No. 649,192. Patented May 8, 1900.

A. K. BECKWITH.

STOVE OR FURNACE.

(Application filed Apr. 6, 1898.)

(No Model.) 3 Sheets—Sheet 1.

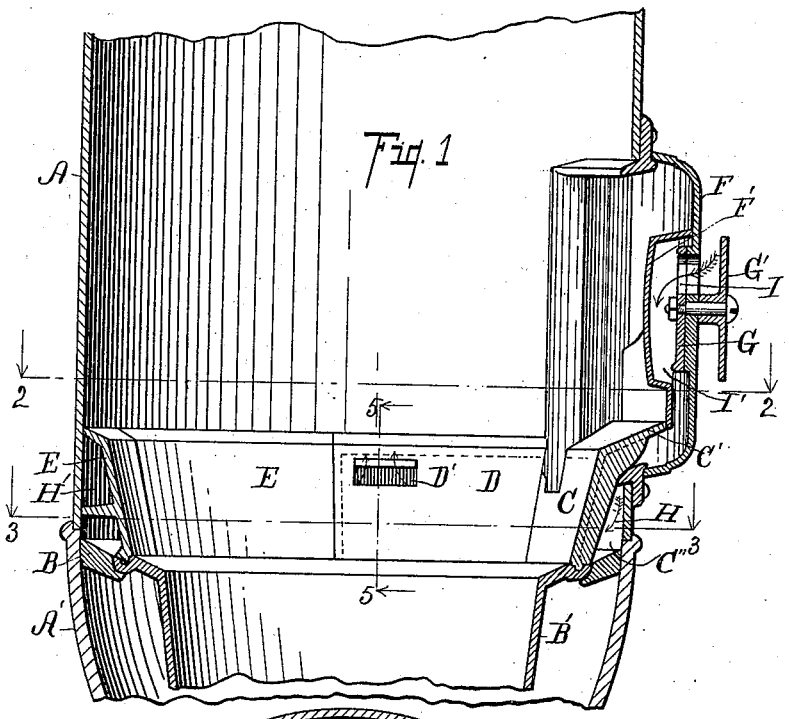

Fig. 1

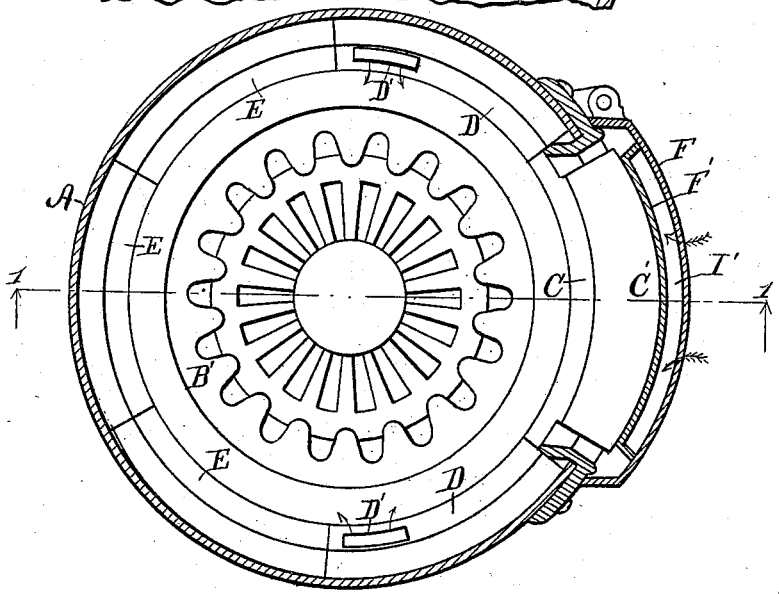

Fig. 2

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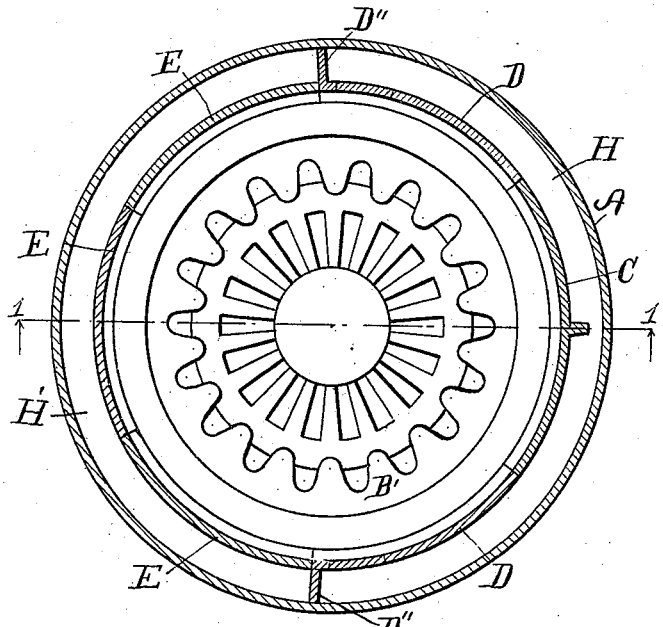

