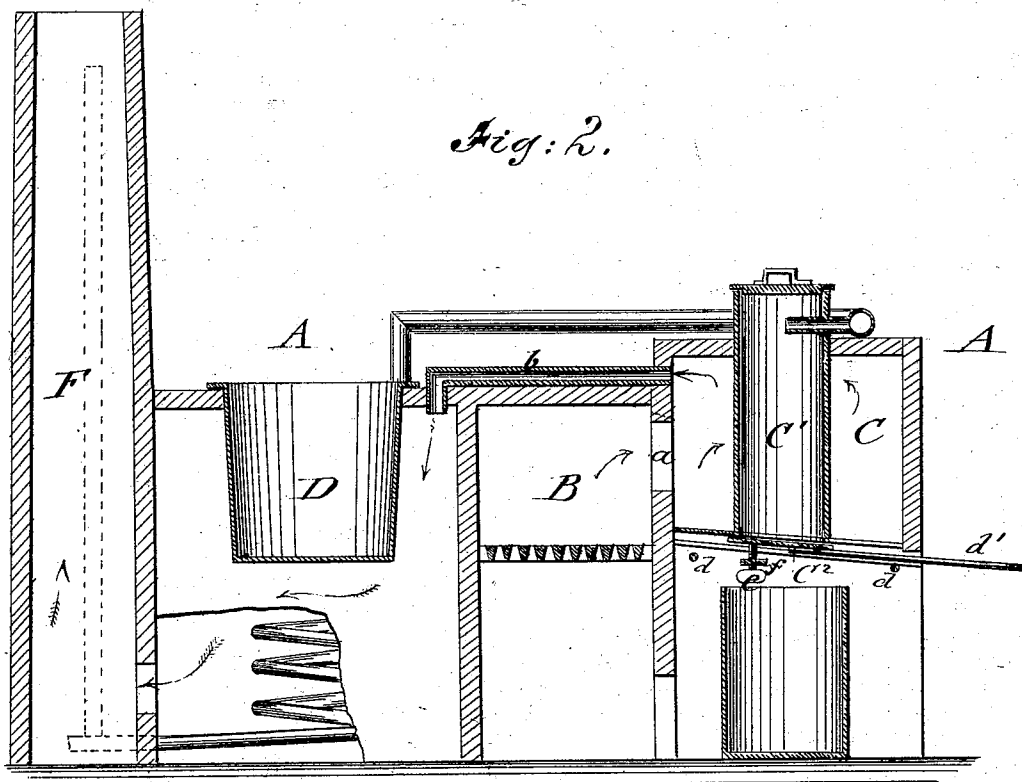
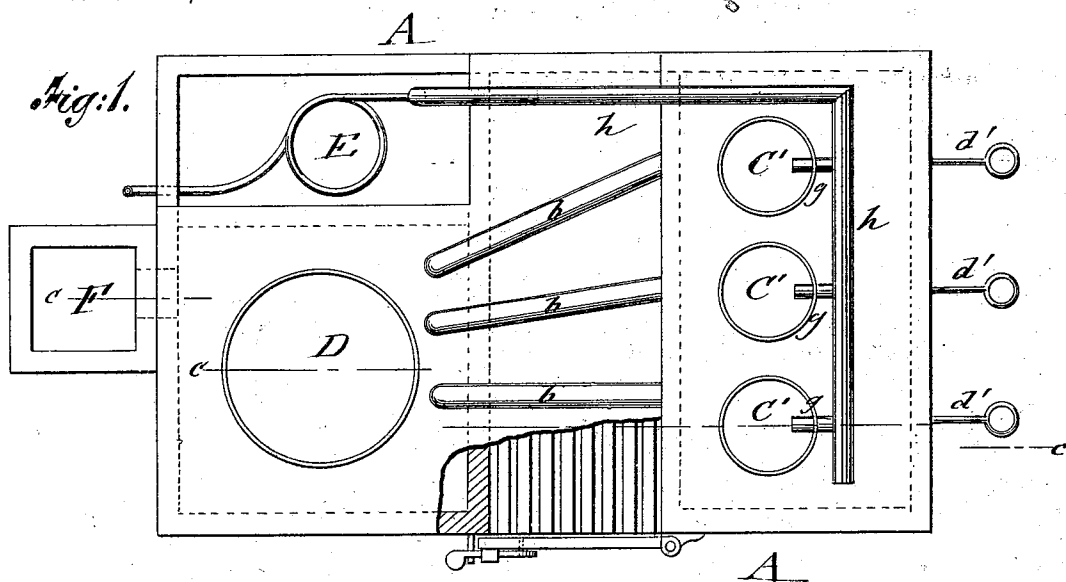


S. BILLITZ.
Manufacture of Bone-Black.

No. 153,741.

