(No Model.)

G. A. CLARK.

COKING FURNACE.

No. 399,378. Patented Mar. 12, 1889.

Fig: 1.

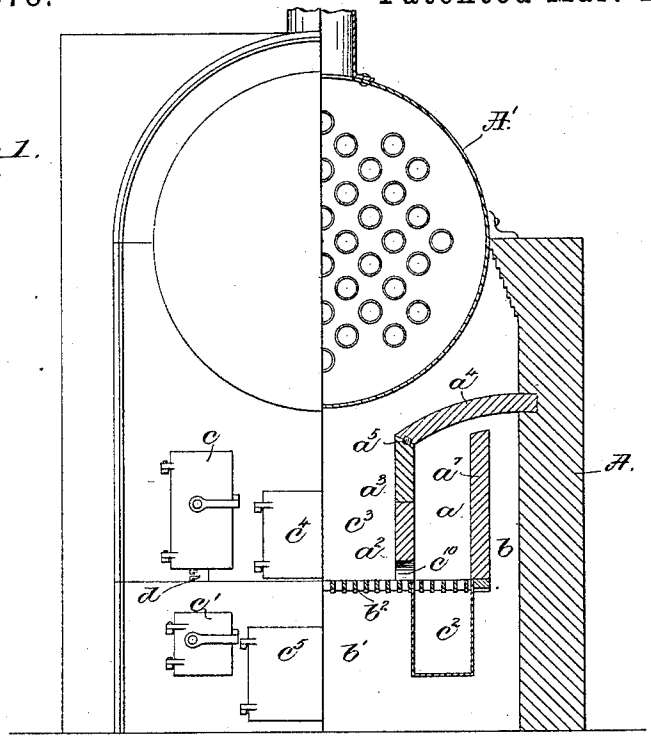
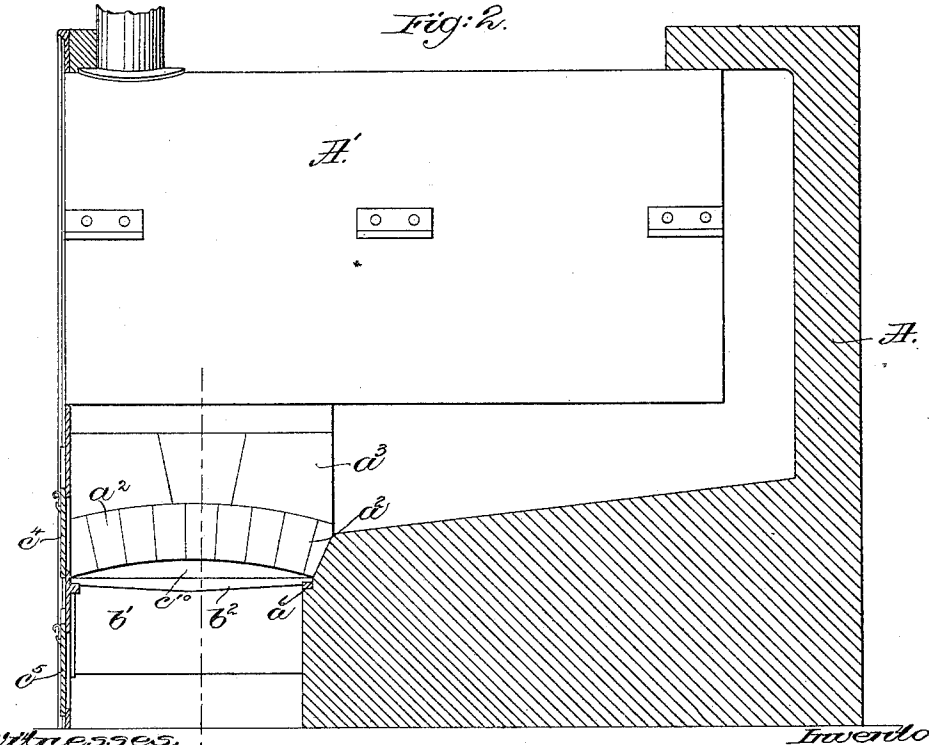


Fig: 2.



Witnesses.
Frederick L. Emery.
Fred. L. Emerson

Inventor.
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UNITED STATES PATENT OFFICE.

GATES ARNOLD CLARK, OF ROCHESTER, NEW YORK, ASSIGNOR TO CLARK'S COKING AND SMOKELESS FURNACE COMPANY, OF SAME PLACE.

COKING-FURNACE.

SPECIFICATION forming part of Letters Patent No. 399,378, dated March 12, 1889.

Application filed October 3, 1888. Serial No. 287,078. (No model.)

To all whom it may concern:

Be it known that I, GATES ARNOLD CLARK, of Rochester, county of Monroe, State of New York, have invented an Improvement in Coking-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 relates to coking-furnaces of that class in which soft or bituminous coal, or wood or other carbonaceous material, is coked and the volatile products driven off by heat caused to pass up through the fire-bed to assist in combustion and to obtain a maximum amount of heat from the said coal or other material.

