

UNITED STATES PATENT OFFICE.

EVERETT J. HALL, OF NEW YORK, N. Y., ASSIGNOR TO METALS DISINTEGRATING COMPANY, INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

MANUFACTURE OF METALLIC DUST.

1,290,181.

Specification of Letters Patent.

Patented Jan. 7, 1919.

No Drawing.

Application filed May 4, 1917. Serial No. 166,323.

To all whom it may concern:

Be it known that I, EVERETT J. HALL, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in the Manufacture of Metallic Dust, of which the following is a specification.

This invention relates to the manufacture of metallic dust, as for instance zinc dust, and is aimed at the production of such disintegrated metal in a substantially pure metallic form, free from the oxid. A very effective method of disintegrating such a metal as zinc, for instance, is to provide the pure metal in a molten state and then atomize it, whereby it is broken up. On account of the elevated temperatures at which this work must be carried on and because of the oxygen by which the pure metal is attacked during the process of atomizing and cooling, I have found that the resulting dust is more or less oxidized. The present invention enables me to prevent this oxidation and to secure as a result of the disintegration process, a substantially pure metallic dust. Of course it will be understood that a pure metal might be disintegrated in a non-oxidizing atmosphere so as to attain the desired purity of the disintegrated product; but this is an expensive and in other ways undesirable alternative, whereas by my invention the pure metal may be disintegrated by atomizing and or without any particular precautions for the exclusion of oxygen during the disintegration and cooling steps, and the resulting product will be substantially pure metallic dust.

I prefer to accomplish the ends set out above by adding to the substantially pure molten metal which is to be disintegrated, a small quantity of metallic aluminum, preferably as an alloy of the metal under treatment. The result of this addition is that when the molten metal, during the disintegration process is subject to attack by oxygen, the oxygen combines with the metallic aluminum and not with the metal which is being disintegrated, because the metal which is being disintegrated has a less affinity for oxygen than has the aluminum. The amount

of metallic aluminum added to the metal under treatment is limited by empirical determination to a quantity sufficient to accomplish the desired result.

A further important advantage resulting from the addition of a small quantity of metallic aluminum, where the disintegration process includes the bringing of the pure metal to the molten condition, is the fact that the aluminum renders the molten metal more fluid, facilitating the disintegration process, whether such disintegration is accomplished by atomizing the molten metal, or causing the molten metal to break up into drops or globules to be subsequently broken up by passage through some cooling medium.

It will be understood that this use of metallic aluminum is contemplated in connection with the production of pure metallic dust from any metal having a less affinity for oxygen than has the aluminum; also I contemplate the use with any metal under treatment, of a metal having a greater preference for oxygen than has the metal under treatment.

I claim:

1. The method of treating a metal to convert it into a substantially pure metallic dust, which comprises bringing the substantially pure metal under treatment into a molten condition with the addition of a small quantity of a metal having a greater affinity for oxygen than has the metal under treatment, and then disintegrating without complete exclusion of oxygen, to form a metallic dust free from oxid of the metal under treatment.

2. The method of treating a metal having a less affinity for oxygen than has the metal aluminum, to convert it into a substantially pure metallic dust, which comprises bringing the substantially pure metal under treatment into a molten condition with the addition of a small quantity of metallic aluminum and then disintegrating without complete exclusion of oxygen, to form a metallic dust free from oxid of the metal under treatment.

In testimony whereof I affix my signature.
EVERETT J. HALL.

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