

UNITED STATES PATENT OFFICE

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CONTACT ELEMENT

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1 Claim. (Cl. 171—325)

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My invention relates to contact elements and particularly to such elements as are used with electrical apparatus as current collecting brushes.

An object of my invention is to provide an improved electrical contact element.

A further object of my invention is to provide an improved electrical current collector contact element including a carbonaceous material and provided with an inorganic lubricant for the contact surface thereof.

Further objects and advantages of my invention will become apparent and my invention will be better understood from the following description, and the features of novelty which characterize my invention will be pointed out in the claims annexed to and forming a part of this specification.

It has been found that under normal atmospheric conditions with average humidity atmospheric water vapor and oxygen together provide one of the best known lubricants for the contact surfaces of carbon and metal-graphite brushes and similar bearing surfaces. It also has been found that electrical contact elements made of porous blocks of finely divided electrically conductive material such as carbon or metal-graphite brushes tend to wear away very rapidly in dry or rarefied atmospheres.

I have found that a relatively movable contact element such as might be used for an electrical brush contact or a relatively movable bearing element for contact with another member, such as a rotating slip ring or commutator, will have a relatively long wearing life when it is made of a graphitic or carbonaceous material intimately combined with a metal and a metallic sulphide of a metal having a lower melting point than the first-mentioned metal. Different proportions of these ingredients have been found to be useful for different operating conditions in connection with such contact elements, and a contact element made of a pressed and sintered or fired mix-

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ture of finely divided powders of graphitic material with a metal of high electrical conductivity, such as copper, and a lower melting point metallic sulphide, such as a sulphide of silver, cadmium, molybdenum, zinc, lead, etc., provides a particularly desirable combination.

I have found that this type of electrical brush contact element is preferably formed of a block of carbonaceous material such as finely divided graphite, a metal such as finely divided copper, and a metallic sulphide such as silver sulphide. In some instances, the sulphide may be formed during the manufacturing process by adding powdered sulphur and silver or other lower melting point metal to a mixture of graphite and powdered metal, such as copper, having a higher melting point, mixing, heating, and pressing the mixture together and thereby forming a metallic sulphide mixed with graphite and metal.

While I have described particular embodiments of my invention, modifications thereof will occur to those skilled in the art, and I desire it to be understood, therefore, that my invention is not to be limited to the particular arrangements disclosed, and I intend in the appended claim to cover all modifications which do not depart from the spirit and scope of my invention.

What I claim as new and desire to secure by Letters Patent of the United States, is:

A brush contact element including a block formed of a finely divided carbonaceous material, finely divided copper, and cadmium sulphide.

PHILIP L. ALGER.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,121,960	Whitney	Dec. 22, 1914