March 10, 1936. H. R. GUEST 2,033,825

RADIO TUNING APPARATUS

Filed July 25, 1935 2 Sheets-Sheet 1

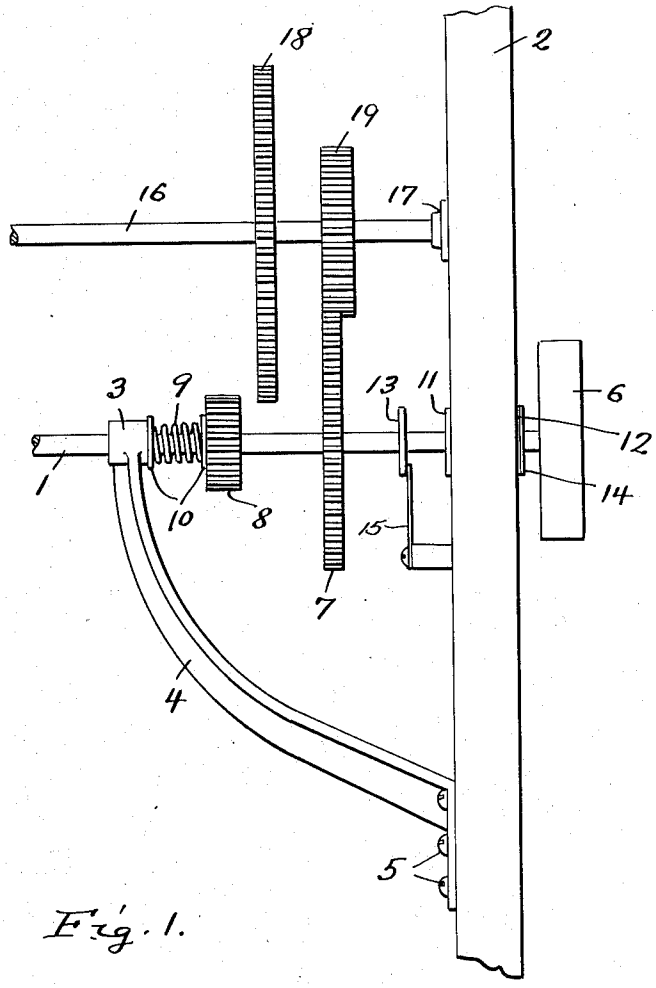


Fig. 1.

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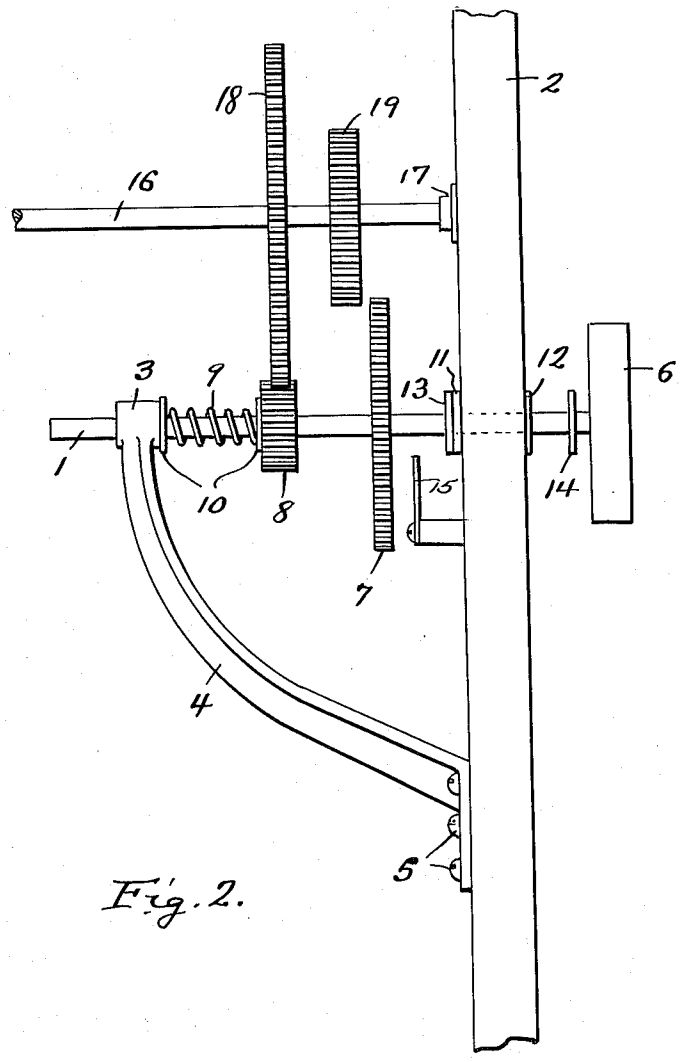


