

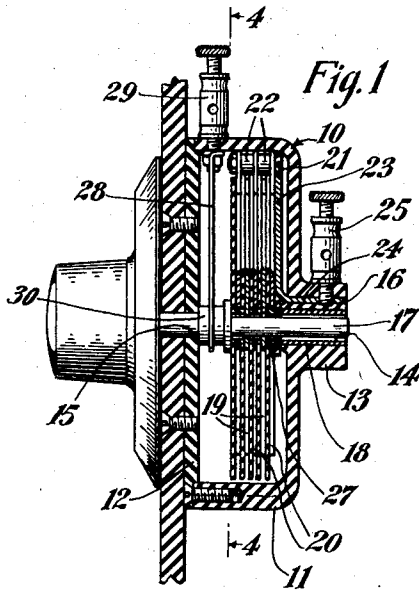
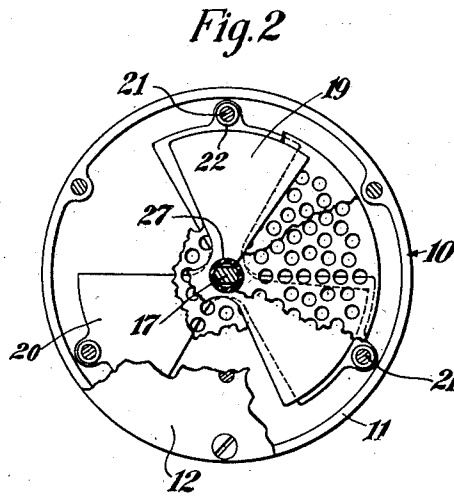
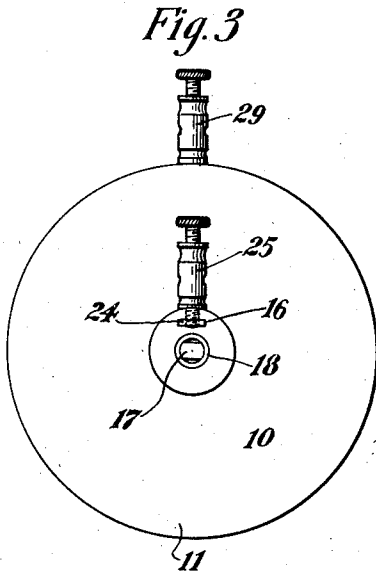
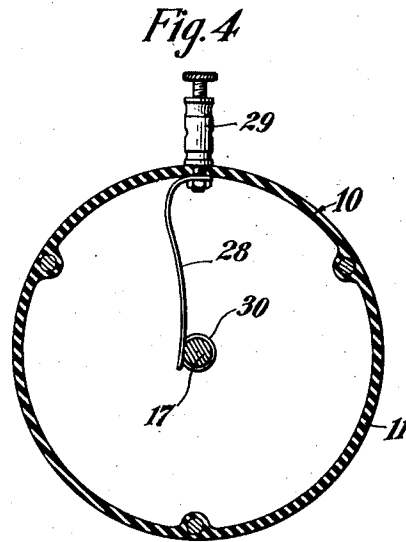
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G. A. GILLEN

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CONDENSER

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Inventor:
George A. Gillen,
By *H. P. Gray* Attorney

UNITED STATES PATENT OFFICE

GEORGE A. GILLEN, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO GILLEN, KIMMEY, BAKER SYNDICATE, INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

CONDENSER

Application filed March 9, 1925. Serial No. 13,982.

This invention relates to improvements in condensers of the variable type such as are commonly used for radio broad cast reception.

The object of the invention is to provide a condenser so designed as to provide a maximum capacity with the use of a minimum number of plates, and to provide a condenser wherein the plates are relatively close together and so held by a suitable dielectric material such as a thin sheet of mica or celluloid.

A still further object of the invention resides in the provision of a tensioning device by means of which the plates are held in contact with their next adjacent one to retain the distance therebetween at a minimum and to also maintain a positive contact between the rotor plates and a binding post carried by the casing.

As a further object, the invention contemplates a novel type of condenser plate so arranged as to permit of extremely fine adjustment of the capacity and eliminate the necessity of providing a separate vernier or vernier dial.

