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W. S. REDFIELD

STATION INDICATION FOR RADIORECEIVING SETS

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Fig. 1

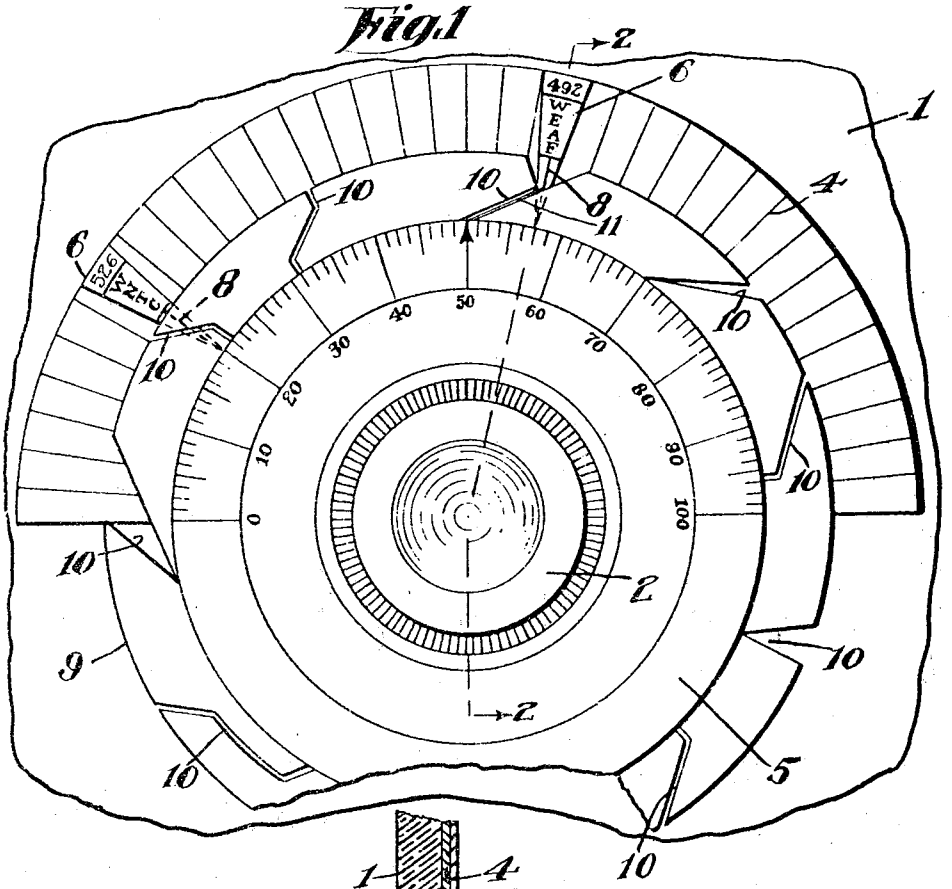
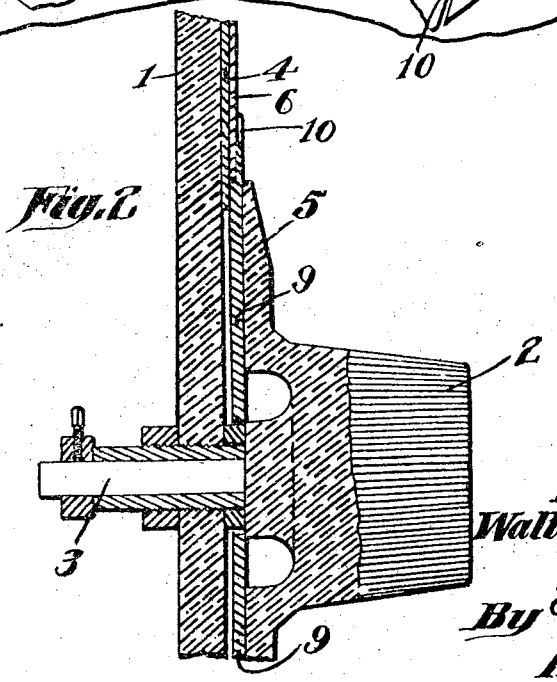


Fig. 2



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UNITED STATES PATENT OFFICE.

