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H. G. DYBVIG

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ELECTRICAL APPARATUS

Filed Oct. 2, 1930

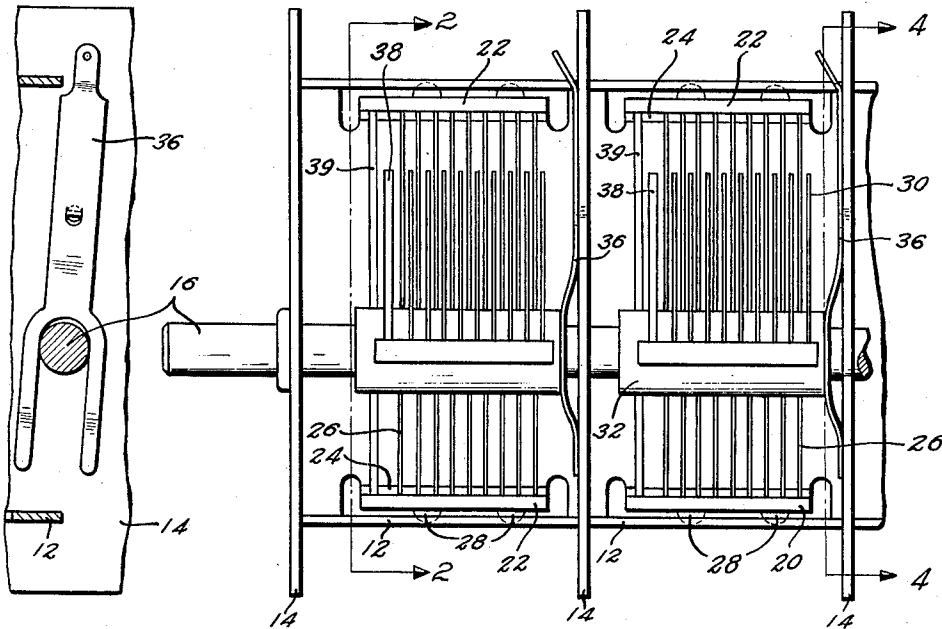


Fig. 4

Fig. 1.

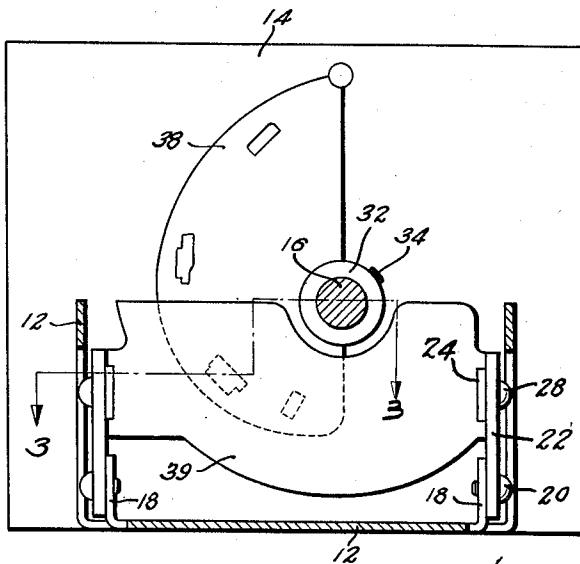


Fig. 2.

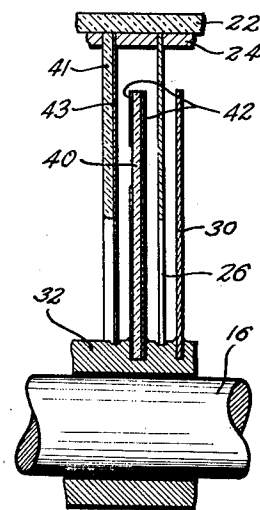


Fig. 3. Inventor

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UNITED STATES PATENT OFFICE

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ELECTRICAL APPARATUS

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This invention relates to a gang condenser and in more particular to the adjustment of a gang condenser.

An object of this invention is to provide adjusting means for adjusting the several condenser units of the gang condenser. This has been accomplished by providing a plate either stator or rotor plate or one or more or both that are made from insulating material covered or coated with a conducting material that may be scraped or otherwise removed from the insulating core so that the effective area is reduced. In some cases as the effective area is decreased the effective distance between adjacent plates is increased.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawing wherein a preferred embodiment of one form of the present invention is clearly shown.

In the drawing:

Fig. 1 represents a plan view of a gang condenser, part of which is broken away;

Fig. 2, a sectional view, taken on the line 2—2 of Fig. 1;

Fig. 3, a fragmentary sectional view, drawn to an enlarged scale and taken on the line 3—3 of Fig. 2.

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 1.

Referring to the drawing, a cradle 12 of conductive material is supported by and conductively secured to a frame or a radio chassis (not shown) in any suitable manner.

A number of conductive shield plates 14 are conductively fastened to the cradle 12 in any suitable manner (not shown) and divides the cradle 12 into equal spaces that are electrostatically shielded. Each one of these spaces is adapted to receive a single condenser, all of which, however, have one common rotor shaft 16.

The supporting members 22 of insulating material are carried by means of screws 20 or any other fasteners on depending lugs 18 integral with the cradle 12. Another supporting member 24, adapted to receive the ends of the conductive stator plates 26 and to rigidly hold these plates in equal spaced posi-

tion, is secured to each insulating member 22 by rivets 28 or in any other suitable manner.

The rotor plates 30 of conductive material are held fast in equally spaced grooves of tubular sleeves 32 by die casting the sleeve material while the rotor plates 30 are in position, thereby producing a unitary structure. The sleeves 32 are adjustably mounted upon the rotor shaft 16 by set screws 34 or by any other suitable adjusting means.

