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CONTACT DEVICE

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This invention relates to a method of producing contact devices for feeding or receiving electric current, by combining a carbon body with a metal support.

Contact devices of carbon for feeding or receiving electric current are known in which a metal support is cast around or upon the carbon body, for example, in the form of contact fingers, carbon brushes, carbon collector bows or overhead contact hoops and the like. In such contact devices the metal support or holder is applied and shrunk to the carbon body by a one step or multistep casting operation, using sand casting or chill casting. The connection between the metal support and the carbon is secured in known manner by means of slots, dovetail-shaped recesses, bores, etc., which are filled up by the metal in the casting operation. It has been found, however, that the production of such supports which are cast around the carbon is difficult since the metal on cooling down shrinks or contracts considerably and thereby causes breakage of the carbon by bending or shearing overstress. On the other hand, in order to obtain a good and dense casting, the wall thickness of the metal support has to be made even larger than required with a view to the electrical and mechanical requirements, whereby the shrinking forces acting upon the carbon become very large.

I have now found that these difficulties can be avoided by applying the metal support to the carbon body in an injection moulding or die-casting operation. The amount of contraction of a die-casting is about half the amount only of that of sand or chill casting.

It will thus be understood that in case of an unreduced wall thickness of the metal support the stresses to which the carbon is exposed due to the contraction or shrinkage of the metal casting are only half as much as before. It has been found that this is already sufficient to secure a connection between the carbon and the metal support which is practically free from tension. However, it is even possible to reduce the wall thickness of the metal support in view of the greater strength of die castings as compared to sand or chill casting.

Also the die-casting process permits the production of castings of reduced wall thickness which could not be practically produced in a sand or chill casting process. This reduction of the dimensions of the metal support means a further reduction of the contraction or shrinkage pressures.

Compared to the known Schoop metal spraying process the die casting process offers the advantage that the carbon is tightly gripped or clamped by the die casting due to the shrinkage pressure while in the metal spraying process the metal is merely deposited on the carbon, without exerting any shrinkage pressure at all.

The method and apparatus of the present invention have been described in detail with reference to specific embodiments. It is to be understood, however, that the invention is not limited by such specific reference but is broader in scope and capable of other embodiments than those specifically described.

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