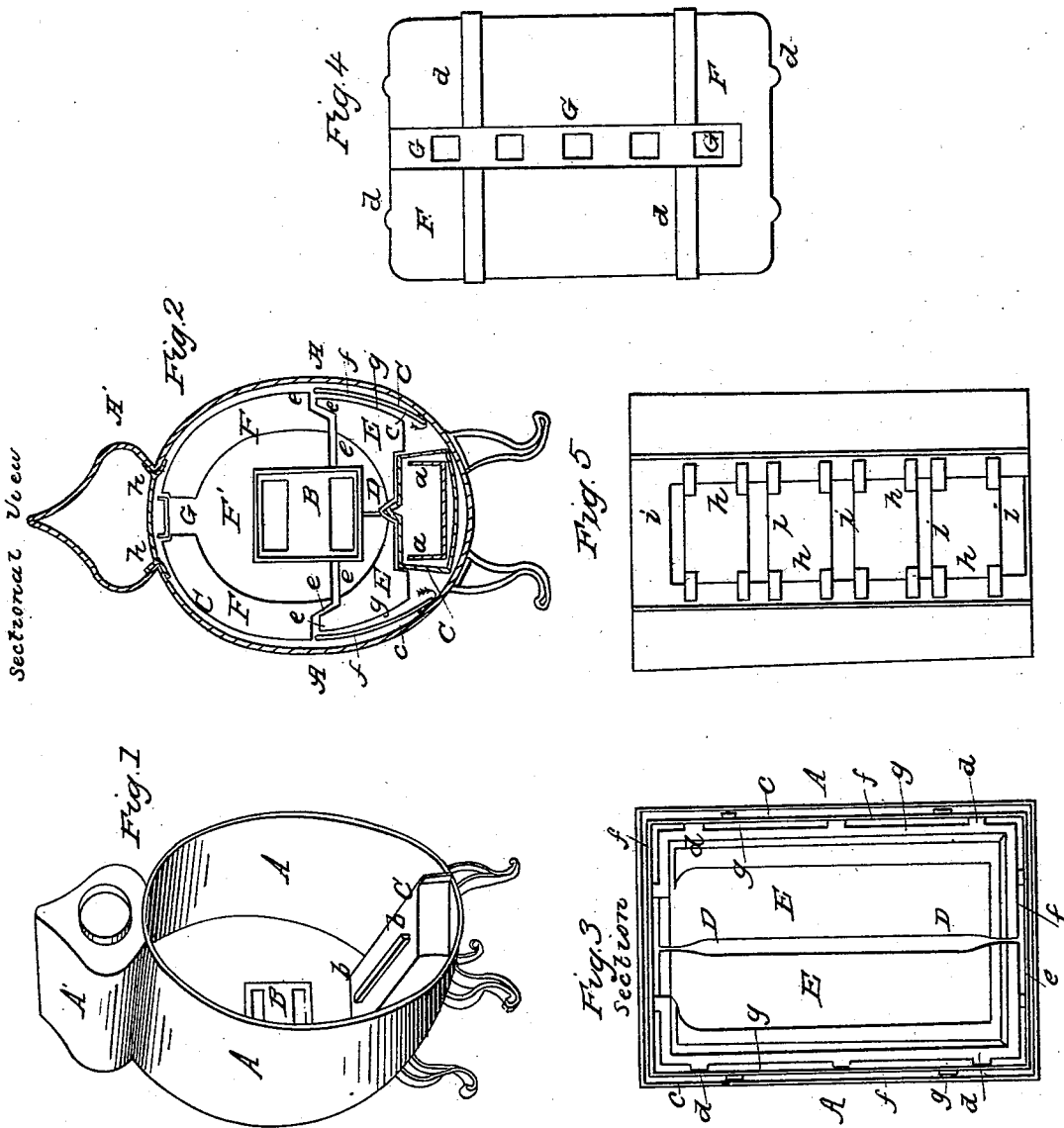


P. PHILLIPS.  
Heating Stove.

No. 2,851.

