June 14, 1938. R. RIOTTE 2,120,813

RADIO TUNING INDICATOR DEVICE

Filed June 26, 1936

Fig. 1

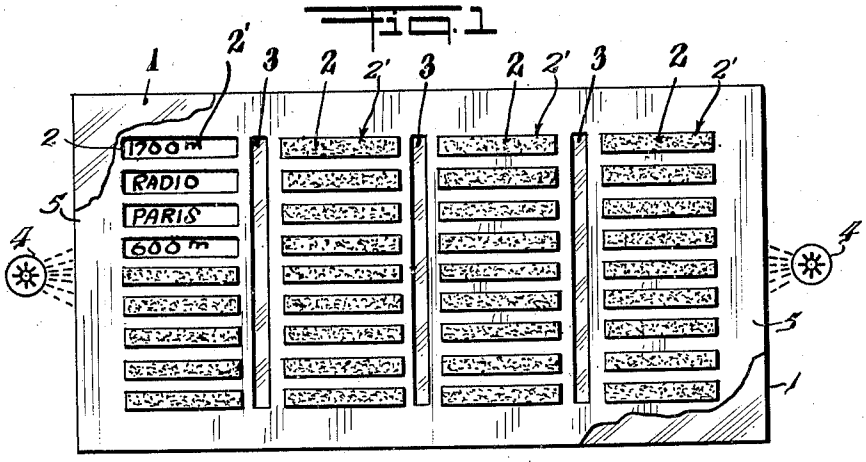


Fig. 2

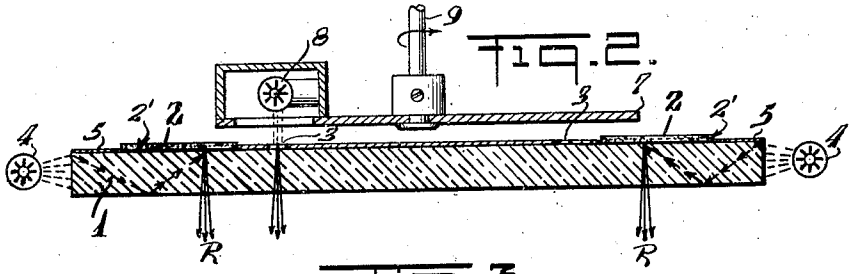
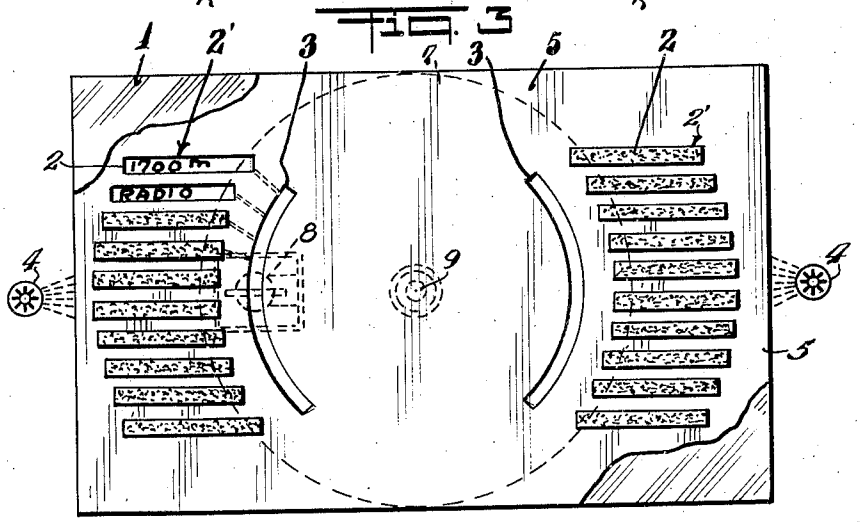


Fig. 3



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RADIO TUNING INDICATOR DEVICE

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3 Claims. (Cl. 40—130)

The present invention relates to tuning indicator devices used in radio, and more especially, the dials for radio receivers, and for other devices.

Its main object is to obtain a luminous contrast between the surface of the dial, and the markings (such as names of stations, wave lengths, divisions) on the dial. With the present invention, the desired contrast can be obtained on a dial with an opaque back, entirely or partially exposed, by purely optical processes, and preferably by the use of total reflection.

