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MEANS FOR INDICATING TONES BY COLOR

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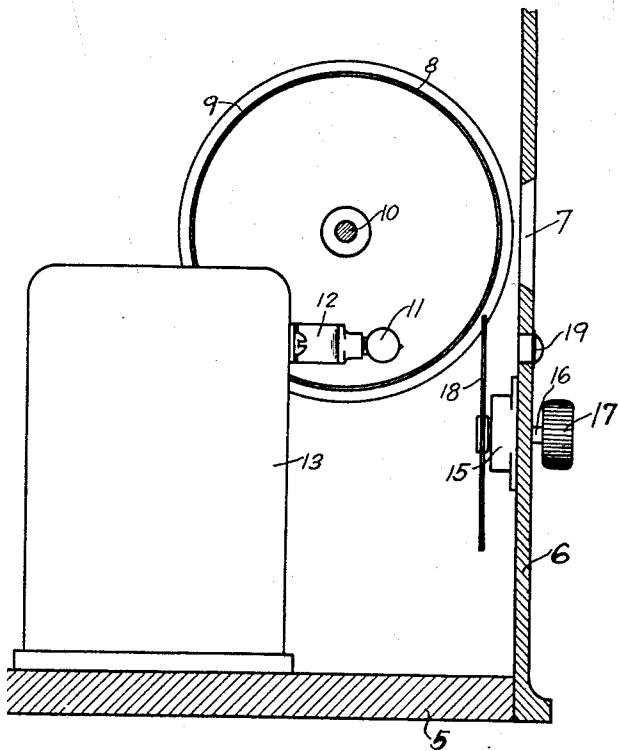


FIG. 1

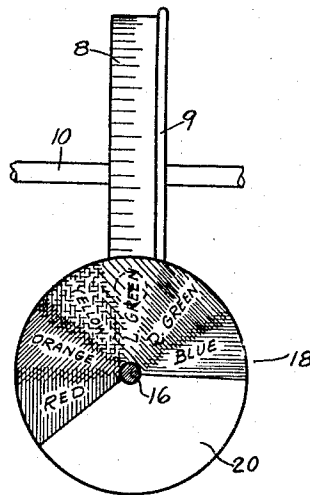


FIG. 2

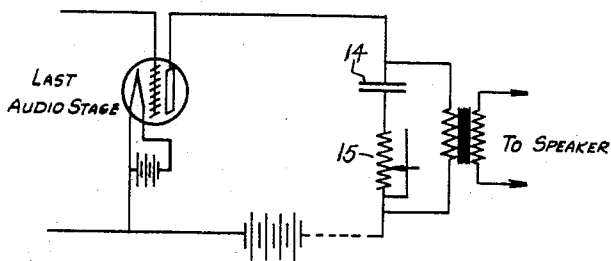


FIG. 3

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MEANS FOR INDICATING TONES BY COLOR

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This invention relates to radio receiving apparatus and more particularly to such apparatus as is equipped with a tone controlling device. The invention is directed toward a novel indicating means for the tone control.

Many manufacturers of radio receiving apparatus, particularly that type of receiver designed for home use, employ a controlled circuit for modulating the tone or timbre of the reproduced signals. Such means, known in the art as a tone selector, or tone control, is especially desirable in the reception of musical programs. By manipulating the controlling device, a listener may regulate the tone qualities of musical signals to suit his individual taste, as, for example, he may cause the bass notes, produced by signals of lower audio-frequency to be emphasized, and, at the same time, selectively attenuate the intensity of the signals in the higher audio frequency range, which signals produce notes in the treble portion of the musical scale. These features are well known to radio manufacturers, and numerous circuit arrangements have been devised and employed for accomplishing the above noted result.

An object of the present invention is to provide, in connection with radio receiving apparatus embodying tone control, a light source adapted to produce a color variation in accordance with the tone sounds of timbre being emphasized and thus, by providing a pleasing combination of color and sound, the pleasure obtained from the radio equipment may be greatly enhanced.

A further object of the present invention is to provide, in connection with radio receiving apparatus, an improved method and means for indicating the setting of the tone selecting device, such means involving the use of a spectral color screen.

Another object of the invention is directed toward a novel arrangement of parts, whereby illumination for the usual tuning dial, or station selector, as well as for the tone controlling indicator, mentioned above, is provided from a single light source.

