

Sept. 1, 1925.

1,552,185

R. S. ALCOX

CONDENSER

Filed July 23, 1923

2 Sheets-Sheet 1

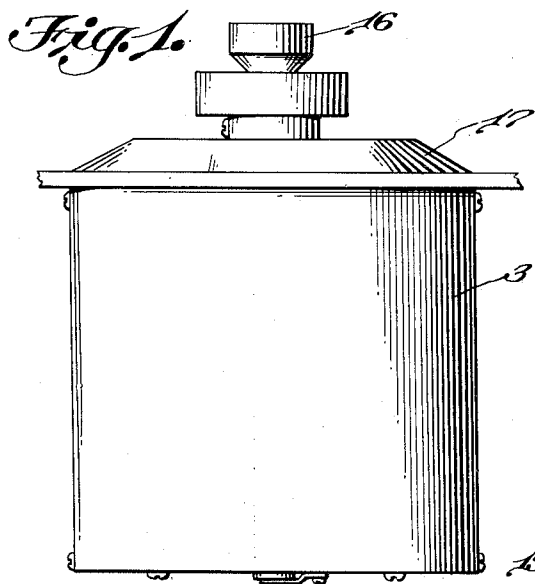


*Fig. 7.*

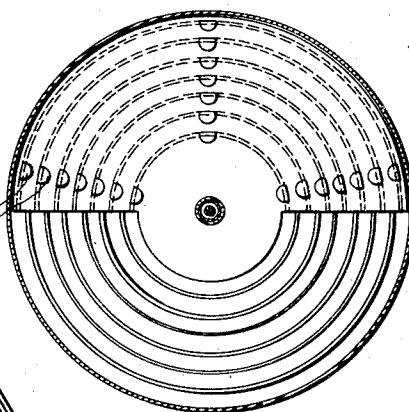


*Fig. 8.*

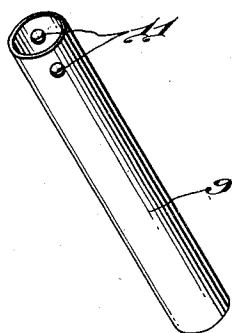


*Fig. 9.*

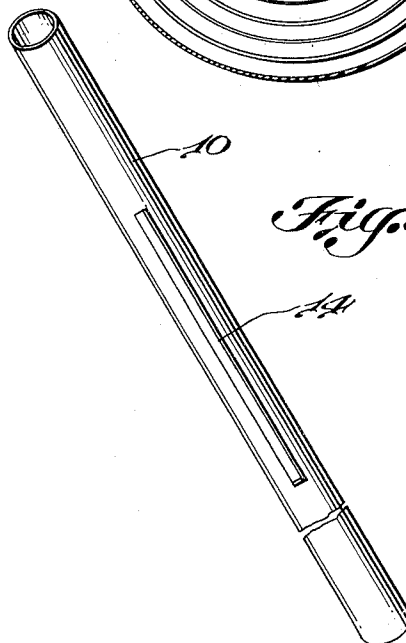


*Fig. 10.*



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*Fig. 2.*

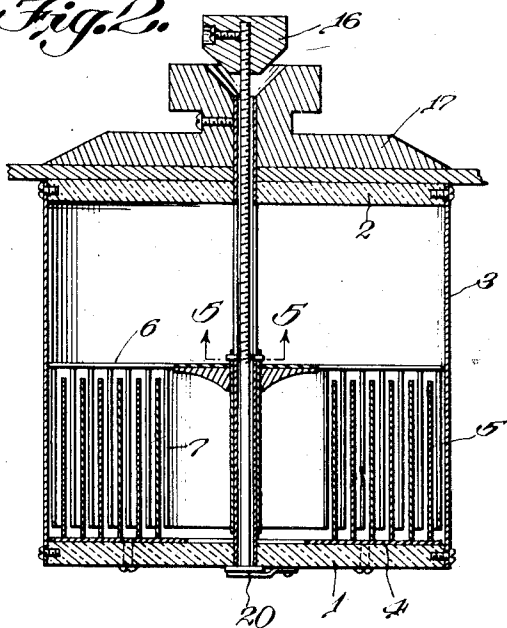


*Fig. 4.*

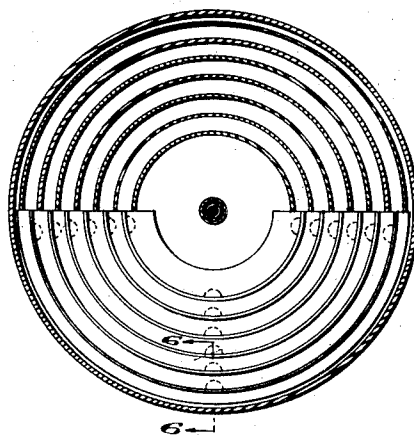


*Fig. 3.*

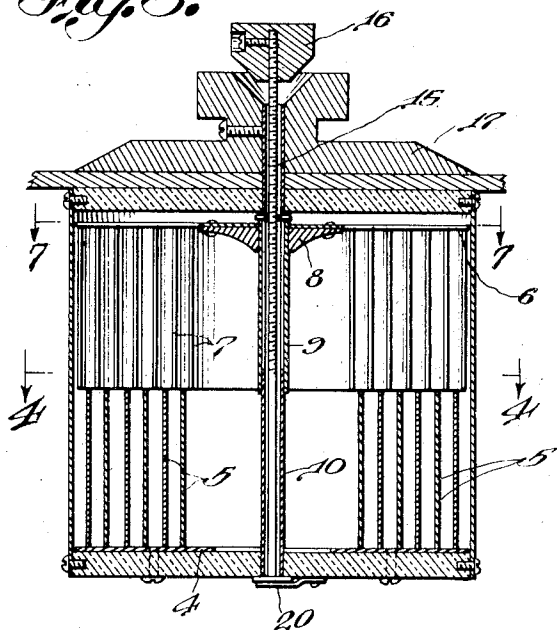


*Fig. 5.*

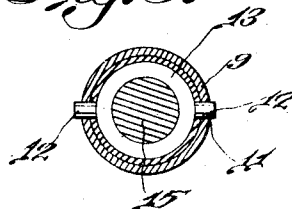
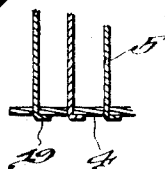


*Fig. 6.*



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## UNITED STATES PATENT OFFICE.

ROYAL SHERMAN ALCOX, OF AMES, IOWA.

## CONDENSER.

Application filed July 28, 1923. Serial No. 654,437.

*To all whom it may concern:*

Be it known that I, ROYAL S. ALCOX, a citizen of the United States, residing at Ames, in the county of Story and State of Iowa, have invented new and useful Improvements in Condensers, of which the following is a specification.

This invention relates to an electrical condenser or high-potential accumulators and more particularly to a condenser of adjustable capacity of a type suitable for use with electric currents such as is used in radio transmission.

An object of the invention is to provide a condenser as specified, which has a relatively great adjustability and capacity with respect to its size.

Another object of this invention is to provide a condenser in which two electrodes are provided, each of which comprises a plurality of semicircular plates, one set of which is adjustable in a rotary and longitudinal manner with respect to the other set of plates.

Other objects of the invention will appear in the following detailed description taken in connection with the accompanying drawings wherein:—

Fig. 1 is a side elevation of the improved condenser.

Fig. 2 is a vertical section through the condenser showing the adjustable electrode in one position.

Fig. 3 is a section similar to Fig. 2 showing the adjustable electrode in a different position than that shown in Fig. 2.

Fig. 4 is a horizontal section on the line 4—4 of Fig. 3.

Fig. 5 is a detail horizontal section on the line 5—5 of Fig. 2.

Fig. 6 is a fragmentary section on the line 6—6 of Fig. 4.

Fig. 7 is a horizontal section on the line 7—7 of Fig. 3.

Fig. 8 is a detail perspective view of a tube used in the condenser structure.

Fig. 9 is a detail perspective view of a second tube used in the condenser structure.

Fig. 10 is a perspective view of an adjusting nut used in the condenser structure.

