

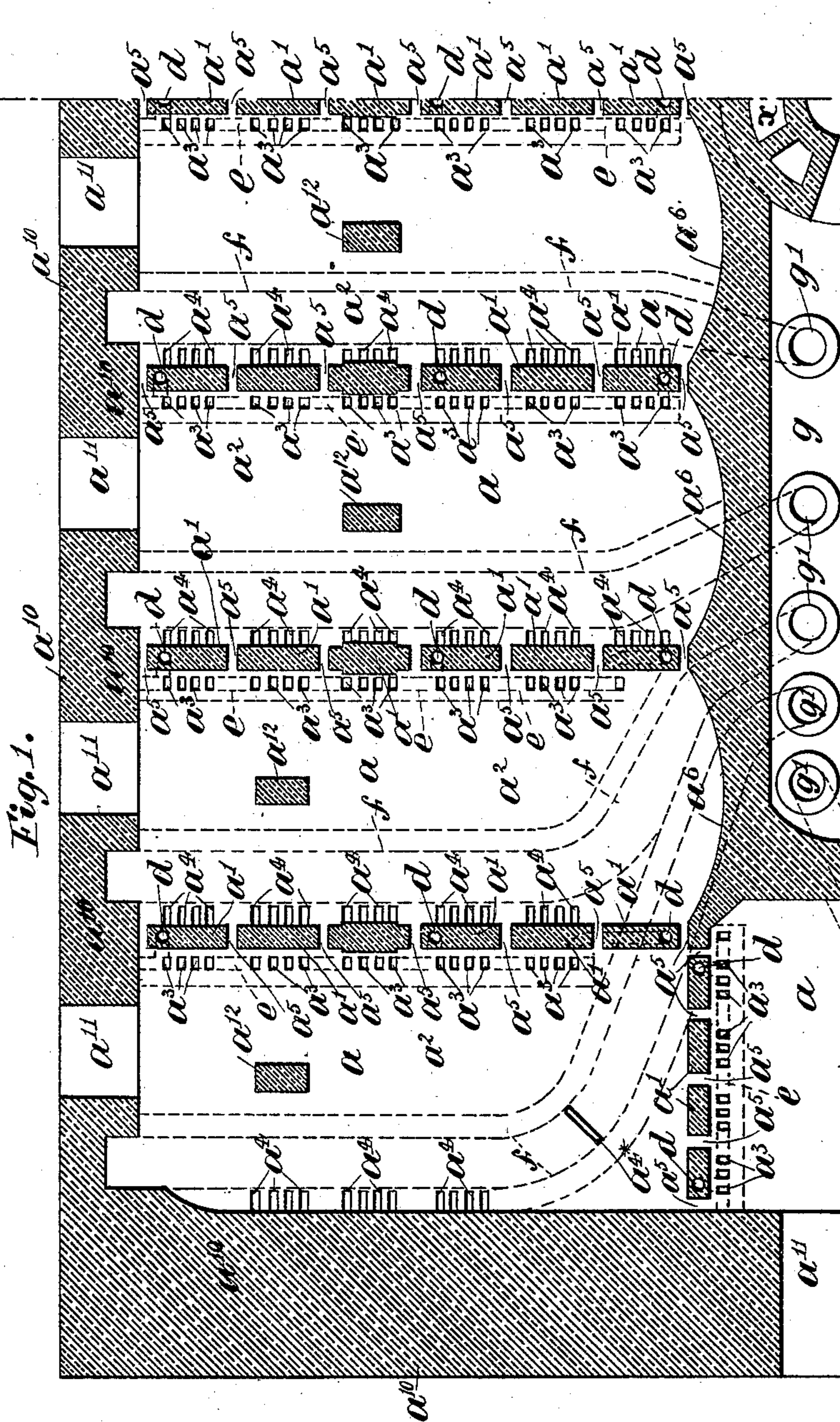
A. ADAMS.

CONTINUOUS BURNING KILN FOR BRICKS OR OTHER ARTICLES.

(Application filed Mar. 16, 1900.)

(No Model.)

