

(No Model.)

JOSEPH SCHILL, JOHN SCHILL & PETER SCHILL.
FIRE POT.

No. 470,509.

Patented Mar. 8, 1892.

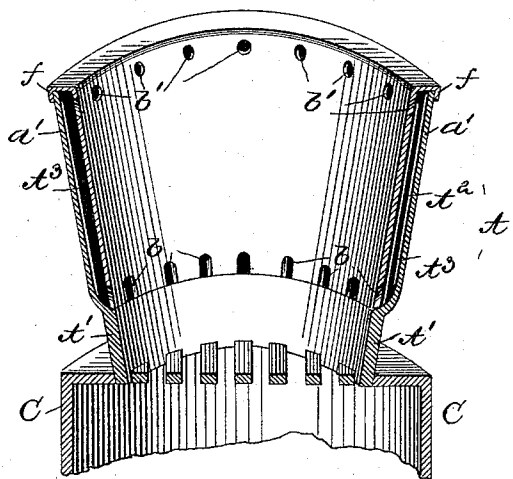


Fig. 1.

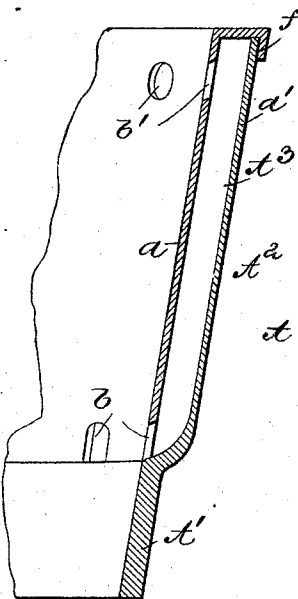


Fig. 2.

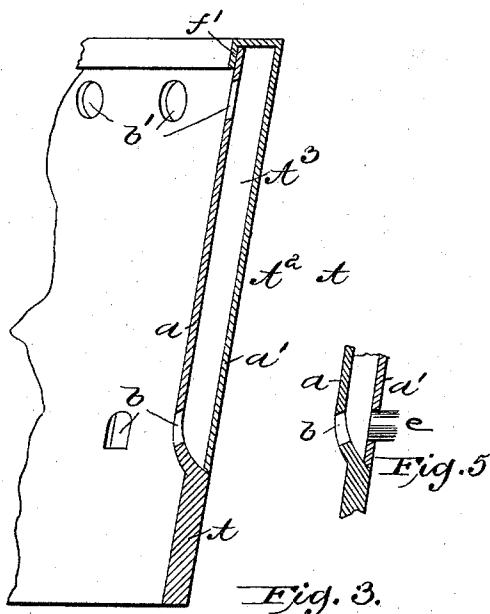


Fig. 3.

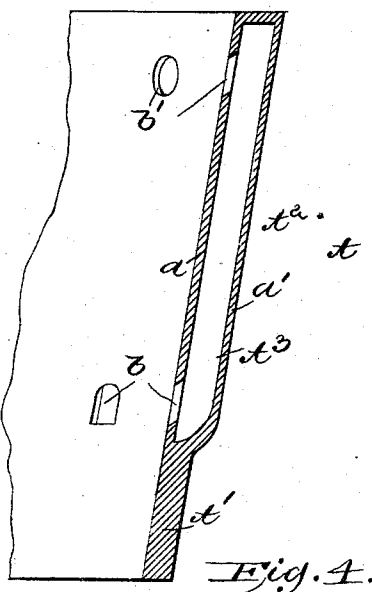


Fig. 4.

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UNITED STATES PATENT OFFICE.

JOSEPH SCHILL, JOHN SCHILL, AND PETER SCHILL, OF CRESTLINE, OHIO.

FIRE-POT.

SPECIFICATION forming part of Letters Patent No. 470,509, dated March 8, 1892.

Application filed May 12, 1891. Serial No. 392,503. (No model.)

To all whom it may concern:

Be it known that we, JOSEPH SCHILL, JOHN SCHILL, and PETER SCHILL, citizens of the United States, and residents of the city of Crestline, in the county of Crawford, in the State of Ohio, have invented a new and useful Fire-Pot, of which the following is a correct description.

The invention relates generally to fire-pots which are designed especially for the advantageous consumption of "slack" or other fine mineral fuel; and it relates particularly to certain improvements in such fire-pots as are described and claimed in an application, serially numbered 384,256, filed by us in the United States Patent Office on the 9th day of March, 1891, and in an application, serially numbered 387,600, filed by us in the United States Patent Office on the 4th day of April, 1891, in each of which fire-pots, when in use, the gaseous products of combustion are caused to pass, first, outwardly through a horizontally-arranged series of perforations in the body of the fire-pot in a plane a short distance above the lower extremity of such fire-pot; next, upwardly along the vertical wall of such fire-pot, and then inwardly through an upper horizontally-arranged series of perforations in a plane a short distance below the upper extremity of the fire-pot, at which point such gases are mingled with the flames at and above the surface of the fuel and are at once wholly consumed.