Patented Nov. 12, 1842.



# UNITED STATES PATENT OFFICE.

PHILETUS PHILLIPS, OF MIDDLETOWN POINT, NEW JERSEY.

## STOVE.

Specification of Letters Patent No. 2,851, dated November 12, 1842.

*To all whom it may concern:*

Be it known that I, PHILETUS PHILLIPS, of Middletown Point, in the county of Monmouth and State of New Jersey, have invented a new and useful Stove for Heating Apartments, in which stove wood is to be employed as fuel; and I do hereby declare that the following is a full and exact description thereof.

The exterior of my stove may be made either of sheet or cast iron, but its interior or chamber of combustion is composed of fire brick, soap stone or other bad conductor of heat. The cross section of the stove will present the interior or fire chamber in the form of an oval or nearly so and the general outline of the exterior will correspond thereto. The air which is admitted into the fire chamber may enter through a single opening in the fire brick lining, which opening is in the middle of the hearth or lower part of the fire chamber, is narrow, and extends from front to back of the stove, or nearly so. Below this opening there is an ash drawer placed in the usual manner. The fuel is admitted through a door way at one end of the stove and the draft of heated air which escapes from the burning fuel passes first horizontally through an opening or openings left in the lining of fire brick in the plane of a horizontal section through the middle of the fire chamber. It then descends between the fire brick lining and a metallic casing which surrounds the sides of the lower section of the fire chamber, say, at the distance of half an inch, more or less, from it: After passing down to the lower part of the stove it ascends through a space left between the fire chamber and the metallic plates which constitute the exterior of the stove and finally escapes through a suitable exit pipe. For the purpose of allowing a direct passage from the fire chamber there are a number of openings left along the upper part of the arch of the said fire chamber to which openings a sliding valve is adapted by means of which they may be entirely or partially closed.

In the accompanying drawing Figure 1 is a perspective view of my stove, the back plate and the whole of the fire brick or non-conducting material which constitutes the chamber of combustion being removed. Fig. 2 is a cross section of the stove in a vertical plane at or near its middle, showing also the fore end with its feeding door. Fig. 3

is a top view of the lower half of the fire chamber showing the bottom upon which the fuel rests and the longitudinal opening through which air is admitted for the support of combustion together with a section of the metallic portion of the stove. Fig. 4 is a top view of the upper section of the fire chamber shown as removed from the metallic portion of the stove and exhibiting the openings for the direct draft and which are to be governed by a sliding valve.

In the respective figures where like parts are shown they are designated by the same letters of reference.

A, A, is the outer case or shell of the stove, A' being a receptacle on its top into which the smoke and heated air pass on their way to the smoke or exit pipe.

B is the door for the admission of fuel and C a case within which the ash drawer slides which ash drawer is seen in section at *a a* Fig. 2.

*b, b,* is a long slot or opening on the top of the case C corresponding with an opening D, D in the bottom of the fire chamber for the admission of air to the fire and the escape of ashes into the ash drawer.

The lining of fire brick or other material is represented in the drawing as consisting of three pieces only, the lower part E, E, upon which the fuel rests, being in two pieces, as shown in the section Fig. 2, the line of the opening D, D, separating these parts from each other. The upper portion F, F, is represented as in one piece, being arched, like a muffle as shown also in the section Fig. 2; F' being the fore end of said lining. This lining may however consist of any convenient number of parts properly joined together. A flue space *e, e,* of half an inch, more or less, is left between the lining E, F, and the shell A, for which purpose projecting ribs *d, d,* are formed on the fire brick. The upper and lower sections of the lining have also a flue space *e, e,* left between them all around the interior and through this latter flue space the heated air and smoke are to pass on their way to the exit pipe. The upper portion of the lining F, F, rests upon the upper edge of the partition *f, f,* thus preserving the flue space *e, e.*

