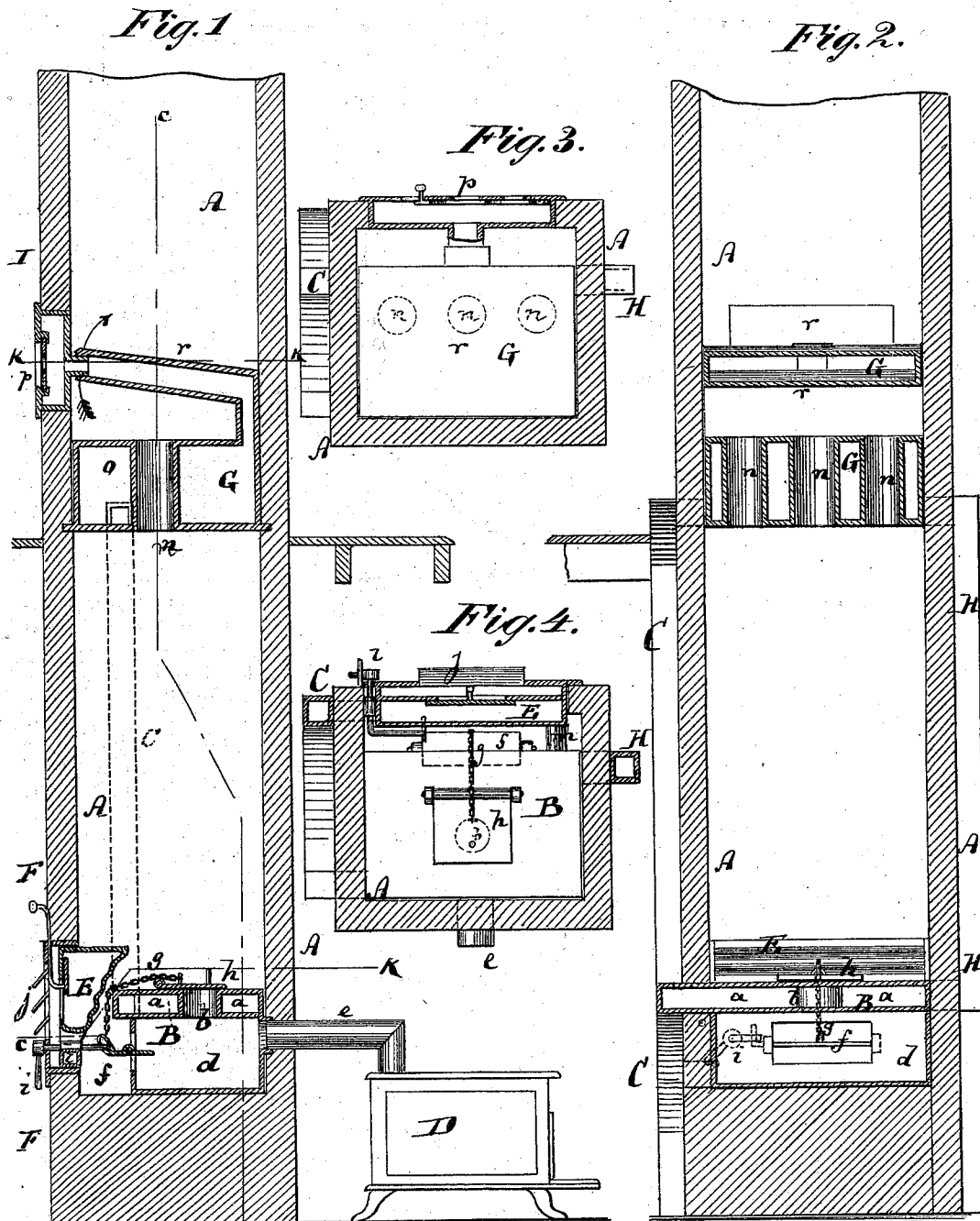


L. WHITE.
Chimney Furnaces.

No. 143,739.

Patented Oct. 14, 1873.



Witnesses
John Becker
Fret Haynes

Lewis White
by his Attorneys
Brown & Allen

UNITED STATES PATENT OFFICE.

LEWIS WHITE, OF WATERBURY, CONNECTICUT.

IMPROVEMENT IN CHIMNEY-FURNACES.

Specification forming part of Letters Patent No. **143,739**, dated October 14, 1873; application filed July 14, 1873.

To all whom it may concern:

Be it known that I, LEWIS WHITE, of Waterbury, in the county of New Haven and State of Connecticut, have invented an Improved Chimney-Furnace, of which the following is a specification:

Figure 1 represents a vertical section through a chimney provided with my improved furnace. Fig. 2 is a vertical transverse section thereof on the line *c c*, Fig. 1. Fig. 3 is a horizontal section on the line *k k*, Fig. 1; and Fig. 4, a horizontal section on the line *c k*, Fig. 1.

