

W. J. BROWN.
HOT BLAST STOVE.
APPLICATION FILED MAR. 13, 1912.

1,062,221.

Patented May 20, 1913.

Fig. 1.

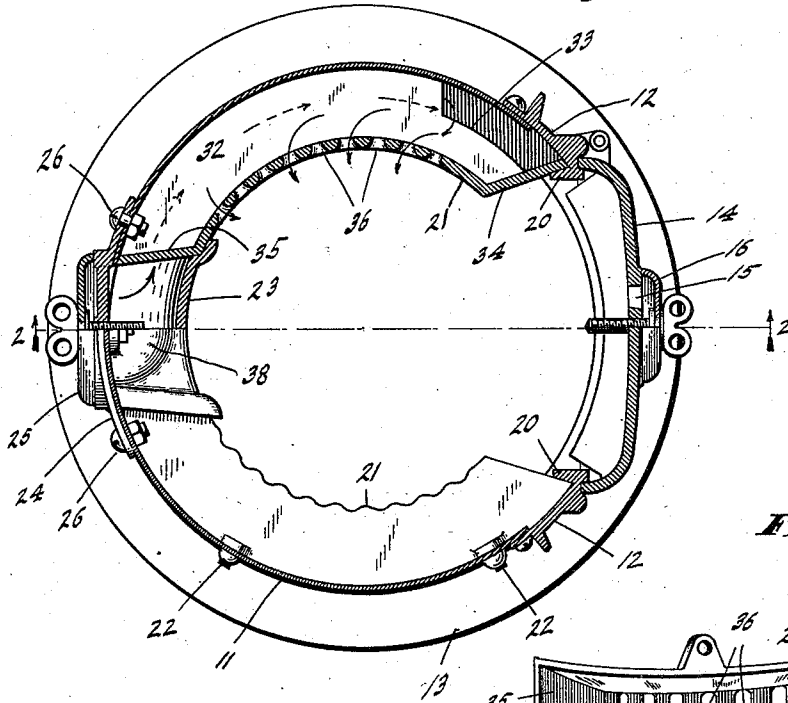


Fig. 3.

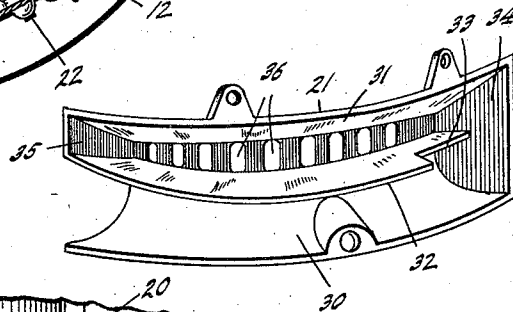
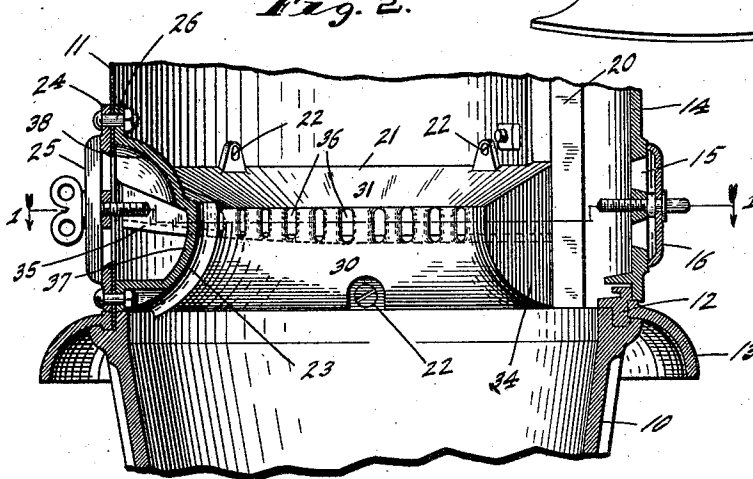


Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM J. BROWN, OF INDIANAPOLIS, INDIANA, ASSIGNOR TO INDIANAPOLIS STOVE COMPANY, OF INDIANAPOLIS, INDIANA, A CORPORATION OF INDIANA.

HOT-BLAST STOVE.

1,062,221.

Specification of Letters Patent.

Patented May 20, 1913.

Application filed March 13, 1912. Serial No. 683,582.

To all whom it may concern:

Be it known that I, WILLIAM J. BROWN, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented a new and useful Hot-Blast Stove, of which the following is a specification.

It is the object of my invention to improve the operation, and at the same time to simplify and cheapen the construction, of hot blast stoves.

The various novel features of my invention will appear from the description and drawings, and will be particularly pointed out in the claims.

In the drawings, Figure 1 is a horizontal section, with its upper half substantially on the line 1—1 of Fig. 2, and its lower half on a higher plane, through a hot blast stove embodying my invention; Fig. 2 is a section on the line 2—2 of Fig. 1; and Fig. 3 is a perspective view of one of the air heating chambers.

The firepot is formed by a casting 10, which is surmounted by a cylindrical casing 11, conveniently made of sheet iron, or cast iron, provided with a door frame 12 at the front. At the joint between the firepot 10 and the casing 11 there may be an ornamental ring 13, if desired. A door 14 is suitably mounted on the door frame 12, and may be provided with air-inlet openings 15 controlled by a damper 16.