5 Sheets—Sheet 1.



Witnesses
M. Wheddon.
of P. Hammond

Inventor
Adam Adams
by *[Signature]*
Attys

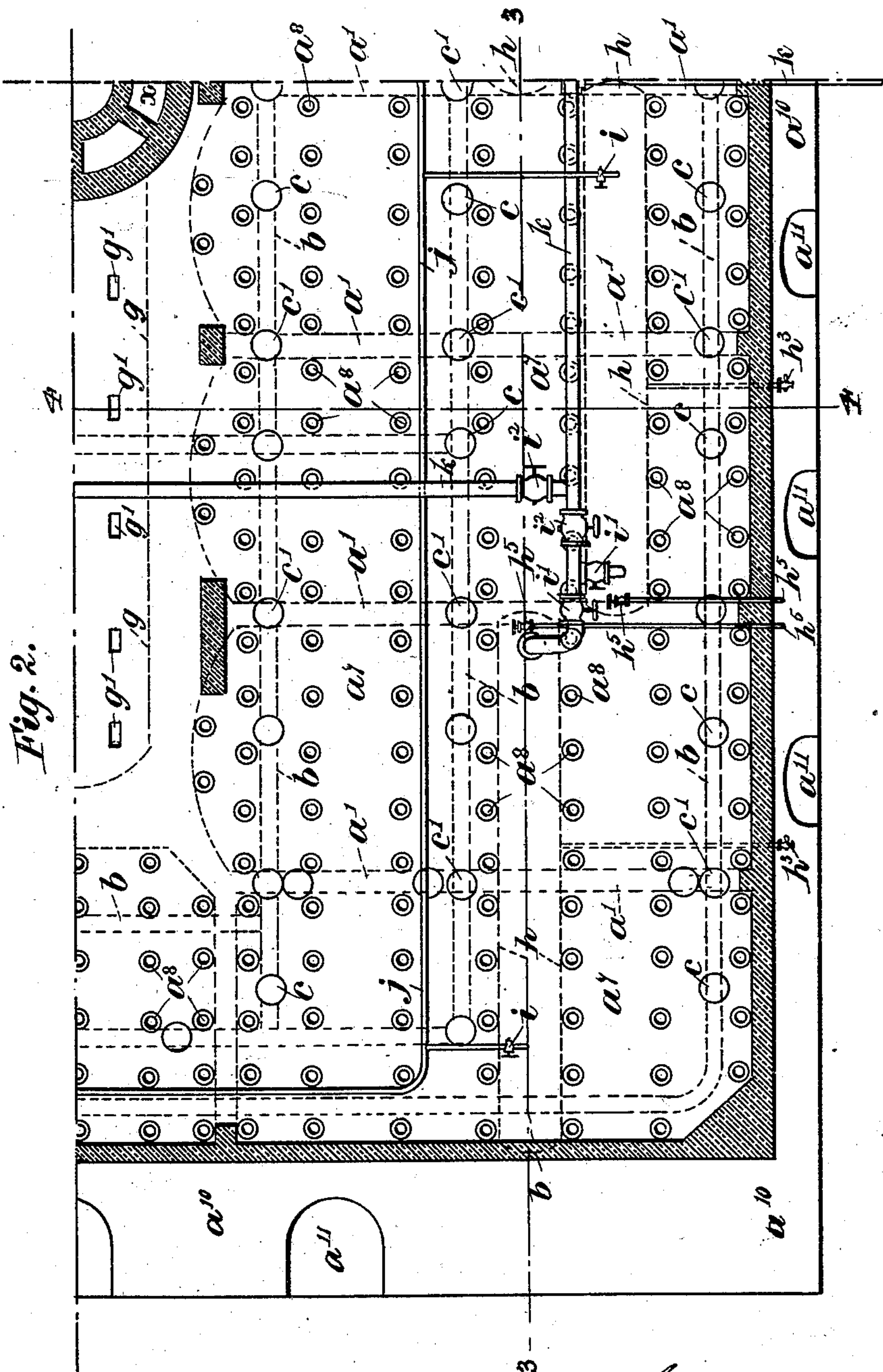
A. ADAMS.

CONTINUOUS BURNING KILN FOR BRICKS OR OTHER ARTICLES.

(Application filed Mar. 16, 1900.)

(No Model.)

5 Sheets—Sheet 2



Witnesses.
M. Wheddow.
A. Hammond

3
Inventor:
Adam Adams
by King & Bros
Attys.

No. 673,231.

Patented Apr. 30, 1901.

