

Feb. 27, 1951

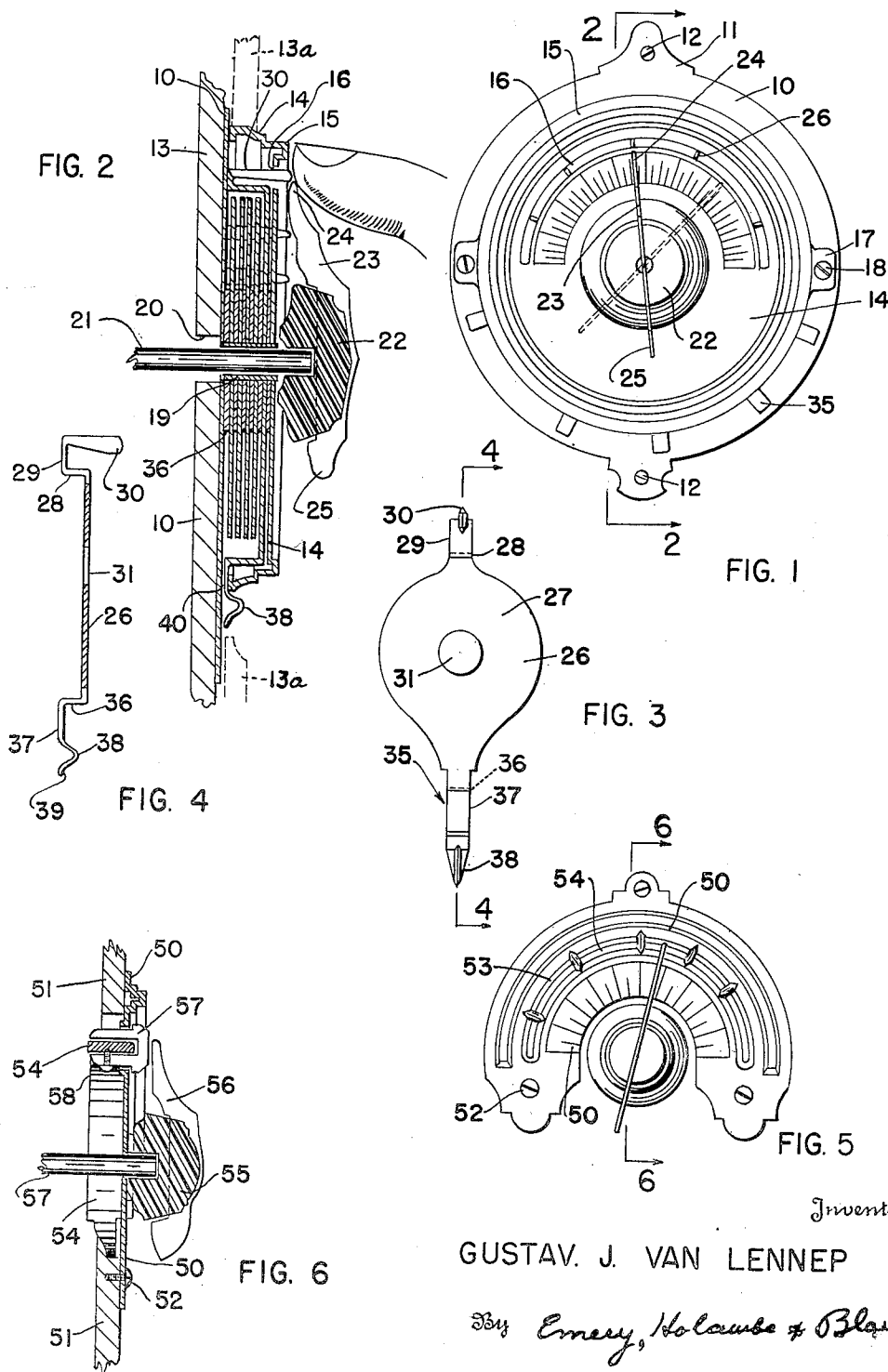
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2,543,389