The door frame 12 is provided at each side of the doorway with an inwardly extending flange 20. The forward tapered ends of two mating castings 21 project into the spaces formed between such flanges 20 and the door frame 12, and extend circumferentially around the inside of the base of the cylinder 11 toward the rear. These castings preferably rest on the top of the firepot 10, and are suitably fastened to the cylinder 11, as by bolts 22. The rear ends of the two castings 21 do not meet, but leave a tapered space between them to receive a flanged and tapered casting 23 the open back of which registers with an opening in the rear of the casing 11. A damper frame 24, provided with a damper 25, is suitably held in place over this opening, as by bolts 26 some of which also hold the casting 23 in place.

Each casting 21 has a curved lower wall 30 which curves inward and upward, with the convexity inward, from the base of the

casing 11 to meet the top wall 31, which is substantially in the form of a segment of an inverted cone having an angle sharp enough to cause the coal to slide off of it readily. Each casting 21 also has a medial arc-shaped wall or partition 32, which extends substantially horizontally outward from the wall 30 at a slight distance from the top thereof. The outer edges of the walls 30, 31, and 32 engage the inner surface of the cylindrical casing 11, and with it form upper and lower chambers. The medial partition 32 is cut away at its forward outer corner to form an opening 33 connecting such two chambers. The forward ends of the two chambers are closed by the front wall 34 of the casting 21, and the rear end of the upper chamber by the rear wall 35. The wall 30 is provided with a number of openings 36 above the medial partition 32, these openings connecting the upper chamber with the combustion chamber of the stove. The rear end of the lower chamber is open and communicates with the open ends of the chamber formed by the casting 23, which has a lower wall 37 similar in vertical section to the wall 30 and an upper wall 38 which conveniently has the form of a fragment of a spherical shell.

In operation, air enters through the damper frame 24 and the opening at the rear of the casing 11 into the chamber formed by the casting 23. The air is deflected downward by the curved upper wall 38 of this casting, and passes from the chamber within the casting 23 into the lower chambers in the two castings 21, passing upward through the opening 33 at the forward end of each casting into the upper chamber there, and thence escaping through the openings 36 into the combustion chamber of the stove. The air is heated, by the fire in the firepot 10, as it passes through the chamber in the casting 23 and the lower chambers in the castings 21, this heating being facilitated by the shape given the walls 30 and 37.

What I claim as new is:

1. A hot blast stove, comprising the combination of a firepot, a superposed stove casing, a door frame mounted in said casing, and a pair of castings extending rearwardly from the sides of said door frame around the inside of the casing, each of said castings having an upper, a lower, and a medial wall which engage the inner surface of the casing

and with it form upper and lower chambers, the lower wall of each casting being imperforate and curved upwardly and inwardly with the convexity inward, the medial wall of each casting being cut away at the forward end to allow communication between said two chambers, and the upper chamber in each casting being provided with a plurality of openings in its inner wall, and walls closing the front ends of both chambers in each casting and the rear end of the upper chamber, the rear end of the lower chamber having communication with the air outside of the stove.

2. A hot blast stove, comprising the combination of a firepot, a superposed stove casing, a door frame mounted in said casing, and a pair of castings extending rearwardly from the sides of said door frame around the inside of the casing, each of said castings having an upper, a lower, and a medial wall which engage the inner surface of the casing and with it form upper and lower chambers, the medial wall of each casting being cut away at the forward end to allow communication between said two chambers, and the upper chamber in each casting being provided with a plurality of openings in its inner wall, and walls closing the front ends of both chambers in each casting and the rear end of the upper chamber, the rear end of the lower chamber having communication with the air outside of the stove.

3. A hot blast stove, comprising the combination of a firepot, a superposed stove casing, a door frame mounted in said casing, a pair of castings extending rearwardly from the sides of said door frame around the inside of the casing, each of said castings having an upper, a lower, and a medial wall which engage the inner surface of the casing and with it form upper and lower chambers, the lower wall of each casting being imperforate and curved upwardly and inwardly with the convexity inward, the medial wall of each casting being cut away at the forward end to allow communication be-

tween said two chambers, and the upper chamber in each casting being provided with a plurality of openings in its inner wall, and walls closing the front ends of both chambers in each casting and the rear end of the upper chamber, the rear end of the lower chamber having communication with the air outside of the stove, and a casting fitting between the rear ends of the aforesaid two castings and forming a chamber which communicates with the rear ends of the lower chambers in the first two castings and with the atmosphere outside the stove.

4. A hot blast stove, comprising the combination of a firepot, a superposed stove casing, a door frame mounted in said casing, a pair of castings extending rearwardly from the sides of said door frame around the inside of the casing, each of said castings having an upper, a lower, and a medial wall which engage the inner surface of the casing and with it form upper and lower chambers, the medial wall of each casting being cut away at the forward end to allow communication between said two chambers, and the upper chamber in each casting being provided with a plurality of openings in its inner wall, and walls closing the front ends of both chambers in each casting and the rear end of the upper chamber, the rear end of the lower chamber having communication with the air outside of the stove, and a casting fitting between the rear ends of the aforesaid two castings and forming a chamber which communicates with the rear ends of the lower chambers in the first two castings and with the atmosphere outside the stove.

In witness whereof, I, have hereunto set my hand and seal at Indianapolis, Indiana, this 11th day of March, A. D. one thousand nine hundred and twelve.

WILLIAM J. BROWN. [L. s.]

Witnesses:

ARTHUR M. HOOD,
FRANK A. FAHLE.