July 15, 1924. 1,501,454

J. W. HUNT

ADJUSTING DEVICE FOR RADIOTUNERS AND THE LIKE

Filed June 8, 1923

Fig. 1.

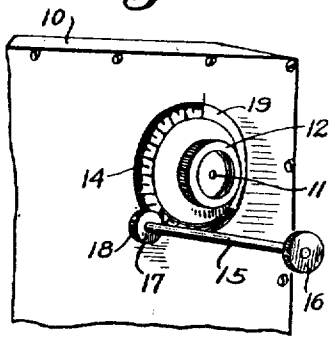


Fig. 2.

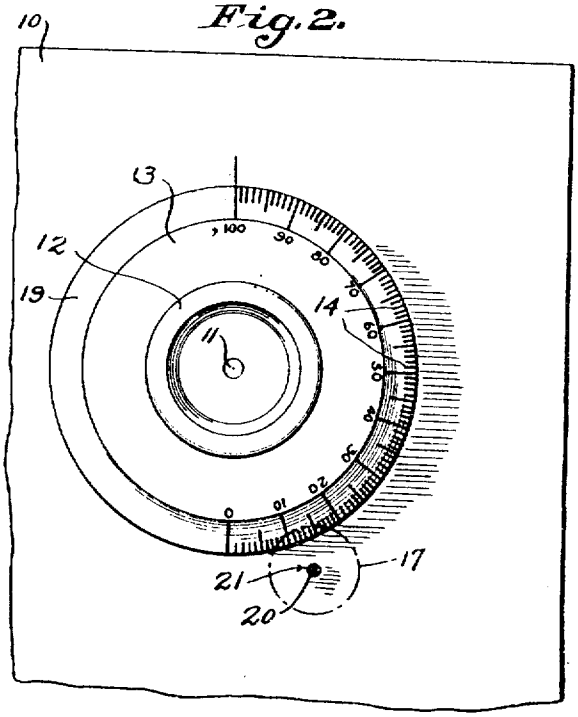


Fig. 3.

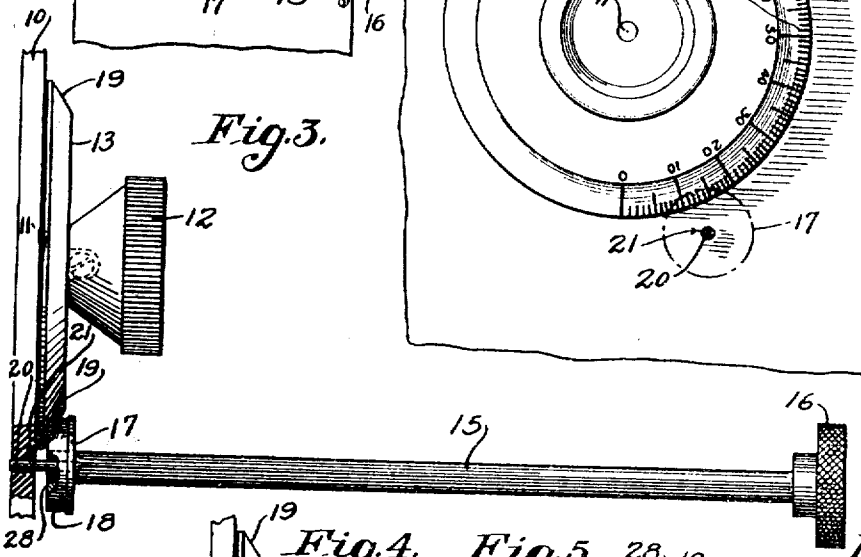


Fig. 4.

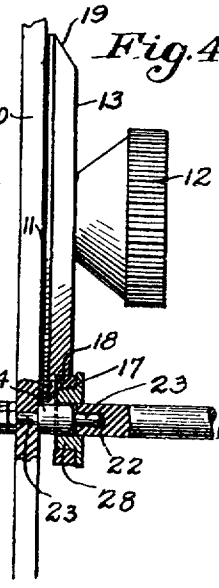


Fig. 5.

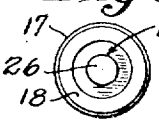


Fig. 6.

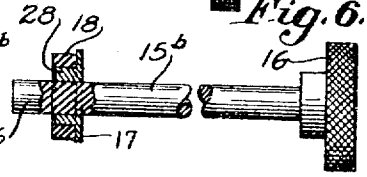


Fig. 8.