Fig. 2.

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RADIO TUNING APPARATUS

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Application July 25, 1935, Serial No. 33,168

3 Claims. (Cl. 74—10)

The present invention relates to new and useful improvements in an apparatus for use particularly in tuning radio receiving sets but it will be understood, of course, that the invention may be used for any purpose for which it may be found adapted and desirable.

The primary object of the invention is to provide, in manner as hereinafter set forth, an apparatus of the aforementioned character embodying a novel construction, combination and arrangement of parts through the medium of which coarse and fine adjustments may be expeditiously made.

Other objects of the invention are to provide an apparatus of the character described which will be comparatively simple in construction, strong, durable, highly efficient and reliable in operation, compact and which may be manufactured at low cost.

All of the foregoing and still further objects and advantages of the invention will become apparent from a study of the following specification, taken in connection with the accompanying drawings wherein like characters of reference designate corresponding parts throughout the several views, and wherein:—

Figure 1 is a view in side elevation, showing the apparatus in position for making coarse adjustments.

Figure 2 is a side elevational view, showing the apparatus in position for making fine adjustments.

Referring now to the drawings in detail, it will be seen that the embodiment of the invention which has been illustrated comprises a shaft 1 which extends rotatably and slidably through the panel 2 of the cabinet of a radio receiving set. The inner end portion of the shaft 1 is supported in a bearing 3 on the free end of a bracket 4 which is rigidly secured to the inner side of the panel 2, as at 5. Fixed on the outer end portion of the shaft 1 is an operating knob 6.

Also fixed on the shaft 1, at longitudinally spaced points between the bracket 4 and the panel 2, are gears 7 and 8, the latter being of smaller diameter but wider than the former. A coil spring 9 encircles the shaft 1 between the bearing 3 and the gear 8 and yieldingly urges said shaft outwardly. Washers 10 are provided between the coil spring 9 and the bearing 3 and between said coil spring and the gear 8.

Washers 11 and 12, through which the shaft 1 passes, are provided on the inner and outer sides of the panel 2. As will be apparent, the washers 11 and 12 constitute bearings for the shaft 1. Fixed on the shaft 1, between the gear 7 and the panel 2, is a collar 13. A collar 14 is also fixed on the shaft 1 between the panel 2 and the knob 6. It may be well to here state that the collars 13 and 14 are engageable with the washers 11 and 12, respectively, in a manner to limit the sliding movement of the shaft 1. Mounted on the inner side of the panel 2 is a comparatively strong spring 15 which is engageable with the collar 13 for releasably securing the shaft 1 in the position shown in Figure 1 of the drawings against the tension of the coil spring 9.

The reference numeral 16 designates a rotary shaft which is mounted above the shaft 1 in parallelism therewith, one end of said shaft 16 being journaled in a suitable bearing 17 which is provided therefor on the inner side of the panel 2. The other end portion of the shaft 16 is operatively connected to the usual variable condenser, etc., of the radio receiving set. Fixed at spaced points on the shaft 16 are gears 18 and 19, the latter being smaller in diameter, but wider, than the former.

