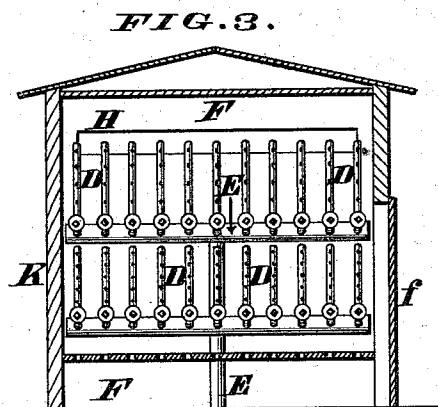
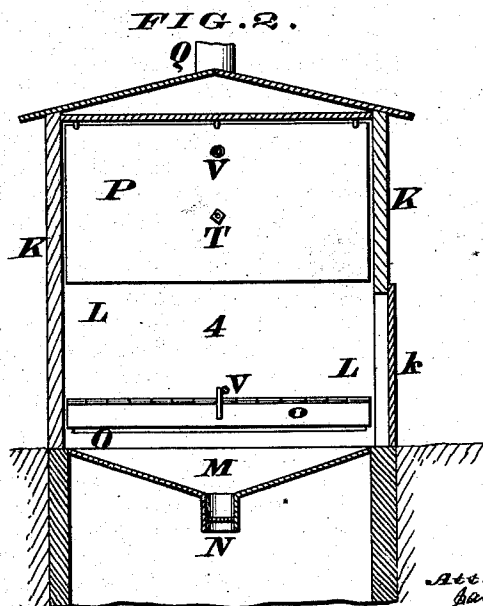
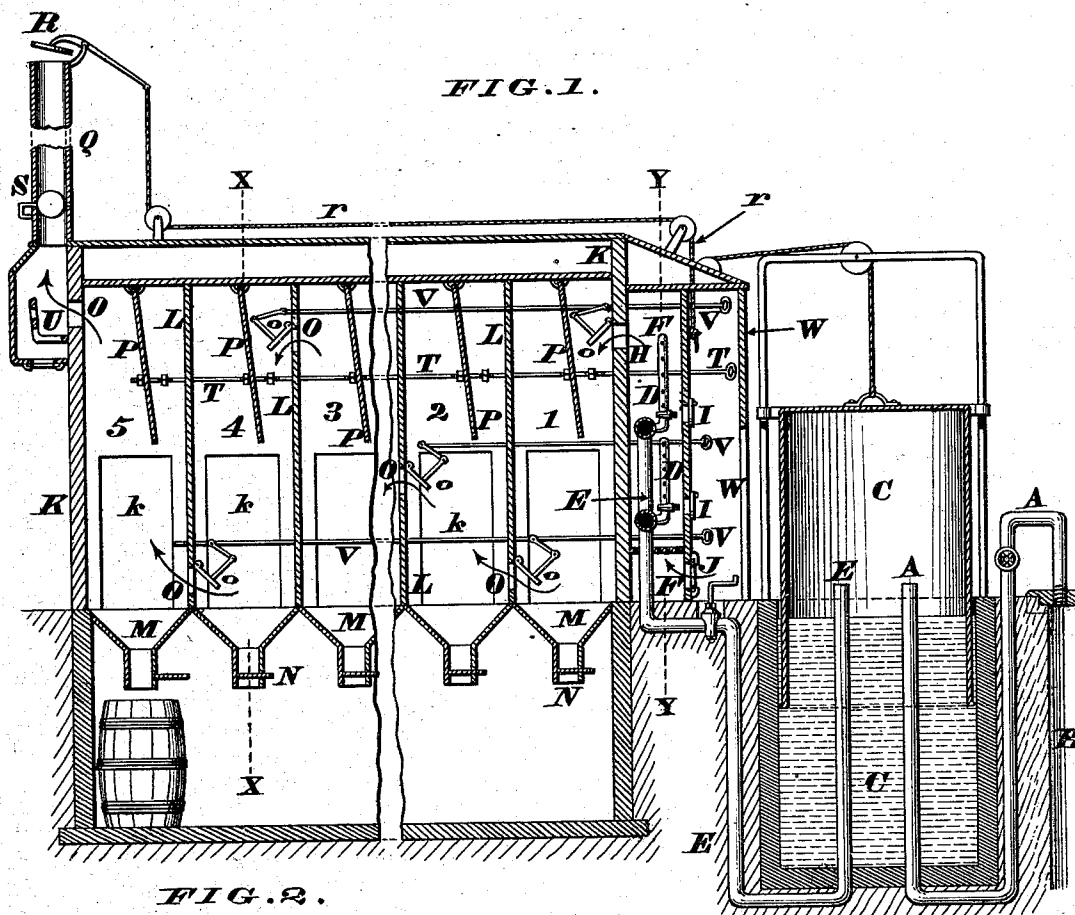


