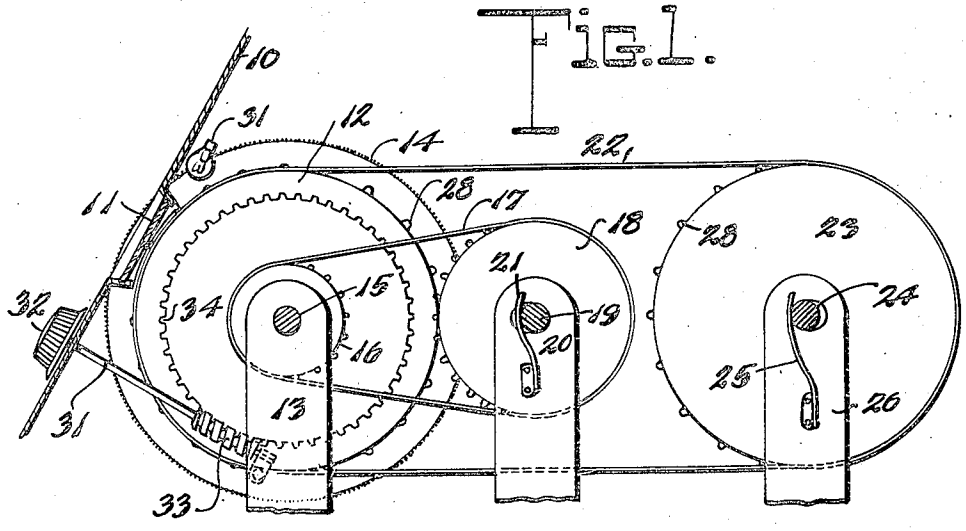
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RADIO DIAL CONTROL

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Fig. 1.



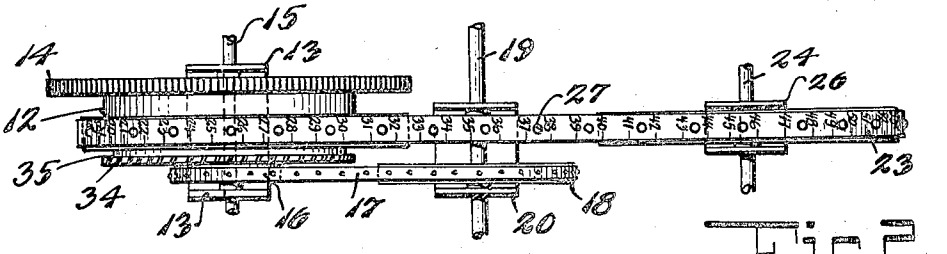


Fig. 2.

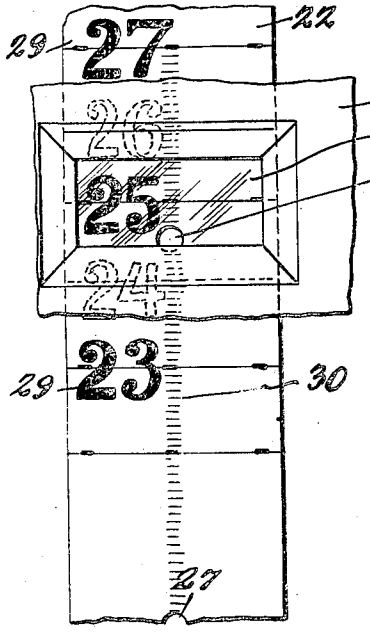


Fig. 3.

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Fig. 4.

