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L. G. PACENT

ADJUSTING DEVICE

Filed May 9, 1925

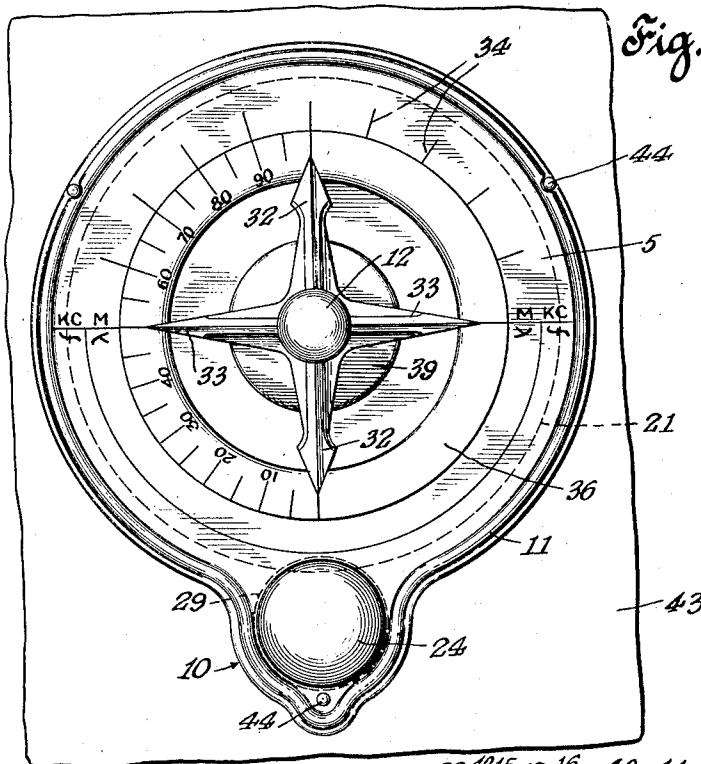


Fig. 1.

Fig. 2.

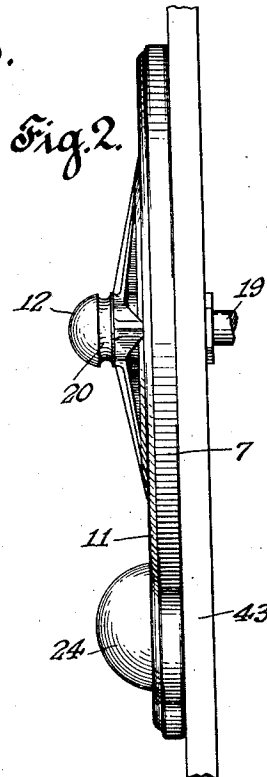
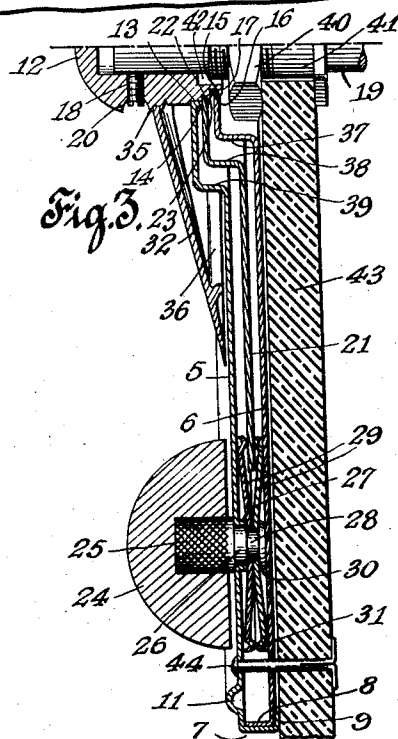


Fig. 3.

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ADJUSTING DEVICE.

Application filed May 9, 1925. Serial No. 29,173.

This invention relates to the adjustment of radio and other instruments where there is the necessity for close and accurate settings.

Special objects of the invention are to provide an adjusting device of particularly attractive form, capable of ready application to the instrument to be adjusted, operable to effect fine, smooth adjustments of the instrument and of simple, inexpensive construction.

In the attainment of the foregoing and other desirable objects, various novel features of construction, combinations and relations of parts are utilized, as set forth in the following specification.