TOUCH TUNING AND DIALING DEVICE

Filed Oct. 17, 1946

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

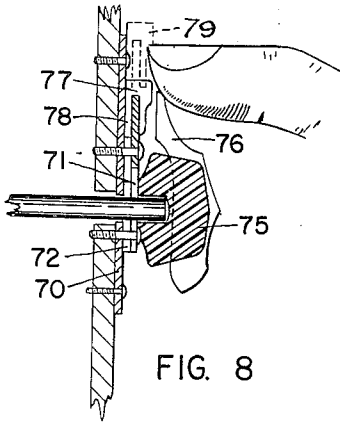


FIG. 8

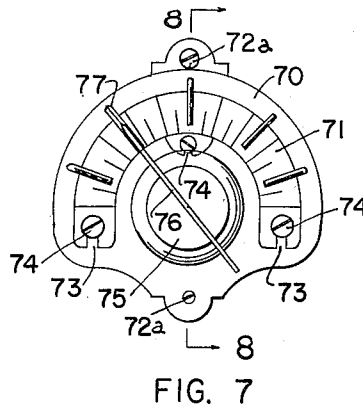


FIG. 7

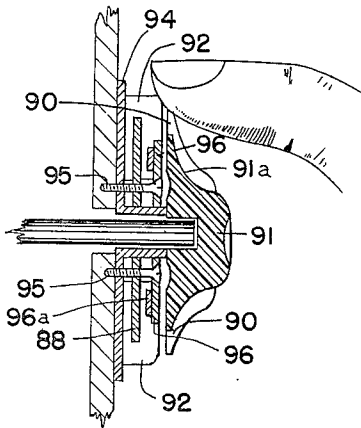


FIG. 11

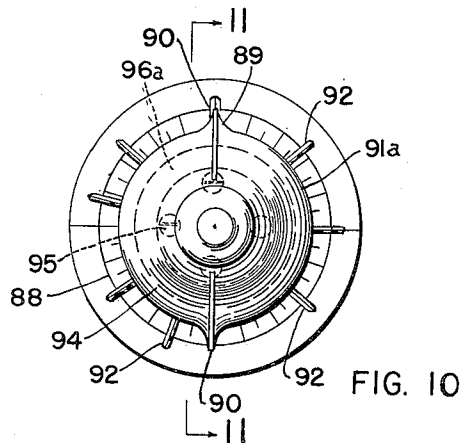


FIG. 10

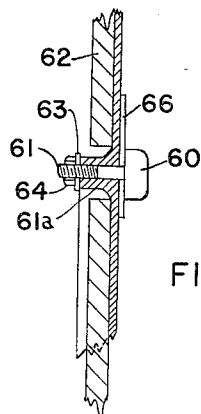


FIG. 9

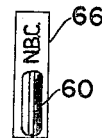


FIG. 12

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TOUCH TUNING AND DIALING DEVICE

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13 Claims. (Cl. 116—124.2)

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This invention relates to tuning devices, and more particularly to a device whereby an indicator or pointer may be rotated or moved to a position corresponding to a desired wave length, frequency or other value and accurately adjusted with respect thereto by touch perception alone.

A primary object of this invention is the provision of an improved device of this character whereby a dial, as for example a radio dial, may be readily adjusted and tuned to a desired position, or station, with a minimum of effort and difficulty, utilizing the sense of touch alone, permitting use in the dark and by automobile drivers and blind persons; and facilitating accurate setting for fractional variations in position.

An additional object of this invention is the use and positioning of markers in association with such a device facilitating touch tuning thereof, which may be readily positioned in any desired position on the dial and fixed therein.

A further object of the invention is the provision of such a device whereby such markers are readily movable and removable with a minimum of effort and difficulty, and whereby such markers have no connection with the mechanism of the set, such as has been hitherto the case, but serve merely as indications of the appropriate position or rotation it is desired to reach on the dial field.

A further object of the invention is the provision of improved and distinct marking devices which may be readily adjusted, set and reset on the dial for a variety of stations and positions.

Still another object of the invention is the provision of such a device wherein any desired number of markers may be utilized, the markers being removable and replaceable as desired and positionable in any desired locality of the dial.

