

No. 647,149.

Patented Apr. 10, 1900.

G. W. McCLURE.  
HOT BLAST STOVE.

(Application filed July 3, 1897.)

(No Model.)

2 Sheets—Sheet 1.

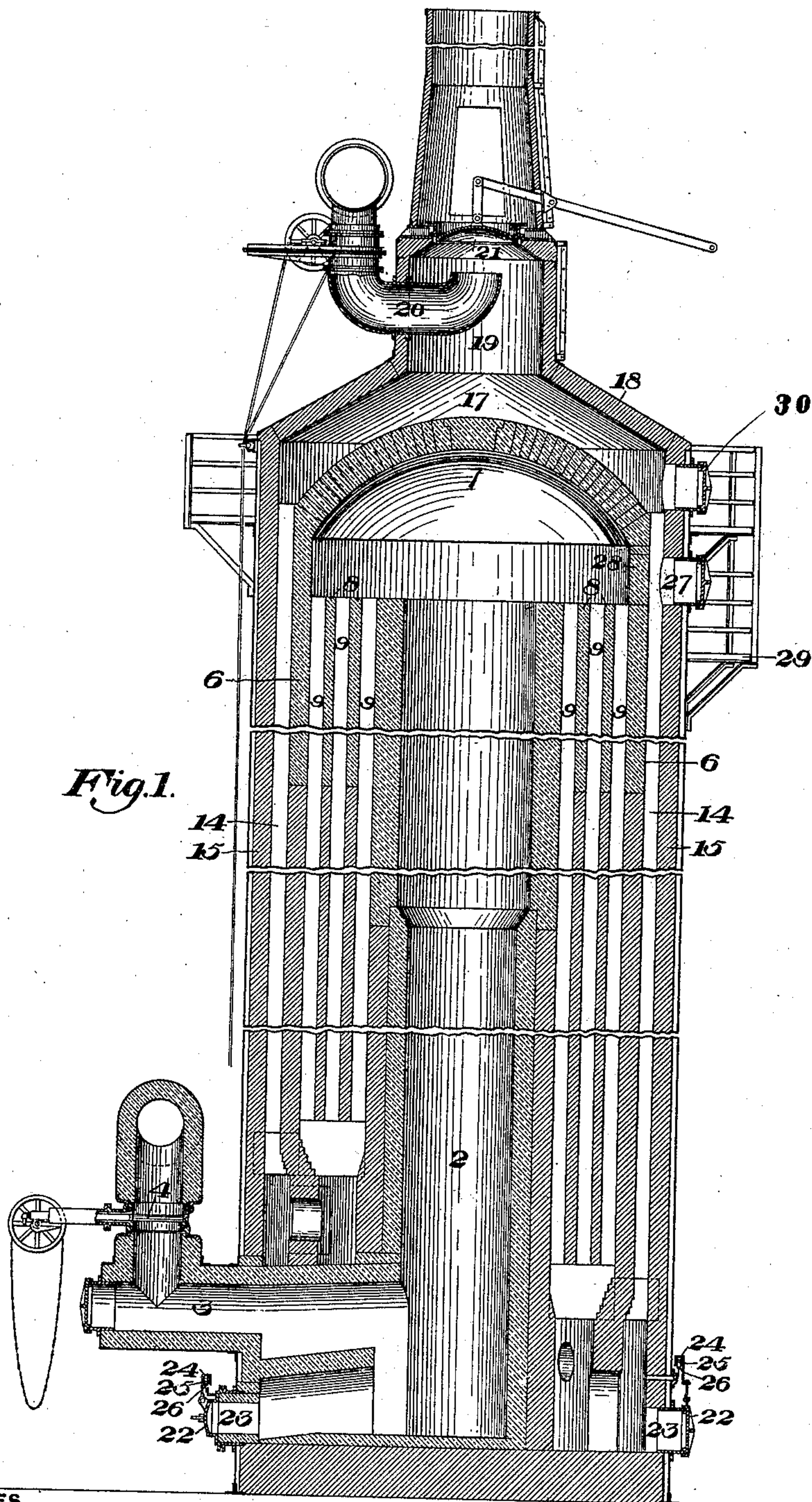


Fig. 1.

WITNESSES

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by Baxendell & Baxendell  
his Attorneys.