In the former of the two applications above referred to, the fire-pot embraced two concentric vertically-coextensive annular shells, between which was an air-space, which was closed at its top by a flange which extended horizontally from the upper extremity of one of the shells and rested upon the body of the other. The described perforations were formed in the inner shell, the outer being imperforate and plain—that is, wholly unprovided with recesses or projections. In the later application the second or outer shell as a whole was dispensed with and the gases were conducted from the lower to the upper series of perforations through exterior conduits, which were either formed with or suitably attached to the outer surface of the perforated shell, and provision was made for constructing the body of

the fire-pot of two or more vertically-placed sections, as well as for forming it as an integer, the intervals between the conduits being composed, as will be understood, of the single wall of the fire-pot to insure direct radiation and the most thorough utilization of the heat derived from the fuel.

In the construction herein presented the circulation of the gases is produced by means essentially as in the first of the two above-described constructions, while the single-walled direct-radiating surface of the second is provided in a different relation to the other parts of the fire-pot. In these differences and in various novel details of construction, all of which will now be fully set forth, the invention consists.

In the accompanying drawings, which constitute a part of this specification, Figure 1 represents a perspective view of a portion of a fire-pot in which our invention is embodied, the fire-pot being composed of two distinct annular sections. Fig. 2 is an enlarged detail vertical section of the fire-pot according to the construction represented in Fig. 1. Fig. 3 is a detail vertical section representing the fire-pot as composed of an inner and an outer vertical annular section, as in Figs. 1 and 2, but showing the main body of the interior annular chamber or gas and air passage as overhanging the lower interior cavity of the fire-pot or fuel-chamber space proper. Fig. 4 is a vertical section showing relative arrangement and proportions of parts essentially as in Figs. 1 and 2, but representing the fire-pot as cast in a single piece. Fig. 5 represents a detail vertical section showing a slight modification of the construction seen in Figs. 1 to 4.

It will be observed that in each of these illustrations of our invention the body of the fire-pot A is composed of two divisions or sections, the lower one part or single-walled section A', the lower extremity of which is substantially in plane with the grate or grate-bars and with the upper extremity of the ash-pit C, and the main or upper section A², which is formed of double walls *a* and *a'*, which inclose an annular chamber A³, which is closed at its upper and lower vertical extremities, but which has in its inner wall *a*, at or near

the lower extremity thereof, a suitable number of gas and air outlet openings *b*, arranged, preferably, at regular intervals, as shown, and at or near the upper extremity thereof a corresponding series of gas and air inlet openings *b'*. It will be further noted that in each of these representations of our invention the outlets through which gas and air are discharged from the lower portion of the mass of fuel into the annular chamber or passage in the body of the fire-pot incline upwardly from their receiving to their discharging extremity, this construction being adopted with the double purpose of facilitating the outward and upward flow of gas and air and the downward and inward passage of any ashes or other refuse that may find their way into the chamber through either of the two sets of openings.

It will be perceived that under the construction seen in Figs. 1 and 2 the concentricity of the inner annular section or wall *a* with the outer section *a'* is insured through the provision of the depending outer flange *f*, which is formed with the section *a* and which embraces the outer face of the upper extremity of the section *a'*, while under the construction represented in Fig. 3 an inner flange *f'* in an analogous manner depends from the inner periphery of the section *a'* and is received within the upper inner extremity of the section *a*.

It will of course be apparent that radiation from the exterior surface of the single-walled or lower division *A'* of the fire-pot will, other conditions being equal, be more effective, than from the upper or double-walled portion *A*.

It will be understood that in operation air will be introduced through the ash-pit and through the grate; that the partial combustion and coking of the lower portion of the mass of slack or other fine fuel will prevent the air from passing upwardly through such mass; that the generated gases mingled with the air will thus be forced out through the lower series of openings into the annular chamber, and that on rising to the upper extremity of such chamber they will be de-

flected inwardly through the upper series of openings, where, mingling with the flames at the surface of the fuel, they will be instantly ignited and consumed.

In some cases it may be desirable to provide exterior air-inlets *e*, as in Fig. 5, communicating with a source of fresh air to insure combustion along the series of openings *b*, when from any cause the grate has become clogged.

The invention having been thus described, what is claimed is—

1. A fire-pot which embraces a lower single-walled portion or section and an upper double-walled section, which is provided in its inner wall with a lower and an upper series of openings which extend from the interior of the fire-pot to the interior of the double-walled section.

2. A fire-pot which embraces an inner and an outer annular section, which sections inclose an annular gas and air chamber or passage, and one of which sections rests upon the other at the upper extremity thereof and also at a point near the lower extremity thereof.

3. A fire-pot which embraces a lower single-walled portion or section and an upper double-walled section, one of the walls of which rests upon the single-walled lower section and which is provided in its inner wall with a lower and an upper series of perforations, which extend from the interior of the fire-pot to the interior of the double-walled section.

4. A fire-pot which in its lower portion is composed of a single imperforate wall and which in its upper portion is composed of an inner and an outer annular shell, one of such shells being integral with the single imperforate wall of the lower portion and the other resting both above and below upon such integral upper and lower portion.

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