April 29, 1941. D. J. CROWLEY 2,240,328

COMBINED LAMP AND RADIO RECEIVING SET

Filed Nov. 22, 1937 2 Sheets-Sheet 1

FIG.1.

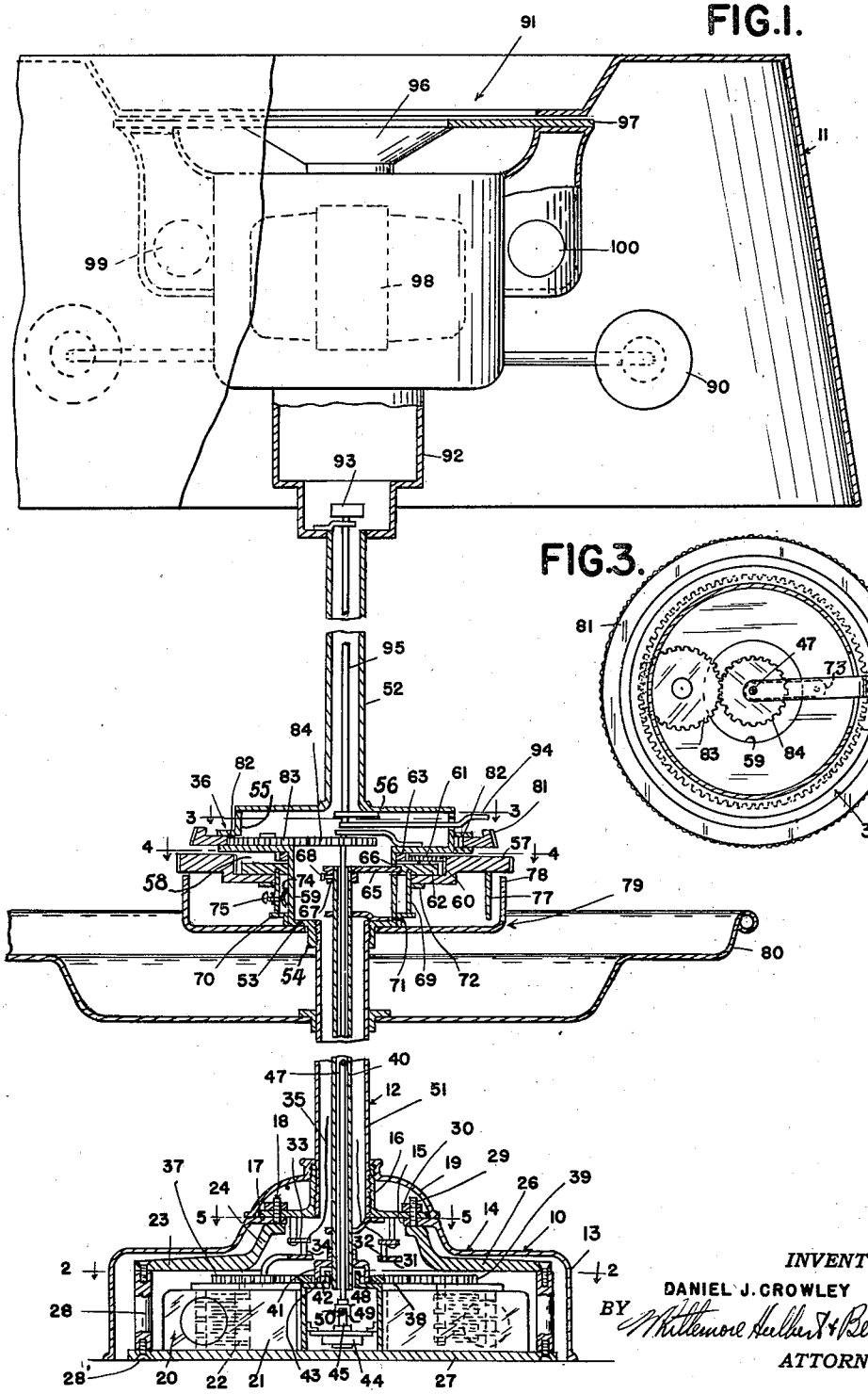


FIG.3.

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FIG.2.