In the drawing accompanying and forming part of this specification, the invention is illustrated embodied in one of its practical commercial forms, but the structure may be modified without departure from the spirit and scope of the invention as hereinafter set forth and broadly claimed.

Figure 1 is a front elevation of a practical embodiment of the invention as applied to a supporting panel.

Figure 2 is an edge view of the same.

Figure 3 is an enlarged vertical sectional view of the lower half of the device.

The body or supporting structure of the device is shown as made up of two substantially flat plates 5, 6 having flanged rims 7, 8 overlapped in telescopic engagement to form a relatively thin flat casing. The flange 7 of the front or face plate 5 is shown turned over the back of the other plate at 9 to secure the two casing members permanently together. The casing so constructed is shown as of generally circular form with an extension 10 at the lower portion of the same and with an ornamental raised bead 11 entirely about the rim of the circular and extension portions to reinforce and improve the appearance of the case.

At the center of the case a hub or collar 12 is located, the same being shown as rotatably held to the case by having a reduced or shouldered portion 13 journaled in an inwardly flanged bearing 14 in the front plate and a further reduced shouldered end portion 15 rotatably engaged in an opening 16 in the back plate. The inner end of the hub is shown as flanged over the back of the rear plate at 17.

The hub 12 is the part which is connected with the instrument to be adjusted and for

that reason it is shown equipped with a set screw 18 by which it can be fixed in adjusted relation upon the shaft 19 of such instrument. This set screw is shown seated in an annular groove 20 in the side of the hub so that it does not protrude and does not appear at the front of the device.

Fixed on the hub within the case is a disc 21 shown as held on a shouldered portion 22 of the hub by an over-turned flange 23. This positioning of the disc locates the same at the end of the hub bearing flange 14, thus aiding in positioning the hub in the case.

The adjustment is effected by a knob or handle 24 on the outer end of a stud 25 shown journaled in the face plate by having a shouldered portion 26 engaged in the rearwardly flanged bearing 27 of said face plate, said stud being shouldered at its inner end at 28 for the discs 29 which grip the rim of the hub disc 21. The discs 29 are shown held in place by the riveting of the inner end of the stud at 30 over the inner disc and secured in this relation, the outer disc by abutment by the inner end of the bearing flange 27 serves to position and limit the outward movement of the adjusting member.

The discs 29 are made of spring material and are shown formed at their edges with reentrant lips provided by forming the opposed annular beads 31 in the meeting rim portions of the same. These lips engage the rim of the hub disc with sufficient grip to insure positive rotation of the same and they provide for the easy running entrance of the disc and clearance for that part of the disc which extends inwardly beyond such lips.

As an aid in making the adjustments and a means for setting the instrument at predetermined values, the adjusting device is preferably provided with an indicator suited to such purposes and here illustrated as a cruciform pointer having one pair of opposed direct reading fingers 32 and a pair of supplementary indirect reading fingers 33 cooperating with one or more scales 34 on the front of the case. This pointer is shown secured at 35 to the outer portion of the hub at the back of the set screw groove and as having a flange or ring 36 connecting the tips of the fingers and formed as a scale or marker cooperating with the fixed scale 34.

To adapt the invention to the "one hole mounts" now quite commonly used for con-

condensers and other instruments, the back plate, hub disc and front plate may be cupped or forwardly offset about their centers as indicated at 37, 38, 39 respectively to position the hub forwardly of the flat plane of the case and provide a space at the back of the same for the lock nut 40 at the front of the panel which secures the bearing sleeve 41 of the mount in place. Also if desired, the hub may be countersunk at its inner end as indicated at 42 to receive the forward end of the screw sleeve 41. The rearwardly extending web 36 of the pointer overstands the forward offset of the case, thus hiding the same from view.

The invention is applied by simply slipping the open inner end of the hub over the projecting end of the shaft of the condenser or other instrument until the case bears flat against the panel or other supporting surface 43 and then tightening the set screw 18, after the pointer has been set to accord with the position of the instrument. As the hub is journaled in the case, the case can be supported in suspended relation from the hub after the hub has been properly attached to the instrument shaft. Preferably, however, the case is independently supported as by means of headed pins 44 extended from the front of the casing through openings provided in the panel and having split ends bent over the back of the panel to secure them in place.

