

J. FORREST.
Treating Bone Black.

No. 39,638.

Patented Aug. 25, 1863.

Fig. 1.

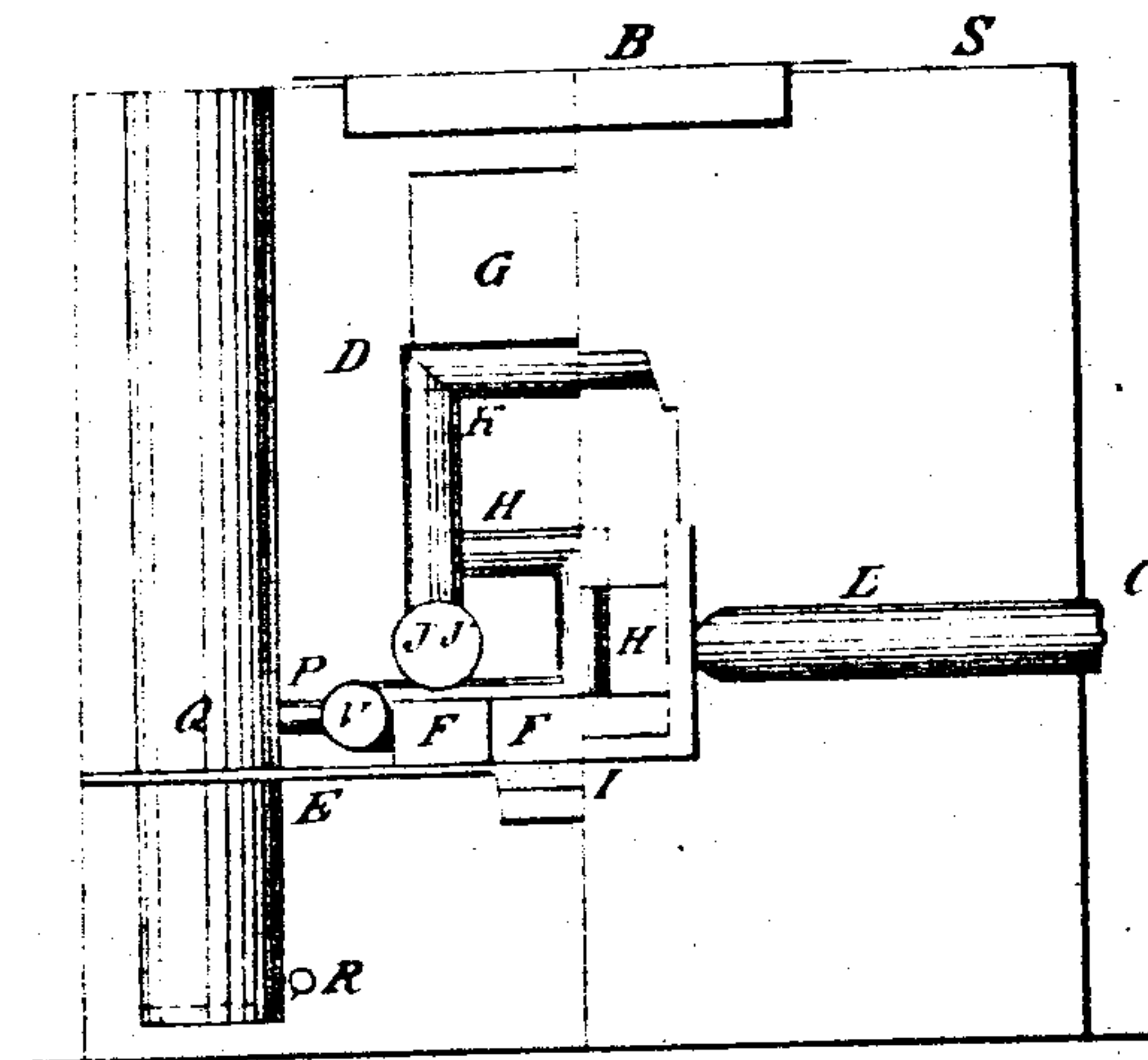
