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H. L. OVERMAN

2,706,252

CIRCUIT COMPONENT SELECTING UNIT

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FIG. 1

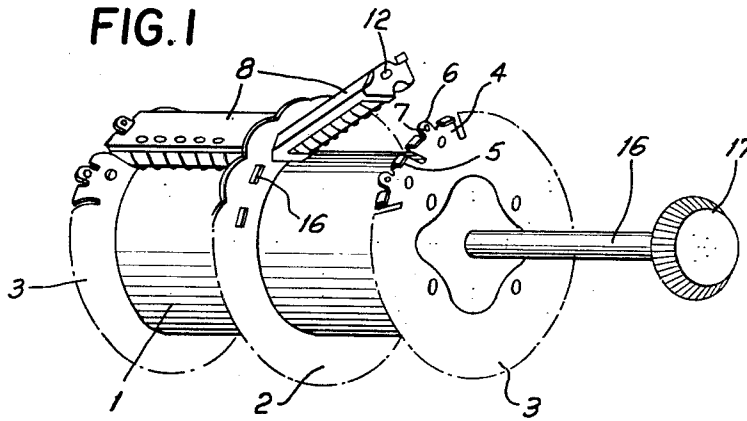


FIG. 2

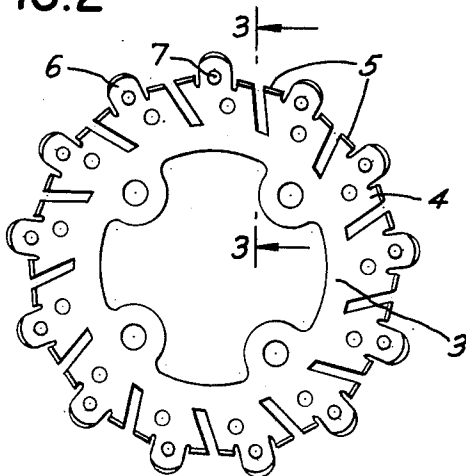


FIG. 3

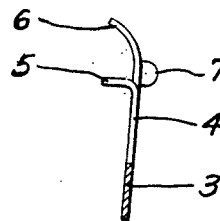


FIG. 5

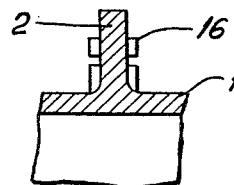
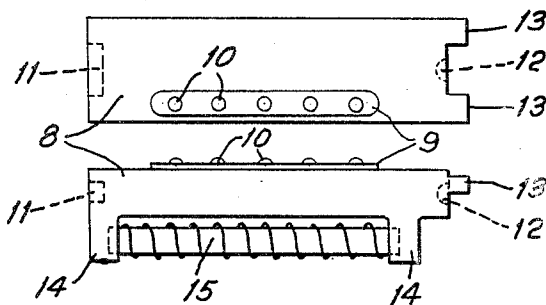


FIG. 4



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CIRCUIT COMPONENT SELECTING UNIT

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5 Claims. (Cl. 250—40)

This invention relates to circuit component selecting units for radio, television, and like apparatus and particularly to selecting units of the rotatable turret or drum type.

More particularly, this invention relates to the manner of securing individual electrical panels on the switching drum of the pre-selector.

Turret type switching units have gained widespread use in the television field because they are positive acting, simple to operate and comparatively economical to manufacture. Since the turret type switching unit has been acknowledged by the industry as a very desirable electrical switching device, considerable effort has been made to improve the mechanical and economical aspects of the unit.

Generally, the turret or drum type switching unit comprises a rotatable selecting drum, including a plurality of individual component supporting panels releasably secured in position about the periphery of the drum so that contact elements on the individual panels may be selectively moved into association with stationary contact members, for placing different combinations of electrical components into the circuits of the apparatus.

The earlier units secured the individual panels in place by means of a plurality of spring fastening devices. The construction was such as to require at least one and sometimes two individual spring elements on each component supporting panel or on the drum for cooperation with each such panel. Thus, in a pre-selector switching unit for use in a television receiver, the 12 channels allocated for television transmission have required two individual panels for each channel requiring a total of twenty-four panels on each drum. The necessity of providing individual spring members for each panel contributed materially to the high cost encountered in such earlier units.

A later development, improved upon the earlier type unit by reducing considerably the requisite number of springs. Generally, the patent replaced the large number of springs by providing three mounting disks, two at either ends and one intermediate thereof. The center disk is common for the two sets of panels, the end disks serving to lock the outer ends of the panels. The panels are secured against radial displacement by a pair of spring members, fastened to the end disks respectively, and each having a plurality of arms for engaging and locking the panels.

Although the above-mentioned development constituted a significant advance in the art, further effort was, and is being made to further improve the turret switching unit by reducing the required number of parts and thereby reducing the cost, without sacrificing the electrical or mechanical efficiency of the unit.

Accordingly, it is an object of this invention to provide a simple switching unit which comprises a fewer number of parts and is more economical to manufacture than those heretofore known.

In accordance with the object of this invention, there is provided a circuit selecting unit, adapted for use as a selector in television, or like apparatus, comprising a rotatable switching drum including a mounting disk intermediate the ends and normal to the axis of the drum. A spring disk member is secured at either ends of the drum; each of the spring members having individual spring arms formed integrally therewith and projecting substantially radially. Each of the arms may have formed at the free end thereof, a pair of tabs separated

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by a lug to form rest surfaces; the lug having formed thereon a protuberance. Means are provided for releasably securing a plurality of component supporting panels in an annular series about the axis and in spanning relation between the mounting disks and the spring members. The means includes locking means on the mounting disk for engagement with one end of each of said panels to prevent said end from radial and circumferential displacement. The other end of each of the panels has a depression formed therein and arms extending axially on either side of the depression, whereby the other ends of said panels may be moved radially inwardly into position parallel to the axis of the drum, wherein the extending arms flank the opposite sides of said lugs and rest on said tabs or on the edges of the spring arms if the tabs are omitted, and the protuberance on said lugs register with the depressions in said panels.

