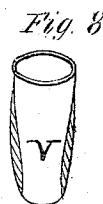
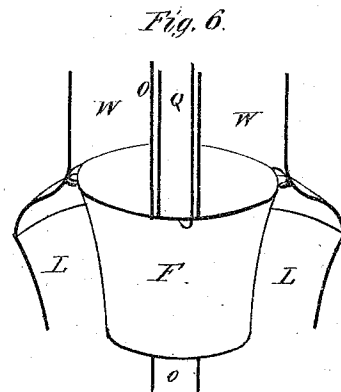
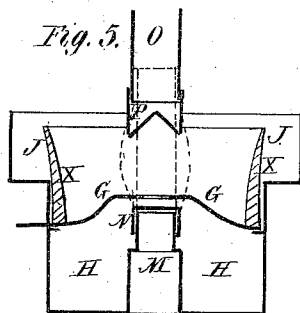
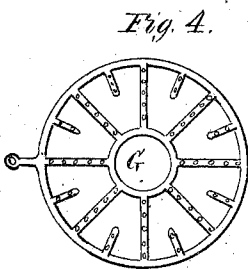
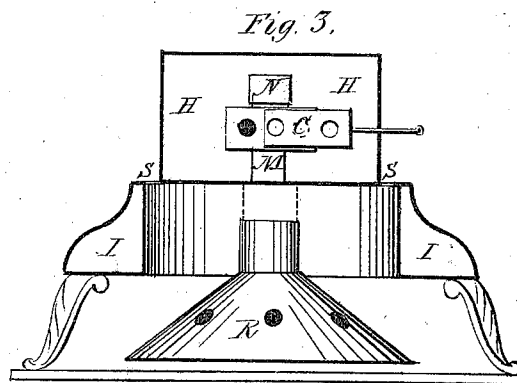
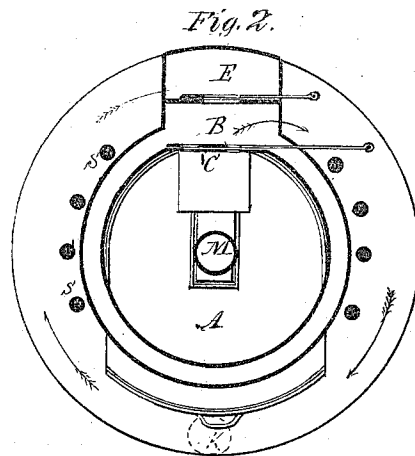
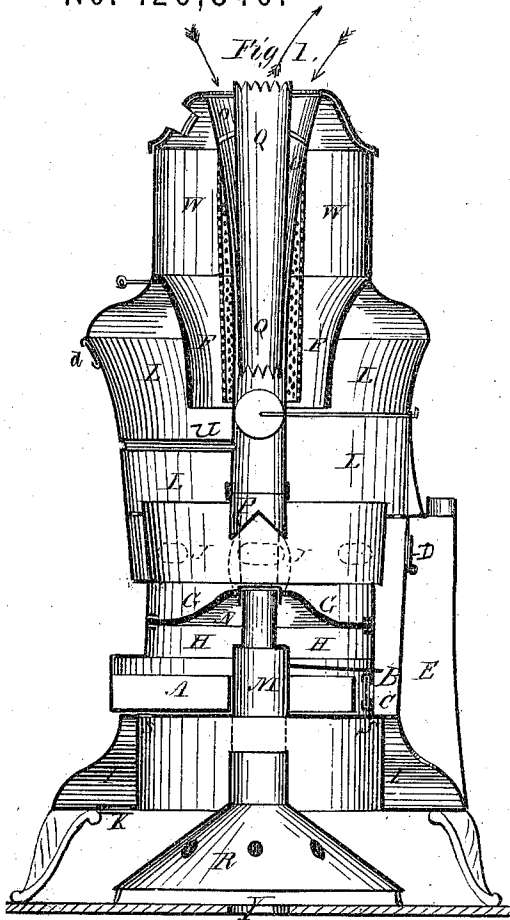


ELIHU SMITH.

Improvement in Base-Burning Stoves.

No. 126,840.

Patented May 14, 1872.



Witnesses.

