(No Model.)

F. G. SHERWOOD.

FURNACE.

No. 412,207. Patented Oct. 1, 1889.

Fig: 1.

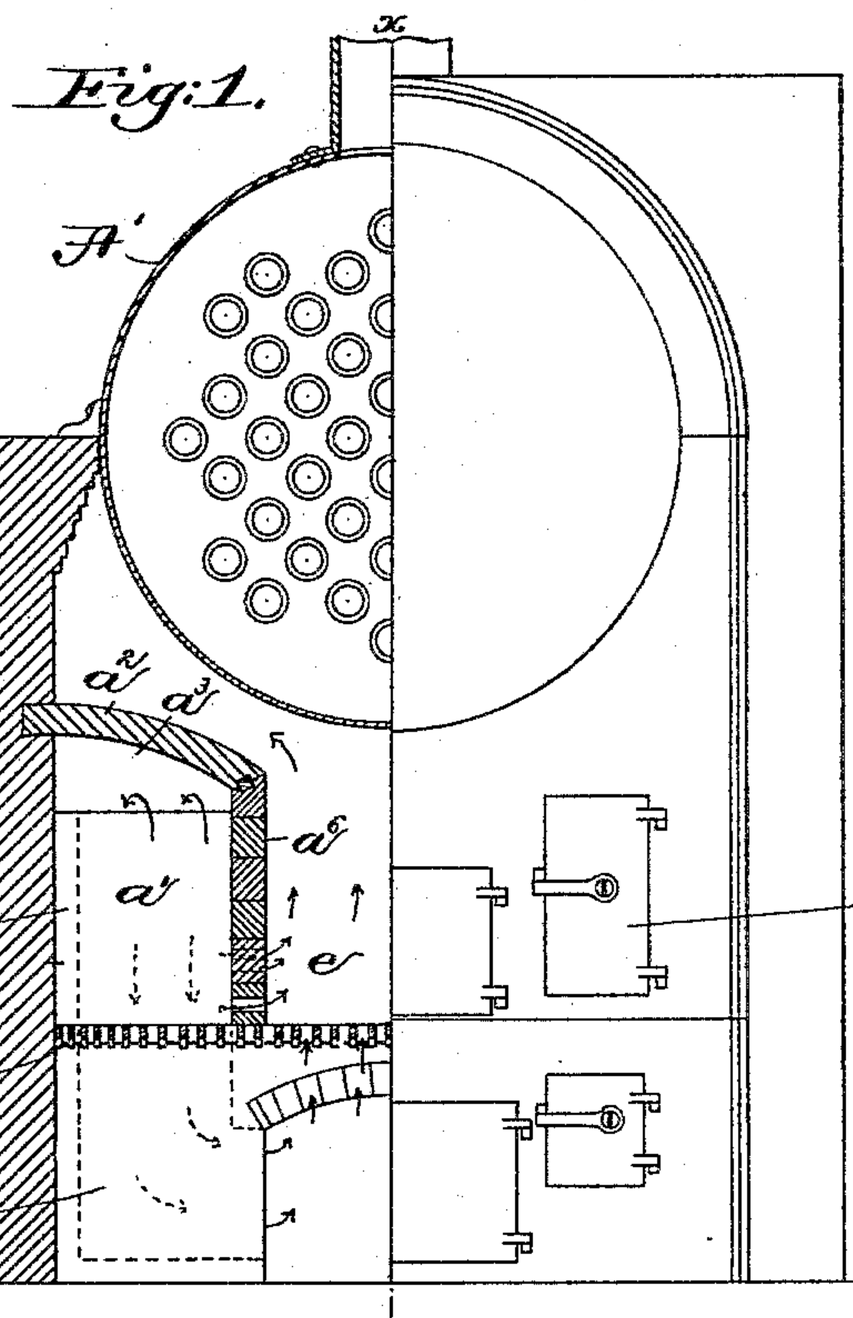
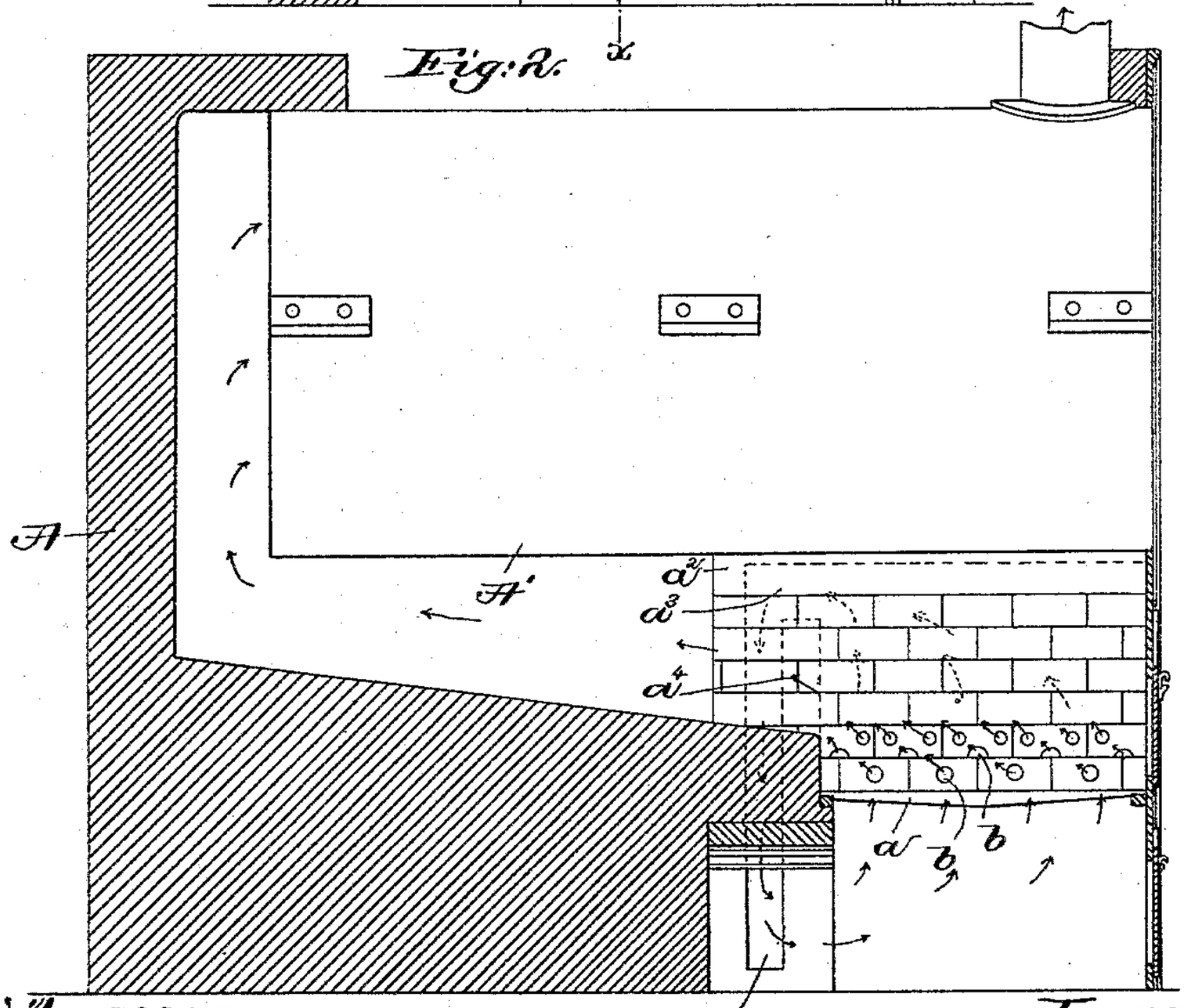