Referring more particularly to the drawings, the improved condenser comprises a base 1 of insulating material and a top 2 also of insulating material. The base 1 and top 2 have a substantially cylindrical mem-

ber 3 attached thereto for forming the wall of the condenser containing casing. A substantially semicircular plate or disc 4 is attached in any suitable manner to the inner surface of the base 1 and it has a plurality of semicylindrical up-standing plates 5 rigidly carried thereby which cooperate with the plate 4 in forming the stationary electrode of the condenser.

A second substantially semicircular plate 6 is provided, which has a plurality of substantially semicylindrical transversely extending plates 7 carried thereby. The plates 7 and disc 6 form the adjustable electrode of the condenser. The semicircular disc or plate 6 is carried by a central hub 8 which is in turn carried by a relatively short sleeve 9. The sleeve 9 is slidably mounted about the dial carrying sleeve 10 and it is provided with a pair of diametrically opposed openings 11 adjacent its upper ends which receive therein the diametrically extending pins 12 formed on the nut 13. The nut 13 moves vertically in the sleeve 10 which latter sleeve is provided with longitudinally extending slots 14 in which the pins 12 travel. The nut 13 is threaded upon the threaded stem 15, as clearly shown in Figs. 2 and 3 of the drawings so that upon rotation of the stem 15, through the medium of the knob 16, which is mounted on the stem, the nut 13 and consequently the sleeve 9 and disc 6 will be moved vertically, along the sleeve 10 to adjust the position of the plates 7 longitudinally relative to the plates 5. By particular reference to Figs. 2 and 3 of the drawings, it will be noted that the plates 5 and 7 are disposed staggeredly so as to permit interposing of the plates 7 between the plates 5.

A dial 17 is mounted on the sleeve 10 for rotating the sleeve 10, to rotate the plate 6 and the plates 7 for adjusting their position laterally relative to the stationary plates 5 and therefore, it will be noted, that a condenser of relatively great capacity in proportion to its size may be provided, and also one in which relatively great adjustment is permitted since the capacity of the condenser may be regulated both by the lateral and longitudinal adjustment of the electrode plates 7 relative to the stationary plates 5.

In Figs. 4, 6 and 7 of the drawings the manner of attaching the plates 6 to the plate

4, and the plates 7 to the plates 3 is illustrated, as for instance; tongues 19 which extend through the plate 4 and are bent over against the under surface of the plates 4 and 6.

A spring 20 is carried by the under surface of the base 1 and engages the ends of the stem 15 and sleeve 10 to absorb and prevent end thrust.

It is, of course, to be understood that the invention may be constructed in other manners and the parts associated in different relations and, therefore, I do not desire to be limited in any manner except as set forth in the claims hereunto appended.

Having thus described my invention what I claim is:—

1. A condenser including a stationary electrode embodying a plurality of substantially semi-cylindrical plates, an adjustable electrode embodying a plurality of semi-cylindrical plates disposed staggeredly with respect to said stationary plates, a central sleeve, a second sleeve slidably mounted on the central sleeve, means carried by the stem and cooperating with said sleeves whereby upon turning movement of the stem the second sleeve will be moved longitudinally on the central sleeve for adjusting the movable plates longitudinally and whereby upon turning movement of the central sleeve, both sleeves will be rotated simultaneously to im-

part rotative movement to said adjustable plates.

2. A condenser including a casing, a stationary disc and a movable disc in opposed relation within the casing, semicylindrical plates carried by said discs, a central sleeve, a threaded stem in the sleeve, a sleeve carried by the movable disc and slidably mounted on the central sleeve, a nut on the stem having sliding engagement with the central sleeve and connected to the sleeve on the movable disc whereby to adjust the movable disc toward and away from the stationary disc upon rotative movement of the stem and permit simultaneous rotation of both sleeves.

3. A condenser comprising a stationary electrode embodying a plurality of semicylindrical plates, an adjustable electrode comprising a plurality of semicylindrical plates, means for rotating said adjustable plates relative to said stationary plates, and means for moving said adjustable plates longitudinally of the stationary plates, said last named means being free from interference with said rotating means to permit longitudinal adjustment of the adjustable plates without effecting their position laterally relative to the stationary plates.

In testimony whereof I affix my signature.

ROYAL SHERMAN ALCOX.