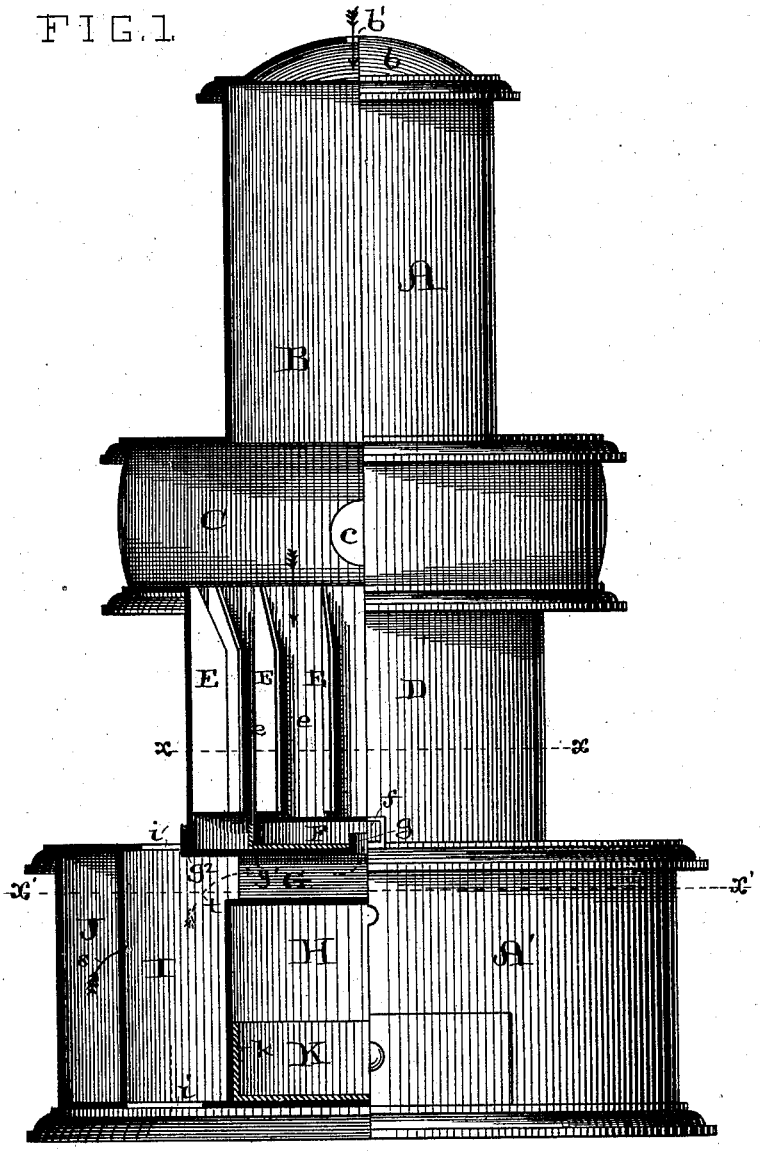
2 Sheets—Sheet 1.

M. C. HAWLEY.

Heating-Stove.

No. 203,269. Patented May 7, 1878.

FIG. 1.



ATTEST.

Paul Bakewell
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INVENTOR.

Melville C. Hawley.
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atty.

2 Sheets—Sheet 2.

M. C. HAWLEY.

Heating-Stove.

No. 203,269. Patented May 7, 1878.

FIG. 2.

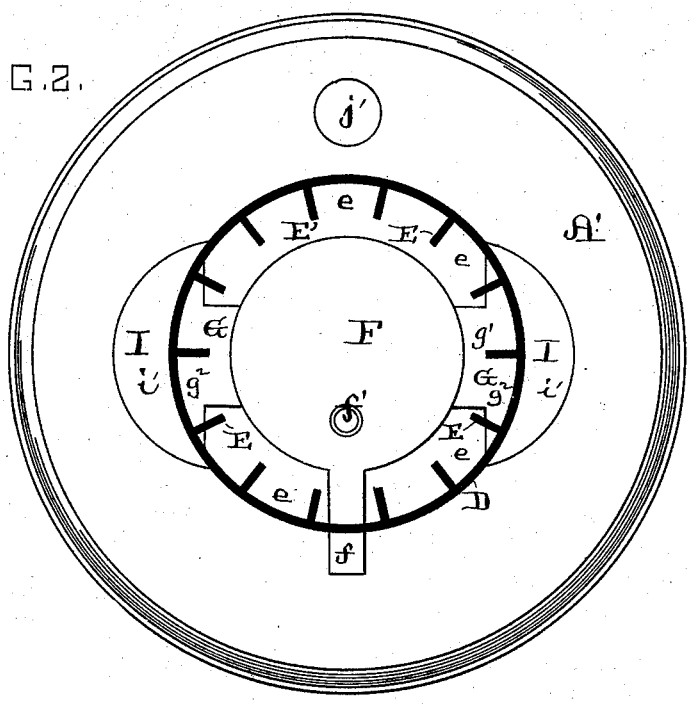


FIG. 3.