Each shield plate 14 has rigidly and conductively mounted thereon by riveting or in any other suitable manner a wiping contact 36 which contacts with the conductive sleeve 32 as shown in Figs. 1 and 4.

It is obvious by now that the rotor plates 30 are conductively connected to a frame or radio chassis by the series of shields 14. As the frame or the radio chassis is grounded, it is clear that also the rotors are grounded.

As only a conventional gang condenser has been described this far it is to be understood that any other type of gang condenser or parts thereof could be used instead of the above described.

As it is well known to those skilled in the art it is rather difficult to manufacture and assemble the several condenser units forming the gang condenser such that for all settings of the rotors the capacities of all the units are the same or a predetermined value. The variations in the capacity may be due to variations in the distances between the several rotor and stator plates and due to the variations in the effective areas. Numerous methods have been proposed and several adopted in the commercial condensers for accomplishing this result.

In order to facilitate the equalizing of the capacity of the several condensers I have provided a rotor plate 38 and a stator plate 39 made from an insulated material 40 and 41, respectively, that is coated or plated such that the coating 42 and 43 may be scraped off the rotor or the stator or both so that the effective area of this plate is reduced. It can be readily seen that as the rotor is rotated the several gang condensers can be made to track by changing the effective area

of the coated plate thereby equalizing the capacities.

Although in the particular modification disclosed in the drawing one of the rotor plates and one of the stator plates have been constructed from insulating material covered with a conducting material, it is not essential and oftentimes is preferable to use only one such plate. It is not necessary to cover both sides of the insulating plate as one side need only be coated.

While the form of embodiment of the present invention as herein disclosed, constitutes a preferred form, it is to be understood that other forms might be adopted, all coming within the scope of the claims which follow.

What is claimed is as follows:

1. In an electrical condenser, a plurality of separate condenser units, means for simultaneously adjusting the units, and means for adjusting the capacities of the several units to cause simultaneous adjustments to result in equal increments of change of capacities of the units, said second means including a plate having an insulated core coated with a removable conductive coat so that the capacity of the units may be equalized by removing portions of the coating.

2. In an electrical condenser, a plurality of separate condenser units, means for adjusting the units in unison, and means for adjusting the capacities of the several units to predetermined capacities for particular settings, said second means including a conductively coated insulating plate, the change in capacity being accomplished by changing the area of the conductive coating.

3. An electrical condenser comprising a plurality of adjustable condenser units, means for adjusting the condensers in unison and means for adjusting the capacities of the units separately so that as the condensers are adjusted the capacities of the several units vary according to predetermined capacity curves, said second means including a non-conductive plate partially covered with a conducting material so that as the effective area of the conducting material is changed the capacity of the unit is thereby changed.

4. In an electrical condenser, a plurality of separate condenser units, means for simultaneously adjusting the units, and means for adjusting the capacities of the several units to cause simultaneous adjustments to result in equal increments of change of capacities of the units, said second means including a rotor plate having an insulated core coated with a removable conductive coat.

5. In an electrical condenser, a plurality of separate condenser units, means for simultaneously adjusting the units, and means for adjusting the capacities of the several units to cause simultaneous adjustments to result in

equal increments of change of capacities of the units, said second means including a stator plate having a core of insulating material coated with a removable conductive coat that may be partially removed to effect a change in effective area.

6. In an electrical condenser, a plurality of separate condenser units, means for simultaneously adjusting the units, and means for adjusting the capacities of the several units separately to cause simultaneous adjustments to result in equal increments of change of capacities of the units, said second means including a rotor plate and a stator plate each of which has a core of insulating material coated with a removable conducting material so that the capacity of each of the units may be adjusted by removing a portion of the conducting material.

7. In an electrical condenser, a plurality of separate condenser units, means for adjusting the units in unison, and means for adjusting the capacities of the several units to predetermined capacities, said second means including a rotor plate comprising a conductively coated insulating plate, the change in capacity being accomplished by changing the effective area of the conductive coating.

8. In an electrical condenser, a plurality of separate condenser units, means for adjusting the units in unison, and means for adjusting the capacities of the several units separately to predetermined capacities, said second means including a stator plate comprising a conductively coated insulating plate, the change in capacity being accomplished by changing the area of the conductively coated plate.

9. In an electrical condenser, a plurality of separate condenser units, means for adjusting the units in unison, and means for separately adjusting the capacities of the several units to predetermined capacities, said second means including a rotor plate and a stator plate each of which comprises a conductively coated insulating plate so that the change in capacity is accomplished by changing the area of the coating.

10. An electrical condenser comprising a plurality of adjustable condenser units, means for adjusting the condensers and means for adjusting the capacities of the several units so that as the condensers are adjusted the capacities of the several units vary according to predetermined capacity curves, said second means including a rotor plate comprising a non-conductive plate partially covered with a conductive material so that as the effective area of the conductive material is changed the capacity of units is thereby changed.

11. An electrical condenser comprising a plurality of adjustable condenser units, means for adjusting the condensers, and

means for separately adjusting the capacities of the several units so that as the condensers are adjusted the capacities of the several units vary according to predetermined capacity curves, said second means including a stator plate comprising a non-conductive plate partially covered with a conducting material so that as the effective area of the conducting material is changed the capacity of units is thereby changed.

12. An electrical condenser comprising a plurality of adjustable condenser units, means for adjusting the condensers and means for separately adjusting the capacities of the several units so that as the condensers are adjusted the capacities of the several units vary according to predetermined capacity curves, said second means including a rotor and a stator plate each of which comprises a non-conductive core partially covered with a conducting material so that as the effective area of the conducting material is changed the capacity of unit is thereby changed.

In testimony whereof I hereto affix my signature.

HENRY G. DYBVIG.

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