A. ADAMS.

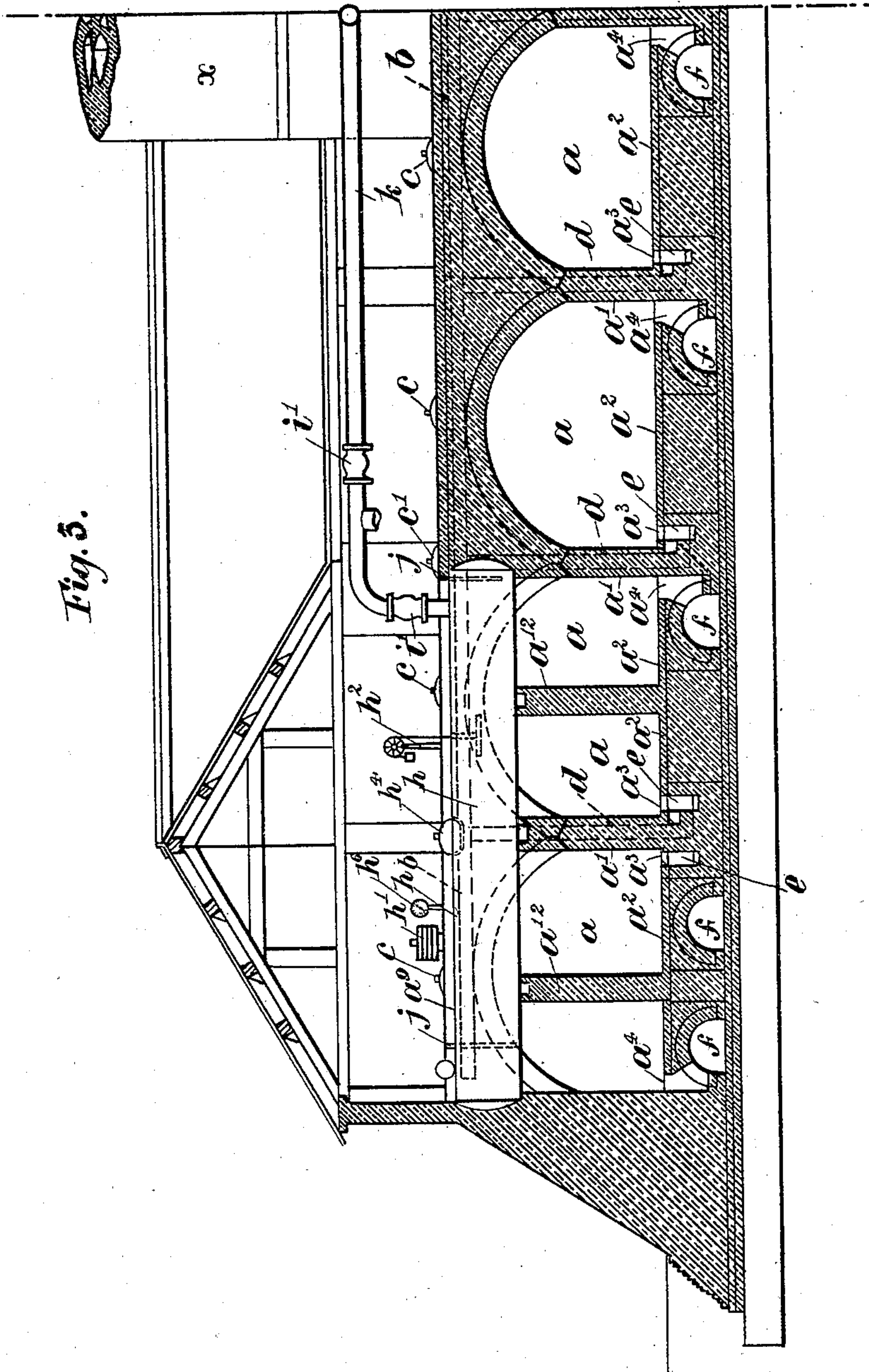
CONTINUOUS BURNING KILN FOR BRICKS OR OTHER ARTICLES.

(Application filed Mar. 16, 1900.)

(No Model.)

5 Sheets—Sheet 3.

Fig. 5.



Witnesses
M. Wheddon.
H. P. Hammond

Inventor:
Adam Adams
by Strickland & Sons
Attys.

