FEDERAL C. ADAMS & JOSEPH PECKOVER

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Impt in Smoke burning Stoves

Fig. 1.

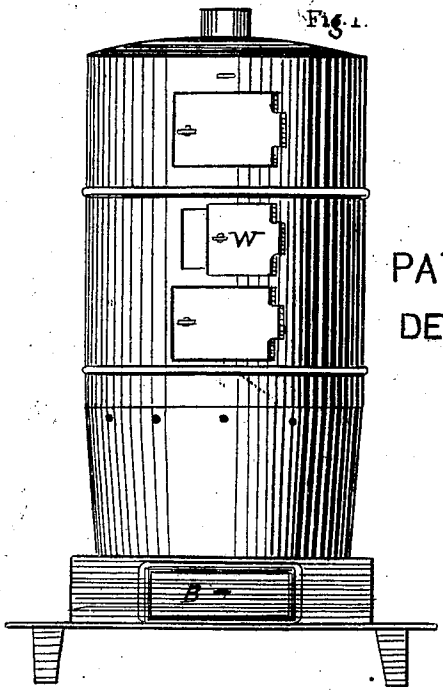

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Fig. 2.

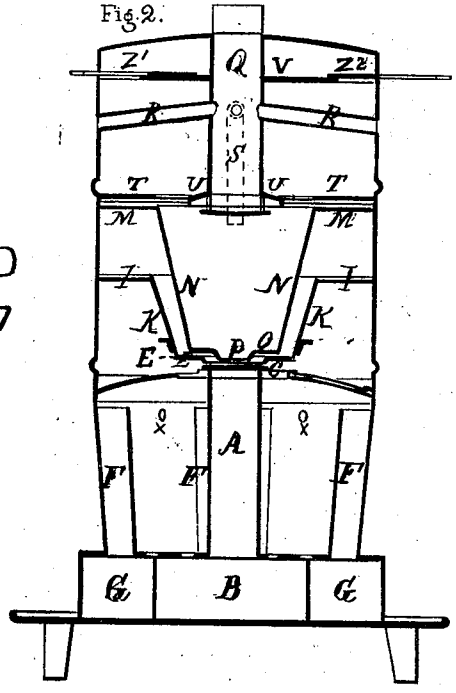


Fig. 3.

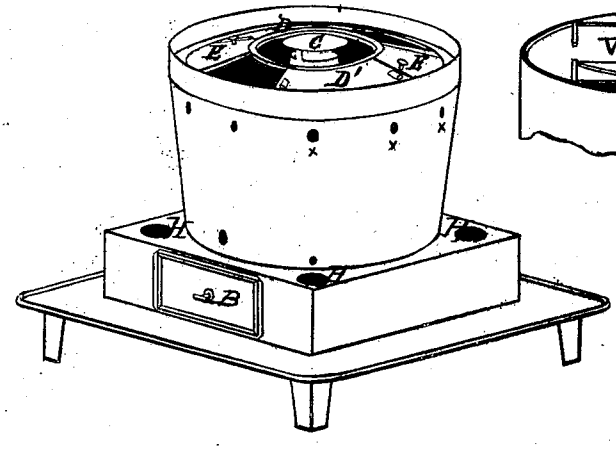
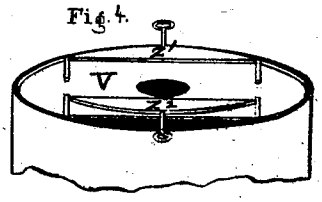


Fig. 4.



Witnesses:

J. W. Daggett

James Moore

Inventors:

Federal C. Adams

Joseph Peckover

United States Patent Office.

FEDERAL C. ADAMS AND JOSEPH PECKOVER, OF CINCINNATI, OHIO.

Letters Patent No. 72,580, *dated December* 24, 1867.

IMPROVEMENT IN COAL-STOVES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that we, FEDERAL C. ADAMS and JOSEPH PECKOVER, both of Cincinnati, Hamilton county, Ohio, have invented certain new and useful Improvements in Smoke-Burning Stoves; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a perspective view of a stove containing our improvements.

Figure 2 is a longitudinal sectional view of the same.

Figure 3 is a perspective view of the bottom section of the stove, showing some of the details, and

Figure 4 is a perspective view of the plate and dampers, shown in section at V, fig. 2.

The object of our improvements is to provide various means for the introduction and application of oxygen to the smoke and gases of coal or wood-burning stoves, so as to secure their consumption.

We do not claim to have discovered the principle of applying the oxygen of the atmospheric air to this purpose, as this is well known, but we do claim to have invented various devices to effect the concentration of the smoke and gases, and the application of fresh air to them at the best point, and in the best manner to secure a thorough consumption.