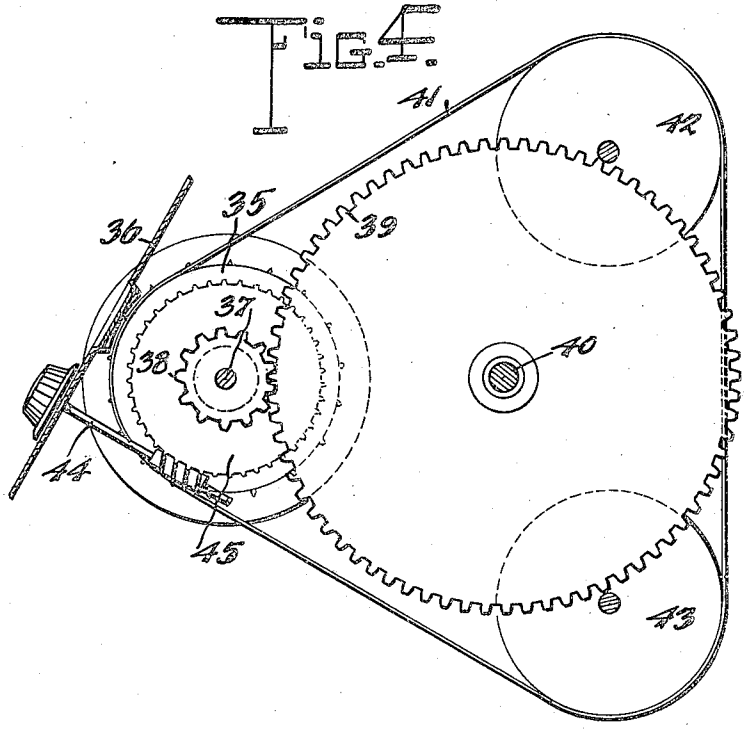
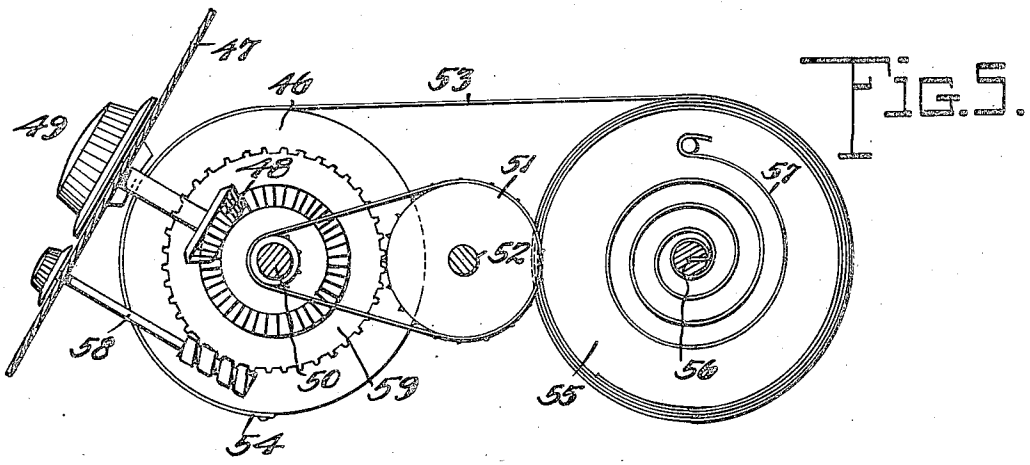


Fig. 5.



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UNITED STATES PATENT OFFICE

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RADIO DIAL CONTROL

Application filed April 5, 1928. Serial No. 267,591.

This invention relates to a radio dial control, particularly to indicating means operable simultaneously with the controlling mechanism of a radio receiving apparatus.

In ordinary constructions of such indicating means the indicia associated with the operating member of the control or condenser device must be placed upon a surface of limited area, with the result that such indicia is very small and it is difficult to tune the receiving apparatus intermediate the usual indications representing the degree of movement of the condenser. This occurs particularly in connection with broadcasting stations having relatively small differences in wave length and where it is important to accurately tune to the wave of the desired station to prevent interference and consequent interruption of the program being received.

It has also been found that when the indicia for the wave length desired is placed upon the operating disc for the condenser, the available space is so limited as to prevent the use of indicia representing fractional portions of a wave length, and to increase the diameter of such an operating disc or wheel to secure additional space is impracticable in the ordinary cabinet construction of receiving apparatus.