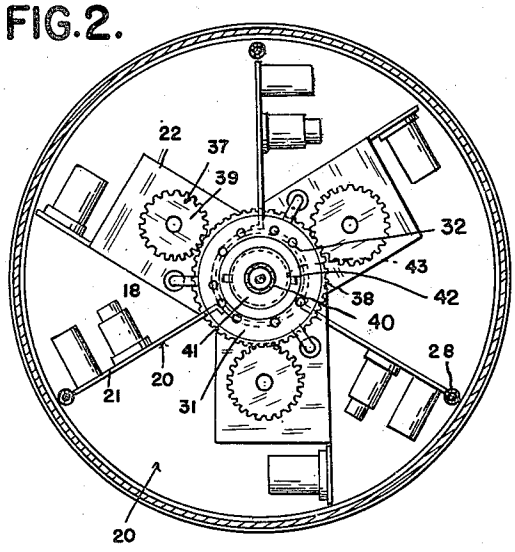


FIG.4.

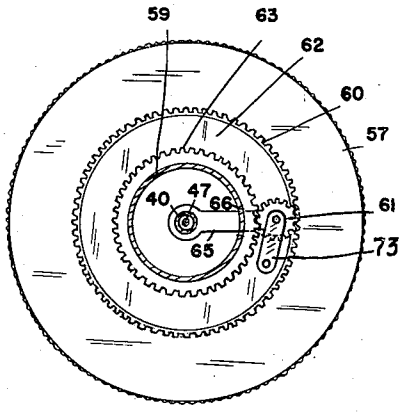


FIG.5.

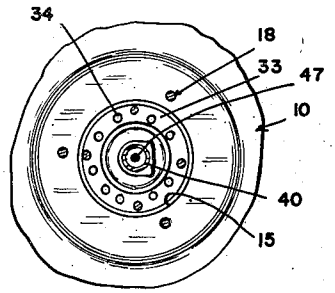
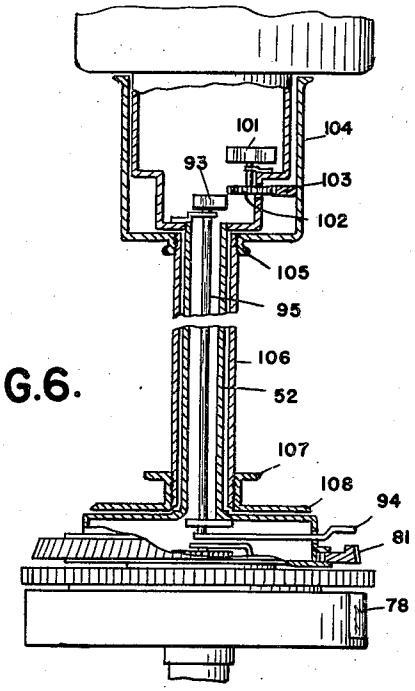


FIG.6.



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2,240,328

COMBINED LAMP AND RADIO RECEIVING SET

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Application November 22, 1937, Serial No. 175,922

10 Claims. (Cl. 250—14)

This invention relates generally to radio receiving apparatus and refers more particularly to a lamp and/or smoking set embodying the several parts of the radio receiver.

One of the principal objects of this invention is to provide a lamp or smoking set construction with a radio receiving set having the parts forming the receiver proper combined in a single chassis assembly supported in the base of the construction in such a manner as to permit the chassis to be readily removed from and installed in the base as a unit.

Another advantageous feature of the present invention consists in detachably securing the chassis of the radio receiving set in the base of the construction by means rendering it possible to remove the chassis without disassembling or interfering with the parts of the lamp or smoking set.

Still another advantageous feature of this invention resides in the provision of a lamp or smoking set of the character set forth embodying a pedestal having a tuning unit carried thereby at a convenient point above the base and equipped with means for actuating the several instrumentalities of the radio receiving set requiring adjustment.

A further object of the present invention consists in operatively connecting certain of the controls of the tuning unit to the controllable parts of the radio apparatus in the chassis by means extending through the pedestal and having a readily detachable connection with said parts of the chassis to enable the latter to be removed from the base of the construction when desired.

In accordance with the present invention, suitable reduction gearing is embodied in the tuning unit to provide a vernier adjustment of the variable condensers in the chassis and it is, therefore, another object of this invention to provide means for eliminating back lash in the gearing.

