Feb. 23, 1926.

1,574,715

C. E. WARNER

CONDENSER

Filed May 18, 1925

Fig. 1.

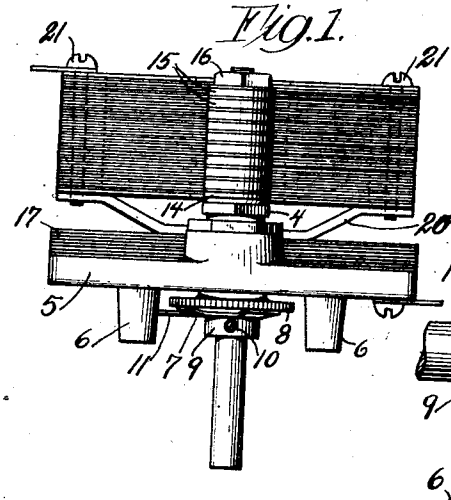


Fig. 5.

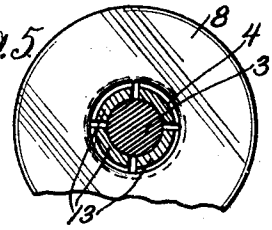


Fig. 4.

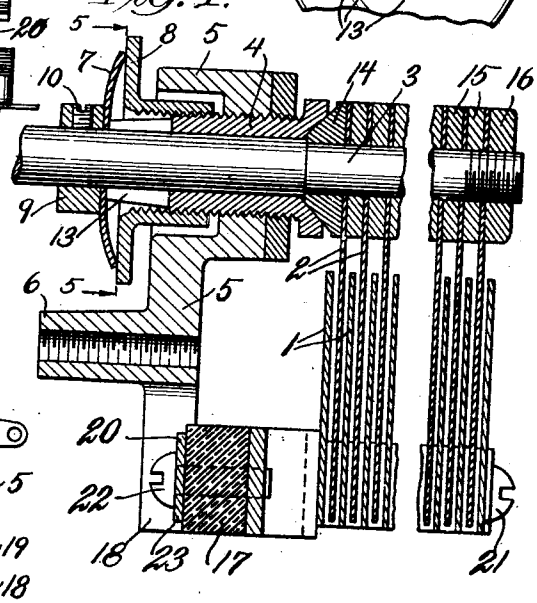


Fig. 2.

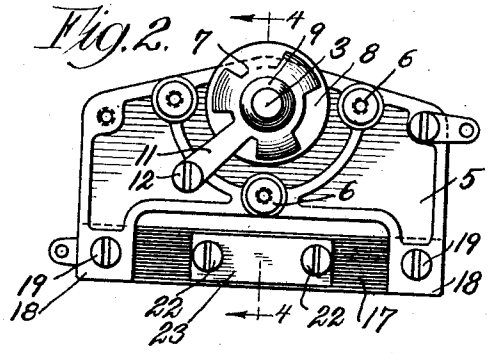


Fig. 6.

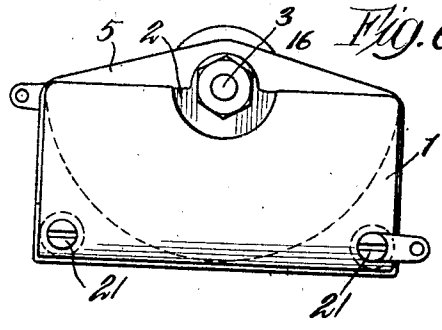
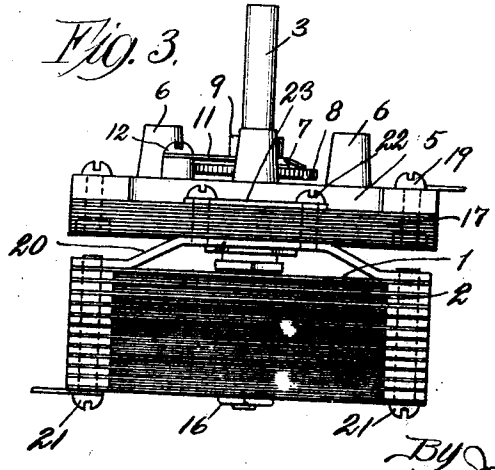


Fig. 3.



Inventor:
Chester E. Warner
By Jones, Addington, Ames & Seibold
Attys.

Patented Feb. 23, 1926.

1,574,715

UNITED STATES PATENT OFFICE.

CHESTER E. WARNER, OF BERWYN, ILLINOIS, ASSIGNOR TO BENJAMIN ELECTRIC MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

CONDENSER.

Application filed May 18, 1925. Serial No. 30,955.

To all whom it may concern:

Be it known that I, CHESTER E. WARNER, a citizen of the United States, residing at Berwyn, in the county of Cook and State of Illinois, have invented new and useful Improvements in Condensers, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawing, forming a part of this specification.

