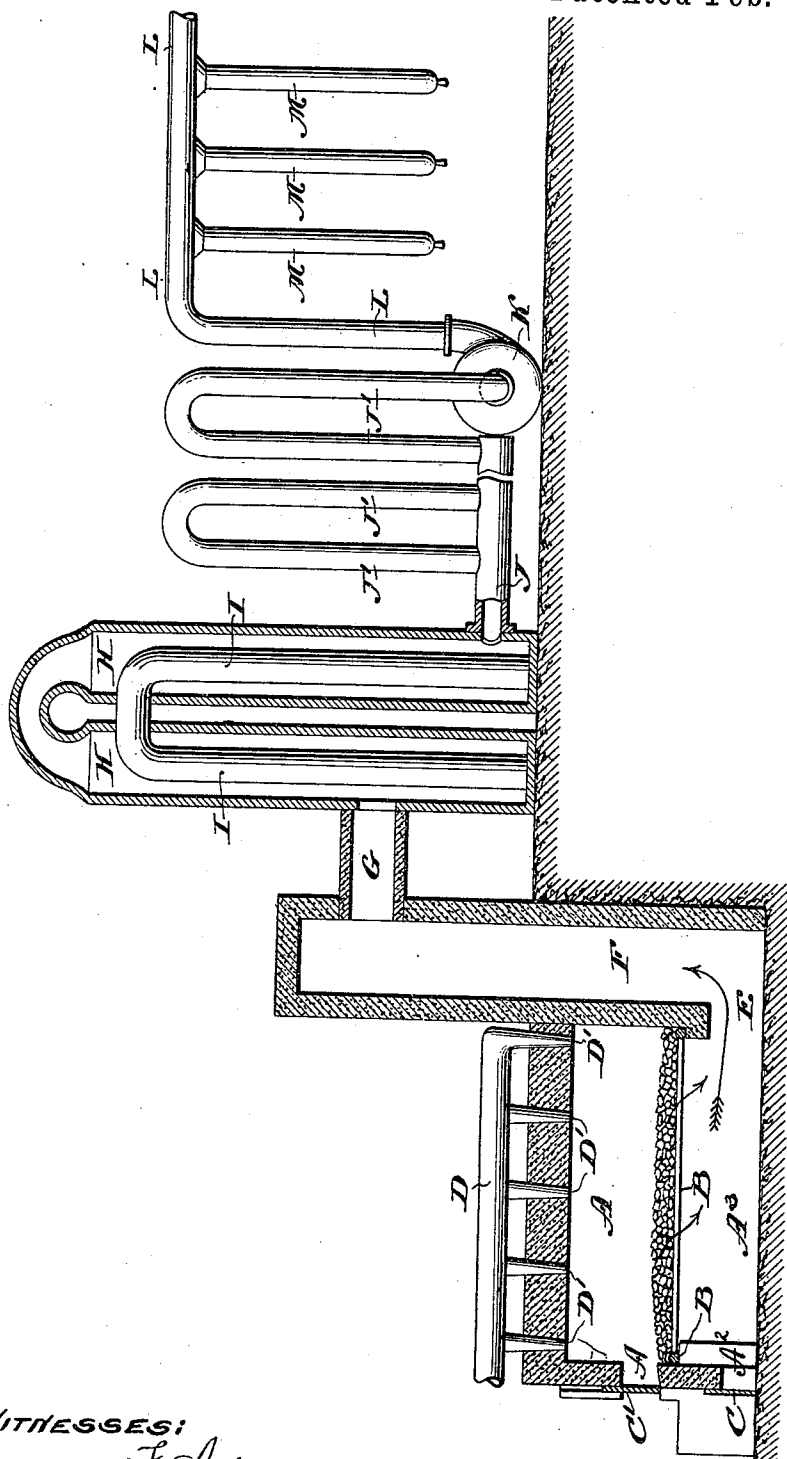


(No Model.)

E. O. BARTLETT.
METHOD OF MANUFACTURING OXID OF ZINC.

No. 515,043.