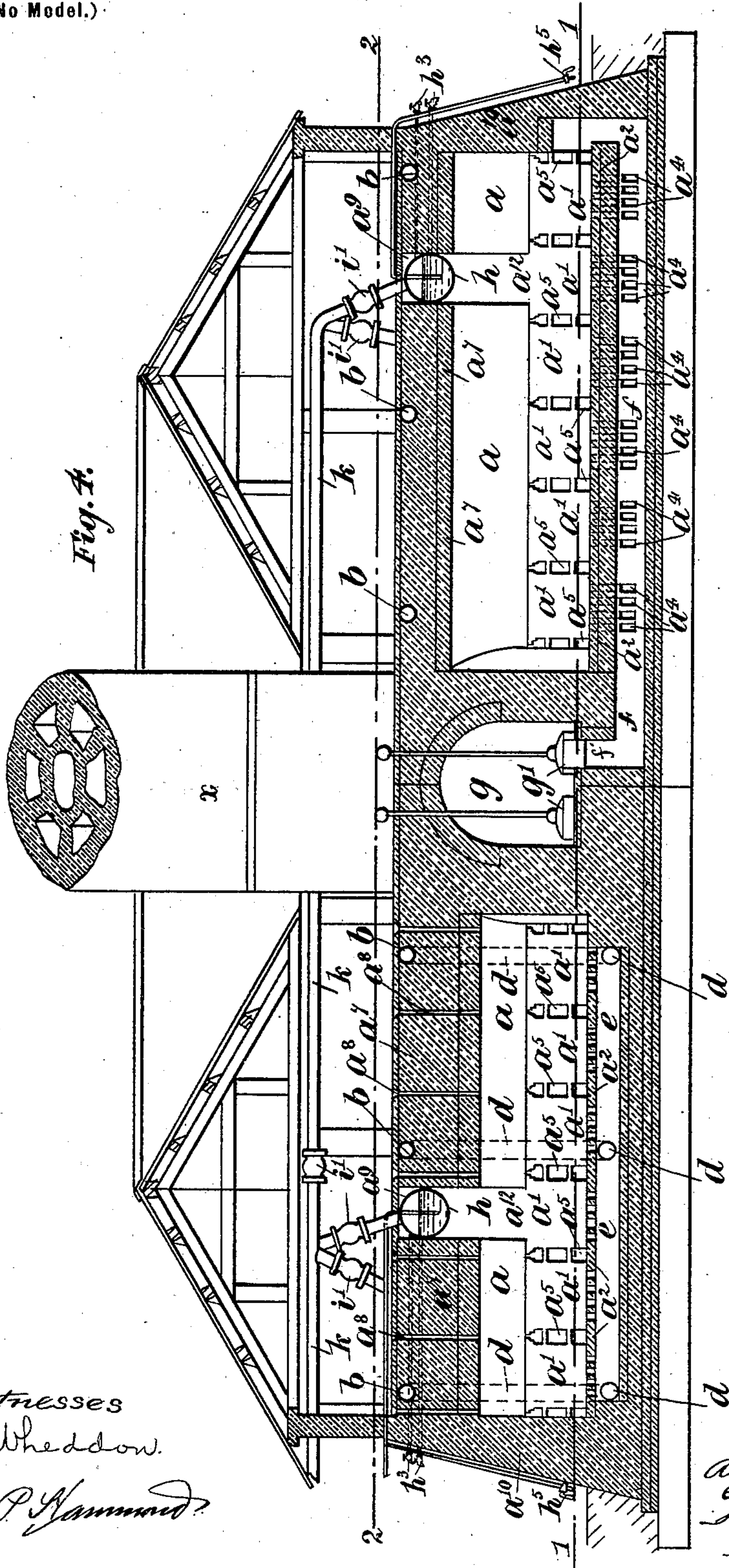
A. ADAMS.

CONTINUOUS BURNING KILN FOR BRICKS OR OTHER ARTICLES.

(Application filed Mar. 16, 1900.)

(No Model.)

5 Sheets—Sheet 4.



Witnesses
M. Wheddon.
H. P. Hammond.

Inventor:
Adam Adams
by
Thos. W. B. B. B.
Attys.

No. 673,231.

Patented Apr. 30, 1901.

A. ADAMS.

CONTINUOUS BURNING KILN FOR BRICKS OR OTHER ARTICLES.

(Application filed Mar. 16, 1900.)

(No Model.)