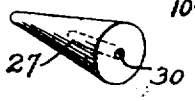


Fig. 9.

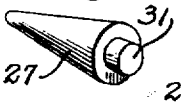
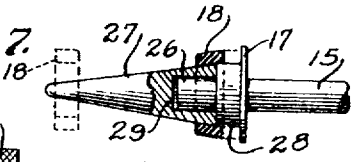


Fig. 7.



WITNESSES

Louis Goodman

E. N. Lowell

James W. Hunt

INVENTOR

BY

E. G. Siggers

ATTORNEY

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UNITED STATES PATENT OFFICE.

JAMES W. HUNT, OF MEMPHIS, TENNESSEE.

ADJUSTING DEVICE FOR RADIOTUNERS AND THE LIKE.

Application filed June 8, 1923. Serial No. 644,159.

To all whom it may concern:

Be it known that I, JAMES W. HUNT, a citizen of the United States, residing at Memphis, in the county of Shelby and State of Tennessee, have invented a new and useful Adjusting Device for Radiotuners and the like, of which the following is a specification.

This invention relates to an adjusting device, which is especially adapted for use in connection with the adjustment of radio tuners, and for other purposes where a fine angular adjustment of a spindle or dial is desirable.

The usual radio set is generally provided with a panel through which project the various adjusting spindles, which are provided with dials having peripherial graduations by means of which the adjustments are measured. In view of the great number of sending stations, many of which necessarily use nearly the same wave lengths, it is necessary to make these adjustments with great precision in order to obtain satisfactory results.

The object of the present invention is to provide a simple and inexpensive device, which may be readily applied to a radio set by an inexperienced person, and by means of which a micrometric adjustment may be obtained.

A further object of the invention is to provide means for making such adjustments, whereby the condition known as body capacity or induction may be overcome.

In carrying out my invention, I provide an auxiliary knob and spindle, which is adapted to be temporarily mounted in proximity to the dial having the graduations, and is provided with a disk of small diameter adapted to frictionally engage the periphery of the dial, so that rotation of the auxiliary spindle causes a rotation of the dial, but of much smaller amplitude.

The invention also includes an applicator, especially designed for applying a friction ring to the disk on the auxiliary spindle.

The detailed construction by means of which the invention is carried out will be more fully explained in connection with the accompanying drawing, which illustrates the preferred form of the invention, with several modifications thereof.

In the drawing:

Figure 1 is a perspective view of a portion of a radio panel and dial with my invention applied thereto.

Figure 2 is a front elevation of the same.

Figure 3 is a side elevation of the same, with parts shown in section.

Figure 4 is a view similar to Figure 3, showing a modified form of the invention.

Figure 5 is an end elevation of a modified form of the auxiliary spindle.

Figure 6 is a side elevation with parts shown in section of the form of spindle shown in Figure 5.

Figure 7 is a view, partly in elevation and partly in longitudinal section, illustrating the use of the applicator in connection with the spindle, shown in Figures 5 and 6.

Figure 8 is a perspective view of an applicator adapted to be used with the form of spindle shown in Figure 3.

Figure 9 is a perspective view of an applicator adapted to be used in connection with the spindle shown in Figure 4.

Referring in detail to the drawing, the numeral 10 designates the panel of an instrument having an adjusting spindle 11 provided with a knob 12 for rotating the same, and with a dial 13 having peripheral graduations 14 for measuring the angular position of the spindle. When the knob 12 is used for the purpose of rotating the spindle, it is practically impossible to obtain fine adjustments, or to accurately effect minute changes in the position of the dial 13.

In carrying out my invention, I provide an auxiliary spindle 15 of insulating material such as fibre or hard rubber, having secured to its outer end a knurled knob 16 of brass or other suitable material, and having near its inner end a rigidly secured collar 28 formed with a flange 17, against which rests a riding ring 18 of soft rubber or similar material, adapted to *yieldingly* engage the rim 19 of the dial 13. In order to adapt this auxiliary knob and spindle for the most convenient use, I prefer to insert a comparatively small pin 20 in the inner

end of the spindle 15, and to bore a small hole 21 in the panel 10, so that by inserting the pin 20 in the hole and urging the spindle 15 inwardly by a moderate pressure on the knob 16, and then rotating the knob 16, the rubber ring 18, frictionally engaging the rim portion of the dial, will cause rotation of the latter. It will be understood, however, that owing to the difference in the relative sizes of the ring 18 and the dial 13, the rotation of the dial will be of much smaller amplitude than the rotation of the knob 16, and consequently a very minute movement of the dial may be obtained with the greatest accuracy.