Fig: 2.



Witnesses.
Howard F. Eaton.
Francis L. Emery.

Inventor
Frank G. Sherwood,
by Lemby & Gregory Attys

UNITED STATES PATENT OFFICE.

FRANK G. SHERWOOD, OF ROCHESTER, NEW YORK, ASSIGNOR TO THE CLARK'S COKING AND SMOKELESS FURNACE COMPANY, OF SAME PLACE.

FURNACE.

SPECIFICATION forming part of Letters Patent No. 412,207, dated October 1, 1889.

Application filed January 19, 1889. Serial No. 297,211. (No model.)

To all whom it may concern:

Be it known that I, FRANK G. SHERWOOD, of Rochester, county of Monroe, State of New York, have invented an Improvement in Furnaces, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object to provide a furnace of novel construction, as will be described, in which soft or bituminous coal or analogous material may be consumed, so that the volatile products driven off by heat may be consumed, and a maximum amount of heat obtained from a minimum quantity of coal.

In accordance with my invention the furnace is provided with one or more auxiliary ovens, in which the soft coal is placed, the said ovens being provided with an exit-flue for the volatile products driven off from the coal, and with a series of openings in one wall of the oven near its bottom, through which the flame and gases pass from the said oven and mix with and consume the volatile products, as will be described.

My invention therefore consists, essentially, in the combination, with a combustion-chamber provided with grate-bars, of an auxiliary oven having a flue or passage-way leading from it to below the grate-bars of the combustion-chamber, a partition-wall separating said oven and chamber and extended to the said grate-bars, and a series of independent openings in the said partition-wall to form flame and gas outlets for the said auxiliary oven, substantially as will be described.

Figure 1 in section and elevation shows a furnace embodying my invention, and Fig. 2 a longitudinal section through the section of the furnace shown in Fig. 1 on line x x.

A is the furnace, A′ the boiler, and a the grate-bars.

The interior of the furnace A above the grate-bars a is divided by walls a^6, to leave, preferably, two like auxiliary ovens a' on opposite sides of a center chamber e, each oven having a top arch a^2, a rear wall a^3, a bridge-wall a^4, near the wall a^3, to form with the said rear wall a flue or passage a^5. (See Fig. 2.) Each wall a^6, serving to support the arch a^2, is extended, as herein shown, to the grate-bars a, the lower side or edge of the wall a^6 preferably resting upon the said grate-bar, the bottom or lower portion of the said wall being made, preferably, of independent bricks or slabs provided with one or more openings b. The flue or passage a^5 constitutes the outlet for the smoke and volatile products driven off from the coal in the oven and passing over the short wall a^4, while the outlets b in the wall a^6 afford an outlet for the flame and gases given out from the burning lower portion or layer of soft coal in the oven a'.

In the operation of my improved furnace the soft coal is placed in the oven a' through the door b^3 and the fire started in said oven. The ignition of the lower portion or layer of the coal in the oven a' drives off the volatile products from the upper layer, or that portion of the soft coal resting upon the burning coal, and the draft admitted below the auxiliary oven, as by a door c, passes up through the burning coal in the said oven and thence over the bridge-wall a^4 into the flue a^5, through the said flue into the space below the grate-bars corresponding to the ash-pit of an ordinary furnace, the said draft carrying with it the volatile products of the soft coal, which are driven off by the heat of the burning coal. The flame arising from the burning coal in the oven a' passes through the openings b in the wall a^6 and commingles with and ignites the volatile products passing up through the grate-bars. In this manner a maximum amount of heat is obtained from a minimum quantity of coal, and at the same time a larger area of the grate-surface is obtained in the auxiliary ovens.

I have herein shown the partition-wall a^6 as extended only to the grate-bars; but, if desired, it may be extended below the grate-bars to the floor or bottom of the ash-pit, that portion of the said wall below the grate-bars serving as an additional support for the said grate-bars.

I claim—

1. In a coking-furnace, a combustion-chamber provided with grate-bars, combined with an auxiliary oven having a flue or passage-way leading from it to below the grate-bars

of the combustion-chamber, a partition-wall separating said oven and chamber and extended to the said grate-bars, and a series of independent openings in the said partition-wall to form flame-outlets for the said auxiliary oven, substantially as described.

2. In a coking-furnace, a combustion-chamber provided with grate-bars, combined with an auxiliary oven having a flue or passage-way leading from it to below the grate-bars of the combustion-chamber, and a partition-wall separating said oven and chamber and having its lower portion composed of independent pieces provided with openings *b* to form flame-outlets for the said oven, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANK G. SHERWOOD.

Witnesses:
P. B. VIELE,
WM. H. FARRAND.