My invention relates to variable condensers.

One of the objects of my invention is to provide an improved variable friction mechanism for controlling the movement of the rotor plates.

A further object of my invention is to provide an improved mounting for the stator plates.

Further objects of my invention will appear from the description and claims.

In the drawings in which an embodiment of my invention is shown—

Figure 1 is a top view of the condenser;

Fig. 2 is a front view;

Fig. 3 is a bottom view;

Fig. 4 is a section on the line 4—4 of Fig. 2;

Fig. 5 is a section on the line 5—5 of Fig. 4; and

Fig. 6 is a rear view.

Referring to the drawings in detail, the construction shown comprises the stator plates 1, the rotor plates 2, a shaft 3 on which the rotor plates are mounted, a bushing 4 in which the shaft 3 is oscillatable, an adjustable friction device for controlling the oscillation of the rotor plates, and an end frame or bracket 5 in which the bearing bushing 4 is mounted, and on which the stator plates are supported. This bracket 5 may be secured to any suitable support, such as the front panel of a radio receiving set, by means of screws inserted through the openings in the bosses 6 on the end frame.

The adjustable friction device for controlling the ease of movement of the rotor plates comprises a three-leaf spring washer 7 through which the oscillatable shaft 3 extends, an adjusting nut 8 threaded onto the bushing 4 and bearing against the leaves of the spring washer, and a collar 9 secured to the oscillatable shaft for holding the spring washer against the adjusting nut 8. In order to prevent end play of the shaft 3 in the bushing 4, the collar 9 on the shaft is positioned so that the spring washer 7 has a nice working fit between the collar 9 and the end of the bushing 4. In order to hold the collar 9 in position on the shaft 3 a set screw 10 is provided. In order to hold the spring washer 7 against rotation with the shaft 3 the washer is provided with an extension 11 which is secured to the end frame 5 by means of a screw 12. In order to prevent any side play of the shaft 3 in the bearing bushing 4 the end of the bushing adjacent the spring washer is split longitudinally in four places (Figs. 4 and 5) and the four fingers 13 thus formed are sprung inwardly slightly so that they exert a light spring pressure on the shaft and prevent side play. Side play at the other end of the bushing is prevented by providing a conical washer 14 which bears on a correspondingly shaped seat in the end of the bushing. The usual spacers 15 are provided between the rotor plates which are clamped on the shaft by means of a nut 16.

The stator plates 1 are mounted on an insulating bar 17 which, in turn, is mounted on and extends between the downwardly extending lugs 18 of the end frame. This insulating bar 17 is secured to the lugs 18 by means of screws 19. The stator plates 1 are clamped together and held on a metal supporting bracket 20 by means of screws 21. This metal supporting bracket 20, in turn, is secured to the insulating bar 17 by means of a pair of screws 22 extending through a metal backing 23 and the insulating bar and threaded into the metal supporting bracket.

In use, if it is desired to vary the frictional resistance to the rotation of the rotor plates, the nut 8 is adjustable in one direction or the other to change the spring pressure of the washer 7 against the collar 9.

While I have described but one embodiment of my invention it is obvious that many modifications therein may occur to those

skilled in the art, and I desire, therefore, that my invention be limited only by the scope of the appended claims and by the prior art.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the U. S. is:

1. A condenser comprising rotor plates, a rotatable shaft on which said plates are mounted, a bushing through which said shaft extends and which forms a bearing for said shaft, a support in which said bushing is longitudinally adjustable, and variable friction means for controlling the rotation of said shaft, comprising a member carried by said bushing and adjustable therewith.

2. A condenser comprising rotor plates, a rotatable shaft on which said plates are mounted, a bushing through which said shaft extends and which forms a bearing for said shaft, a support in which said bushing is longitudinally adjustable, and variable friction means for controlling the rotation of said shaft, comprising a nut threaded on said bushing.

3. A condenser comprising rotor plates, a rotatable shaft on which said plates are mounted, a bushing through which said shaft extends and which forms a bearing for said shaft, a support in which said bushing is longitudinally adjustable, and variable friction means for controlling the rotation of said shaft, comprising a member carried by said bushing and adjustable therewith, and a friction shoe engaged by said member and frictionally resisting rotation of said shaft and held against rotation with said shaft.

4. A condenser comprising rotor plates, a rotatable shaft on which said plates are mounted, a bushing through which said shaft extends and which forms a bearing for said shaft, a support in which said bushing is longitudinally adjustable, and variable friction means for controlling the rotation of said shaft, comprising a member carried by said bushing and adjustable therewith, and a spring friction shoe engaged by said member and frictionally resisting rotation of said shaft and held against rotation with said shaft.

