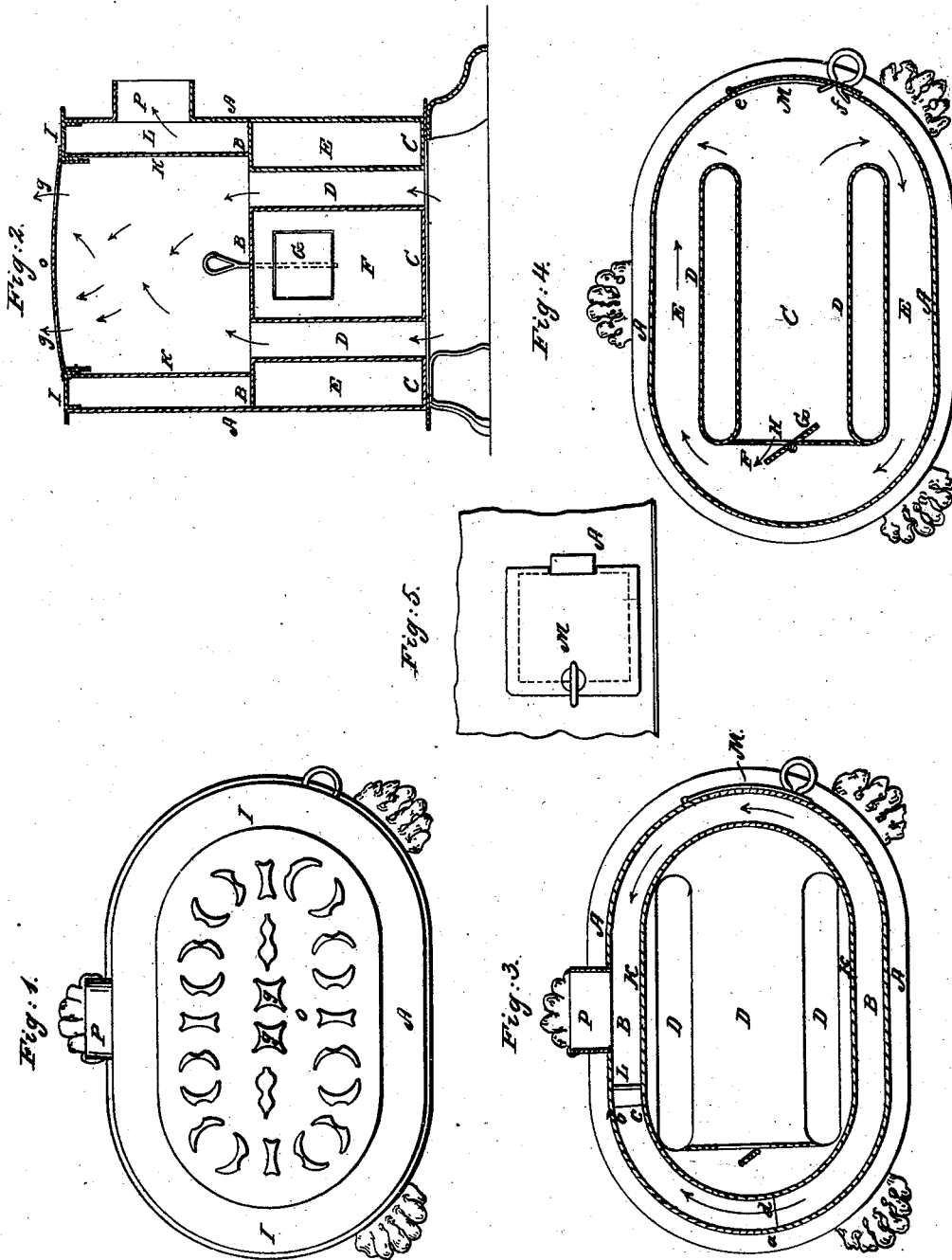


B. SHEPARD.

Stove.

No. 4,905.

Patented Dec. 23, 1846.



UNITED STATES PATENT OFFICE.

BENJA. SHEPARD, OF BOSTON, MASSACHUSETTS.

AIR-HEATING STOVE.

Specification of Letters Patent No. 4,905, dated December 23, 1846.

To all whom it may concern:

Be it known that I, BENJAMIN SHEPARD, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Stoves for Heating Apartments; and I do hereby declare that the same is fully described and represented in the following specification, accompanying drawings, letters, figures, and references thereof.

Of said drawings, Figure 1 denotes a top view of my improved stove. Fig. 2 a vertical, transverse and central section of it. Fig. 3 a horizontal section taken through the center of the discharge pipe or exit flue. Fig. 4 is a horizontal section taken through the middle of the fire place or chamber of combustion. Fig. 5 is a view of the stove door and a part of the stove to which it is applied.