Among the advantages of my invention are its simplicity of design, low cost of construction, smoothness and speed of operation, reliability and accuracy of performance, and adaptability to both circular and straight dials.

Other objects and advantages of this device reside in the combination of elements, arrangements of parts, and features of construction, all as will be more fully pointed out hereinafter, and shown in the accompanying drawings wherein are shown preferred embodiments of this inventive concept.

In the drawings:

Fig. 1 is a front elevational view of one form

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of the device embodying features of the instant inventive concept.

Fig. 2 is an enlarged section view taken substantially through the center line of the device of Fig. 1, and showing the same as applied to the panel of a radio set or the like, and disclosing the application of the touch tuning principle.

Fig. 3 is a plan view of a constructional element of Figs. 1 and 2.

Fig. 4 is a sectional view taken substantially along the line 4—4 of Fig. 3.

Fig. 5 is a plan view of the dial of a modified and simplified form of construction.

Fig. 6 is a sectional view taken substantially along the center line of Fig. 5 and showing the device of the instant invention as applied to a radio panel and inset therein.

Fig. 7 is a plan view of a still further modified form of construction.

Fig. 8 is a sectional view taken substantially along the center line of Fig. 7 disclosing the device as applied to the outside of the panel of a radio set or the like, a different position adjustment of one of the parts being indicated by dotted lines.

Fig. 9 is a sectional view disclosing a modified form of marker.

Fig. 10 is a plan view of a still further modified form of construction.

Fig. 11 is a sectional view taken substantially along the line 11—11 of Fig. 10.

Fig. 12 is a plan view of a further modified detail of construction.

Similar reference characters refer to similar parts throughout the several views of the drawings.

Referring now to the modification of Figs. 1-4 inclusive, there is generally indicated at 10 a flange member provided with ears 11, and adapted to be secured as by screws 12 to the panel 13 of a radio set or the like. A casing 14 of generally cylindrical configuration is provided, including a raised surrounding rim 15 and a semi-circular slot 16. The casing is provided with ears 17 adapted to be secured by means of screws 18 to the flange 10 and exert pressure against said flange 10. A central bore surrounded by a sleeve 19 secured to panel 13 extends through casing 14 and is aligned with a suitable aperture 20 in the panel 13 and is adapted to accommodate a shaft 21 connected with the condenser of a radio in any desired manner. A knob 22 is positioned on the outer extremity of the shaft, and provided with a rel-

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atively thin fingerlike pointer member 23 terminating in a point 24 at one extremity and designed to be engaged by the finger, the fingerlike pointer having a rearwardly extending extremity 25 to facilitate rotation thereof.

Positioned within the casing 10 are a plurality of members generally indicated at 26, each including a disk-like portion or plate 27, one extremity of which is provided with a portion 28 (see Fig. 4) terminating in a horizontal portion 29 and an outwardly extending part 30 which part is adapted to extend through the previously mentioned slot 16 and terminates in a relatively sharp edge to serve as a marker and provide accurate tuning in a manner to be more fully described hereinafter. A central aperture 31 permits passage of the shaft 21 through each member 26. The opposite end of each member 26 includes a tongue generally indicated at 35, and including a downwardly extending portion 36 and outwardly extending portion 37 terminating in a ridge 38 which, with a descending portion 39 serves as a spring in such a manner as to bias and maintain individually or in its entirety the assembly in a predetermined position with respect to the plate 10. The spring pressure of portion 38 (Fig. 2) is calculated to allow free and independent rotation between the superimposed members 26 and afford stability to member 20. It is to be noted that the extremity 35 of each member extends outwardly through a horizontal slot 40 at the base of casing 14, and extends substantially past the circumference of the casing in a direction opposite slot 16. Washers 25 are interposed between each member 26 to facilitate free and independent movement thereof. This form of rotating and control element, while desirable, is not essential to the broad inventive concept and is given as an illustration of one simplified form of the device embodying quickly and easily adjustable marker, for which can be substituted various mechanical means of rotation and control. As indicated by dotted lines 13a in Fig. 2, my device can be installed either on the outside of the instrument panel 13 or built into the same.

