April 23, 1940. W. F. EWALD 2,197,759

BAND-WIDTH INDICATOR FOR RECEIVERS

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Fig. 1

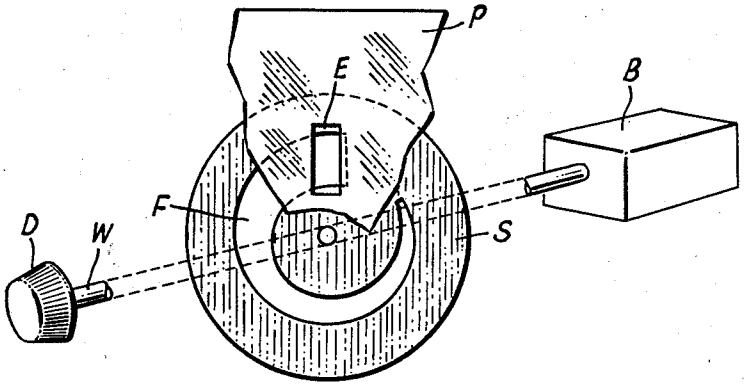
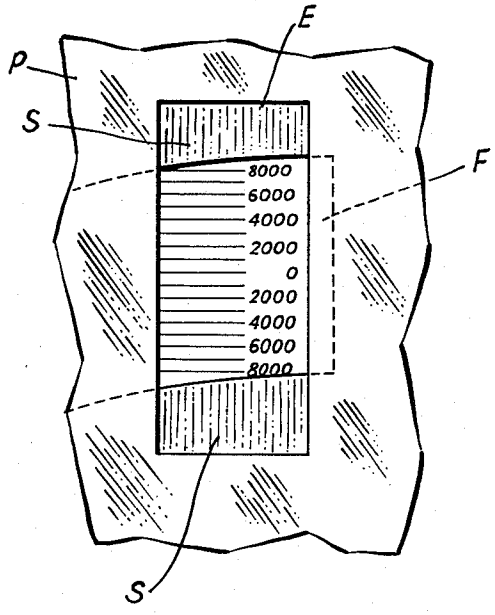


Fig. 2



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BAND-WIDTH INDICATOR FOR RECEIVERS

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5 Claims. (Cl. 116—124.3)

It is known in the prior art to provide radio receivers with variable band-width wherein the band-width at a given time is indicated by a pointer or other indicator means. For instance, in a certain form of construction, an opening in the panel is more or less shut by means of a rectangular vane or blade connected with the setting knob of the band-width. In another arrangement disclosed in the prior art, an angle is more or less opened by the shifting of a wedge-shaped part as the band-width is varied.

According to the present invention a figure or pattern is formed upon a movable surface, especially a disk or a band, partially visible posteriorly of a window or opening in the panel and connected with the band-width control knob, said figure or pattern being so formed and distinguishing itself in its color from the rest of the surface visible behind the opening of the surface that the part of said figure or pattern which is visible posteriorly of the opening always lies in the middle of the said opening and becomes narrower as the apparatus is set to a narrower band.

The merit of the invention consists in the simplicity of the arrangement; and moreover, in the fact that, no matter what the rate of variation of the band-width with rotation of the setting knob and no matter how the knob and the movable surface or vane are connected, the size of the indicated value can be made proportional to the actual band-width since all that is necessary to this end is to choose a suitable form for the figure or pattern. A further advantage of the invention is that the device clearly and conspicuously shows the progressing cutting off of the two side-bands.

An exemplified embodiment of the invention is shown in Figs. 1 and 2 of the accompanying drawing, wherein Fig. 1 discloses in a somewhat exploded view the relation of the several parts, and Fig. 2 shows the scale markings within the panel opening. Upon the shaft W which supports the rotary knob D for the variation of the band-width mechanism which is represented by the block B, is seated posteriorly of the panel P a disk S. Of this disk there is always visible a part in the rear of the rectangular window or opening E of the panel. The assumption is made that the range of rotation limited by stops of the knob to vary the band-width amounts to about 270 degrees, and that the indicated position corresponds to the maximum band-width of the receiver.

