

UNITED STATES PATENT OFFICE

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RADIO RECEIVER SCALE

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15 Claims. (Cl. 116—124.4)

The present invention is directed to a device intended to individuate in radio receivers the several stations whose signals come in or are desired, the individuation being made on the ground of different sets of characters as their succession in terms of frequency or wave length and the alphabetical succession of the names of stations or of their locations.

The device of the present invention removes the objection existing in indicators in which the dial having a scale in terms of a given character is mounted to move and is adapted to come into view to the operator over a reduced portion of its extent, said objection consisting in the fact that the operator at the time he wants to tune into a station not directly adjacent to that previously tuned in, has no indication suggesting him the position into which he should bring the tuning control means nor the direction in which he should operate said tuning control to approach the wanted station.

An embodiment of the present invention is shown on the annexed drawing and

Figure 1 is a diagrammatical plan section thereof;

Figure 2 is a fragmentary front view of the indicator as appearing to the operator through a slot of the receiver panel;

Figure 3 is a fragmentary transverse section on line 3—3 of Figure 1.

In the illustrated construction the device includes a drum 1 carried by a spindle 2 which is mounted in bearings 3; said drum 1 is rotated by means of a grooved pulley 4 and a cord 5 which is driven by a grooved pulley 6 fast on the spindle of a tuning knob 7 controlling a condenser 8 or any other preferred tuning element.

The drum 1 has scales as 28 showing the tuning positions which correspond with the several stations to be tuned into, and a comparatively restricted region thereof may come in view to the operator through a slot 9 provided in the stationary panel 10 located in front of said drum; said slot has pointers 11 to enable the operator to effect a correct adjustment.

In the illustrated embodiment the drum 1 has three scales 28, 28', 28'' arranged side by side and made in terms of frequency or wave length respectively in connection with three ranges (short waves, long waves and medium waves); said drum 1 is made of translucent material and cooperating electric lamps 12 are located within it in register with said scales, said lamps being supported by a plate 29 extending from one of bearings 3 and adapted to be selectively ener-

gized each to illuminate the respective scale, in unison with the manipulation of a wave-selector or switch not shown.

A second drum 13 is loose by its spindle 30 in bearings 3, said drum 13 being actuated by means of a knob 17, a grooved pulley 16, a cord 15 and a grooved pulley 14 fast with drum 13.

A cam member 18 is located in drum 1 and fast with it, said cam having a helical operative edge, and a slider 20 engages said cam 18 by an end roller 22 which abuts on the helical edge of said cam 18 under the action of a spring 19; said slider 20 is mounted to move in a stationary guide sleeve 21 fast on one of the shaft bearings 3 and extending inside said drum 1.

The configuration and extension of the edge of the cam 18 are such as it causes a full stroke of the slider 20 equal to the longitudinal extent of the drum 13, when an angular displacement is imparted to the drum 1 to cause a desired one of its scales 28, 28', 28'' to move through a full stroke in register with pointers 11—11 of slot 9.

The drum 13 is made of translucent material and carries the references of several stations or locations thereof in alphabetical succession; accordingly a region as 13' of said drum 13 which is confined between two generatrices of said drum corresponds with each station or location and said region may be carried in view to the operator through a slot 22 of the panel 10 having appropriate pointers 23, by the manipulation of knob 17 and associate parts.

The end of the slider 20 extending within drum 13 has a casing 24 fast thereon said casing having a perforation 25 directed towards the wall of the drum 13 adjacent to it and enclosing a lamp 26 fed by a suitable source and wires not shown.

