M. POND.

Hot Air Furnace.

No. 3,239. Patented Sept. 1, 1843.

Fig. 2.

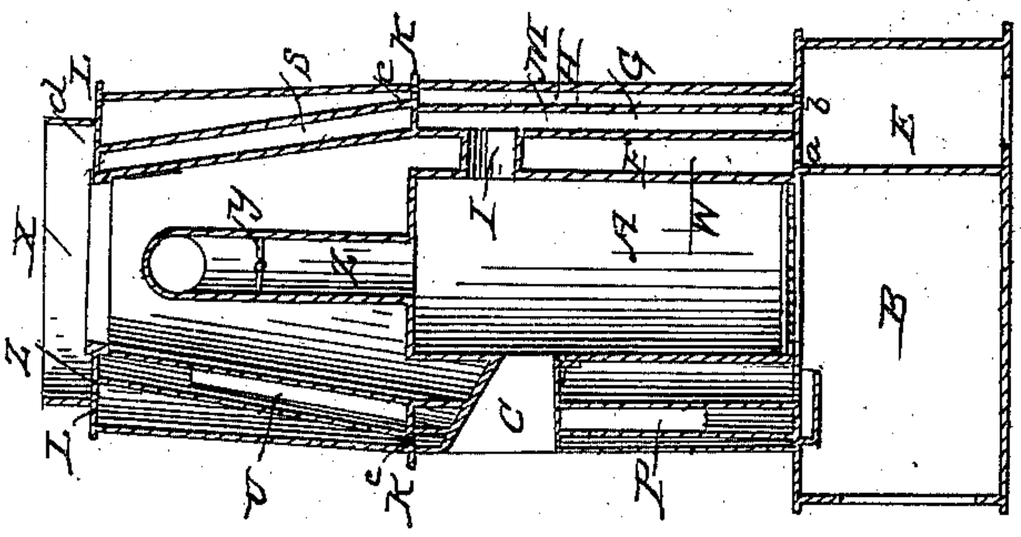


Fig. 4.

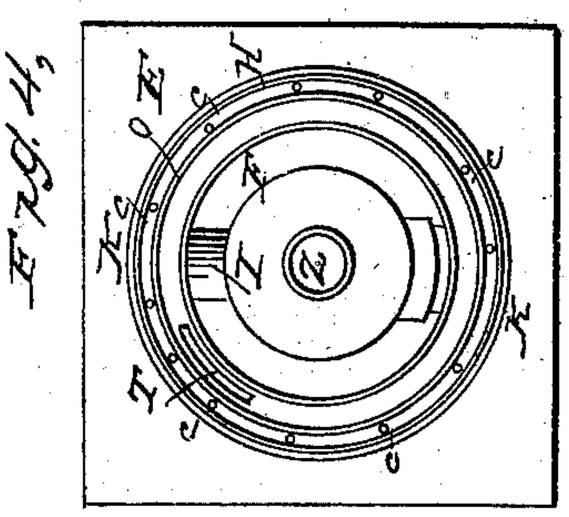


Fig. 3.

