

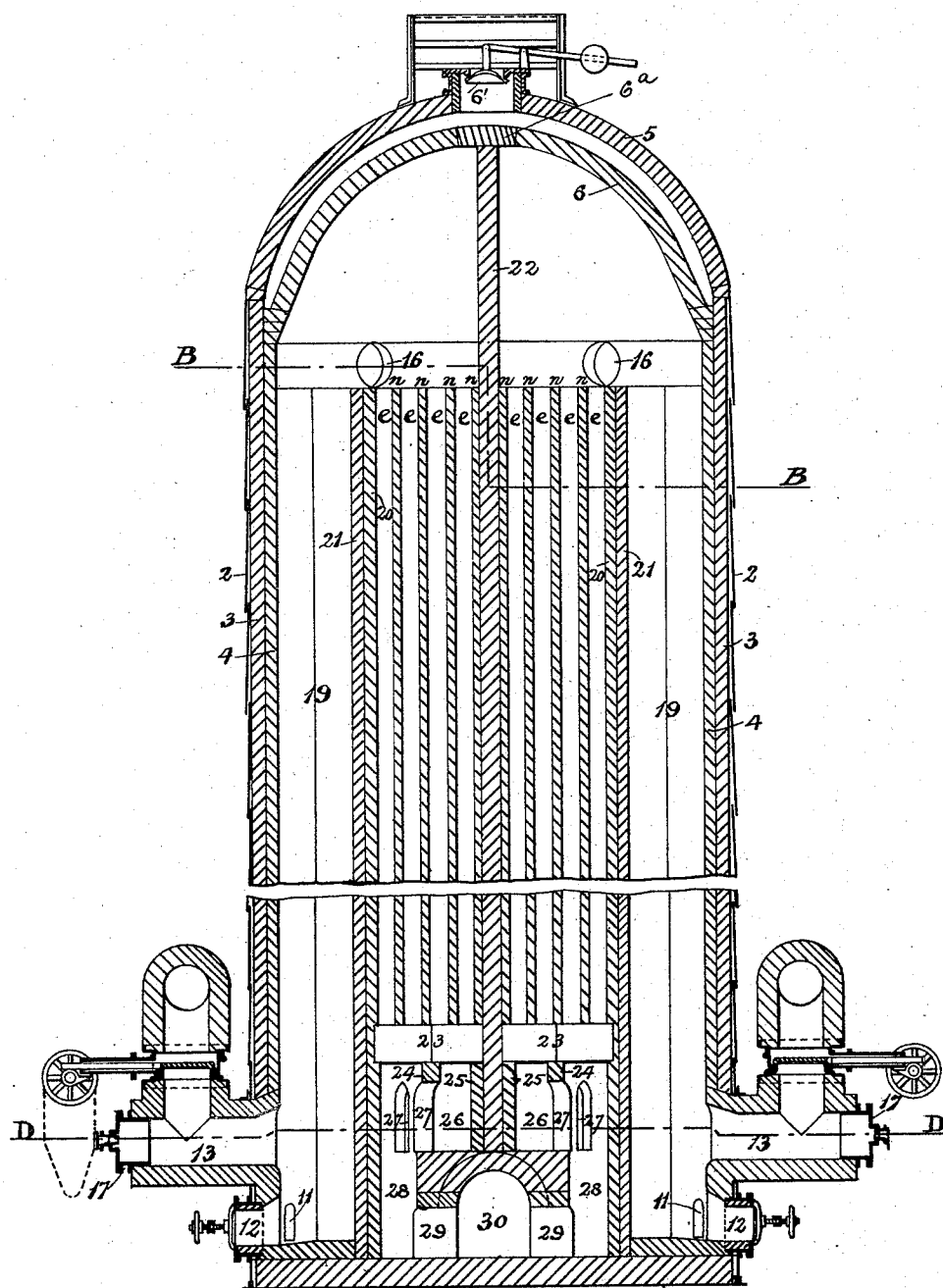
(No Model.)

