Dec. 5, 1933. H. R. MILLER 1,938,397

REMOTE CONTROL MECHANISM FOR RADIO APPARATUS

Filed July 7, 1930 3 Sheets-Sheet 1

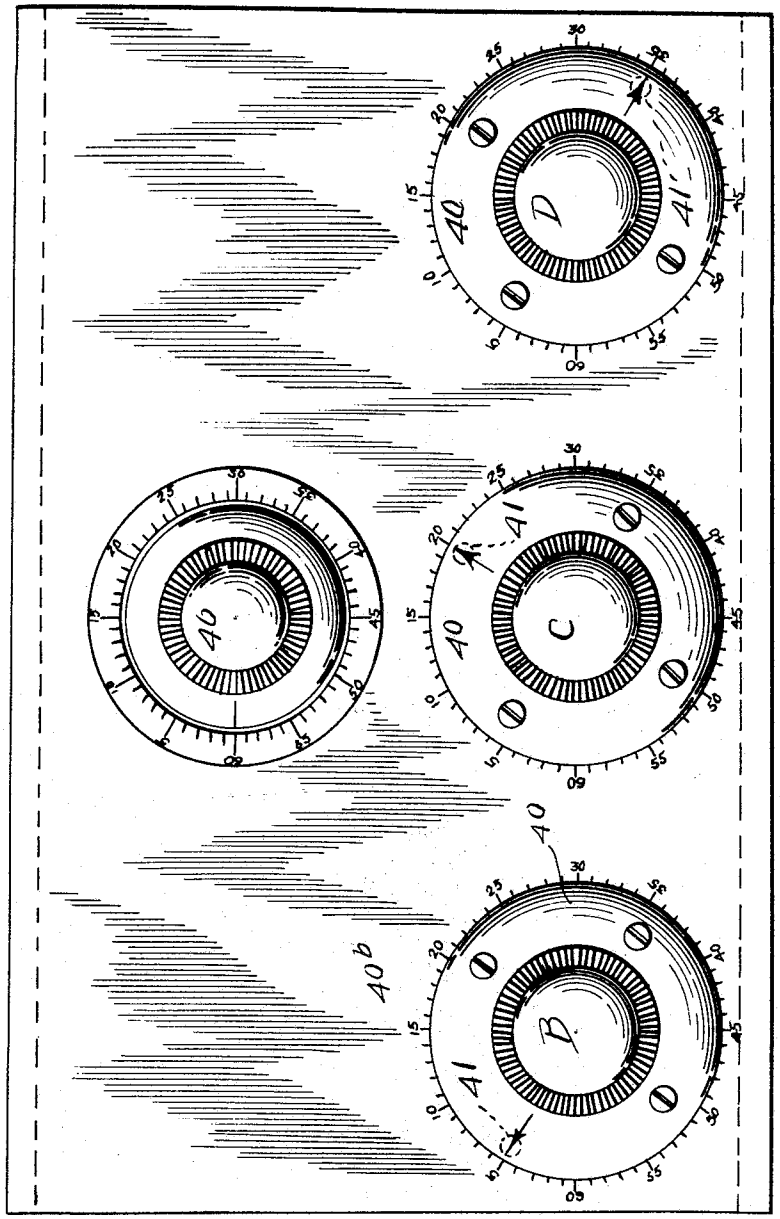



Fig. 1.

