F. L. HEDENBERG.

Heating Stove.

No. 4,032. Patented May 7, 1845.

Fig. 2

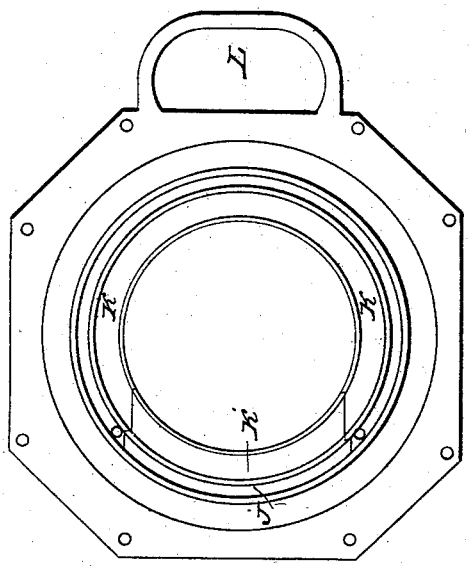


Fig. 3

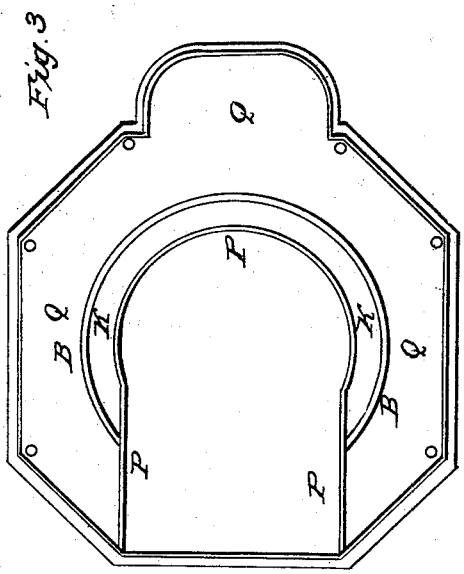
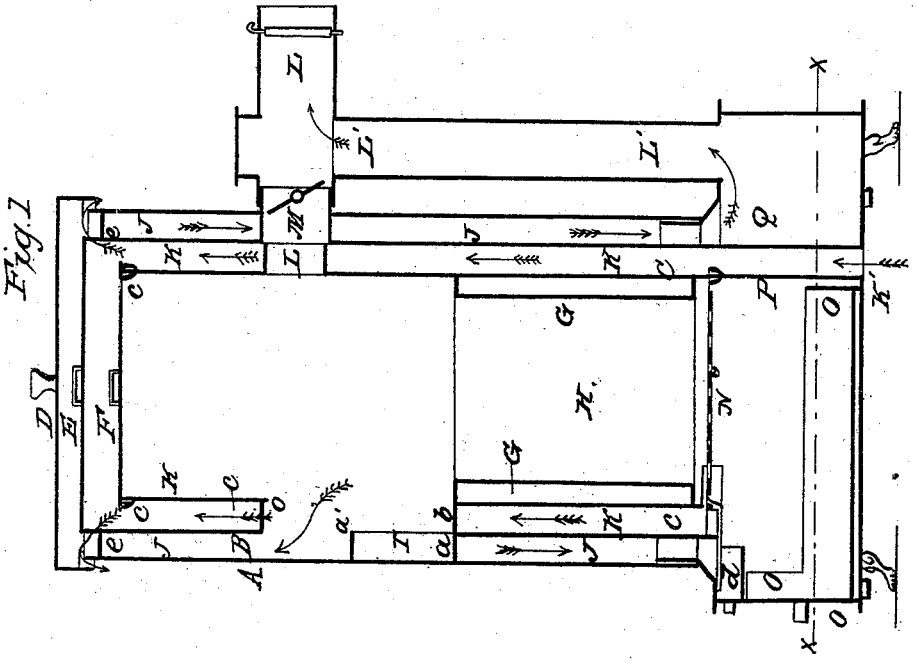


Fig. 1



UNITED STATES PATENT OFFICE.

FRANCIS L. HEDENBERG, OF NEW YORK, N. Y.

STOVE.

Specification of Letters Patent No. 4,032, dated May 7, 1845.

To all whom it may concern:

Be it known that I, FRANCIS L. HEDENBERG, of the city of New York, in the State of New York, have made certain new and useful Improvements in Cylinder-Stoves for Heating Apartments; and I do hereby declare that the following is a full and exact description thereof.