6 Sheets—Sheet 1.

G. W. McCLURE.  
HOT BLAST STOVE.

No. 573,902.

Patented Dec. 29, 1896.



Witnesses  
H. W. Middlemist  
M. W. Gaskey.

Section on a-a

Fig. 1

Inventor  
George W. McClure,  
by Wm L. Pierce,  
his Attorney

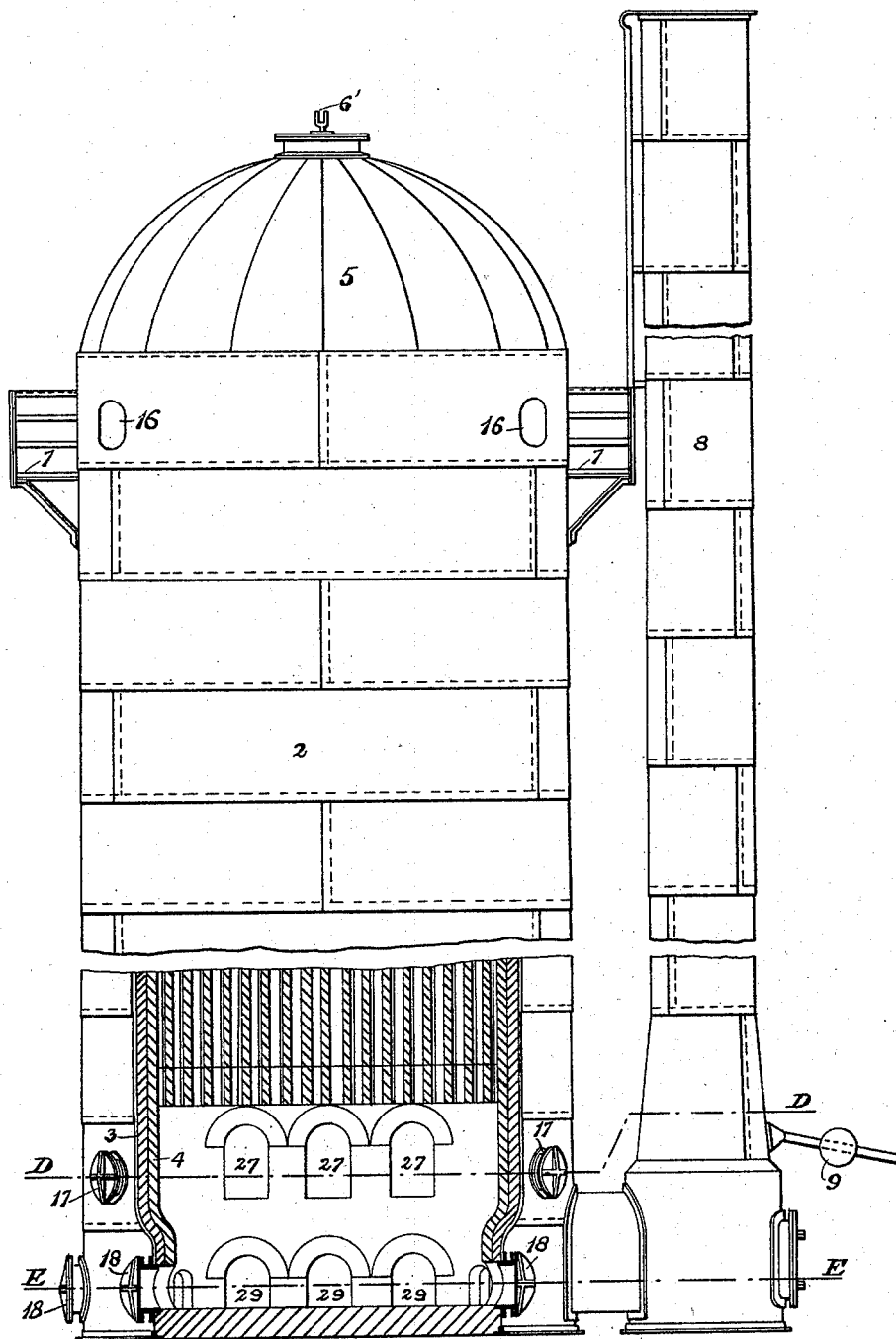
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HOT BLAST STOVE.

