

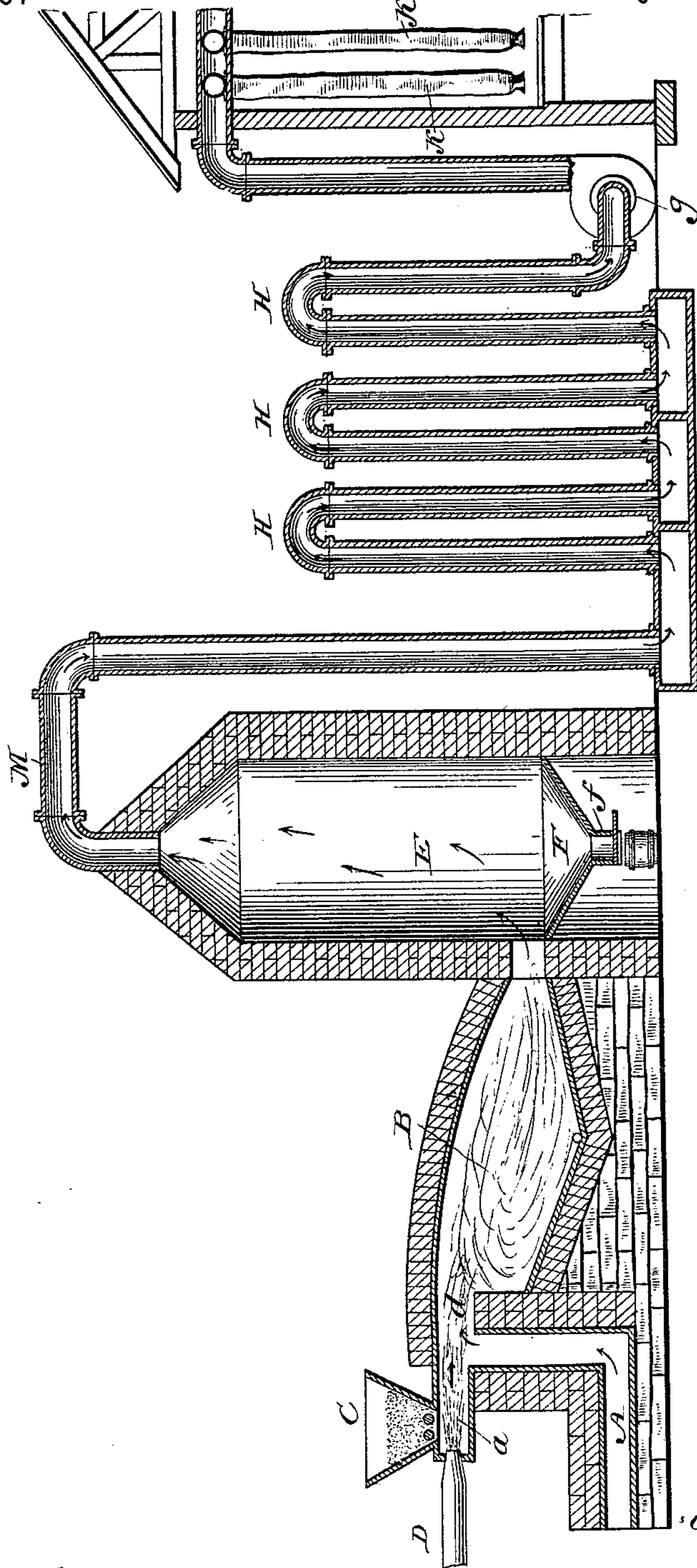
(No Model.)

G. T. LEWIS.

PROCESS OF MANUFACTURING SUBLIMED LEAD PIGMENT FROM  
GALENA ORE.

No. 386,836.

Patented July 31, 1888.



Witnesses

*H. W. Elworth*  
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By *his* Attorney

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# UNITED STATES PATENT OFFICE.

