March 17, 1931. R. E. CARLSON 1,796,683

METHOD OF PRODUCING ARTICLES

Original Filed Dec. 16, 1926

Fig. 1.

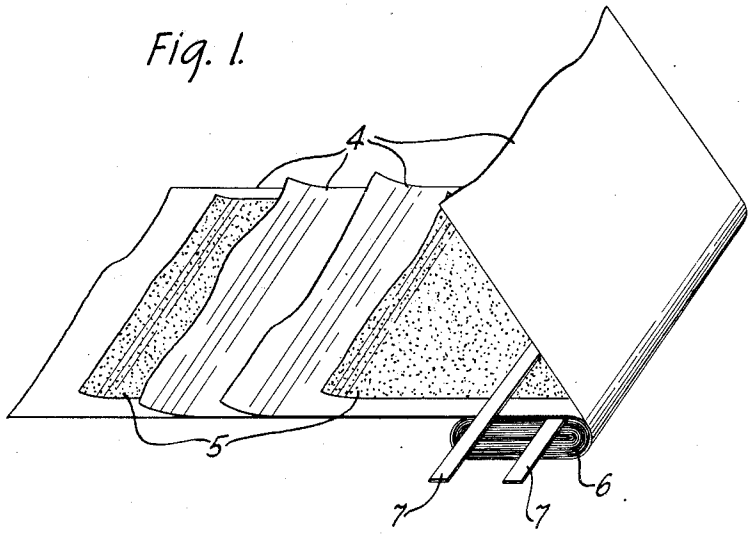
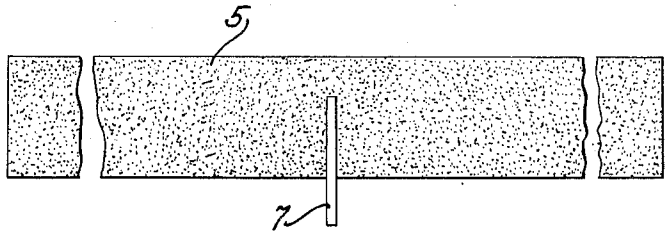


Fig. 2.



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Patented Mar. 17, 1931

1,796,683

UNITED STATES PATENT OFFICE

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METHOD OF PRODUCING ARTICLES

Application filed December 16, 1926, Serial No. 155,160. Renewed January 22, 1931.

This invention relates to a method of producing an article, and more particularly to a method of producing a condenser.

In the manufacture of condensers of the type in which two sheets of tin foil separated by sheets of paper are wound into a flat roll, it has been a common practice to wrap one end of each sheet of tin foil about a terminal member which is then held in place by frictional engagement with the tin foil.

An object of the invention is to provide a method of attaching a metallic member to a metallic surface.

In accordance with one embodiment of this invention, the terminal of a condenser is coated with a metal whose melting point is of such a value that when the condenser is later subjected to a drying heat and then treated with a hot impregnating material the temperature will be sufficient to fuse the metal and cause the terminal to firmly adhere to the tin foil and produce a low resistance connection.

It is believed that a complete understanding of the invention may be had by reference to the following description taken in conjunction with the accompanying drawing, in which

Fig. 1 illustrates a condenser and a method by which the condenser may be made, and

Fig. 2 shows a terminal attached to the center of a sheet or strip of tin foil.

Referring to the drawing in which the same reference characters indicate similar parts in the several views, a number of sheets of paper 4—4 and two sheets of tin foil 5—5 are shown in the process of being wound into a condenser 6 in which the two sheets of tin foil constitute the plates of the condenser and the paper which is later impregnated with paraffin or some similar material serves as a dielectric material.

A terminal member 7 is attached to each of the condenser plates by which the condenser may be connected in an electrical circuit. In this invention the metallic terminal members which consist preferably of brass are treated with a flux of any well-known kind for the purpose of thoroughly cleansing the terminal. The terminal is then passed through a bath of molten metal commonly known as Wood's metal whose composition includes the following ingredients in substantially the given proportions; lead 19%, bismuth 48%, tin 20% and cadmium 13%. This composition when cooled forms a coating over the terminal which has a fusing temperature of about 165° F. The proportions of this composition may be varied to change the fusing temperature of the metal. However, very satisfactory results have been obtained with a composition of the above proportions.