With the above, as well as other objects in view, the invention resides in the novel construction of the lamp and/or smoking set which will be made more apparent as this description proceeds, especially when considered in connection with the accompanying drawings, wherein—

Figure 1 is a vertical sectional view through a combined lamp, smoking set, and radio receiving apparatus constructed in accordance with this invention;

Figure 2 is a cross sectional view taken substantially on the plane indicated by the line 2—2 of Figure 1;

Figure 3 is a cross sectional view taken substantially on the plane indicated by the line 3—3 of Figure 1;

Figure 4 is a cross sectional view taken substantially on the plane indicated by the line 4—4 of Figure 1;

Figure 5 is a cross sectional view taken substantially on the plane indicated by the line 5—5 of Figure 1; and

Figure 6 is a fragmentary sectional view illustrating a slightly modified form of invention.

For the purpose of illustrating the present invention, I have selected a floor lamp construction having a base 10 and a lamp shade assembly 11 supported from the base by means of a pedestal 12. In the present instance, the base 10 is substantially drum-shaped having an annular flange 13 forming the side wall of the base and having a web 14 forming the top wall of the base. The web 14 is centrally apertured, as at 15, and is detachably secured to the bottom of the pedestal 12. In detail, a hub 16 is threaded upon the lower end of the pedestal 12 and is provided with a radially outwardly extending flange 17 at the lower end thereof for attachment to the web 14 by means of fastener elements 18. Upon reference to Figure 1, it will be noted that the hub 16 and fastener elements 18 are concealed by means of a cover plate 19 having a threaded engagement with the upper end of the hub.

Housed within the drum-shaped base 10 is a chassis 20 of a suitable radio receiving set having a casing 21 adapted to enclose the several instrumentalities of the radio receiver including the variable condensers 22. As a matter of fact, the chassis 20 preferably, although not necessarily, contains all of the parts of the radio receiving apparatus except the rectifier and audio tubes which are housed in the shade assembly 11 of the lamp with the loud speaker unit. I prefer to locate the rectifier and amplifier tubes in the shade of the lamp due to the fact that in this position the excessive heat radiated by these tubes may be more readily dissipated without the danger of overheating the insulation employed in association with the parts of the radio receiver proper.

The chassis 20 is secured to a spider 23 housed in the base 10 above the chassis and having a hub portion 24 provided with an opening 25 therethrough aligned with the opening 15 in the web portion 14 of the base. The hub portion 24 of the spider is secured to the radial flange 17 of the hub 16 by means of the fastener elements 18 and the extremities of the radially extending arms 26 of the spider are detachably secured to

the periphery of the base plate 27 of the chassis 20 by means of the spacers 28. In the present instance, the fastening means 18 is shown as comprising studs 29 having the lower ends anchored in the hub of the spider and having the upper ends extending through aligned openings formed in the central portion of the web 14 and the peripheral portion of the radial hub flange 17. Suitable nuts 30 are threaded upon the extreme upper ends of the studs and serve to clamp both the spider and base 10 to the hub 16. As a result, the chassis assembly 20 with the spider 23 may be readily removed as a unit from the interior of the drum-shaped base section 10 by merely removing the cover 19 from the hub 16 and disengaging the clamping nuts 30 from the studs 29.

Removing the chassis 20 in the above manner, however, requires disassembling the base 10 from the pedestal 12 and, while this may not be objectionable, nevertheless, in some cases it may prove more advantageous to remove the chassis unit without disassembling any of the parts of the lamp. This may be accomplished with the above construction by merely removing the screws 28' which are shown in Figure 1 as operable to secure the base plate 27 of the chassis unit to the spacers 28. These screws are the only fastening means holding the chassis unit in assembled relation with the spider and, accordingly, removal of these screws permits the chassis unit to be detached from the spider without molesting any part of the lamp structure.

It will, of course, be understood that certain of the instrumentalities in the chassis assembly 20 must be electrically connected to the speaker unit in the lamp shade 11 by means of electrical conductors and that some provision must be made for disconnecting these conductors when it is desired to remove the chassis from the base 10. In detail, a ring 31 of dielectric material is secured to the top wall of the chassis unit and is provided with a plurality of circumferentially spaced sockets 32 respectively electrically connected to the several instrumentalities in the chassis 20 of the radio receiving set that it is desired to electrically connect to the loud speaker unit in the lamp shade 11. Positioned above the ring 31 in vertical spaced relation thereto is a similar ring 33 secured to the radial flange 17 of the hub 16 and carrying plugs 34. The plugs 34 correspond in number to the number of sockets 32 in the ring 31 and are respectively connected to electrical conductors 35 which extend upwardly through the pedestal 12 to the speaker assembly in the lamp shade 11. The dimension of the plugs is predetermined to permit engagement of the lower ends of the same into the sockets 32 and, when engaged with the sockets, the electrical conductors 35 form a continuation of the electrical conductors connected to the sockets.

