Feb. 23, 1932. A. J. VASSELLI 1,846,289

RADIO STATION FINDER

Filed March 1, 1928 2 Sheets-Sheet 1

Fig. 1.

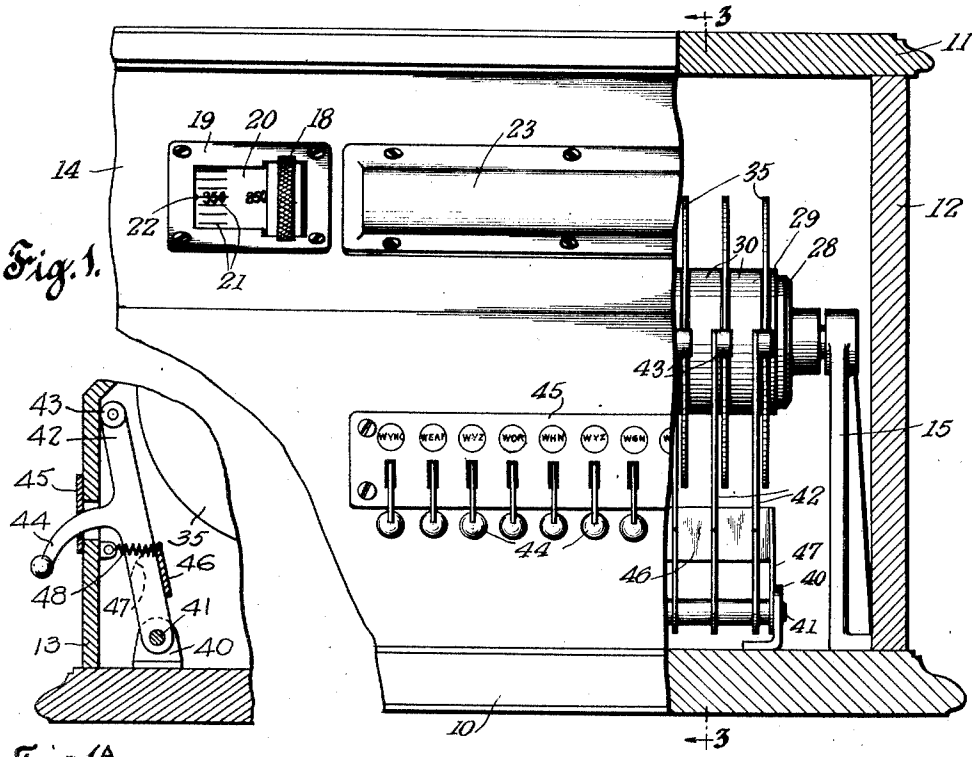


Fig. 1A

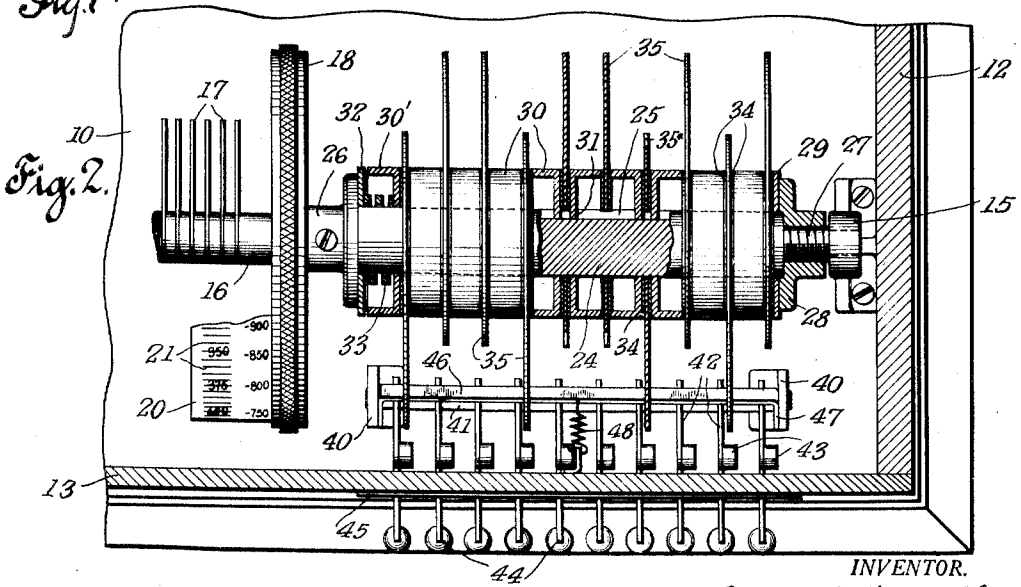


Fig. 2.

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Fig. 3.

