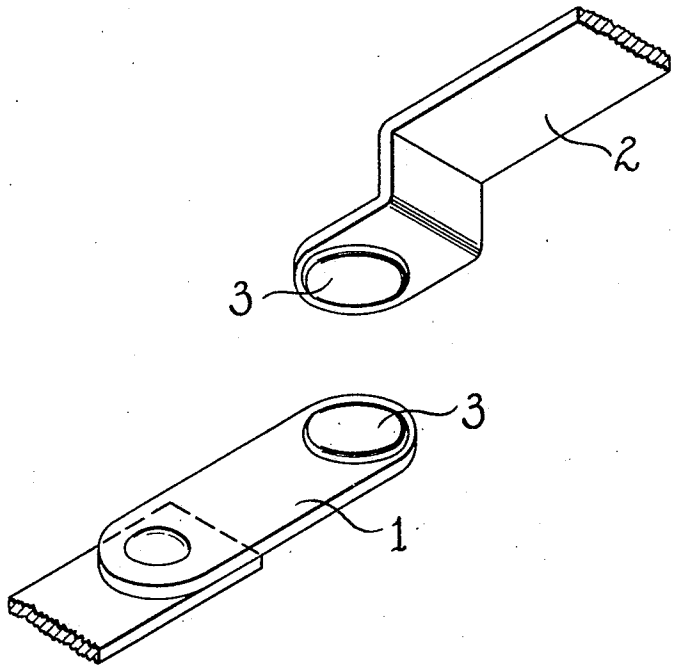
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ELECTRICAL CONTACT

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ELECTRICAL CONTACT

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1 Claim. (Cl. 200—166)

This invention relates to improvements in electrical contacts.

An object of the invention is to provide contacts for the making and breaking of electrical circuits composed of material which will be superior to fine silver in the matter of life, dependability, and cost, while having substantially the same low contact resistance which characterizes fine silver.

An additional object is to provide contacts composed of a material of sufficient cold welding properties to permit its use molded in situ without sintering on base metal supports, which supports would be annealed by ordinary sintering temperatures.

The preferred materials used in forming my improved contacts are fine silver powder and cadmium oxide, and the preferred proportion is 90% silver powder to 10% cadmium oxide by weight since experiments indicate that up to this amount the cadmium oxide promotes increased contact life, but beyond 15% of cadmium oxide the decrease in physical properties is deleterious to contact life.

It has been found that silver powders differ widely in result in this combination, and the presently preferred form is a commercial product known as Merck's precipitated silver which is characterized by a fibrous texture, extreme whiteness, and unusual ability to cold weld under pressure to a tough solid of considerable tensile strength. Other silver powders may of course be employed if desired.

As an example of the process of manufacture of these contacts, ten parts of fine cadmium oxide are tumbled with 90 parts of Merck's precipitated silver until a uniform mixture is secured. The required quantity of this mixture is placed in a suitable mold at about 400° F. and compressed at approximately 40,000 pounds per square inch by a press stroke which may be as rapid as 50 strokes per minute. The contact as ejected is ready for use without sintering or heat treatment. Contacts so made in accordance with my invention, and tested by standard procedure in comparison with contacts formed of known and commonly used materials, have shown a greatly increased length of life, as follows:

	Operations
Fine silver contacts	1,584,984
Cadmium silver alloy contacts	1,439,725
Silver, cadmium oxide contacts	2,892,389

The single figure of the drawing illustrates at 1 a stationary metal supporting member and at 2 a movable metal supporting member, to each of which one of my improved contacts 3 is attached by the aforedescribed pressure molding operation, as an incident to the formation of said contacts.

I claim:

An electrical switch contact cold molded under a pressure of approximately 40,000 pounds per square inch, said contact consisting of a substantially homogeneous mixture of about 90 per cent of silver powder of a fibrous texture and about 10 per cent of cadmium oxide powder, and the same being characterized by adaptability thereof for normal use without sintering.

IRVIN W. COX.