The ratio of the intermeshing discs attached to the knob and hub is preferably such that a considerable movement of the knob produces but a comparatively slight rotative adjustment of the hub. Consequently, very fine and accurate adjustments can be effected by manipulating the hub. Also, when desired, more rapid adjustments can be secured by imparting a more extensive or continuous motion to the knob, the exposed rounded head of the knob facilitating both such adjustments. As the casing is relatively thin and flat, the device lies close against the panel and because of its generally ornamental character, adds a pleasing and finished effect. As the device consists of but few parts and those mostly light sheet metal, the same can be built quite inexpensively.

What is claimed is:

1. An adjusting device comprising front and back plates having flanged rims telescopically engaged to form a thin flat case, a collar rotatably held to said plates and provided with means for securing same to the shaft of an instrument to be adjusted, indicating means on said collar traversing the front plate of the case, a friction disc carried by the collar within the case and an operating member journaled in the front plate of the case and having a friction wheel within the case engaged with the disc of the collar.

2. An adjusting device comprising front and back plates having flanged rims telescopically engaged to form a thin flat case, a collar

rotatably held to said plates and provided with means for securing same to the shaft of an instrument to be adjusted, indicating means on said collar traversing the front plate of the case, a friction disc carried by the collar within the case and an operating member journaled in the front plate of the case and having a friction wheel within the case engaged with the disc of the collar, the back plate, friction disc and front plate having forwardly offset portions concentric with the collar and the indicator having a ring about the forward offset on the front plate.

3. An adjusting device comprising front and back plates having flanged rims telescopically engaged to form a thin flat case, a collar rotatably held to said plates and provided with means for securing same to the shaft of an instrument to be adjusted, indicating means on said collar traversing the front plate of the case, a friction disc carried by the collar within the case and an operating member journaled in the front plate of the case and having a friction wheel within the case engaged with the disc of the collar, the front plate having a flanged bearing for the collar and a flanged bearing for the operating member, the friction disc and wheel engaging the ends of such flanges to limit axial displacement of said members.

4. An adjusting device comprising a thin flat supporting plate having annular flanges struck up from the flat plane of the same and forming a bearing for a hub and a bearing for an actuating knob, a hub journaled in the first bearing flange and provided with a disc at the back of said plate, a knob journaled in the second bearing flange and having a friction wheel at the back of the plate engaged with the disc, an indicator carried by the hub traversing the face of the plate and means on the hub for adjustably securing the same to the shaft of an instrument to be adjusted.

5. An adjusting device comprising a hub provided with means for securing the same over the shaft of an instrument to be adjusted, said hub having a shouldered portion, a face plate provided with a bearing receiving the shouldered portion of the hub and by which said face plate and hub are definitely positioned and the face plate may be supported from the hub when the hub is affixed to the shaft of the instrument to be adjusted, a disc secured on the hub in back of the shouldered portion of the same and at the back of the face plate so that said face plate is definitely positioned on the hub between the shoulder at the front and the disc at the back of the same, an indicator on the forward portion of the hub for travel over the face plate and an operating member journaled in the face plate having a wheel in back of the face plate in driving engagement with the rim of the disc.

6. An adjusting device comprising a hub provided with means for securing the same

over the shaft of an instrument to be adjusted, said hub having a shouldered portion, a face plate provided with a bearing receiving the shouldered portion of the hub, a disc secured on the hub in back of the shouldered portion of the same, an indicator on the forward portion of the hub for travel over the face plate and an operating member journaled in the face plate having a wheel in back of the face plate in driving engagement with the rim of the disc, said face plate having a rearwardly projecting flange about the rim of the same forming an enclosure for the disc and friction wheel and a means for spacing the face plate in front of a panel or other surface.

7. An adjusting device comprising a hub provided with means for securing the same over the shaft of an instrument to be adjusted, said hub having a shouldered portion, a face plate provided with a bearing receiving the shouldered portion of the hub, a disc secured on the hub in back of the shouldered portion of the same, an indicator on the forward portion of the hub for travel over the face plate and an operating member journaled in the face plate having a wheel in back of the face plate in driving engagement with the rim of the disc, said operating member including a stud journaled in the face plate and having a finger hold at the front of the face plate, the friction wheel including a pair of spring discs rigidly held at the center and provided with reentrant lips at the rims to receive the edge of the friction disc between them.