P. NEFF & L. S. FALES.
Apparatus for the Manufacture of Carbon or
Lamp-Black.

No. 159,440.

Patented Feb. 2, 1875.



Attest.
Jas. H. Layman
Henry Tanner.

Peter Neff
Levi S. Fales
by Knight Bros.
Attys.

UNITED STATES PATENT OFFICE.

PETER NEFF, OF GAMBIER, AND LEVI S. FALES, OF CINCINNATI, OHIO,
ASSIGNORS TO THE KOKOSING OIL COMPANY OF OHIO.

IMPROVEMENT IN APPARATUS FOR THE MANUFACTURE OF CARBON OR LAMP-BLACK.

Specification forming part of Letters Patent No. **159,440**, dated February 2, 1875; application filed January 8, 1875.

To all whom it may concern:

Be it known that we, PETER NEFF, of Gambier, Knox county, Ohio, and LEVI S. FALES, of Cincinnati, Hamilton county, Ohio, have made a new and useful invention for the Manufacture of Carbon or Lamp-Black.

The said invention is particularly designed for the utilization of the natural carbureted hydrogen gases which emanate from fissures in the soil, or from wells dug or bored therein, the following being a specification of the same, and reference being had to the accompanying drawing, in which—

Figure 1 is a vertical longitudinal section of a lamp-black apparatus, such as employed in our improved process, an intermediate portion being omitted. Fig. 2 is a section on the line *x x*, and Fig. 3 a section on the line *y y*.

For the utilization of these carbureted hydrogen gases we gather or collect the gas by means of a suitable pipe, A, from well B, or other generator, into an ordinary gas-holder, C, such, for example, as employed for the gas of cities, and for a similar purpose, namely, to hold and impart pressure to the gas in the burners D. These burners are inserted at intervals of a few inches apart in service-pipe E, the object being to consume the hydrogen with as little heat and flame, and consequent combustion of carbon, as possible. These burners we locate in a tight room or oven, F, the smoke passing into an adjoining room, I, through a ventilator, H. The construction of the oven is such as to afford easy and frequent inspection and access to the burners by the workmen, by means of arm-holes I in the sides of the oven, or otherwise. Dampers or ventilators J to the oven regulate the supply of air. Said oven may be provided with a door, *f*, large enough to allow workmen to enter whenever it is necessary to repair or make any alteration of, or addition to, the burners, and also to facilitate removal of soot from the walls of the oven.

An indefinite number of burners may be applied in each oven or room. As some soot or lamp-black will settle in this room or oven, it must be provided with smooth sides, for easy removal and preservation of it. The pipes may be arms from a main gas-pipe; they may

be in coils, with convenient and numerous stop-cocks. The burning being as light as possible, a flickering flame, as from a small round opening in burner, is preferred, though other forms may be used.

