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CONTACT FOR ELECTRICAL CIRCUIT BREAKER MECHANISMS

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This invention relates to improvements in electrical contacts for electrical circuit breaker mechanisms, and has as an object to provide a contact whose inherent properties are such as to minimize the arc resulting from the opening and closing of the circuit breaker with which the contacts are employed.

It is also an object of this invention to provide a contact for electrical circuit breakers which not only has the property of minimizing the arc incidental to opening and closing of the circuit, but also has substantial current carrying capacity, a relatively low uniform contact resistance throughout a long period of circuit interrupting service, and is resistant to mechanical wear.

With the above and other objects in view which will appear as the description proceeds, this invention resides in the novel construction and formation of the contacts for electrical circuit breakers, substantially as hereinafter described and more particularly defined by the appended claims, it being understood that such changes in the precise embodiment of the herein disclosed invention may be made as come within the scope of the claims.

Heretofore metals and alloys of which the contacts for electrical circuit breakers were made, were chosen with a view to produce a contact which had comparatively high current carrying capacity, low contact resistance, and substantial resistance to mechanical wear. This invention however contemplates the production of a contact which has the added attribute of minimizing the arc incidental to circuit opening and closing.

The contact of this invention has the advantage of an increase in current rupturing capacity over the ordinary copper type contact to such a degree that in many instances magnetic blow-outs or oil surrounding the contacts may be dispensed with.

To this end, the contact is formed of an alloy which comprises silver and cadmium.

A specific embodiment of the invention chosen as an illustration, is an alloy made up of 80% silver and 20% cadmium.

The contacts may be part of a conventional clapper type switch in which one or more stationary contacts cooperate with an equivalent number of movable contacts to open and close a circuit. The movable contacts may be operated either manually or by means of an electromagnet in the conventional manner.

It has been found that a switch of the type described and equipped with conventional copper contacts, when connected to a power supply circuit of 550 volts, 3 phase, 60 cycle, failed to open the circuit on switching a load of 80 amperes with a lagging power factor of approximately 50%.

placed with contacts made of an alloy of 80% silver and 20% zinc, and this same switch with the silver-zinc alloy contacts and under the same electrical circuit conditions broke the circuit several times but finally the contacts welded and the switch failed to open.

The silver-zinc alloy contacts were then replaced with contacts made of an alloy of 80% silver and 20% cadmium in accordance with the present invention. The same switch thus equipped with the contacts of this invention and connected to the same power supply circuit successfully switched a load of 155 amperes with a lagging power factor of 50%.

At the completion of this test, the silver-cadmium alloy contacts were tested for resistance while carrying their rated current. This test showed a temperature rise well within the limits prescribed by all rulings.

From the foregoing description, it will be readily apparent to those skilled in the art to which an invention of this character appertains, that this invention affords a contact for electrical circuit breaker mechanisms which has all of the desirable qualities heretofore found in the best contacts with the additional attribute of minimizing the arcing incidental to circuit making and breaking; and while the embodiment of this invention as herein disclosed constitutes a preferred form, it is to be understood that other proportions of the constituent metals of the alloy may be chosen with deviating from the scope of the invention.

What I claim as my invention is:

1. A contact for electrical circuit breaker mechanisms composed of a silver cadmium alloy.

2. A contact for an electrical circuit breaker mechanism composed of a silver cadmium alloy, the silver predominating.

3. In combination with an electrical circuit breaker mechanism, cooperating contacts between which a circuit is adapted to be made and broken, said contacts being composed of a silver cadmium alloy to minimize destructive arcing at the contacts.

4. In combination with an electrical circuit breaker mechanism, cooperating contacts between which a circuit is adapted to be made and broken, said contacts being made of a metal alloy having as an inherent quality the ability to minimize destructive arcing at the contacts.

5. A contact for electrical circuit breaker mechanisms composed of an alloy of cadmium substantially 20%, and silver substantially 80%.

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