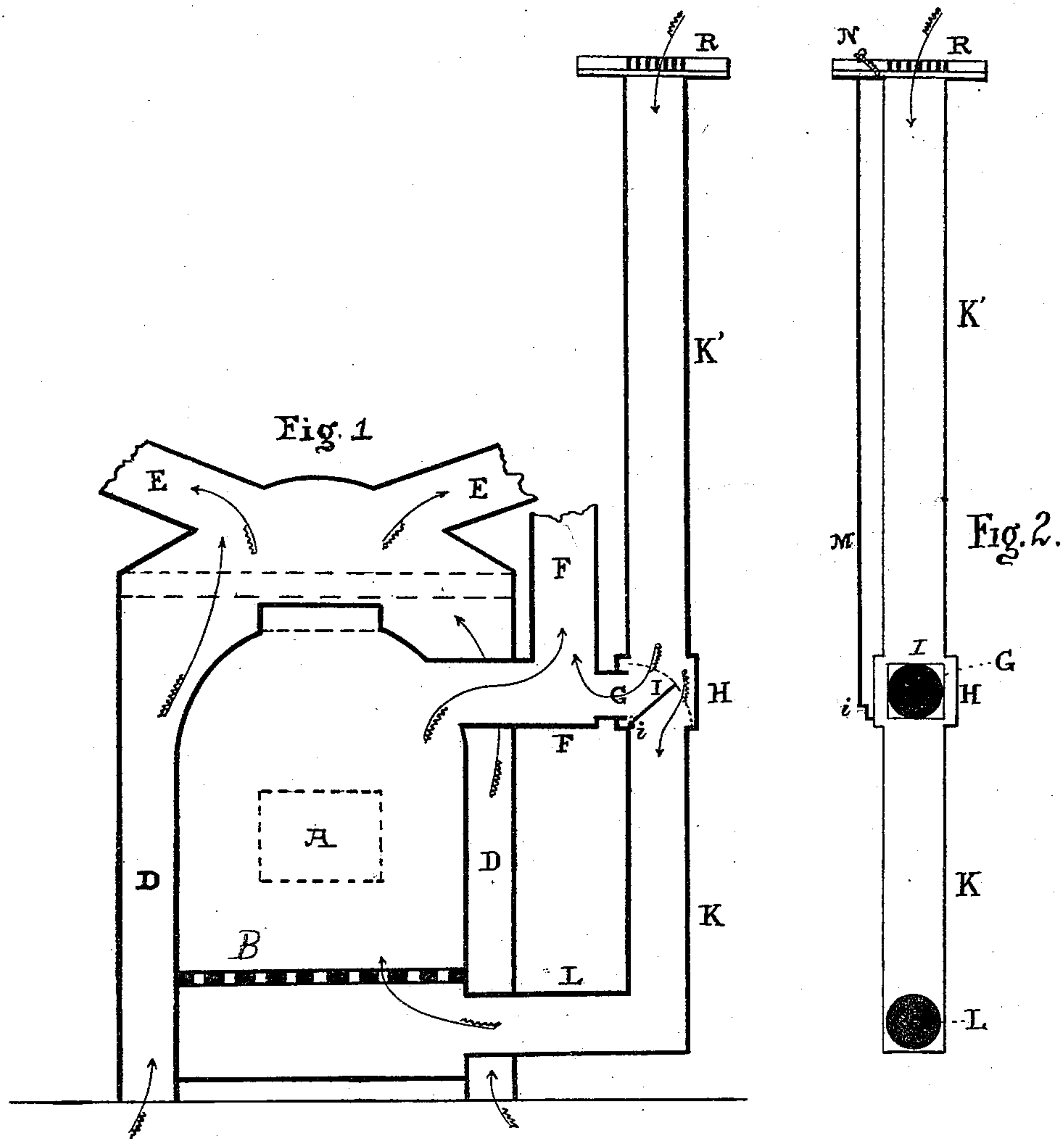


W. G. KENDRICK.
Heating Apparatus.

No. 148,567.

Patented March 17, 1874.



WITNESSES.

Jno. M. Amory
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UNITED STATES PATENT OFFICE.

WILLIAM G. KENDRICK, OF LANCASTER, PENNSYLVANIA.

