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JOSEPH A. WEIGER, OF INDIANAPOLIS, INDIANA, ASSIGNOR TO P. R. MALLORY & CO., INCORPORATED, OF INDIANAPOLIS, INDIANA, A CORPORATION OF INDIANA

ELECTRICAL MAKE-AND-BREAK CONTACT AND COMPOSITION THEREFOR

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This invention relates to electrical make-and-break contacts and more particularly to make-and-break contacts for closing and opening electrical circuits.

The general objects of the invention are the provision of electrical make-and-break contacts having improved operating characteristics and the provision of the composition from which such contacts are formed.

A more specific object of the invention is the provision of electrical make-and-break contacts which have, due to the structural composition thereof, a reduced contact resistance, less tendency for arcing, pitting and transferring during operation, and which are less susceptible to oxidation and operate in an improved manner, as compared with contacts commonly used in the same fields of use.

Among other objects which will in part be obvious and will in part appear hereinafter, the invention contemplates the composition of such electrical make-and-break contacts, to which is attributable the improved operating characteristics.

The invention accordingly comprises a product possessing the features, properties, and the relation of components which will be exemplified in the product hereinafter described and the scope of the application of which will be indicated in the claims.

Heretofore, electrical make-and-break contacts have been extensively used in various applications, of which the use in automobile electrical systems may be taken as representative. Such contacts have been commonly made from various metals and alloys thereof, such as, for example, tungsten, platinum, etc. Upon breaking an electrical circuit by separating two contact points, arcing occurs between these contacts which often gives rise to serious conditions materially affecting efficient operation thereof. Under the action of the rapid recurrence of the arcing, the faces of the contacts pit, fuse, volatilize and frequently transfer from one contact face to the other. Such deleterious effects are often accompanied by the formation of oxides, which increase the contact resistance; a localization of the arc, which increases the tendency to pit and volatilize; and a building up of a cone or cones on one contact face, which often results in the complete failure of operation due to short circuiting.

Contacts formed in accordance with the present invention have improved operating characteristics with regard to various common difficulties, some of which have been outlined above.

In carrying out the invention, contact material is formed from rhenium or from an alloy containing rhenium, such as, for example, an alloy of rhenium and tungsten. The material may be formed from finely divided particles of substantially pure rhenium by subjecting a mass of the finely divided particles to pressure to form a slug. Pressure may be increased to a degree such that porosity in the slug is materially reduced. The slug may then be sintered and forged or swaged, rolled or drawn to a convenient shape, from which suitable contacts may be made by any of the well known methods, such as, for example sawing, cutting, punching or grinding.

Advantageous results may also be had by forming contacts from an alloy containing rhenium as one ingredient thereof, such as, for example, an alloy of rhenium and tungsten. This alloy may be obtained by the practice of any suitable method of alloying metals, and contacts are formed therefrom by any well recognized method, such as, for example, swaging or rolling or drawing into a convenient shape, from which contacts are formed by sawing, cutting, punching or grinding.

Contacts fabricated in accordance with the present invention are found to attain efficiently the objects set forth above in an admirable and approved manner.

Since certain changes may be made in the above article and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the

generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

Having described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. An electrical make-and-break contact containing rhenium.

2. An electrical make-and-break contact composed chiefly of rhenium.

3. An electrical make-and-break contact formed from an alloy containing rhenium.

4. An electrical make-and-break contact comprising rhenium and tungsten.

5. An electrical make-and-break contact material containing rhenium as the major constituent thereof.

In testimony whereof I affix my signature.

JOSEPH A. WEIGER.