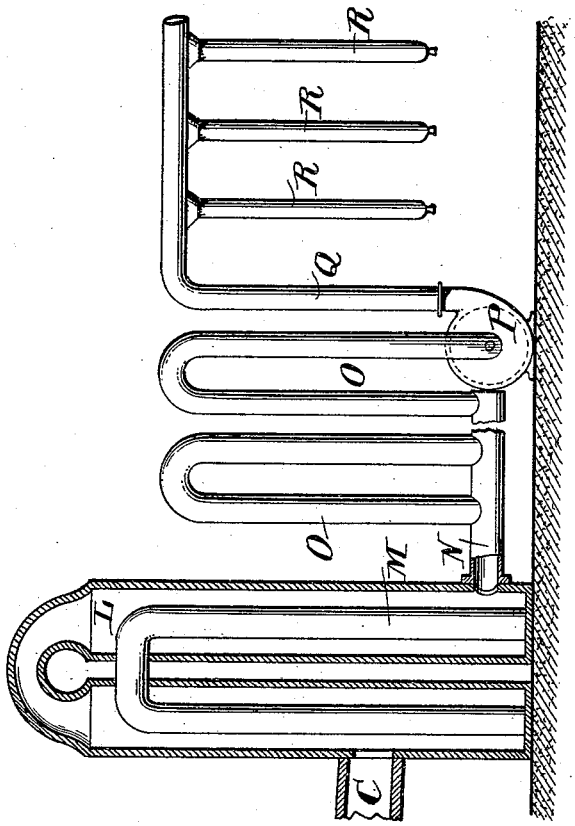
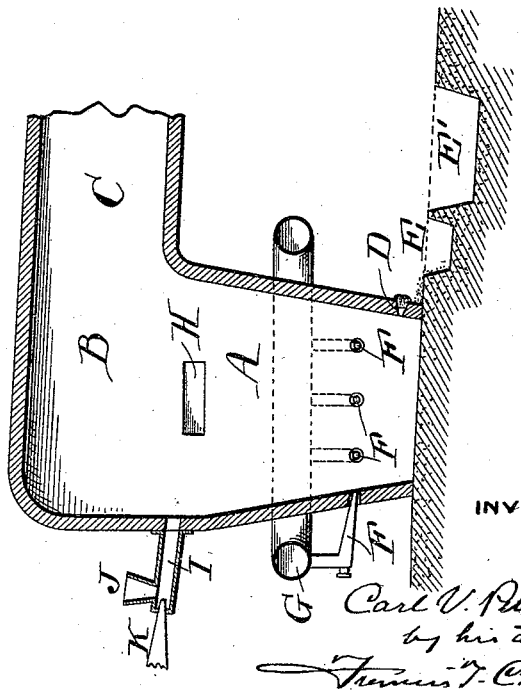
(No Model.)

C. V. PETRAEUS.

PROCESS OF MAKING SUBLIMATED LEAD PIGMENT.

No. 492,832. Patented Mar. 7, 1893.





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PROCESS OF MAKING SUBLIMATED LEAD PIGMENT.

SPECIFICATION forming part of Letters Patent No. 492,832, dated March 7, 1893.

Application filed June 13, 1892. Serial No. 436,478. (No specimens.)

To all whom it may concern:

Be it known that I, CARL V. PETRAEUS, of Joplin, county of Jasper, State of Missouri, have invented a certain new and useful Process of Making Sublimed Lead Pigment, of which the following is a true and exact description.

My invention relates to the manufacture of a pigment from the fumes driven off in the process of reducing lead ores, and has for its object to at once increase the amount of pigment obtained from a given amount of lead bearing material, and to improve the quality and cheapen the cost of such pigment.

It has been customary to smelt lead ores, generally of what may be called the second grade, with slag and gray fumes provided from a previous treatment of rich galena ore in a Scotch hearth furnace. This smelting operation being carried on in a furnace of the general character illustrated in the drawings, and which I will call a low cupola furnace. The treatment in this furnace resulting in the production of metallic lead and of a large percentage of sublimed lead pigment which after being properly cooled is caught in screens; the fumes being white and fit for use in the manufacture of a white pigment. It has also been attempted to produce a pigment directly from galena by powdering the ore, then blowing it in admixture with air over a fire as described in the patents to George T. Lewis, No. 116,604 of July 4, 1871, and No. 386,836 of July 31, 1888, and in the patent to E. O. Bartlett, No. 108,443, of October 18, 1870, and it has also been attempted to produce the pigment by blowing the powdered galena through externally heated retorts as described in the patent to Lewis, No. 224,549, of February 17, 1880. In both of these methods, however, it is necessary to reduce the galena to a very fine pulvurlent condition to produce results at all satisfactory, comparatively coarse particles falling into the fire and producing a matte or scoria which soon deadens the flames, or in case of the externally heated crucible results in cracks which destroy it. It is also difficult by this process to obtain fumes of a uniform color and satisfactory degree of whiteness.

I have discovered that by injecting the powdered galena into the upper part of the low cupola furnace in which the lead bearing material is being smelted with the production of lead fumes, a very large percentage of lead fume is secured in proportion to the material treated, and of exceptionally good character and color for use as a pigment. In this treatment a comparatively coarsely powdered galena may be used as the large particles falling into the furnace are either sublimed or smelted, the lead passing off with that reduced from the ores under treatment, and my process consists in the smelting of the lead bearing material in the low cupola furnaces at the same time injecting pulverized galena preferably in admixture with air into the upper part of the furnace and drawing off and screening the produced fumes together. The economy of this process is obvious, and as I have before stated there is a material increase both in the quantity and value of the fumes.

Reference being now had to the drawing which illustrate my invention and which show in sectional elevation an apparatus adapted for use in my process; the part to the right being shown in reduced scale and being rather of the nature of a diagram. A is the low cupola furnace having a hood B which communicates with a flue C made of refractory material and adapted to be maintained at a high temperature.

D is a tap hole from which the lead and slag are drawn into the lead and slag basins E E.

F, F, F, F, &c. are tuyeres entering the furnace as usual and connected with an air blast pipe G.

H is a charging opening; I a pipe or conduit entering the furnace above the level of the charge and having a hopper J by which pulverized galena is fed into it, and an air blast pipe K by which a blast of air is introduced to blow the galena into the furnace.

The operation of this furnace is as above described and the fumes and gases after passing through the heated flue C pass through cooling devices such as the goose-neck L cooled by external air, and the air pipe M, then through pipes N and O and through fan P into conduit Q and thence into the screens or fabric bags R R &c.

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

1. The process which consists in smelting lead ores and other lead bearing compounds in a low cupola furnace, injecting pulverized galena into the upper part of said furnace and screening the resultant fumes to form pigment.

2. The process which consists in smelting lead ores and other lead bearing compounds in a low cupola furnace, injecting pulverized galena in admixture with air into the upper part of said furnace and screening the resultant fumes to form pigment.

CARL V. PETRAEUS.

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