

No. 653,960.

Patented July 17, 1900.

W. J. KEEP.
STOVE.

(Application filed Apr. 18, 1899.)

(No Model.)

3 Sheets—Sheet 1.

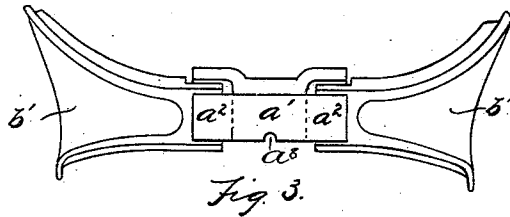


Fig. 3.

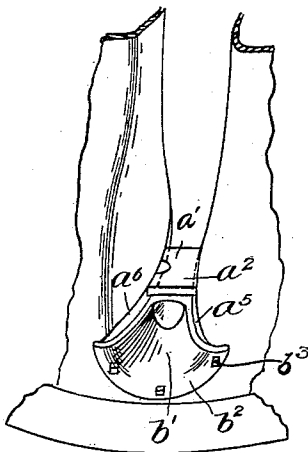


Fig. 2.

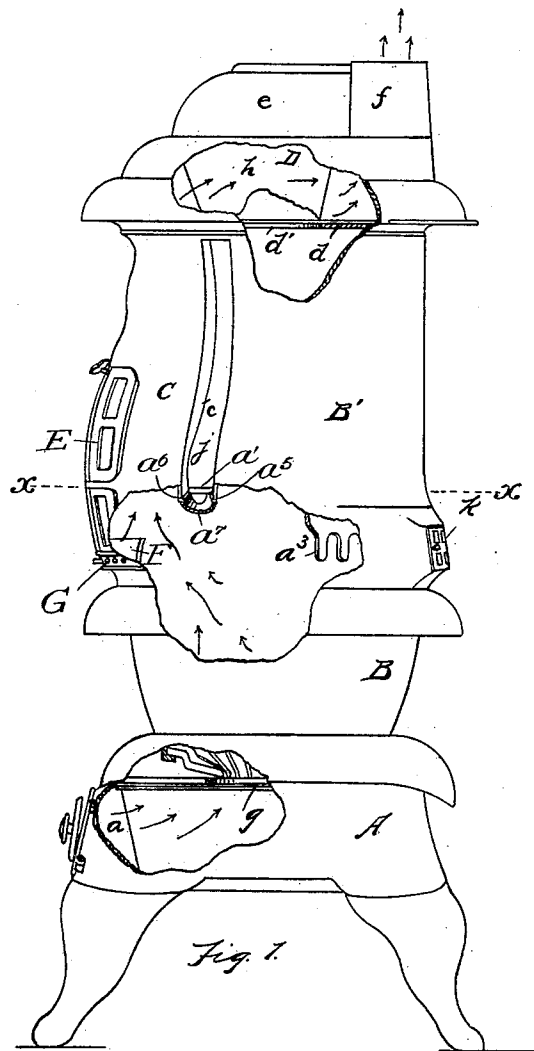


Fig. 1.