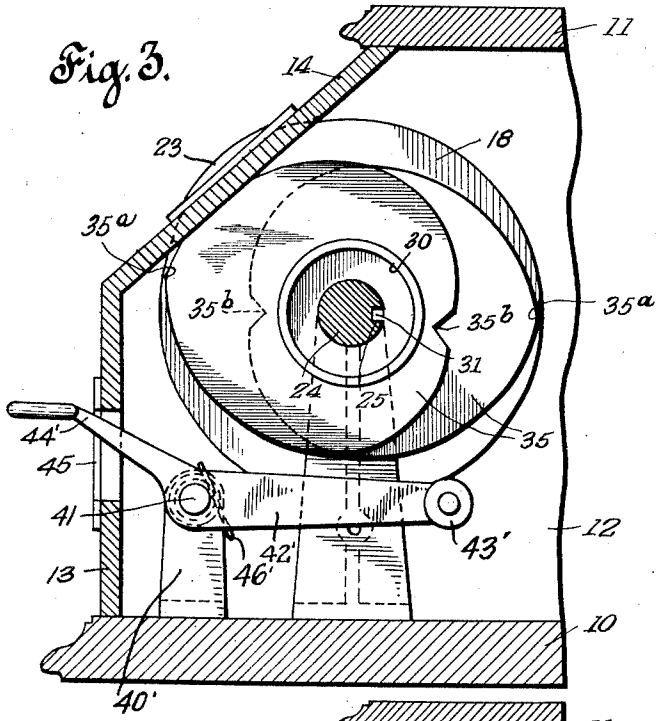
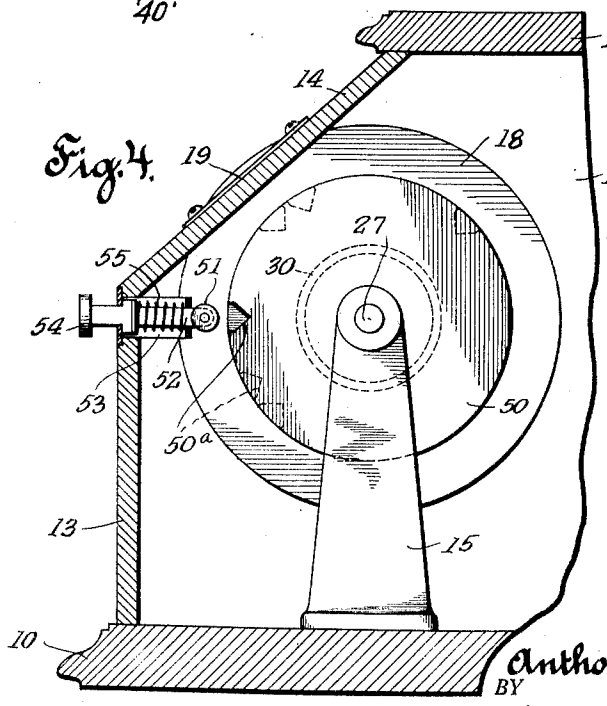


Fig. 4.



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UNITED STATES PATENT OFFICE

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RADIO STATION FINDER

Application filed March 1, 1928. Serial No. 258,400.

This invention relates to radio receiving apparatus and more particularly to devices for adjusting the usual plate condensers.

Whether it be a simple single group of condenser plates actuated by a single knob, a series of such groups having a single control, or an independent control for each group, considerable time is spent in bringing in a desired station and the final adjustment must be carefully done in order to obtain the best possible result.

Ordinarily, all of the several rotor plates, as interposed between the stator plates, are fixed upon a unitary shaft, actuated by a hand knob provided with an index or, in some cases, a so-called vernier dial, direct or geared, so as to produce a slow rotary motion of the shaft whereby accuracy in setting the plates is facilitated.

As there is but one absolutely correct adjustment of the condenser for each station, it is exceedingly easy to run past or stop short of perfection in obtaining the best results and it is usual to adjust by sound, using the index, if any, as an approximate guide.

This invention has as its main object to provide positive means for accurately adjusting the condenser rotor shaft unfailingly, and unvaryingly to shift the rotor plates into a predetermined position relative to the stator plates corresponding to the wave length of any selected station.

A further feature is in the provision of an accurate, easily operated, simple and compact device for station finding, that is capable of rapid action, is of good appearance and inexpensive to produce.

These and other important aims, which will later become evident, are accomplished by the novel construction, combination and arrangement of parts hereinafter described and shown in the accompanying drawings, a material component hereof, and in which:—

Figure 1 is a partial front elevational view of a conventional cabinet, broken away to show a portion of an embodiment of the invention.