These improvements we describe as follows: We place the hollow pipe or chamber A in the middle of the fire-pot. The bottom of this pipe is open, and communicates with the space above the ash-pan B, so that air can enter freely from without, through the ash-pan, and pass up the pipe. Above the top is a cap, C, so placed as to deflect the air and distribute it in an annular current at its circumference. For the purpose of concentrating the smoke and gases, we place upon the fire-pot a plate, D, having an opening around the pipe A. This plate may be made of a single piece, covering the entire fire-pot, except the opening, or it may be made of two pieces, D and D′, so arranged, on either side of the fire-pot, as to leave a slotted opening extending entirely across the pot, or these pieces may be provided with sliding doors or lids, E E, so as to close a portion of the space on each side, as may be desired. The effect of this cover is to concentrate the smoke and gases, either in the form of a ring around the pipe A, or in a narrow current from side to side. Air may be further supplied by the holes *x x x x*, and also by the tubes F F F, fig. 2, at the sides of the fire-chamber, which tubes are fed with air from a base-chamber, G G, extending around the ash-pan on three sides, and provided with openings H H H, for the admission of air. The oxygen, entering the holes H, passes into the base-chamber, where it is measurably heated, thence upward through the tubes F, and is discharged just under the plate D, coming in contact with the smoke and gases at the edge of the plate.

Another mode of introducing air and of concentrating gases is to provide the stove with a plate, I, provided with an inverted conical pot, K. This pot may be fitted with an adjustable plate or diaphragm, L, to reduce the orifice at the bottom, or the plate L may be omitted. A sufficient distance above plate I, to produce a space equal to the height of door W, is another plate, M, provided with a pot, N, the lower end of which is closed by a diaphragm, O, leaving only the opening P. Air enters through the door W into the space between plates I and M, passes down between the conical pots, and is brought in contact with the smoke, &c., at the orifice P, producing a very perfect combustion.

Another device is the cylinder or pipe Q, introducing air from above. It is very similar in its construction to pipe A in the fire-pot. Air is fed to pipe Q through the opening at the top, or by pipes or flues R R, and, by means of a pipe, shown by dotted lines at S, air may be fed from pipe Q to the space between plates I and M. This flue S extends obliquely downward and backward from the pipe Q, and enters the plate M just beyond the edge of the pot N. To facilitate the combustion of gases, by means of air introduced through pipe Q, a concentrating-plate or diaphragm, T, is placed in the plane of the lower edge of pipe Q. A flange, U U, extends around the bottom of said pipe, and a cap is placed just below the opening, so that the air escapes around the flange U U and comes in contact with the gas and smoke in the space between the flange and the diaphragm T.

For the purpose of retarding the draught or of forming a heating-chamber, the plate V is placed a little way below the top of the stove, and may be provided with the regulating-dampers Z^1 Z^2, at the front and back, to open or close a space for the ascent of the products of combustion, thus permitting them to seek the exit-pipe directly, or compelling them to pass over the plate V. The damper in the rear may be dispensed with, and

the plate extended under the exit-pipe to the back of the stove, leaving only the opening in front; represented by damper Z.

It is obvious that some of the improvements above described may be used separately, and that all need not necessarily be employed at the same time on the same stove.

What we claim as new herein, and desire to secure by Letters Patent, is—

1. The air-heating chamber G G, at the base of the stove surrounding the ash-box, but not communicating therewith, with the openings H, for admitting fresh air, as described.

2. The pipe or chamber A, admitting air, through the fuel, to the cap C, in combination with a concentrating-plate, D, at the top of the fire-box, substantially as described.

3. One or more flues, F F F, for conducting air from the base-chamber to a point just below the plate D, as shown and described.

4. The adjustable concentrating-plate D D′, with the sliding doors E E′, substantially as described.

5. The chamber, formed by plates I and L, and conical pots K and M, and forming a descending-flue for the purpose of conducting air downward to the top of the fire-basket, substantially as described.

6. The adjustable diaphragm L, in combination with the bottom of the conical pot K, substantially as described.

7. The flue Q, in combination with the plate or diaphragm T, substantially as described.

8. The feeding-pipes R R or S, in combination with the flue Q, substantially as described.

9. The plate V, with the openings at the front and back, substantially as and for the purpose described.

10. The plate V, with the opening in front only, in combination with square or circular coal-stoves, substantially as described.

11. The plate V, in combination with the regulating-dampers Z^1 Z^2, substantially as and for the purposes described.

FEDERAL C. ADAMS,
JOSEPH PECKOVER.

Witnesses:
J. F. CROSSETTE,
JAMES MOORE.