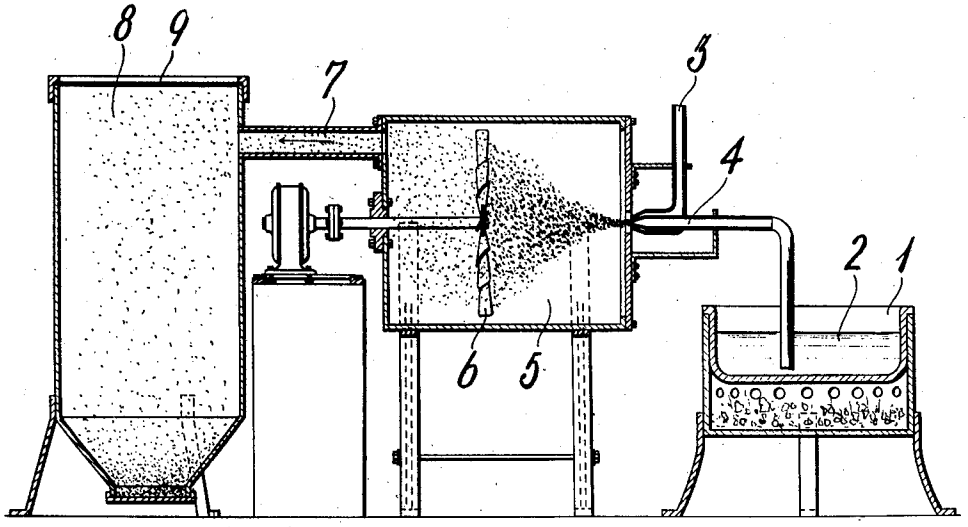
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PROCESS AND APPARATUS FOR PRODUCING PULVERIZED LEAD

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PROCESS AND APPARATUS FOR PRODUCING PULVERIZED LEAD

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3 Claims. (Cl. 83—91)

The present invention relates to an improved process and apparatus for producing pulverized lead, which consists substantially in impinging atomized molten lead on revolving blades of a fan. The object of the invention is to provide an effective means by which pulverized lead of uniform fineness is advantageously obtained in the state of lower oxidation.

Pulverized lead has hithereto been exclusively produced by crushing or triturating. In the former case power consumption is high and powder of uniform fineness can hardly be obtained, while in the latter a large quantity of highly oxidized lead is formed, which changes colour when kept in the atmosphere, the material being exposed in the air to high temperatures caused by friction during the process.

These disadvantages may be entirely removed by the present invention, in which molten lead is sprayed in fog form into a closed chamber through the atomizer by highly compressed air or other inert gases. The contact surface of each lead particle with the air or inert gas is thus increased, which results in quick lowering of the temperature of said particle. The particles are now caused to impinge on rapidly revolving blades of a fan arranged in said chamber, the moment when they become brittle just before their solidification. Particles are consequently further pulverized and lastly carried out of the chamber by the air current set up by the revolving blades into the collecting chamber, in which they are deposited. It is well known that molten lead becomes very brittle especially just before its solidification. This characteristic property of lead is used to good advantage by the present invention. Highly oxidized particles are never produced, as the temperature is lowered very quickly. Finished products are very stable and excellent in quality, being in the state of lower oxidation, never changing colour, when kept in the air.

The single figure shown is a sectional view of my apparatus.

A practical application of the present invention is shown by way of example in the accompanying drawing in which, (1) is the bath, containing molten lead (2). (3) is an atomizer which is connected to a compressed air tank and (4) is the suction pipe. In the closed chamber (5) a horizontal spindle carrying one or more radially disposed blades (6) is mounted which can be actuated by any suitable mechanism. Beside the said blades a plurality of rod shaped knockers (not shown) may be radially arranged on said spindle on the opposite side of the atomizer. The distance between the blades and the atomizer may be adjusted by sliding said blades along the spindle or by moving the atomizer horizontally. This adjustment is necessary so as to make said distance correspond to the temperature of molten lead, the velocity of spraying, etc. The collecting chamber (8) covered with the clothing (9) communicates with the closed chamber by the passage (7). The air carrying lead particles into said chamber (8) passes out through the clothing into the open air.

It has been shown by experiments that a very satisfactory result may be obtained by applying compressed air under pressure of 50 lbs/sq. inch to the atomizer with the nozzle diameter of 1/64 inch, the distance between the atomizer and the fan being 30 inches and the blades making 4,000 revolutions per minute, the above figures being approximate.

I claim:

1. An apparatus for producing pulverized lead comprising, in combination, a receptacle for containing molten lead, a closed chamber, a plurality of annularly spaced inclined blades mounted in said chamber and substantially dividing the chamber into a plurality of compartments, means for rotating said blades at relatively high speed, atomizing means at one side of the blades for projecting the molten lead into one of said compartments and against said blades, a discharge conduit communicating with the other of said compartments formed in said chamber at the opposite side of said blades from said atomizing means, and adjustable means for varying the relative position of said blades with respect to said atomizing means and said discharge conduit.

2. An apparatus for producing pulverized lead comprising, in combination, a receptacle for containing molten lead, a closed chamber, a plurality of annularly spaced inclined blades mounted in said chamber, means for rotating said blades at relatively high speed, atomizing means at one side of the blades for projecting the molten lead into said chamber and against said blades, a receiving chamber, a conduit communicating with said receiving chamber and with said closed chamber at the opposite side of said blades from said atomizing means, and adjustable means for varying the relative position of said blades with respect to said atomizing means and said conduit.

3. A process of producing a substantially non-oxidizing lead powder which consists in atomizing molten lead by the use of compressed air to produce fine particles, quickly cooling the particles of lead so produced to provide a brittle condition and to prevent oxidation, impinging said particles just before solidification on the blades of a rapidly rotating blade member to more finely pulverize the lead particles, passing the finely pulverized particles through said blade member, and forcing the said lead particles away from said member by the air currents produced by the rotation of the blade member.

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