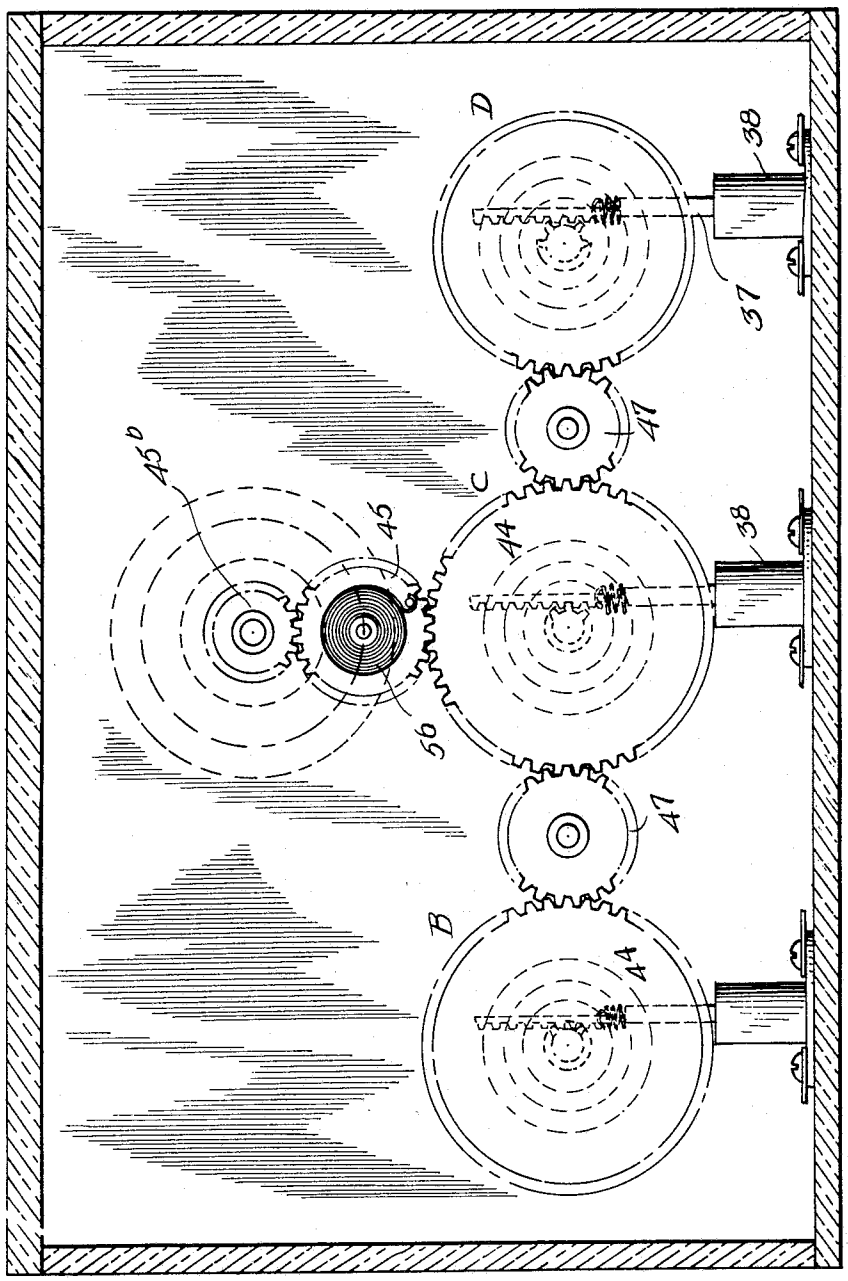
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Fig. 2.




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Fig. 4.

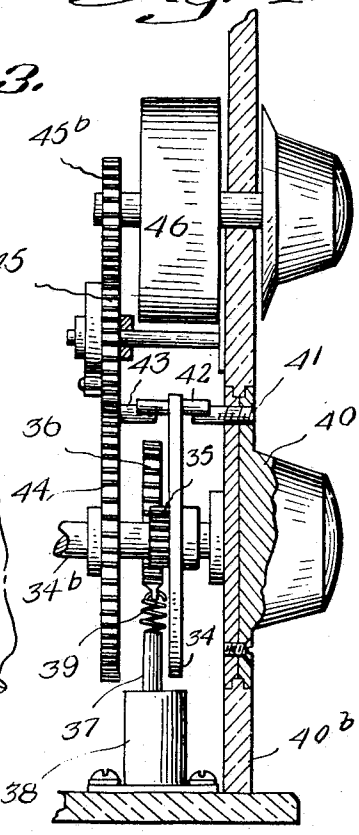



Fig. 3.