GEORGE T. LEWIS, OF PHILADELPHIA, PENNSYLVANIA.

PROCESS OF MANUFACTURING SUBLIMED LEAD PIGMENT FROM GALENA ORE.

SPECIFICATION forming part of Letters Patent No. 386,836, dated July 31, 1888.

Application filed December 7, 1886. Serial No. 220,942. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE T. LEWIS, of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in the  
5 Process of Manufacturing Sublimed Lead Pigment from Galena Ore, of which the following is a true and exact description, due reference being had to the accompanying drawing, which forms part hereof.

10 Heretofore the manufacture of lead pigment from galena has been carried on in the manner set out in several patents granted to me and E. O. Bartlett, either separately or jointly, by directly subliming galena ore,  
15 the galena being thrown upon a hot fire by a blast of air, which blast of air is forced into the mass of ore and fuel, or by blowing powdered galena ore into red-hot retorts. It has also been made by refining the waste fumes  
20 and flue-dust of lead smelting furnaces. In all these cases a solid fuel has been used, and its use has been found in many respects very disadvantageous, the mineral impurities of the coal (ashes) and the irregularity in feed-  
25 ing being liable to discolor the pigment; also, the silicious ashes cause a loss of lead, a portion of the lead being thrown into the slag. The use of retorts has also been found disadvantageous on account of their great expense.  
30 By my discovery I am enabled to obviate all these objections.

I take powdered galena ore, and this is intimately mixed with natural or generated gas or liquid hydrocarbon, and this admixture burned  
35 in an igniting-chamber. The galena will be completely oxidized; and this is carried off by an exhaust and forced into receptacles of textile fabric, where it is collected.

In the drawings, C represents the hopper,  
40 into which the powdered ore is placed. This hopper has an outlet, *d*, and against this outlet a blast of air, D, is blown. The gas is caused to enter through the channel A, and at the point *a* the gas is mixed with the finely-  
45 divided ore blown by the blast. The finely-divided ore, gas, and air are blown through the reverberatory-shaped chamber B, which is preferably lined with basic material. In this chamber the gas is ignited, by which means  
50 the lead ore is oxidized. Any coarse galena falls to the bottom of this chamber and is re-

moved. The oxidized ore is carried into the settling-chamber E. Any coarse material or heavy particles fall to the hopper F and are removed. The fan J draws the finely-divided  
55 particles of oxidized ore from the igniting-chamber through the cooling-pipes H, and drives them through the pipe M into the bags K, of textile fabric, where it is deposited.

Any liquid hydrocarbon can be used in place  
60 of the gas, and when it is used I do away with the gas-channel A and mix the finely-divided ore to be heated with the liquid hydrocarbon in the hopper C, and the finely-divided ore so saturated is blown into the chamber B, where  
65 the hydrocarbon is ignited, and the operation continues in the manner heretofore described in this specification.

By this admixture of air, gas, or liquid hydrocarbon and pulverized ore prior to their in-  
70 troduction into the combustion-chamber, I am enabled to cause the air and gas or liquid hydrocarbon to become so intimately mixed with each other prior to combustion that when combustion commences its effect on the ore is more  
75 perfect and rapid on account of the close connection of the ore and gas or liquid hydrocarbon with each other.

I do not intend to claim, broadly, the use of gas as a fuel in the manufacture of lead pig-  
80 ments.

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

The process of manufacturing sublimed lead  
85 pigment from finely-divided galena, which consists in forming a compound current of intimately-admixed gas, air, and finely-divided galena before entering the combustion-chamber, in-  
90 flaming said current at the point of entrance into said chamber, maintaining the resultant salts in suspension by the air-blast while being forced through said chamber, cooling the material obtained by the combustion of the  
95 gas and galena, and finally depositing the lead salts by forcing them into receptacles of textile fabric, substantially as set forth.

GEORGE T. LEWIS.

Witnesses:

RICH'D. S. CHILD, Jr.,  
FRANK CROWN.