Each region 13' of the drum 13 as above defined includes a reference which may consist of a line 27. Appropriate references are located on the surface of the drum 13 in the region 13'. The precise location of each reference 27 is controlled by the longitudinal displacement of slider 20 which is actuated by the cam 18 solid with the drum 1. The casing 24 and its perforation 25 take a well defined position longitudinally along drum 13 in respect of each angular position of drum 1 about its axis. In other words, each tuning position of the drum 1 corresponds to a particular position of the casing 24 and the perforation 25 with respect to the drum 13. The proper tuning position for the drum 1 is shown in terms of frequency or wave length by the

scales thereon, which register with points 11. Accordingly, each reference 27 on the regions 13' of the drum 13 is marked at the point within the region 13' where a spot of light is formed by the light pencil emanating from the opening 25 of casing 24, when the set is tuned by the operation of parts 7, 8, 1, 11; said casing 24 has been correspondingly located by the operation of parts 18, 22, and 20; and the desired region 13' of the drum 13 has been carried in register with points 23.

Should two or more stations operative on different frequencies exist in a given location, the respective region of drum 13 is provided with two or more references 27 such references being differentially located along said region as shown in respect of region 13'.

When the knob 7 is manipulated, the several marks of a scale of the drum 1 come sequentially by order of frequency in register with pointers 11, 11 and the casing 24 with perforation 25 takes a predetermined and distinct position along the axis of drum 13 in respect of each of the tuning positions imparted to tuning element 8 and the drum 1 connected therewith by the manipulation of the tuning knob 7.

To tune the set on a given station defined by its name or location, the drum 13 is shifted by the manipulation of the knob 17, into its position in which such name or location appears in slot 22 in register with pointers 23, and then the knob 7 is manipulated until the light spot due to the pencil issuing from lamp 26 through the perforation 25 of casing 24 registers with the reference line 27 in said region of drum 13. As above stated, the several stations which may exist and operate on different frequencies in a given location or region, may be discriminated and tuned into by means of respective references 27 appearing at the side of each other in said drum region 13' along the direction of the axis of drum 13.

Reversely when the tuning element 8 and cooperating drum 1 with cam 18, slider 20 and casing 24 are in position for receiving an incoming signal, the respective sending station may be identified by name or location by rotating the drum 13 by means of knob 17 until one of the reference lines 27 of the drum 13 registers with the light spot produced on the drum 13 by the parts 26, 25, 24, the region 13' or 13'' of drum 13 in which such reference line is located showing then the name or location of said station in register with the pointers 23.

Said reference lines 27 may be provided in different colours in accordance with several wave length ranges to evidence their cooperation with the respective several scales of the drum 1 having similar colours and with the position imparted to the wave selector or switch. Of course the described arrangement is adapted for different embodiments lying within appended claims; say ribbons adapted to wind and unwind on and from bobbins, or movable plates, or also circular and rotatable dials may be used instead of either or both drums 1 and 13, and a spiral cam or an equivalent member may be substituted for helical cam 18.

What I claim as my invention and desire to be secured by United States Letters Patent is:—

1. An indicator of tuned-in transmitting station in a radioreceiver comprising a scale made in terms of a given datum, a pointer cooperating therewith, actuating means for producing a respective motion of said pointer and scale said

actuating means being connected with a tuning element of said radioreceiver, a second scale independent of said first scale and made in terms of a second datum, a second pointer cooperating with said second scale, said second scale and second pointer being respectively adjustable in respect of said second datum, and means for shifting said second pointer in unison with said respective motion of said first named scale and pointer.

2. An indicator of tuned-in transmitting station in a radioreceiver comprising a scale made in terms of a given datum, a pointer cooperating therewith, actuating means for producing a respective motion of said pointer and scale said actuating means being connected with a tuning element of said radioreceiver, a second scale independent of said first scale and made in terms of a second datum, a second pointer cooperating with said second scale to traverse it, means movably supporting said second scale for its selective setting with respect to the traverse of said second pointer in terms of said second datum, and means for shifting said second pointer in unison with said respective motion of said first named scale and pointer.