To avoid these objections and present a desirable form of indicia carrying means I have provided a carrier belt adapted to be driven by the operating member for the condenser shaft and so geared as to travel at a much greater speed of rotation than the movement imparted to the condenser. Such a belt may be of the desired length and width to permit the use of clearly legible indicia for either indicating the wave lengths, the kilocycles, call letters, or any combination of these elements to be controlled. With such enlarged indicia it is also possible to tune for fractions of the wave lengths or intervals between the indicia, and this is facilitated by the use of a vernier adjustment operable independent of the main means for shifting the condenser.

The invention has for an object to provide a novel and improved construction of radio dial control including a wave controlling means and an indicia carrying member operated simultaneously with said means to effect amplified movement of the indicia member relative to the controlling means.

A further object of the invention is to present a new construction in which the indicia is carried by a belt member geared for operation at a greater speed than the travel of the controlling means for the radio wave.

A further object of the invention is to provide a novel construction involving an endless belt mounted upon suitable carrier wheels, one of which is provided with operating means, together with a geared connection from the operating wheel to the shaft of a wave control member by which said member is moved at a relatively less speed of rotation from that of the belt.

A still further object of the invention is to provide a belt carrying wheel disposed opposite a sight opening of the cabinet and having operating means, a belt having interlocked connection with said wheel and provided with spaced indicia thereon, a gearing from said wheel to actuate a condenser, and a vernier adjustment frictionally engaging the wheel to effect a movement thereof independent of its operating means.

In the drawings:

Fig. 1 is an elevation with parts in section showing one application of the invention;

Fig. 2 is a top plan;

Fig. 3 is an enlarged elevation at the sight opening;

Fig. 4 is an elevation with parts in section of a modified form of the invention; and

Fig. 5 is a similar view of a further modification thereof.

In the drawings like numerals refer to like parts in the figures thereof.

The invention is adapted for various applications wherein the indicia carrying member travels at a greater speed than the wave controlling means so as to expose a relatively large area of indicia in a limited movement of such means. One form embodying the invention is shown in Fig 1 of the drawing where the numeral 10 designates the usual enclosing panel or cabinet provided with the

glazed sight opening 11. Adjacent this opening a wheel or drum 12 is pivotally mounted on any desired means, for instance upon the standards 13, and is provided with a knurled operating flange 14 of the usual form. These parts are secured to the shaft 15 which is also provided with a sprocket wheel 16 from which a belt or chain 17 extends to the actuating wheel 18 upon the shaft 19 which carries the condenser or other wave controlling means. If desired this shaft may be mounted for lateral movement on the standards 20 and tensioned by a spring 21 to maintain a proper driving relation of the belt 17.

Cooperating with the wheel 12 is a band 22 which in Fig. 1 is shown as endless and extending over a rear drum 23, having its shaft 24 tensioned by a spring 25 upon the standard 26. In order to prevent slipping or play of this band upon the carrier wheels, it is suitably perforated at intervals, as shown at 27, which perforations cooperate with pins 28 upon the front and rear wheels.

The band 22 may be of any desired length and width and provides such an extended area as to permit the use of large, readily visible indicia, as shown at 29 in Fig. 3, while the intervals between such indicia may be subdivided for fractions of wave lengths, as indicated at 30. This band is adapted to travel beneath the sight opening 11 and may be suitably illuminated, for instance by a lamp 31, as shown in Fig. 1.

In order to provide for the finer or vernier adjustment, particularly for fractions of wave lengths, an adjuster 31 is mounted upon the front panel 10 and provided with a handle 32. This shaft 31 carries at its inner end a worm gear 33 meshing with a cooperating pinion 34 which carries at its side next the wheel 12 a friction disc 35. The wheel and disc are loosely mounted upon the shaft so that they are not affected by the normal adjustment of the wheel but may be used through this frictional contact to effect a very fine degree of adjustment supplemental to that of the wheel.

