

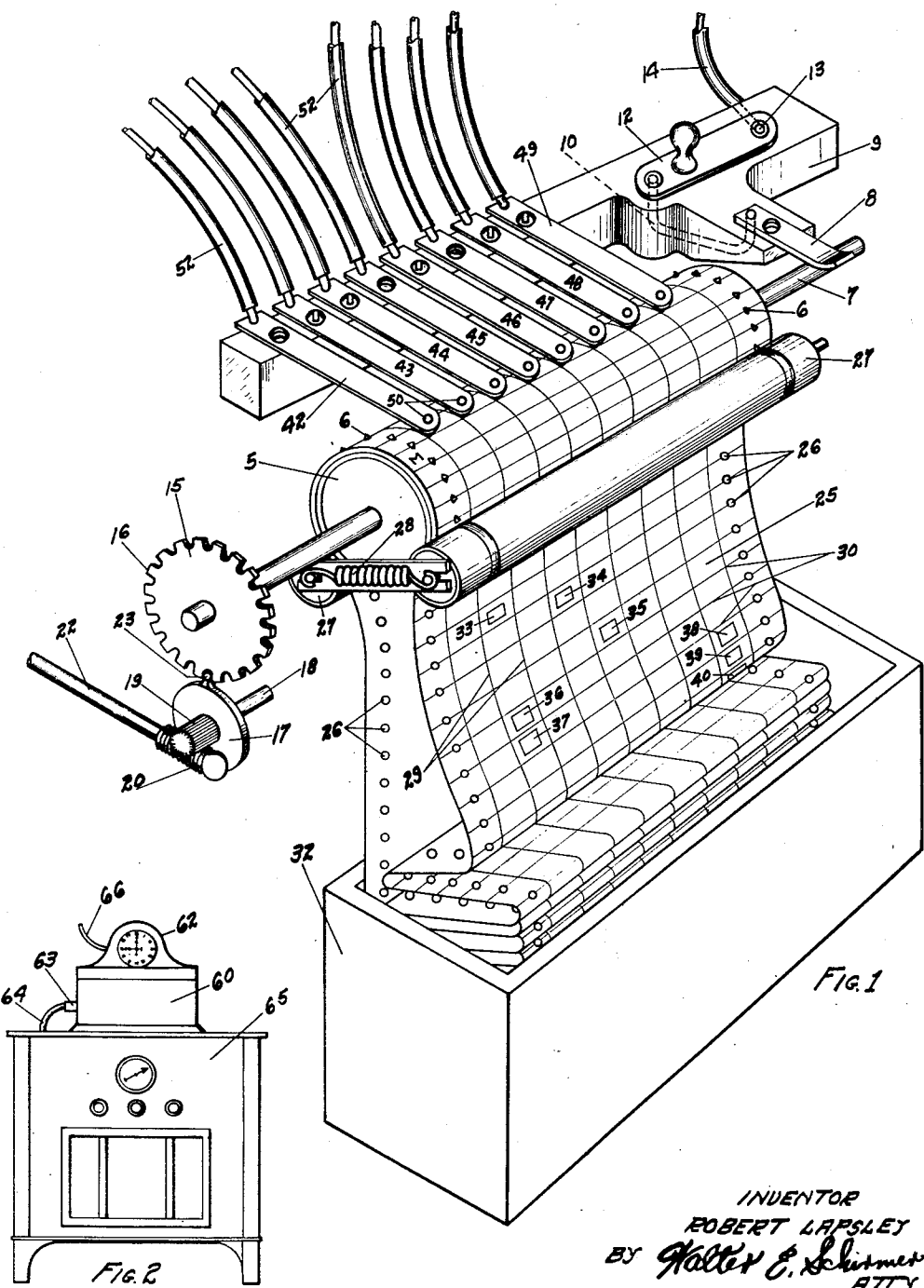
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RADIO CONTROL APPARATUS

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RADIO CONTROL APPARATUS

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1 Claim. (Cl. 200-46)

This invention relates to radio control apparatus, and more particularly is directed to an attachment for radios and the like which will provide for predetermined selection of programs and automatic control of the set itself to turn it on and off and to tune it to the wave lengths required for the selection of the predetermined programs.

