

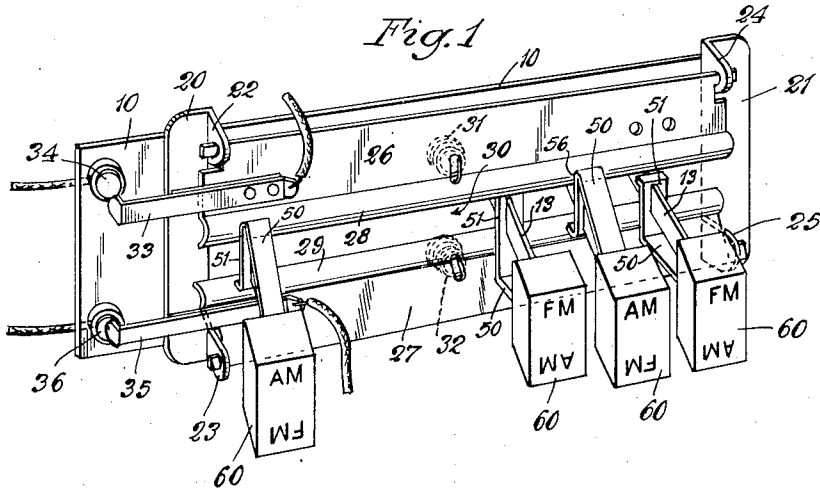
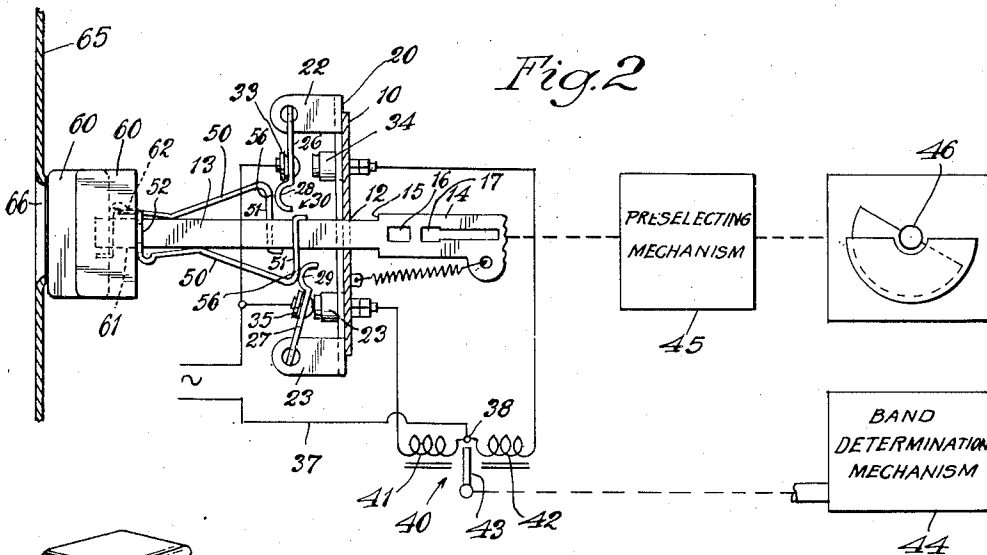
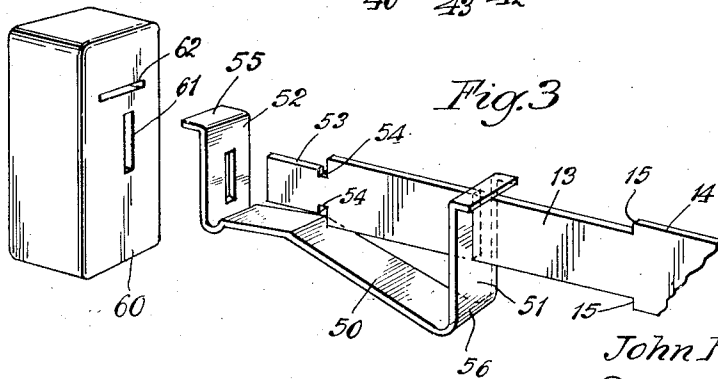
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PRESELECTOR FOR RADIO FREQUENCY NETWORK

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PRESELECTOR FOR RADIO-FREQUENCY NETWORK

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This invention relates to an electrical apparatus and particularly to a preselector mechanism. Preselecting mechanisms are in wide use in radio receivers and similar apparatus. The invention hereinafter described relates particularly to a preselecting mechanism for use in a radio receiver or transmitter adapted to operate selectively in one of two wave bands, the choice being determined by the operator. For convenience, the invention will be described in connection with a radio receiver operating in the standard broadcast band and in the frequency modulation band. In accordance with well known usage, the broadcast band will be designated as amplitude modulated, while the frequency modulated band will be designated as frequency modulated. It is understood, however, that any two wave bands may be utilized.

