(No Model.)

C. V. PETRAEUS.

METHOD OF MANUFACTURING LEAD OXID.

No. 592,594. Patented Oct. 26, 1897.

FIG. 1.

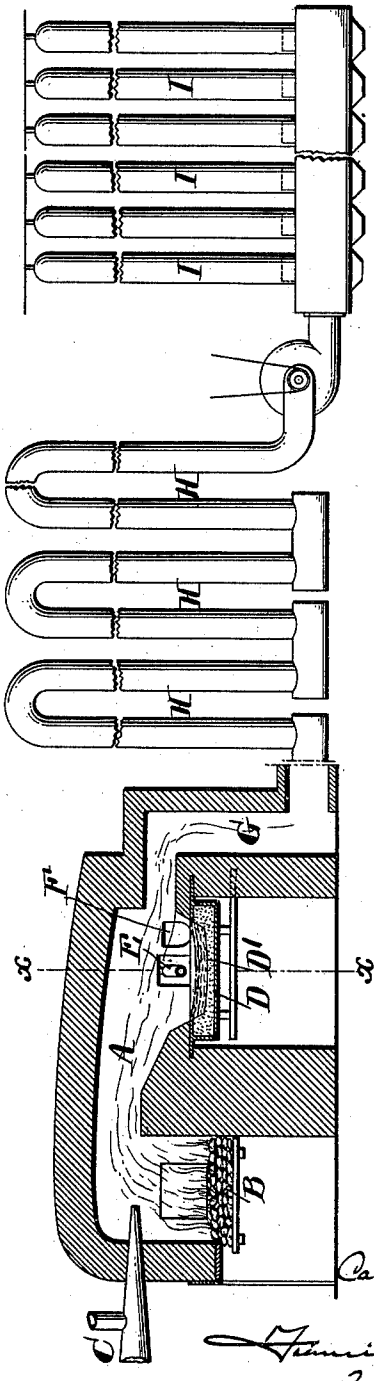
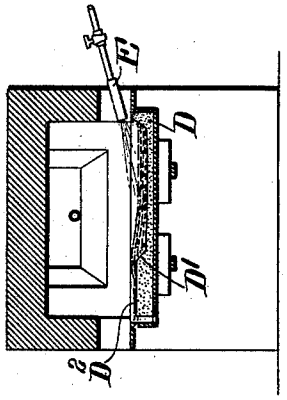


FIG. 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

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METHOD OF MANUFACTURING LEAD OXID.

SPECIFICATION forming part of Letters Patent No. 592,594, dated October 26, 1897.

Application filed February 11, 1896. Serial No. 578,835. (No specimens.)

To all whom it may concern:

Be it known that I, CARL V. PETRAEUS, a citizen of the United States, residing in Joplin, in the county of Jasper, in the State of Missouri, have invented a new and Improved Method of Manufacturing Lead Oxid, of which the following is a true and exact description, reference being had to the accompanying drawings, which form a part thereof.

My invention relates to the manufacture of protoxid of lead, and has for its object to provide a method by which the protoxid can be secured at a low cost and in which, in part at least, the product will be of improved character and value.

My method consists in subjecting metallic lead to the action of a high temperature which must exceed the melting-point of litharge, about 1,750° Fahrenheit, and which should preferably be approximately that corresponding to white heat, and at the same time exposing the melted lead to the action of oxygen, drawing off the fused oxid to form a fused litharge product, and conducting away the sublimed lead oxid and catching it in screens to form sublimed litharge. Care must be taken that the gases which come in contact with the melted lead contain no sulfur, and for this reason a fuel free from sulfur should be selected for heating the furnace in which the lead is melted and oxidized. A wood or charcoal fire is excellent for this purpose, but it is expensive. Of course coal or coke free from sulfur can be used, but I prefer to use hydrocarbon oils for heating my furnace. The metallic lead should be contained in a basic hearth or crucible which may be formed of bone-ash or of a mixture of powdered limestone and clay, and I have found it of great advantage to maintain a practically constant level of metallic lead in the crucible to secure a uniformly large surface exposure and thereby a rapid oxidation.

Reference is now had to the drawings, in which I have illustrated a furnace adapted for use with my own process, and in which—

Figure 1 is a central longitudinal section, and Fig. 2 a cross-section taken on the line *x x* of Fig. 1.

A indicates the furnace; B, the grate on which a fire of coal, coke, or charcoal can be made; C, a nozzle for injecting hydrocarbon oil mixed with air to heat the furnace; D, the iron support for the crucible; D′, the crucible-lining; D^2, the gutter into which the fused oxid is forced by the air-blast and through which it is withdrawn from the furnace; E, the air-blast pipe; F, a passage through which the crucible is charged with fresh lead; G, the flue leading from the furnace; H, cooling-flues, and I a system of fabric screens in which the sublimed litharge is separated from the furnace-gases.

The crucible D′ is kept approximately full of melted lead by running fresh lead in through the charging-opening F, and the lead is kept at the desired high temperature by the action of the fire either upon the grate B or that introduced through the nozzle C. Both of these heating devices may be used concurrently with advantage in some cases. The melted protoxid of lead is driven by the blast entering through the pipe R into the gutter D^2, and thence passes outside of the furnace, crumbling on slow cooling into flaky crystals of litharge. At the high temperature a considerable amount of the protoxid of lead is sublimated and passes off through the flue G, the cooling-flues H, and is finally caught in the bags I. The proportionate quantity of this sublimed litharge will vary very much with the temperature of the furnace—the higher the temperature the greater the proportion of the sublimed product—and as this sublimed product is of peculiar value I prefer the approximately white heat which I have mentioned.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The method of manufacturing lead oxid which consists in maintaining molten lead at a temperature above that at which litharge melts, exposing said molten lead to the action of a blast of air to oxidize the lead and partly volatilize the lead oxid, catching the volatilized lead oxid in screens and separating the fused oxid from the lead, all substantially as described and so as to give a double product of sublimated and fused litharge.

2. The method of manufacturing lead oxid which consists in maintaining molten lead at

a temperature considerably above that at which litharge melts, exposing said molten lead to the action of a blast of air to oxidize the lead and partly volatilize the lead oxid, catching the volatilized lead oxid in screens and separating the fused oxid from the lead all substantially as described and so as to give a double product of sublimated and fused litharge.

3. The method of manufacturing lead oxid which consists in maintaining molten lead contained in a basic-lined furnace-basin at a temperature above that at which litharge melts, exposing said molten lead to the action of a blast of air to oxidize the lead and partly volatilize the lead oxid, catching the volatilized lead oxid in screens, separating the fused oxid from the lead and feeding fresh lead into the basin so as to maintain a practically constant level therein all substantially as described and so as to give a double product of sublimated and fused litharge.

4. The method of manufacturing lead oxid which consists in maintaining molten lead at a temperature corresponding to a white or approximately white heat, exposing said molten lead to the action of a blast of air to oxidize the lead and partly volatilize the lead oxid, catching the volatilized lead oxid in screens and separating the fused oxid from the lead all substantially as described and so as to give a double product of sublimated and fused litharge.

CARL V. PETRAEUS.

Witnesses:
GALEN SPENCER,
M. WEILE.