

S. SPARLING.
FURNACE.

APPLICATION FILED AUG. 3, 1908.

931,969.

Patented Aug. 24, 1909.

2 SHEETS—SHEET 1.

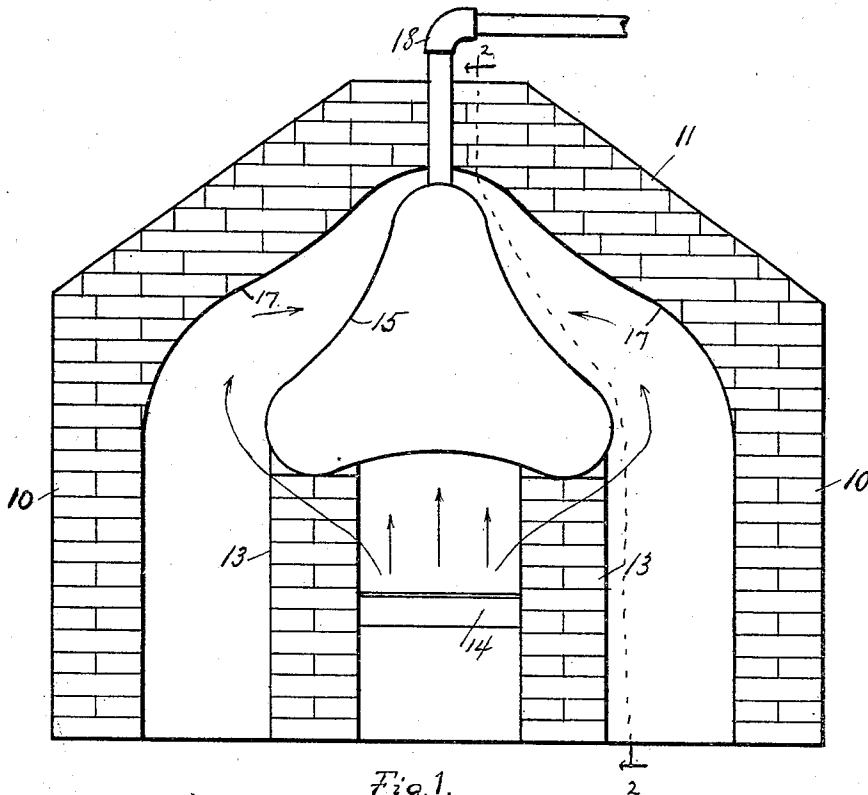


Fig. 1.

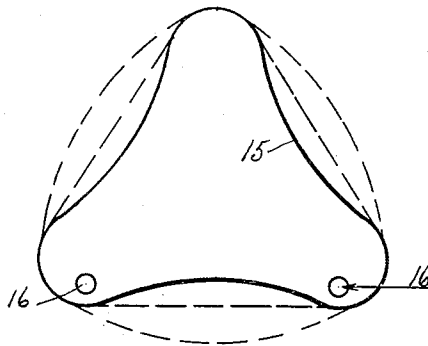


Fig. 3

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Ida Kueger.

INVENTOR
Sylvester Sparling
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his ATTORNEYS

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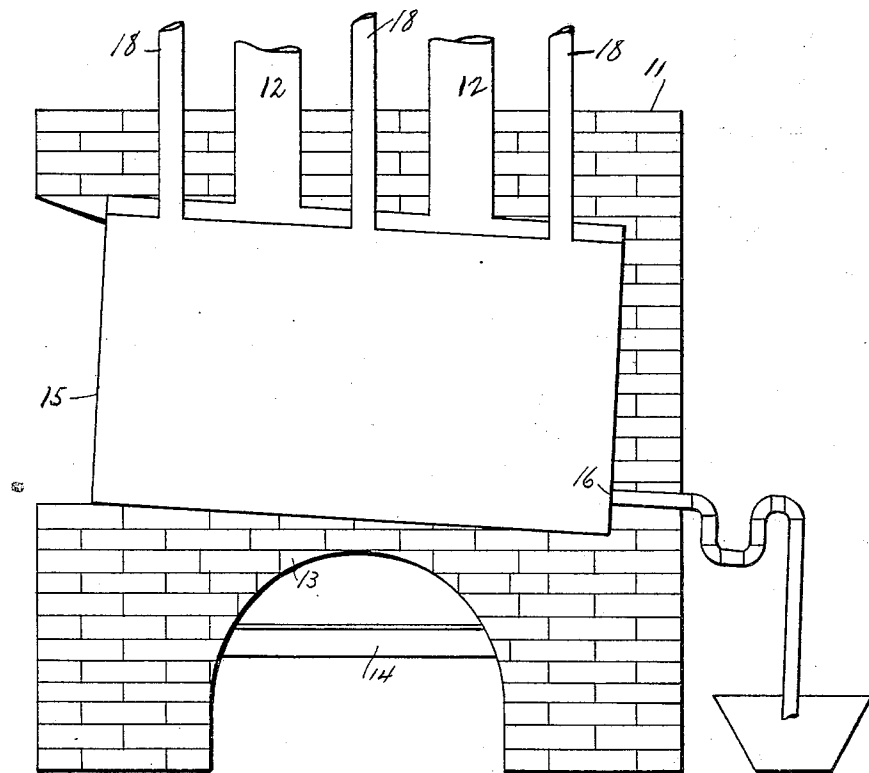


