

(No Model.)

J. BÜTTEL.
APPARATUS FOR MAKING ULTRAMARINE BLUE.

No. 476,447.

Patented June 7, 1892.

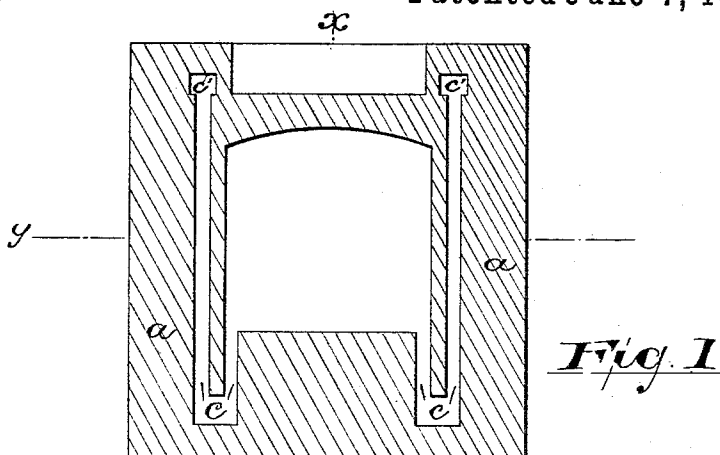


Fig. 1

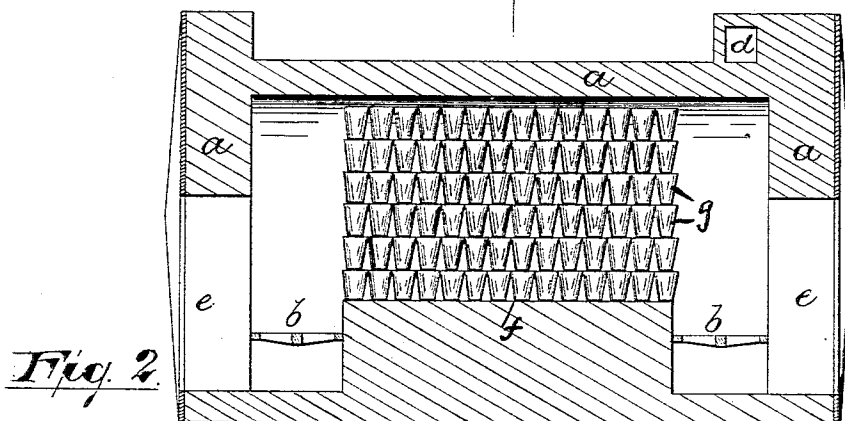


Fig. 2

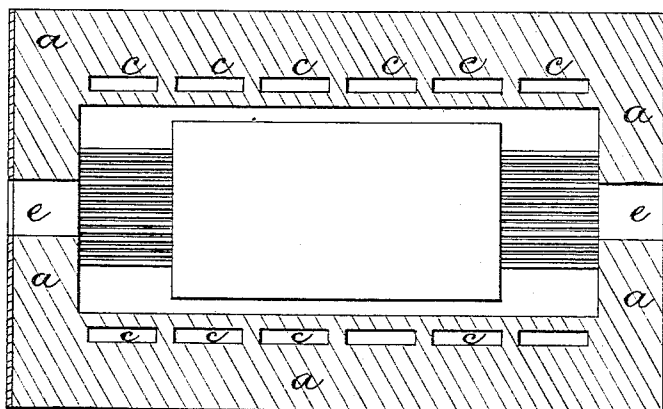


Fig. 3

WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHANN BÜTTEL, OF NEWARK, NEW JERSEY.

APPARATUS FOR MAKING ULTRAMARINE-BLUE.

SPECIFICATION forming part of Letters Patent No. 476,447, dated June 7, 1892.

Application filed November 19, 1891. Serial No. 412,373. (No model.)