Similar letters of reference indicate corresponding parts in all the figures.

The object of this invention is to arrange within a chimney an apparatus for utilizing the escaping heat of the products of combustion from a stove or heater, so as to thereby heat or warm rooms that adjoin said chimney, or are connected therewith by suitable pipes. The invention consists, principally, in arranging within the chimney boxes of metal, through which a current of fresh air is made to pass, and which communicate with the rooms to be heated by means of suitable registers. The said boxes are provided with conduits for the passage of the smoke, so that such smoke, when passing through them, will heat the air contained within the boxes, and therefore serve to warm the room in the desired manner. By an arrangement of this kind fuel can be economized to a great extent, and with one ordinary cooking or other stove two additional rooms can be heated; or the air heated by this apparatus may be otherwise utilized. My invention also consists in providing the lowermost air-box, which I arrange in the chimney, with a double trap—one on top and one at the side—both traps being connected, so that one of them only can be opened at a time. If the upper trap is opened, the smoke will pass up through the box, and will give off very little of its heat to the air contained therein; while, if the upper trap is shut, and the side trap opened, the smoke will pass over the whole length of the box, and against the side or back of another air-box arranged in the flue, to give off the larger proportion of its heat to the air contained in such boxes.

In the accompanying drawing, the letter A represents a chimney built of masonry, in suitable

style. In its lower part is built within such chimney a metal box, B, which communicates at the side of such chimney with an air-pipe, C, that conducts air to the interior *a* of such box. A smoke pipe or passage, *b*, extends vertically through the box B, and connects that part of the chimney which is above such box with the part *d* below the same. Into this part *d* the smoke-pipe *e* of the stove or heater D extends. The space *d* receiving the smoke from the stove is also inclosed by metal, and may be intimately united to the air-box B, and has an opening at its front that can be closed by means of a lid or gate, *f*. This lid or gate is, by a chain, *g*, connected with a trap, *h*, by means of which the passage *b* can be closed; but the connection between *f* and *b* is such that one of the two traps or gates only can be opened and the other closed at a time. Thus, when *f* is opened, as shown in Fig. 1, *h* is closed; while, when *h* is opened, *f* will be closed. The gate *f* is connected with a suitable handle, *i*, whereby it can be swung open and closed in the desired manner, its motion or position controlling that of the trap *h*. E is another air-box, placed in front or at the side of the box B into the chimney, and having a register, *j*, that communicates with the chamber F to be heated. This register may be opened or closed at will. The box E is, by a conduit, *l*, (shown in Fig. 1,) connected with the air-supply pipe C. The back of the box E is, by preference, corrugated, so as to produce a large surface, as is more clearly indicated in Fig. 1.

When it is desired to utilize the heat of the smoke that escapes from the stove D, for the purpose of warming the chamber F, the trap *h* will be closed and the gate *f* opened. The smoke then passes from the pipe C into the box *d* through the opening of the gate *f*; consequently under the entire length of the box B; then up along the corrugated back of the box E, thereby heating the contents of the latter, as well as those of the box B, the boxes being connected with each other by a short pipe, *m*. (Shown in Fig. 4.) The air in the boxes, becoming thus heated, escapes into the room F, through the register *j*, with the desired rapidity.

Above the box B is fitted into the chimney

A another box, G, which also contains one or more smoke-passages, *n*, and whose interior is connected with the air-pipe C to receive air therefrom, and may also be connected, by another air-pipe, H, with the interior of the box B, so that when the heat is not used through the register *j* the heated contents of the boxes B and E may be transferred to the box G for the purpose of additionally heating the upper room or apartment I. The box G connects also with a register, *p*, of suitable construction, and is heated by the smoke that passes through it.

In this manner, therefore, the desired object of utilizing the heat of the escaping products of combustion for warming the rooms is perfectly attained.

The box G may be made with an overhanging upper part, *r*, (shown in Figs. 1 and 3,) to furnish a surface against which the smoke will be carried, and whereby the smoke will be detained to increase the heating capacity of such box.

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

1. The combination of the chimney with an air-box, B, air-supply pipe, smoke-chamber *d*, and smoke-pipe *e*, all arranged to operate substantially as described.

2. The trap *h* and gate *f*, connected with each other for simultaneous operation, and combined with the air-box B and smoke-passages *d d*, and with the air-chamber E, substantially as and for the purpose herein shown and described.

3. The box E, containing the register G, arranged to work together with the box B, with which it is connected, as and for the purpose specified.

4. The combination of the air-chamber G, containing the smoke-passage *n*, with the register *p*, air-conduit C, and lower air-box B, with which the air-conduit also communicates, as set forth.

LEWIS WHITE.

Witnesses:

LE ROY UPSON,
FRANK J. ELLS.