

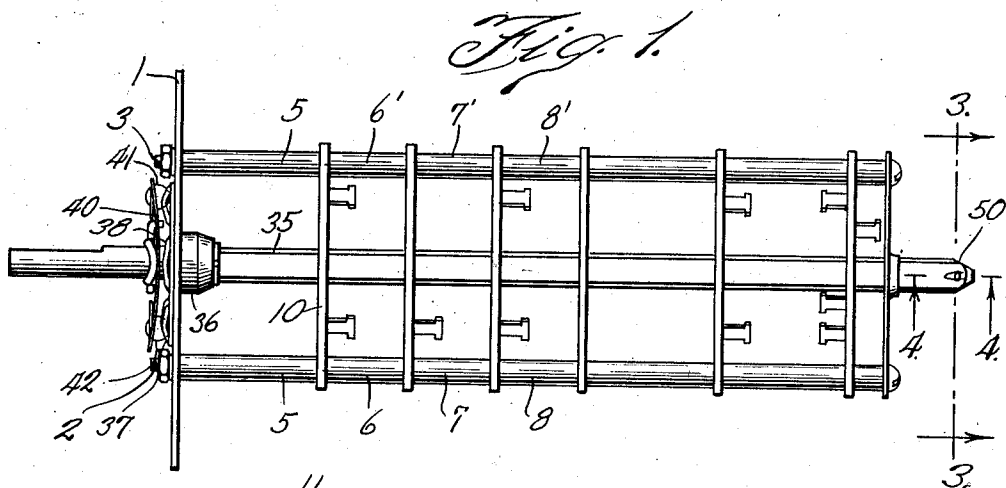
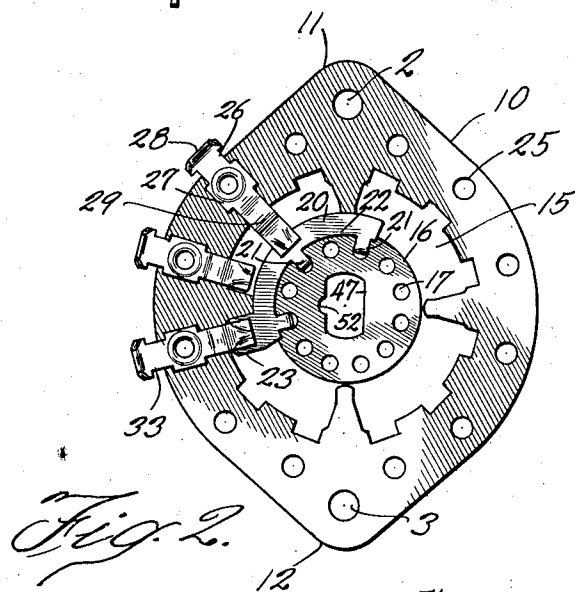
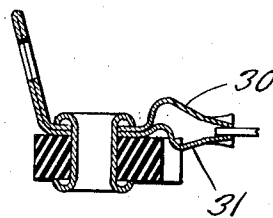
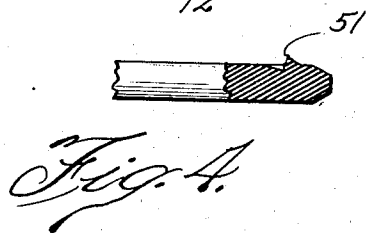
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SWITCH

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2,067,552

SWITCH

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9 Claims. (Cl. 200--6)

This invention relates to electric switches and particularly to gang switches used in radio receivers and instruments where a large number of circuits must be switched. In the case of radio receivers it is desirable from a production point of view that each switch section be separately removable and replaceable in a fool proof manner. It frequently happens that each switch section contains a large number of poles and positions and it is therefore necessary that each switch section be aligned with the remaining switch sections so that predetermined switch sequence occurs. Where one or more switch sections are removed for repair or replacement, it is desirable that means be provided for making it impossible to assemble the entire switch in any but the correct manner.

In accordance with this invention simple means are provided whereby the shaft on a gang switch can be removed and reinserted only when the various switch sections are correctly aligned. This means is simple, costs but little and in no way interferes with the normal operation of the switch.

Referring to the drawing:

Figure 1 is a view of a gang switch embodying this invention.

Figure 2 is a view of one of the switch sections.

Figures 3 and 4 are sectional views on lines 3—3 and 4—4 respectively of Figure 1; and

Figure 5 is a sectional view through a stator and stator contact jaws.

The switch comprises a front plate 1 upon which are mounted two spaced bolts 2 and 3. Each of these bolts has over it a plurality of sleeves 5, 6, 7 and 8 and corresponding sleeve sections 5' to 8' inclusive. Between adjacent sleeve sections there is mounted an insulating stator plate 10. Stator plate 10 is generally circular and is provided with diametrically opposed extensions 11 and 12, containing apertures through which bolts 2 and 3 pass. Stator 10 has the interior portion 15 cut out therefrom. Disposed with this interior cut out portion is a rotor disc 16 having a plurality of apertures 17 disposed around the outer portion thereof. Rotor 16 carries one or more rotor contacts 20 formed as flat segments with fingers 21 extending from the inner edge 22 of the contact. These fingers are adapted to be bent through apertures 17 and maintain contact 20 flat against rotor 16 with the edge of the contact extending beyond the rotor edge. Rotor contact 20 may have an extension 23 from the outer edge.