To all whom it may concern:

Be it known that I, JOHANN BÜTTEL, a citizen of Germany, residing at Newark, in the county of Essex and State of New Jersey, have
5 invented certain new and useful Improvements in Apparatus for Making Ultramarine-Blue; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled
10 in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

15 The manufacture of ultramarine-blue by the apparatus and processes heretofore employed is attended by a great waste and loss of material and by the production of a more or less unsatisfactory article.

20 The object of this invention is to avoid these difficulties, to facilitate the operation of making ultramarine-blue, and to secure other advantageous results.

To this end the invention consists in the
25 improved apparatus, as hereinafter set forth, and finally pointed out in the claim.

Referring to the accompanying drawings, in which similar letters of reference indicate corresponding parts in each of the several figures where they occur, Figure 1 represents a
30 vertical transverse section of an improved oven forming a part of my improved apparatus. Fig. 2 is a longitudinal vertical section of the same, taken through line *x* of Fig. 1; and Fig. 3, a horizontal section taken
35 through line *y* of Fig. 1.

In said drawings, *a*, Figs. 1, 2, and 3, indicates my improved oven, which is lined with fire-brick inside and bound by longitudinally-
40 disposed rods passing through the walls, &c.

b indicates the grate-bars, which are located in the fire-chambers at each end.

c, *c'*, and *d* indicate flues, which communicate with the fire-chamber and a chimney (not shown) and carry off the gases and products
45 of combustion and have suitable dampers to regulate draft, &c.

e indicates the openings by which access is had to the fire-chamber, which are provided
50 with suitable doors (not shown) for closing said openings when desired.

f indicates the hearth or bottom of the oven, located above the grates, and *g* a number of earthen pots or jars stacked thereon, the purpose of which will hereinafter appear. An
55 open space is left on each side between said bottom and the walls of said oven, as in Figs. 1 and 3.

The ingredients and the proportions which I prefer to use in the manufacture of the
60 article are about as follows, to wit: rosin, one hundred and ninety-eight pounds; sulphur, eight hundred pounds; gravel, one hundred and eighty to one hundred and ninety pounds; clay, six hundred pounds, and soda six hun-
65 dred and twenty-five pounds.

In carrying out the formula or process of manufacture the soda and clay are first ground separately in a suitable mill to a dry powder. Then all the ingredients, including the pow-
70 dered soda and clay, are mixed together and ground fine. This compound is then put into earthen pots or jars holding twelve pounds each (more or less) and placed in the oven in tiers or stacks, as indicated in Fig. 2, until the
75 oven is full. The fires are then started at both ends of the oven and the compound is subjected for thirty-six (36) hours to a temperature of from 1,800° to 2,000° Fahrenheit. The fires are then drawn and the oven closed
80 for about ten days. Then the pots are removed and the compound is put into ordinary tanks of water and thoroughly washed for about three days, or until all foreign substances are removed, the water being allowed
85 to enter at one side and pass out at the opposite side of the tank. The water is then drained off and the compound in a wet or semi-liquid condition is placed in a mill.

It is deemed important that the hearth be
90 arranged above the grates and between the same, whereby all the heat is utilized and the pots *g* and their contents more evenly and satisfactorily acted upon thereby.

Having thus described my invention, what I
95 claim as new, and desire to secure by Letters Patent of the United States, is—

In an apparatus for manufacturing ultramarine-blue, the combination of an oven having a fire-chamber at the opposite ends there-
100 of, a series of flues connecting with said chamber and with a stack or chimney and arranged

within the walls of the oven on opposite sides
thereof and extending below the bottom or
hearth to carry off the gases and products of
combustion, and a hearth or bottom raised
5 above the grates of the fire-chambers and
adapted to receive a stack or series of pots
and centrally located in respect to the ver-
tical walls of the oven, whereby an open space
is left on all sides of the said bottom and the
10 pots to admit the hot air to freely circulate

around and between the same, as and for the
purposes set forth.

In testimony that I claim the foregoing I
have hereunto set my hand this 14th day of
November, 1891.

JOHANN BÜTTEL.

Witnesses:

OLIVER DRAKE,
OSCAR A. MICHEL.