2 Sheets--Sheet 1.

W. B. TREADWELL.

Heating-Stoves.

No. 134,573. Patented Jan. 7, 1873.

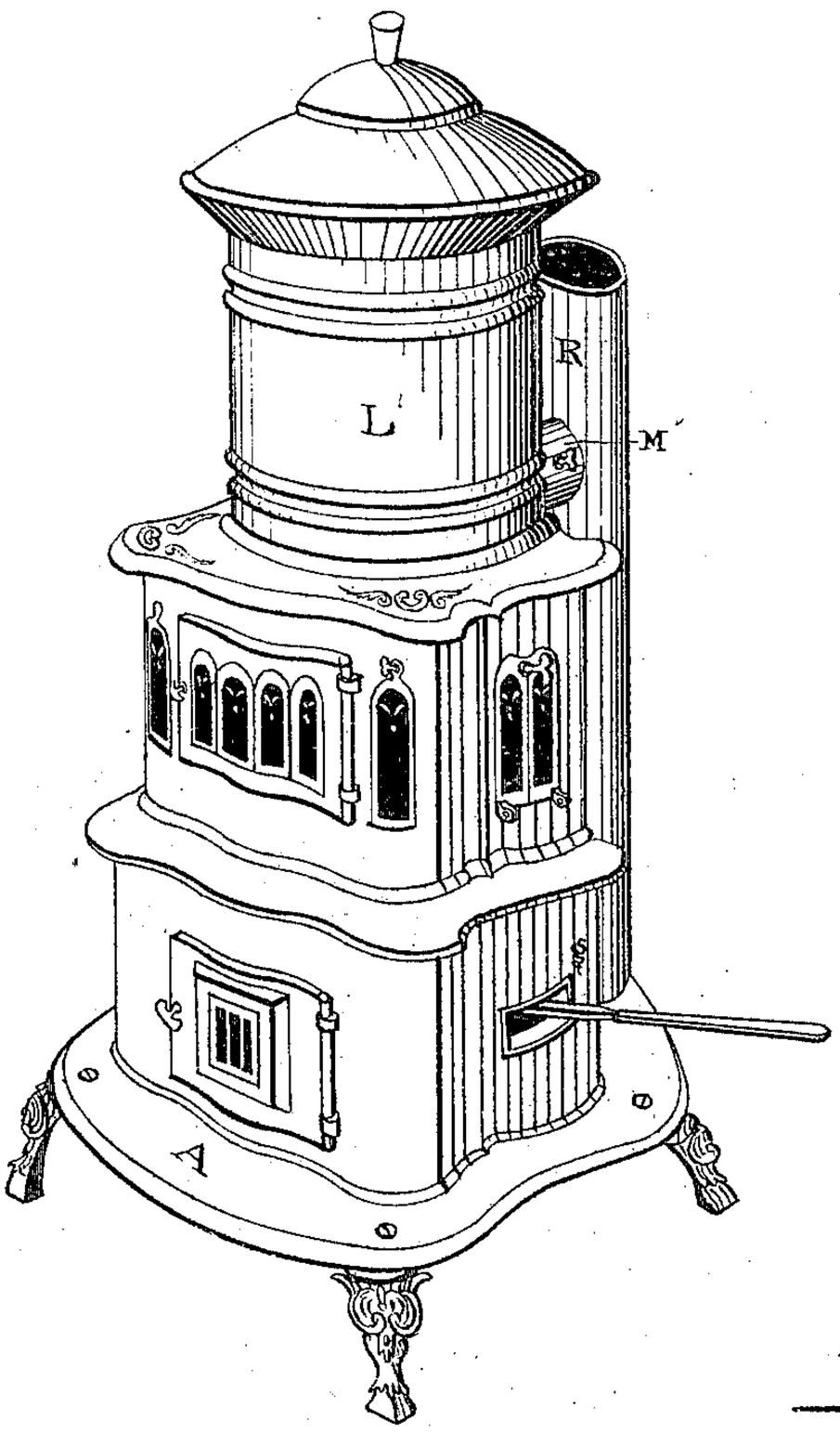

Fig. 1.

