Aug. 5, 1924. 1,503,553

E. L. POWELL

ELECTRICAL CONDENSER

Filed Aug. 5, 1922

FIG. 1

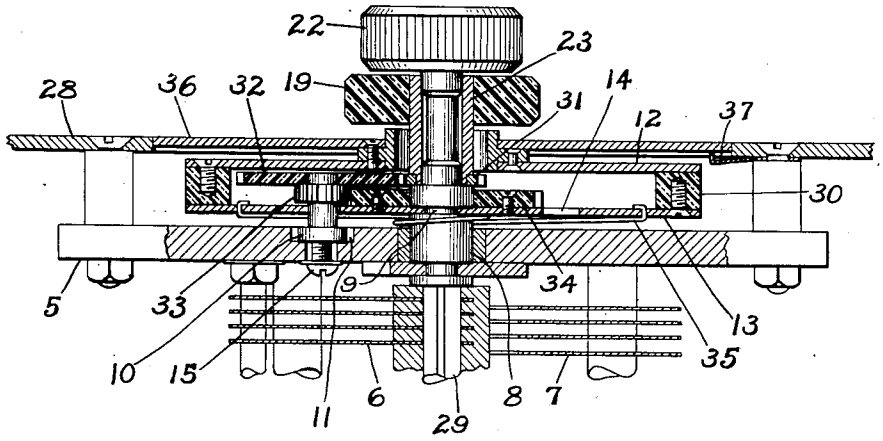
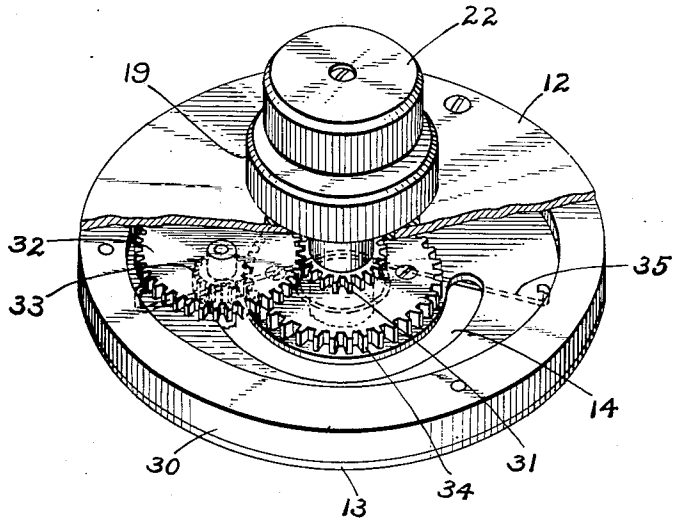


FIG. 2



Inventor
Edwin L. Powell

By

Attorney

Patented Aug. 5, 1924. 1,503,553

UNITED STATES PATENT OFFICE.

EDWIN L. POWELL, OF WASHINGTON, DISTRICT OF COLUMBIA.

ELECTRICAL CONDENSER.

Application filed August 5, 1922, Serial No. 579,901.

To all whom it may concern:

Be it known that I, EDWIN L. POWELL, a citizen of the United States of America, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Electrical Condensers, of which the following is a specification.

My invention relates generally to condensers and more particularly to variable air condensers.

An object of the invention is the provision of a condenser in which the main and fine adjustment control knobs are concentrically mounted economizing space on a panel board or condenser case.

Another object of the invention provides for a dual control of the movable plate assembly of an electric condenser, one directly through the movable plate spindle and one through associated gearing.

A further object of the invention is to provide a buffer eliminating injurious jars to the condenser construction upon the limits of rotation of the plate assembly being reached.

With these and other objects in view, the invention consists in the construction, combination, and arrangement of parts as will be hereinafter described.

Reference is to be had to the accompanying drawings forming part of this specification, in which like reference characters indicate corresponding parts throughout the several views, and in which—

Figure 1 is a sectional view partly broken away of my invention, and

Fig. 2 is a perspective view of the gear housing partly broken away to show the gear arrangement.

Referring more particularly to the drawings, 5 indicates the top of a condenser case in which the usual movable plate assembly 6 and fixed plates 7 are located, the former being attached to a spindle 29. This spindle extends through the condenser top and is provided with an enlarged portion 8 having a groove 9 for the reception of a gear housing.

The gear housing comprises a top 12, a bottom 13 provided with a slot 14 and an insulating wall 30 and is connected with a dial 36 movable within a panel 28, which may be provided with an indicating mark to register with graduations on the dial to assist in obtaining proper adjustment of the condenser plates. The bottom 13 is supported in the groove 9 and is held in a substantially level position. A slot 14 is cut in the bottom of the gear housing in which a stud 10 is slidably engaged and which limits the movement of the adjustable plates to an arc of 210 degrees. The stud 10 passes through an opening having an enlarged portion 11 and is secured therein by the screw 15. The opening is somewhat larger in diameter than the stud and screw permitting longitudinal adjustment thereof to correct the meshing as wear on the series of gears requires it. To prevent the ends of the slot 14 coming into abrupt contact with the stud upon rotation of the plate assembly, I employ a wire 35 wrapped about the shaft and connected at its terminals with the bottom of the gear housing in such a position that it just overlaps the slot forming a buffer, or resilient cushion.

Main adjustment is obtained direct through the spindle 29 which carries the operating knob 22 and to which the movable plates are attached, while fine adjustment is accomplished through a series of gearing, the prime mover of which is concentrically mounted with respect to the main adjustment unit. A sleeve 23 concentrically mounted about the spindle 29 carries a fine adjustment knob 19 and at its inner end a gear 31 which engages with a larger insulated gear 32 carried by the stud 10. The stud also carries a gear 33 which in turn imparts motion to a second insulated gear 34 connected in any suitable manner to the spindle 29. This series of gearing, which is enclosed in the gear housing, may be so proportioned as to give any desired ratio of motion. The gear 34 is fixedly connected to the housing and imparts motion from either of the knobs 19 or 22 to the dial 36. That the capacity effect of the body may be reduced to a maximum degree a brush 37 grounds the dial to the panel.

It is understood that the above description and accompanying drawings disclose only the preferred embodiment of my invention and that various minor changes in details of construction, proportion, and arrangement of parts may be resorted to within the scope of the appended claims and without sacrificing any of the advantages of my invention.

Having fully described my invention, what I desire to secure by Letters Patent is:—

1. A control mechanism including a support, a spindle journaled in said support, means for rotating said spindle in extension thereof, a gear housing affixed to said spindle, a train of gears in said housing imparting motion thereto, a second means for rotating said spindle through said gearing and housing, and means for limiting the motion of said spindle including a slot in said housing and a stud affixed to said support and positioned in said slot.

2. A control mechanism including a support, a spindle journaled in said support, a gear housing affixed to said spindle, a train of gears in said housing imparting motion thereto, means for rotating said spindle through said gearing and housing, a slot in said housing, and means for adjustably supporting two of said gears in said train and for limiting the motion of said spindle consisting of a stud adjustably affixed to said support and passing through said slot.

3. A control mechanism including a support, a spindle journaled in said support, means for rotating said spindle, a slotted member affixed to said spindle, means for limiting the rotation of said spindle comprising a stud affixed to said support and positioned in said slot, and resilient means at the ends of said slot to absorb the shock of motion limitation.

EDWIN L. POWELL.