As will be more fully hereinafter set forth, provision is made for varying the capacities of the condensers 22 in the radio receiving chassis 21 and for controlling the volume of the set by a tuning dial unit 36 supported on the pedestal 12 at a point substantially above the base 10. Upon reference to Figures 1 and 2, it will be noted that the rotors of the several condensers 22 are simultaneously adjusted by means of gearing 37 comprising a driving gear 38 supported on the chassis unit 20 for rotation about the vertical axis of the pedestal 12 and meshing with suitable pinions 39 having hub portions respectively secured to the rotor shafts of the condensers 22. The central driving gear 38 is rotated from the tuning dial 36 by means of a tubular shaft 40 supported in the pedestal 12 and having a coupling 41 secured to the lower end thereof for connection with the driving gear 38. As shown in Figure 2, a pair of diametrically opposed radially extending slots 42 is formed in the driving gear 38 for receiving the depending lugs 43 on the coupling 41. As a result of this construction, the lower end of the shaft 40 is automatically disconnected from the driving gear 38 when the chassis assembly 20 is removed from within the base section 10 of the lamp.

In the present instance, the chassis assembly also includes the combined volume control and "on-and-off" switch 44. This switch is shown in Figure 1 as having an operating shaft 45 revoluble on the axis of the shaft 40 and having the upper end operatively connected to a shaft 47 through the medium of a coupling 48. The shaft 47 extends axially through the tubular shaft 40 and the coupling 48 at the lower end of the shaft is provided with depending lugs 49 adapted to engage the opposite ends of the pin 50 which extends transversely through the shaft 45. Thus, it will be seen that the coupling 48 not only provides for operating the device 44 but, in addition, automatically releases the latter device when the chassis unit 20 is removed from within the base section 10 of the lamp.

It follows from the foregoing, that the chassis unit 20, although containing parts adapted to be adjusted from a point on the pedestal 12, may be readily removed from the base section 10 of the lamp by merely disengaging the screws 28' from the studs 29. The chassis may then be transported to any convenient point for repair without the necessity of disassembling the lamp structure.

The pedestal 12 is shown in Figure 1 as being formed of two vertically aligned tubular sections 51 and 52 having the same or different diameters depending upon the particular design of lamp construction desired. The adjacent ends of the sections are spaced vertically from each other and are interconnected by means of the tuning dial unit 36. In detail, the unit 36 comprises a housing 53 having a hub portion 54 at the lower end threadedly engaging the upper end of the section 51 and having an enlarged tubular portion 55 at the upper end adapted to be secured to the periphery of a flange 56 extending radially outwardly from the lower end of the section 52.

The upper end of the tubular shaft 40 terminates in the housing 53 and is operatively connected to a ring 57 through the medium of reduction gearing 58. The arrangement is such that rotation of the ring 57 imparts a relatively slow rotative movement to the shaft 40 and effects a vernier adjustment of the condensers 22 through the medium of the gearing 37. In detail, the ring 57 surrounds the reduced annular side wall 59 of the housing 53 and an internal gear 60 is formed integral with the ring 57 for intermeshing engagement with a pinion 61 mounted on a carrier 62. The pinion 61 also meshes with a ring gear 63 surrounding the annular portion 59 of the housing and secured to the latter. Inasmuch as the housing 53 is prevented from rotation and the gear 63 is secured to the housing, it follows that rotation of the ring 57 about the axis of the shaft 40 imparts a rotative movement to the carrier 62 at a relatively reduced speed. The carrier 62 is in the form of

a ring surrounding the portion 59 of the housing and connected to the upper end of the shaft 40 by means of an arm 65 having the outer end suitably secured to the ring 62. The arm 65 projects inwardly of the ring 62 through a circumferentially extending slot 66 in the portion 59 of the housing and the inner end of the arm is provided with a hub 67 secured to the upper end of the shaft 40 by means of the set screw 68. The carrier 62 is supported on the top edge of a sleeve 69 surrounding the portion 59 of the housing in spaced relation thereto and supported at the lower edge on a ring 70 which is secured to the housing by means of the fastener elements 71. The ring 57, on the other hand, is supported for rotation on the sleeve 69 between the carrier 62 and an annular bearing 72 extending radially outwardly from the sleeve 69.

