38 has an extension 41. Shaft 11 extends through plate 38 at an eccentric part thereof, preferably opposite tongue 41 of the plate. Between shaft 11 and tongue 41 an irregular generally heart shaped aperture 43 is cut away in the spring plate and a tongue 44 is bent down opposite tongue 41 at the tip of the heart shaped aperture to extend toward index plate 25.

The index plate itself is provided with a plurality of index indentations here shown as spaced apertures 46 disposed on the arc of the circle around shaft 11 and separated by protuberances 47 wherein the metal of the index plate is forced toward the spring plate. As is clearly evident in the drawing, the index indentations and protuberances are all on the arc of a circle and are adapted to cooperate with finger 44 bent from the body of the spring plate 38.

In order to limit the angle of rotation of the mechanism, a pair of ears 50 and 51 are bent up from index plate 25 at spaced intervals just beyond the circle whose arc is traversed by the finger 44. These two fingers or stops 50 and 51 cooperate with extension 41 to limit the swing of the shaft.

Because of the manner in which spring plate 38 is cut, it has been found that a cheap and effective spring is obtained. This plate may be made of spring steel or any other suitable material and is preferably rigidly secured to the shaft so as to be locked against both longitudinal and rotational movement.

What is claimed is:

1. An index mechanism comprising an index plate having a shaft rotatably mounted therein, said index plate having a plurality of index indentations and a spring member rigidly coupled to said shaft, said spring member having a generally circular shape and mounted upon the shaft in an eccentric position, and a tongue bent over the plate adapted to cooperate with the index indentations.

2. The structure of claim 1 wherein said index spring has a generally heart shape cut out between the tongue and shaft with the widest portion of the aperture nearest the shaft.

3. An index mechanism comprising an index plate having a shaft rotatably mounted therein and having a plurality of index indentations and a spring circular plate eccentrically mounted on said shaft and having a tongue extending beyond the circular portion and a second tongue formed out of the material between the first tongue and the shaft mounting, said second tongue cooperating with said index indentations, said index plate having a plurality of stops with said first tongue cooperating with said stops to limit the operating range of the shaft.

4. The structure of claim 3 wherein said spring plate has a heart shape cut out between the shaft and the second tongue with the widest portion of the cut out nearest the shaft.

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