It has become increasingly desirable, due to the wide variety of programs offered on radio broadcasts, to have some means of ascertaining, prior to the time that such programs are broadcast, the particular ones to which the owner of a radio receiving set desires to listen and the particular times at which such programs are available.

The present invention contemplates a means whereby at the beginning of any interval of time, such as a week, day, or the like, the owner of a radio receiving set may determine which programs he wishes to listen to during the entire time interval selected, and when he wishes the radio turned off or turned on. Having made his selections, the present invention contemplates providing means whereby such selections can be indicated on a recording tape or the like so designed as to take care of any number of desired wave bands for the various broadcasting stations, and subdivided into any desired time intervals such as quarter hour periods or the like. Thus, the tape may be marked in a manner such as to insure entirely automatic selection of the desired programs for the entire period of time desired by the operator. The tape is adapted to be trained over any suitable driving mechanism such as a clock actuated mechanism or the like, and is suitably engaged by contact means in such manner that circuits are established to predetermined tuned condensers in a radio receiving set in accordance with markings on the tape to switch the set selectively to the desired wave lengths at the time intervals when a particular program on a particular wave length is being broadcast.

The apparatus also contemplates means whereby the radio set may be automatically disconnected at any predetermined time and re-energized at any succeeding time without any attention on the part of the owner.

Other objects and advantages of the present invention will appear more fully from the following detailed description which, taken in conjunction with the accompanying drawing, will disclose to those skilled in the art the particu-

lar construction and operation of a preferred form of the present invention.

In the drawing:

Figure 1 is a perspective view on an enlarged scale of an apparatus for carrying out the present invention; and

Figure 2 is a more or less diagrammatic view illustrating the connection of the apparatus shown in Figure 1 to any conventional type of radio receiving apparatus.

Considering now the invention in detail, there is provided a mandrel 5 having sprocket teeth 6 peripherally disposed at opposite ends thereof, the mandrel 5 preferably being formed of a metallic conducting material and having a shaft 7 extending therethrough and in electrical connection therewith. At one end, the shaft 7 is adapted to be engaged by a resilient contact finger 8 secured to a terminal bar 9 formed of insulating material or the like, the contact finger 8 being connected through the conductor 10 to a switch 12 connected through the terminal 13 with the power conductor 14 whereby closing of the switch 12 results in current being supplied through the contact finger 8 to the shaft 7, and consequently to the mandrel 5.

At its opposite end the mandrel is provided with a sprocket wheel 15 having a predetermined number of sprocket teeth 16 arranged about the periphery thereof and adapted to be successively engaged by the intermittent drive wheel 17 mounted on the shaft 18 and rotated by means of meshing engagement between the gear 19 carried by the drive wheel, and a worm gear 20 carried by the actuating shaft 22.

It is to be understood that the shaft 22 may be connected to any suitable rotating mechanism such as a clock spring mechanism, an electric clock mechanism, or the like, which provides for rotation of the drive wheel 17 at a predetermined rate. The gear reduction may be as desired, and in a preferred form of the invention, is so arranged that the wheel 17 makes one complete revolution every fifteen minutes. This results in rotating the sprocket wheel 15 through one tooth space every fifteen minutes by engagement of the cam pin 23 with the successive sprocket teeth in the manner shown. This consequently results in rotation of the mandrel or drum 5 through a predetermined arc at every fifteen-minute period, this preferably being so controlled that the sprocket wheel 15 advances the drum 5 a peripheral distance equivalent to the spacing between the teeth 6 on the drum at every fifteen-minute interval.

Suitably trained over the drum 5 is a tape member 25 having at opposite edges thereof a series of openings 26 adapted to be engaged over the teeth 6 of the drum to insure conjoint movement of the tape with the drum. Suitable pressure rolls 27 are provided for holding the tape in tension over the drum, this tension being effected by means of spring members 28 connected between the adjacent ends of the rolls 27. It is to be understood that in place of a mandrel and a tape, a rotating disc with a disc-like insulating plate may be used.

The tape is provided with a plurality of longitudinally extending lanes or channels divided by the longitudinal lines 29 which are also subdivided transversely by the transverse lines 30. The tape may be stored or held in feeding position within any suitable receptacle, such as indicated at 32.