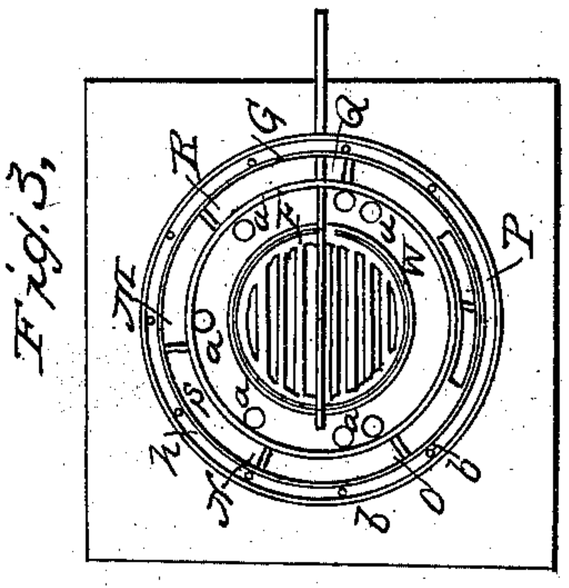
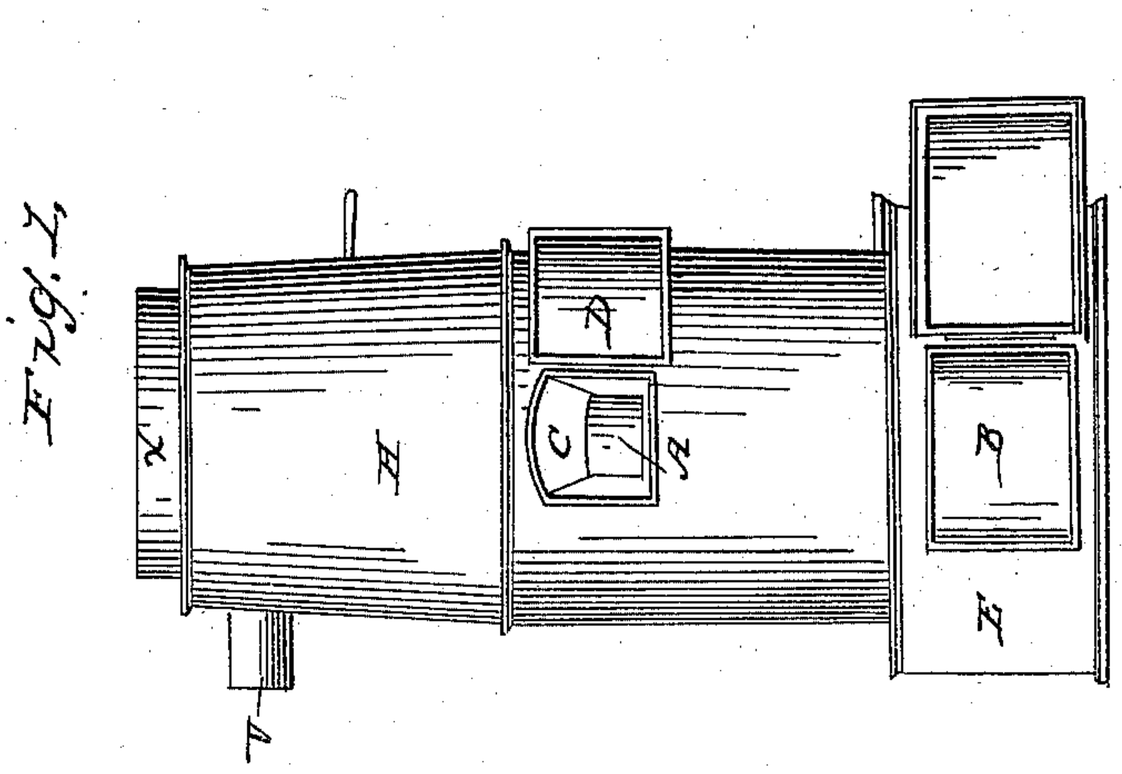


Fig. 1.



UNITED STATES PATENT OFFICE.

MOSES POND, OF BOSTON, MASSACHUSETTS.

HOT-AIR STOVE.

Specification of Letters Patent No. 3,239, dated September 1, 1843.

To all whom it may concern:

Be it known that I, MOSES POND, of Boston, in the county of Suffolk and State of Massachusetts, have invented a certain new and useful Improvement in Furnaces for Warming Buildings, and that the following specification of the same, taken in connection with the accompanying drawings, fully sets forth the nature and principles thereof by which it may be distinguished from others of like character.

Figure 1 of the drawings above mentioned represents a front elevation of my improved furnace. Fig. 2 is a central and vertical section of the same. Fig. 3 is a horizontal section of the apparatus taken between the opening for the supply of fuel and the fire grate; and Fig. 4 is a horizontal section of the upper part of the apparatus taken above the horizontal partition which divides the air passages and which is situated over the fire opening.