3. An indicator of tuned in transmitting station in a radioreceiver comprising a scale made in terms of a given datum, a pointer cooperating therewith, actuating means for producing a respective motion of said pointer and scale said actuating means being connected with a tuning element of said radioreceiver, a second scale independent of said first scale and made in terms of a second datum, a second pointer cooperating with said second scale to traverse it, means for shifting said second pointer in unison with said respective motion of said first scale and pointer, and means supporting said second scale for its selective setting with respect to the traverse of said second pointer in a direction transverse to motion of said second pointer under the action of said shifting means therefor.

4. An indicator of tuned in transmitting station in a radioreceiver comprising a scale made in terms of a given datum, means movably supporting said scale, means for actuating said scale said movable scale and actuating means being connected with a tuning element of said radioreceiver, a pointer cooperating with said scale, a second scale independent of said first scale and made in terms of another datum, a second pointer cooperating with said second scale to traverse it, means movably supporting said second scale for its selective setting with respect to the traverse of said second pointer in terms of said second datum, and means for shifting said second pointer in unison with said first scale.

5. An indicator of tuned in transmitting station in a radioreceiver comprising a scale made in terms of a given datum, means movably supporting said scale, means for actuating said scale said movable scale and actuating means being connected with a tuning element of said radioreceiver, a pointer cooperating with said scale, a second scale independent of said first scale and made in terms of another datum, a second pointer cooperating with said second scale to traverse it, means movably supporting said second scale for its selective setting with respect to the traverse of said second pointer in terms of said second datum, and means on said first scale for shifting said second pointer in unison with said first scale.

6. An indicator of tuned in transmitting station in a radioreceiver comprising a scale made

in terms of frequency, means movably supporting said scale, means for actuating said scale said movable scale and actuating means being connected with a tuning element of said radioreceiver, a pointer cooperating with said scale, a second scale independent of said first scale and made in terms of a datum other than frequency, a second pointer cooperating with said second scale to traverse it, means movably supporting said second scale for its selective setting with respect to the traverse of said second pointer in terms of said second datum, and means for shifting said second pointer in unison with said first scale.

7. An indicator of tuned in transmitting station in a radioreceiver comprising a scale made in terms of a datum other than the names of station locations, means movably supporting said scale, means for actuating said scale said movable scale and actuating means being connected with a tuning element of said radioreceiver, a pointer cooperating with said scale, a second scale independent of said first scale and made in terms of names of station locations, a second pointer cooperating with said second scale to traverse it, means movably supporting said second scale for its selective setting with respect to the traverse of said second pointer in terms of said second datum, and means for shifting said second pointer in unison with said first scale.

8. An indicator of tuned in transmitting station in a radioreceiver comprising a scale made in terms of a given datum, means movably supporting said scale, means for actuating said scale said movable scale and actuating means being connected with a tuning element of said radioreceiver, a pointer cooperating with said scale, a second scale independent of said first scale and having references located thereon in terms of another datum, a second pointer cooperating with said references of said second scale, means movably supporting said second scale for its selective setting with respect to the traverse of said second pointer, and means for shifting said second pointer in unison with said first scale.

9. An indicator of tuned in transmitting station in a radioreceiver comprising a scale made in terms of a given datum, means movably supporting said scale, means for actuating said scale said movable scale and actuating means being connected with a tuning element of said radioreceiver, a pointer cooperating with said scale, a second scale independent of said first scale and having differentiated references located thereon in terms of another datum, a second pointer cooperating with said differentiated references of said second scale, means movably supporting said second scale for its selective setting with respect to the traverse of said second pointer, and means for shifting said second pointer in unison with said first scale.

10. An indicator of tuned in transmitting station in a radioreceiver comprising a scale made in terms of a given datum, means movably supporting said scale, means for actuating said scale said movable scale and actuating means being connected with a tuning element of said radioreceiver, a pointer cooperating with said scale, a second scale independent of said first scale and having references arranged thereon in terms of another datum said references including a number of differentiated references in respect of each of selected ones of data of said second scale, a second pointer cooperating with said second scale to traverse it, means movably supporting said sec-

ond scale for its selective setting with respect to the traverse of said second pointer in terms of said second datum and means for shifting said second pointer in unison with said first scale.