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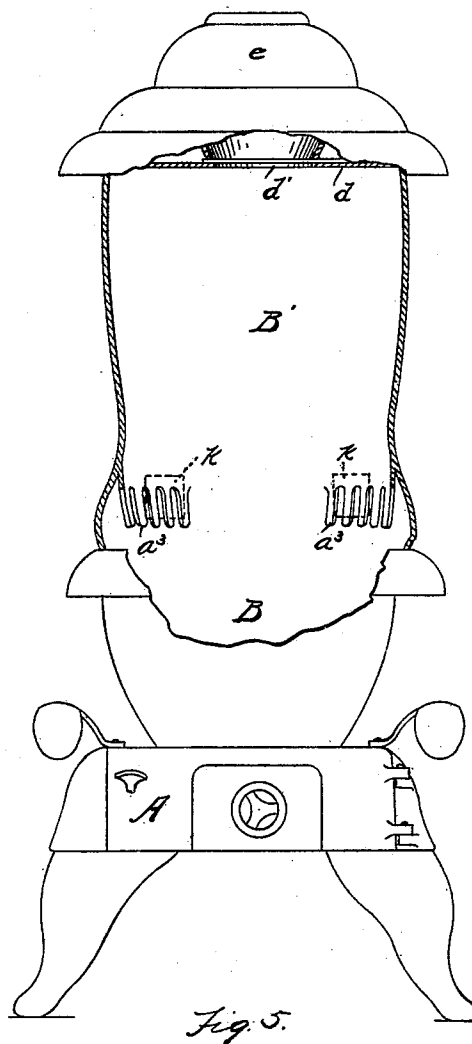
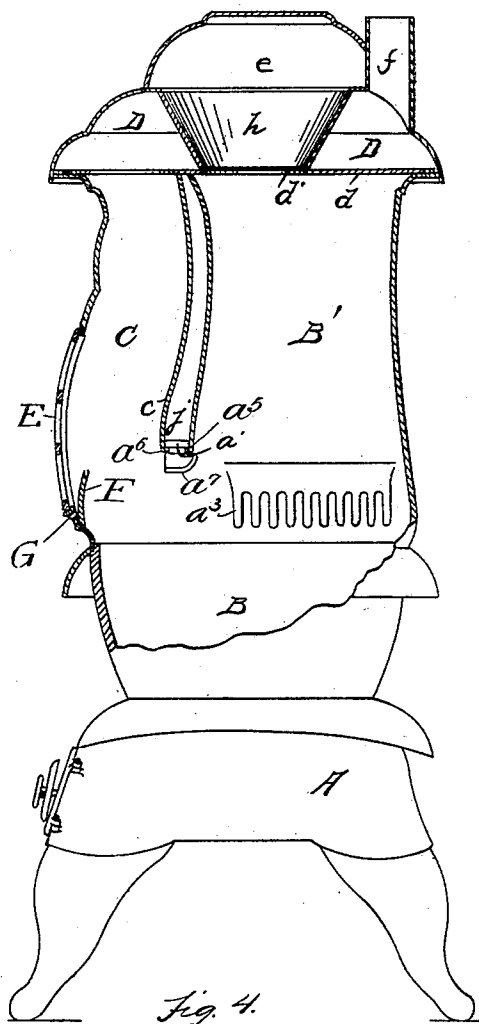
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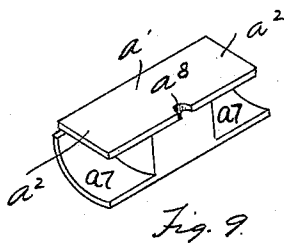
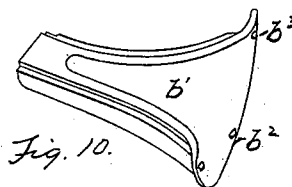
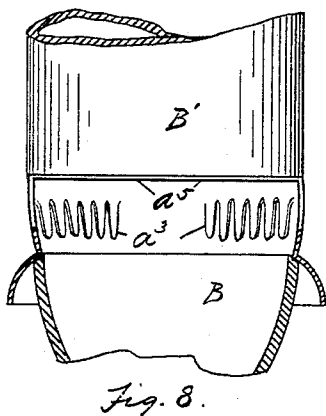
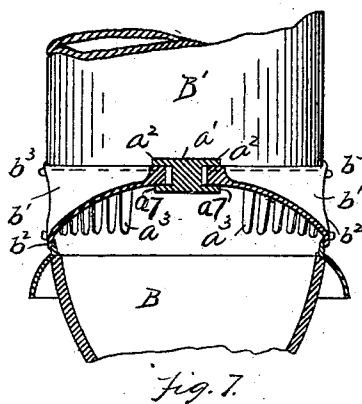
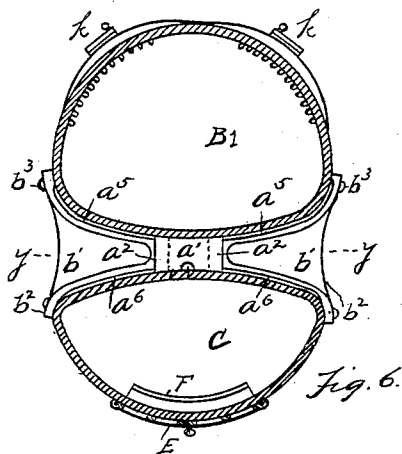
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UNITED STATES PATENT OFFICE.

