J. ROGERS.

PROCESS AND APPARATUS FOR MAKING LAMP-BLACK.

No. 186,498. Patented Jan. 23, 1877.

Fig: 1

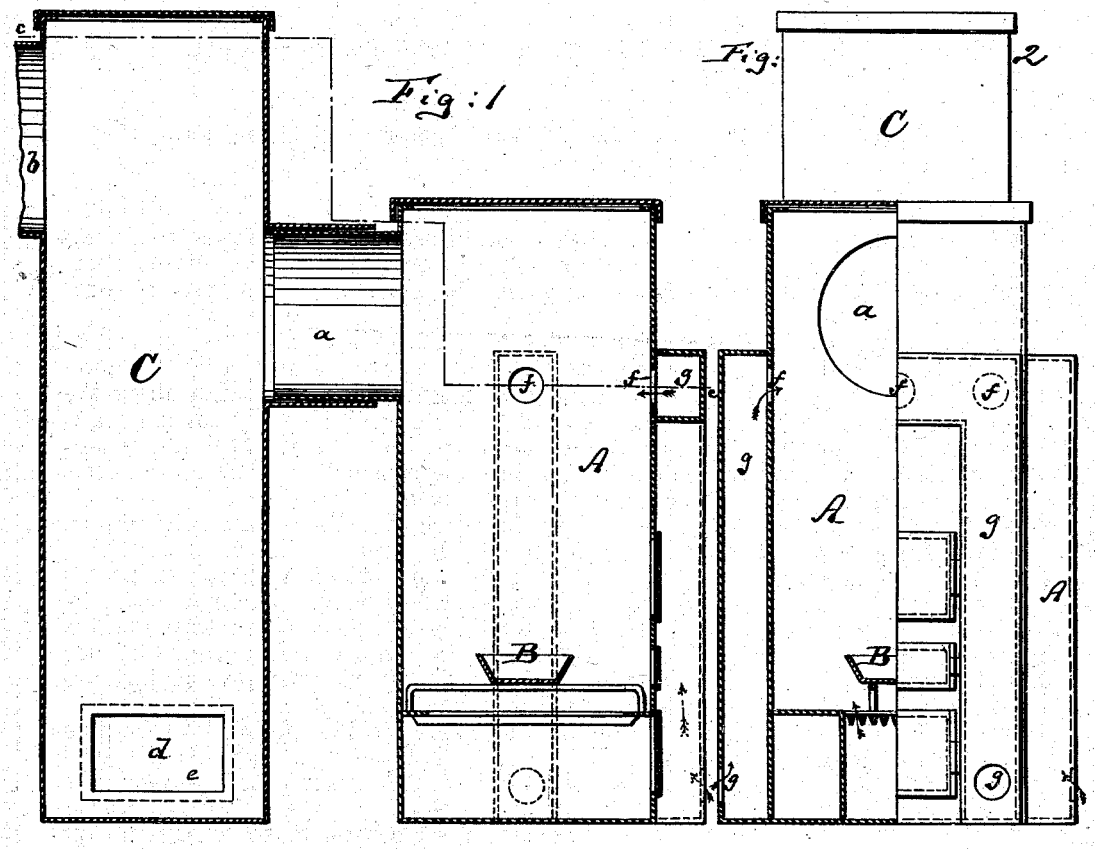
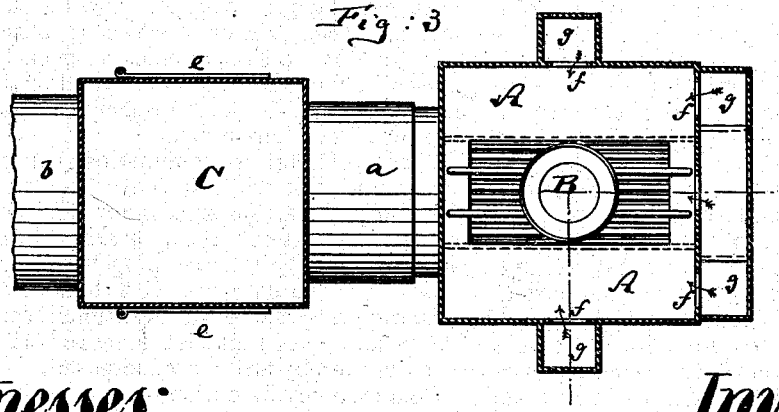


Fig: 2

Fig: 3



Witnesses:

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JOHN ROGERS, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN PROCESSES AND APPARATUS FOR MAKING LAMP-BLACK.

