

No. 700,230.

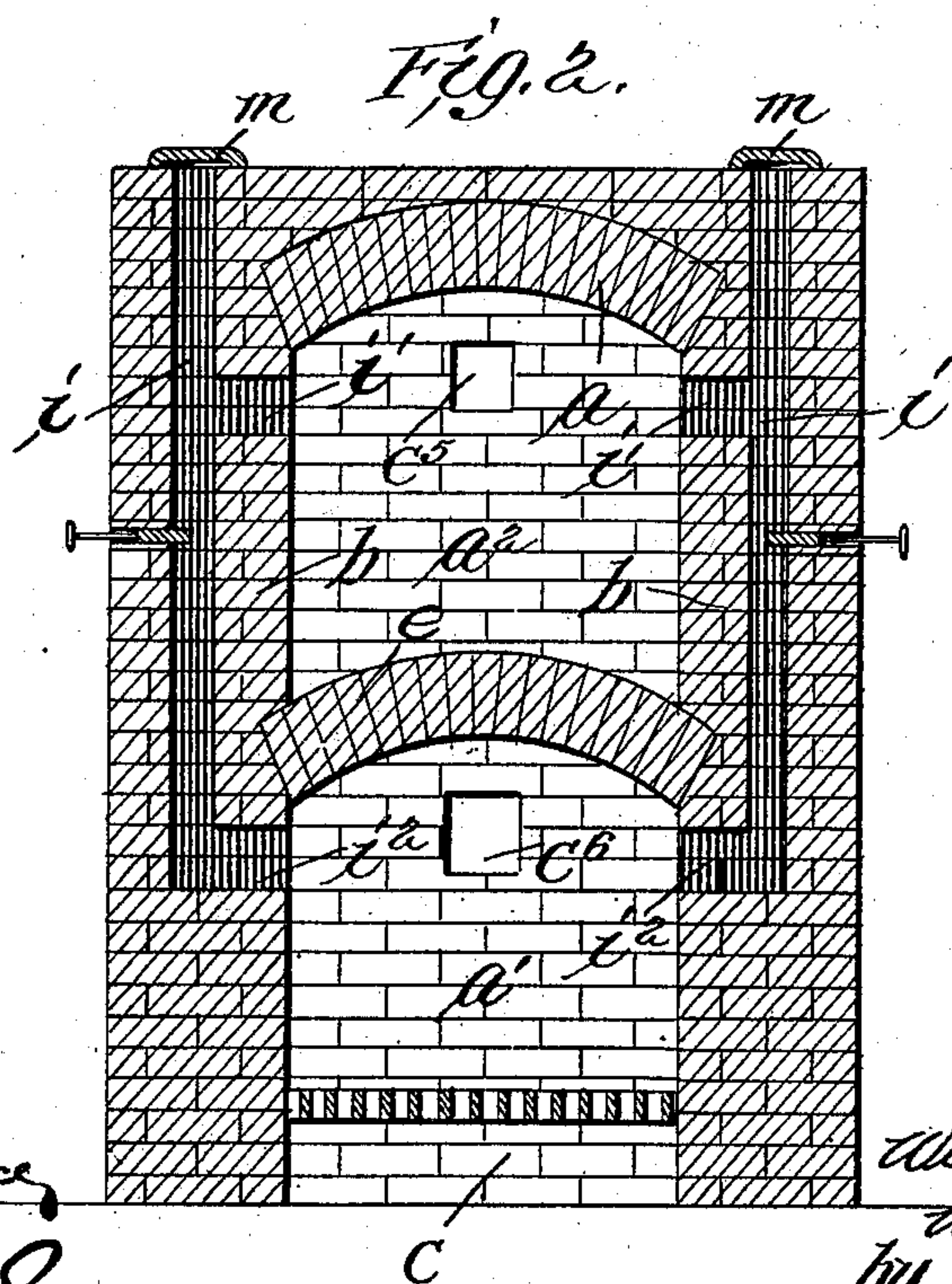
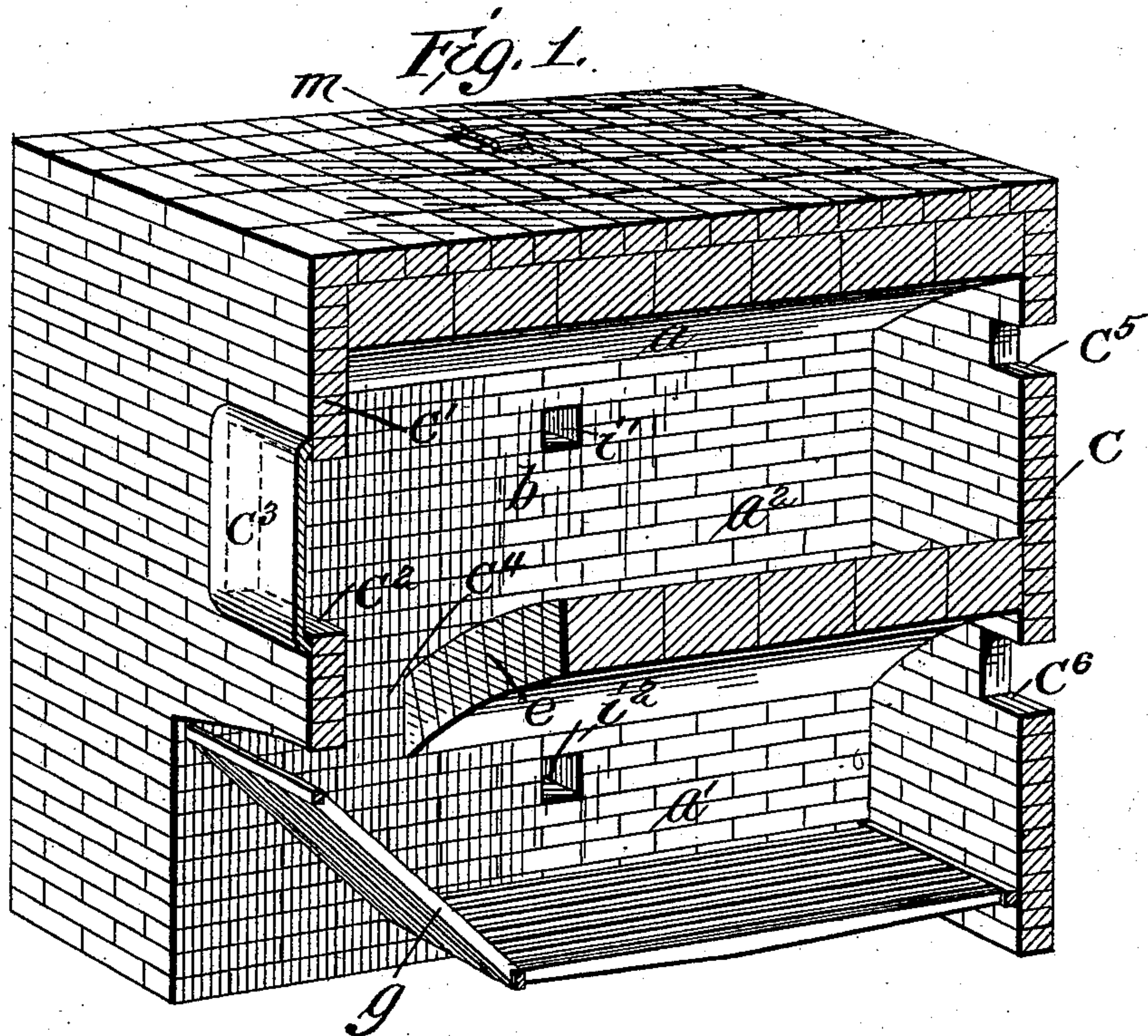
Patented May 20, 1902.