In the said figures, A exhibits an elliptical or elongated drum or case or casing, having a plate or partition B, B, B placed in about the middle of it, and extending across it in a horizontal plane and parallel to the bottom plate C, C, as seen in the drawings. Between the said partition B B B and the said bottom plate and parallel to each other, and so as to extend from the partition to the bottom plate, I arrange two elongated air ducts or pipes D, D, and I cut open the said partition and bottom plate, so as to permit the air of the room to pass into and through and out of the said ducts, as denoted by the red arrows in Fig. 2. I also arrange the said ducts with respect to the outer case or drum A, so that there shall be a narrow space E between each duct and the adjacent side of the case, as seen in Figs. 2 and 4. I next extend a back plate or vertical partition F from the plate B to the plate C, and from the end of one of the ducts D to the opposite end of the other one, as seen in Figs. 2 and 4. Through the said partitions, an orifice H may be made, which should have a valve or damper G applied to it, to close it, when it is not desirable to cause the smoke to pass through the spaces E, E. On the top of the plate B, and extending from it to the top covering or plate H of the drum, I arrange an inner drum or case K K, which I dispose concentrically with the outer drum A A, as seen in Figs. 2 and 3. Through the plate B, and between the inner and outer drums K and A, and at the rear part of the stove, I make an elongated passage or open-

ing *a b c d*, as seen in Fig. 3. Near one end of this orifice, and in the position denoted in Fig. 3, I erect upon the plate B, a partition L, which I make extend to the top plate of the stove, and from the inner drum K to the outer drum A, as seen in Figs. 2 and 3. An opening *e f* (Fig. 4) of proper shape for the admission of fuel, should be made through the front end of the stove, and the said opening should have a door M, applied to it in the ordinary manner. The upper part of the air chamber within the drum K should be covered by a removable cover or plate *o*, which should be pierced with orifices *g, g*, in such manner as will allow the heated air a free opportunity of escaping from the chamber or space in the interior of the drum.

The cold air pipes D, D and the back plate F, constitute the lateral boundaries of a fire place or chamber for the combustion of fuel, out of which the flame and smoke (when the damper G is closed) will rush, and in a direction toward the front or fire end of the stove, thence into and through the spaces E, E, thence through the opening *a b c d*, thence through the flue space between the drums A and K, and thence through the discharge flue P, the course of said flame and smoke being represented in the drawings by the red arrows.

I sometimes intend to dispense with all that part of the stove, situated above the plate B, B, and discharge the smoke out of the casing A, at some suitable place behind the partition F. It is a common device to carry air pipes through a chamber of combustion, but I am not aware that such pipes have had a plate F combined with them, in such manner as to constitute with them a fireplace, and cause the flame and smoke to rush around and in contact with the pipes, and between them and the outer drum, as above described.

By such an improvement or combination and arrangement of the parts, the heat is brought in direct contact with a great extent of metal plate, whose opposite surfaces are in contact with the atmosphere to be heated.

By the aforescribed arrangement of the air drum K K, directly over the fireplace, as also the arrangement of smoke flues around the said drum, by which, the said drum being made to receive air through the pipes D, D, and be warmed by the smoke circulating around its sides, in the manner as above described, I conceive that I effect a

very important improvement or addition to the stove, as the flame of the fireplace is brought so as to act directly against the bottom of the air chamber, around whose sides it afterward is made to course.

In stoves having air chambers, particularly in what is generally known as the Olmstead stove, the air chamber is only encircled by a smoke flue or space, and it is generally placed by the side of the fire chamber, and has no air pipes running through the fuel chamber.

Having thus premised, I would remark that I do not intend to confine myself to the precise forms or dispositions of the parts as herein set forth, but to vary them as occasion may require, so long as I employ an analogous combination or combinations of them. I would also remark that I do not claim the carrying of air tubes through a chamber of combustion, but

That which I do claim is

1. The combination of the back plate (F) and one or two elongated air passages, pipes or ducts (D, D) with the drum or casing A, entirely surrounding them, as set forth, the

said elongated air ducts and back plate constituting together the whole or part of a chamber or space for the fire or combustion of the fuel, and the said casing or drum forming with the said ducts and plate one or two smoke passages E, E, around the exterior of the air ducts, the smoke being caused, as it leaves the fire, to move toward the front or fire door end of the stove, thence to circulate between the outside casing and the air ducts, as specified.

2. And I also claim the above described combination and arrangement of the air drum K K with the chamber of combustion beneath it, and air pipes (leading through said chamber) and smoke flues or passages made either partially or entirely around the drum K K, as above represented and explained.

In testimony whereof, I have hereto set my signature, this twenty sixth day of May, A. D. 1846.

BENJA. SHEPARD.

Witnesses.

R. H. EDDY,

GEO. H. BAILEY.