Each of the transverse spaces or lanes defined by the lines 29 indicates one wave band or broadcast band for a particular broadcasting station, while each of the longitudinal spaces defined by the lines 30 indicates a period of time equivalent to fifteen minutes or to any period corresponding to the amount of rotation effected upon each rotation of the drive wheel 17 with respect to the drum 5.

The owner of the radio receiving set to which this attachment is to be connected may therefore take the tape 25 and by means of a suitable punch, may form openings such as indicated at 33 to 40, inclusive, or as many as desired, in the tape. As the tape is rotated on the drum 5 it will be apparent that the openings 33 to 40, inclusive, successively come into position on the top of the drum 5 at succeeding time intervals. Suitably mounted on the terminal bar 9 is a plurality of resilient contact fingers 42 to 49, inclusive, which are pressed down into engagement with the surface of the tape, and at their ends, carry rounded contact points 50. Each of the fingers 42 has a terminal conductor 52 connected thereto leading to respective fixed condensers in the radio receiving set which are set for the corresponding broadcast wave lengths determined by the longitudinal lanes defined by the lines 29. It will thus be apparent that as the tape rotates the opening 33 in the tape will pass beneath the contact finger 43, and contact will be effected from the power supply conductor 14 through the drum and the opening 33 to the contact finger 43, and hence will energize the corresponding conductor 42 to operate the radio at the desired wave length corresponding to the particular wave band indicated. However, at the end of the fifteen minute interval, the tape will be again advanced so that the opening 34 will move into a position such that contact is effected between the drum 5 and the contact finger 45. This shifts the tuning of the receiving set to the wave band in which the opening 34 is located, and consequently a different station is automatically tuned in for the next fifteen minute period. Similarly, the openings 35 to 40 will successively come into contact with the associated contact fingers 42 to 49, and the radio receiving set will thus be automatically tuned in accordance with the location of the openings

to the various stations which have been predetermined by the operator for the various time intervals.

When there is no opening within one of the transverse portions of the band defined by the lines 30, there will obviously be no electrical connection to any of the contact fingers 42 to 49, and consequently the radio set will be inoperative until such time as an opening appears in the tape and is rotated into a position in alignment with one of the contact tips 50.

The entire apparatus disclosed in Figure 1 may be housed within a suitable casing such as indicated at 60 in Figure 2, which casing may be made in any decorative or ornamental style, and which preferably has mounted thereon a clock mechanism such as indicated at 62, which, through suitable geared connection, drives the shaft 22 in any desired manner. The apparatus within the housing 60 thus is driven by the clock work mechanism 62, and the various conductors 52 of the contact fingers are led out through the outlet 63 in the housing and through a cable connection 64 into a radio receiving set such as indicated generally at 65 and there connected with the respective tuned condensers. The clock 62 is of course provided with a suitable power connection 66, and if desired, this same power connection may be used for supplying the power to the conductor 14 within the casing 60 with a return cable being led from the receiving set out into the casing 60 to form the two terminals for the power supply.

It is therefore believed apparent that I have provided a novel type of automatically regulated mechanism for providing predetermined selective tuning and operation of a radio receiving equipment which is simple in design, compact and may be easily supplied for conventional types of radio receiving sets now in use.

I am aware that the arrangement of the contact members and the tape mechanism may be varied considerably without departing from the underlying principles of the present invention, and I therefore do not intend to be limited except as defined by the scope and spirit of the appended claim.

I claim:

Radio control apparatus for a radio set comprising a uniformly rotatable driving mechanism including a cam wheel having a peripheral projection, a metallic mandrel, a power circuit connected to said mandrel, a sprocket wheel secured to one end of the mandrel and adapted to be intermittently engaged by said cam wheel projection for rotating said mandrel through a predetermined arc upon each rotation of said cam wheel, an insulating tape trained over said mandrel, tensioning means for said tape engaging said tape on opposite sides of the mandrel, and a plurality of contact fingers arranged transversely across the mandrel and spring pressed into engagement therewith but insulated therefrom by said tape, said tape being adapted to be perforated in a predetermined manner to effect selective contact of said fingers with the mandrel as the mandrel is intermittently rotated.

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