

UNITED STATES PATENT OFFICE.

HARVEY M. BURKEY, OF NEWARK, NEW JERSEY, ASSIGNOR TO METALLURGICAL COMPANY OF AMERICA, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

METHOD OF OBTAINING ZINC OXID AND SINTER FROM ALLOYS CONTAINING ZINC.

1,061,447.

Specification of Letters Patent.

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No Drawing.

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To all whom it may concern:

Be it known that I, HARVEY M. BURKEY, a citizen of the United States, residing in Newark, county of Essex, State of New Jersey, have invented certain new and useful Improvements in Methods of Obtaining Zinc Oxid and Sinter from Alloys Containing Zinc; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to the utilization of brass turnings and other brass waste, for the recovery, in the form of utilizable products, of the constituents of the alloy.

Prior to my invention, it has been proposed to briquet these waste products, with a binder, and to smelt the briquets in a blast furnace, the metalliferous residue thus obtained being subsequently refined in the reverberatory furnace. In this former practice, the copper alone has been recovered, the zinc being volatilized and lost in the outgoing furnace gases as zinc oxid. The zinc oxid, by reason of the furnace conditions, bears relatively too small a proportion by volume to the volume of the escaping products of combustion to be recovered commercially or economically and its presence is a serious disadvantage to the blast furnace operation, principally for the reason that it tends to obstruct the flues, in which it is in part deposited as an impure and unmerchantable product in admixture with the other constituents of the flue dust. By my present invention, I avoid these difficulties, and dispense entirely with the blast furnace operation, recover the zinc oxid, as such, in merchantable form, and produce a copper sinter which may be at once taken to the reverberatory furnace for ultimate conversion into refined copper. The result of the operation is, therefore, the recovery not only of the copper, but also of the zinc, and in the economical and effective manner which I will now proceed to describe.

In carrying out my invention, I mix the brass turnings and other brass waste with fine fuel, preferably fine anthracite coal. I then build a fire upon the grate of a suit-

able converter, which may be of the Huntington-Heberlein pot type, and introduce the charge of the mixed fuel and brass turnings or other brass waste either as a whole or in successive layers upon the burning fuel, and blow the charge by the admission of a suitable air blast; or, in other instances, I may deposit a layer of the charge upon the grate surface and ignite the charge from above, which may be readily effected by depositing a layer of burning fuel thereon, and by causing a down-draft through the charge, either by suction, or by pressure, or both. In either event, the temperature conditions and the volume of air admitted are so established that the zinc is volatilized and passes as zinc oxid from the converter into flues which convey it to the bag house or other place of deposit and recovery. At the termination of the operation, the residue is discharged from the pot or converter in the form of a copper agglomerate or sinter, which is then adapted to be charged directly into the reverberatory or other refining furnace.

While I have hereinbefore indicated, as suitable for the practice of my invention, an apparatus of the converter or pot type, it will be evident that it may be carried out in any similar form of apparatus adapted for the purpose, and operating either with an up-draft or down-draft, as the case may be.

It is also evident that my invention may be applied generally, to the treatment of turnings and waste metal, consisting of other alloys containing zinc, so associated with the remaining constituents of the alloy that it can be volatilized and recovered in like manner as zinc oxid.

Having thus described my invention what I claim is:

1. The method of recovering zinc from turnings and other waste metal alloys containing it, which consists in mixing the turnings or the like with fine coal, and igniting and blowing the mixture under temperature conditions which will volatilize and oxidize the zinc, and which will leave a residual sinter, and recovering the zinc as zinc oxid; substantially as described.

2. The method of recovering zinc from

brass turnings and other waste brass, which consists in mixing the brass turnings or the like with fine coal, and igniting and blowing the mixture under temperature conditions which will volatilize and oxidize the zinc, and which will leave a residual copper sinter, and recovering the zinc as zinc oxid; substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses.

HARVEY M. BURKEY.

Witnesses:

JOHN C. PENNIE,
M. A. BILL.