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Patented Dec. 29, 1896.



Witnesses  
H. W. Middleton  
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Section on C-C

Fig. 2

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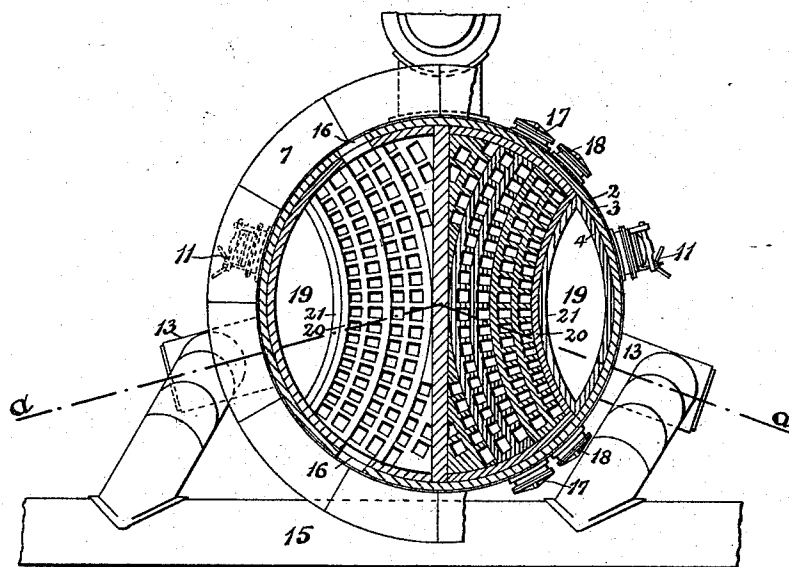
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G. W. McCLURE.  
HOT BLAST STOVE.

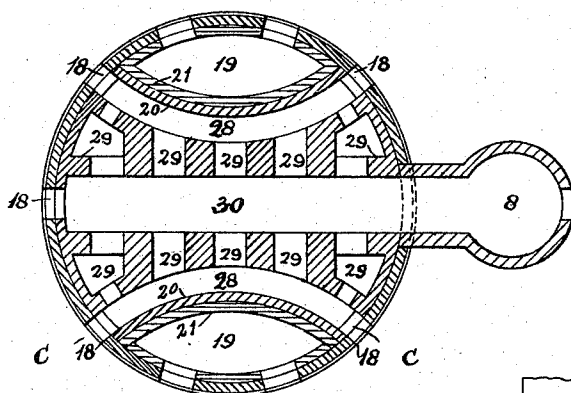
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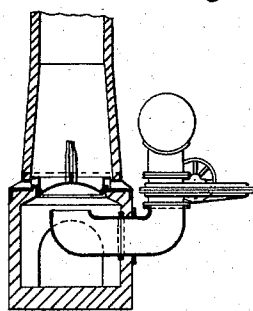
Section B-B

Fig. 3



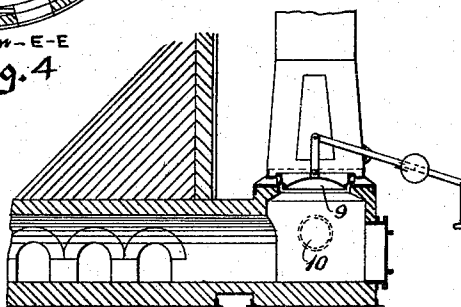
Section E-E

Fig. 4



Section G-G

Fig. 6



Section F-F

Fig. 5

Witnesses

H. W. Middlemist  
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Inventor  
George W. McClure  
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his Attorney

(No Model.)