Fig. 3

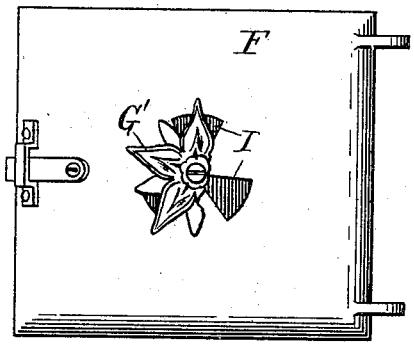

Fig. 4

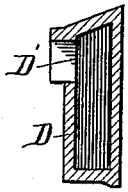

Fig. 8

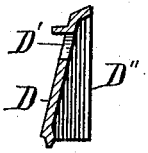

Fig. 5

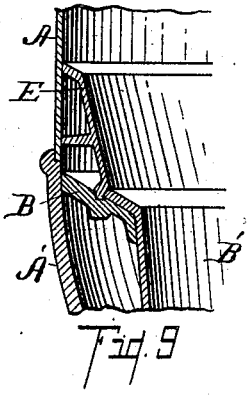

Fig. 9

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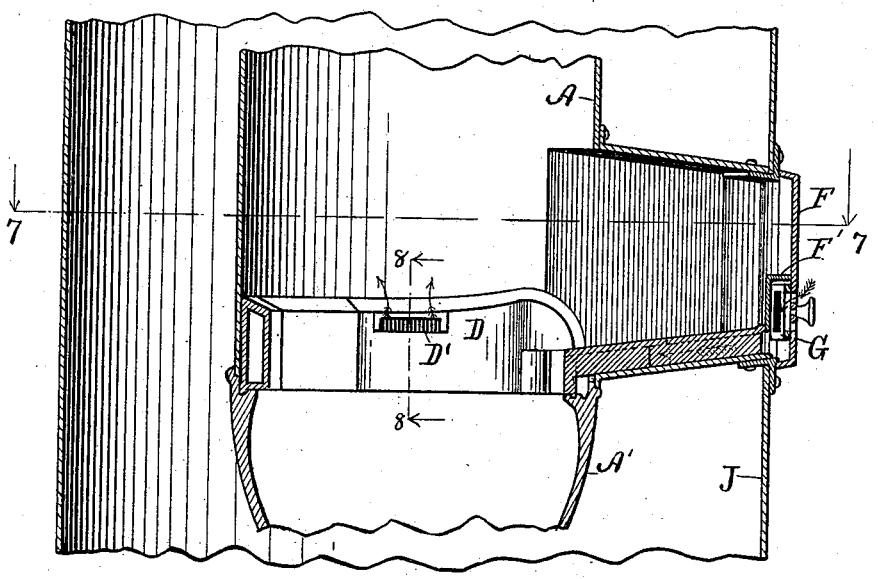