Radio receivers in general may have one or more tunable elements for selecting a desired frequency in a particular wave band. As a rule, the wave band itself is selected by suitable switching mechanism. All tunable elements are generally operated by the manual selecting means for controlling station selection, and the particular wave band switched in determines the active set of tunable elements.

For convenience, the tunable elements will be considered as gang condensers although other tunable means such as permeability type tuners are considered to be within the scope of this invention.

The invention in general provides simple means cooperating with every push rod of a preselector, which means selects one of two wave bands from which the particular station selection is to be made. Thus, if AM and FM bands are to be received, any one or more of the push buttons will not only serve to pretune the receiver but will also select which band is to be received.

The invention also provides means for indicating which wave band is selected to go with the desired station. While the invention is applicable to any type of preselector, it is particularly adapted for use with the preselector described and claimed in the copending application of Mastney and Williams, Ser. No. 633,992, filed December 10, 1945. In this application, a preselector is disclosed comprising an improvement upon the preselector of the Mastney Patent 2,293,299. This preselector is a motor-driven mechanism having a plurality of station selecting means. The preselecting means includes gear trains whereby, at a preselected position, equal and opposite turning forces result. In the application referred to,

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this motor-driven preselector is provided with a plurality of push-rods, each of which controls a station to be selected. Each push-rod controls a gear drive between a common motor and preselecting unit to be operated. In addition, each push-rod closes the motor circuit whereby the mechanism becomes operative.

In accordance with the invention, the bank of push-rods is adapted to cooperate selectively with one or two switch bars. Each push-rod has a simple means for determining which of the two switch bars is to be operated. The two switch bars control the selection of the two wave bands to be operated upon. The push-rods and their mountings may be similar to those shown in Patent 2,213,845. Each push-rod has a head or indicating means cooperating with the simple means to insure that the indication given by the head is consistent with the choice of wave band.

In order that the invention may be more fully described, reference will now be made to the drawing wherein Figure 1 is a perspective view of a portion of a preselector embodying the present invention. Figure 2 is a diagrammatic view of a tuning system embodying the present invention, certain parts being shown in blocks, and a portion of the preselector embodying the present invention being shown in transverse section. Figure 3 is a perspective view showing a push rod, clip and head in exploded form.

Referring particularly to Figure 1, 10 indicates the front plate of any type of a preselecting mechanism. In particular, plate 10 in Figure 1 may correspond to plate 5 of the application mentioned above or plate 10 of Patent 2,213,845. Plate 10 is provided with a series of slots 12 through which push-rods 13 pass. Push-rods 13 may be of well-known construction in such a mechanism. As shown here, each consists of a flat strip of metal having rear portion 14 provided with shoulders 15 and slots 16 and 17. Shoulder 15 limits the outward movement of rod 13, this shoulder engaging plate 10. Suitable means, such as a spring, bias each push-rod to an outward position. The push-rods may, if desired, have suitable interlocking means whereby any push-rod selected for operation will trip a preceding locked push-rod and will become locked itself in an on position. This on position is that position where the push-rod is in, while the off position is the normal position where the push-rod is out. Such interlocking mechanisms are well known, one for example being disclosed in Patent 2,213,845 and in the application referred to above.

Secured to front plate 10 are end plates 20 and 21 preferably disposed at or near the ends of front plate 10. Each end plate has two ears, these being indicated as 22 to 25 inclusive. Pivotally supported at upper ears 22 and 24 is switch actuating plate 26. Pivotally supported at lower ears 23 and 25 is switch actuating plate 27. As is clearly evident in the drawing, plates 26 and 27 extend toward each other with opposing edge portions being rolled to form outwardly bulging strips 28 and 29. Between the opposed edges of plates 26 and 27 is space 30, this space being wide enough to accommodate the push-rods and the space being long enough to accommodate all push-rods of the preselector mechanism.