11. An indicator of tuned in transmitting station in a radio receiver comprising a scale made in terms of frequency, means movably supporting said scale, means for actuating said scale said movable scale and actuating means being connected with a tuning element of said radioreceiver, a pointer cooperating with said scale to traverse it, a second scale independent of said first scale and having references thereon which are differentiated in respect of frequency ranges and located thereon in terms of another datum, a second pointer cooperating with said differentiated references of said second scale, means movably supporting said second scale for its selective setting with respect to the traverse of said second pointer, and means for shifting said second pointer in unison with said first scale.

12. An indicator of tuned in transmitting station in a radioreceiver comprising a drum having thereon a scale in terms of a given datum, means rotatably supporting said drum, means for actuating said drum and connected with a tuning element of said radioreceiver, a pointer cooperating with said drum scale, a second scale independent of said drum and made in terms of another datum, a second pointer cooperating with said second scale to traverse it, means movably supporting said second scale for its selective setting with respect to the traverse of said second pointer in terms of said second datum and means fast on said drum for shifting said second pointer in unison with said drum and scale thereof.

13. An indicator of tuned in transmitting station in a radioreceiver comprising a scale made in terms of a given datum, a pointer cooperating therewith, actuating means for producing a respective motion of said pointer and scale said actuating means being connected with a tuning element of said radioreceiver, a drum having references located thereon in terms of another datum, means for rotatably supporting said drum, means for angularly setting said drum, a second pointer arranged to traverse said drum and to cooperate with said references thereof, and means for shifting said second pointer in unison with said respective motion of said first named scale.

14. An indicator of tuned in transmitting station in a radioreceiver comprising a drum having thereon a scale in terms of frequency, means rotatably supporting said drum, means for actuating said drum and connected with a tuning element of said radioreceiver, a pointer cooperating with said drum scale, a second drum having references at differentiated regions thereof, means for rotatably supporting said second drum, means for angularly setting said second drum, a support member extending within said first drum, a carrier mounted to slide in said support, a second pointer on said carrier arranged to traverse said second drum and cooperate with said references thereof, and a cam member fast in said first drum and actuating said carrier to cause the traverse of said second pointer along said second drum.

15. An indicator of tuned in transmitting station in a radioreceiver comprising a drum having thereon a scale in terms of frequency, means rotatably supporting said drum, means for ac-

tuating said drum and connected with a tuning
element of said radioreceiver, a pointer coop-
erating with said drum scale, a second drum
having translucent references at differentiated
5 regions thereof, means for rotatably supporting
said second drum, means for angularly setting
said second drum, a support member extending
within said first drum, a carrier mounted to

slide in said support, a second pointer on said
carrier arranged to traverse inside said second
drum and cooperate with said references thereof,
a light source on said pointer and a cam mem-
ber fast in said first drum and actuating said
carrier to cause the traverse of said second
pointer along said second drum.