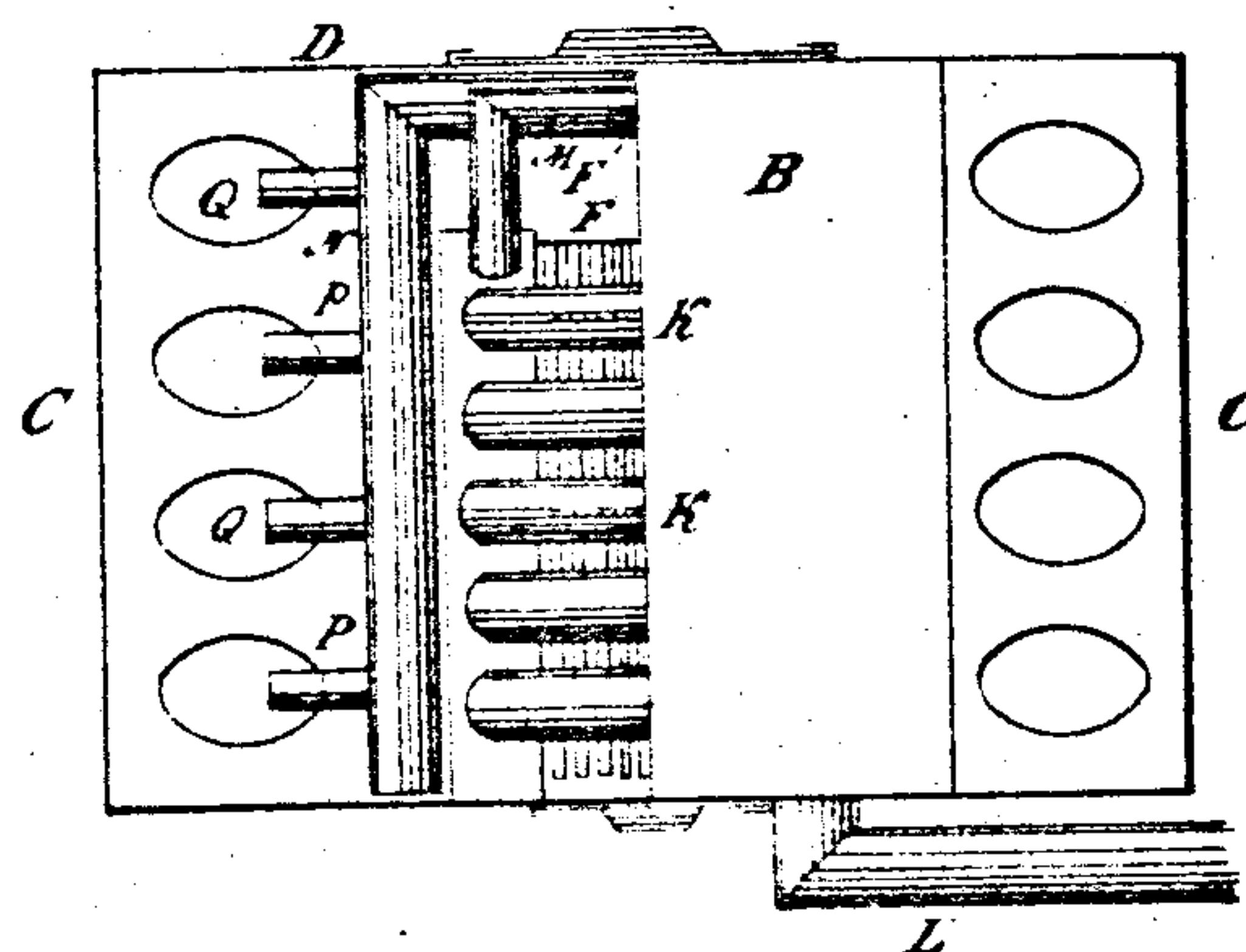


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOSEPH FORREST, OF NEW YORK, N. Y.