A, Figs. 2, 3, 4 denotes the chamber of combustion which is situated over the ash pit B, and has a fire grate in its lower part. The fuel is supplied to the chamber A, through a suitable passage or opening C, which may be closed by a door D. The ash pit B is placed within an air box or base E, upon the top plate of which the fuel chamber and three concentric casings F, G, H, are disposed at suitable distances apart from each other as seen in the drawings—the spaces between each of the said casings constituting certain air and smoke passages to be hereinafter described.

A pipe I inserted in the fuel chamber and casing F, opens a communication between the interior of the fuel chamber and the space between the casings F, and G. A horizontal partition K, situated about on a level with the top of the furnace A, extends from the casing F, through the casing G and to the casing H; and the spaces between the three casings F, G, H, are covered over by a plate L, as seen in Fig. 2. The circular space existing between the casings F and G, or that part of it beneath the horizontal plate K, is divided by six or more or less vertical partitions M, N, O, P, Q, R, Fig. 3, which extend from one of the casings to the other.

The first partition, M, extends from the plate K down to the top plate of the air box. The second partition N reaches downward from the plate K about two thirds of the distance between the said plate and the top of the air box. The third partition rises upward from the top of the air box and terminates at some distance below the plate K. The other partitions are arranged alternately in a similar manner, their object being to cause the smoke and gases from the chamber of combustion to circulate freely upward and downward in the space between the casings F, and G, before it is discharged into the portion of the said space situated above the plate K; or in other words as the smoke leaves the furnace through the pipe I it descends in the space S, passes under the bottom of the partition N, rises upward and passing over the top of the partition O descends again—thence continuing to ascend and descend around the partitions, until it passes through the orifice T, Fig. 4, cut through the horizontal plate K and is received into that part of the space S situated above the plate K, through which (space) by means of other vertical partitions U, U, U, U, it is caused to alternately circulate up and down until it is finally discharged through a pipe V which leads from the casing G to the chimney from whence the smoke escapes into the atmosphere.

A series of holes *a*, *a*, *a* is cut through that part of the top plate of the air box which is between the casing F and the furnace, the same permitting the cold air to ascend from the air box into the space W, surrounding the furnace. A similar series of orifices *b*, *b*, *b* is also formed through that part of the top of the air box, which is between the casings G, and H, and corresponding orifices *c*, *c*, *c*, are cut through that part of the plate K which is between the casings G and H. Other orifices *d*, *d*, &c., are cut through the top plate L so as to permit the cold air which rises from the air box into the space between the casings G and H, to escape through the said orifices into a chamber X situated above the plate L.

The space which encircles the furnace communicates or opens into the chamber X, and the various pipes which are carried to the different apartments of the building, for warming the same are inserted and open into the said chamber.

Whenever it may be desirable to pass the smoke from the furnace directly into the chimney or discharge flue without first circulating the same between the casings F and G, a damper Y may be opened, this

damper being placed in a pipe Z which is inserted in the top of the furnace or fuel chamber and opens from thence into the space between the casings F and G, and directly opposite the mouth of the pipe V.

Having thus set forth my invention I shall claim—

1. The combination of the chamber of combustion, the interior concentric cold air space immediately surrounding the said chamber, the concentric flue or smoke space encircling the said cold air space, and the exterior concentric cold air space which surrounds the flue space, the whole being arranged, connected together and operating substantially as described.

2. Also. The particular method herein before explained, of causing the smoke and gases to be retained and to circulate within the flue space S, viz, by the horizontal plate K in combination with the vertical partitions immediately over and under the said plate—the same being substantially as specified.

3. Also. The combination of the chamber of combustion the interior concentric cold air space immediately surrounding the said chamber, and the concentric flue or smoke space encircling the said cold air space.

In testimony that the above is a correct specification of my said improvement I have hereto set my signature this twentieth day of June, of the year eighteen hundred and forty three.

MOSES POND.

Witnesses:
R. H. Eddy,
David A. Granger.