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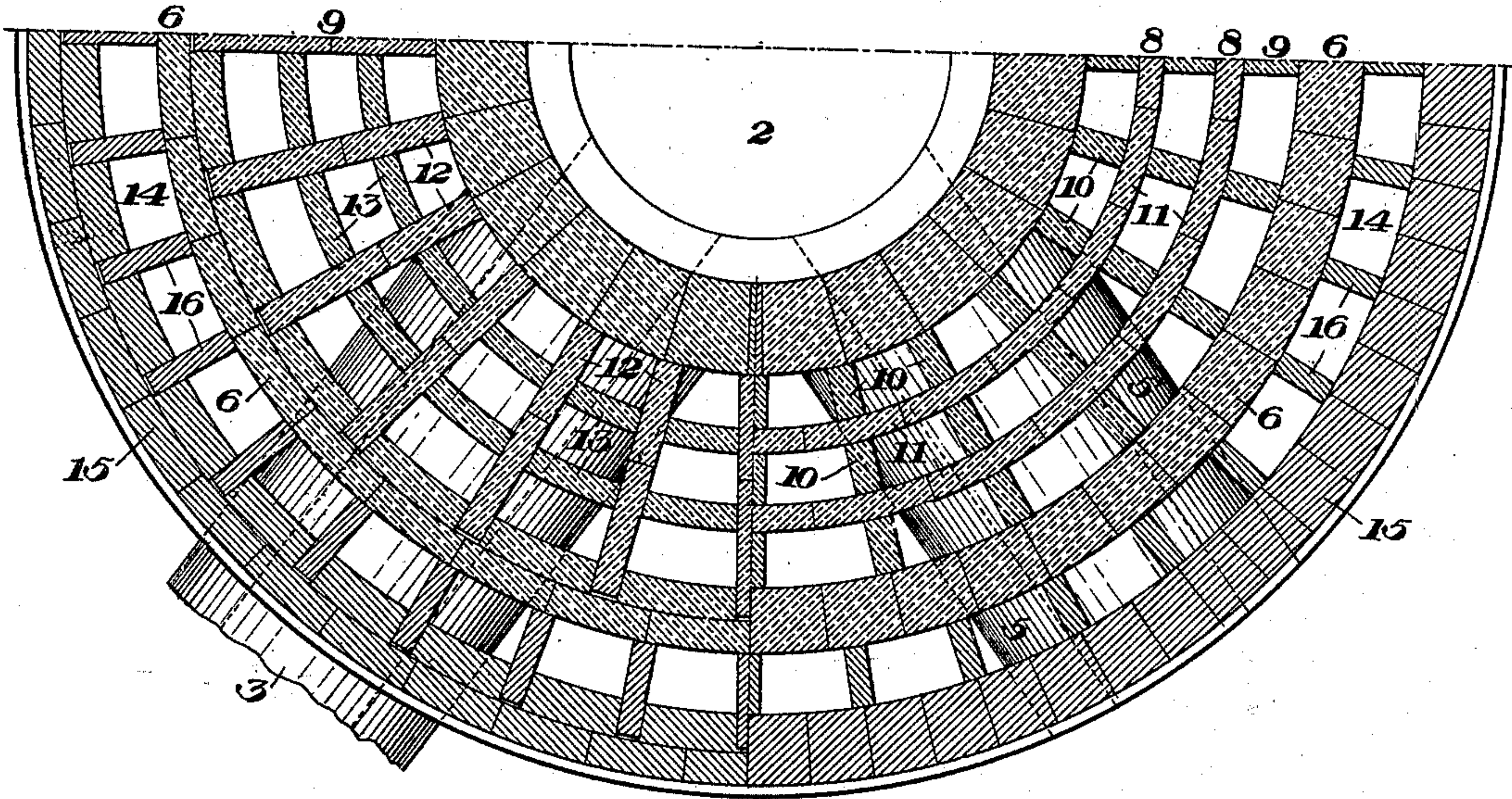
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