6 Sheets—Sheet 4.

G. W. McCLURE.  
HOT BLAST STOVE.

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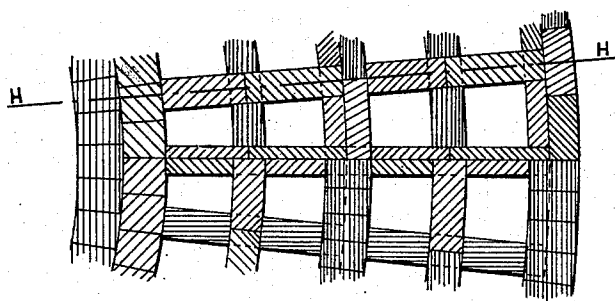
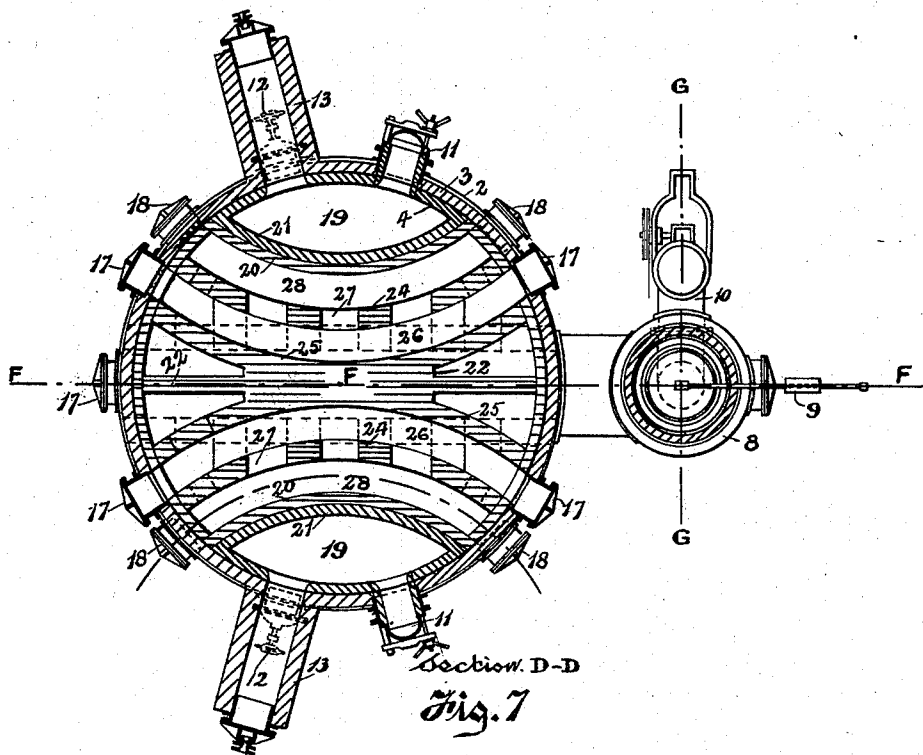
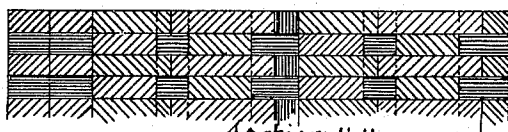


Fig. 8



Section H-H

Fig. 9

Witnesses  
H. W. Middlemist  
M. H. Caskey.