For the purpose of eliminating any error introduced by back lash in the gearing 58, the pinion 61 is mounted on the carrier for swinging movement in the plane of the gearing and the carrier 62 is normally urged in a direction transversely of the axis of the shaft 40 in a direction to yieldably clamp the pinion 61 against the ring gear 63. In detail, the pinion 61 is rotatably supported on one end of a link 73 having the opposite end pivotally connected to the ring 62 and a spring 74 is interposed between the sleeve 69 and annular side wall 59 diametrically opposite the pinion 61 for urging the ring 57 and pinion 61 toward the ring gear 63. The spring 74 is in the form of a bowed leaf spring having the opposite ends engaging the annular side wall 59 of the housing substantially diametrically opposite the pinion 61 and having the intermediate portion engaged by an adjusting screw 75 threaded in the sleeve 69.

The ring 57 carries the wave band indicating strip 77 in a position so that the latter is visible through a window 78 formed in the central portion 79 of the surrounding ash receptacle 80. The ash receiving receptacle 80 may have any desired shape and is secured to the section 51 of the pedestal. It will, of course, be understood that this receptacle may be eliminated, if desired, without changing any of the essential parts of this invention.

The combined volume control and "on-and-off" switch 44 is also actuated from the tuning unit 36. As shown in Figure 1, a ring 81 is rotatably supported on the outer wall of the enlarged portion 55 of the housing and has a series of teeth 82 on the inner surface thereof adapted to mesh with an idler gear 83 supported in the housing 53 for rotation in the plane of the ring 81. The idler gear 83 also meshes with a gear 84 secured to the upper end of a shaft 47 so that rotation of the ring 81 effects an operation of the device 44 through the medium of the shaft 47. It will, of course, be understood that the annular side wall portion 55 of the housing 53 is circumferentially slotted to provide for extending the periphery of the idler gear 83 therethrough into mesh with the teeth 82 on the ring 81.

The shade assembly of the lamp is supported on the upper end of the section 52 of the pedestal and comprises the illuminating means 90, in addition to the speaker unit 91. The illuminating means is in the form of suitable electric light bulbs carried by the housing 92 which, in turn, is secured to the upper end of the section 52 of the pedestal. In accordance with conventional practice, the electric light bulbs are arranged in an electric circuit with an "on-and-off" switch 93 supported in the housing 92 in the manner clearly shown in Figure 1. In the present instance, the switch is controlled from the dial assembly 36 by means of an arm 94 having the outer end projecting through a circumferentially extending slot in the enlarged annular side wall 55 of the housing 53 for convenient manipulation by the operator. The inner end of the arm 94 is operatively connected to the lower end of a shaft 95 supported in the section 52 of the pedestal and having the upper end operatively connected to a switch 93.

The speaker unit 91 includes the usual cone 96 supported within the lamp shade in operative relation to the sounding board 97 which forms the top of the shade. Also, the speaker unit is provided with a power pack comprising a transformer 98 supported within the housing 92 and electrically connected to the audio and rectifier tubes 99 and 100, respectively. As previously stated, the power pack is electrically connected to the plugs 34 in the base 10 by means of the conductors 35 and the plugs, in turn, are electrically connected to the proper instrumentalities in the chassis by means of the sockets 32 positioned on the chassis for detachably receiving the plugs.

In cases where it is desired to incorporate a tone control in the radio receiving apparatus, the construction shown in Figure 6 may be provided. As shown in Figure 6, the tone control 101 is supported in the housing 92 and is adjusted by means of a pinion 102 adapted to mesh with a ring gear 103 fixed to the inner surface of a cup-shaped casing 104. The casing 104 is of sufficient diameter to receive the lower end portion of the housing and is provided with a hub portion 105 at the bottom thereof apertured to receive the section 52 of the pedestal. The hub portion 105 is secured to a tube 106 surrounding the section 52 of the pedestal and having the lower end secured to the hub 107 of a plate 108 which is arranged in overlapping relation to the radial flange 56 at the bottom of the section 52. It follows from the above that rotation of the plate 108 effects an adjustment of the tone control device 101.