W. W. PEASLEY.  
FURNACE.

(Application filed Feb. 10, 1902.)

(No Model.)

2 Sheets—Sheet 1.



Attest  
Hugh Wallace  
by [Signature]

Inventor  
Wm. W. Peasley  
by William F. [Signature]



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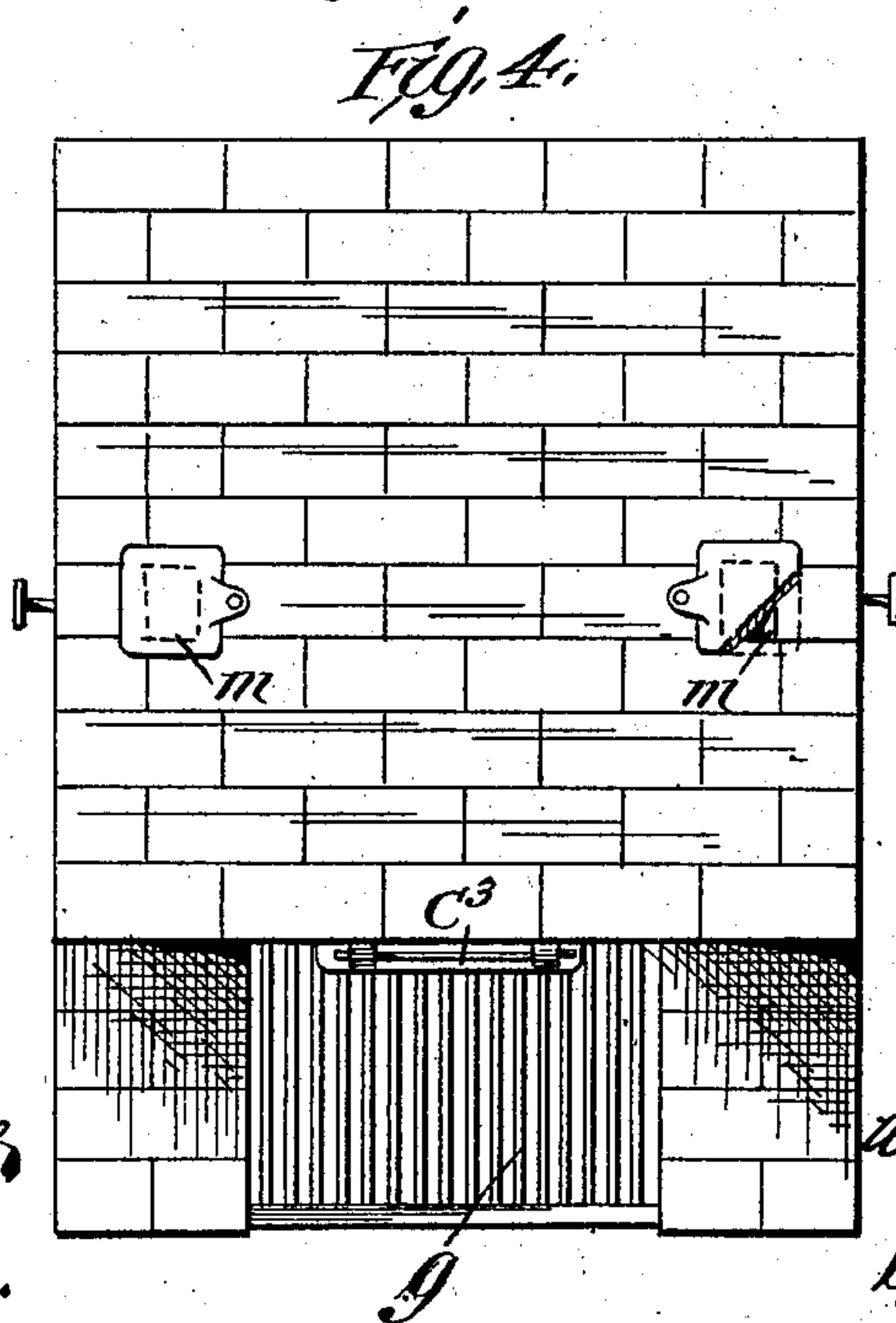
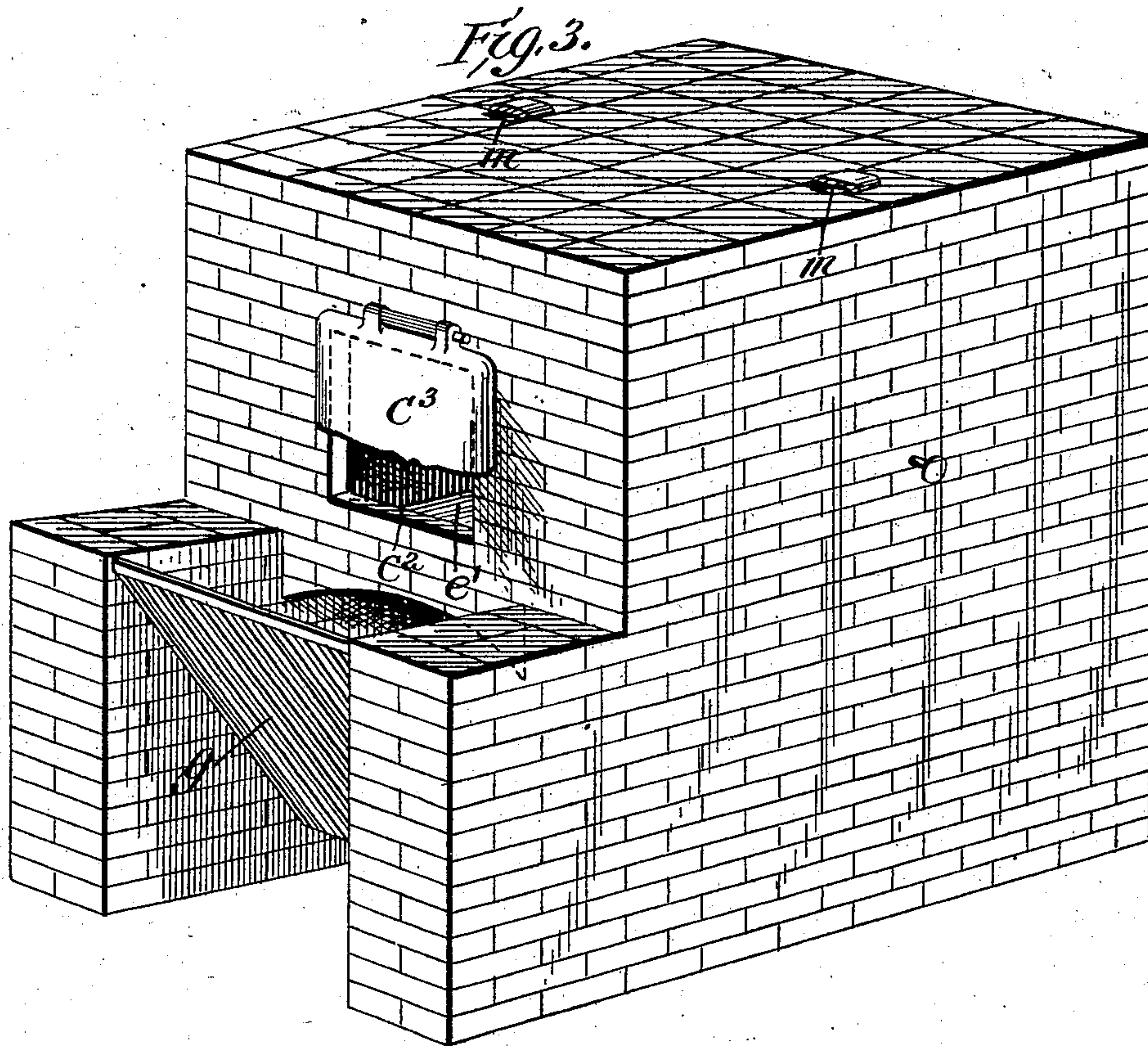
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(No Model.)