*W. E. Van Hook &
A. Ross*

Inventor

Elihu Smith

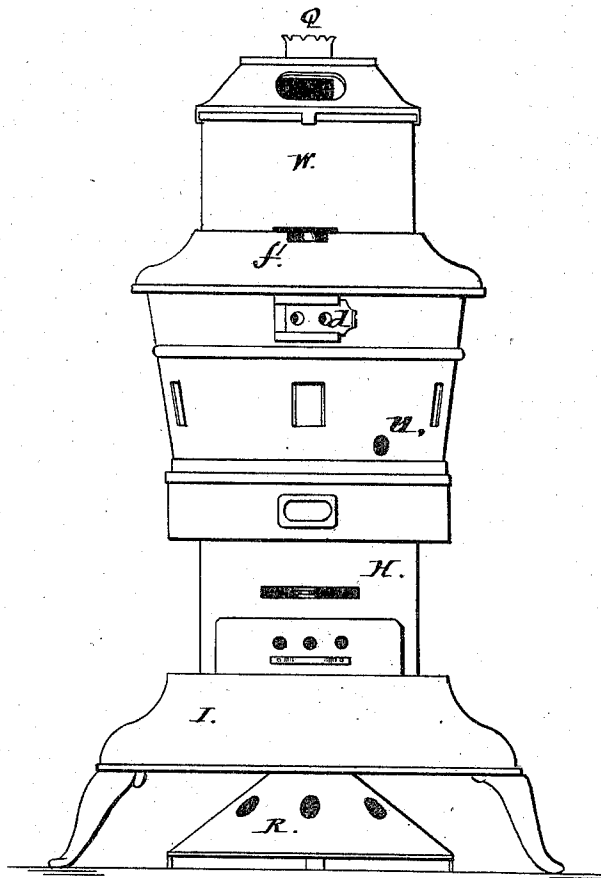
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Fig. 7.



Witnesses;
*(M. Gardner
Geo. Godron)*

Inventor;
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Attorneys.*

UNITED STATES PATENT OFFICE.

ELIHU SMITH, OF ALBANY, NEW YORK.

IMPROVEMENT IN BASE-BURNING STOVES WITH CENTRAL AIR-PASSAGES.

Specification forming part of Letters Patent No. 126,840, dated May 14, 1872.

Specification describing certain Improvements in Base-Burning Stoves, invented by ELIHU SMITH, of the city and county of Albany, and State of New York.

The nature of this invention consists in the combination, with the base of a base-burning stove, of a vertical flue passing up from an opening in the base-plate through the ash-pit into a dish of the grate, for the purpose of conducting cold air from beneath the stove up to near the fire to be heated thereby, and the top of the flue being closed by a removable cap, when thus heated to be returned into the room from beneath the base of the stove; it further consists in the combination with this hot-air flue and a recessed base of a stove of a deflector, placed beneath the stove, and used to deflect the hot air from the flue, and the heat radiated from the base into the room; it further consists in the combination with this hot-air flue beneath the grate of a hot-air flue passing downward from an opening in the top of the stove to and within the fire-pot of a loricated pipe, for connecting the lower and upper hot-air flues, to form a continuous flue through the center of the stove from base to top; it further consists in the employment of a perforated pipe encircling the upper hot-air flue, where it passes through the magazine, to keep the fuel therein out of contact with the hot surface of the hot-air flue, and prevent its ignition at that point; it further consists in such an arrangement of the magazine that it may be shaken from the outside of the stove, to feed the fuel to the fire-pot in case it should become "bridged" or choked in such magazine, or in order that the coal already ignited may not be disturbed; it consists, lastly, in a novel arrangement of flues and dampers for controlling the draught.

Figure 1 is a central vertical section. Fig. 2 is a horizontal section. Fig. 3 is a vertical section of the base detached. Fig. 4 is a plan view of the grate. Fig. 5 is a vertical section of that portion of the stove which contains the fire-pot and ash-pit. Fig. 6 is a vertical section, showing the magazine in perspective. Fig. 7 is an elevation of the stove. Fig. 8 is a sectional perspective of the loricated flue.

The same letters of reference are used in all the figures in the designation of identical parts.