IMPROVEMENT IN REVIVIFYING BONE-BLACK.

Specification forming part of Letters Patent No. 39,638, dated August 25, 1863.

To all whom it may concern:

Be it known that I, JOSEPH FORREST, of the city, county, and State of New York, engineer, have invented a new, useful, and Improved Process for Drying Bone-Black, and the Apparatus therefor; and I do hereby declare that the best mode which I have discovered for performing said process is described in the following specification, with the best apparatus which I have devised or found for performing said process.

The nature of my invention consists in a new mode or process of drying bone-black by forcing heated air in among or through it to carry off the moisture; also, in heating the vessels or retorts containing the bone-black at the same time that the air is forced through them; also, in a peculiarly-constructed apparatus provided with retorts for containing the bone-black, and a furnace and pipes for heating the air and conducting it into the retorts among the bone-black to be dried.

To enable others skilled in the art to use my improved process and apparatus, I will proceed to describe both, referring to the accompanying drawings, in which the same letters of reference indicate like parts in each of the figures.

Figure 1 is a front elevation of my improved apparatus for drying bone-black. Fig. 2 is a plan or top view of the same. The left half of the front in the first and the left half of the top in the second figure are omitted to show the interior.

In these drawings, A is the front of the furnace or kiln, B the top, C C the sides, and D the back, all of which may be built of brick, except the top, which I make of metal and line with brick, or it may be made of brick by arching it. In this kiln, at a proper distance from the bottom, I make a floor, E, and support it by columns and arches or otherwise, with an opening in it for the grate F. On each side and at the rear end of the grate I build strong walls F' F', of fire-brick, or face the inside with fire-brick, to form a furnace for the fuel, and make an opening, G, in the back for the smoke to escape or pass into a flue or chimney. The door H in the

front is for the purpose of supplying fuel to the furnace, and there is an ash-box, I, under the grate F. The air pipes J J' are arranged on the walls F' and connected by the pipes K K, which pass up and over the fire in the furnace and conduct the air blown in through the supply pipe L over and across the fire to heat it, when it is conducted by the pipe M into the distributing-pipe N, which surrounds the walls F', which pipe N is provided with branch pipes P P' which conduct the heated air into the retorts Q Q, which retorts are made of iron and arranged so far from the furnace that they will not be heated so as to fire the bone-black, but will be hot enough to aid materially in drying it. The pipes P' should conduct the heated air into about the center of the opening in the retort, where they should terminate. The retorts Q are open at the top, so that the steam and heated air pass off freely from them. The lower ends of the retorts are provided with slides R, which may be drawn to let down the dried bone-black. These retorts may be filled with dry bone-black up to the pipe which conducts the heated air into them, or a little above, and the upper part filled with the bone-black to be dried, a fire made in the furnace, and the blowing apparatus set to work; and when the bone-black above the air-pipes has dried sufficiently the slide R may be drawn and the cold bone-black in the lower part of the retort let out, and let the hot dry bone-black in the upper part down into the lower part to cook, while more is being dried in the upper part of the retort. The upper ends of the retorts are supported by iron plates S, and that part of the top B over the furnace is lined with fire-brick secured by irons in some convenient manner. The supply pipe L must be connected with the blowing apparatus, which may be an air-pump, bellows, fan, or other device which has sufficient power or force to blow the air through the pipes and bone-black to be dried.

I believe I have described my improved process for drying bone-black, and the apparatus used to perform the same, so as to enable any person skilled in the art to make

the apparatus and perform the process without further invention or experiment.

I will now state what I claim and desire to secure by Letters Patent—to wit:

1. Drying bone-black by forcing heated air through it, substantially as described.

2. In combination with heated air forced through the bone-black, applying heat to the

vessel containing it (the bone-black) at the same time.

3. The apparatus described, for the purpose specified.

JOSEPH FORREST.

Witnesses:

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