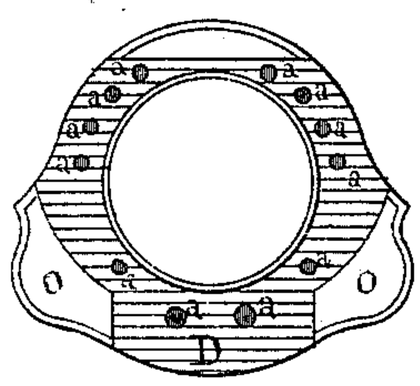

Fig. 3.

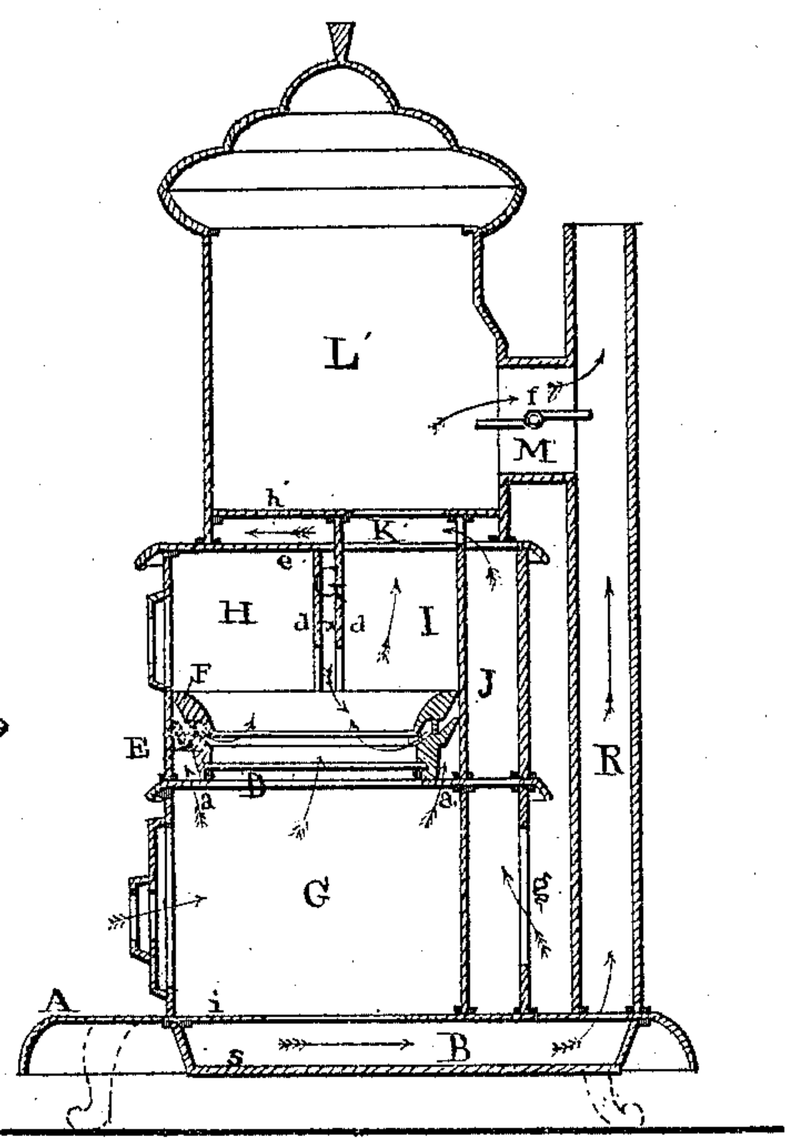

Fig. 2.

Witnesses.

Frank A. Treadwell.

Chas B. Redfield

Inventor.

William B Treadwell

2 Sheets--Sheet 2.

W. B. TREADWELL.

Heating-Stoves.

No. 134,573. Patented Jan. 7, 1873.