From the foregoing the operation of this form of the device should now be readily understandable. In utilizing the same in conjunction with a radio dial the specific location of certain stations is first accurately determined by tuning the device in the normal manner by rotation of knob 22. When the location of the particular station is determined, one extremity of a member 26 is moved until the associated finger or marker 30 corresponds to or is in line with the exact position on the dial locating the station. Other stations are similarly located, it being understood that the number of members 26 within the casing may be readily varied as desired in conformity with the size of the casing. Spring member 33 will serve to hold the finger or marker 30 in position, particularly after the casing has been tightened down by use of the screws 18 and thereby pressure applied on slot 40. Obviously with dials showing wave lengths and demarcations in detail each member can be directly set in the appropriate positions of the dial and then secured in said position in the same manner.

After stations or positions on the dial have been suitably selected, and the adjustable finger members or markers positioned thereon it will be readily understood that the pointer 23 may be moved by the finger of an individual until

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the tip of his finger (see Fig. 2) engages or contacts the appropriate projecting marker 30 associated with the desired station near the high, low or central portion of the dial (and generally known to any broadcast listener) thereby bringing the pointer 23 into alignment with said marker. An alternative manner of using this device is for the operator to position one finger of the hand or thumb alongside of or parallel to the desired station marker to act as a stopper to the rotating pointer 23, and with another finger bring said pointer in line with the upstanding edge of said marker. Various other modes of operation will occur to users of the device, that illustrated in Fig. 11 for example, utilizing the tip of one finger as a lever fulcrumed on the adjustable marker 32 and rocking in one direction or the other to engage and adjust an end of the indicator 33 on the knob 31 to exact position for selecting the desired station. Thus a selected station may be picked up and accurately tuned with a minimum of difficulty and effort, avoiding and eliminating the necessity and suspense of adjusting the dial back and forth until the apparent proper tone and position on the dial has been achieved. Obviously upon a change of city or location of stations the markers may be suitably adjusted by merely loosening the screws 18 and repositioning the markers 30.

A modified form of construction of this touch tuning device is disclosed in Fig. 5 wherein the dial consists of an arcuate disk 50 adapted to be set and secured into the panel 51 of a radio in any desired manner as by screws 52. This arcuate shaped dial 50 is provided in order to permit removal of the dial for station adjustments without the removal of an adjusting knob 55 and its associated indicator or pointer 53, a suitable aperture being provided in the set for accommodation of the dial. The dial 50 includes an open slot or channel 53, intermediately of which is positioned an arcuate ring or flange 54 (see Fig. 6). The knob 55 is attached to a shaft 57 connected in any desired conventional manner to a condenser. The markers in this instance comprise U-shaped members 57, adapted to straddle the ring 54 and are held in selected position thereon as by set screws 58 or any other desired means. Obviously these markers may be pre-positioned according to a locality of expected use, or alternatively they may be readily set and adjusted by loosening the set screws 58. The open channel or slot 53 accomplishes the further purpose of making the inserted markers clearly distinguishable in the dark by light from inside the panel 51 easily perceptible when the radio tubes are lighted.

Referring now to modification of Figs. 7-8, which is particularly adapted to be positioned upon a set after leaving the factory, as an outside attachment, for rapid touch tuning on any set provided with semi-circular knob tuning system, a plate 70 is provided and includes an arcuate dial 71 including an offset portion 72 raised from the face of the instrument panel. The extremities of member 71 are provided with slots 73 through which screws 74 may be set to hold the dial 71 in position on flange 70, the slots facilitating removal thereof. The customary knob 75 and pointer or indicator 76 are provided. The markers 77 in this instance are substantially U-shaped, as best indicated in Fig. 8, and are adapted to be frictionally engaged between the flange 70 and the dial 71, the larger leg 78 of

the two being positioned between the dial 71 and the flange 70 and the outer or shorter leg, having a raised protuberance 79 thereon, being positioned on the outer side for engagement by pointer 76. The mode of inserting the markers on dial 71 is shown in dotted lines in Fig. 8. Obviously tightening of screws 74 will exert pressure on the legs 78 of markers and serve to hold the same in position.