Specification forming part of Letters Patent No. **186,498**, dated January 23, 1877; application filed May 19, 1876.

To all whom it may concern:

Be it known that I, JOHN ROGERS, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Lamp-Black Apparatus, and method of producing lamp-black, of which the following is a specification:

Figure 1 is a vertical longitudinal section of my improved lamp-black apparatus. Fig. 2 is a front elevation, partly in section, of the same. Fig. 3 is a horizontal section thereof on the line *c c*, Fig. 1.

Similar letters of reference indicate corresponding parts in all the figures.

This invention has for its object to improve the quality of lamp-black produced in a furnace by an open flame.

Experience has proved that very fine qualities of lamp-black are produced by causing the flame to impinge on a plate which is placed over it; but for producing larger quantities of the material an apparatus provided with impinging-plates would be too expensive.

In order to produce an effect approximating that of the impinging-plate I cause the flame of the lamp-black furnace to strike a horizontal current of cooler air; and I further improve the quality of the black by causing a current of fresh air to combine with the flame in a shaft placed near to the furnace, and through which the products of combustion are directed.

In the drawing, the letter A represents a lamp-black furnace, built of brick, metal, or other material, of suitable size and form. B is the pan or receptacle containing the material to be burned, said pan being supported in suitable manner within the furnace.

The furnace A is provided with a suitable opening beneath the pan B, for admitting the oxygen necessary for the combustion of the matter contained on the pan.

C is a shaft or chamber, placed near the furnace, and communicating with the upper part thereof by a pipe, *a*. By another pipe, *b*, this shaft communicates with the lamp-black-deposit chambers, and, finally, with the chimney.

The lower part of the shaft C has one or more apertures, *d*, for the admission of fresh air. These apertures may have suitable doors or gates *e*, so that their sizes may be regulated.

The walls of the furnace A are perforated, as at *f f*, on a level, nearly, with the pipe *a*, and at a considerable distance above the pan B. These apertures *f f* communicate, either directly or by suitable conduits *g g*, with the outer atmosphere, to admit the same into the furnace.

In operation, the flame being lighted on the pan B, the products of combustion containing the lamp-black will ascend in the furnace until they arrive on a level with the pipe *a*. They will then sweep through this short pipe into the chamber C, and thence into the pipe *b*, whence they pass off into the final depositories and chimney.

As the flame reaches the level of the pipe *a* within the furnace, it strikes the current of fresh air, which passes through the apertures *f* into the pipe *a*. In fact, these currents of air constitute, so to say, an upper continually-moving stratum of cooler air, against which the flame impinges, and which, moreover, keeps the upper part of the furnace much cooler than otherwise it would be.

I find that the lamp-black is greatly improved in fineness of grade by subjecting it in the furnace to the aforementioned upper current or stratum of air.

The products of combustion containing the lamp-black will, as they pass through the shaft C, draw or suck a powerful current of fresh air through the aperture *d* into said shaft, which air, by combining with and supplying the heated gases with fresh oxygen, causes such a moderate additional combustion to take place that the fineness of the lamp-black is thereby still more increased.

I claim as my invention—

1. The process of treating lamp-black, which consists in conducting the products of combustion directly from the furnace into a chamber, and in combining them within said chamber with a current of fresh air to cause additional combustion, substantially as specified.

2. The lamp-black furnace, combined with

the shaft C, which has the air-opening *d*, substantially as herein shown and described.

3. A lamp-black furnace made with an air-opening beneath the place of combustion, and with a horizontal air-opening, *f*, above the place of combustion, and on a level with the horizontal discharge-pipe *a*, substantially as and for the purpose herein shown and described.

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