Jan. 3, 1939. P. A. TARR 2,142,705

RADIO POWER FILTER CONDENSER

Filed Nov. 14, 1936

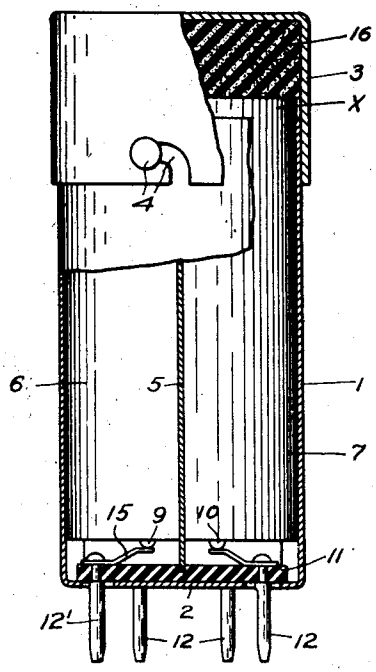


Fig. 1.

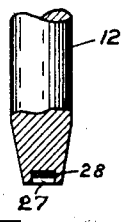


Fig. 1.

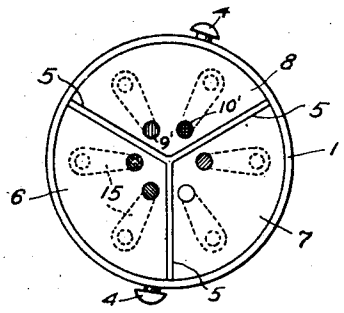


Fig. 2.

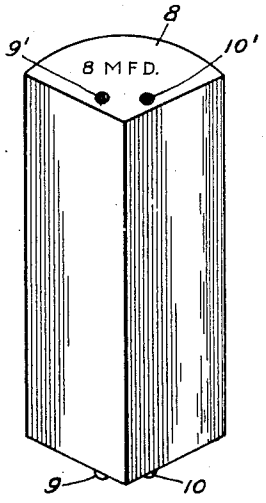


Fig. 3.

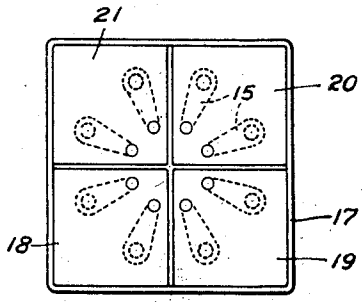


Fig. 4

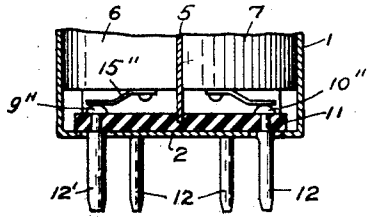


Fig. 5.

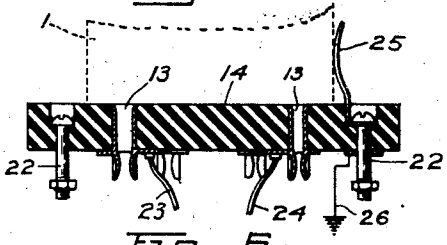


Fig. 6.

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RADIO POWER FILTER CONDENSER

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5 Claims. (Cl. 175—41)

This invention relates to electric condensers, and has for its object improvements in power filter or by-pass condensers for A. C. radio sets whereby the capacity of the condenser may be easily varied between certain predetermined values, and the condenser may be easily and quickly removed or applied to the set, or the units within the condenser shell changed, without the use of tools and the removal of wires or connections. Other objects and advantages of the improvement will appear in the following description and accompanying drawing.

In the drawing

Fig. 1 is a vertical view of my improved condenser partly in section to show both external and internal construction of the outer container.

Fig. 2 is a plan view of the outer container showing three segment-shaped condenser units in place.

Fig. 3 is a perspective view of one of the condenser units.

Fig. 4 is a plan view of an outer container with four unit condensers in place.

Fig. 5 is a vertical sectional view of the lower part of the condenser assembly showing a variation in arrangement of contact elements.

Fig. 6 is a vertical cross section of the base connection plate.

Fig. 7 is an enlarged elevation partly in section, of one of the contact prongs.

In radio sets using an A. C. power, or power pack, as the source of power for various circuits, generally several so-called filter condensers, bias circuit condensers, or by-pass condensers of various capacities and voltage, are used to by-pass unwanted frequencies etc., and the various filter or by-pass condensers are generally a source of trouble as well as possible fire danger in case of breakdowns, and as they are permanently installed units they can only be removed with considerable work and difficulty for testing or checking purposes, and hence this important attention is generally ignored by radio set owners until serious trouble develops, and even then is not easily traced by the radio repair man to the various condensers as they cannot be quickly separately examined and tested.

By my improved construction I provide for entire removal of the filter or by-pass condenser assemblage in a moment's time, and also the removal of the condenser units so that collective and/or individual examination of them may be easily carried out.

In further detail, the drawing shows my condenser assembly to comprise an exterior casing or receptacle, 1, preferably of sheet metal, and which may be cylindrical or rectangular in cross section, open at the top and closed at the bottom as at 2, and provided with a telescopic lid 3, also preferably of sheet metal and which is engaged over the casing 1 as by a bayonet joint 4 or any suitable snap catch or thread so as to hold the parts together in the manner indicated in Fig. 1.

Within the casing are fixed partitions 5 separating the interior into three longitudinal spaces in which are disposed three elongated condenser units 6, 7 and 8, which carry at their lower ends terminal contact buttons 9 and 10 of the respective condenser elements which they contain.