Fig. 2.

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UNITED STATES PATENT OFFICE.

SYLVESTER SPARLING, OF EVANSTON, ILLINOIS.

FURNACE.

931,969.

Specification of Letters Patent.

Patented Aug. 24, 1909.

Application filed August 3, 1908. Serial No. 446,607.

To all whom it may concern:

Be it known that I, SYLVESTER SPARLING, a citizen of the United States, residing at Evanston, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Furnaces, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to furnaces, and especially to that class adapted for the charring and distillation of wood.

The invention consists in the matters hereinafter described and then pointed out in the appended claims, and a suitable embodiment is illustrated in the accompanying drawings, in which—

Figure 1 is a view in cross-section of a furnace containing my invention; Fig. 2 is a view on the line 2—2 of Fig. 1 looking in the direction of the arrows, and Fig. 3 is a view of the rear wall of the retort with modified forms indicated by dotted lines.

In the drawing the reference numeral 10 indicates the side walls of the furnace which is provided with a suitable roof 11 having one or more chimneys 12 communicating with the interior. Extending longitudinally of the furnace and at a suitable distance from its side wall are two arches 13, and the fire grate 14 is arranged within the space between these arches as clearly shown in Figs. 1 and 2. Upon the arches a retort 15 is located, being set so as to incline or slope slightly toward its rear as shown in Fig. 2. The retort is preferably triangular in cross-section and the sides may be straight, convex, or concave. In practice I prefer to make the sides concave as shown in full lines in Figs. 1 and 3, but they may be straight or convex as shown in the two sets of dotted lines in Fig. 3. By having the bottom of the retort concave, the sides form channels, and the heavy tars resulting from the distillation of wood run off into the side channels, and by having the bottom sloping or inclined toward the rear, they may be drawn off through suitable openings 16 in the rear wall instead of remaining in the retort to be charred as is the general practice.

By having the several sides of the retort of substantially uniform size, the retort may be turned or shifted to bring its sides alternately over the grate, thus, after one side has been used as the bottom until it begins to

show the effects of the flames, the retort may be turned to bring another side to position over the grate and to act as the bottom, it being understood that either or both of the ends of the furnace may be open so that the retort may be removed and replaced when it is desired to turn it, the pipe connections being of course readily detachable for this purpose by any well known means.

The interior of the furnace is somewhat greater in cross-sectional area than the size of the retort so that the flames passing through the arches 13 will pass up around the retort, and preferably the inner faces of the walls or roof of the furnace are curved or shaped so as to form deflectors to deflect the flames against the sides of the retort at or near their middle portions. These deflectors are illustrated at 17 in Fig. 1. By applying the heat substantially at the middle of the sides and bottom the heat is concentrated at the center of the retort, as indicated by the arrows in Fig. 1.

The retort will be provided with suitable pipes 18 to convey to a condenser (not shown) the vapors distilled from the wood.

Having described my invention I claim:—

1. In a device of the class described, a retort having sides concave in cross-section and sloping or inclined longitudinally, a furnace provided with a fire-box below the retort, an arch on each side of the fire-box and supporting the retort at its sides and forming lateral passageways for the flames midway the ends of the retort, and deflectors arranged adjacent the sides of the retort to direct the flames against the sides of the retort at or near their middle portions.

2. In a device of the class described, a furnace having a grate, longitudinal arches suitably spaced from the sides of the furnace and forming passageways on the sides of the grate, an inclined retort above the grate of substantially triangular cross-section forming side channels resting on the arches, and deflecting walls above the arches and adjacent the passageways to deflect the flames against the sides of the retort.

In testimony whereof I affix my signature in presence of two witnesses.

SYLVESTER SPARLING.

Witnesses:

GEORGE R. HARBAUGH,
J. McROBERTS.