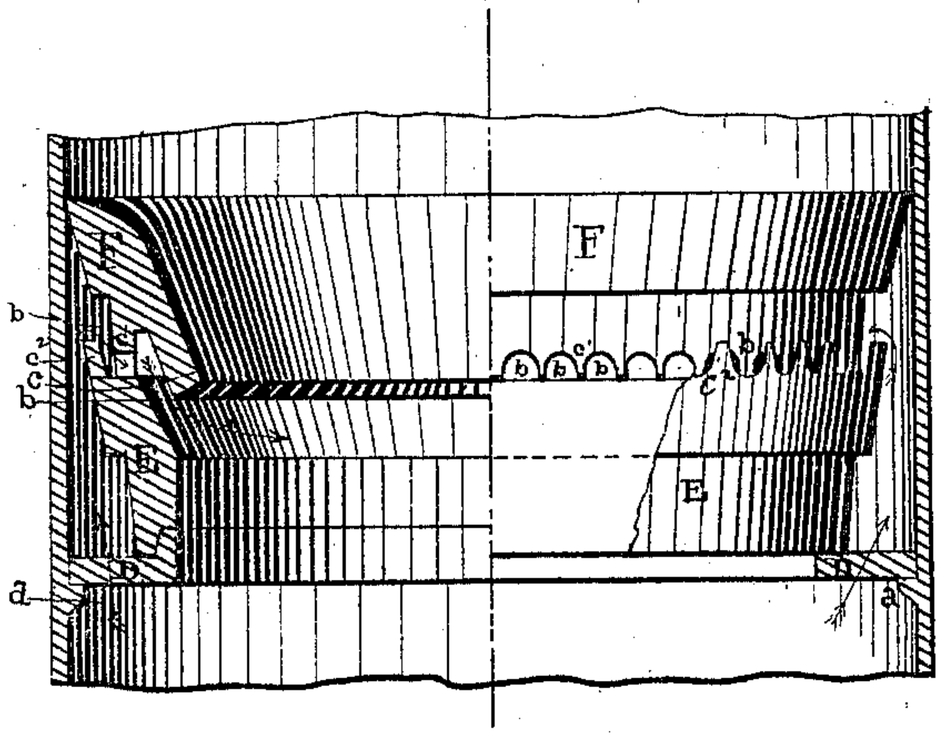

Fig. 4.

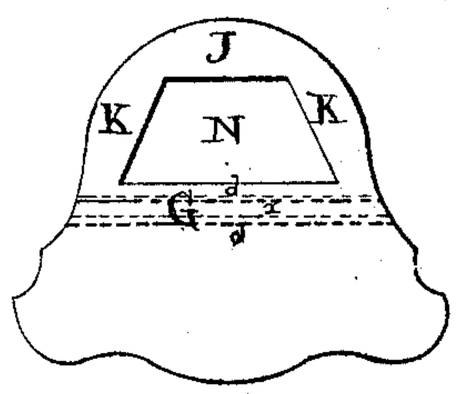

Fig. 5.

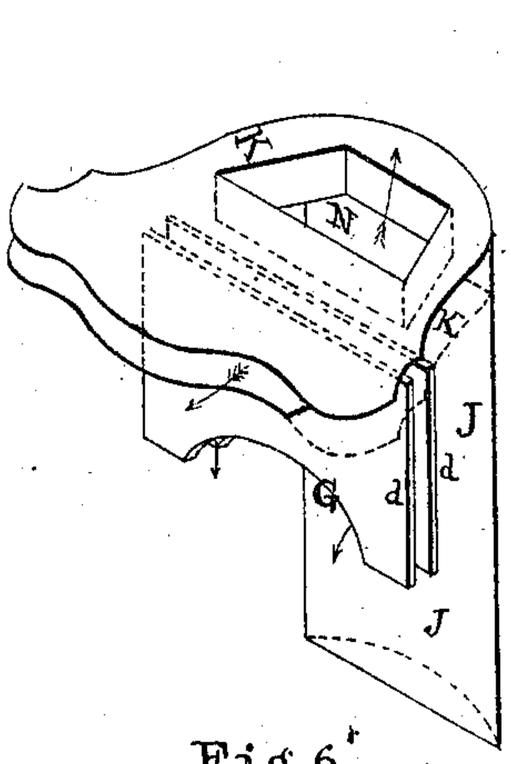

Fig 6.