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STATION INDICATION FOR RADIO RECEIVING SETS.

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To all whom it may concern:

Be it known that I, WALTON S. REDFIELD, a citizen of the United States, residing at Providence, county of Providence, State of Rhode Island, has invented certain new and useful Improvements in Station Indication for Radio Receiving Sets, of which the following is a specification.

This invention relates to radio receiving apparatus, and particularly to the convenient indication at the tuning controls of the receiving set itself of the various sending stations within the range of that particular set.

Ordinarily, the owner of a radio receiving set keeps a "log" of the wave lengths of the various sending stations which he is able to hear on his set, together with notations as to the points on his tuning dials at which he best hears each particular station.

This log usually takes the form of a book or card which, being wholly independent of and separate from the receiving set itself, is liable to become lost or misplaced, or not immediately at hand when wanted for reference. In using such a log, therefore, the operator first finds the log itself, then finds in it the adjustment data for the particular sending station which he wishes to tune in, and finally sets his tuning controls for those particular adjustments. Whenever he wishes to tune in a different station, therefore, he has to repeat this process, and hence the log book must be kept constantly at hand and must be repeatedly referred to. This is both troublesome and time-consuming, and is avoided by my invention.

It has been proposed, heretofore, to supply each tuning dial of the receiving set with a disc of paper, celluloid, or the like, on which the log data could be penciled. It has also been proposed to write the log data on a sheet of paper affixed to the panel board of the set.

Neither of these methods of "logging," however, wholly accurately establishes the positions of the station markings with reference to the adjustment of the tuning controls, and hence does not permit that instant refinement of tuning which is so essential to perfect reception. Moreover, with sets of extensive range, only a comparatively few of the many stations capable of being heard on the set can be indicated, owing to limitations of space for log data. Incidentally, where the markings are penciled on the dial, they are apt to be rubbed by the hand in adjusting the dial and soon become blurred and illegible. Frequently also, two or more stations send on the same, or substantially the same wave length, and where this occurs, it is practically impossible to visually indicate all of these stations without confusion of station markings. Furthermore, where station wave lengths are changed, erasure of existing log data for the changed station or stations is necessary, with consequent likelihood of spoiling the appearance of the entire log sheet.

To the end, therefore, of avoiding the several disadvantages above pointed out, I have devised my present invention. According to it, I provide the panel of the receiving set adjacent each tuning control with a relatively fixed station field which is preferably in the form of a series of station locating lines radially intercepting the path of rotation of a station finding indicator carried by the tuning control, and so related thereto as to permit the position of any sending station within the range of the set to be accurately determined and visually indicated on said field by means of a series of station markers which may be either permanently or adjustably affixed on said field at the positions thus determined.

The markings of the station field intercept the path of rotation of the indicator of the tuning control on lines having the axis of rotation of said control as a center, and hence all possibility of inaccurately locating a sending station with reference to that particular control is avoided, since each station lies on or between the lines of radial intercept. The station markers themselves necessarily have physical dimension, and while it is possible to reduce their width somewhat by making them in the form of sector-shaped pieces corresponding in general outline to the radial intercepts of the station marking lines, I prefer, in addition, to provide each marker at its inner end with a match-mark with which the station-finding indicator of the tuning control can be registered, so as to give the maximum accuracy of adjustment.

The relatively fixed station field may be variously applied to the receiving set. As

here shown, said field is applied to the panel of the receiving set either as a direct engravure or other form of permanent marking, or as a separate sheet of cardboard, celluloid, metal, or the like, and the shaft of the tuning control which carries the station-finding indicator is utilized as a temporary mount for a template which is rotatable over said station field independently of the station-finding indicator and is provided about its periphery with a series of variously-shaped openings through which the match-marks of the underlying station markers on the station field are selectively exposable. By the use of the template, the station field and markers may be permanently engraved or otherwise affixed on the panel of the receiving set when the set is assembled, and any variations in station positions compensated for by the template, since the adjustment of the station-finding indicator does not need to even closely approximate the selected station marker, the station-finding indicator being simply moved towards the selected station marker, and the template then rotated until the match-mark is exposed through one of its slots or openings, after which a line is drawn with pen, pencil, or stylus through the template slot from the match-mark of the station marker to the point in the path of rotation of the station-finding indicator where the best reception for that particular station is had. This arrangement, therefore, not only permits the greatest possible refinement of tuning, reducing as it does the limitation of the adjacent station markers to the width of the ink or pencil connecting line, but permits the greatest latitude in locating the station markers on the field, since by the use of the template, it is immaterial how many degrees the station-finding indicator may be removed from registration with the particular station marker, provided they are within the limits of one or a combination of the variously shaped slots or openings of the template so that a connecting line or lines may be drawn. In fact, where several stations lie closely adjacent each other on the station field, a connecting line for each station may be drawn in the same opening of the template and such lines may even cross each other. The connecting lines may be drawn in contrasting colors so as to be readily distinguishable from each other, and, if desired, the station markers themselves may be a contrasting color.