Fig. 6

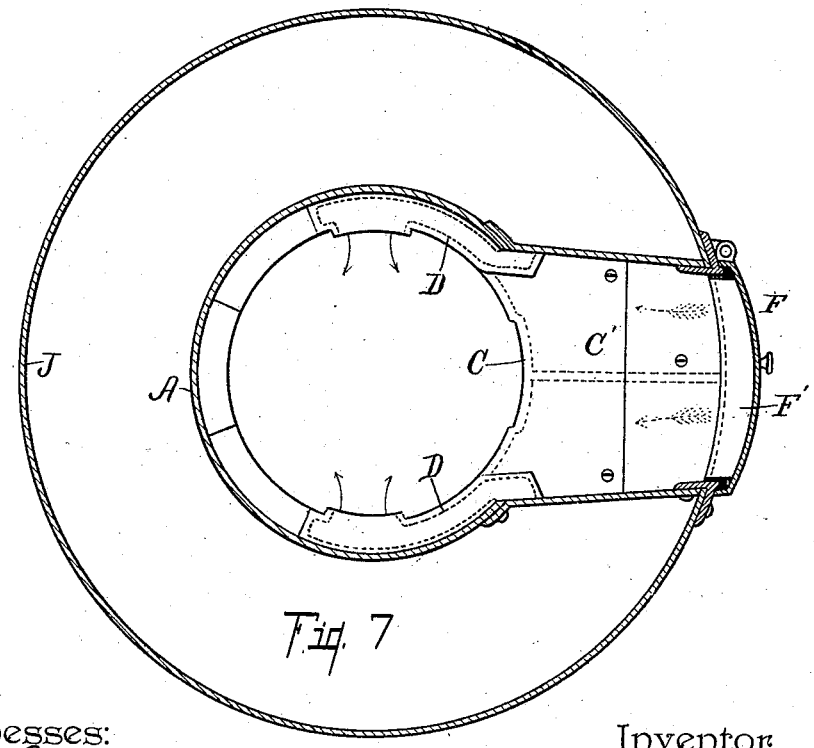

Fig. 7

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UNITED STATES PATENT OFFICE.

ARTHUR K. BECKWITH, OF DOWAGIAC, MICHIGAN, ASSIGNOR TO FRED E. LEE, OF SAME PLACE.

STOVE OR FURNACE.

SPECIFICATION forming part of Letters Patent No. 649,192, dated May 8, 1900.

Application filed April 6, 1898. Serial No. 676,706. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR K. BECKWITH, a citizen of the United States, residing at the city of Dowagiac, in the county of Cass and State of Michigan, have invented a certain new and useful Improvement in Stoves or Furnaces, of which the following is a specification.

This invention relates to improvements in stoves and furnaces.

The objects of this invention are to provide an improved hot blast or hot draft, to insure and secure a complete consumption of fuel and of gases and vapor or dust arising therefrom, and to augment the combustion and so increase the heating capacity of stoves or furnaces.

Another object is to provide an improved construction of hot-air draft flue or passage for stoves or furnaces.

Further minor objects will appear in the detail description to follow.

I accomplish these objects of my invention by the devices and means described in this specification.

The invention is definitely pointed out in the claims.

The structure is fully illustrated in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a vertical detail sectional view through a heating-stove embodying the features of my invention, taken on a line corresponding to line 1 1 of Fig. 2. Fig. 2 is a transverse detail sectional view taken on a line corresponding to line 2 2 of Fig. 1. Fig. 3 is a transverse detail sectional view taken on a line corresponding to line 3 3 of Fig. 1. Fig. 4 is a detail exterior view of the door of the stove removed. Fig. 5 is a detail sectional view on line 5 5 of Fig. 1, showing details of construction of the flue or passage. Fig. 6 is a vertical detail sectional elevation of a hot-air furnace embodying the features of my invention, showing the same slightly modified to accommodate the changed condition. Fig. 7 is a sectional view taken on line 7 7 of Fig. 6. Fig. 8 is a detailed sectional view taken on line 8 8 of Fig. 6. Fig. 9 is a detailed sectional view taken on a line corresponding to line 1 1 of Fig. 2, showing a modified construction.