WILLIAM J. KEEP, OF DETROIT, MICHIGAN.

STOVE.

SPECIFICATION forming part of Letters Patent No. 653,960, dated July 17, 1900.

Application filed April 18, 1899. Serial No. 713,444. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. KEEP, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Stoves; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to base-burning stoves, and has for its object the production of an improved base-burning stove which shall burn soft coal, slack, lignite, and fuel of that character in a satisfactory manner.

In the drawings, Figure 1 shows a side elevation of a stove embodying my invention, partly broken away to show the construction of the fire-pot and the construction of the upper end of the magazine. Figs. 2, 3, 9, and 10 are detail views showing the construction of the joint between the lower edge of the forward wall of the magazine and the rear wall of the fire-flue. Fig. 4 is a side elevation, partly in section. Fig. 5 is a front elevation, partly in section, the fire-flue being broken away. Fig. 6 is a horizontal section on the line xx of Fig. 1. Fig. 7 is a vertical section on the line yy of Fig. 6. Fig. 8 is a view similar to Fig. 7, except that the pieces constituting the joint between the lower edges of the magazine and fire-flue are removed.

A indicates the base of the stove, provided with the usual doors for entrance to the ash-pit a .

B indicates the fire-pot section, which is a simple round section smaller at the bottom than at the top and of sufficient volume so that a solid body of incandescent coke shall be maintained in it without admitting a materially-greater flow of air through one part than another, and so that the stove may be relied upon to maintain a fire without attention for twenty-four hours or more. The volume of a fire-pot for burning coal of a given size consisting, substantially, of carbon has been determined by experience. It should be greater, however, for coke than for anthracite coal usually used in stoves, because the pieces of the former are apt to be of irregular

size and some of them large. In the construction shown the fire-pot section is without the usual inclosed fire-pot, the walls of the stove forming the fire-pot.

g is a horizontal grate of an appropriate construction located at the lower end of the fire-pot B. Above the fire-pot section rests the magazine B', and fire-flue section C. This section is a continuous cylinder at its lower end where it rests upon the fire-pot section B; but a short distance above the fire-pot, at the sides, the walls of the magazine B' and fire-flue section C are turned in and extend across above the fire-pot, so as to form a cylindrical magazine B' and a cylindrical fire-flue C, leaving an air-space j between the two, Figs. 1, 4, and 6. Flanges $a^5 a^6$, extending horizontally into the air-space j , are formed along the lower transverse edges of the magazine B' and fire-flue C. The cross-section of the magazine B' has an area three-fourths or more that of the cross-section of the top of the fire-pot.

At the base of the magazine B' is a chamber that is kept free from coal by means of the internal hangers or aprons a^3 , outside of which the casing of the stove is expanded somewhat and furnished with a door or doors K. This furnishes a passage on either side of the magazine, so that the fire can be readily reached through said doors without actually disturbing the mass of the coal directly at the bottom of the magazine.