The gear 7 is adapted to engage the gear 19 for driving the shaft 16 at comparatively high speed, as illustrated to advantage in Figure 1 of the drawings, and the gear 8 is adapted to engage the gear 18 (see Figure 2) for driving said shaft 16 at comparatively low speed. When a coarse but rapid adjustment is desired, the shaft 1 is pushed inwardly to engage the gear 7 with the gear 19 and disengage the gear 8 from the gear 18, the collar 13 passing the free end of the spring 15. Inward movement of the shaft 1 is arrested by the outer collar 14. The shaft 1 is then rotated through the medium of the knob 6 to drive the shaft 16. The spring 15 is sufficiently strong to hold the shaft 1 in its inner position against the tension of the coil spring 9. When a fine adjustment is desired, the shaft 1 is pulled outwardly with sufficient force to move the collar 13 past the spring 15 and engage the gear 8 with the gear 18. The shaft 1 is yieldingly secured in its outer position, as in Figure 2, by the spring 9. Outward movement of the shaft 1 is positively limited by the engagement of the collar 13 with the washer 11. When the gear 7 is operatively engaged with the gear 19, the gear 8 is disengaged from the gear 18, and vice versa. However, owing to the width or length of the gears 8 and 19, the gear 18 is not released from the gear 8 until after the gear 7 is engaged with said gear 19 and vice versa.

It is believed that the many advantages of an apparatus constructed in accordance with the present invention will be readily understood, and

although a preferred embodiment of the device is as illustrated and described, it is to be understood that changes in the details of construction and in the combination and arrangement of parts may be resorted to which will fall within the scope of the invention as claimed.

What is claimed is:—

1. An apparatus of the class described comprising a rotatably and slidably mounted drive shaft, a driven shaft rotatably mounted in parallelism with said drive shaft, comparatively large and small gears fixed on the driven shaft, a gear fixed on the drive shaft and operatively engageable with the small gear, a comparatively small gear fixed on the drive shaft and operatively engageable with the larger of the first-named gears, a spring yieldingly urging the fourth-named gear toward operative position, a collar fixed on the drive shaft, a comparatively strong spring releasably engageable with said collar for securing the third-named gear in operative position, and means for rotating the drive shaft.

2. An apparatus of the class described comprising a drive shaft rotatably and slidably mounted in a support, collars fixed on said drive shaft on opposite sides of the support and engageable therewith for limiting the sliding movement of said drive shaft, a driven shaft, a gear fixed on said driven shaft, a comparatively small gear fixed on said driven shaft, a gear fixed on the drive shaft, another gear fixed on said drive shaft, the fourth-named gear being of greater diameter than the third-named gear, said third-named gear being operatively engageable with the first-named gear when the fourth-named gear is in inoperative position and said fourth-named gear being operatively engageable with the second-named gear when the third-named gear is in inoperative position, the second and third-named gears being comparatively wide, a coil spring encircling the drive shaft and engaged with the third-named gear for yieldingly urging the same toward operative position, a comparatively strong spring engageable with one of the collars for releasably securing the fourth-named gear in operative position against the tension of the first-named spring, and means for actuating the drive shaft.

3. An apparatus of the class described comprising a driven shaft, gears fixed on said driven shaft, a support, a drive shaft rotatably and slidably mounted in said support, collars fixed on said drive shaft for limiting the sliding movement thereof in opposite directions, gears fixed on said drive shaft, one of the second-named gears being operatively engageable with one of the first-named gears, the other of the second-named gears being operatively engageable with the other of the first-named gears, a spring operatively connected to the drive shaft for yieldingly urging said one second-named gear toward engaged position, a comparatively strong spring mounted on the support and releasably engageable with one of the collars for releasably securing said other of the second-named gears in operative position against the tension of the first-named spring, and means for actuating the drive shaft.

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