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W. H. KEMPTON

MOLDED CONDENSER

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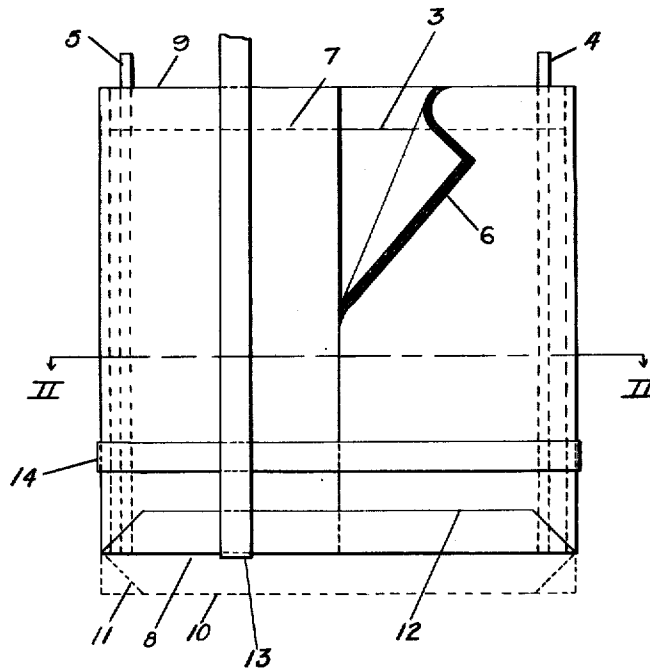


Fig. 1.

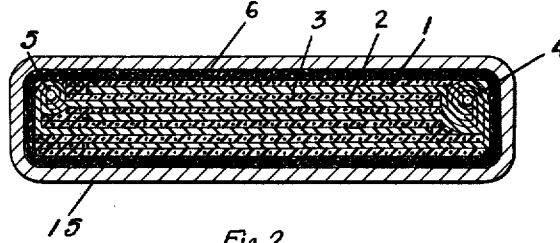


Fig. 2.

WITNESSES:

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MOLDED CONDENSER.

Application filed October 16, 1917, Serial No. 196,923. Renewed October 1, 1920. Serial No. 414,139.

To all whom it may concern:

Be it known that I, WILLARD H. KEMPTON, a citizen of the United States, and a resident of Wilkesburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Molded Condensers, of which the following is a specification.

My invention relates to electric condensers, and it has for one of its objects to provide a method of molding condensers whereby molded covers may be applied thereto.

Another object of my invention is to provide a means for preventing melting and loss of impregnating wax during the operation of molding condenser covers.

A further object of my invention is to provide a molded condenser in which the condenser "stack" and the molded cover may be permitted to expand or contract unequally without damage to the condenser.

A still further object of my invention is to provide means for uniformly distributing the molding pressure over the entire area of the condenser.

In the drawing, Fig. 1 is an elevational view of a condenser in one stage of its construction; Fig. 2 is a cross sectional view of the completed condenser structure along a horizontal plane passed through line II—II of Fig. 1.

I have found that covers may be molded upon condensers by applying a coating material thereto and then applying heat and pressure to consolidate and harden the cover, but there is a tendency for the impregnating wax to become melted and to be lost at the edges of the condenser structure. I have also found that the molded cover of the condenser tends to crack after the condenser has been completed. My invention provides an improved condenser structure which effectively remedies these defects.