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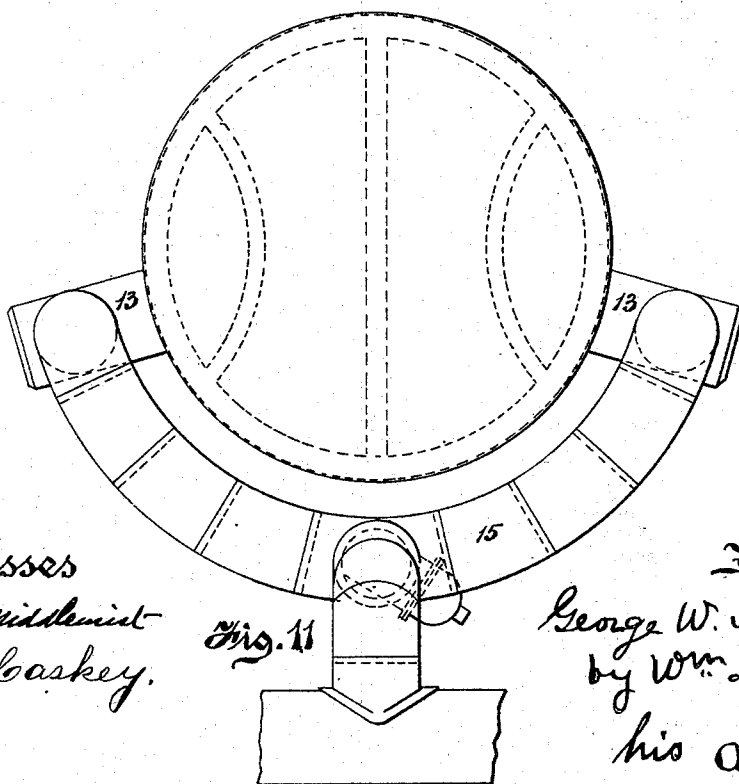
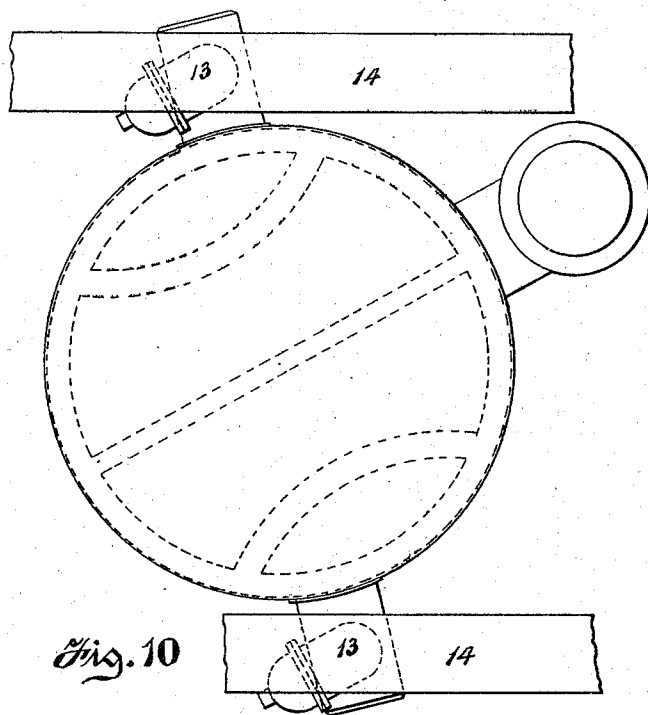
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G. W. McCLURE.  
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Patented Dec. 29, 1896.



Witnesses

H. W. Middleton  
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Fig. 11

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(No Model.)

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G. W. McCCLURE.  
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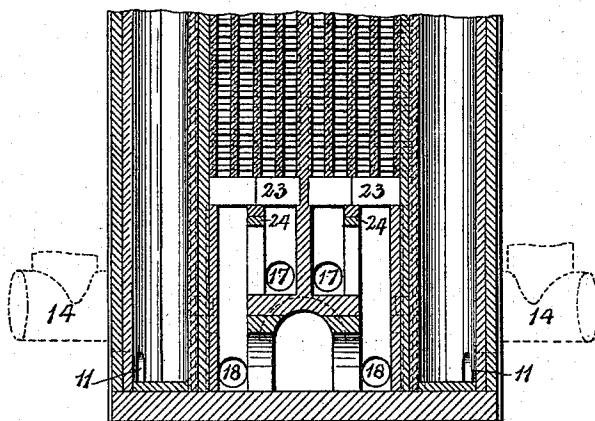