Another object, when locating the said markings by means of the luminous index, is to obtain the contrast in question by means independent of the index, which index can, on the other hand, appear through transparent parts provided on the dial.

The invention also involves special methods of manufacturing dials generally intended to be put to the uses described above.

Other objects of the invention will be set forth in the following description and drawing which illustrates working examples, it being understood that the above statement of the objects of this invention is intended to generally explain the same without limiting it in any manner.

Fig. 1 is a front view of a radio dial made according to the invention.

Fig. 2 is a cross section taken along the horizontal axis of Fig. 1.

Fig. 3 is an embodiment of a radio dial showing a different way of using the invention.

The markings 2 are applied to the rear surface of the dial within the areas 2'. Said markings 2 are formed of an opaque and light-diffusing composition such as lacquer. A smooth and light-reflecting material, such as tin-foil 5, is applied over these markings and over the remaining rear surface of the dial 1, except at the areas 3. Said areas 3 are left clear so that the luminous index 8 is visible therethrough. The index 8 is located in a casing which is mounted on the member 7, which is mounted on turnable shaft 9. Said casing has an opening 6.

The light-source or light-sources 4 are placed at the edge of the dial so that light enters the dial 1 through its edge or edges, and said light strikes the rear surface at an acute angle. Said light is reflected by the tin-foil 5, but not by the composition of which the markings 2 are formed, since said composition diffuses the light as indicated at R in Fig. 2.

By means of this contrast the markings 2 become visible when the lamps 4 are lit.

The shaft 9 is caused to turn in unison with the tuning mechanism of the radio receiving set. Said tuning mechanism can be of any conventional type so that it is not illustrated in the drawing.

It would not be departing from the invention, if the member 7 had two or more luminous indices 8, and said indices could be of different colors. The rays of light which enter the glass dial 1 at its lateral face or faces, are totally reflected by the tin-foil 5, and without any diffusion or dispersion of said light rays, so that said light rays fall upon the front surface of the glass dial 1, and said light rays are totally reflected from said front surface.

The angle of incidence of said light rays is made sufficiently large for this purpose. The rays of light which fall upon the markings 2 are diffused outwardly and in all directions as indicated at R, so that said rays of light reach the eye of an observer. The effect is the same as though the markings 2 were illuminated and said markings were located on a relatively dark background.

A preferred embodiment of the invention has been shown, but it is clear that numerous changes and omissions may be made without departing from the spirit of the invention.

Therefore, instead of using a mirror dial, as described above, the following device may be used:—

(a) A glass plate bearing on its back side, the tuning markings formed by an opaque and light diffusing product, such as lacquer, said markings obtained by means of any known process such as printing, engraving, etc.

(b) A metal plate separated from the glass plate, by a small air space, or by varnish, the index of refraction of the air or varnish being less than that of glass, said metal plate cut out at places corresponding to parts 3.

I claim:—

1. A tuning dial for a radio receiving set comprising a transparent body, luminous means located so as to send light rays into said body which are substantially totally reflected from the front face of said body, the rear face of said body having a surface composition applied to a portion thereof so as to form indicating markings, said surface composition being sufficiently opaque and light-diffusing so as to direct the light rays which fall on said markings out of said transparent body, the remainder of said rear face, between said markings, having an opaque and light-reflecting coating directly adjacent to said rear face, said coating having a

smooth reflecting surface adjacent said rear face.

2. A tuning dial for a radio receiving set comprising a transparent body, luminous means located so as to send light rays into said body which are substantially totally reflected from the front face of said body, the rear face of said body having a surface composition applied to a portion thereof so as to form indicating markings, said surface composition being sufficiently opaque and light-diffusing so as to direct the light rays which fall on said markings out of said transparent body, said transparent body having an opaque and light-reflecting layer directly adjacent the remainder of the rear surface thereof, said light-reflecting layer being interrupted at said markings and being also interrupted at an index zone, said index zone being light-permeable, and a movable luminous index located behind said dial and adapted to transmit light through said index zone.

3. In combination, a transparent body, luminous means located to send light rays into said body which are totally reflected from the front face of said body, the rear face of said body having markings formed by means of a surface composition applied to said rear face, said surface composition being sufficiently opaque and light-diffusing so as to direct the light rays which fall on said markings out of said transparent body, that portion of the rear surface of said transparent body which is intermediate said markings having an opaque and light-reflecting coating thereon.

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