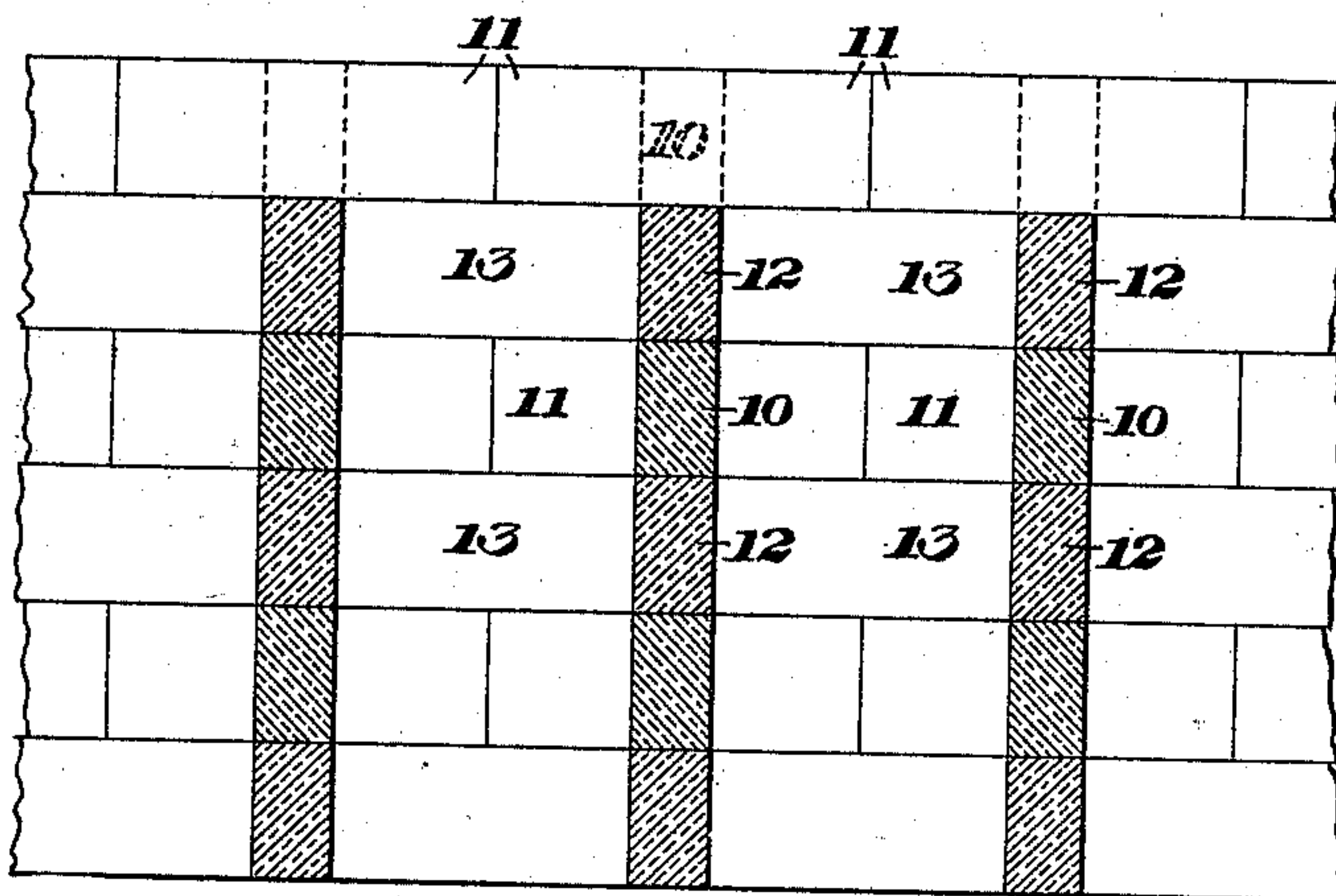
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*Fig. 2.*



