

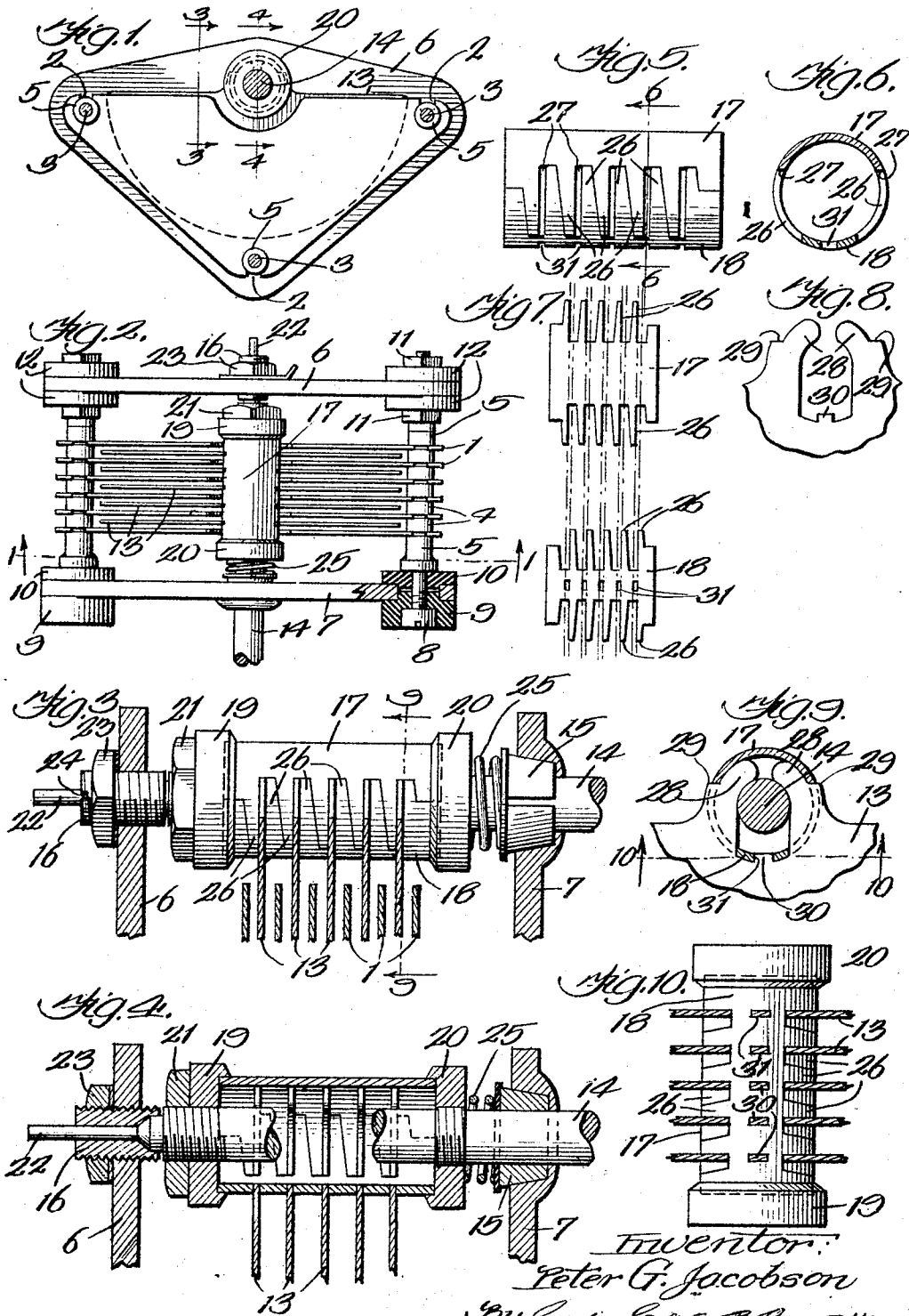
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ELECTROSTATIC CONDENSER

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UNITED STATES PATENT OFFICE.

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ELECTROSTATIC CONDENSER.

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To all whom it may concern:

Be it known that I, PETER G. JACOBSON, a citizen of the United States, residing at Chicago, in the county of Cook and the State of Illinois, have invented a certain new and useful Improvement in Electrostatic Condensers, of which the following is a full, clear, concise, and exact description.