Figure 1*a* is a fragmentary transverse sectional view taken on line *x*—*x* of Figure 1.

Figure 2 is a fragmentary plan and sectional view of the same.

Figure 3 is a partial transverse sectional view of a modified form of cam levers preferably used in the structure.

Figure 4 is a similar sectional view showing a further modified form of construction.

The cabinet is shown to consist of a base 10, cover 11, ends 12 and a front, the lower portion 13 of which is upright and joined to an upper, rearwardly inclined portion 14, as is usual in such structures.

A bracket 15, fixed to the base within the cabinet near one end, supports an end of a shaft 16 on which are fixed rotor plates 17, the shaft being shown as provided with a knurled wheel 18 by which it may be manually turned, but it is to be understood that other means for rotating the shaft may be substituted as preferred.

A portion of the periphery of the wheel 18 extends outwardly through an opening in a plate 19 secured on the casing face 14, and carried by the wheel is a hollow cylinder 20 provided with graduations 21 readable with reference to a pointer 22 and bearing numerals having reference to station members, wave lengths, etc.

Adjacent and in register with the plate 19 is a raised shield 23, which may or may not be required, to provide room for elements later on described.

A portion of the shaft 16, on the opposite side of the adjusting wheel 18, is enlarged, as at 24, and provided with a key-way or channel 25.

Rigidly secured on the shaft, between the wheel and enlarged portion, is a flanged collar 26 and on the outer reduced and screw threaded end 27 of the shaft is a clamp collar nut 28, through which the further reduced end of the shaft extends to enter a bearing in the bracket 15.

A metal washer 29, free on the shaft section 24 receives the thrust of the nut 28 and strung loosely on this section are a plurality of annularly flanged cup shaped washers 30 each having inreaching tangs 31 fitting the key-way 25 and preventing the cups from

turning but permitting free longitudinal action on the shaft.

The end cup 30′ has its edge spaced from a washer 32 abutting the flange of the fixed collar 26 and interposed between the washer 32 and inner surface of the cup 30′ is a coiled compression spring 33 encircling the shaft and acting to press the cups towards the nut 28.

Between the washer 29 and each of cups 30 are thin plate cams 35 having friction washers 34 interposed on each side. All of these several cams are alike in profile, which is essentially heart shaped, having high points 35*a* and corresponding angular depressions 35*b* directly opposite.

Mounted on the base 10, near the front of the cam group, are a pair of small brackets 40 in which is carried a rod 41 acting as the pivot for a plurality of levers 42 corresponding to the cams 35.

At the upper end of each lever is carried a roll 43 to contact the edge of the adjacent cam and angular arms 44 on each lever project through openings in the face 13 of the cabinet and corresponding openings in a plate 45, the plate openings having displayed thereabove symbols referring to the stations it may be desired to connect with.

These several levers are provided at their outer extending ends with finger pads and are normally pressed outwardly into inoperative position by a flat bar 46 extending longitudinally across the inner surfaces of the series of bars and having down turned ends 47 pivoted on the rod 41 near its ends, this bar being drawn outwardly by a single tension spring 48 attached respectively to the center of the bar and casing.

To operate the device the arm 44 of the selected lever is pressed inwardly causing the roll carried by it to contact with its corresponding cam, on either side of its high point and upon exerting pressure, the cam will be turned until the roll has reached the lowest point.

As the cams are frictionally bound to the shaft, the shaft and rotor plates will be turned to bring in the selected station unerringly, it being understood that the cams are initially adjusted on the shaft with reference to the several stations.

The adjusting device seen in Figure 3 is modified only with respect to the levers, all other parts remaining as previously described.

The brackets 40′ are extended to a greater height, to carry the shaft 41 on which are pivoted a series of levers 42′ carrying at their inner ends rolls 43′.

The opposite, outwardly extending portions 44′ of the levers reach through slots in the plate 45 and are provided with finger pads which, upon being forcibly depressed, actuate the corresponding cams 35.

The plate 46 and spring 48 are omitted and in their place are substituted independent springs 46′ operatively engaging the levers to maintain their outer ends in a raised position.

In the modification shown in Figure 4 a series of discs 50 are substituted for the cams 35, each disc having a notch 50*a*, the same being engageable by a roll 51 carried by a plunger 52.

The plunger is guided in a bracket 53, fixed in the casing wall and provided with an extending knob 54 carrying its particular station symbol and held normally outward by a compression spring 55 encircling the plunger stem.

It will be understood that each disc is mounted on the shaft to cause its rotation and that the notch of the disc corresponds to a known station setting.

In operation, the knob 54 is pressed inwardly to contact the periphery of the disc and the wheel 18 turned until the roll has entered the notch, thereafter assuming its normal outward position, the disc and shaft remaining stationary.