These condenser units 9 are preferably of paraffined cardboard or other suitable material, and each contains a by-pass or filter condenser assembly of any desired form, voltage, and capacity, such as a paper condenser, dry or wet electrolytic condenser, or any other type, and for any purpose in connection with the so-called A. C. power-pack, or power circuit of a radio set, and with their electrical capacities and character marked on the upper ends, such as 4 mfd., 8 mfd., etc., as indicated in Fig. 3, preferably also in the case of electrolytic condensers, the date of sealing or manufacture, as their electric properties depend to a certain extent on their age.

To identify the positive and negative relation of the terminal buttons 9 and 10 of the condenser units I apply different colored spots on the upper end of each unit package in line with the button below as indicated by the red and black spots 9' and 10' in Fig. 3. The other units may have other color combinations as orange-green, white-brown, etc., so they will not get mixed, and further color identification means is used to trace the units to the contact plugs of the assemblage as will be explained.

Secured to the bottom of the casing 1, either inside or outside, is a plate or disk of insulating material 11 from which extends downwardly a plurality of contact prongs 12, at least one or two of which, 12', are thicker than the others so that they can only enter the larger of a similar series of spring grip plug-in contact sleeves 13 carried by a heavy insulating base plate 14 shown in Fig. 6 and into which the prongs are adapted to fit.

Prongs 12 and 12' pass free of contact through openings in the bottom 2 of the casing 1, and each prong is provided at its upper end with a spring contact strip 15 arranged to contact one of the buttons 9 or 10 of the condenser units as shown in Fig. 1. If desired, the buttons and

spring contact strips may be reversed in position with respect to the prongs and the condenser units as shown at 9'' and 15'' in Fig. 5, but I prefer the first way described as it makes the condenser units free of objectionable projections which might become injured in handling and storage.

The condenser units fit freely, each within one of the compartments in the casing 1, and after they are dropped in they project a distance above its open end as at X so as to be readily grasped by the fingers for easy removal, while within the cover 3 of the casing is a thick block of resilient materials such as sponge rubber 16 or resilient felt, of such a thickness that it will be tightly compressed when the cover 3 is secured in place so that it will force a good connection with all of the contact members 9, 15, at the lower ends of the units.

When there are four or more spaces partitioned off, or where the casing is rectangular as at 17 in Fig. 4, the lower end contacts of the condenser units 18, 19, 20, 21, will each be fitted with their respective terminal contacts as described for Figs. 1 and 2 at their lower ends as indicated.

The plug-in prongs 12 and 12' of the casing are preferably hollowed out or slightly countersunk at their lower ends as indicated at 27 in Fig. 7 and partially filled with a colored enamel as at 28 corresponding to the spot of color on the upper end of the particular condenser unit terminal intended to be connected to it for a particular assemblage, and each may thus be identified by looking at the ends of the plugs, even if plugged into the base plate 14.

The lower base plate 14 may be a separate plate secured to the radio set box or frame as by screws or bolts 22, or the plate may be the bottom of the chassis of the set or wall of the radio cabinet or box itself. The various terminal sockets 13 will be suitably connected by wires or metal strips 23, 24 to effect the desired circuit or circuits through the several condenser units, either in multiple, series, or any other way to any of the elements of the set desired, and all circuits may be completed by simply plugging in the casing 1, its one or two extra thick prongs 12' insuring against wrong connections. Where required, two or more casings of condenser units may be used in a radio set.

When the casing 1 is plugged into the base plate 14 a resilient metal strip 25 extending upward from one or more of the screws 22 which may be grounded as indicated at 26 when in the set, to thus effectually shield the assembly.

By the construction above described, various combinations of units of different capacity, voltage, or electrical properties may be readily made, or any desired circuits either in series or parallel may be had, depending on the connections below the base plate and the number and capacity of the interchangeable units inserted in the receptacle 1, as there may be one 3 and two 4 mfd. units, or three 4's, three 3's, two 8's and one 4, etc., or one or more of the compartments may be left open, or a unit reversed if not wanted, or special units of any capacity voltage or nature inserted. Also, the whole assembly may be instantly removed from the set for testing and a temporary assembly plugged in without losing more than a moment's use of the set, or any one of the units may be instantly removed and another one dropped into place.

My use of the term "power filter condenser" in the claims is to be understood as embracing any type of condenser used in the various power circuits of radio apparatus.

Having thus described my improved filter condenser assemblage, what I claim is:

1. A power filter condenser comprising a casing provided with contact plug-in terminals at one end and a removable cover at the opposite end, a plurality of condenser units arranged side by side and each separately removably positioned within said casing, each of said units provided with exposed contact terminals arranged to make circuit contacts with said plug-in terminals of the casing when inserted therein and said plug-in terminals of the casing arranged for plugging into a terminal socket plate.

2. A power filter condenser comprising a casing provided with contact plug-in terminals at one end and a removable cover at the opposite end, a plurality of condenser units arranged side by side and each separately removably positioned within said casing and being of a length to project out of the casing when its cover is removed, said cover arranged to extend over and enclose the projecting ends of said units, each of said units provided with exposed contact terminals arranged to make circuit contacts with said plug-in terminals of the casing when inserted therein and said plug-in terminals of the casing arranged for plugging one way only into a terminal socket plate.

3. In the construction specified in claim 1, partitions within said casing separating it into non-circular compartments each to slidably receive one of said condenser units, and said condenser units being of similar form so as to be non-revolvable in their respective compartments.

4. In the construction specified in claim 1, said casing being round, and partitions within said casing separating it into segmental form compartments each to slidably receive one of said condenser units and said condenser units being of similar segmental form in cross section each complete in enclosed package form.

5. A power filter condenser unit comprising an elongated closed container enclosing the condenser elements and provided with exposed contact terminals at one end, said container being three-sided and in cross section of the form of a segment of a circle.

PETER A. TARR.