The method of practising my invention, together with suitable embodiments for carrying out the principles involved, are described and illustrated in the accompanying specification and drawings, and the characteristic features of novelty are particularly pointed out in the appended claims. Throughout the specification and drawings, like reference characters are correspondingly applied, and in the drawings:—

Fig. 1 is face view of one of the tuning controls of a radio receiving set equipped for station indication in accordance with my general concept, and

Fig. 2 is a section on the line 2—2 of Fig. 1.

I have indicated at 1 a portion of the panel board of a radio receiving set of standard type, and at 2 the knurled knob of a tuning control, which is mounted on a shaft 3 journaled through the panel 1.

According to my general concept, I provide the panel 1 behind each tuning control with a relatively fixed station field, which as here shown comprises a series of station locating lines 4 intercepting the path of rotation of the station-finding indicator of the tuning control on lines having the axis of rotation 3 of said control as a center.

The station-finding indicator itself may be any device rotating with the tuning knob 2. Where the tuning control is provided with the usual graduated dial 5, as shown in Figs. 1 and 2, this indicator may be any selected graduation relatively half-way between the extremes of reception of the control, as the graduation 50 on the dial shown, and for convenience of recognition this graduation 50 may be visually differentiated from the other graduations in any desired manner, as by applying to it an arrow-head 6 (Fig. 1) or other distinguishing device. Obviously, however, a reading line could be scratched on the dial midway between its extremes of reception if desired, and used as a station-finding indicator, or in fact the dial could be wholly omitted and in its place a simple pointer rotating with the tuning knob 2 could be used. For the purpose of this application, however, I have shown the station-finding indicator as carried by the dial itself, although it is to be understood that this showing is purely illustrative and in no way limiting.

As previously stated, the station locating lines 5 of the station field radially intercept the arc of rotation of the station-finding indicator, and hence the sending stations within the range of that particular set lie on or between the lines of radial intercept, and may thus be accurately located and their positions visually indicated on the station field by any suitable station markers applied directly thereto.

The station markers themselves are preferably sector-shaped pieces 6 of cardboard, celluloid, metal or the like, bearing indicia descriptive of the various stations within the range of the receiving set, as for example, the code name and wave length of the station.

The station markers are applied to the station field in any desired manner. In

some instances they may be affixed to the field in their proper positional relationship thereon by simply gluing or otherwise affixing them directly thereto. Where the station field itself is constructed as an attachment for the set, as where it is a separate piece of cardboard, celluloid, metal or the like, affixed in any suitable manner to the panel board, the station markers may be adjustably mounted on the field so as to be capable of being repositioned thereon should the wave length of a station be subsequently changed.

Although the shape of the station markers is such as to occupy the minimum space consistent with proper legibility on the station field, they nevertheless necessarily have some physical width, and inasmuch as it sometimes happens that a station will be heard with varying degrees of clarity in the zone covered by the marker, I find it expedient to provide each marker with a match mark, indicated at 8, representing the point at which that particular station will be best heard.

Where the station field is engraved or otherwise permanently marked on the panel board, as in newly-assembled sets, the stations within the range of the set may also be permanently marked on the field at something approximating their correct positions thereon for that particular set, and variations in location compensated for by the use of a peripherally slotted template 9 which is temporarily mounted on the shaft of the tuning control for rotation over the station field independently of the rotation of the station-finding indicator.