8. An adjusting device comprising a face plate having an inwardly flanged hub bearing and an inwardly flanged stud bearing, a hub having a shouldered portion engaged in the first flanged bearing, a stud having a shouldered portion engaged in the second flanged bearing, a handle on the stud at the front of the face plate and a friction wheel on the stud in back of the face plate, a friction disc on the hub in back of the face plate and engaged by the friction wheel of the adjusting stud, means for securing the hub in adjusted relation on the shaft of an instrument to be actuated and an indicator on the exposed portion of the hub traversing the front of the face plate.

9. An adjusting device comprising a face plate having an inwardly flanged hub bearing and an inwardly flanged stud bearing, a hub having a shouldered portion engaged in the first flanged bearing, a stud having a shouldered portion engaged in the second flanged bearing, a handle on the stud at the front of the face plate and a friction wheel on the stud in back of the face plate, a friction disc on the hub in back of the face plate and engaged by the friction wheel of the adjusting stud, means for securing the hub in adjusted relation on the shaft of an instrument to be actuated and an indicator on the exposed portion of the hub traversing the front of the face plate, the face plate having a forwardly

cupped portion surrounding the hub and the disc having a corresponding forwardly offset axial portion.

10. An adjusting device comprising a face plate having an inwardly flanged hub bearing and an inwardly flanged stud bearing, a hub having a shouldered portion engaged in the first flanged bearing, a stud having a shouldered portion engaged in the second flanged bearing, a handle on the stud at the front of the face plate and a friction wheel on the stud in back of the face plate, a friction disc on the hub in back of the face plate and engaged by the friction wheel of the adjusting stud, means for securing the hub in adjusted relation on the shaft of an instrument to be actuated, an indicator on the exposed portion of the hub traversing the front of the face plate and a back plate covering the disc and friction wheel, the hub having an annular flange at the inner end of the same rotatably engaged over the rear of said back plate.

11. An adjusting device of the character disclosed comprising a case, a hub journaled in said case and provided with means for attaching same to a part of the instrument to be adjusted, a knob journaled in the case and cooperating drive discs on the knob and hub, including a pair of spring discs on one of such members gripping between them the edge of a disc on the other of such members, the case and the disc on the hub member being cupped forwardly about the axis of the hub to provide a space at the back of the case for the mount of the instrument.

12. An instrument adjusting device comprising a disc provided with means for enabling a driving connection of the same with the instrument to be adjusted, a pair of smaller spring discs arranged in opposed relation and rotatably mounted with their edges gripping between them the edge of the larger disc, said spring discs being freely rotatable in either direction and manually operable means for turning said spring discs slow or fast in either direction and to any desired extent to effect a fine adjustment of the larger disc and the instrument to which said larger disc is attached, including a knob and a shaft on which said knob is mounted, the spring discs being riveted at their centers on said shaft and thereby rigidly held at their centers with freedom to yield at their edges.

13. An instrument adjusting device comprising a thin flat case made up of closely spaced front and back plates with the rim of one flanged over the rim of the other, a flat disc journaled in the case and provided with means for enabling connection of the same with the shaft of an instrument to be adjusted, a pair of spring discs secured together in opposed relation at their centers with their edges in gripping engagement over the edge

of the flat disc, said spring discs being journaled in the case and operating means exposed at the front of the case for rotating said spring discs.

- 5 14. An instrument adjusting device comprising a thin flat case having a forwardly cupped central portion, a disc journaled in said central portion of the case and having also a forwardly cupped central portion concentric with the cupped portion of the case, indicating means connected with said disc and extending over the cupped portion on the front of the case, cooperating spring discs journaled within the case in gripping engagement with the first disc and operating means for said discs exposed at the front of the case to one side of the indicating means operating thereover.
- 10 15. An adjusting device of the character

disclosed comprising a case, a hub journaled in said case and exposed at the rear of the case for engagement with an instrument shaft, a knob journaled in the case and exposed at the front of the same, cooperating drive discs on the hub and knob and actuated from the knob, including a pair of spring tensioned discs connected with one of such members gripping between them the edge of a disc connected with the other of such members, the case and the disc connected with the hub member being cupped forwardly about the axis of the hub to provide a space at the back of the case for the mount of the instrument.

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In witness whereof, I have hereunto set my hand this 7th day of May, 1925.

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LOUIS G. PACENT.