In the drawings all of the sectional views are taken looking in the direction of the little arrows at the ends of the lines, and similar letters of reference refer to similar parts throughout the several views.

Referring to the lettered parts of the drawings, A indicates the heating-drum; A′, the fire-pot; J, the exterior casing when the invention is applied to a furnace; B′, the coal-basket, and B the supporting ring or rim for the coal-basket. This is preferably slightly grooved to support the casing forming the hot-air flues or passages. In the modified structure shown in Fig. 9 the supporting rim or ring B is extended and forms a support upon which the flange on the top of the coal-basket rests. The flue-casing also rests directly upon it instead of resting upon the fire-pot. In the heating-stove as appearing in Fig. 1 these casings are preferably made as a complete ring made up of sections C, D, and E. Section C has an outwardly-projecting flange C′, fitting into and conformed to the doors and fitting against the partition or casing F′, supported on the door F, which forms a chamber I, into which any suitable door-damper opens, as G G′. In the casing are formed flue-passages H, extended around each side through the casings D and open at D′ into the stove above the fuel-basket and are connected to the chamber I at I′. The partition D″ separates these air-passages from the chamber H′. The passage underneath the casing C is divided by a suitable partition C″ to deliver the incoming air equally at both sides of the fire-pot.

It will be observed in the operation of the device that when the damper in the door is opened air will be drawn through the same into the chamber I and through the connection I′ into the passages H and will become heated before it is introduced into the combustion-chamber and that, as a consequence, owing to the air being heated the combustion is greatly augmented and a greater amount of heat is obtained from the same amount of fuel. Where the device is intended for use as in a heating-furnace, as

shown in Figs. 6 and 7, the passages H are made complete in themselves, so that the walls of the combustion-chamber are not depended upon to form a part of the flue. These are supported upon the top of the fire-pot, and sections are added to completely encircle the same, and thereby protect the sheet body. The damper of the door is modified to suit the changed condition, and the flange C′ is extended into a broad plate with a partition in the middle, resting in the bottom of the doorway. In this connection I desire to state that while my improved hot-air draft or blast is especially designed and intended for use with this particular construction of coal-basket and lining it is also well adapted for use in any style of heating-stove or hot-air furnace, for where there is not a similar support the casings forming the flue can be otherwise supported. I also desire to state in this connection that the utilization of the damper in the door is most economical and efficient and is of very great advantage both in the matter of manufacturing and in the accessibility of the flues and efficiency of the furnace, as no external passages are needed in its walls or casings. From these statements it will be observed that I am aware that my device can be greatly varied in the details of its construction and also that the various parts can be utilized to the same end in modified relations, though the exact arrangement is much preferred by me.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a heating stove or furnace, a separable flue-casing within the heating-chamber, extending partially around the combustion-chamber and out through the doorway to the door, containing an opening toward its inner end, to form a hot-air flue or passage; a casing on the inside of the door adapted to fit against the flue-casing on the inside; and a damper in the door to control the inlet of air through the flue, for the purpose specified.

2. In a heating stove or furnace, a separable flue-casing within the heating-chamber, extending from the door into and partially around the said chamber, open at its inner end; and a damper in the door to control the inlet of air through said casing.

3. In a heating stove or furnace, a separable flue-casing extending from the door into and partially around the heating-chamber, open at its inner end; and a damper to control the inlet of air through the casing, for the purpose specified.

4. In a heating stove or furnace, casings extending to each side of the doorway and partially around the combustion-chamber forming a hot-air flue or passage; a plate at the doorway with a partition at its center and adapted to fit against the door dividing the inlet-passage at the doorway and a damper at the door to control the inlet of air at that point.

5. In a heating stove or furnace, a separable flue-casing supported on the top of the coal-basket within the heating-chamber, and extending partially around the combustion-chamber and open at its inner end; and a suitable damper to control the inlet of air through the casing, for the purpose specified.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

ARTHUR K. BECKWITH.

Witnesses:
J. O. BECRAFT,
M. J. SHEPARD.