*Fig. 3.*



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# UNITED STATES PATENT OFFICE.

GEORGE W. MCCLURE, OF PITTSBURG, PENNSYLVANIA.

## HOT-BLAST STOVE.

SPECIFICATION forming part of Letters Patent No. 647,149, dated April 10, 1900.

Application filed July 3, 1897. Serial No. 643,380. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE W. MCCLURE, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Hot-Blast Stoves, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a central vertical sectional view of my improved hot-blast stove. Fig. 2 is a partial horizontal section of the same, taken on two different planes; and Fig. 3 is a partial vertical section with a portion of the bricks removed.

My invention relates to the general class of hot-blast stoves known as "three-pass" stoves, and more especially to that type set forth in my former patent, No. 469,826, dated March 1, 1892; and it is designed to improve the operation and lengthen the life of such stoves, as well as to improve certain details therein, as hereinafter more fully described, and set forth in the claims.

In the drawings, 2 represents a central combustion-chamber forming a first pass, to the base of which leads the flue 3, forming a gas-inlet and hot-blast outlet, this flue being provided outside the stove with the usual water-cooled valve 4.

5 is the air-inlet flue leading into the combustion-chamber, this flue being located in any convenient position.

6 is an annular dividing-wall within the stove, provided with a dome-shaped top 7, this wall dividing the second from the third pass and extending to the bottom of the stove, openings being provided in its lower portion to connect the second and third passes. The annular space between the dividing-wall 6 and the central combustion-chamber is divided into a series of flues by annular walls 8, the annular spaces thus formed being cut up into smaller flues by radial walls 9. This feature of providing the second pass between the central combustion-chamber and the annular dividing-wall with division-walls, thus giving this pass a large amount of heating-surface, forms an important part of my invention.

In Figs. 2 and 3 I illustrate another feature of my invention, which consists in the man-

ner of tying together the bricks which form the flues of the second pass. Thus in the right-hand half of Fig. 2 I show the radial walls as formed at one horizontal course by radial bricks 10, which extend between and abut at their ends against the bricks 11, which form a continuous wall in this course, the bricks 10 abutting against the bricks 11 intermediate of the ends of the latter. At the left-hand half of this figure I show in section the next course above or below the one just described, in this course the radial bricks 12 extending continuously from the wall of the combustion-chamber into the dividing-wall 6, they extending through spaces between the bricks 13, which form the annular wall at this level. In this course the bricks 13 abut against the bricks 12 intermediate of their ends. The bricks forming the annular walls of the second pass are therefore continuous in one course, while in the next course above or below the radial walls are continuous and separate the bricks of the circular walls. The bricks forming the flues of the second pass are therefore securely tied together and to the dividing-wall 6, so that when the stove is heated they will be firmly held together and will move as a whole with the wall 6, to which they are tied. The third pass 14 of the stove between the outer wall 15 and the wall 6 is preferably divided into a series of flues by radial bricks 16, which preferably extend into the outer wall and abut against the wall 6. The third pass opens at its top into the space 17 between the dome 7 and the top 18 of the stove, and from this space leads the stack-flue 19, into which extends the cold-blast pipe 20.

21 is the chimney-valve, which opens downwardly and is constructed in the usual way.

22 are doors covering cleaning-openings at the base of the stove, these doors being arranged to move horizontally and being carried by hangers 24, depending from trolleys 25, running on short horizontal tracks 26. This arrangement gives a very cheap and convenient means for operating these doors.

In order to get access to the second pass of the stove for cleaning or repairs, I provide a door 27 in the outer wall at a point just above the level of the dividing-walls in the second pass, and opposite this door at the point 28 I build an arch in the wall 6, within which



the bricks can be easily removed, so that a workman can enter the stove through this opening, a platform 29 being provided outside the door. Air may thus enter the stove 5 below the dome 7, allowing the workman to enter the stove before it is cooled down. A door 30 is also provided in the outer wall above the door 27 to permit of access to the interior of the stove above the dome.

10 The advantages of my invention will be apparent to those skilled in the art, since the main portion of the heating-surface is placed in the second pass, so that the heat is largely absorbed in the inner portions of the stove, 15 while the bricks forming such heating-surface are bonded together, so as to prevent their displacement, they moving as a whole during expansion or contraction.

20 Modifications in the form, construction, and arrangement of the parts may be made by the skilled mechanic without departure from my invention, since

What I claim is—

1. A hot-blast stove having a central or 25 initial first pass, an annular second pass surrounding the first pass, and an annular third pass surrounding the second pass, said second pass having a greater amount of heating-surface than the third pass.

30 2. A hot-blast stove having an annular flue subdivided by circular and radial walls, the

bricks composing the circular walls being continuous at one course, in which course the radial bricks abut against the same intermediate of their ends, while in the next course 35 the bricks forming the radial walls are continuous, the bricks forming the circular walls in this course abutting against the radial bricks intermediate of the ends of the latter.

3. A hot-blast stove having an inner or first 40 pass, a second or intermediate pass outside of the first pass, and a third pass outside of the second pass, said second or intermediate pass being subdivided into flues by horizontal courses of bricks forming radial and circular 45 walls, the bricks forming the circular walls being continuous at one course, in which course the radial bricks abut against the circular walls intermediate of the ends of the bricks composing said walls, while in the next 50 course above or below the radial bricks are continuous and are tied to the outer wall of the pass, the bricks forming the circular walls in the latter course abutting against the radial bricks intermediate of their ends. 55

In testimony whereof I have hereunto set my hand.

GEORGE W. McCLURE.

Witnesses:

THOMAS W. BAKEWELL,  
H. M. CORWIN.