5. A condenser comprising rotor plates, a rotatable shaft on which said plates are mounted, a bushing through which said shaft extends and which forms a bearing for said shaft, a support in which said bushing is longitudinally adjustable, and variable friction means for controlling the rotation of said shaft, comprising a nut threaded on said bushing, and a spring friction shoe engaged by said nut and frictionally resisting rotation of said shaft.

6. A condenser comprising rotor plates, a rotatable shaft on which said plates are mounted, a bushing through which said shaft extends and which forms a bearing for said shaft, a support in which said bushing is longitudinally adjustable, and variable friction means for controlling the rotation of said shaft, comprising a nut threaded on said bushing, and a spring friction shoe engaged by said nut and frictionally resisting rotation of said shaft and held against rotation with said shaft.

7. A condenser comprising rotor plates, a rotatable shaft on which said plates are mounted, a bushing through which said shaft extends and which forms a bearing for said shaft, a support in which said bushing is longitudinally adjustable, and variable friction means for controlling the rotation of said shaft, comprising a nut threaded on said bushing, and a spring washer on said shaft engaged by said nut and frictionally resisting rotation of said shaft.

8. A condenser comprising rotor plates, a rotatable shaft on which said plates are mounted, a bushing through which said shaft extends and which forms a bearing for said shaft, a support in which said bushing is longitudinally adjustable, and variable friction means for controlling the rotation of said shaft, comprising a nut threaded on said bushing, and a spring washer on said shaft engaged by said nut and frictionally resisting rotation of said shaft and held against rotation with said shaft.

9. A condenser comprising rotor plates, a rotatable shaft on which said plates are mounted, a bushing through which said shaft extends and which forms a bearing for said shaft, a support in which said bushing is longitudinally adjustable, a thrust collar secured on said shaft in front of said bushing, a resilient friction collar through which said shaft extends lying between said bushing and thrust collar and bearing on the rear face of the thrust collar, said friction collar having an arm secured to said support to hold it against rotation with said shaft and having adjustable bearing foot extending therefrom, and an adjustable screw member engaging said bearing foot for varying the pressure of the friction collar against the thrust collar.

10. A condenser comprising rotor plates, a rotatable shaft on which said plates are mounted, a bushing through which said shaft extends and which forms a bearing for said shaft, a support in which said bushing is longitudinally adjustable, a thrust collar secured on said shaft in front of said bushing, a resilient friction collar through which said shaft extends lying between said bushing and thrust collar and bearing on the rear face of the thrust collar, said friction collar having an arm secured to said support to hold it against rotation with said shaft and having adjustable bearing foot extending therefrom, and an adjust-

able screw member engaging said bearing foot for varying the pressure of the friction collar against the thrust collar, said thrust collar being adjustable longitudinally on said shaft.

11. A condenser comprising rotor plates, a rotatable shaft on which said plates are mounted, a bushing through which said shaft extends and which forms a bearing for said shaft, a support in which said bushing is longitudinally adjustable, a thrust collar secured on said shaft in front of said bushing, a resilient friction collar through which said shaft extends lying between said bushing and thrust collar and bearing on the rear face of the thrust collar, said friction collar having an arm secured to said support to hold it against rotation with said shaft, and an adjustable screw member acting on said friction collar for varying its pressure against said thrust collar.

12. A condenser comprising rotor plates, a rotatable shaft on which said plates are mounted, a bushing through which said shaft extends and which forms a bearing for said shaft, a support in which said bushing is longitudinally adjustable, a thrust collar secured on said shaft in front of said bushing, a resilient friction shoe lying between said bushing and said thrust collar and bearing on the rear face of the thrust collar, said friction shoe being provided with means for holding it against rotation with respect to said shaft, and an adjustable screw member acting on said resilient friction shoe for varying its pressure against said thrust collar.

13. A condenser comprising rotor plates, a rotatable shaft on which said plates are mounted, a bushing through which said shaft extends and which forms a bearing for said shaft, a support in which said bushing is longitudinally adjustable, a thrust collar secured on said shaft in front of said bushing, a resilient friction shoe lying between said bushing and said thrust collar and bearing on the rear face of the thrust collar, and an adjustable screw member acting on said resilient friction shoe for varying its pressure against said thrust collar.

14. A condenser comprising rotor plates, a rotatable shaft on which said plates are mounted, a bushing through which said shaft extends and which forms a bearing for said shaft, a support in which said bushing is longitudinally adjustable, a thrust collar secured on said shaft in front of said bushing, a resilient friction shoe lying between said bushing and said thrust collar and bearing on the rear face of the thrust collar, and an adjustable screw member acting on said resilient friction shoe for varying its pressure against said thrust collar, said support having a plurality of bosses spaced about the shaft and extending forwardly to a plane in front of the thrust collar to engage the front panel of a radio set.

In witness whereof, I have hereunto subscribed my name.

CHESTER E. WARNER.