

UNITED STATES PATENT OFFICE.

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METAL COMPOSITION.

No Drawing. Application filed August 19, 1926, Serial No. 130,359, and in Germany December 17, 1925.

My present invention relates to metal compositions consisting largely of aluminum, and more particularly to metal compositions adapted to be employed as electrical conductors. While it is well known that the strength of aluminum may be increased by alloying it with certain metals, the addition of such metals as a rule lowers the conductivity of the aluminum. I have found, however, that by adding cadmium to aluminum, a metal composition of great strength may be obtained, and at the same time the conductivity of the aluminum is unimpaired.

According to the present invention, the improved metal composition contains .05% to 3% of cadmium, the latter metal being added to liquid aluminum. Within the limit specified very satisfactory and uniform results may be obtained. The cadmium acts as a purifier and contrary to all expectations increases the strength of the aluminum without appreciably affecting its conductivity. It is my belief that in the weight proportions employed in the present invention, aluminum and cadmium do not form solutions, whereas in metals which form solutions with each other the conductivity drops considerably with simultaneous increase in strength.

I have found that particularly favorable

results may be obtained with an aluminum alloy containing 1.6% of cadmium. Such an alloy has the strength of 32 kilograms per square millimeter, an elongation of 10%, and four bends having a radius equal to two and one-half times the diameter. The conductivity of the above alloy is substantially 31 mhos at 20° C. for a conductor one meter long having an area of one square millimeter.

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

1. A metal composition consisting of 98.4% aluminum and containing 1.6% cadmium.

2. A metal composition adapted for use as a transmission line conductor, said composition containing from .05% to 3% cadmium, the remainder of the composition being aluminum.

3. A metal composition consisting largely of aluminum and containing 1.6% cadmium, said composition having a strength greater than, and an electrical conductivity substantially equal to that of substantially pure aluminum.

In witness whereof, I have hereunto set my hand this 31st day of July, 1926.

KARL BERNHOEFT.