Therefore, one important advantage of this invention over the art, is in providing a single spring member for securing the panels in position, whereas the prior art provides separate disks and springs to perform the same function.

The above-mentioned and other features and objects of this invention and the manner of attaining them will be best understood, by reference to the following description of an embodiment of the invention taken in conjunction with the accompanying drawings, wherein:

Fig. 1 is a perspective view of the switching unit, with certain of the parts removed, to improve the clarity thereof;

Fig. 2 is a front view of one spring disk;

Fig. 3 is a section taken along lines 3—3 of Fig. 2;

Fig. 4 is a top and side view of one electrical panel member; and

Fig. 5 is a front view of a portion of the mounting disk.

Referring now to Fig. 1 there is shown a circuit selecting unit of the turret type especially adapted for use in a television receiver. The unit comprises a rotatable switching turret or drum 1 including a mounting disk 2 positioned intermediate the ends and normal to the axis of the drum. A spring disk member 3 is secured at either ends of the drum 1 and has individual spring arms 4, formed integrally therewith and projecting substantially radially. Each of the spring arms, which is best shown in Figs. 2 and 3, may have formed at the free end thereof, a pair of tabs 5 separated by a lug 6; the lug has formed thereon a protuberance 7, preferably in the form of a bead. Means are provided for releasably securing a plurality of component supporting panels 8 in an annular series about the axis and in spanning relation between the mounting disk 2 and the spring members 3. The panels 8, which are best seen in Fig. 4, comprise a strip 9 for carrying the electrical contact elements 10, which when selectively moved into association with a stationary contact member (not shown), places different combinations of electric components into the circuits of the apparatus. Each of the panels 8 has formed at one end a cavity 11, and at the other end thereof a depression 12 which registers with the protuberance 7. On opposite sides of the depression 12 are formed axially extending arms 13, which when in position rests on the tabs 5 and abut the flanks of lug 6. It should be understood that the tabs 5 may be omitted and the spring arms 4 cut to present edge surfaces on opposite sides of lug 6. The arms 13 may then simply rest against these edge surfaces. Legs 14 are provided on the bottom of the panel 8 to secure an electrical component 15, which by way of example, is illustrated as a coil. The means for releasably securing the plurality of component supporting panels comprise locking means in the form of protuberances 16 (Fig. 5) for engagement with the cavity 11 in each of the panels 8. The registry between the protuberance 16 and cavity 11 prevents that end of the panel from radial and circumferential displacement. As may be seen in Fig. 1, after one end of the panel 8 is in position, the other end may be moved radially inwardly into a position parallel to the axis of the drum wherein the extending arms 13 flank the opposite sides of the lugs 6 and rest on the tabs 5; the protuberance on the lugs

registering with the depressions in the panels, to form a well secured and rugged unit.

The drum may be rotated by any of the well known means, e. g., shaft 17 and knob 18 secured thereto.

While I have described above the principles of my invention in connection with specific apparatus, it is to be clearly understood that this description is made only by way of example and not as a limitation of the scope of my invention as set forth in the objects thereof and in the accompanying claims.

What is claimed is:

1. In a circuit selecting unit adapted for use as a selector in television or like apparatus, a rotatable switching drum including a mounting disk intermediate the ends and normal to the axis of the drum, a spring disk member secured at either end of said drum and having individual spring arms formed integrally therewith and projecting substantially radially, each of said arms having at the free end thereof a resting surface and an extended lug, the lug having formed thereon a protuberance, and means for releasably securing a plurality of component supporting panels in an annular series about said axis and in spanning relation between the mounting disk and said spring members, said means comprising locking means on said mounting disk for engagement with one end of each of said panels to prevent said end from radial and circumferential displacement, the other end of each of said panels having a depression formed therein and arms extending axially on either side of said depression, whereby the other ends of said panels may be moved radially inwardly into positions parallel to the axis of the drum, wherein the extending arms flank the opposite sides of said lugs and rest on said surface, and the protuberances on said lugs register with the depressions in said panels.

2. The unit according to claim 1, wherein the locking means on said mounting disk comprises a plurality of protuberances, and said one end of each panel has a cavity formed therein to register with a corresponding protuberance.

3. The unit according to claim 2, wherein said protuberances are of rectangular cross-section.

4. The unit according to claim 1, wherein said resting surface comprises portions of each spring arm on either side of said lug.

5. In a circuit selecting unit adapted for use as a selector in television or like apparatus, a rotatable switching drum including a mounting disk positioned normal to the axis of the drum, a spring disk member mounted substantially parallel to said mounting disk and spaced therefrom, said spring disk having individual spring arms formed integrally therewith and projecting substantially radially, each of said arms having at the free end thereof a resting surface and an extended lug, the lug having formed thereon a protuberance, and means for releasably securing a plurality of component supporting panels in an annular series about said axis and in spanning relation between the mounting disk and said spring member, said means comprising locking means on said mounting disk for engagement with one end of each of said panels to prevent said end from radial and circumferential displacement, the other end of each of said panels having a depression formed therein and arms extending axially on either side of said depression, whereby the other ends of said panels may be moved radially inwardly into positions parallel to the axis of the drum, wherein the extending arms flank the opposite sides of said lugs and rest on said surface, and the protuberances on said lugs register with the depressions in said panels.

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