

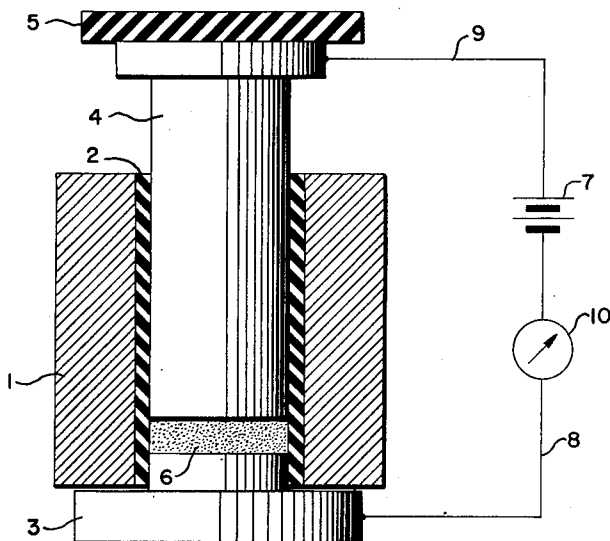
July 16, 1957

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2,799,051

METHOD FOR MANUFACTURING RESISTANCE ELEMENTS

Filed Feb. 4, 1953



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2,799,051

METHOD FOR MANUFACTURING RESISTANCE ELEMENTS

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Application February 4, 1953, Serial No. 335,072

2 Claims. (Cl. 18—47.5)

The invention described herein relates to a method for manufacturing resistance elements and more particularly to a method for forming resistance elements of conductive plastic or powdered material in which the resistance is accurately determined while the molding operation is undertaken. Such material may be a powdered conducting material such as graphite and a suitable binder, such as a synthetic resin.

In molding resistance elements, heretofore, the practice has been to utilize a pressure for compressing the conductive material which has been empirically determined as the correct pressure to give the desired resistance value. However, a disadvantage exists in this procedure in that a slight variation in pressure tends to produce large variations in the resistance of the finished product. In the employment of the method and apparatus herein disclosed the resistance value is determined during the molding operation. It has been found that a definite relationship exists between the lowest resistance value reached during the molding operation and the resistance value of the finished aged product. By means of a graph showing this relationship the resistance during molding is determined for a corresponding desired value after aging. The molding is then carried out in the conventional manner with the operator increasing the pressure until the desired reading is obtained on an ohmmeter. In this manner the desired final resistance value of the aged product is assured.

An object of this invention is to provide a method for manufacturing resistance elements in which the desired resistance value is accurately measured during the molding operation.

Another object of this invention is the provision of a method for molding resistance elements in which the errors inherent in the prior art method and apparatus are eliminated.

Other objects and many of the attendant advantages of this invention will be readily appreciated as the same becomes better understood by reference to the following detailed description when considered in connection with the accompanying drawing wherein the figure shown is a schematic representation of the apparatus employed in the method herein described.

Referring now to the drawings there is shown at 1 a cylinder or outer shell which retains the molding parts. The outer shell is suitably insulated by means of a sleeve

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2 which is press fit or otherwise secured within the shell 1. There is provided a lower piston 3 which may have the cap portion thereof detachably secured to the shell 1 by any suitable means [not shown]. Slidably disposed within the other end of the sleeve is a piston 4 which is provided with an insulating cap 5 suitably secured thereto. The material to be molded into a resistance element is shown at 6. This material is a conductive powder or plastic material of any known variety which upon compression varies in resistance value. Suitable means [not shown] is provided to apply pressure to the upper piston 4 whereby the material is compressed into a resistance element. There is provided a source of energy 7 which is connected by leads 8 and 9 to the lower and upper pistons respectively. The circuit is further provided with an ohmmeter 10 which accurately determines the resistance of the conductive plastic 6 as it is being compressed.

It can be seen that by use of the apparatus herein disclosed a method for molding resistance elements is provided in which the resistance of the material is accurately measured as the molding operation is taking place. The molding operation is carried out by filling the mold with the desired amount of material and applying pressure to the piston 4 to compress the material. The ohmmeter 10 indicates the resistance value of the material and the molding operation is terminated when the desired reading is obtained.

Obviously many modifications and variations of the present invention are possible in the light of the above teachings. It is therefore to be understood that within the scope of the appended claims the invention may be practiced otherwise than as specifically described.

What is claimed as new and desired to be secured by Letters Patent is:

1. A method of manufacturing resistance elements comprising the steps of progressively compressing conductive material, directly measuring the electrical resistance of the material during the compression thereof, and terminating the compression thereof when the direct measurement reading indicative of the desired final resistance value is reached.

2. In a method for forming resistance elements, the steps of applying progressively increasing pressure to a conductive plastic material to vary the electrical resistance thereof, directly measuring the electrical resistance variation during the application of the pressure to the material, and terminating the application of the pressure when the direct measurement reading indicative of the final resistance value is reached.

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