In order to collect the carbon in assorted grades, we construct a series of adjoining rooms, 1 2 3 4 5, say fifteen feet wide, ten feet high, and twelve feet long, or any size efficient for gathering the soot. The greater the number of burners, the larger the rooms required. These rooms are tight from air or dampness, with a door for workmen to enter. Their outer walls, K, may be of plastered masonry, and their partition-walls, L, of sheet-iron. Their floors, M, may be constructed like a hopper, with sloping sides to a trap or door, N, in bottom, so that soot can be gathered out through the hopper into a barrel or receptacle below. The partition-walls L may have openings or passages O, for the smoke to go through the top or near the bottom alternately. These openings are provided with hinged flaps or shutters *o*, that are capable of being operated simultaneously with rods V, that may be located either outside of or within the building. It is preferred, however, to place them within the building, and extend them back to a shed, W, which protects the attendants having charge of the burners, &c. Similarly, the rope or chain *r*, attached to the damper R, is conducted into said shed, and so is the rod T, that acts to agitate the vibratory partitions P.

It will be seen that this arrangement enables the workmen to have the most perfect control over the entire establishment, and they can regulate the draft and increase or diminish the flow of gas through the burners without leaving the shed W.

The walls K are provided with doors *k*, so as to afford access to the rooms 1 2 3, &c. The rooms may have one or more aprons or partitions, P, swung from the ceiling, to give current to the smoke and expose surface for deposit of carbon. These partition-aprons, extending partly down into rooms, may be shaken or vibrated by arms attached to them, or by a collared rod, T, passing through them, in order to enable the attendant to dislodge and precipitate the soot. The last room in the se-

ries has a stack, Q, to convey off the heat, and to give current to the smoke from the ovens or burners through the rooms. The stack may have dampers R, or shut-off slides S, in or on it, to regulate draft, and the stack may have a grate or place, U, arranged in it, so as a small fire may be built, in order to increase, or to give strength to, the draft or current of air from the rooms.

The result is a superior article of carbon-black in assorted grades deposited in the different rooms. The ventilators, regulators, or flues between the rooms are so connected that they may be operated either together or separately.

The rod T may have additional collars to enable the attendant to agitate the partition-walls L, or said walls may be agitated by being struck by the suspended partitions P, and the outer wall may be composed of, or lined with, sheet metal, for the same purpose.

In the drawing, the burners D are shown as projecting vertically from the mains E; but it is evident that said pipes D may be disposed horizontally of the oven, or they may be inclined, or the combustion-chamber of the apparatus may be filled with perforated pipes having a zigzag or spiral course, or any other suitable arrangement that may be the most convenient.

We claim as new and of our invention—

1. In an apparatus for the manufacture of carbon or lamp-black, the series of rooms 1 2 3 5, communicating by openings or flues O, alternately in or near the top and bottom of partition-walls K, and finally with smoke-stack or chimney Q.

2. In an apparatus for the manufacture of carbon or lamp-black, the suspended hinged apron or aprons P, for intercepting and collecting the soot.

3. In an apparatus for the manufacture of carbon or lamp-black, the combination of a series of hinged aprons, P, and partitions L, with the collared agitating-rod T.

4. In an apparatus for the manufacture of carbon or lamp-black, the combination of a series of partitions, L, with the collared agitating-rod T.

5. In an apparatus for the manufacture of carbon or lamp-black, the combination of a series of hinged aprons, P, with the collared agitating-rod T.

6. In an apparatus for the manufacture of carbon or lamp-black, a series of rooms provided with partitions, and having the hopper-formed bottoms M, with traps or doors N.

7. In an apparatus for the manufacture of carbon or lamp-black, the combination, substantially as described, of oven F, in which a smoldering combustion takes place from a series of burners, D, and from which the smoke passes by a devious course through rooms 1 2 3 5 into the smoke-stack, with said rooms 1 2 3 5, in the manner substantially as set forth.

8. In an apparatus for the manufacture of carbon or lamp-black, the smoke-stack Q, having one or more dampers, R S, and a grate or fire-place, U, for the purposes designated.

In testimony of which invention we hereunto set our hands.

PETER NEFF.
LEVI S. FALES.

Attest to signature of LEVI S. FALES:
GEO. H. KNIGHT,
JAS. H. LAYMAN.

Attest to signature of PETER NEFF:
E. CLIFFORD NEFF,
D. L. FOBES.