Feb. 4, 1941. J. J. CERNY 2,230,586

RESISTANCE UNIT

Filed July 12, 1939

Fig. 1

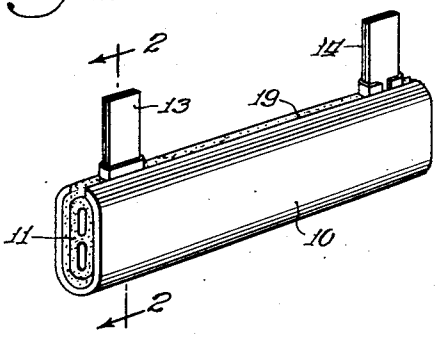


Fig. 2

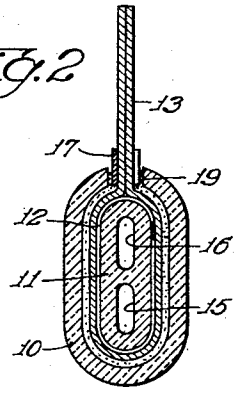


Fig. 3

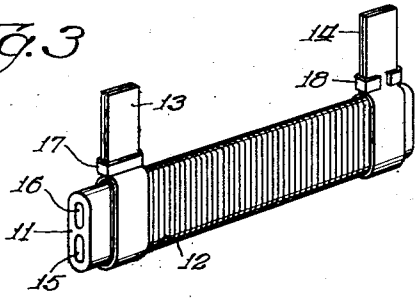


Fig. 4

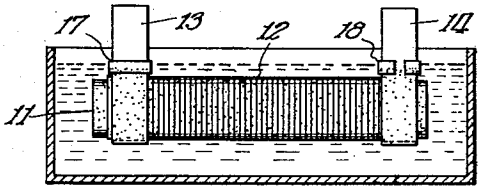


Fig. 5

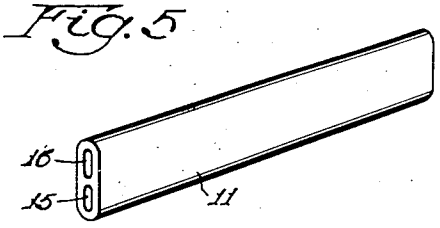
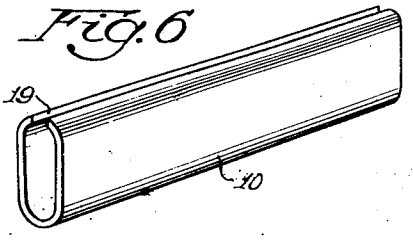


Fig. 6



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UNITED STATES PATENT OFFICE

2,230,586

RESISTANCE UNIT

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Application July 12, 1939, Serial No. 283,960

6 Claims. (Cl. 201—67)

The present invention relates to resistance units and has as its principal object to improve the construction of wound resistance units so as to obtain a high current carrying capacity and a high voltage insulation.

It is a purpose of this invention to provide improvements in the manufacture of resistance units whereby the resistance wire is mounted between two porcelain elements and cemented in place by a porcelain enamel, the elements being so constructed as to aid in the dissipation of heat and to protect the resistance wire against changes in insulation which commonly occur where the protection for the wire is composed of a moisture absorbing material.

The present invention also contemplates certain improvements in the method of manufacturing resistance units whereby a resistance wire and its terminal strips are first mounted on a core piece. The entire unit is then given a coating of porcelain enamel and while wet is encased in a shell of porcelain which is in the form of a split sleeve.

The features and advantages of the present invention will appear more fully as the description proceeds, reference being had to the accompanying drawing wherein a preferred form of the invention is shown. It is to be understood, however, that the drawing and description are illustrative only, and are not to be taken as limiting the invention except insofar as it is limited by the claims.

In the drawing, Fig. 1 is a perspective view of a resistance unit embodying my invention;

Fig. 2 is a sectional view on the line 2—2 of Fig. 1;

Fig. 3 is a perspective view illustrating the resistance wire and terminal strips mounted on the inner porcelain member;

Fig. 4 illustrates the coating operation in a somewhat diagrammatic fashion, and

Figs. 5 and 6 are perspective views showing the inner and outer porcelain units.