2 Sheets—Sheet 2.



Attest  
R. H. Wallace,  
C. A. Connelley.

Inventor  
W. W. Peasley  
William F. Free  
by J. H. G.



# UNITED STATES PATENT OFFICE.

WILLIS W. PEASLEY, OF KELLERTON, IOWA.

## FURNACE.

SPECIFICATION forming part of Letters Patent No. 700,230, dated May 20, 1902.

Application filed February 10, 1902. Serial No. 93,435. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIS W. PEASLEY, a citizen of the United States, residing at Kellerton, in the county of Ringgold and State of Iowa, have invented certain new and useful Improvements in Furnaces, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to an improvement in furnaces of the type in which a coking-chamber is associated with the fire-chamber, whereby coal fed to the former is converted into coke by the heat generated in the fire-chamber and in the latter state fed to said fire-chamber in the desired quantities, the material removed being replaced by a fresh supply of coal, this procedure being carried on continuously during the operation of the furnace.

It is the object of the present invention to increase the efficiency of this class of furnaces, to simplify the construction of the same, and to facilitate their operation.

The invention also contemplates several other desiderata and advantages, as will be appreciated as the invention is better understood.

To this end the invention includes the apparatus or structure to be hereinafter described, and particularly pointed out in the claims.

The accompanying drawings, which are to be considered in connection with this specification, illustrate what I now conceive to be the preferable embodiments of my invention.

In the drawings, Figure 1 is a sectional perspective view of one form of the invention. Fig. 2 is a cross-sectional view of the same. Fig. 3 is a perspective view of a modification of the invention, and Fig. 4 is a plan view thereof.