Obviously the wheel 18 may be used in a similar manner in assisting a roll to operate the cam until it has reached its dwell.

From the foregoing it will be seen that a simple device for this purpose has been disclosed in the preferred form of its embodiment, but it is not desired to restrict the details to the exact instruction shown, it being obvious that changes, not involving the exercise of invention, may be made without conflicting with the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A radio station finder comprising in combination, a receiving set including a plate condenser having a shaft on which the rotor plates are fixed, a peripheral faced rotatable cam for each station on said shaft, a plurality of manually actuated levers, and rolls on said levers to impinge on the faces of said cams selectively for rotating each cam into a predetermined position to tune in a selected station.

2. A radio station finder comprising in combination, a receiving set including a plate condenser having a rotor plate shaft, a heart cam on said shaft for each station to be found, said cam presenting uniform arcuate profile, a roll movable against the periphery of each cam to rotate the same in either direction from substantially any point of contact to its zero point corresponding to the station to be found, means of supplying pressure to said roll, and means for retracting the rolls and pressure means upon release thereof.

3. A radio station finder comprising in combination, a receiving set including a plate

condenser, a shaft on which the rotor plates of the condenser are fixed, a series of spaced profile cams arranged on said shaft to present their shortest radius with respect to a definite station, levers carrying rolls to contact cams causing rotation thereof until their shortest radius has assumed a predetermined position, means for manually actuating said levers selectively, and means for returning said levers to initial position.

4. A radio station finder comprising in combination with a casing, a receiving set therein, said set including a condenser having rotor plates secured on its shaft, a series of levers pivoted in said casing, operating arms on said levers extending outward beyond the casing, a symbol for each arm, rolls carried at the free ends of said levers, plates having notches in their peripheral edges engageable by said rolls, said plates being operatively carried by said shaft, and means to return said levers to an initial position.

5. A radio station finder comprising in combination, a casing, a receiving set including one or more plate condensers, a shaft on which the rotor plates of said condensers are mounted, means extending through the casing to actuate said shaft, a profile cam tensionally held on said shaft for each station, a plunger corresponding to each cam operable through said casing wall, and means in each cam to receive its corresponding plunger when the plate is rotated to a definite position.

6. A radio station finding device comprising in combination with a plate condenser shaft, of a series of annularly flanged spacer washers on said shaft, discs for each station intervening said washers, means for resiliently clamping said washers and discs on the shaft, said discs each having a single notch in their peripheries arranged relative to the station represented by the disc, means for rotating said shaft, and means engageable in the notches of the discs when rotated into a predetermined position.

7. A radio station finding device comprising in combination with a plate condenser shaft having a key-way, of a series of annularly flanged spacing washers having tangs to engage the key-way of said shaft, a disc for each station to be found, said discs alternating between the washers, friction means interposed between said discs and washers, means to create pressure on said washers, each disc having a single notch in their edges disposed with reference to the station sought, and means engageable in the notch of each disc when in position to bring the condenser into adjustment to receive the full effect from the station.

8. A radio station finding device comprising in combination with a plate condenser shaft having a key-way, of a series of annularly flanged spacing washers having tangs to engage the key-way of said shaft, a disc on said shaft for each station, flanged collars between said discs, means in the edge of each disc indicative of the position of the condenser rotor plates, means to rotate said shaft, and means engageable with the position indicating means in said discs to prevent rotation of the shaft when adjusted to tune the condenser plates relative to the selected station.

9. A radio station finder comprising in combination with a receiving set including a plate condenser having a shaft, of a series of levers having outstanding projections, and profile cams frictionally held on said shaft selectively actuated by said levers for rotating the shaft into a position corresponding to the station sought.

10. A radio station finder comprising in combination with a receiving set including a plate condenser having a shaft, of a series of push-buttons one for each station, means for rotating the shaft into an approximately correct position relative to a desired position, and profile cams adjustably confined on said shaft engageably by said push-buttons to complete the tuning of said shaft and prevent its further rotation in either direction.

11. In a radio receiving set, a plurality of tuning condensers, a common shaft therefor, an adjusting dial for said shaft and means separate from said dial for operating said shaft, said means including a plurality of separate levers, setting devices, one for each lever, each setting device including an exterior profile cam, and lever-driven rollers co-operating with the respective cams.

12. A radio station finder comprising in combination, a receiving set including a plate condenser having a shaft on which the rotor plates are fixed, a peripheral faced rotatable cam for each station on said shaft, and manually actuated lever means contacting the peripheral faces of said cams for rotating each cam into a predetermined position to tune in a selected station.

In testimony whereof I affix my signature.

ANTHONY J. VASSELLI.