Fig. 12

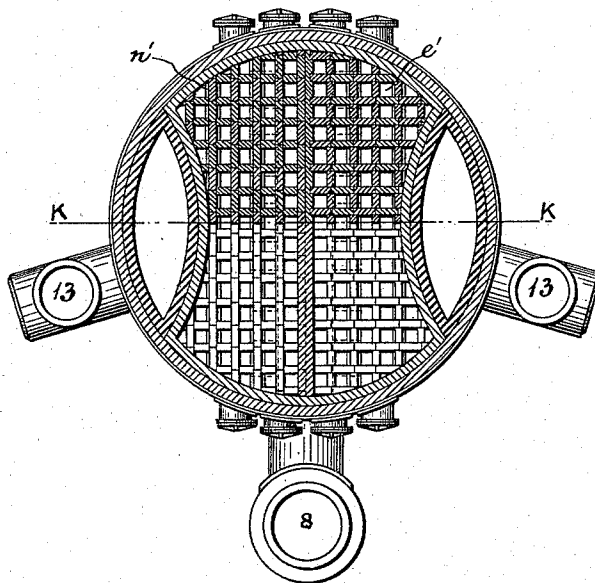


Fig. 13

Witnesses:

*Wm. T. Tamm*

*H. W. Middlemist*

Inventor

*George W. McClure,*  
*by Wm. L. Pierce,*  
*his Attorney.*

# UNITED STATES PATENT OFFICE.

GEORGE W. MCCLURE, OF PITTSBURG, PENNSYLVANIA.

## HOT-BLAST STOVE.

SPECIFICATION forming part of Letters Patent No. 573,902, dated December 29, 1896.

Application filed January 3, 1896. Serial No. 574,200. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE W. MCCLURE, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered new and useful Improvements in Hot-Blast Stoves, of which the following is a specification.

In the accompanying drawings, which make part of this specification, Figure 1 is a vertical section on line *a a* of Fig. 3. Fig. 2 is a part side elevation and broken section on line *c c* of Fig. 4. Fig. 3 is a section on line *B B* of Fig. 1. Fig. 4 is a section on line *E E* of Fig. 2. Fig. 5 is a section on line *F F* of Fig. 7. Fig. 6 is a section on line *G G* of Fig. 7. Fig. 7 is a section on line *D D* of Fig. 1. Fig. 8 is a horizontal section commencing at the lining of the left-hand combustion-chamber and extending through the central dividing-wall. Fig. 9 is a vertical section on line *H H* of Fig. 8. Fig. 10 is a plan illustrating one method of running the hot-blast connection to the two combustion-chambers. Fig. 11 is a like view illustrating a second method of running the same connection. Fig. 12 is a vertical section on line *K K* of Fig. 13 and showing straight lines of flues instead of flues run on arcs, and Fig. 13 is an irregular horizontal section through the top of a similar stove to Fig. 12.

The purpose of my invention, generally stated, is a two-pass hot-blast stove with two side combustion-chambers, and by which construction greater uniformity of draft and a better distribution are secured.

In the accompanying drawings, which make part of this specification, 2 is the metal jacket of the stove.

3 is the shell, and 4 the lining of the shell.

5 is the dome of the stove, and 6 a false roof separated from said dome by a suitable distance and built independently of the shell of the stove.

6<sup>a</sup> is a block constituting the keystone of the arch of the false roof 6.

6<sup>b</sup> is a self-regulating valve in the dome.

7 is the usual platform, and 8 the stack.

9 is the stack-valve.

10 is the cold-blast inlet.

11 11 are the gas-inlets, controlled by suitable valves.

12 12 are the air-inlets.

13 13 are the hot-blast outlets, fed by separate pipes 14 14, as seen in Fig. 10, or by a single run of pipe 15, operated by one or more valves, as seen in Figs. 3 and 11.

16 16 are suitable cleaning-doors at the level of the top of the flues, and 17 17 and 18 18 at the two bottom levels of the flues.

The interior construction of the stove, as seen in all figures except Figs. 12 and 13, is as follows:

19 19 are oval-shaped side combustion-chambers formed between the lining 4 of the shell and arc-shaped walls 20 20. 21 21 are the linings of said combustion-chambers. These combustion-chambers preferably extend from the bottom of the stove to a point a little below where the false roof is sprung. From the top level of the chimney-flue to the false roof extends a central dividing-wall 22. The space between said central wall and the inner wall of the combustion-chamber and the arc-shaped portions of the shell on both sides of the stove is occupied by arc flues *e e*, formed between vertical walls *n n*, as clearly seen in Fig. 3.