As before premised, the invention contemplates a furnace having a fire-chamber with a coking-chamber arranged above the same and means for facilitating the feeding of the coal which has been coked from the latter chamber into the former. The two chambers are arranged in superimposed relation and are formed by an arch *e*, which spans a space inclosed by side walls *b*, a rear wall *c*, a top arch *a*, and a half-front wall *c'*. Each side wall is built of brick and is of any desired thickness, said wall being spaced a suitable

distance apart and preferably lined with fire-brick. The rear wall *c* completely closes the back of the furnace and extends from the top to the bottom of the same. The top wall is arranged above or is built in with the upper arch *a*, which extends the entire distance from the rear to the front of the furnace and spans the space between the side walls of the same. Intermediate of the height of said walls a second arch *e* is provided, which spans the space between said walls and extends from the rear wall *c* to within a short distance of the front wall *c'*, thus leaving a space between the same, for a purpose to be described hereinafter. The latter wall completely closes the front of the space or chamber between the two arches *a* and *e*; but as it is only a half-wall it does not extend down or close the front of the space between the side wall below the arch *e*, and consequently the chamber below said arch is entirely open at its front end. This latter chamber forms the fire-chamber *a'* of the furnace, and in the front thereof an inclined grate *g* is located, which extends from side to side of the same and from its top down to within a short distance of its bottom. The front of the arch *e* referred to terminates to the rear of this grate, so that the opening between the former and the front wall of the furnace is also located to the rear of the grate.

In the front wall *c'* a suitable feeding-opening *c<sup>2</sup>* is provided, designed to be normally closed by a suitable door *c<sup>3</sup>*.

The operation of the parts of the furnace so far described, assuming that a fire is burning in the chamber *a'*, is as follows: Coal is thrown into the chamber *a<sup>2</sup>* through the opening *c<sup>2</sup>* and accumulates upon the top of the arch *e*, which forms a bed for the same. This coal is converted into coke by the heat generated in the chamber *a'*, and when a fresh supply of fuel is required in the latter chamber the door *c<sup>3</sup>* is opened and a part of the coke on the arch *e* pulled or drawn forward over the front edge of the latter, when it falls through the openings *c<sup>4</sup>* onto the grate. A fresh supply of coal is then thrown onto the rear of the arch to replace the material discharged therefrom. This procedure is carried on continuously during the operation of the furnace. The gases and smoke generated in the coking-chamber discharge therefrom through an



opening or aperture  $c^5$ , provided in the rear of the wall  $c$  of the furnace. To consume the smoke and gases to a maximum degree, I provide directly beneath the opening  $c^5$  a corresponding opening  $c^6$ , which communicates with the upper rear end of the fire-chamber and through which the highly-heated gases and products of combustion therefrom discharge and rising commingle with the smoke and gases discharging through the opening  $c^5$  and consume the same. To aid combustion in each of the side walls  $b$ , a flue  $i$  is provided, which opens out through the top of the furnace, where regulating-dampers  $m$  are placed, and these flues communicate with the coking and fire chambers through openings  $i'$  and  $i''$ , leading into the upper part of the same. These flues not only put the chambers into communication with the outside air, but also into communication with each other. In each of the flues between the two chambers a regulating-damper is placed.

In the embodiment of the invention illustrated in the views showing a modification of the form of furnace hereinbefore described the front wall of the coking-chamber is of a depth only as great as the length of the arch  $e'$ , the front wall being arranged in vertical alinement with the front edge thereof. The side walls of the fire-chamber consequently project out beyond said front wall, and in feeding the coke to the grate it is drawn out through the door through which fresh coal is fed to said coking-chamber. As in this form of furnace the grate is also arranged in advance of the front end of the arch  $e'$ , the material drawn therefrom through the opening  $c^2$  will fall upon this grate.

While the invention as described was primarily intended to be associated with a brick-kiln and is more particularly adapted for this purpose, it will be understood that it has a wide range of uses, and its many advantages

will be found of value in every situation where this general type of furnace may be employed.

Having thus fully described my invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In combination, a furnace having a coking and a fire chamber, an arch forming the division-wall between said chambers extending entirely from the rear wall of the furnace to the front wall thereof, a filling and discharge opening in said front wall, extensions of the side walls of the fire-chamber projecting beyond the front wall of the furnace, and an incline grate located in the projecting walls of the fire-chamber and extending in advance of the front wall of the furnace.

2. In combination in a furnace provided with a fire and a coking chamber, an arch forming the division-wall between the same, an inclined grate in the fire-chamber in advance of said arch and a flue located in each side wall of the furnace in communication with each of said chambers, and with the exterior of the furnace, substantially as described.

3. In combination in a furnace having a fire and a coking chamber, an arch forming the division-wall between the same, an inclined grate in the fire-chamber in advance of said arch, and a flue located in each side wall of the furnace in communication with each of said chambers, said flue extending through the top of the furnace, a damper located on said top and a damper arranged in each flue between said chambers, substantially as described.

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

WILLIS W. PEASLEY.

Witnesses:

A. A. PEASLEY,

W. G. MCCLEARY.