My invention relates to electrostatic condensers and has for its object the provision of improved means for assembling plates thereof.

My invention is of particular service in connection with those condensers whose sides are in the form of stators and rotors, the device of my invention being of particular service in assembling the plates of rotors, though the invention is not to be thus restricted.

In carrying out my invention I employ a tube formed in two longitudinal sections, each section being formed with a row of transverse fingers along each longitudinal side thereof that intermesh with the rows of transverse fingers along the opposite longitudinal sides of the other section, respectively, the condenser plates being distributed along the tube and interposed between meshing fingers at both sides of the tube, these fingers having clamping engagement with said plates.

The invention will be more fully explained in connection with the accompanying drawing in which Fig. 1 is an elevation partially in section, showing the preferred form of condenser; Fig. 2 is a plan view of the condenser with portions broken away; Fig. 3 is a sectional view on line 3—3 of Fig. 1 on a larger scale; Fig. 4 is a sectional view on line 4—4 of Fig. 1; Fig. 5 is a view showing the plate holding tube minus the plates; Fig. 6 is a sectional view on line 6—6 of Fig. 5; Fig. 7 shows the tube sections of Figs. 5 and 6, developed, the planes of the plates being indicated by dotted dash lines; Fig. 8 is a detail view of the portion of a condenser plate where assembled with the tube; Fig. 9 is a view similar to Fig. 6 but showing the condenser plate portion of Fig. 8, in assembly therewith; and Fig. 10 is a sectional view on line 10—10 of Fig. 9.

The stator of the condenser is composed of a plurality of metallic plates 1, preferably triangular, which are formed with notches

2 that receive the assembling rods 3. Metallic washers 4 are interposed between adjacent plates to maintain them in suitably spaced apart relation, these washers surrounding the assembling rods 3. End washers 5 also surround the rods 3, to maintain the group of stator plates a suitable distance from the condenser frame sides 6 and 7. The rods are provided with heads 8 which are received within insulating thimbles 9 that are received in the frame sides 7, the thimbles being disposed upon the outer faces of this frame side. Insulating washers 10 are disposed upon the one face of the frame side 7 and are interposed between the adjacent washers 5 and this frame side. The rods at their other ends, are provided with nuts 11 which are screwed thereon, the frame sides 6 being sandwiched between the insulating washers 12.

The rotor of the condenser includes a group of metallic plates 13, here shown as being semi-circular. These plates are alternated with the plates 1 of the stator and are carried upon the oscillatable shaft 14. This shaft is carried at one end within the bearing 15 provided in the frame side 7 and at its other end on the bearing 16 carried in the frame side 6. The plates 13 are directly carried upon a tube formed in two parts 17 and 18, the method of assembly of these plates with this tube being hereinafter set forth. The tube has end walls 19 and 20 which surround the shaft 14, the end wall 20 being screwed upon the shaft and the end wall 19 being pressed toward the end wall 20 by the clamping nut 21 also screwed upon the shaft. The bearing 16 desirably has a conical seat upon its inner end, this conical seat receiving the conically shaped reduced section of the shaft 14, this shaft having a further reduction 22 which is continued through the bearing 16. This bearing is screwed in the frame side 6 and is clamped in assembly therewith by the clamping nut 23. The outer end of the bearing 16 is formed with screw driver slots 24 whereby this bearing may be turned in one direction or the other to secure the proper relationship of the plates 13 with respect to the plates 1. A spring 25 is interposed between the sleeve end wall 20 and the bearing 15 and maintains the shaft 14 in proper engagement with the bearing 16 in the various ad-

justments of the group of plates 13 that may be effected by turning the bearing 16 in either direction.