From the foregoing, it will be observed that I have provided a unique lamp construction which permits incorporating the chassis of a radio receiving set in the base thereof in such a manner as to permit the chassis to be readily removed from and installed into the base as a unit without disassembling the lamp structure. It will also be noted that the invention provides an improved tuning dial assembly which is not only conveniently located on the pedestal of the lamp structure for accessibility, but which also embodies all of the controls required for successful operation of the radio receiver. In addition, it will be noted that the present invention also contemplates incorporating a smoking set in association with the pedestal without interfering with any of the parts of the lamp or radio receiving set.

What I claim as my invention is:

1. The combination with a hollow pedestal having a base also of hollow construction, of a chassis for radio receiving apparatus housed by the base and including a plurality of instrumentalities of a radio receiving circuit requiring adjustment, means for readily detachably securing the chassis as a unit in said base, a tuning dial assembly supported on the pedestal at a point remote from the base and including a pair of dial members concentric with and independently turn-

ably mounted on the pedestal one above the other, a hollow shaft rotatably mounted in the pedestal and having the upper end connected to one of the dial members, a second shaft extending axially through the hollow shaft and having the upper end thereof connected to the other of the dial members, and means at the lower ends of each shaft for respectively removably connecting the shafts to instrumentalities in the chassis unit requiring adjustment.

2. In a floor lamp radio structure, a base, a radio set including a volume control means and a tuning control means all contained within said base, a hollow standard extending upwardly from said base for the support of a lamp shade adapted to contain a lighting means, annular dial members concentric with and independently turnably mounted on the exterior of said standard in spaced relation one above the other to occupy a location on said standard intermediate the base and the supported lamp shade, a pair of shafts within said standard to extend downwardly from the vicinity of said dial members to the radio set within said base, said dial members having internal gear portions thereon, one of said shafts having a spur gear thereon adapted to be engaged by the gear portion of one dial member, the other of said shafts having a gear thereon adapted to be engaged by the gear portion of the other dial member and means connecting said shafts in actuating relationship one to said volume control means and the other to said tuning control means.

3. The combination with a hollow pedestal having a hollow base, of a chassis unit for radio receiving apparatus housed by the base and including a volume control rheostat and a variable condenser, means for readily detachably securing the chassis unit in said base, a pair of dial members concentric with and independently turnably mounted on the pedestal one above the other to occupy a position on the pedestal substantially above the base, a pair of shafts within the pedestal extending downwardly from the vicinity of the dials, reduction gearing connecting the upper end of one of the shafts to one of the dial members, means connecting the lower end of the last named shaft to the condenser for actuating the latter, and means at the opposite ends of the other of said shafts respectively connecting said latter ends to the rheostat and to the other of said dial members.

4. The combination with a hollow pedestal having a hollow base, of a chassis unit for radio receiving apparatus housed by the base and including a volume control rheostat and a variable condenser, means for readily detachably securing the chassis unit in said base, a pair of dial members concentric with and independently turnably mounted on the pedestal one above the other to occupy a position on the pedestal substantially above the base, a pair of shafts within the pedestal extending downwardly from the vicinity of the dials, means at the lower end of each shaft respectively removably engaging the rheostat and variable condenser to provide removal of the latter instrumentalities from the shafts upon detaching the chassis unit from the base, reduction gearing operatively connecting one of the dial members to the upper end of the shaft connected to the condenser, and means operatively connecting the other dial member to said other shaft.

5. The combination with a hollow pedestal having a hollow base, of radio receiving apparatus having parts supported on the pedestal at a point remote from the base and having a chassis unit including additional parts of the radio receiving circuit housed in the base, said chassis unit including a variable condenser and a rheostat, means removably securing the chassis unit in said base, a contact plate carried by the chassis unit and having contacts insulated from each other and electrically connected to certain of the parts of the radio receiving circuit included in the chassis unit, a second contact plate carried by the base and having a corresponding number of contacts removably engageable with the contacts on the first plate and electrically connected to parts of the receiving circuit mounted on the pedestal, a pair of dial members concentric with and independently turnably mounted on the pedestal one above the other to occupy a position above the base, a pair of shafts within the pedestal extending downwardly from the dial members and having the upper ends respectively operatively connected to the dial members, and means at the lower ends of the shafts respectively removably engaging the variable condenser and rheostat.