In the modified form of the invention shown in Fig. 4, the wheel 35 has its operating flange projected through the panel 36 and is disposed opposite the sight opening therein. The shaft 37 of this wheel or drum carries a pinion 38 which meshes with the large gear 39 carried by the shaft 40 of the condenser, so that rotation of the wheel imparts a much slower movement to the condenser shaft.

In order to provide for a greater length of band carrying the indicia this band 41 is extended over the drums 42 and 43 suitably pivoted and effecting a substantially triangular path of travel for the band. Means for securing vernier adjustment are shown at 44 and cooperate with the pinion 45, as described in connection with Fig. 1.

In the modification shown in Fig. 5 another arrangement of the band is presented. In this instance the drum 46 opposite the sight opening of the panel 47 is driven by a beveled gearing 48 having an operating knob 49, while the shaft 50 of this drum has a belt and sprocket connection with the wheel 51 upon the shaft 52 of a condenser or other wave control.

In this construction the belt 53 is secured at one end 54 to the front drum and carries the indicia as described in connection with Fig. 1. The opposite end of this belt is wound upon a drum 55 mounted upon a shaft 56 and provided with a tension spring 57 of sufficient strength to maintain the belt in taut condition and rewind it upon the drum in the rotation of the drum 46 from left to right. In the rotation of the drum 46 in the opposite direction the band is wound thereon and the indicia passes beneath the sight opening of the panel, while the gearing arrangement is such as to impart an amplified movement to the front drum relative to the reduced travel transmitted to the condenser shaft. A vernier adjustment indicated at 58 may be used to cooperate with a gear 59 as described in connection with Fig. 1.

The operation of the invention will be apparent from the foregoing description, from which it will be seen that the use of the band provides a surface sufficient to permit the application of large and easily read indicia with sufficient space between them to permit the vernier tuning for fractions of the unit indicated by the device. Such a band also provides space for notation of the station letters and is maintained in constant relation to the rotation of the wave control means but operated at a greater speed so as to expose at the sight opening a relative large area of the band carrying indicia. This band may be of any desired character and not necessarily an endless or continuous unit. In the use of a vernier device with a construction of this character the ratio thereof must be determined relative to the diameter of the drum from which the condenser shaft is driven and which also supports the indicia carrying means. It will be noted that this construction provides for the separation of the indicia, where the wave lengths or station letters are a much greater distance apart than is possible upon the present dials or drums and cause the operation of the wave control means at a different speed of rotation from that of the indicia carrying member.

While the specific construction of the several parts has been shown and described, the invention is not confined thereto as changes and alterations may be made therein without departing from the spirit of the invention as defined by the following claims.

What I claim is:

1. In a radio dial control, a wheel member, means for rotating the wheel member, an end-

less band having interlocking contact with said wheel member and provided with indicia, a wave controlling means, a reduced pinion secured to the shaft of said wheel member, a larger pinion secured to the shaft of the wave controlling means a drive connection of the said pinions, and means for separating said pinions to maintain proper relation of the driving connection.

2. In radio dial mechanism of the class described, the combination, with wave controlling means including a large gear wheel, of a pulrality of roller members located around the periphery of said gear wheel, a driving connection between one of the roller members and said gear wheel, and an endless tape having indicia thereon carried by the roller members.

3. In radio dial mechanism of the class described, the combination, with wave control mechanism including a gear wheel, of a plurality of roller members equidistantly spaced apart with their axes lying substantially adjacent to the periphery of the gear wheel, a pinion carried by one of the roller members and of smaller diameter than the roller member and in operative engagement with the gear wheel, an endless tape carried by the roller members, and driving means for causing movement of the tape around the roller members.

4. In radio dial mechanism of the class described, the combination, with wave control means including a wheel member, a plurality of roller members spaced apart about the periphery of the wheel member, an operative connection between one of the roller members and the wheel member, an endless tape carried by the roller members and having indicia thereon, means for causing rotation of one of the roller members whereby movement of the tape is caused, and supplemental means for moving said wheel member, said supplemental means constituting a vernier adjustment.

In testimony whereof I affix my signature.

HENRY A. ZIOLA.