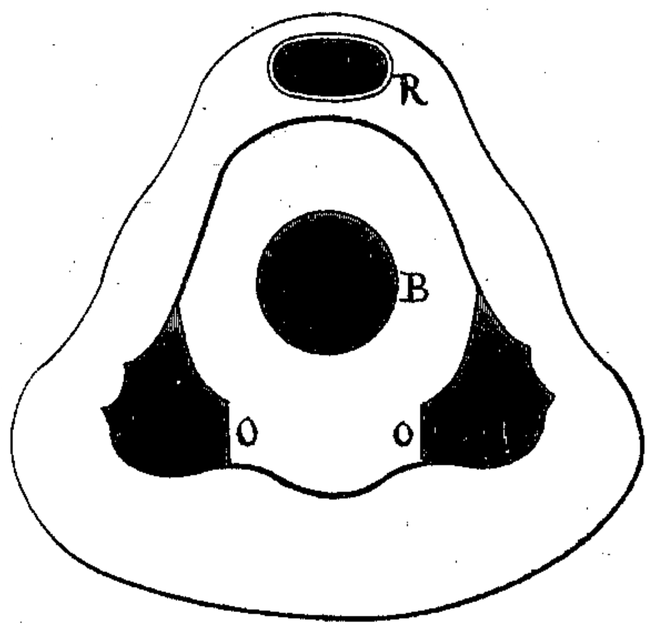

Fig. 7.

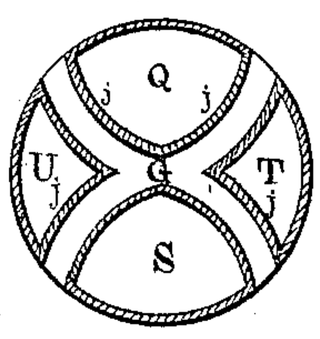

Fig. 8.

Witnesses,
Frank A. Treadwell
Chas B. Redfield

Inventor.
William B Treadwell,

UNITED STATES PATENT OFFICE.

WILLIAM B. TREADWELL, OF ALBANY, NEW YORK.

IMPROVEMENT IN HEATING-STOVES.

Specification forming part of Letters Patent No. **134,573**, dated January 7, 1873.

To all whom it may concern:

Be it known that I, WILLIAM B. TREADWELL, of the city and county of Albany, in the State of New York, have invented certain Improvements in Heating-Stoves, of which the following is a specification:

My invention, relating to means for supplying heated atmospheric air to the surface of the burning fuel, is particularly adapted to stoves and furnaces for consuming bituminous coal. It consists in forming the fire-pot of two rings in combination, one above the other, separately, and peculiarly constructed, so as to allow of the passage of air around and between them, as hereinafter more specifically set forth.

Figure 1 is a perspective view of my improved stove. Fig. 2 is a central vertical section of the same from front to back. Fig. 3 is a top view of the bed-plate used to support the fire-pot and grate. Fig. 4 is a central vertical section of the fire-pot as constructed in my improved stove. Fig. 5 is a plan of the air-chamber above the fire-pot. Fig. 6 is a perspective view of the air-conducting flues above the fire-pot and at the back of the stove. Fig. 7 is a plan of the bottom of the stove. Fig. 8 is a horizontal section taken through the combustion-chamber, showing hollow bars for strengthening the stove and conducting air to the surface of the burning fuel.

