

UNITED STATES PATENT OFFICE

HERMANN PAPE, OF HAMBURG, GERMANY.

PROCESS FOR THE PREPARATION OF ZINC OXID FOR REDUCTION.

947,399.

Specification of Letters Patent.

Patented Jan. 25, 1910.

No Drawing.

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To all whom it may concern:

Be it known that I, HERMANN PAPE, a subject of the Emperor of Germany, and resident of Hamburg, Germany, have invented a certain new and useful Improvement in Processes for the Preparation of Zinc Oxid for Reduction, of which the following is a specification.

Zinc oxid which is obtained in the usual manner by precipitating zinc vapor or fumes in dust chambers of filtering appliances, is exceedingly loose, and presents relatively small density. In addition to this it is of a viscous or adhesive character, and owing to this latter property and to its small density it is not well adapted for reduction into zinc, so that in the case of zinc oxid of the kind described great losses generally occur in reducing it. Owing to its nature, zinc oxid is also unsuited for transport, as it is hardly possible to convey it owing to its looseness, even when tarpaulins are used for covering the trucks. It is therefore necessary to pack the oxid into sacks or casks for transport. Even when this method of packing is adopted considerable loss will still occur during transport, and also in preparing the mixture of oxid and reducing coal, as the zinc oxid is very light and greatly inclined to become pulverulent. Another defect is that during the reduction in the muffle, large lumps form from the loose oxid, and owing to the heat they coagulate and are then difficult to reduce, and owing to this coagulation the furnace ashes contain unreduced coagulated zinc oxid, and this is another source of considerable loss of zinc.

All defects can be obviated according to the present invention, in the following manner: The zinc oxid is treated in a muffle or reverberatory furnace, in which it is exposed for some considerable time, say two to three hours, to great heat, which may ad-

vantageously exceed 1000° C. By this treatment the loose zinc oxid is condensed or solidified in such a manner that it coagulates into solid lumps and pieces, and this solidification can be carried to such an extent that the weight of a given volume of zinc oxid which has been annealed and then reduced to pieces three millimeters in size is about five times as great as the weight of an equal volume of crude oxid which is removed from the settling chambers or dust flues. When the zinc oxid has been coagulated and solidified by heat in the manner described it is withdrawn from the muffle or reverberatory furnace and allowed to cool. It can then be transported in the same way as roasted blende and after the larger lumps have been broken up it can be used in the same manner as blende for forming the mixture for reduction to zinc. The instability of zinc oxid, which is prejudicial in the reduction process, is entirely obviated by this means as is also the coagulation of the oxid in the muffle during the reduction process.

Having described my invention what I claim and desire to secure by Letters Patent of the United States is:—

Process of preparing zinc oxid for reduction and transport, consisting in feeding zinc oxid, in the loose condition in which it is obtained from dust chambers or filtering apparatus, into a furnace, and subjecting said oxid, while retained in the furnace, to a temperature of at least 1000° C. and until coagulated into dense, hard and heavy lumps mixed with hard granules.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HERMANN PAPE.

Witnesses:

ERNEST H. L. MUMMENHOFF,
IDA CHRIST. HAERMANN.