This invention is an improvement upon the coking-furnace shown and described in another application, Serial No. 272,292, filed by me April 30, 1888, and has for its object to simplify the construction of the same and produce a more desirable and efficient furnace.

The particular features in which my invention consists will be pointed out in the claims at the end of this specification.

Figure 1 is a partial front elevation and section of a coking-furnace embodying my invention; and Fig. 2, a longitudinal section of the furnace shown in Fig. 1, the boiler being in elevation.

The furnace A, having its walls composed of brick or other suitable material and containing the boiler A′, may be substantially such as shown in the application referred to.

The furnace A, at its front end, is provided with two coking ovens or chambers, *a*, only one of which is shown in Fig. 1, each of said coking-ovens having its outer wall composed, as shown, of one or more arches, a^2, of fire-brick, soapstone, &c., and preferably three or more slabs, a^3, of fire-brick, soapstone, &c., and a top arch, a^4, of fire-brick or soapstone, supported by the slabs a^3 and side wall of the furnace, the joint between the arch a^4 and slabs a^3 being luted or cemented, as at a^5, to render the same gas-tight, the arches a^2 of fire-brick or soapstone being supported, as shown, by the front wall of the furnace and by the bridge-wall a^6. (See Fig. 2.)

The inner side wall of the coking-oven is preferably formed by a slab, a^7, of fire-brick, soapstone, or other refractory material, the said wall being made solid and extended to the grate-bars b^2, and forming with the side wall of the furnace a passage, *b*, which communicates with the ash-pit *b′* below the stationary grate-bars b^2.

The front wall of the furnace is provided with doors *c*, only one being shown, by which access may be had to the coking-ovens, and with doors *c′* for the auxiliary ash-pit c^2 below each coking-oven, while access to the combustion-chamber c^3 between the coking-ovens and to the ash-pit *b′* is had by the doors c^4 c^5, respectively.

The front wall of the furnace, below the doors *c* and substantially in line with the passage c^{10} between the fire-brick arch and the grate-bars, is provided with an auxiliary door, *d*, through which a rod or bar may be inserted to force the coked material from the coking-ovens into the combustion-chamber. When desired, additional draft may be furnished to assist in carrying the volatile products out of the coking-oven into the passage *b* by opening the doors *c′* of the auxiliary ash-pits.

With the furnace constructed as above described the passage *b′* may be made comparatively narrow and the coking-ovens and combustion-chamber correspondingly enlarged, thereby obtaining a maximum result from a given-sized furnace.

I claim—

1. The furnace A, provided with grate-bars, and a boiler supported by said furnace, combined with coking-ovens *a*, composed of the inner wall, a^7, forming with the wall of the furnace the passage *b*, and the outer wall forming with the grate-bars a passage, c^{10}, and with a door or opening in the furnace-wall substantially in line with the said passage, substantially as and for the purpose specified.

2. The furnace A, provided with grate-bars, and a boiler supported by said furnace, combined with coking-ovens *a*, composed of the inner wall, a^7, forming with the wall of the furnace the passage *b*, the outer wall formed by the slabs a^3 and arch a^2, of refractory material, and the top a^4, and the arch a^2, forming with the grate-bars a passage, c^{10}, substantially as and for the purpose specified.

3. The furnace A, provided with stationary

grate-bars, and a boiler supported by said furnace, combined with a coking-oven having its wall adjacent to the combustion-chamber of the said furnace made to form with the stationary grate-bars a passage, c^{10}, and a flue or passage located within said furnace and connecting the said coking-oven with the ash-pit of the furnace below the said grate-bars, as and for the purpose specified.

4. A furnace provided with a combustion-chamber, a coking-chamber, a partition-wall separating said chambers and having a normally-open passage-way connecting said chambers, and a flue or passage-way located within the said furnace and leading from the coking-chamber below the grate of the combustion-chamber, substantially as described.

5. In a coking-furnace, a combustion-chamber and its grate-bars, combined with a communicating coking-chamber having one wall constructed to leave a passage near the top or arch of the coking-chamber and constitute between the said wall and the wall of the furnace a flue through which to lead the volatile products generated from the coal in the coking-furnace to a point below the grate-bars of the combustion-chamber, the wall separating the coking-chamber from the combustion-chamber being provided at its lower end with an open passage, c^{10}, through which the coke may be discharged from the coking-chamber into the combustion-chamber, and a door or opening in the furnace-wall substantially in line with the said open passage, substantially as and for the purposes set forth.

6. The furnace A, provided with stationary grate-bars, and a boiler supported by said furnace, combined with a coking-oven having its wall adjacent to the combustion-chamber of the said furnace provided with a passage, c^{10}, and with stationary grate-bars in said coking-oven, and a flue or passage located within the said furnace and connecting the said coking-oven with the ash-pit of the furnace below the said grate-bars, as and for the purpose specified.

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

GATES ARNOLD CLARK.

Witnesses:
JEFFERSON L. MECHEM,
WILLIAM S. SMITH.