

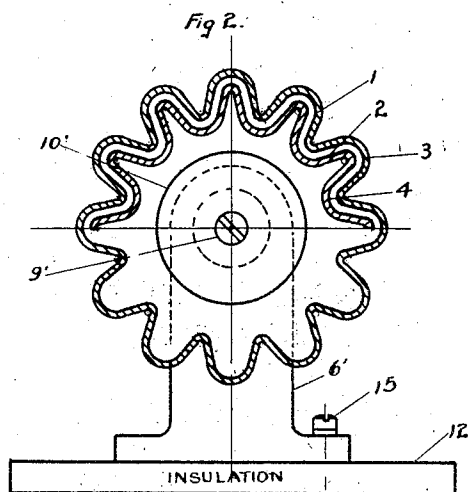
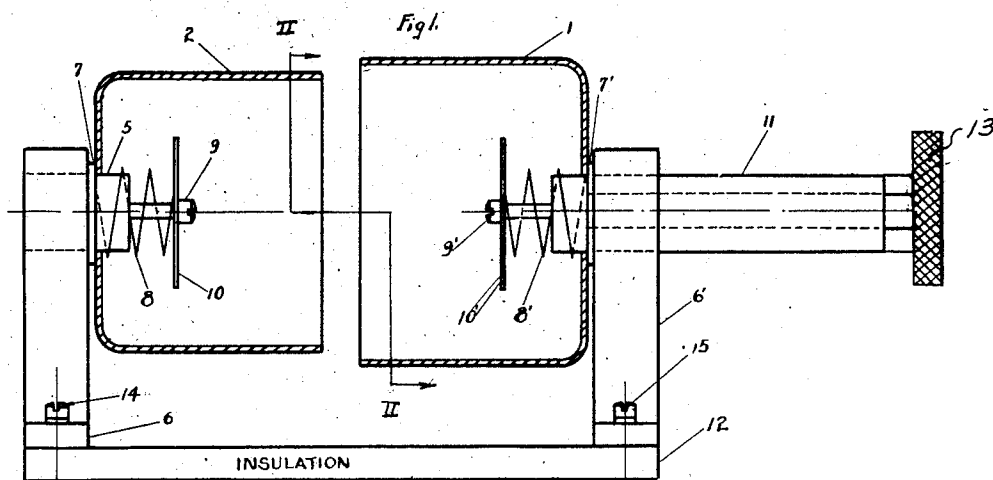
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J. T. B. BLOUGH ET AL

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VARIABLE CONDENSER

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VARIABLE CONDENSER

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This invention relates to electrical condensers, more particularly to variable condensers especially applicable for use in radio frequency receiving systems.

5 It is among the objects of the invention to provide a variable condenser which shall provide minute adjustment of the air gap between the conductor elements to vary the dielectric strength and hence the capacity of the condenser unit.

10 Another object of the invention is to provide a condenser in which the conductor elements are mounted for relative movement in two opposed planes to vary the effective surface of the conductor members and to vary the air gap therebetween.

15 Still another object of the invention is to provide a variable condenser of the above designated character which shall be of simple and compact mechanical construction and which shall be relatively inexpensive to manufacture in production quantities.

20 Variable condensers as heretofore constructed comprise a plurality of substantially segment-shaped plates or conductor elements rigidly secured in spaced-apart relation having a series of plates of equal area interposed and mounted for movement between the fixed plates. The movable elements are 30 secured to a common shaft which is rotatable to provide adjustment of the movable plates with the fixed plates. In this construction the air gap between the plates is constant.

35 In accordance with the present invention a pair of corrugated conductor elements of tubular form are disposed one within the other and mounted to provide relative movement axially and angularly to vary the capacity of the condenser.

40 In the accompanying drawing constituting a part hereof and in which like reference characters designate like parts, Figure 1 is a diagrammatic view in side elevation of a variable condenser embodying the principle of this invention, and Figure 2 a cross-sectional view thereof taken along the line II—II, Figure 1.

45 As shown in Fig. 2 the structure comprises a pair of conductor elements 1 and 2 of tubular shape, and provided with corrugations

3 and 4, respectively. The member 2 is movably mounted on a short stud shaft 5, Fig. 1, which is secured in a pedestal 6. The shaft 5 is provided with a shoulder or flange 7 against which the end wall of the member 2 is yieldingly held by a coil spring 8 which is retained by a screw and washer 9 and 10, respectively.

55 The member 1 is similarly mounted on a shaft 11 against a shoulder 7' on which it is mounted by spring 8', screw 9' and washer 10'. The shaft 11 is axially movable in a pedestal 6' and also angularly movable therein. The pedestals 6 and 6' are secured in suitable spaced relation to a base 12. End 65 of shaft 11 is provided with a constricted portion 13 for receiving a knob, (not shown). Pedestals 6 and 6' and the shafts 5 and 11 are of all metal construction and the base 12 consists of suitable insulating material. 70 Screws 14 and 15 are provided to constitute the terminal posts of the condenser.

75 The operation of this device is briefly as follows: The member 1 may be moved axially on its supporting shaft 11 to envelop the member 2. The amount of overlapping of the members 1 and 2 determines the effective surfaces of the conductors, and adjustment of these members changes the capacity of the condenser. Angular movement of the shaft 80 11 changes the air-gap between the corrugations 3 and 4, to obtain any desired dielectric strength between the adjacent surfaces. If the shaft 11 is turned too far the members 1 and 2 will readily yield on account of their 85 yielding connections with their supports.

It is evident from the foregoing description of this invention that a variable condenser made in accordance therewith provides adjustment of capacity to a degree not 90 accomplished by devices heretofore constructed and that they are relatively simple and inexpensive to manufacture.

I claim:

1. A variable condenser comprising a pair 95 of corrugated conductor elements of substantially cylindrical form, insulated from each other and disposed one within the other and having their respective corrugations interacting, terminals for electrically connecting 100

said elements and means for effecting relative axial and angular movement of said elements.

2. A variable condenser comprising a pair of corrugated conductor elements of substantially cylindrical form, insulated from each other and disposed one within the other, said elements having an air gap therebetween, one of said elements being mounted on a fixed support and the other on a movable support the latter being adapted for axial and angular movement, and terminals for connecting said conductor elements in an electrical circuit.

3. A variable condenser comprising a pair of corrugated conductor elements of substantially cylindrical form insulated from each other and having their corrugations radially disposed, terminal posts for connecting said elements in an electrical circuit, and means adapting said conductor elements for relative axial and angular movement.

In testimony whereof, we hereunto sign our names.

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