In constructing condensers according to my invention, sheets of conducting material and insulating material are stacked alternately in the usual manner, and alternate conducting sheets, as sheets 1 and 2 separated by insulating sheets 3, are respectively connected by soldering, or in any other suitable manner, to terminal-lead strips 4 and 5 of opposite polarity. The condenser stack is then impregnated with any suitable impregnating material. After the impregna-

tion, a sheet 6, preferably of compressible, heat insulating material, as, for example, asbestos or felt, is wrapped about the condenser stack and projects beyond the upper and lower margins 7 and 8 of the stack, as shown in Fig. 1, by full line 9 and dotted line 10, respectively. The corners of the felt sheet are cut off on a diagonal line, as shown at 11, and the projecting margins are folded over, as at 12. For the sake of clearness in illustration, the upper margin is not shown folded over in Fig. 1, but it is to be understood that, in practice, it is folded in the same manner as the lower margin, except that it is generally necessary to slit the upper margin before folding, in order to accommodate the terminal-lead strips 4 and 5. Sheet 6 is now secured in place by tape bands 13 and 14, and a cover 15 of suitable molding material is then molded on, by heat and pressure so as to enclose the condenser stack and lead strips 4 and 5 in the molded structure. The sheet 6, acting as a heat-insulating lining for the molded cover 15, serves to prevent the impregnating wax from becoming heated and being melted during the operation of molding the cover. If any portion of the outer surface of the impregnating wax does become softened, the wax is retained in its place by sheet 6. In the event that any portion of the condenser stack is subject to a greater pressure than adjacent portions, during the molding operation, the compressible sheet 6 will tend to distribute the pressure evenly over the entire surface. Sheet 6 permits different expansion and contraction of the cover 15 and the condenser stack, and effectively prevents cracking of the hardened molded cover from this cause, since the sheet can yield sufficiently to accommodate the relative differences in volume which occur throughout the final cooling of the condenser.

Where differences of expansion of the cover and the condenser stack materials are small, sheet 6 may be of paper, duck or other material which is a poor conductor of heat.

It will be seen that, by molding a cover on the condenser stack, utilizing heat and pressure to consolidate the cover material, I provide means for holding the entire condenser under pressure without the use of clamping arrangements which have hitherto been used to hold condenser stacks in posi-

tion. The molded cover also holds the leads in rigid fixed position and prevents bending thereof which often resulted in prior structures in breaking or loosening the connection between the leads and the condenser. By providing an intermediate sheet of heat-insulating material between the stack and the cover, I distribute the strain produced by the pressure used in molding equally over the entire surface of the condenser and, since the sheet is of heat-insulating material, I prevent the wax or other impregnating dielectric from becoming molten and flowing out of the condenser stack.

While I have illustrated and described a particular construction of condenser, it is to be understood that various changes in the form of the condenser, the materials used and the manner of assembling them may be made by those skilled in the art without departing from the spirit of my invention. My invention is, therefore, not to be limited, except by the scope of the appended claims.

I claim as my invention:

1. A condenser comprising a stack formed of alternate sheets of conducting material and insulating material, a compressible covering therefor, and a molded cover.
2. A method of constructing condensers which comprises providing the condenser structures with heat-insulating covers and molding covers thereabout.
3. A method of constructing condensers which comprises assembling alternate sheets of conducting material and insulating material, impregnating said sheets with an

insulating substance, covering said impregnated structure with a readily compressible covering and molding a covering about the body thus formed.

4. A method of covering a condenser comprising wrapping fabric about said condenser and molding a cover upon said wrapped condenser.

5. A condenser comprising a body of alternate sheets of conducting material and insulating material, all imbedded in a suitable insulating material, a felt covering for the body and a molded cover enclosing the body and its felt covering.

6. A condenser comprising a stack formed of alternate sheets of a conducting material and insulating material and a molded cover thereon.

7. A condenser unit consisting of a rigid unitary structure of molded material, and a condenser separate therefrom molded in and held compressed solely by said molded material.

8. A condenser unit consisting of a rigid unitary structure of molded material, and a previously formed condenser separate therefrom molded in and held compressed solely by said structure.

9. A condenser unit consisting of a rigid unitary cover structure and a condenser separate therefrom molded in and held compressed solely by said structure.

In testimony whereof, I have hereunto subscribed my name this 15th day of Oct., 1917.

WILLARD H. KEMPTON.