A represents the base of the stove, within which is a chamber or flue, B, formed by means of the hearth-plate *i* and pit-plate *s*, through which the products of combustion pass. C is the ash-pit chamber. D is an annular plate which supports the grate and the parts composing the fire-chamber, resting upon a shoulder or projection formed around the top of the ash-pit chamber, said plate being provided with holes *a* for the passage of air. The fire-pot is composed of rings E and F, made of iron, fire-clay, or other suitable material. The upper edge of each ring is smaller in circumference than the lower edge of the same ring. The lower edge of ring E is beveled on the inside so as to fit over the flange formed around the edge of plate D. The inner surface of said ring rises vertically for about half its height, after which it slopes outward at an obtuse angle the remainder of its length. At its top, on the outer edge, it is provided with a notched flange, c^2, between which and the inner edge a shoulder is formed, upon which the ring F rests. The lower portion of ring F is divided vertically, so as to form an annular projection or edge, c^1, which sets on the shoulder of ring E, previously referred to, and serves to support the ring, of which it forms a part. This part c^1 is provided with notches similar to those on the upper flange of ring E, and when the two rings are placed together openings *b* are formed, through which air is permitted to pass. The lower edge of ring F is smaller in circumference than the inner surface of ring E near its top, forming a space for the admission of air, and extends below the upper portion of said ring, forming a lip, *c*, which covers but does not close the openings *b*, and prevents the coal or ashes from getting into and stopping said openings. Two vertical plates, *d d*, half an inch apart, more or less, form a partition or hollow bar, G, which divides the combustion-chamber into two compartments, H and I, through which the products of combustion may pass, or within which they may have room to play. When thus placed this partition G prevents the smoke and gases from flowing out into the room when the feed-door is opened to replenish the fire, and materially strengthens the stove. I also contemplate making this bar with four arms, as shown in Fig. 8, whereby the stove will be further strengthened and the combustion-chamber divided into four cavities, Q U S T. The space *x* occurring between the plates *d d* communicates with a similar space or chamber, K, formed above the combustion-chamber by means of the plates *e* and *h*. This air-chamber K opens into air-flue J at the back of the stove. A passage-way, N, for the products of combustion is made through said chamber. Thus constructed, with the perforated damper *f* closed, a portion of the products of combustion passes from the combustion-chamber back and upward through opening N into chamber L; thence, through the opening in damper *f*, into the back pipe. The remainder is carried forward into descending flues O O, thence is led into chamber B at the base of the stove, and thence off into back pipe R. By opening damper *f* in branch exit-pipe M

all or nearly all of the products of combustion will pass directly back, up, and off through said branch pipe, as indicated by arrows. Atmospheric air to supply the wants of combustion is admitted through the valve in the ash-pit door or through the open ash-pit door-way. It thence passes up through the grate, and up through the openings *a a* in bed-plate D, into the annular chamber formed between the rings E and F and the casing of the stove. In this chamber it becomes highly heated by coming in contact with the heated surface of said rings, and thence passes through openings *b* between the rings, and enters with its temperature still further augmented, well distributed, into the fire-chamber. Air is also admitted, to still further aid combustion, through the back plate at the rear end of the ash-pit chamber at *g*, and, passing through air-passage way J, enters chamber K, where it circulates between the heated plates *e* and *h*, whence it descends through space *x* upon the mass of burning fuel, to assist in producing perfect combustion.

I claim as my invention—

1. The combination of two (or more) rings forming the fire-pot of a stove or furnace, placed one above the other, with openings for the passage of air between them, the lower edge of the upper ring being made smaller in circumference than the circumference of the inner surface of the upper portion of the lower ring, and extending below the openings referred to, for the purposes set forth, substantially as described.

2. Said rings when provided with notched ribs or flanges c^1 c^2, respectively.

3. The stove herein described, constructed with partition G, rings E and F, air-passages *a b* J K *x*, chamber L, exit-pipe M with perforated damper *f*, chamber B, and pipe R, combined and arranged substantially as herein shown and set forth.

WILLIAM B. TREADWELL.

Witnesses:
FRANK A. TREADWELL,
CHAS. B. REDFIELD.