5 Sheets—Sheet 5.

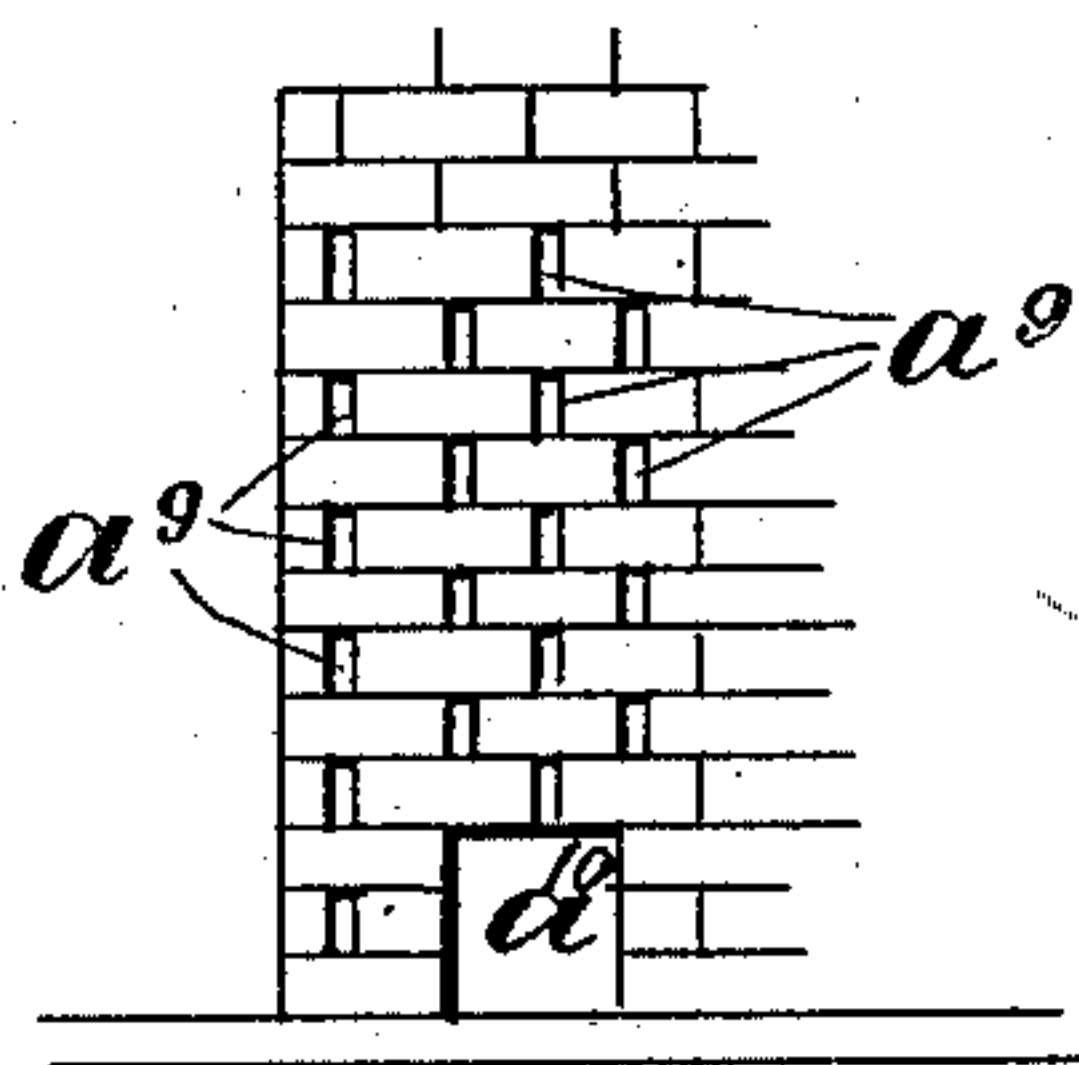
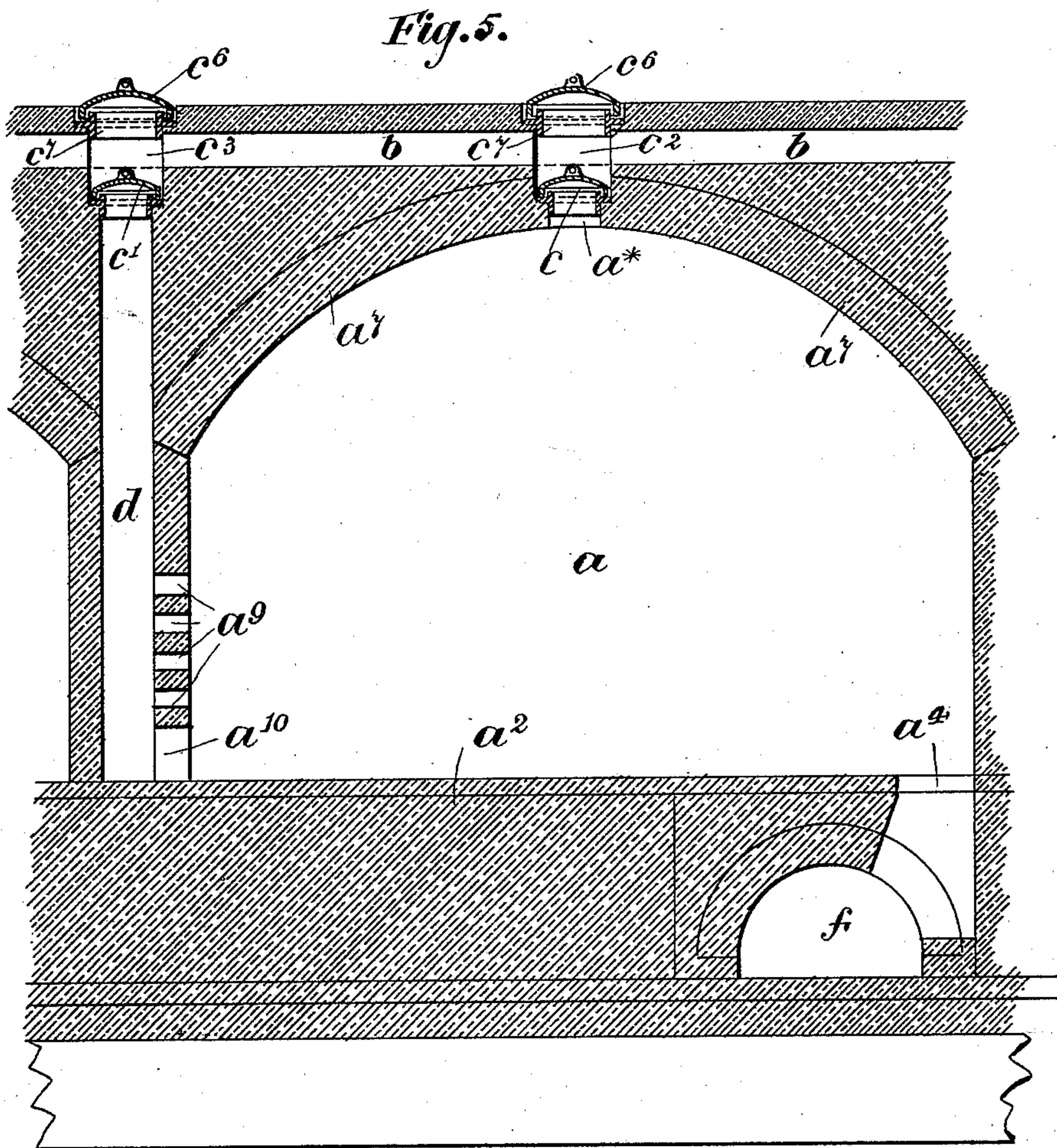


