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TRIMMING CONDENSER

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Fig. 1

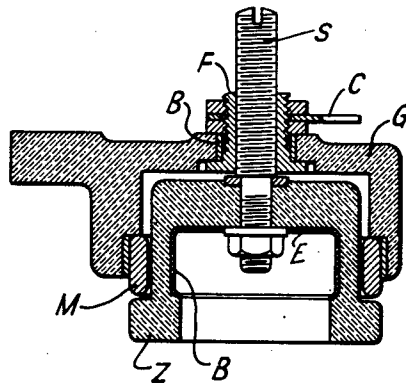
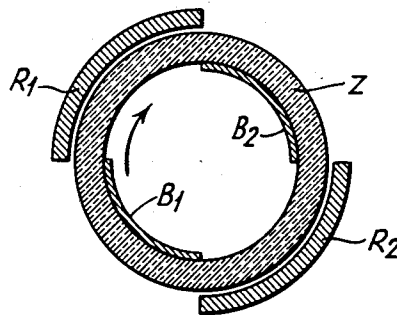


Fig. 2



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TRIMMING CONDENSER

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2 Claims. (Cl. 175-41.5)

A cylindrical rotary condenser has been disclosed in the prior art which consists of two smooth ceramic cylinders being revoluble inside each other so that there is a minimum gap or clearance between each other. The coats are applied upon the faces opposite the slide surfaces. Inasmuch as there is no danger of abrasion of the coats, as the capacity as well as the breakdown strength are very high, and since also electric adhesion forces between the coats have no chance to make themselves felt to the same extent as in a similar disk-shaped arrangement, this condenser is suited for very high potentials, more particularly for effecting neutralization in transmitters over average power.

Now, according to the invention one of the two cylinders, that is to say, preferably the outer one, consists of metal rather than metallized ceramic. The advantage of the invention is that a metallic cylinder having a carefully ground shell, especially where the inner face or wall of the shell is concerned, is producible far more easily than a ceramic cylinder of a similar kind, while yet the advantages above enumerated are preserved.

Exemplified embodiments of the invention are shown in Figs. 1 and 2. Referring to Fig. 1 a construction is there shown which may be utilized as a trimming condenser for RF circuits comprised in a transmitter. Soldered into the cylindrical casing consisting of ceramic, G, is a metallic ring M. In an axial bore B of the ceramic casing is a metallic guide part F with female screw-thread in which the screw S is held and guided. This screw is fitted at its bottom end with the hollow cylinder Z made of ceramic material, and the inside wall of the same is covered with a metallic coat extending throughout the entire circumference. The outside surface of cylinder Z and the inside surface of the metallic ring M are ground and polished so that an intimate and snug fit is insured and that the air-gap between the ceramic cylinder and the metallic ring is of the lowest permissible size, say, a few thousandths of one millimeter to allow rotation and shifting. In the position as shown, the coat B and the ring M are just placed opposite each other with the result that the capacitance between them is of maximum amount. By moving the ceramic cylinder Z helically, that is, by screwing it downward, the capacity is correspondingly reduced. To prevent the arising of high field intensities at the edges of the coats, these are curved or rounded as well known in the art. The connection C is established with the mobile coat B conveniently

by way of the metallic screw S and the metallic guide part F, a narrow strip E of the same substance as coat B, or a separate connection if desired, being extended from the upper edge of the coat B to make electrical connection with the lower end of the screw S.

The movement of the movable cylinder could also be effected in some other manner; for instance, in the present instance, by shifting or translating the same axially without a simultaneous rotary motion.

The ring M, if made of an aluminum alloy, could be hardened upon its inner circumference or face by means of anodic oxidation.

Instead of being made of ceramic material, the inner cylinder could also consist of some substance possessing a similarly high dielectric constant combined with small thermal expansion.

In the arrangement here shown, the two coats are of rotation-symmetric shape, with the result that the electric adhesion forces, so far as their action upon the inner cylinder is concerned, will exactly neutralize and offset each other. It will be understood that one or both coats could also comprise or embrace only part of a circle or circumference rather than 360 degrees. In such a case it is possible to design the condenser in the form of a gang condenser. A device of this kind is shown schematically in section in Fig. 2. The two outer coats R1 and R2 each represent one-fourth of a metallic ring. The two inner coats B1 and B2 are similarly placed diametrically opposite each other so as to embrace a certain angle of the periphery of the ceramic cylinder Z. In this instance, only a rotation, but no axial shift of the ceramic cylinder Z is required for the purpose of altering the capacity.

We claim:

1. A variable condenser comprising a pair of nested cup-shaped ceramic members, the outer member being stationary and carrying on its inner surface a cylindrical member serving as the stationary electrode of the condenser, a screw shaft threaded through the flat base portion of the outer ceramic member, the inner ceramic member being affixed to one end of said shaft, and a metallic coating on the inner surface of said last named ceramic member serving as the movable electrode of the condenser.

2. A variable condenser as defined in claim 1 wherein the terminal connection for the movable electrode is carried by the outer stationary ceramic member and is in electrical contact with the shaft.

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