In the modification shown in Fig. 9 a construction similar to Fig. 6 is shown but one which omits ring 54 (Fig. 6), the markers 60 being provided with screws 61 adapted to be engaged in an arcuate channel provided in the body of the dial, the channel being inserted in the panel 62 of the set, and secured in position against the flanges of said channel by means of a washer 63 and nut 64. Each marker 60 is preferably provided with a slightly curved portion at the juncture thereof with screw 61 to facilitate sliding of said markers to the right and left on the dial and prevent rotation thereof. This modified construction follows otherwise the same outlines of construction as Figs. 6-7 with the additional provision that markers can be readily slid from one position to another by loosening screw 64 and subsequently tightening the same in any new desired position.

Fig. 12 discloses a small supplementary marker or identification tag 66 constructed to be used in connection with touch tuning markers, the object being to identify individually each marker. Identification tag 66 is adapted to be held in position behind or above markers, as for example markers 60, and held in position by any appropriate means, suitable to individual requirement in connection with the different modifications of the device.

Referring now to the modification of Figs. 10 and 11 there is provided a means to achieve "clear breaks" or clear spacings between markers, especially desirable on radio dials. This is particularly essential on dials of small size and between station ranges or the like very close together and generally known as "crowded" on a radio dial. In this modification of the device which, in a general way follows the lines of construction of Figs. 7-8, a completely circular dial 83 is provided in which important and frequently used stations, such as national networks and locals, are indicated with markers on the upper half circle, while other stations used only occasionally, often crowding each other, are reversed and indicated on the lower half circle dial.

It will be obvious that a double indicator 90 moving in a half circle clock-wise on the upper dial moves oppositely on the lower half circle and therefore its reading graduation will be in a different direction relative to the positioning of the markers. Fig. 10 discloses a knob 91 of special design flaring at its base into a flange 91a provided with diminutive double indicators 90 providing for sturdier construction and coverage and protection of exposed parts.

Markers 92 are provided, of the same general type as markers 77 and are adapted to be set tightly in appropriate positions on the double dial 82. The markers 92 and dial are fitted around a flanged sleeve 94 and secured in desired positions by screws 95 which, by exercising pressure on a circular plate 96 which is secured appropriately against markers 92, through a circular ring-plate 96a secures the markers against accidental movement.

From the foregoing it will now be seen that

there is herein provided an improved device for perception touch tuning, which accomplishes all the objects of this invention and others, including many advantages of great practical utility and commercial importance.

While in the foregoing description this device in its different modifications has been described with elements slightly varying in design and construction, it will be understood that these elements may be further modified and interchanged within the scope of the claims.

Additionally while the different modifications of the device herein described are in association with various types of circular dials the motion or rotation being effected about an axis perpendicular to the dial, it will be understood that it may be equally applicable to devices wherein the axis of rotation or motion is parallel to the dial and in any position relative to the same, and that this may further be utilized in devices wherein the movement of the control and dialing or tuning is effected or operated in a substantially straight line.

As various embodiments may be made of this inventive concept and various modifications may be made in the embodiments hereinbefore described and shown, it is understood that all matter herein is to be interpreted merely as illustrative and not in a limiting sense.

I claim:

1. A wavelength tuning device of the character described comprising a dial, indicia thereon, indicating means associated with said dial including a feelable protruding edge, said indicating means being adjustable along the dial to indicate a desired indicia thereon, and actuating means having a pointer manually movable into contiguous cooperative relation with selected indicating means on said dial, said pointer having a portion cooperating with the feelable edge of said indicating means whereby the finger of an operator can detect by touch perception alinement of said protruding edge and pointer space to adjust the setting of said actuating means for turning to a desired station.

2. A wavelength tuning device of the character described comprising a tuning element, a plurality of adjustable indicating members mounted on said tuning element each comprising an upstanding edge adaptable to indicate the location of a desired setting on said tuning element, a tuning actuator including a pointer movable along a path adjacent to and in cooperative relation with said indicating members, said pointer edge and the exposed upstanding edges of said indicating members lying in contiguous surfaces whereby said edges provide feelable elements adapted to indicate by touch perception alinement in said desired setting to be tuned, and releasable means for securing said movable indicating members on said device.