Fig. 6.

Witnesses
M. Wheddon
W. P. Hammond

Inventor:
Adam Adams
by *Tracy & Co.*
Attys

UNITED STATES PATENT OFFICE.

ADAM ADAMS, OF OLD FLETTON, ENGLAND.

CONTINUOUS-BURNING KILN FOR BRICKS OR OTHER ARTICLES.

SPECIFICATION forming part of Letters Patent No. 673,231, dated April 30, 1901.

Application filed March 16, 1900. Serial No. 8,965. (No model.)

To all whom it may concern:

Be it known that I, ADAM ADAMS, a subject of the Queen of Great Britain, residing at Old Fletton, in the county of Huntingdon, England, have invented certain new and useful Improvements in and Connected with Continuous-Burning Kilns for Bricks or other Articles, of which the following is a full, clear, and exact description, and for which I have made application for a patent in Great Britain, dated the 29th of August, 1899.

This invention relates to improvements in that class of kilns known as "Hoffman's kilns," and has for its object an improved construction and arrangement of parts whereby the waste heat from each chamber or oven can be utilized to its full extent by conveying the burned gases to a chamber or oven of green bricks to perform the process of water-smoking and whereby steam is generated in a series of boilers, some of which are being continually heated, while others for a time are out of use. This steam may be employed to obtain power for making the bricks.

In carrying my invention into effect I construct a number of chambers or ovens in any suitable order and connected with each other and by means of flues with a common smoke chamber or chambers leading to the chimney or smoke-stack, as hereinafter described.