The draft from the fire after passing through the space *e, e,* does not pass directly into the flue space *e, e,* but is directed downward by a partition of sheet metal *f, f,*

which surrounds the sides of the lower part of the brick lining at such distance as to leave a flue space *g, g*. After passing the lower edge of this partition it ascends all around the stove into the receptacle A' and passes off by the exit pipe. The entrance from the main body of the stove into the receptacle A' may be made through any part of their line of junction and I usually form this part in such a manner as that the opening from A into A' may be regulated at pleasure. The mode of doing this is shown in Fig. 5 which is a top view of the outer shell with the receptacle A' removed; *h, h*, are sliding partitions which partially close the opening *i, i*, and these partitions being three or four in number may be shifted so as to direct the draft into either end or any part of the receptacle which shall be found to distribute the heat most equally. For admitting a direct draft from the fire chamber into the receptacle A' openings *G, G*, are made along the top of the upper fire brick lining and these are governed by a suitable sliding valve by which they may be wholly or partially opened or entirely closed in a manner well known.

A stove thus constructed will be found to possess all the useful attributes of the air tight stove as by making a closely fitting ash drawer the fire may be retained in it for a great length of time by the aid of a quantity of unconsumed coals which may lie on each side of the draft opening *D, D*, out of its direct influence and which will therefore burn out very slowly. The draft opening *D, D*, may if preferred be divided into two or more parts.

Having thus fully described the manner in which I construct and combine the respective parts of my stove and shown the operation of the same; what I claim as new and desire to secure by Letters Patent is—

1. The manner of constructing the hearth or bottom of the fire chamber, having for the purpose of compressing and strengthening the draft and bringing it more immediately in contact with the ignited fuel an aperture or apertures as shown at *D, D* Fig. 3 extending nearly or quite through the middle thereof, lengthwise of the wood to be placed thereon, having on one or both sides of said aperture or apertures a space for the retention of the ashes to preserve the coals for renewing the fire.

2. I claim also in combination with said aperture or apertures the inclination of the hearth on the side or sides thereof to give the fuel and ashes a tendency thereto and to bring the greatest bulk or depth of fuel directly over said aperture or apertures.

3. I claim also the method herein described of making the upper sections of the

fire brick or other lining represented by Fig. 4 having an aperture or apertures in the top of it for the direct upward passage of the heated air and smoke as shown at *G, G*, connected with a damper or valve to close said aperture or apertures to cause the heated air to pass out at the lower edge of said upper section.

4. I claim also the connection of said lower edge of the upper lining with the fire brick or other material forming the lower section or hearth in such a manner as to leave a space of half an inch, more or less, between them for the outward passage of the smoke and heated air which space is shown at *e, e*.

5. I also claim the method herein set forth of directing the draft downward by a plate or plates of cast iron or other material of cylindrical or other form, as shown at Fig. 2, closely connected with said lower edge of the upper lining to prevent the upward passage of the smoke and heated air on coming to said edge and to cause it to descend and pass from within said plate or plates near the lower part of the stove and rise to the upper part thereof between the lining and the material forming the outer surface of the stove.

6. I also claim the arrangement of the exterior and lining of the stove as shown in Fig. 2, such as to cause the smoke and heated air after leaving the chamber of combustion within the lining to be formed into a thin stratum between them that the heat may be thus the better radiated as it rises to the upper part of the stove.

7. I also claim the method of employing a lining of fire brick or other similar material in respect to its properties as a non-conductor of heat serving to form a passage for a stratum of heated air as described in the specification.

8. I also claim the combination of a door shown at *B*, designed when shut to exclude the air as much as may be, with the aperture or apertures in the hearth *D, D*, as aforesaid and a drawer underneath to receive the ashes and to regulate the admission of air for the purpose of combustion.

9. I also claim the connection of a series of apertures in the upper part of the lining, as shown at *G, G*, Fig. 4, for the vertically upward passage of the smoke and heated air extending in the direction of the aperture or apertures in the hearth as aforesaid with a damper or valve having corresponding apertures and which being drawn or pushed in a right line will open or close them all at once.

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Witnesses:

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