Patented Feb. 20, 1894.



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EAYRE O. BARTLETT, OF JOPLIN, MISSOURI.

METHOD OF MANUFACTURING OXID OF ZINC.

SPECIFICATION forming part of Letters Patent No. 515,043, dated February 20, 1894.

Application filed June 21, 1893. Serial No. 478,410. (No specimens.)

To all whom it may concern:

Be it known that I, EAYRE O. BARTLETT, a citizen of the United States, residing at Joplin, in the county of Jasper, in the State of Missouri, have invented a certain new and Improved Method of and Apparatus for Manufacturing Oxid of Zinc, of which the following is a true and exact description, reference being had to the accompanying drawing, which forms a part of this specification.

My invention relates to the manufacture of zinc oxide, or of mixture of zinc oxide and the sulphate and oxide of lead.

Heretofore in the treatment of ores or compounds of zinc, or of such ores or compounds to a greater or less extent mixed with ores or compounds of lead, and for the purpose of producing a pigment consisting wholly or partly of zinc oxide, the approved practice has been to charge a mixture of the ore and carbonaceous fuel upon a bed of fire supported on a grate and situated in a furnace, the blast of which passes upward through the grate; the furnace generally used being of what is known as the Wetherill type and the action upon the ore being to reduce and oxidize the metal; the furnace smoke carrying off the zinc oxide together with the lead, which may be driven off in the form of fume, and after being cooled down the metallic fume is separated from the gases by the action of screens preferably of fabric. This method of treating the ore is necessarily intermittent, each charge being worked off clean, the scoria then withdrawn and a new fire built upon the grate preparatory to the introduction of additional ore. The fuel used in these old processes is anthracite coal; coke and charcoal being too bulky, as only a low fuel charge is admissible, while bituminous coal is objectionable for many reasons. I have discovered that an excellent zinc pigment or pigment of zinc and lead, can be produced by charging ore and fuel on top of an incandescent mass of fuel supported upon a grate and situated in a furnace in which the air blast is forced or drawn downward through the fuel bed and grate. By this method of

treatment I am enabled to use fuels which cannot be successfully used in the older methods, and particularly bituminous coal, the danger of discoloration to the pigment being obviated by passing the smoke through the highly incandescent fuel layer at the bottom of the charge. Another obvious advantage is that my process may properly be called a continuous one, ore and fuel being added gradually and a large quantity of ore treated before it is necessary to clear out the furnace.

Referring now to the drawing which illustrates, partly in longitudinal section, an apparatus adapted for use with my improved process, A indicates the furnace, A' the charging door of the furnace, A² the door of the ash pit which is indicated at A³.

B is the furnace grate which is preferably made up of water tubes so as to resist the destructive action of the heat which is of course most intense being in direct contact with the grate.

D indicates an air blast pipe; D' D', &c., a series of tuyeres leading from the said blast pipe to the body of the furnace.

C indicates the gate or door by which the ash pit is closed and it is of course important that it should be closed tightly as the ash pit forms a part of the smoke conduit.

C' indicates a door for closing the feed opening A'.

E indicates a passage leading from the ash pit A³ to a dust chamber F which forms a part of the smoke flue and from which the conduit G leads to the cooling flue system, which as indicated, consists of a U shaped tower H H through which extends an air pipe I, J indicating a continuation of the cooling flue leading from the tower H and including a series of U shaped pipes or goose necks J'.

K is an exhaust fan connected with the cooling flue and the function of which is to draw the smoke through the same.

L is a conduit on the delivery side of the fan leading to a screen system which, as indicated in the drawing, consists of a series of fabric bags M.

Having now described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

5 The method of making zinc oxide pigment which consists in feeding ore and fuel on top of a body of incandescent fuel, causing a draft to pass downward through the fuel bed to carry the smoke and metallic fume through the incandescent fuel, drawing the furnace

smoke through a system of cooling flues and finally into a screen system to separate the zinc pigment from the gases. 10

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Witnesses:

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