IMPROVEMENT IN HEATING APPARATUS.

Specification forming part of Letters Patent No. 148,567, dated March 17, 1874; application filed February 9, 1874.

To all whom it may concern:

Be it known that I, WILLIAM G. KENDRICK, of the city of Lancaster, in the county of Lancaster and State of Pennsylvania, have made certain Improvements on Hot-Air Heating Apparatus, for the purpose of ventilating and regulating the draft, of which the following is a specification:

I may add that my improvement consists in having a vertical pipe or flue and a single valve or damper, which latter can be operated from an upper room, so as to regulate the draft and ventilating office effectually; in directing the air wholly or partially under the grate or into the smoke-flue, at pleasure, by means of the same valve or damper and horizontal pipe-connections or flue, with the rarefied gases escaping from combustion in the furnace, or by the action of a valve, to convey the same into the fire-chamber, beneath and through the grate of the furnace, thereby increasing the draft, and then carrying the same, with the products of combustion, through the smoke pipe or flue, to the outside of the building, and effectually ventilating the upper chambers and regulating the draft, without the operator leaving such upper chamber.

The accompanying drawings, with the letters of reference marked thereon, illustrate the application of my invention to an ordinary portable heater, with the furnace inclosed. A brief explanation will enable any one skilled in the art to make and use the same, in which—

Figure 1 shows my extra or ventilating pipe connected with a hot-air furnace; Fig. 2, the same detached, to show the valve-rod.

Fig. 1 is simply designed to show an ordinary portable heater. A, the inclosed furnace; B, the grate; C, the ash-chamber; D, the hot-air space surrounding the furnace, opening into the hot-air flues E E, through which the heated air is conveyed to its proper register and upper apartment. F is the smoke-pipe. These form no part of my invention, and may be variously modified, according to the construction of the heating apparatus.

The novelty consists in the construction and combination therewith of an extra outside pipe for the purposes mentioned—i. e., ventilating

and regulating the draft. An extra pipe, K', with its appropriate register R, placed in the floor or lower portion of the wall at any desired point suitable, is carried down. Opposite the outlet of the smoke-pipe F of the furnace A there is a square chamber, H, into which the end of the upper portion K' opens, and is continued from the bottom of the chamber H, marked K, having an elbow at its lower end leading and opening, at L, into the draft or fire box below the grate B. This valve-chamber H has a short pipe, G, which connects to and opens into the smoke-pipe F. There is a flat valve, I, within this chamber, on a crank-rod, i, so hung on its pivot-bearings as to close the mouth of the short pipe G effectually when in a vertical position, and, when in a horizontal position, to close the vertical continuation of the pipe K.

Said valve is operated by means of a rod or chain, M, on the crank end, or rack and pulley, by any of the mechanical means, to give the valve a full quarter revolution, and so as to hold it at any intermediate point for regulating the draft, (at N, on the side of the register R.)

Thus full control is had from such upper apartment for either passing the cold and foul air into the smoke-pipe or for passing it through the furnace.

The action of denser air on that of rarefied air is well known, and various plans and arrangements have been contrived for ventilating apartments, in connection with fans, steam-pipes, and hot-air furnaces; but I am not aware that such a combination as herein set forth has ever before been known or used.

It is understood that the pure cold air supplies the hot-air chambers in the usual way, and that it is the cold or foul air drawn from the upper chambers which regulates the draft of the furnace, thus replacing the foul, colder, lower stratum by pure and warm air from without, in its passage through the hot-air chamber and flues.

The advantages of this cannot fail to manifest itself to every reflecting mind, and differs in its ventilating powers from merely drawing in the foul air around a fire-place in the same room, or a short tube in connection with a fur-

nace-flue and dividing-registers adjoining to a part of the furnace—that is, a supplementary flue set into the ordinary flue; therefore,

What I claim, in combination with a hot-air furnace, is—

The continuous vertical pipe or flue K K, having a seat or chamber, H, for a single valve or damper, I, which is hinged, at *i*, to the rod M, whereby it may be operated from an upper

room, to close wholly or partially the inlet G to the smoke-flue F', or the direct passage to K, leading to the ash-pit C, the whole arranged and operated substantially in the manner and for the purpose set forth.

W. G. KENDRICK.

Witnesses:

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