The sections 17 and 18 of the tube which carries the plates 13 are desirably stamped out of flat sheets of metal to have the shape in Fig. 7 before being curled in the direction of the tube. Each longitudinal tube section 17, 18 is formed with a row of transverse fingers 26 along each longitudinal side thereof. Each tube section together with its transverse fingers is curled to form a segment of the tube, the adjacent rows of fingers of the assembled tube sections intermeshing to constitute the complete tube. Gaps 27 are left between adjacent intermeshing fingers, the plates having tongue continuations 28 that are passed through these gaps into the tube. In the process of the assembly of the tube and the plates 13 these plates are held in suitable spaced apart relation and in such position with respect to the gaps 27 as to be entered within the same. The curling of the fingers may be effected or completed while the plates 13 are thus held, the interaction of the fingers being such as to firmly clamp the plates in the gaps 27 receiving the same. To prevent the plates 13 from turning with respect to each other and with respect to the tube, the tongues 28 of the plates are suitably formed with shoulders 29 at ends of the gaps between the fingers. The plates are desirably provided also, with lugs 30 between the tongues 28 thereof, these lugs entering recesses 31 that are formed along the tube section 18 between the rows of transverse fingers thereon. The tongues 28 are desirably snugly engaged with one side of the shaft 14 to insure a fixed relation by this shaft, these plates, and the tube 17, 18 which directly carry the plates. The shaft may be forwardly continued through a panel board and there may be provided with an adjusting knob or handle to regulate the capacity of the condenser.

Changes may be made without departing from my invention.

Having thus described my invention I claim:

1. A condenser having one side formed of a plurality of plates; and a tube formed in two longitudinal sections, each section being formed with a row of transverse fingers along each longitudinal side thereof that intermesh with the rows of transverse fingers along the opposite longitudinal sides of the other section, respectively, said condenser plates being distributed along said tube and interposed between meshing fingers at both sides of the tube and which fingers have clamping engagement with said plates.

2. A condenser having one side formed of a plurality of plates; and a tube formed in two longitudinal sections, each section being formed with a row of transverse fingers

along each longitudinal side thereof that intermesh with the rows of transverse fingers along the opposite longitudinal sides of the other section, respectively, said condenser plates being distributed along said tube and interposed between meshing fingers at both sides of the tube and which fingers have clamping engagement with said plates, said plates having tongue continuations entering said tube through gaps that intervene between intermeshing fingers.

3. A condenser having one side formed of a plurality of plates; and a tube formed in two longitudinal sections, each section being formed with a row of transverse fingers along each longitudinal side thereof that intermesh with the rows of transverse fingers along the opposite longitudinal sides of the other section, respectively, said condenser plates being distributed along said tube and interposed between meshing fingers at both sides of the tube and which fingers have clamping engagement with said plates; said plates having tongue continuations entering said tube through gaps that intervene between intermeshing fingers, said tongues having shoulders engaging the tube at ends of the gaps between the fingers.

4. A condenser having one side formed of a plurality of plates; and a tube formed in two longitudinal sections, each section being formed with a row of transverse fingers along each longitudinal side thereof that intermesh with the rows of transverse fingers along the opposite longitudinal sides of the other section, respectively, said condenser plates being distributed along said tube and interposed between meshing fingers at both sides of the tube and which fingers have clamping engagement with said plates, said plates having tongue continuations entering said tube through gaps that intervene between intermeshing fingers, said plates being formed with lugs at, between, and spaced apart from, the bases of the tongues, these lugs entering recesses formed along one of the tube sections between the rows of transverse fingers on this tube section.

5. A condenser having one side formed of a plurality of plates; and a tube formed in two longitudinal sections, each section being formed with a row of transverse fingers along each longitudinal side thereof that intermesh with the rows of transverse fingers along the opposite longitudinal sides of the other section, respectively, said condenser plates being distributed along said tube and interposed between meshing fingers at both sides of the tube and which fingers have clamping engagement with said plates, said plates having tongue continuations entering said tube through gaps that intervene between intermeshing fingers, said tongues having shoulders engaging the tube at ends of the gaps between the fingers, said plates

being formed with lugs at, between, and spaced apart from, the bases of the tongues, these lugs entering recesses formed along one of the tube sections between the rows of transverse fingers on this tube section. 5

6. A condenser having one side formed of a plurality of plates; and a tube formed in two longitudinal sections, each section being formed with a row of transverse fingers 10 along each longitudinal side thereof that intermesh with the rows of transverse fingers along the opposite longitudinal sides of the other section, respectively, said condenser plates being distributed along said tube and interposed between meshing fingers at both sides of the tube and which fingers have clamping engagement with said plates, said plates being formed with lugs which enter recesses formed along one of the tube sections between the rows of transverse fingers on this tube section. 15 20

In witness whereof, I hereunto subscribe my name.

PETER G. JACOBSON.