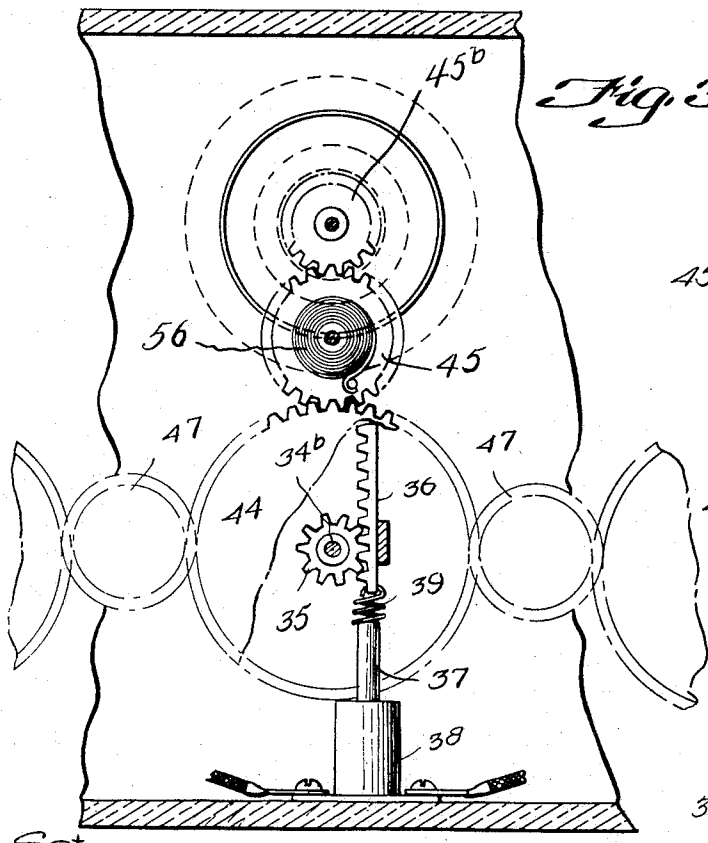
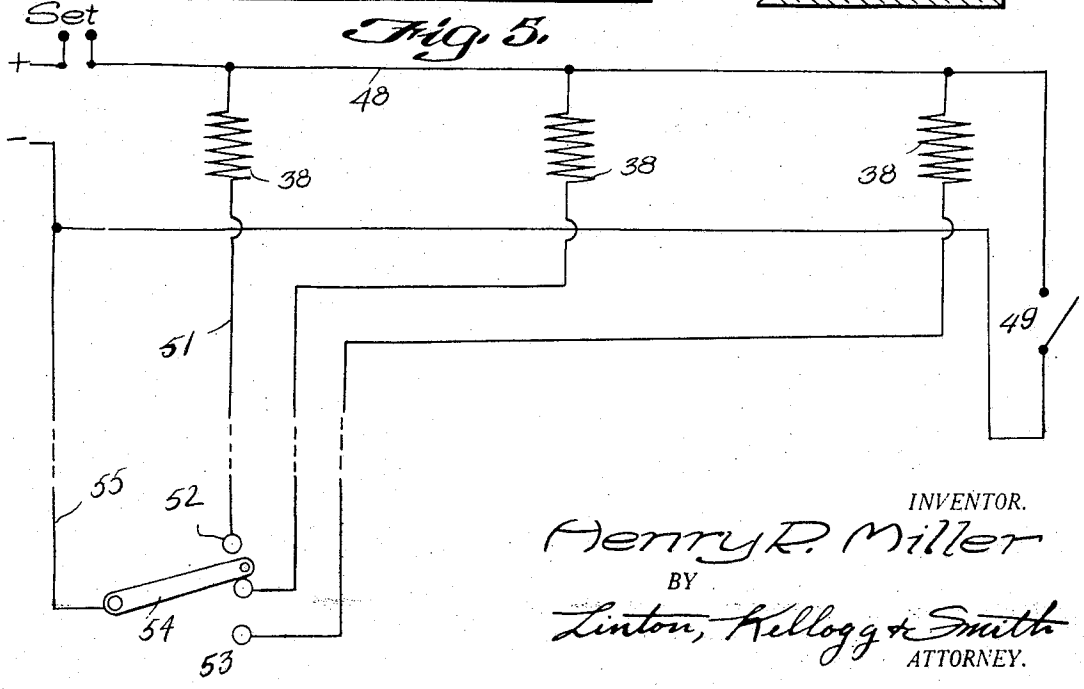



Fig. 5.




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# UNITED STATES PATENT OFFICE

1,938,397

## REMOTE CONTROL MECHANISM FOR RADIO APPARATUS

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Application July 7, 1930. Serial No. 465,905

3 Claims. (Cl. 250—20)

This invention relates to remote control mechanism for radio apparatus, as shown in my co-pending application filed April 26, 1930, Serial No. 447,733, and has for its primary object the provision of tuning mechanism that may be manually set and remotely controlled.

An object of the invention resides in the combination of manually set dial operating devices and a remote controller capable upon operation to actuate one of said devices for automatically tuning the radio apparatus and closing the power circuit thereof.

Another object of the invention resides in the provision of an electric control and mechanical means for operating the dial mechanism of a radio apparatus from a remote point.

A feature of the invention relates to the use of a plurality of manually manipulated elements for setting certain devices that control the tuning mechanism of a radio apparatus relying on selective manipulation of parts of a remote controller for setting into operation a selected device for tuning in a particular station.

The invention is distinguished in the use of a plurality of selective devices or dials that are manualy set, the devices being selectively operated from a remote point according to the settings for varying the extent of movement of the dialing mechanism of a radio apparatus.

With these and other objects in view the invention will be better understood from the following detailed description taken in connection with the accompanying drawings wherein—

Figure 1 is a front elevation of a panel board with the various dials mounted thereon.

Figure 2 is a sectional view.

Figure 3 is a detailed sectional view of the dialing mechanism.

Figure 4 is a cross sectional view.

Figure 5 is a diagrammatic view.