The disk S is dark or has a color similar to that of the casing or cabinet, with the exception of a white figure or pattern F which is bounded by two spirals and two radii. The figure or pattern is so chosen that posteriorly of the opening there appears a roughly rectangular white area which is positioned symmetrically to the horizontal median line of the opening and which is framed by two more or less wide dark strips of roughly equal size. As the apparatus is adjusted to a narrower band-width, the central white strip is reduced in breadth, whereas the outer dark strips become uniformly wider.

The pattern or figure appearing in the opening E is shown on a larger scale in Fig. 2 for a position of the band-width setting knob where the band-width is somewhat diminished, that is, less than maximum. What has been assumed in the embodiment is that the opening is covered by a Celluloid or glass pane on which appear thin horizontal lines spaced equal distances apart. The median line is designated by 0, while those above and below bear numerals 1000, 2000, etc., up to 10,000 in sequence in proportion as their distance from the neutral or zero line grows. The form of the pattern F as well the spacing apart of the lines must be so chosen that the frequency band appearing in front of the bright median portion always corresponds to the band-width to which the apparatus has been actually set. In the present instance, therefore, the band-width is equal to 16,000 cycles/second, in other words, the two cut-off or limiting frequencies which are still just transmitted, are spaced 8000 cycles/second away on either side of the carrier, the dark portion corresponding to the cut-off side-bands.

The transition from the bright to the dark portions of the area could also be made continuous in proportion to the gradual slope or decline of the resonance curve of the receiver set.

Of course, it is also possible to use in lieu of the disk a rectilinearly moved band or ribbon connected with the knob on which is brought a roughly triangular white vane, with the median line of the triangle being in the direction of travel of the band.

What I claim is:

1. In a receiver provided with means for adjusting the band-width of received signals, a fixed scale member having similar graduations on either side of a reference point, an indicator movable with the adjusting means having a pair of curved edges which, at any position of the adjusting means, are equidistantly spaced from the reference point, the total distance on the scale

between the curved edges being proportional to the band-width to which the receiver has been adjusted.

2. In a receiver provided with means for adjusting the band-width of received signals, a fixed scale member having a reference point, a band-width indicator cooperating with said scale and provided with an opening, the width of which gradually diminishes from maximum to minimum and the median axis of which coincides with the reference point of the scale, the band-width indicator and the adjusting means being so synchronized that the width of the indicator opening in juxtaposition to the scale member is proportional to the band-width to which the receiver has been adjusted.

3. In a receiver according to the invention defined in claim 2, wherein the scale member has similar frequency graduations on either side of the reference point whereby, for each position of the band-width indicator, the width of the opening as shown on the scale designates the side bands included in the transmission.

4. In a receiver provided with means for adjusting the band-width of received signals, a fixed scale member having similar graduations on either side of a reference point, a disc movable with the band-width adjusting means and cooperating with said scale, said disc being provided with a spiral opening, the width of which gradually diminishes from maximum to minimum and the median axis of which coincides with the reference point of the scale, the disc and the adjusting means being so synchronized that for each adjustment of the latter the marginal curves of the spiral opening expose an area of the scale member which is proportional to the width of the received frequency band.

5. In a receiver provided with means for adjusting the band-width of received signals, a control shaft for said adjusting means, a fixed scale member having similar graduations on either side of a reference point, a disc mounted on the control shaft and cooperating with said scale, said disc being provided with an opening bounded by two radially spaced spirals such that the width of the opening gradually diminishes from maximum to minimum and the median axis of which coincides with the reference point of the scale, the disc and the adjusting means being so synchronized that for each adjustment of the latter radially aligned portions of the spirals appear at the scale graduations equidistantly from the reference point, the width of the scale subtended by said aligned portions being proportional to the width of the received frequency band.

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