3. In a wavelength tuning device of the character described, a wave length indicator comprising in co-operative relation two feelable projecting edges extending outwards from the surrounding periphery of the device, one of said edges being movably positioned on a fixed part of said tuning device and a second edge mounted to be movable in the path of and in proximity to said first edge, said edges being adapted to provide tangible points for obtaining by touch perception alinement in accurate tuning to a desired predetermined length wave, and means for securing said movably positioned edge in desired position on said device.

4. A tuning device as set forth in claim 2, wherein the upstanding movable edge and pointer extend from the periphery of said device and are spaced one behind the other for simultaneous radial access.

5. A device as set forth in claim 3 with the second one of said projecting edges being duplicated in the opposite periphery of the device for cooperation with a movably positioned edge remote from said first movably positioned edge.

6. A tuning device as set forth in claim 3 with the second one of said projecting edges duplicated in the opposite periphery of the device and forming part of an element substantially covering said device.

7. In a wavelength tuning device of the character described comprising a dial, indicia thereon, indicating means having a protruding edge and movably positioned on the device to indicate a desired indicia thereon, actuating tuning means including a feelable portion manually movable into cooperative relation with selected indicating means by touch, said dial including means defining at least one open track providing a sight opening, and said indicating means including portions engageable in such track, and means for securing said indicating means in selected position on said track.

8. In a wavelength tuning device of the character described comprising a dial having indicia thereon, indicating means provided with a protruding edge, said indicating means being removable, and movable with respect to the dial to indicate a desired indicia thereon, actuating tuning means comprising a pointer with a feelable portion manually movable into cooperative relation with selected indicating means by touch correlation of said pointer and edge, said dial including double slots defining a flange, and said indicating means including bifurcated members engageable on said flange, and means for securing said indicating means in selected position.

9. In a wavelength tuning device of the character described, a dial face, a supporting member having a slotted aperture therein, a marker having a protruding edge insertable in said aperture and movable therein to designate a desired setting, a coacting tuning actuator movable over said dial and having a protruding edge adapted to be juxtaposed to said first mentioned marker edge by touch perception, and means for releasably securing said first mentioned marker in a selected position in said aperture, said dial face being adapted to be secured to said supporting member in spaced relation to said aperture.

10. In a wavelength tuning device of the character described comprising a circumferential dial mounted concentrically to tuning shaft, a station marker rotatably movable around said shaft to designate a desired setting, a coacting sta-

tion pointer movable rotatably with said shaft over said dial and adapted to be juxtaposed to said station marker, and means for releasably securing and adjusting said markers in pre-selected position with respect to said dial.

11. In a wave length indicating device comprising in combination two projecting edges in relative correspondence with each other each extending from and over its surrounding surface, one of said edges being movable and adapted to be adjustably positioned on said device as a means to indicate a predetermined station or wave length, and the second projecting edge constituting a pointer, movable in proximity in the path of said first projecting edge, said projecting edges providing tangible feelable means of detecting alinement of said edges for tuning by touch perception with any such predetermined station on said device.

12. In a wavelength tuning device comprising a plurality of upstanding feelable markers movably and removably positioned on said device to indicate desired tuning positions thereon, actuating means having feelable edge juxtaposable to said upstanding markers and movable into cooperative relation with any one of said markers to detect by touch perception juxtaposition of said elements.

13. A wave length tuning device comprising a fixed circumferential base, a plurality of station identification markers positioned upon the surface and around the periphery of said base, said markers being movable manually around said base, each marker providing means to indicate a predetermined station setting around said base and comprising a protruding edge, a tuning actuator connected with a control element and movable on an axis concentric to said circumferential base and comprising a station pointer having at least one edge extending outwardly from the periphery of said actuator, said actuator substantially covering the surface of said base and said protruding marker edges and pointer edge providing tangible feeling points for detection by touch perception alinement of said pointer edge with any one of said marker edges for tuning to any determined station on said base.

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