As here shown the template 9 is loose on the shaft of the tuning control, the dial in these figures carrying the station-finding indicator, but the template may obviously be used with other forms of station-finding indicators, as for example, a simple pointer rotating with the shaft of the tuning knob, in which case the dial would be entirely omitted. The slots or openings at the periphery of the template are indicated at 10 and are of various shapes and sizes.

In using the template, the station-finding indicator of the tuning control is adjusted towards the selected station on the field which it is desired to tune in. This adjustment need be only a very rough one, and as a matter of fact the indicator may come to a position of rest as many degrees removed from the selected station as can be covered by the longest slot or combination of slots of the slot series 10. The station is then connected up with the indicator position by drawing a line or lines, designated at 11 in Fig. 1, from the center or match-mark of the selected station marker which will intercept the arc of rotation of the station-finding indicator at the position of rest of said indicator, and hence in thereafter tuning in this particular station, it is only necessary to register the station-finding indicator with the terminus of said connecting-up line or lines 11. Where two or more stations lie closely adjacent each other on the station field, they may all be indicated through the same slot or opening of the template by simply drawing in the proper connecting-up lines, one for each station. These lines may be contrastingly colored to distinguish them from each other.

The template permits the positions of the station markers to be varied many degrees on the station field, even to the extent of crossing the connecting lines. Where the dial form of station-finding indicator is employed, graduations considerably finer than those now employed may be used. The principal advantage, however, of the template is that it makes possible the greatest refinement of tuning in that it practically reduces the limitation of adjacent station markers to the width of the pencil or ink lines 11 which are drawn in to connect up the stations with the station-finding indicator.

Where the receiving set is provided with more than one tuning control, the station field 4, markers, and station-finding indicator are duplicated on the panel board behind each control.

Various other modifications in the method of and structures for practicing my invention may obviously be resorted to, within the limits of the appended claims.

What I therefore claim and desire to secure by Letters Patent is:

1. Station indicating means for the tuning controls of a radio receiving set, comprising a station-finding indicator adapted to rotate with tuning control of the set, a relatively fixed station field applied to the panel board of the set behind each tuning control and comprising a spaced series of radial markings intercepting the path of rotation of the indicator on lines having the axis of rotation of the tuning control as a center, station markers applied to said field in proper positional relationship thereon, each marker bearing indicia descriptive of a particular sending station and each having a match-mark disposed at substantially the intercept of the radial markings with the path of rotation of the station-finding indicator and a template temporarily mounted on each tuning control to rotate over the station field independently of the rotation of the station-finding indicator for said control and having a peripheral series of variously shaped openings through which the underlying match-marks of the station markers are selectively exposable whereby to permit a connecting line to be

drawn from the match-mark of each selected station-marker exposed through a template opening to the point in the path of rotation of the station-finding indicator at which that particular station is best heard.

2. Station indicating means for the tuning controls of a radio receiving set, comprising a station-finding indicator adapted to rotate with each tuning control of the set, a relatively fixed station field applied to the panel board of the set behind each tuning control, station markers applied to said field in proper positional relationship thereon, each marker bearing indicia descriptive of a particular sending station and each having its inner end disposed to intercept the path of rotation of the station-finding indicator and a template temporarily mouned on each tuning control to rotate over the station field independently of the rotation of the station-finding indicator for said control and having a peripheral series of variously shaped openings through which the inner ends of the station markers are selectively exposable whereby to permit a connecting line to be drawn from a point on each selected station marker exposed through a template opening to the point in the path of rotation of the station-finding indicator at which that particular station is best heard.

3. Station indicating means for the tuning controls of a radio receiving set, comprising a station-finding indicator mounted on each tuning control of the set to rotate therewith, station markers applied to the panel board of the set behind each tuning control, each marker having its inner end disposed to intercept the path of rotation of the station-finding indicator, and a template temporarily mounted on each tuning control to rotate over the station markers independently of the rotation of the station-finding indicator for said control and having a peripheral series of variously shaped openings through which the inner ends of the station markers are selectively exposable whereby to permit a connecting line to be drawn from the inner end of each selected station marker exposed through the template opening to the point in the path of rotation of the station-finding indicator at which that particular station is best heard.

In testimony whereof I affix my signature.

WALTON S. REDFIELD.