

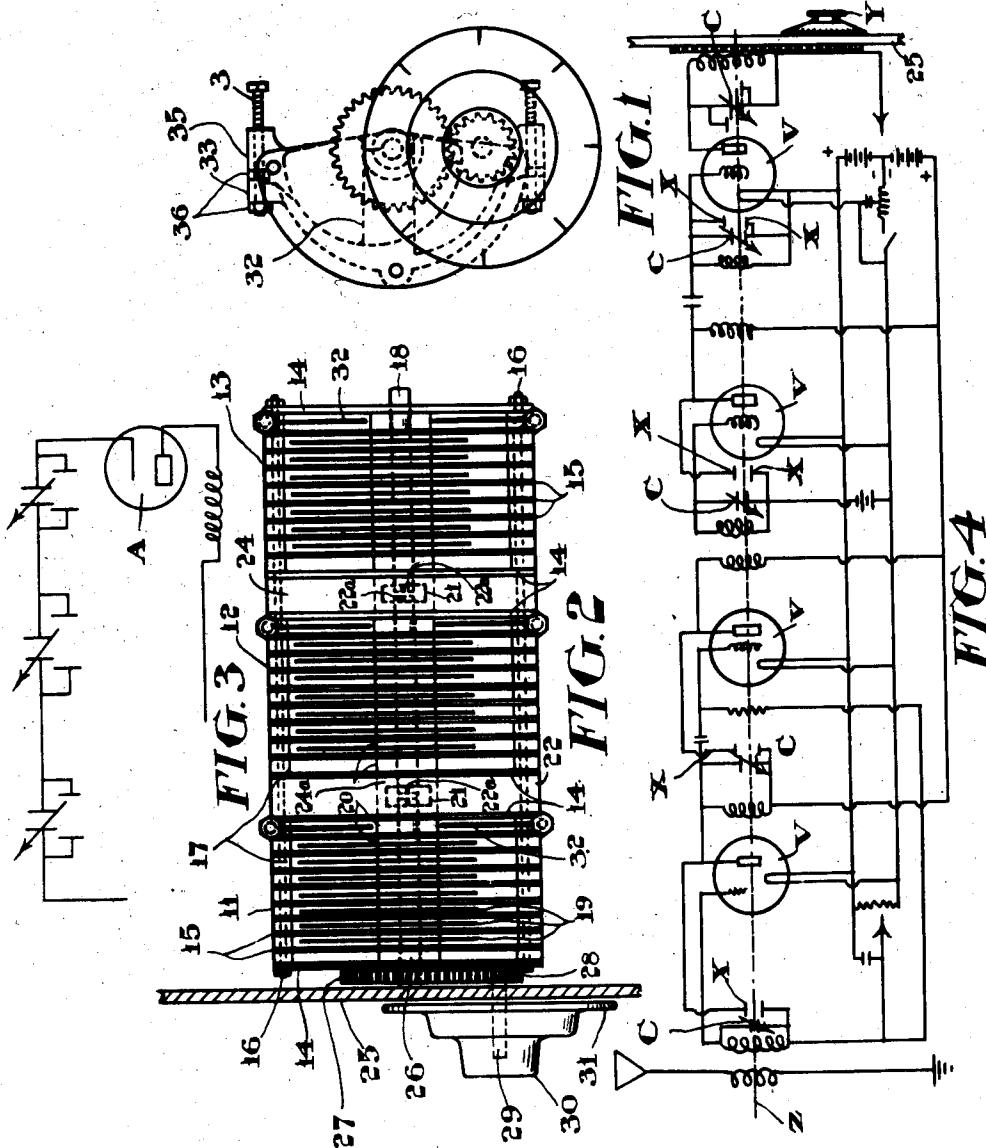
Dec. 21, 1926.

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CONDENSER

Filed Dec. 24 1925

1,611,313



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Patented Dec. 21, 1926.

1,611,313

UNITED STATES PATENT OFFICE.

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CONDENSER.

Application filed December 24, 1925. Serial No. 77,566.

This invention relates to new and useful improvements in radio equipment particularly to the condensers, and the object of the invention is to provide a device which will allow the operator of such equipment to make very fine adjustments in the condensers so that more selective reception may be obtained in a receiving set.

Another object is to provide a device of the class stated which will be simple and easy to operate and also will allow for the marking of the various stations by providing an operating mechanism for the condensers capable of a rotary movement of one complete revolution or 360°.

Another object is to provide condensers which may be easily adjusted to suit conditions in the equipment and when once set no further adjustment will be necessary when operating the set.

A further object is to provide a well balanced set of condensers which will be operated from a common source.

In my invention, I provide a battery of condensers coupled together and insulated from one another and operated from a common source by means of gearing or the like transmission means which will allow the operating handle to move through one complete revolution to allow for easy adjustments to be made in the positioning of the movable blades with regard to the fixed plates of the condenser. Means are also provided in each condenser for adjusting same to suit requirements of the operator.

In the drawings which illustrate one form of my invention;—

Figure 1 is a front elevation of my improved condenser.

Figure 2 is a plan view of the device shown in Figure 1 with three condensers operated from a common source.

Figure 3 is a diagrammatic illustration of one way of connecting the condensers in series.

Figure 4 is a diagrammatic illustration of a radio receiving circuit showing the condensers which may be operated from a common source.