Plates 26 and 27 are urged outwardly away from front plate 10 by any suitable means as by springs 31 and 32 disposed between the pivoted plates and front plate 10. Switch plate 26 at one end carries movable contact 33 cooperating with fixed contact 34 on front plate 10. Similarly, movable plate 27 carries movable contact 35 cooperating with fixed contact 36 carried on plate 10. Movable contacts 33 and 35 may be connected to any suitable source of electric power and then to single lead 37 going to terminal 38 of motor 40. Motor 40 has windings 41 and 42 connected between common terminal 38 and fixed contacts 36 and 34 respectively. Motor 40 may be any suitable electromagnetic device as a push-pull solenoid for moving arm 43, this arm being mechanically connected to any kind of band switching mechanism shown in block form and indicated as 44. Such switching mechanism may consist of one or more banks of switches such as, for example, shown in Patent 2,186,949. Any other wave changing system switch may be used, it being understood that arm 43 may be either pivotally or longitudinally moved for effecting switch operation. It will be evident that band selection may be obtained by selectively energizing coils 41 or 42 of motor 40.

Each push-rod 13 is mechanically or electrically connected to any suitable preselecting mechanism 45. Thus, the connection between the push-rods and preselecting mechanism may be both mechanical and electrical, such as for example shown in the application previously referred to. A mechanical connection between the push-rod and preselecting means may be as disclosed in Patent 2,316,270. Another preselecting mechanism to which the push-buttons and push-rods may be applied is shown in Patent 2,305,123. Preselecting mechanism 45 may operate upon tunable elements 46 of the radio receiver, in its simplest form this consisting of one or more gang condensers.

In order to control the wave band, each push-rod 13 is provided with spring clip 50. Spring clip 50 has parallel slotted portions 51 and 52 which may be threaded over rod 13. Slotted portion 52 is threaded over reduced end 53 of a push-rod. Reduced end 53 is provided with opposed notches 54 at the junction between portions 53 and the main body portion of rod 13. Spring clip 50 is sprung into position as shown with retaining portion 52 locking in one of notches 54.

Notches 54 may be omitted or only one may be provided.

Slotted portion 52 has index portion 55 bent over as shown toward the front of rod 13.

It will be evident that spring clip 50 may be disposed over rod 13 in one of two positions, namely with the major portion of the clip above or below rod 13. As shown in Figure 3, spring clip 50 has most of its body disposed below rod 13. Thus, spring clip 50 has operating face 56 below rod 13. Figure 1 shows a number of push rods, each rod having its individual spring clip, certain clips being in one position and other clips being in another position.

Push-button head 60 of any suitable material such as plastic is provided with slot 61 into which reduced end 53 of a push-rod fits. Head 60 also has index slot 62 for cooperation with index portion 55. Each spring clip 50 is just long enough so that, when a push-rod is forced in, face 56 of the spring clip will engage one of switch actuating plates 26 and 27. Thus, a selection of wave band for reception will be made simultaneously with the selection of station.

It is clear that head 60 can be oriented only in correct position with relation to the position of spring clip 50.

What is claimed is:

1. A push-button tuner for radio receivers including a series of transversely aligned, longitudinally movable operating rods, each rod controlling a station setting, two switch bars on opposite sides of the series of rods, every rod being equidistant from the two switch bars, a spring clip for each rod and attachable thereto in one of two positions only, said two positions being 180 degrees apart, each clip having an engaging portion extending away from its rod in one direction only so that the projection of said portion falls on a switch bar, said rod normally having a position where the engaging portion of its spring clip is free, said rod during actuation bringing the clip portion into engagement with a switch bar, each switch bar controlling a circuit for an electrical wave band selector.

2. The structure of claim 1 wherein each clip has an index portion and each rod has a removable head bearing wave band identification, the head being mountable on a rod in either of two positions corresponding to the two clip positions, a head and clip having interfitting parts whereby a head can be positioned on its rod only in the correct position corresponding to the clip position.

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REFERENCES CITED

The following references are of record in the file of this patent:

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2,356,935	Koch	Aug. 29, 1944

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