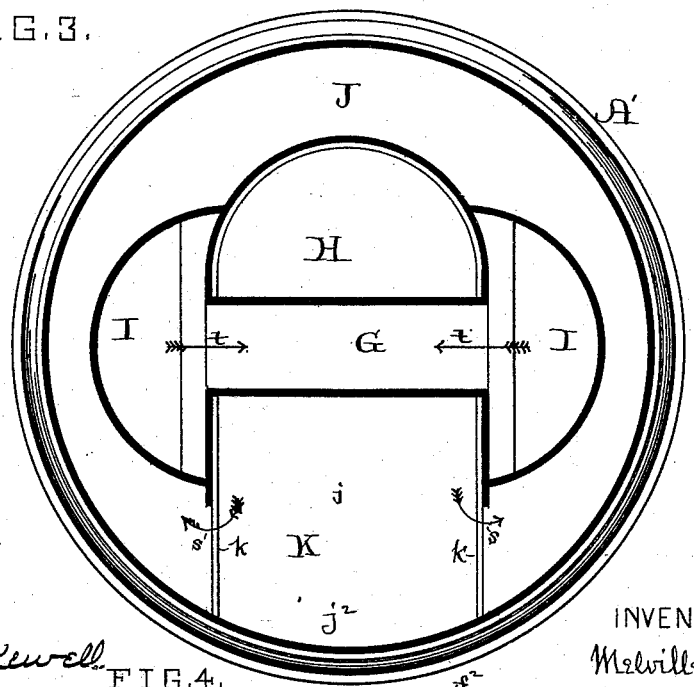
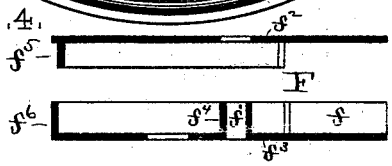


FIG. 4.



ATTEST

Paul Bakewell.
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INVENTOR.

Melville C. Hawley.
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UNITED STATES PATENT OFFICE.

MELVILLE C. HAWLEY, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-EIGHTH HIS RIGHT TO JOHN G. ROSS, OF SAME PLACE.

IMPROVEMENT IN HEATING-STOVES.

Specification forming part of Letters Patent No. **203,269**, dated May 7, 1878; application filed February 27, 1878.

To all whom it may concern:

Be it known that I, MELVILLE C. HAWLEY, of St. Louis, Missouri, have invented new and useful Improvements in Heating-Stoves, of which the following is a full, clear, and exact description, reference being had to the annexed drawing, making part of this specification, in which—

Figure 1 is an elevation, partly in section, of a stove having the present improvements; Fig. 2, a horizontal section taken on the line *x x* of Fig. 1; Fig. 3, a horizontal section taken on the line *x' x'* of Fig. 1; and Fig. 4, a detail, being a view, in sectional elevation, of the parts composing the grate, the parts being detached.

Similar letters represent similar parts.

The present invention is an improvement in what are termed "base-burning" and "base-heating stoves." It has relation to the construction of the fire-pot, and the manner of holding the fuel therein; also, to the grate or support for the fuel in the fire-pot; also, to the flues for the escape of the products of combustion; also, to the provision for heating incoming air-currents, and to the construction of the ash-box.

In the annexed drawing, A represents a stove embodying the present improvements. B represents the fuel-magazine. It is provided with a removable cap, *b*, and it has an aperture, *b'*, to admit air to support combustion.

The aperture may be in the top of the magazine, as shown, or at any suitable point. The magazine rests upon the combustion-chamber C, which is preferably larger in diameter than the magazine. The chamber is provided with a flue, *c*, leading to an escape-flue. (Not shown.)