My improved method for indicating, by

visual means, the setting of the tone selector apparatus, consists, briefly, in projecting a beam of colored light on a lens or indicator eye, which, by preference, is located on the face of the panel in close proximity to the tone control knob, the light color serving to indicate the portion of the tone scale to be emphasized. I thus provide a color screen, having colors arranged thereon in the order of the spectrum, and dispose the screen in the path of the beam of light. The screen is operatively connected with the tone controlling apparatus in such a manner that the indicator eye shows a deep red color when emphasis is to be placed on the bass tones, and a blue color, located at the opposite end of the spectrum, when the treble tones are to be accentuated. In this manner the various tone shadings are correlated, each with a certain color. The advantages of such method of indication will at once appear obvious, when one considers the natural similarities between the tone and color scale.

With the foregoing in view, I will now explain my invention:

In the drawing, Fig. 1 is a sectional side elevation through a portion of a radio cabinet, showing a preferred arrangement and location of parts comprising the subject matter of this invention; Fig. 2 is a front view showing a preferred form of color screen; and Fig. 3 is a diagram showing a form of wiring arrangement such as I preferably employ for accomplishing tone selectivity.

Referring now by numerals of reference to the drawing, a portion of a radio cabinet, including a bottom 5 and panel front 6, is shown in Fig. 1. An opening 7 is provided in the panel front to render visible a portion of a tuning dial 8, which, by preference, is located immediately to the rear of the panel front. The tuning dial 8 is preferably of drum type, being formed of a circular band of celluloid or other suitable translucent material having the usual dial markings encribed thereon. This band is secured in edgewise relation to a circular plate 9, which is mounted on a shaft 10 for opera-

tive connection with tuning apparatus, not shown. The dial is preferably illuminated from an internal source, such as the lamp 11, which may be supported at the end of an angulate bracket 12, projecting into the open end of the drum forming the dial, the bracket in the present instance being shown as secured to a cover member, or shield 13. The electrical circuit connections for the lamp 11 are, by preference, such that the lamp becomes illuminated only when the filaments in the thermionic tubes are energized.

Numerous systems and circuit arrangements have been devised and are known in the radio art for controlling the tonal quality of sound emissions. A common method for accomplishing this result is shown diagrammatically in Fig. 3 and consists, briefly, in shunting the output circuit of the final audio frequency stage with a fixed condenser 14 arranged in series with variable resistance 15.

Referring again to Fig. 1, the resistance unit 15, shown mounted upon the inner face of the panel front directly below the dial opening 7, is adapted to have its resistance varied by means of a rotatable shaft 16 which extends through the panel face and terminates in an external control knob 17. On the inner end of the shaft 16, which portion projects through, and a substantial distance beyond the inner face of the control unit 15, is mounted a translucent disc 18, adapted for rotational movement with the shaft 16. This disc may be formed of celluloid or of any other suitable material having translucent qualities, and provides the color screen hereinbefore described and shown in Fig. 2.

Light, emanating from the lamp 11, passes through the selector dial 8, thence through the color screen 18 and falls upon a lens or indicator eye 19, which, by preference, is located on the panel front near the control knob 17.

The tone control device preferably employed in practicing my invention, is so arranged that, over a portion of its range of movement, no tonal modulation takes place, and accordingly a portion 20 of the disc 18 is not included in the color range above referred to. When the portion 20 is disposed in the path of the light rays, the listener has a visual indication that the timbre remains unaffected by the sound control device.

From the above description it appears that I provide, in radio receiving apparatus, the pleasing combination of color and sound, and wherein a novel form of indicating means is provided, in which a beam of light, visible from the face of the control panel, is selectively colored in accordance with the particular range of audio frequency being emphasized.

Obviously, certain changes may be made

in the construction and arrangement of parts without departing from the spirit and full intended scope of the invention as defined by the appended claims.

I claim as my invention:

1. In a radio receiving apparatus including a control panel having a light displaying area thereon, a control device operable over a portion of its range of movement to effect tonal modulations of the sounds reproduced, a source of light, a movable screen operatively connected with said tone controlling device, and adapted to transmit light from said source to said display area, said screen having a fractional portion thereof colored in accordance with the spectrum.

2. In a radio receiving apparatus including means for selectively modulating the timbre of sounds reproduced, and a control panel having an area for displaying light, a light source and a rotatable light transmitting disc operably associated with said timbre controlling means and disposed between said light source and said area, said disc having sectoral portions colored in the order of the spectrum, each color being correlated with a particular sound timbre.

3. In a radio receiving apparatus including a tone controlling means, a control panel having an area for displaying light and a translucent tuning dial, a color screen adjacent the display area and a common source of light for illuminating the dial and display area.

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