6. The combination with a hollow pedestal having a hollow base at the lower end thereof, a frame member located within the base and secured to said base, a supporting plate forming the bottom wall of the base and spaced from the frame member, spacers removably securing the supporting plate to the frame member, a chassis unit for a radio receiving apparatus located within the space between the frame member and supporting plate and secured to the supporting plate in a manner to permit removal of the chassis unit from the base with the supporting plate, a tuning dial concentrically mounted on the pedestal at a point remote from the base and rotatable about the pedestal, and a shaft having the upper end operatively connected to the dial and having the lower end detachably engageable with a part of the radio chassis unit.

7. The combination with a hollow pedestal having a base also of hollow construction, of radio receiving apparatus housed by the base and including a plurality of variable condensers concentrically disposed with respect to the axis of the pedestal and a rheostat also located in the base, a pair of dial members concentric with and independently turnably mounted on the pedestal one above the other to occupy a position on the pedestal substantially above the base, a hollow shaft rotatably mounted in the pedestal in concentric relation to the axis of the latter and having the upper end operatively connected to one of the dial members, a second shaft extending axially through the hollow shaft and having the upper end thereof connected to the other of the dial members, means connecting the lower end of one of the shafts to each of the variable condensers for simultaneously actuating the latter, and means connecting the lower end of the other of the shafts to said rheostat.

8. The combination with a hollow pedestal having a base of hollow construction at the lower end thereof, of radio receiving apparatus including a plurality of variable condensers concentrically distributed around the axis of the pedestal and each variable condenser having a rotor shaft provided with a pinion, a rheostat also housed within said base, a pair of dial members concentric with and independently turnably mounted on the pedestal one above the other to occupy a posi-

tion on the pedestal in spaced relation with the base, a hollow shaft rotatably mounted in the pedestal in concentric relation with the axis of the pedestal and having the upper end connected to one of the dial members, a central driving gear connected to the lower end of the hollow shaft and meshing with the pinions on the variable condensers for simultaneously actuating the latter, a second shaft extending axially through the hollow shaft and having the upper end thereof connected to the other of the dial members, and means operatively connecting the lower end of the second shaft to the rheostat.

9. The combination with a hollow pedestal having a hollow base at the lower end thereof, a frame member located within and secured to said base, a supporting plate spaced from said frame and said base and removably secured to said frame, a chassis unit for a radio receiving apparatus located within the space between the frame and supporting plate and secured to said supporting plate in a manner to permit removal of the chassis unit from the casing with the supporting plate, radio receiving apparatus carried by the chassis unit and including a variable condenser, a tuning control member removably mounted on the pedestal at a point remote from the chassis unit, and a separable coupling connecting the tuning control member to said variable condenser, one part of said coupling being carried by the tuning control member, another part of said coupling being carried by and movable with said chassis unit, said coupling part being automatically disengaged upon removal of said plate and chassis unit from said base.

10. In a combined lamp and radio receiving apparatus, the combination with a hollow pedestal having a hollow base at the lower end thereof and having a shade assembly supported upon the upper end of the pedestal, of a supporting plate within said base, a frame member secured in the base and positioned adjacent the top wall of the base, means removably securing said plate to the frame member in spaced relation to the latter, a radio receiving apparatus having parts positioned in the shade assembly and having other parts grouped to form a chassis unit positioned in the space between the frame member and plate and secured to the latter in a manner to permit removal of the chassis unit from the base with said plate, a variable condenser forming one of the parts of the radio receiving apparatus embodied in the chassis unit, means electrically connecting parts of the radio receiving apparatus in the chassis unit with parts of the radio receiving apparatus in the shade assembly including cooperating engaging electrical contacts detachable from one another upon removal of the chassis unit from said base, a tuning control member removably mounted on the pedestal at a point remote from the base, a separable coupling connecting the tuning control member and variable condenser, one part of said coupling being carried by the tuning control member, another part of said coupling being carried by the chassis unit, said coupling parts being automatically disengaged upon removal of said plate and said chassis unit from the base.

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