When a terminal has been treated in the above manner it is placed in position in a condenser between a sheet of paper and a sheet of tin foil and it is held in position by frictional engagement due to the tight wrapping of the condenser. After a sufficient number of condensers have been wound and equipped with terminal members, the condensers are placed in a tray in which they are first subjected to a drying temperature and then treated with an impregnating compound, such as paraffin, whose temperature is in the vicinity of 200° F. For a complete disclosure of the process of drying and impregnating condensers reference may be had to the application of C. A. Purdy, Serial No. 36,766, filed June 12, 1925. The temperature encountered in this process is sufficient to fuse the coating of the terminal members and cause them to become firmly attached to the sheets of tin foil, producing a low resistance connection between the terminal members and the sheets of tin foil.

A sheet of tin foil used in manufacturing a condenser of the type used in telephone apparatus is approximately seventeen feet long and by employing the process of this invention a terminal member may be conveniently attached to the central portion of the tin foil sheet, thereby giving the condenser a much higher conductance than it would possess if the terminal were connected near an end thereof, since by attaching the terminal member near the center of the tin foil sheet the current will be conducted in two directions and thus the cross-sectional conducting area of the tin foil will be doubled.

It will be understood that the embodiment

of the invention herein described and illustrated is merely a convenient and useful form of the invention which is capable of many other modifications without departing from the spirit and scope of the invention.

What is claimed is:

1. The method of attaching terminals to a condenser of the type in which a plurality of sheets of tin foil are separated by sheets of paper and wound into a roll, which consists of contacting a terminal coated with a metal of a low melting point with each sheet of tin foil, wrapping the sheets into a roll thereby holding the terminals in place, and impregnating the paper with a hot compound causing the coating of the terminal to fuse and attach the terminals to the tin foil.

2. The method of producing condensers, which consists in coating terminal members with a low resistance bonding material, assembling metallic plates with the terminal members and dielectric material, and then treating the assembled parts to impregnate the dielectric and simultaneously treat the terminal coating to establish a low resistance bond between the plates and terminals.

3. The method of attaching an electrical terminal to an electrical apparatus, which consists in coating a terminal with an electrical conducting bonding material, contacting the terminal with the apparatus, and then subjecting the assembly to a heated bath, thereby simultaneously impregnating the apparatus with the bath and melting the terminal coating to establish an electrical conducting bond between the terminal and the apparatus.

4. The method of attaching an electrical terminal to an electrical apparatus, which consists in coating a terminal with a bonding material, contacting the terminal with the apparatus, subjecting the assembly to a heated bath to simultaneously impregnate the apparatus with the bath and melt the terminal coating to establish a fused bond between the terminal and the apparatus, maintaining the apparatus and the terminal in predetermined relative positions and simultaneously therewith hardening the coating and the bond.

5. The method of producing condensers, which consists in coating terminal members with a bonding material, assembling metallic plates with the coated terminal members and dielectric material, treating the assembled parts with heated paraffin and employing the heat of the paraffin to fuse the terminal coating and establish a bond between the plates and the terminals.

6. The method of producing condensers, which consists in coating terminal members with a bonding material, placing the terminals in contact with the central portion of metallic plates, assembling the terminals so positioned with the metallic plates and dielectric material, and treating the assembled parts with heat to fuse the terminal coating and establish a bond between the plates and the terminals.

7. The method of producing electrostatic condensers, which consists in coating terminal members with an alloy comprising approximately lead 19%, bismuth 48%, tin 20%, and cadmium 13%, assembling metallic plates with the coated terminal members and dielectric material and subjecting the assembled parts to an impregnating bath at a temperature of approximately 200° F. to protect them against moisture and to fuse the alloy coating to establish a fused union between the plates and the terminals.

In witness whereof, I hereunto subscribe my name this 4 day of December A. D. 1926.

RICHARD EDISON CARLSON.