It will be noted that I provide a plurality of selective devices or dials corelated with the main dial of a radio set and these selective devices are manualy set and electrically manipulated from a remote point. As each of the dial devices is of a similar construction I will limit my description to one of the devices.

Each selective device or dial consists of a disc 34 loosely mounted on a bearing 34—*b*. This disc 34 carries a pinion 35 connected with the rack bar 36 that is in turn connected to the core 37 of a solenoid 38 by a flexible connection illustrated as a spring 39. The dial proper designated by the numeral 40 is provided with graduation marks and has frictional engagement with the panel board 40—*b* and further carries a setting pin 41. This pin 41 projects a predetermined distance beyond one face of the ring so as to be in position to arrest travel of the second pin 42 carried by the disc 34. This pin 42 projects beyond opposite sides of the disc 34 and not only cooperates with the pin 41 but with a third pin 43 projecting from a gear 44 that is loosely mounted on the bearing 34—*b*. The association of the pins are such that in the rotatable movements of disc 34 the pin 42 will contact with pin 43 for moving the gear 44 which action continues until the pin 42 strikes pin 40 whereupon further movement of the parts just mentioned is prevented.

The gear 44 meshes with the master gear 45 secured to the dial structure 46 of the radio apparatus. To enable accurate manipulation of the various gears of the various dials and the proper manipulation of the master gear 45 I have illustrated intermediate gears 47 between the various gears 44.

The main power circuit 48 of the radio set diagrammatically illustrated has arranged therein a switch 49 by means of which the circuit may be opened or closed. Each solenoid 38 has one terminal directly connected to the feed conductor of the main circuit 48 and the other terminal is connected to a lead 51 that extends to the contact 52 of the selective switch or remote controller 53. The contacts 52 cooperate with a switch blade 54 connected to a return wire 55 that is secured to the return conductor of the main circuit 48. Attention is called to the fact that the positioning of the coils and their electrical connections with the main circuit is such that when the switch blade 54 is manipulated a selected coil is energized and the main power circuit closed. Thus it will be appreciated that simultaneously with the operation of the selective mechanism the radio is set into operation.

In the use of my invention the pins 41 of the various dials or units are set in their various positions thru the manipulation of the dials, which position corresponds to the stations to be tuned in, that is to say, the pin of the first dial unit B may be set to tune in station WJZ, the pin of the unit C set to tune in WEAF, and the pin of the unit D set to tune in WOR.

Manipulation of the remote control or switch 53 will energize a selected coil and close the main circuit with the result that the solenoids will be energized to manipulate the selective mechanism and move the dial tuning mechanism of the radio apparatus the required distance. When this has

been accomplished the radio apparatus will start functioning due to the fact that the main circuit has also been closed. Due to the fact that the various dial units have independent solenoids and independent circuits which are independently closed it will be appreciated that improper operation is prevented and positive selective control by the operator assured. Upon interruption of current flow thru the manipulation of the switch blade 54 the selective solenoids will be de-energized and as a result the main control spring 56 connected to the master gear will function to return all parts to normal position. Due to the inner gear connection between the various dial units it will be appreciated that accurate operation is assured at all times and due to the novel manner of opening and closing the circuits, interference between the manipulation of the component units is eliminated.

Of course it is to be understood that the various parts may be designed in other manners than illustrated and arranged in other relations and various forms of remote controllers may be utilized in the combination therefore I do not desire to be limited in protection in any manner whatsoever except as set forth in the following claims.

What I claim is:

1. Dial setting mechanism for a radio apparatus comprising a master gear adapted to be directly connected to the dial structure of a radio apparatus, a plurality of setting dial units operatively connected to each other and to said master gear and each unit consisting of a train of gears, a manually adjusted independent device controlling the movement of said train of gears, a power device for operating the train of gears, and a remote controller for controlling the energization of said power device, and the closing of the power circuit of a radio apparatus.

2. In combination, a radio dial setting mechanism, a group of selective dial devices operatively connected to said dial mechanism each consisting of a gear train, a manually set device for controlling the extent of movement of the gear train, and electro mechanical device for operating said gear train, and a remotely arranged switch device for energizing selectively the power devices of all of the dial units and simultaneously close the power circuit of a radio apparatus.

3. In combination, a radio dial setting mechanism, a group of selective dial devices operatively connected to said dial mechanism, each consisting of a gear train, one gear of which is provided with a manipulating pin, a manually set device for controlling the extent of the gear train through coaction with said pin, electro mechanical devices for operating said gear train and a remotely arranged switch device for energizing selectively the electro mechanical devices of all of the dial units and simultaneously close the power circuit of a radio apparatus.

HENRY R. MILLER.