Patented Aug. 4, 1874.



WITNESSES:

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UNITED STATES PATENT OFFICE.

SALOMON BILLITZ, OF NEW YORK, N. Y.

IMPROVEMENT IN THE MANUFACTURE OF BONE-BLACK.

Specification forming part of Letters Patent No. **153,741**, dated August 4, 1874; application filed June 6, 1874.

To all whom it may concern:

Be it known that I, SALOMON BILLITZ, of the city, county, and State of New York, have invented a new and Improved Kiln for Manufacturing Bone-Black, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a top view of my improved kiln for manufacturing bone-black; and Fig. 2 a vertical longitudinal section of the same on the line *c c*, Fig. 1.

Similar letters of reference indicate corresponding parts.

The object of my invention is to furnish for the cheaper and more convenient manufacture of bone-black an improved oven or kiln, by which the process of scouring and calcining of the bones may be continuously carried on without interrupting the fire, and with the same amount of fuel, and also the volatile gases escaping from the cylindrical retorts utilized to the full extent.

My invention consists of the arrangement of the fire-chamber centrally between the scouring-boiler for freeing the bones of the fatty, fleshy, and tendinous matters, and the calcining-hearth, into which a suitable number of cylindrical retorts with sliding bottoms are placed, for discharging the bone-black into vessels below and charging from above without interrupting the fire. The fire is drawn by flues from the calcining-hearth to the scouring-boiler, and thence to the chimney, while the vapors or gases are conducted by pipes from the cylinders, to be cooled off in a coil for further utilization.

In the drawing, A represents the kiln or oven, which is constructed with the fire-chamber B about centrally between the calcining-hearth C at one side and the scouring-boiler D and coil E at the other side.

The fire is drawn from the fire-chamber B, through apertures *a* of the partition-wall, into the hearth C, and through one or more connecting-flues, *b*, above the fire-chamber, to the chamber into which the boiler D for scouring the bones is placed. The fire-gases are thus utilized for the separation of the fatty, fleshy, and other matter from the bones, and are then

conducted with the smoke to the chimney F. The bones pass through the scouring process preparatory to being placed into the cylindrical retorts C¹ of the calcining-hearth C, utilizing thereby also the fatty or oily substances contained therein, which may be either employed for fattening hogs or condensed for use in the arts.

A suitable number of cylinders C¹ are set in the calcining-hearth C, being constructed of cast-iron or other suitable material, with detachable covers for charging the scoured bones from above. The lower part of each cylinder C¹ is supported in the bottom of the hearth, and provided with a sliding bottom, C², which may be drawn in suitable guides *d*, by handle-rod *d'*, toward the outside for discharging the contents of the cylinders into vessels of suitable size placed below. The bottom C² is then carried back to close the cylinder, and clamped firmly thereto by one or more fastening-screws, *e*, turning in lateral plates *f*. The cylinders are immediately charged again with scoured bones from above, and thereby the continuous production of bone-black without interruption of the fire and the cooling off of the retorts or hearth obtained. This gives a great saving of time and labor over the present tedious mode of producing bone-black, which necessitates the cooling off of the kiln after each burning before charging the pots or retorts again.

The upper parts of cylinders C¹ are connected, by small pipes *g* and larger vapor-conducting pipe *h*, with the coil E, placed into a cold-water chamber sidewise of the scouring-boiler.

The vapors are cooled off and condensed in the coil, and then conducted to be utilized in the production of ammoniacal and phosphoric salts, lamp-black, and for other purposes. No smell is thus produced, and all the useful products made available, with a considerable saving of time, labor, and fuel.

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

1. In a kiln or oven for manufacturing bone-black, the combination, with a central

fire-chamber, of a calcining-hearth at one side and a bone-scouring boiler at the other side, for the simultaneous calcining and scouring of the bones by one fire, substantially as set forth.

2. The combination of apertures *a* of calcining-hearth, by connecting-flues *b*, with the

boiler chamber and chimney, for establishing draft from fire-place through hearth to scouring-boiler, for the purpose set forth.

SALOMON BILLITZ.

Witnesses:

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