Referring more particularly to the drawings, 11, 12 and 13 designate three separate variable condensers which may be mounted in a radio receiving set. Each condenser comprises end plates 14 and equally spaced fixed plates 15 which are of substantially

place by means of the bolts 16 passing through the end plates. Spacers 17 may be placed between each of the plates to hold them apart, said spacers being made of micamite or such like insulating washers. Each condenser is provided with a spindle 18 upon which are mounted the movable plates 19, spacers 20 being placed between them to hold them apart. The movable plates are also of substantially semi-circular formation. By moving the spindle, the movable group of plates may be moved into closer relationship or away from the fixed plates, each movable plate entering into or receding from its corresponding air space between one pair of fixed plates, whereby the magnitude of the electro-static capacity between said plates may be varied. The maximum capacity of such types of condensers depends upon the area, the total number of and the separation of the plates. The foregoing is descriptive of the common type of condenser at present used in the majority of radio receiving sets at present in use and the number of plates shown may be varied according to the capacity required. The spindles 18 in my improved type of condensers are so made that they extend beyond the end plates to form a means of coupling the shafts together. Couplings 21 may be placed between the adjacent ends of the spindles of adjacent condensers and may comprise cylindrical insulating members having recesses 22 formed in each end to receive the ends of the spindles and keys 22 or such like means may be used to secure them to the couplings or in the recesses. Insulating fixed spacers 24 may be provided between adjacent end plates of the condensers and said spacers may be provided with apertures 24^a surrounding the couplings to allow them to rotate freely therein. The condensers are mounted in any suitable manner on the panel 25. A toothed wheel 27 is secured to the end 26 of the spindle adjacent the panel. Gearing with the toothed wheel is the toothed pinion 28 which is secured to a spindle 29 rotatably mounted in suitable bearings formed in or secured to the panel. This spindle 29 extends outwardly from the face of the panel and secured to the end of the spindle is the operating handle 30, which is provided with an indicator disc 31 which may be marked in any suitable manner to assist the operator in positioning the movable

plates in any desired position to receive messages of any known wave lengths. In the drawing the markings are shown extending from 200 to 600 metres but this may be modified and letters or names indicating the various stations may be used instead of figures or numerals shown. The condensers are in alignment as shown and are coupled together to move in unison. Additional plates which may be called balancing plates 32 may be used in each condenser to provide an easy means of adjustment for regulating the condensers when securing them in position. These plates 32 are somewhat smaller than the movable plates and are shown in the form of a quadrant, but the shape of same may be altered if so desired. The plates 32 are movable in the vertical direction and two such plates may be mounted in each condenser in the manner hereinafter described. Secured to the bolts for supporting the fixed plates are the brackets 33 and rotatably mounted in said brackets are the adjusting screws 34. Formed in the edges of the plates are the bosses 35 which may be threaded to receive the threads of the bolts which may be provided with suitable means such as the collars 36 to prevent longitudinal movement of the bolts within the bearing or brackets 33. This construction allows the small plates to be moved in the vertical direction so that same may be adjusted to suit the required maximum capacity of each condenser.

In Figure 3 the condensers are wired up in series between the grid of the valve A and any other part of the radio equipment which may be mounted in the set and is only illustrative of one of the uses to which my improvement may be applied. In Figure 4 a wiring diagram of a radio receiving set is shown in which four valves V are shown, and five condensers C are used. It will be noticed from this diagram that one of the smaller plates or balancing plates X of each condenser is connected to the plate side of the lamp and the other balancing plate tapped into the wire connecting the rotor side of the condenser. All other parts of the set are wired or connected together to the batteries, coils etc., in the manner shown. The type of wiring and the number of condensers may be varied and the manner of connecting up the condensers in the set may be modified without departing from the spirit of the invention. The condensers C are operated from a common source which is shown diagram-

matically by means of the dotted line Z 60 and the operating handle Y, so that when the handle Y is rotated all the movable plates in the condensers may be moved in unison. The smaller plates are adjusted by moving the adjusting screws to raise or lower the said plates to suit the required capacity of each condenser and when set no more adjustments of the smaller plates are required. It will be readily understood that when condensers are coupled up in the manner herein disclosed that once their maximum desired capacity is set by moving the smaller plates, the battery of condensers may be moved in unison to control the tuning in of any desired station and the dial may be marked to allow for quick and easy adjustment of the position of the condenser plates to suit the desired wave length. Many types of radio receiving or transmitting sets using such types of variable condensers may be coupled up together in the manner shown to move in unison to facilitate operation of the set in which they are mounted.

Having thus described my invention, what I claim is;—

1. In radio equipment, variable plate condensers comprising end plates, a plurality of spaced fixed plates secured to bolts passing through said end plates and means insulating and spacing the fixed plates from one another, a spindle passing through the end plates, a plurality of movable plates secured to and adapted to rotate with the spindle, each movable plate being positioned to pass midway between a pair of fixed plates, balancing plates adjustably secured to the condensers and in proximity to one of the fixed plates, said balancing plates being movable in a vertical plane and parallel to the fixed plates, and a device for moving each of said balancing plates comprising a bracket secured to the condensers, an adjusting screw slidably mounted in the bracket and secured to the balancing plates and means to move the plates in the longitudinal direction of the adjusting screws.

2. A variable plate condenser including balancing plates, a device for moving each balancing plate comprising a bracket secured to the condenser, an adjusting screw slidably mounted in the bracket and secured to the balancing plates and means to move the plates in the longitudinal direction of the adjusting screw.

In witness whereof, I have hereunto set my hand.

WILFRID LATRAVERSE.