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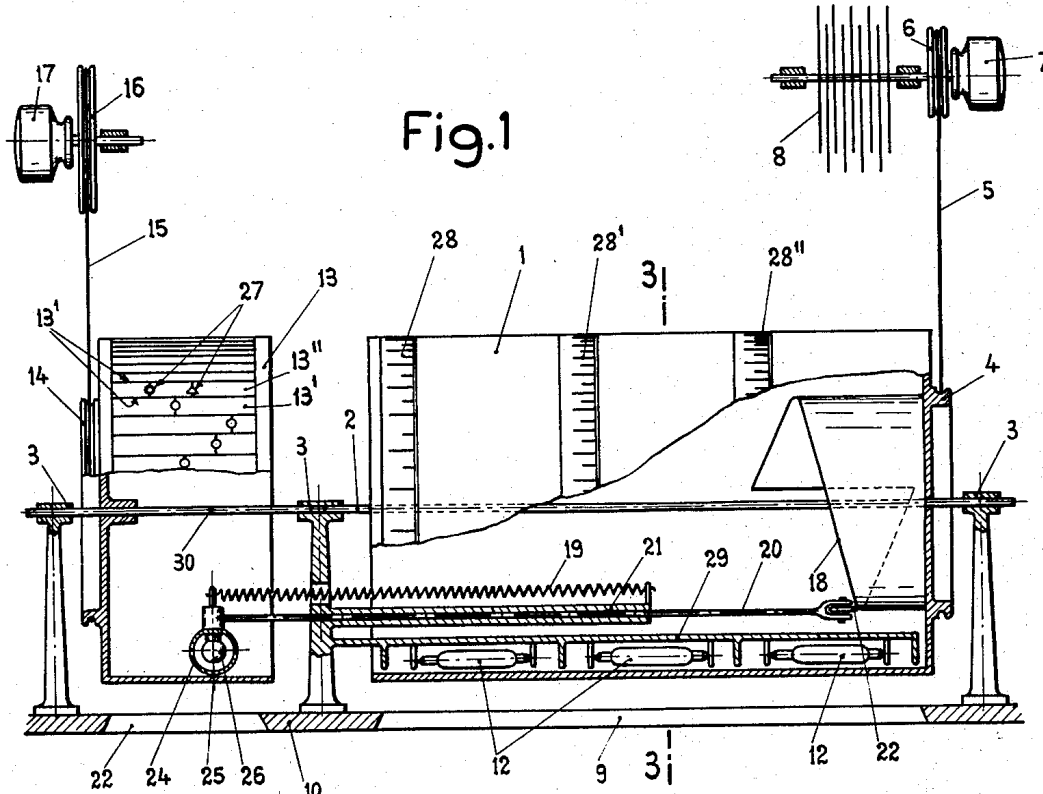


Fig. 2

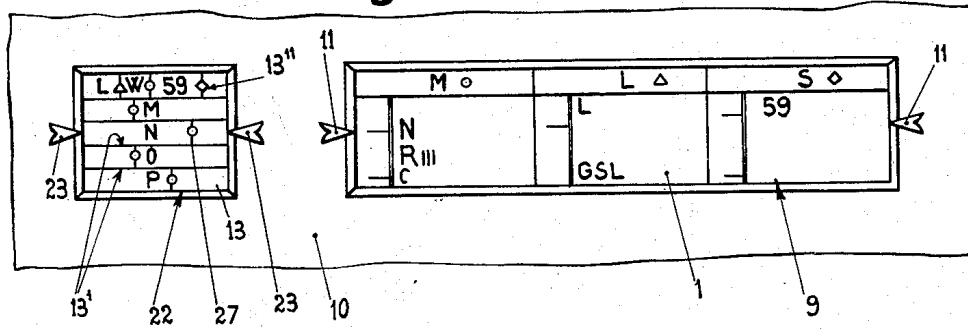
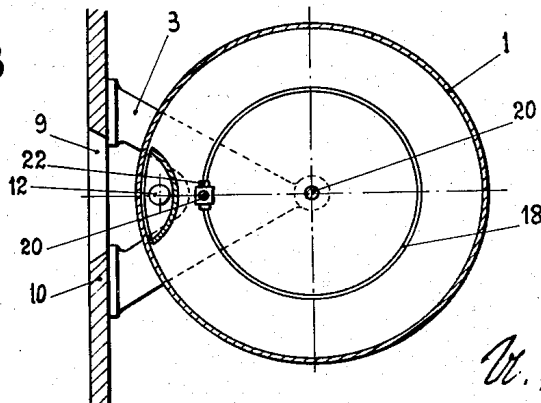


Fig. 3



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