Stator 10 is provided with a plurality of aper-

tures 25 disposed around cut out region 15. Mounted in these apertures are a plurality of stator contacts 26 comprising a body portion 27 with a connecting portion 28 extending outwardly from the switch and a contacting portion 29 extending inwardly therefrom. Contact 28 is formed as a doubled over piece of metal with the contacting portion 29 flared outwardly on opposite sides to form contacting jaws 30 and 31. Between these jaws the rotor contact 20 is moved as is attendant in Figure 2. Contact 26 extends inwardly toward the rotor a greater distance than contact 33, so that extension 23 of the rotor is gripped by contact 33. This type of switch is described and claimed in the copending application of Allison et al, S. N. 53,486 filed December 9, 1935 and assigned to the same assignee.

In order to operate the rotor a shaft 35 is provided. This shaft has a bushing 36 carrying an index plate 37 having a plurality of struck up portions 38 thereon. The shaft itself carries a spring 40 having a pair of ball bearings 41 and 42 mounted within the spring and pressed against index plate 37. Shaft 35 is formed from a circular rod with opposite portions cut off therefrom to leave two flat sides 45 and 46 opposite each other. Rotor discs 16 are provided with apertures 47 similar in the cross-section to the shaft so that each rotor is rotatively coupled to the shaft but freely movable lengthwise thereof to accommodate itself to any inequalities in the various sleeve lengths.

In order to provide for the uniform assembly of the various switch sections, the end of the shaft at 50 has a nick 51 turned up from flat side 46. Rotor 16 has its center aperture 47 provided with a clearance opening 52 so that shaft 35 may be threaded through each switch section.

Obviously upon removal of shaft 35 from the gang switch and the replacing or changing of any switch section, it will be impossible to thread shaft 35 back through the various switch sections unless the various switch sections are in correct alignment.

While I have described the invention with respect to a shaft having two flats and the projection at the end of the shaft on one of the flats, it is understood that it is not to be limited thereto. In general the shaft is of non-circular cross section and has a protuberance or bump at one point thereof.

What is claimed is:

1. An electric switch comprising a stator having a plurality of contacts mounted thereon, a rotor having a plurality of contacts mounted

thereon, means for rotatively mounting said rotor with respect to said stator, said means including a shaft having at least one flat along the length thereof, said shaft being readily removable from said rotor and having a projection at one end thereof, said rotor having an aperture therethrough corresponding to the cross-section of the shaft at the place where said projection is disposed, whereby said shaft and rotor may be fitted together in only one position.

2. The switch of claim 1 wherein said projection is disposed on the flat portion of the shaft.

3. An electric switch comprising at least one switch section including a stator and rotor, contacts carried by each, means for rotatively mounting said rotor relatively to said stator, said means including a shaft slidable in said rotor and having a pair of flats along the length thereof, a shaft having a projection from one of said flats at one portion thereof only, said rotor having an aperture shaped to correspond with the section of the shaft at the point where said projection is disposed.

4. An electric switch comprising a plurality of switch sections, means for maintaining said switch sections in spaced parallel planes, each switch section comprising a stator carrying a plurality of stator contacts, a rotor disposed within said stator and carrying a plurality of contacts for cooperation with said stator contacts, a shaft passing through said rotors, said shaft having at least one flat lengthwise thereof and being provided with a projection at a point thereof, each rotor having an aperture for the shaft corresponding in the cross-section to the section of the shaft at the point where the projection is located.

5. An electric switch comprising a stator having a plurality of contacts thereon, a rotor having a plurality of contacts for cooperation with said stator contacts, a shaft rotatively supported with respect to said stator and passing through said rotor, said shaft having a non-circular cross-section at least at the portion passing through

the rotor for rotatively engaging the same, and a projection on the said shaft at a point thereof, said rotor aperture being provided with a notch to correspond with said projection whereby said shaft is insertable into said rotor in only one position.

6. An electric switch comprising a stator having a plurality of contacts thereon, a rotor having a plurality of contacts for cooperation with said stator contacts, a flat shaft rotatively supported with respect to said stator and passing through said rotor, said rotor having a slot therethrough for rotative coupling to said shaft, and a projection on said shaft at a point thereof, said rotor aperture being notched at a corresponding point whereby said shaft is insertable into said rotor in only one position.

7. An electric switch comprising a stator having a plurality of contacts thereon, a rotor having a plurality of contacts for cooperation with said stator contacts, a flat shaft rotatively supported with respect to said stator and passing through said rotor, said rotor having a slot therethrough for rotative coupling to said shaft, and a projection at one end of said shaft, said rotor aperture being notched at a corresponding point whereby said shaft is insertable into said rotor in only one position.

8. An electric switch comprising a plurality of switch sections, means for mounting said sections in parallel planes in line with each other, each section comprising a stator and rotor, contacts carried by each, each rotor having a non-circular symmetrical aperture therethrough, a shaft passing through all of said rotors, said shaft having a cross section corresponding to said rotor apertures, means for rotatively supporting said shaft, and a projection on said shaft, each rotor being notched at a corresponding point whereby said shaft is insertable through said rotors in only one position.

9. The switch of claim 8 wherein said shaft is flat and has a projection at one end thereof.

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