The manner in which the masonry is built up for the flues is shown in Figs. 7 and 8. The flues extend from the top level of the combustion-chamber preferably to a point somewhat above the level of the hot blast. Each set here communicates with a horizontal flue 23, built up of girders set on edge. These girders are supported in offsets in the wall of the combustion-chambers and on arches 24 24 and arc-shaped walls 25 25.

Between arch 24 and wall 25 on each side of the stove are formed vertical flues 26 26, extending to the level of the top of the chimney-flue and connecting by cross-flues 27 27 through said arches with a second vertical flue on each side 28 28, extending to the bottom of the stove. By cross-flues 29 29 flues 28 28 connect with stack-flue 30.

In the modification shown in Figs. 12 and 13 the checker-work of the flues *e' e'* is formed between vertical walls *n' n'*, running straight across the stove instead of on arcs of circles.

There are no other significant changes between the two constructions.

In operation when the stove is on gas the hot-blast and cold-blast valves are closed and

the gas and air valves opened, admitting gas and air to each combustion-chamber. The gas and air burning in said chambers on both sides of the stove ascend to the top of the chambers and the products of combustion are uniformly distributed from each chamber to its respective series of flues *e e*, descending said flues to the horizontal flue 23, thence to vertical flues 26 and 28, and from flue 26 through cross-flues 27 27, and by flue 28 to bottom of stove, and thence through cross-flues 29 29 to stack-flue 30 to stack. When the stove is sufficiently heated, the stack-valve is closed and the gas and air inlet valves, while the cold blast is turned on, the cold blast making a retraverse in precisely opposite direction to that described and escaping to the hot blast.

I do not claim in this application the feature of the false roof, nor its independency of the shell of the stove, nor the automatic valve which controls the entrance of air into the space between the roof and the inner dome, nor the feature of building the combustion-chambers, linings, and flues independent of each other, as such constitutes the subject-matter, *inter alia*, of a separate application filed by me October 17, 1895, Serial No. 565,933; but I do claim, broadly, the general arrangement of the combustion-chambers and flues of this double stove in one shell and the connection therewith of the gas, air, and hot-blast connection.

Having described my invention, I claim—  
 1. In hot-blast stoves the combination of a shell; a vertical wall cutting the stove into substantially two equal divisions; in each division a side combustion-chamber adjacent to the shell; vertical heating-flues in each di-

vision between the combustion-chamber and the vertical dividing-wall which prevents communication between the heating-flues of the two divisions and a stack-flue communicating with the heating-flues.

2. In hot-blast stoves, the combination of a shell; a wall dividing the stove into two parts; an oval side combustion-chamber and vertical heating-flues running on arcs in each division, and a stack-flue communicating with the heating-flues.

3. In hot-blast stoves the combination of a shell; a vertical wall cutting the stove into substantially two equal divisions; in each division a side combustion-chamber adjacent to the shell; vertical heating-flues in each division between the combustion-chamber and the vertical dividing-wall which prevents communication between the heating-flues of the two divisions; a stack-flue communicating with the heating-flues; a gas-inlet, an air-inlet and a hot-blast connection to each combustion-chamber.

4. In hot-blast stoves, the combination of a shell; a wall dividing the stove into two parts; a side combustion-chamber and vertical heating-flues in each division; a horizontal flue at the base of each set of said vertical heating-flues; an inner and outer vertical flue beneath each of said horizontal flues; connections between said inner and outer vertical flues; a stack-flue and connections between said stack-flue and said outer vertical flue.

In testimony whereof I have hereunto set my hand this 30th day of December, A.D. 1895.

GEORGE W. MCCLURE.

Witnesses:

LUCY D. IAMS,  
 WM. L. PIERCE.