Another object of the invention is to provide a condenser wherein the form of the plates is symmetrical in order to preserve the balance of the rotor plates and eliminate the necessity of using a counterbalance as is now the common practice in the manufacture of fine instruments of like nature.

With the above and other objects in view which will become more apparent as the description proceeds, the invention consists in the novel construction, combination and arrangement of parts which will be fully set forth in the following specification, claimed and illustrated in the accompanying drawing, in which:

Fig. 1 is a vertical sectional view through the condenser.

Fig. 2 is a front end view of the condenser showing a portion of the cover plate, together with portions of the stator, rotor and insulating plates broken away to more clearly illustrate the structure.

Fig. 3 is a rear end view of the device, and Fig. 4 is a sectional view taken on line 4-4 of Fig. 1.

Referring to the drawings in detail, the numeral 10 designates in its entirety the casing of the condenser which comprises a substantially cup-shaped body 11 to which is fitted a cover 12. Formed centrally of and projecting rearwardly from the body 11 is a boss 13 formed with a central bore 14 which aligns with a similar bore 15 formed centrally of the cover 12. Extending through the boss 13 in parallel relation to the bore 14 is a slot 16, the purpose of which will be more fully hereinafter set forth.

The condenser unit is mounted on a rotor shaft 17 mounted to rotate in a bushing which is pressed into the bore 14 as clearly shown in Fig. 1. This shaft 17 extends through the bore 15 in the cover plate and has fitted thereon a collar 30 which acts as a limit for the condenser plates which will be more fully hereinafter described.

The condenser plates comprise thin sheets of material such as aluminum, brass, copper or other nonmagnetic material in the form of a disk from which substantially triangular segments are cut. The rotor plates 19 are of slightly less diameter than the stator plates 20, but unlike the stator plates are provided with central openings of a diameter to snugly fit the shaft 17 so as to provide a good electrical contact with said shaft. The stator plates 20 on the other hand have relatively larger central openings so as to avoid contact with the shaft 17. These plates 20 are provided at their outer edges with radially extending apertured bosses for the reception of clamping screws which are surrounded between said stator plates with spacing washers 22.

Secured to one of these clamping screws is a conductor strip 23, which extends inwardly toward the centers of the plates and is provided with an angular extension 24 which is received in the slot 16 and secured by means of the binding post 25 as will be clearly seen upon reference to Figs. 1 and 3.

In order that the rotor and stator plates may at all times be held in spaced relation, and contact between them prevented, it has been found desirable to interpose thin sheets or disks 26 of a dielectric material such as

celluloid, mica or the like. It is also preferred that these disks be formed to a perforated material so as to combine the advantages of an air condenser with a positive spacing element. It may also be found desirable to provide non-conducting bushings such as are shown at 27 surrounding the shaft 17 but it is not desired that the invention be restricted to their use.

10 In order that the parts may be yieldingly retained in proper position and to provide the desired tension on the shaft 17, the collar 30 is grooved to receive the free end of a spring wire 28 which is provided at the end, 15 opposite that received in the groove in the collar, with a loop or eye for the reception of the shank of a binding post 29. Obviously, the tension of this wire upon the collar will act to frictionally retain the movable plates 20 in adjusted position, and reduce accidental movement of said plates to a minimum. The symmetrical shape of the plates will also provide a nicely balanced instrument and the necessity of providing a counterbalance for 25 the device is entirely eliminated.

While in the foregoing there has been shown and described the preferred embodiment of this invention, it is to be understood that minor changes in the details of construction, combination and arrangement of parts 30 may be resorted to without departing from the spirit and scope of the invention as claimed.

What is claimed is:

35 An air condenser comprising relatively rotatably adjustable sets of interleaving condenser plates and thin dielectric layers between the plates of the two sets and having a multiplicity of perforations therethrough 40 to provide practically the full effect of an air condenser with mechanical separation of the skeletonized dielectric layers.

In witness whereof, I hereunto subscribe my name this 27th day of Feb. A. D., 1925.

45 GEORGE A. GILLEN.

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