The general outline of the stove is cylindrical,

similar to the ordinary base-burning parlor stoves. Its base-plate carries at its circumference a downwardly-projecting annular flue, I, whereby a circular recess or cavity is formed beneath the base-plate, as clearly shown in Figs. 1 and 3. The annular flue I is connected with the annular flue J around the fire-pot by the vertical flue B, which, when the damper D thereon is closed, causes the hot gases to pass downward into the annular flue I, whence they escape through the pipe E into the chimney. By opening the damper D a direct draught from the annular flue J to the pipe E is obtained. The flue B is also provided with a damper, C, opposite the ash-pit H, by opening or closing which the draught from the ash-pit through the grate may be modified, and the heated air made to circulate through the base-flue. The base-plate has a central opening, which is covered by the upwardly-projecting pipe M, which, passing up through an elongated recess in the rear end of the ash-drawer A, rises into a dish or concavity in the under side of the grate G, terminating directly opposite a central circular aperture therein, its top being closed by a detachable cap, N. This pipe or flue M conducts the cold air from beneath the base of the stove to near the burning fuel on the grate, and returns it in a heated state into the large circular cavity in the base, whence it is diffused into the room through the perforations S S in the base-plate. The diffusion of this heated air, as well as the heat radiated from the lower and the interior surfaces of the flue I is made more perfect by the inverted funnel-shaped deflector R, resting a short distance above the floor beneath the base of the stove. In arranging the deflector its short nozzle should be made to coincide with the lower open end of the tube M, so that the cold air from beneath it may pass directly up into the latter. A hole, Y, may be made in the floor, through which to draw fresh atmospheric air, or air from a room below. An aperture, K, is formed in the bottom of the annular flue I, to permit of the introduction of hot gases from a stove in an adjoining or lower room to use my stove as a drum; this aperture is ordinarily closed by a suitable plate, as shown in Fig. 1. The upper portion W of the stove forms part of the magazine for the fuel, which passes down through the suspended

portion F of the magazine and the combustion-chamber L into the fire-pot. The magazine F is hung upon upon a ledge on the casing of the stove, in which a horizontal slot, *f*, is cut for the introduction of a bar into a suitable pocket or socket on said magazine, for shaking the latter to agitate the fuel therein, and cause it to feed down into the fire-pot; thus obviating the necessity of disturbing the fire or opening the top of the stop to poke the fuel down. A flaring tube, O, is suspended from an opening in the top of the stove through the magazine and combustion-chamber, to and within the fire-pot, its lower end being closed by a removable cap, P. Within this pipe is a shorter one, Q, of less diameter, through which the air, heated in its passage down between the two tubes, ascends into the room—the interior pipe Q being open at both ends. That portion of the pipe O passing through the magazine W F is encircled by a perforated tube, T, to prevent the ignition of the fuel, which might result from its direct contact with the hot surface of the tube O. U is a lateral flue, to conduct cold air through the combustion-chamber into the pipe O. Cold air may also be introduced directly into the combustion-chamber by opening the damper *d*, which may be of the form shown in Fig. 7, or may entirely surround that portion of the casing of the stove, controlling a circular series of holes therein. V is a loricated pipe, which is used to connect the lower end of the pipe O, with the upper end of the pipe M—the caps N and P being first removed—for the purpose of forming a continuous air-flue through the body of the stove from top to bottom, the pipe O being provided with a suitable damper to con-

trol the circulation through such continuous air-flue.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with the base of a stove, of the pipe M, extending up through the ash-pit to the grate, substantially as and for the purpose specified.

2. The combination of the recessed base, hot-air pipe M, and a funnel-shaped deflector, R, substantially as and for the purpose set forth.

3. The combination, with the recessed base, having the annular flue I, of a deflector, R, constructed as described, to deflect the heat radiated from the interior and lower surfaces of said annular flue into the room, substantially as set forth.

4. The combination, with the open-ended pipes or flues M and O, of the centrally-perforated grate G, and the loricated tube V, substantially as and for the purpose set forth.

5. The combination of the suspended air-pipes O and Q, substantially as and for the purpose set forth.

6. The combination, with the air-pipe O, of the perforated jacket or tube T, substantially as and for the purpose set forth.

7. The damper C on the flue B, in combination with a base-flue, substantially as and for the purpose specified.

8. The opening K in the bottom of the annular flue I, substantially as and for the purpose set forth.

ELIHU SMITH.

Witnesses:

C. E. VANZANDT,

E. A. ROSS.