In the modification shown in Figure 4, the spindle 15^a, at its inner end, is formed with a socket 22, which is adapted to receive the end of the pin 23. This pin is provided with a head 24, and has its inner end threaded and provided with lock nuts 25, by means of which it may be secured to the panel 10.

In the modification shown in Figures 5 and 6, the spindle 15^b has a collar 28 with a rubber ring 18 applied in a similar manner, but the inner end of the spindle is extended beyond the disk, as shown at 26, to take the place of the pin 20, and the hole in the panel 10 will be correspondingly larger so as to receive the end 26.

For the purpose of enabling the ring 18 to be readily applied to the collar 28 an applicator 27 is provided, which is conical in shape with the base of the cone of the same diameter as that of the collar 28 around which the rubber ring should be slightly stretched. The applicator may be provided with a comparatively large socket 29 to receive the end 26 of the spindle 15^b, or it may be provided with a small socket, as shown at 30, to receive the pin 20, or it may be provided with a boss, as shown at 31, of the same diameter as the spindle 15^a for conveniently applying the ring to the collar 28.

With this device it is possible to adjust the dial accurately to a thousandth part of an inch as measured with scale 14 so that perfect tuning may always be obtained.

It is also to be noted that the knob 16 is completely insulated and at some distance from the dial so that the hand of the operator when making the adjustment is entirely outside the electric field of the instrument and thereby overcomes the condition caused by body capacity or induction due to proximity of the operator. It is therefore especially useful for the amateur, using a set in which the panel is not properly shielded from outside induction. A single tuning device may be used to effect a micrometric adjustment of any number of dials, on any number of radio receiving or broadcasting sets merely by drilling a hole in the panel at a suitable distance from the circumference of each dial. The device is therefore universal in its use and application. By its use, the operator has absolute control of all the necessary adjustments without bringing any part of his body or hands within the electrical field of the instrument.

While I have shown and described the invention as applied to the adjustment of a radio dial, it will be understood that the principles embodied herein may be advantageously applied to any other instrument having an adjustable dial where any adjustment of extreme precision is desired. It will also be understood that various other modifications may be made in the form, size and proportions of the various parts of the invention, as long as there is no material departure from the salient features thereof as expressed in the claims.

What is claimed is:

1. The combination with a panel and a dial rotatably adjustable thereon, of a spindle having secured thereto a ring of comparatively small diameter, and means for temporarily mounting and rotating the spindle and ring, said spindle when so mounted being movable axially to bring the ring into frictional engagement with the dial so as to rotate the same.

2. The combination with a panel and a dial rotatably adjustable thereon, of a spindle having a knob secured to its outer end and a ring secured to its inner end, said spindle having a stem projecting beyond the ring, the panel being provided with a bore for rotatably receiving the stem, so that the periphery of the ring frictionally engages the rim of the dial.

3. The combination with a panel and a dial rotatably adjustable thereon, of a spindle having a flanged collar of comparatively small diameter secured to one end, a rubber riding ring surrounding the collar and resting against the flange, a portion of the stem being extended beyond the collar, said panel having a bearing adapted to rotatably receive the extended portion of the stem with the ring frictionally engaging the rim of the dial, whereby the dial is rotated by a rotation of the collar, but through a smaller angle.

4. The combination with a panel and a dial rotatably adjustable thereon, of a spindle having a flanged collar secured to one end, a rubber riding ring surrounding said collar, and means for rotatably supporting the spindle with the ring in frictional contact with the rim of the dial.

5. An adjusting device for radio tuners, comprising a spindle having a knob secured to one end and a collar secured to the other end, said collar being surrounded by a riding ring having a frictional surface, and a stem projecting beyond the collar to form a rotatable support for the adjacent end of the spindle.

6. A device of the character described,

comprising, in combination, a panel, a dial rotatably mounted on said panel, said panel being provided with an opening therein located a short distance outside the periphery of said dial, a spindle having one end insertable in said opening, and having a peripheral friction element operable to engage and rotate the dial only when the spindle is rotated in said opening and axial pressure is exerted thereon at the same time.

7. An adjusting device for radio tuners, comprising a spindle having a collar secured to one end, said collar being surrounded by a riding ring having a frictional surface, and a stem projecting beyond the collar to form a rotatable support for the adjacent end of the spindle.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature.

JAMES W. HUNT.