Referring now to the drawing, the present invention is embodied in a resistance unit adapted for use in radio receiving apparatus, television sets and other apparatus of the same general nature. The resistance unit comprises a split sleeve 10 of porcelain, the sleeve being somewhat oval in cross section, as shown, a hollow core 11, a resistance wire 12 and terminal strips 13 and 14. The space around the core 11 within the sleeve 10 is shown as exaggerated in Fig. 2. Normally this space is just such as to permit ready insertion of the core 11 with the resistance wire and terminal strips thereon after they have been dipped in porcelain enamel. In this way it is possible to substantially fill the space around the resistance wire and between the porcelain core and porcelain sleeve. The resistance wire 12 is placed on the core 11 by holding the core in a suitable chuck and winding the wire thereon. The core 11 has openings 15 and 16 extending through it and these openings serve to circulate air down the center of the resistance unit and thus conduct away the heat. They are also utilized in holding the core in the winding chuck.

When the resistance wire 12 is wound on the core, the terminal strips 13 and 14 are placed around the wire at the desired intervals and are clamped in place by small clips 17 and 18. The unit shown in Fig. 3 is then ready to dip in a porcelain enamel and mount in the sleeve 10. By using the terminal strips 13 and 14, the operator can dip all but the protruding ends of the terminal strips in porcelain enamel and then slide the whole assembly endwise into a sleeve 10.

The excess enamel that will hang on to the unit practically fills the space around the core 11 and the resistance unit 12 within the sleeve 10. The porcelain enamel serves to bind the sleeve and the core together. This enamel is not a very good insulator, but with the insulation provided by the porcelain sleeve 10, the resistance is well protected from an insulation standpoint. Units of this type have been coated with porcelain enamel in the past, but such a material alone has many defects. It has a tendency in humid atmospheres, when subjected to variations in heat, to crack with small surface cracks commonly termed "crazing." By the present invention the enamel is protected throughout almost the entire circumference of the sleeve of the resistance unit. The only place the porcelain enamel is exposed is along the slot 19 which is provided in the sleeve 10 for the passage of the terminal strips 13 and 14. Since the porcelain enamel is not hardened until after the core and resistance wire are mounted in the sleeve 10, there is, of course, no cracking or damaging of its surface in the assembly operation.

From the above description, it is believed that the construction and operation of my invention will be readily apparent to those skilled in this art. Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A resistance unit of the character described comprising a hollow core of porcelain, a porcelain sleeve having a narrow longitudinal slot, said

sleeve enclosing said core, a resistance wire on said core, spaced terminal strips engaged with said wire and projecting through the slot in said sleeve, the space within said sleeve about the wire terminal strips and core being filled with porcelain enamel.

2. A resistance unit of the character described comprising a hollow core of porcelain, a porcelain sleeve having a narrow longitudinal slot, said sleeve enclosing said core, a resistance wire on said core, spaced terminal strips engaged with said wire and projecting through the slot in said sleeve, said core and resistance wire being cemented in said sleeve with porcelain enamel.

3. A resistance unit of the character described comprising a core of porcelain, a porcelain sleeve having a narrow longitudinal slot, said sleeve enclosing said core, a resistance wire on said core, spaced terminal strips engaged with said wire and projecting through the slot in said sleeve, said core and resistance wire being cemented in said sleeve with porcelain enamel, said core having a plurality of openings extending lengthwise therethrough.

4. A resistance unit of the character described comprising a hollow core of porcelain, a porcelain sleeve having a narrow longitudinal slot, said sleeve enclosing said core, a resistance wire on said core, spaced terminal strips clamped around said wire and core and projecting through the slot in said sleeve, said core and resistance wire being cemented in said sleeve with porcelain enamel.

5. A method of making resistance units which comprises wrapping a resistance wire about a hollow porcelain core, clamping the wire in place by means of terminal strips, coating the wire and core with porcelain enamel and mounting them while wet with the enamel in a porcelain sleeve.

6. A resistance unit of the character described comprising a flattened longitudinally split porcelain sleeve, a flattened longitudinally apertured porcelain core, a resistance wire wound on said core and terminal strips clamped to the wire, said core and resistance wire being mounted in said sleeve and secured therein by porcelain enamel, and said strips projecting laterally through the slot in the sleeve.

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