I will describe my invention by the aid of the accompanying drawings, in which—

Figure 1 is a quarter-plan drawn on the line 1 1 of Fig. 4. Fig. 2 is a quarter-plan drawn on the line 2 2 of Fig. 4. Fig. 3 is a half longitudinal section drawn on the line 3 3 of Fig. 2; and Fig. 4 is a cross-section of the entire kiln, one half being drawn through the flue *f*, Fig. 1, and the other half through the flue *e*. Fig. 5 is a sectional view, and Fig. 6 is a part elevation showing a modification.

a a are the various ovens or chambers. Over these chambers or ovens are arranged a series of horizontal pipes or flues *b b*, through which the gases are conveyed along the top of the kiln. Each chamber or oven *a* is capable of being connected and disconnected with a series of these horizontal pipes or flues *b* by suitable valves *c*, placed in valve-chambers *c*², formed above an opening *a*^{*} in the roof of the chambers or ovens *a* and communicating with the horizontal pipes or flues *b*,

and these horizontal pipes or flues *b* are provided with other valves *c'*, placed in valve-chambers *c*³, formed at the junction of the horizontal pipes or flues *b* with the vertical pipes or flues *d*, by which they can be connected and disconnected with the upper parts of vertical pipes or flues *d*, constructed or built within the walls *a'*, dividing the chambers or ovens *a*, and in order that these valves may be operated from the roof of the kiln the tops of the valve-chambers *c*² *c*³ are closed by covers *c*⁶, fitting on seats *c*⁷. The lower ends of these vertical pipes or flues *d* open into hot-air flues *e*, formed along one side and below the floor *a*² of each chamber or oven *a* and extending from end to end thereof. The floors *a*² of the chambers or ovens *a*, along one side thereof, have openings *a*³ distributed along the length thereof, communicating with said hot-air flues *e*. Along the opposite side of these floors are formed a number of openings *a*⁴, communicating with flues *f* for the waste gases, constructed below such floors *a*², and such latter flues lead to the vertical passages *f'*, communicating with the smoke chamber or chambers *g*, with which they may be connected or disconnected by suitable valves *g'*. There are also openings *a*^{4*} in the floors of the corner ovens or chambers to serve the same purpose as the openings *a*⁴. The smoke-chambers *g* lead into the flue or chimney *x*. *a*¹⁰ represents the outer walls of the kiln, and *a*¹¹ represents the doorways or entrances to the chambers or ovens *a*. Thus the fire is continually traveling around the kiln in one direction. Passages *a*⁵ for the fire are formed one at each end and at intervals along the walls *a'* between the chambers or ovens *a*, and the inner ends *a*⁶ of the latter are bayed to resist the bulging of the smoke-chamber walls due to the influence of the heat. Holes *a*⁸ are formed in the roofs *a*⁷ of the chambers or ovens *a*, through which smudge or other fuel is fed to assist burning. The burning is commenced by the usual method employed in Hoffman's kilns.

When two or three chambers or ovens *a* of bricks are burned, one or more of the valves *c* belonging to those chambers and leading into the horizontal pipes or flues *b* above the said chambers or ovens is or are opened, as also the valves *c'*, leading to the vertical pipes or

flues d , connected to the hot-air flue e of the chamber or oven a to be water-smoked, the corresponding valve g' in the smoke-chamber g being also opened. The hot gases are thus drawn by the draft of the chimney x from the upper part of the burning chambers or ovens a , through the opening a^* , along the pipes b at the top of the kiln, then down the vertical pipes or flues d , whence they are delivered at the bottom of the chamber or oven a required to be water-smoked. When the water-smoking in a chamber or oven a is nearly completed, the hot gases are shut off therefrom, and the main fire is drawn in through the passages a^5 in the side walls a' and the burning completed in the usual manner.

The process above described is repeated with each chamber a as the fire travels around the kiln, thus producing bricks or other articles evenly dried and burned. The whole arrangement can be worked from the top of the kiln.

I arrange a series of boilers h , resting on piers or supports a^{12} in spaces a^9 , formed in the roofs a^7 of the chambers or ovens a , each of such boilers h being provided with the usual fittings—namely, safety-valve h' , water-gage h^2 , water-cocks h^3 , manhole h^4 , blow-out cocks h^5 , and steam-gage h^6 . Valves i enable the boilers to be connected and disconnected with common feed and steam pipes j and k , and valves i^2 enable parts of the common steam-pipe to be cut off. As the fire travels around the kiln there are always a certain number of chambers or ovens a hot, so that at any given time a certain number of the boilers are being heated. The valves i i^2 are so arranged that, say, any two adjacent boilers h can be cut off for inspection or repairs at one time. The boilers are arranged in pairs adjacent to each other.