In the accompanying drawing Figure 1, is a vertical section of the improved stove, from front to back, through its middle. Its main body consists of three concentric cylinders, A, B, and C, each of which is furnished with a cover, D, E, and F, although that marked E, may be omitted. The inner cylinder, C, which constitutes the fire-chamber, is to be lined with fire-brick in that part which contains the fuel, as shown at G, G, so as to form the chamber of combustion, H. At I there is to be a door for supplying fuel, there being a casing occupying the space between the outer cylinder, A, and the middle cylinder, B, so as to surround the door, as in many double, cylindrical boilers; the upper and lower portions of this casing are shown at a', a. There is a similar casing between the middle cylinder, B, and the inner cylinder, C, including the space, K, between those cylinders, but not inclosing the space J, J, above the door way, I, b', b, being the upper and lower casings of this part, the width of the plate b, being the same with that of the space K. It will be seen that the upper casing, b', is at a considerable height above the upper casing of the opening a', a, while to the height of the door the two casings coincide; there is, therefore, above the opening for the door, a free communication for the passage of the heated air and smoke from the chamber of combustion into the space J, J, between the two outer cylinders, this being the flue space through which the whole of the gaseous products of combustion are to pass on their way to the exit pipe; the upper end of this space is closed by a plate, e, e. The cover F, at the top of the inner cylinder closes it entirely, it being furnished with a circular rim that enters an annular trough, or groove, at c, c, which is to be filled with fine sand, or some similar substance, admitting, therefore, of the removal of this cover when desired, but preventing the escape of gas when in place. This cover might be firmly fixed in place, but it is more convenient as described. The space K, K, is for the heating of air, which is to be admitted at the under side of the stove, and is to pass up through said opening, and into the apartment, in a manner to be presently described. The exit, or smoke pipe, L, L, passes through the three cylinders, to allow of a direct escape of the smoke when the fire is first kindled, this passage being governed by a valve, M, which when closed causes the draft to pass through the space, J, J. The cover, E, which incloses the heated air space K, K, is to be removed during the day, but it should be placed on at night, when the fire is to be checked, its object being to prevent the escape of heat, into the room when the draft is obstructed. The upper cover, D, is open all around its rim, allowing a free passage of the heated air into the room, the cover E, being removed.

The general construction of the parts above described I do not claim as new, for although such a stove has been made and sold by me alone, it has been on sale for upward of two years; but I have made valuable improvements in the arangement of the lower portion, or pedestal, which I will now describe.

Fig. 2, is a top view of the pedestal, the cylinders, A, B, and C, and the grate, N, being removed. Fig. 3, is a top view of the lower part of the pedestal, say below the line x, x, of Fig. 1, the ash-drawer, O, O, being removed.

P, P, is a partition extending up from the bottom of the pedestal, to the inner cylinder C, of the stove, of which it forms a continuation.

K, K, is the cylindrical space, for the admission of the air to be heated, which extends down through the bottom plate of the pedestal, the opening into it being in the form seen at K, K, Fig. 3; this opening is shown in the section at K′, Fig. 1; when the cylinders, B, and C, are in place, the space K, Fig. 3, forms, as above remarked, a continuation of the heated air-space; J, J, is the cylindrical flue space, leading directly into the chamber Q, Q, of the pedestal, into which the gases from the chamber of combustion descend through the flue space J, J, whence it ascends through the vertical exit pipe L′, L′. That part of the openings

J, and K, which is over the ash-drawer is covered by a plate of metal, as shown by the shading at J′, K′.

The operation of the stove is as follows: The fire having been duly kindled, the valve M, closes, and the cover, E, removed, air is admitted under the grate bars by opening the ash-drawer to a small distance, or by drawing out a sliding piece, *d*, just above the ash-drawer; the opening made by removing this piece serves, also, to admit a shaker with which to agitate the grate, as in many other stoves. The draft, after having passed through the fuel, will enter the cylindrical space, J, J, through the opening above the door I, as described, and indicated by the arrow extending from the fire-chamber into that space; around this space it will circulate, and descend through it into the pedestal chamber, Q, and pass thence up the pipe, L′, L′. The air to be heated will, at the same time, pass into the opening K′, under the pedestal, and as it ascends through it will become highly heated, both by the action of the fire in the chamber of combustion and of the heated gases in the flue space, J, J; and coming into contact with the cover, A, will escape into the room around its periphery.

Having thus, fully described the nature and operation of my improved triple cylinder stove, what I claim therein as new, and desire to secure by Letters Patent, is—

The particular manner, as above set forth, in which I arrange and combine the flue and air-heating spaces, and the pedestal of my stove, the hot air space being between the ascending and descending draft; the descending draft spreading around the base of the stove.

FRANCIS L. HEDENBERG.

Witnesses:

JNO. W. C. LEVERIDGE,

JOS. G. PALMER.