D represents the fire-pot. It is preferably smaller in diameter than the chamber C. It is furnished with a series of corrugations or ribs, E E, that are arranged vertically upon, and project inwardly from, the shell of the fire-pot. They may extend up and down the full depth of the fire-pot, or but part way up, as desired, and they may be made larger or smaller, and be spaced at such distance apart as will best effect their purpose, which is to keep the ashes and coal from the shell of the fire-pot, and provide for a free downward draft all around the body of the burning coal, and to enable the ashes to be readily separated from the coal and passed into the ash-pit beneath.

F represents the grate or support for the fuel. It is arranged just below or near the lower ends of the corrugations E E, and in diameter is slightly smaller than the space inside the corrugations, as shown more distinctly in Fig. 2. The grate is pivoted upon a cross-bar, G, so that it can be turned horizontally thereupon, and thereby be shaken. The grate is made hollow, to provide for the circulation of air therein, the entrance for the air-current being from the cross-plate G through the hollow pivot *g*, and the exit being through the hollow handle *f*, with which the grate is furnished, and which extends outwardly from the fire-pot, as seen in Fig. 2. The grate is also perforated vertically at one or more places, f^1, to provide for the passage downward of ashes and heat. To separate the passages f^1 from the air-space within the grate, the openings in the upper and lower plates f^2 f^3 of the grate are connected by a suitable closed connection, such as shown at f^4, Fig. 4. The passages f^1 are of any suitable shape.

To enable the grate to be readily made, it is cast in, preferably, two parts, f^5 f^6, Fig. 4, forming, when fastened together, a hollow disk having vertical perforations. By making the grate in this way the necessity for using a core in casting is avoided.

H represents the ash-pit, arranged centrally within the stove and beneath the cross-plate G. I I represent air-passages, arranged on each side of the ash-pit, and extending vertically through the base A' of the stove. The inlet to these passages is at *i* in the bottom plate of the base A', and the outlet is at *i'* in the top plate of the base. They also lead into a flue within the cross-plate G, which is made hollow. This last-named flue connects, by means of the hollow pivot *g*, with the space within the grate. The upper plate g^1 of the cross-plate G is extended at each end, g^2 g^2, so as to intercept a portion of the air-current ascending in the passages I I, and divert it into the cross-plate.

A circular flue, J, extends around the base

A′, outside the ash-pit and passages I I, connecting with the ash-pit at *j*, and having an exit at j^1. K represents the ash-pan. It is shaped to occupy the ash-pit, and that portion, j^2, of the flue J that is in front of the ash-pit. The sides *k k* of the ash-pan do not extend high enough to cut off communication between the ash-pit and the flue J; but ample space is left above the sides *k k* for the passage of the products of combustion from the ash-pit into the flue.

The operation of the invention is as follows: In starting the fire the draft may be upward and directly out of the stove through the flue *c*; but after the fire is started the flue *c* is closed, and the draft is directed downward through the fire-pot. The heat-currents and the products of combustion pass down through the spaces *e e*, formed by the ribs E E, and also through the passages f^1 in the grate into the ash-pit. The currents then divide, passing to both sides into the flue J, as indicated by the arrows *s s*, Figs. 1 and 3, and thence escaping from the flue at j^1. In circulating through the ash-pit H and flue J, the lower portion of the stove is not only thereby warmed, but, by reason of the air-passages I I being exposed directly on all sides to the action of the heat, an upward current of air is generated therein. A portion of the current is discharged into the room at *i′*, while the remainder is diverted into the cross-plate, as indicated by the arrows *t t*, whence it passes into the grate, and out through the grate-handle into the room. As the grate and cross-plate are exposed to the strongest heat, the circulation of air therein very materially protects these parts.

The air-passages I I, at *i i*, may connect directly with the apartment containing the stove, or they may connect with flues leading from the air outside the apartment. In the former case, a circulation of air within the apartment, from the lowest level thereof upward, is caused, resulting in the apartment being very evenly heated throughout, and in the latter case an inflow into the apartment of fresh air is induced.

I claim—

1. The fire-pot D, having the corrugations E E, in combination with the grate F, the latter being of the size and arranged substantially as described.

2. The combination of the air-passages I I, hollow cross-plate G, hollow grate F, and hollow handle *f*, substantially as described.

3. The base A′, having the ash-pit H, circular flue J, and air-passages I I, the latter being arranged between said flue and ash-pit, substantially as described.

4. The air-passages I I, having the inlet *i* and outlet *i′*, and the cross-plate G, having its upper plate g^1 extended partly across the passages I I, as and for the purpose described.

M. C. HAWLEY.

Witnesses:
CHAS. D. MOODY,
PAUL BAKEWELL.