The forward lower edge of the magazine B' is connected with the lower rear edge of the fire-flue by a bridge-wall. The bridge-wall is made up of three pieces, which may be inserted from the outside. The center piece a' is provided with side flanges which rest upon flanges $a^5 a^6$, and with upper end flanges $a^2 a^2$ and lower end flanges $a^7 a^7$, which latter are rounded, so as to avoid obstructing the coal descending from the magazine. a^8 is a notch in one of the side flanges of the center piece a' . Said notch may fit over a lug upon the body of the stove. The two end pieces $b' b'$ are shaped at their inner ends to fit between the end flanges $a^2 a^7$ of the center piece a' , and their upper surfaces close the space between the lower edges of the front wall of the magazine and the rear wall of the fire-flue. Their outer ends are provided with flanges b^3 , which

rest against the outside of the stove and are secured in place by bolts b^3 or otherwise. The joint between the center piece a' and the inner ends of the pieces b' is adapted, as shown, to permit of longitudinal expansion of the pieces composing the bridge-wall.

A chamber D at the top of the stove communicates with the smoke-flue f .

The top of the magazine is entirely separated from the dome by a plate d , through which there is a slide-closed hole d' for the admission of fuel to the magazine. The fuel is fed into the magazine through a hopper h , that opens into an upper dome e , and the smoke-flue f leads out from the fire-dome D.

At the base of the fire-flue C is a door E, which is provided with the usual mica panels. The mica may be protected from the heat and smoke by an inner lining of perforated metal.

F is a deflector-plate located beneath the door E and bending inward relative to said door.

G is a series of holes through the front of the fire-flue beneath the door E and above the junction of the deflector-plate F with the fire-flue walls. The plate F deflects the stream of hot gases from the door E, and its action in this regard is supplemented by streams of cold air entering through the holes G.

The bridge-wall between the magazine and the fire-flue is subject to considerable variations of temperature, and is therefore constructed so that its constituent parts may expand and contract without disturbing the other parts of the stove, and the iron of which said bridge-wall is composed is subject to rapid deterioration because of the high temperature and the sulfurous gases to which it is exposed. It is therefore made in separate parts, which may be easily removed and other similar parts substituted. The magazine is entirely separate from the fire-flue and is exposed to radiation from said flue only on one side, so that the gases are not expelled from the coal in said magazine. The gases are expelled from the coal at the mouth of the magazine or somewhat below said mouth by the heat from the incandescent coke in the fire-pot, pass through said coke, and are mingled with air and burned in the fire-flue, and the

residual coke drops down as the ashes are removed from the grate to maintain the solid body of glowing coke in the fire-pot.

By having a single fire-flue of small cross-section the surface of the fire at the lower end of said flue is always bright, and there is sufficient air, so that the gas which is being gradually produced is completely burned as it enters said flue. By providing a large fire-pot and keeping the magazine cool a structure is secured in which the coke is burned as fast as produced and does not accumulate and in which the production of gas is at a substantially-uniform rate.

What I claim is—

1. In a stove of the kind described, in combination with a vertical magazine, and a vertical flame-chamber, a bridge-wall uniting a wall of the magazine, and a wall of the flame-flue, the support a' , and the sliding arch-pieces b' , substantially as described.

2. In a stove of the kind described, a fire-flue C, having its rear wall extending transversely above the fire-pot and provided at its lower edge with a rearwardly-extending flange a^6 , a magazine B', located back of said fire-flue, C, and having its front wall extending transversely above the fire-pot and provided at its lower edge with a forwardly-extending flange a^5 , and one or more pieces adapted to rest upon the flanges a^6 , and a^5 , to form the bridge-wall, substantially as described.

3. In a stove of the kind described, a fire-flue C, having its rear wall extending transversely above the fire-pot, a magazine B', located back of the fire-flue C, and having its front wall extending transversely above the fire-pot, and a plurality of pieces adapted to close the space between the lower edges of the rear wall of the fire-flue and the front wall of the magazine, said pieces being joined together toward the center by a substantially-tight joint adapted to permit longitudinal expansion and contraction of said pieces, substantially as shown and described.

In testimony whereof I sign this specification in the presence of two witnesses.

WILLIAM J. KEEP.

Witnesses:

CHARLES F. BURTON,
JOHN N. GOODRICH.