In the modification shown at Fig. 5 the hot-air flues are dispensed with, and the lower parts of the vertical pipes or flues d are built in brickwork, leaving small openings a^9 between the joints of the latter and a larger opening a^{10} at the floor-level to break up the heat into small currents on its way down said pipes or flues d .

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a continuous-burning kiln, the combination of a series of ovens or chambers, holes in the roofs of such chambers through which smudge or other fuel is fed to assist burning; bayed inner ends to such ovens or chambers; a series of horizontal pipes or flues above said ovens or chambers; a series of vertical downdraft-flues within the walls dividing the chambers or ovens; hot-air flues along one side and below the floors of the ovens or chambers and communicating with said vertical downdraft-flues; openings in and along one side of the oven-floors communicating with said hot-air flues; valves to connect and disconnect the horizontal pipes or flues with the ovens or chambers; valves to connect and

disconnect the horizontal and vertical pipes or flues; main outlet-flues below the oven-floors on the side opposite to that of the vertical pipes or flues; openings along one side of the oven-floors communicating with such outlet-flues; vertical passages connecting the main outlet-flues with the smoke-chamber; valves arranged on the top of the vertical passages; a smoke-chamber into which such vertical passages open, and a smoke-stack or chimney into which the smoke-chamber opens, substantially as herein set forth.

2. In a continuous-burning kiln, the combination of a series of ovens or chambers; parallel sides to such chambers; passages for the fire in the walls; holes in the roof of such chambers, through which fuel is fed; outlet-openings in the roofs; valves to close said openings; valve-chambers in which the valves are situated; horizontal pipes or flues above said ovens communicating with the valve-chambers; vertical downdraft-flues arranged in the walls dividing the chambers or ovens; valves to connect and disconnect the vertical downdraft-flues with the horizontal flues; openings communicating between the ovens or chambers and the downdraft-flues; main outlet-flues below the oven-floors on the side opposite to the vertical downdraft-pipes; openings along one side of the oven-floors communicating with such outlet-flues; vertical passages connecting the main outlet-flues with the smoke-chamber; valves arranged on top of the vertical passages; the walls of such smoke-chamber having parallel interior sides and bayed external portions forming the backs or inner ends of the ovens; and a smoke-stack or chimney into which the smoke-chamber opens, substantially as set forth.

3. In a continuous-burning kiln, the combination of a series of ovens or chambers; parallel straight sides to such ovens; arched roofs to such ovens; boilers arranged to form part of the roofs and supported partly by the arches; piers in such ovens to partly support the boilers; holes in the roofs of such ovens through which fuel is fed; main outlet-flues below the oven-floors; openings along one side of the oven-floors communicating with such outlet-flues; a smoke-chamber into which such outlet-flues open; parallel interior sides to the smoke-chamber walls; exterior bayed portions to such walls forming the backs or inner ends of the ovens; and a smoke-stack or chimney into which such smoke-chamber opens, substantially as set forth.

4. In a continuous-burning kiln, the combination of a series of ovens or chambers; parallel straight walls to such ovens; fire-passages arranged in the walls communicating between adjacent ovens, arched roofs to such ovens, boilers arranged to form part of the roofs and supported partly by the same; piers in such ovens to partly support the boilers; openings in the roofs; valves to such openings; horizontal flues above said ovens into

which the said openings lead; vertical down-
draft-flues arranged in the walls between the
ovens; valves to connect and disconnect the
vertical downdraft-flues and the said hori-
5 zontal pipes or flues; openings at the lower
ends of the downdraft-flues communicating
with the ovens; main outlet-flues below the
oven-floors on the side opposite to the verti-
cal downdraft-flues; openings along one side
10 of the oven-floors communicating with main
outlet-flues; a smoke-chamber into which the
outlet-flues open; parallel interior sides to

the smoke-chamber walls; bayed exterior
portions to such walls forming the backs or
inner ends of the ovens; and a smoke-stack 15
into which the smoke-chamber opens, sub-
stantially as set forth.

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

ADAM ADAMS.

Witnesses:

ARTHUR HILL,
PERCY FRED ROSE.