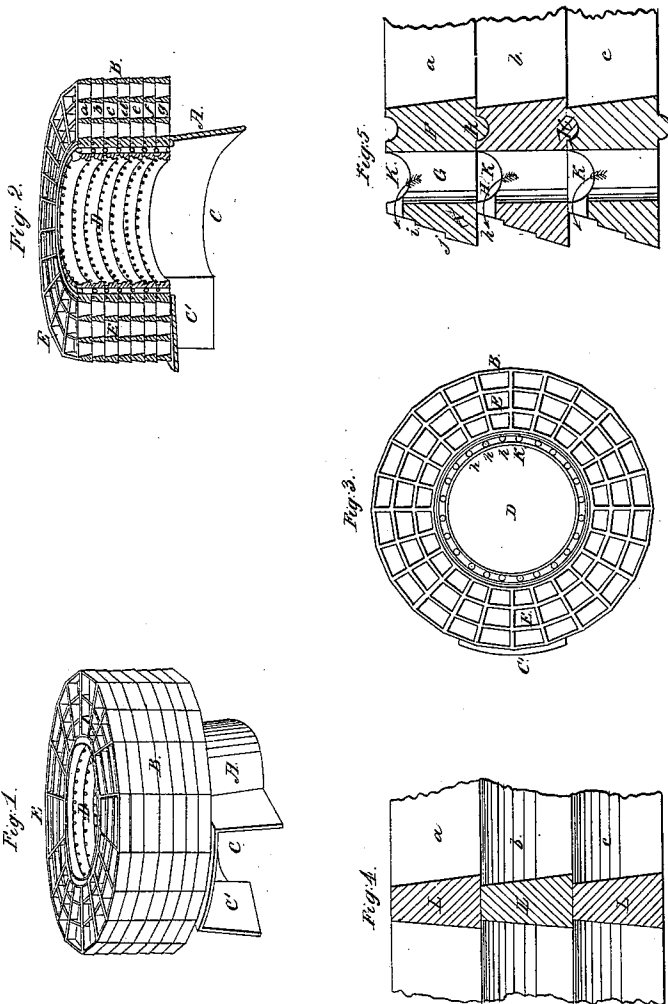


P. P. Stewart,
Steam-Boiler Furnace,
No. 47,049, *Patented Mar. 28, 1865.*



Witnesses:

Charles D. Kellogg
R. D. Reilly

Inventor:

Phil. P. Stewart

UNITED STATES PATENT OFFICE.

PHILO P. STEWART, OF TROY, NEW YORK.

FIRE-POT FOR STOVES, FURNACES, &c.

Specification forming part of Letters Patent No. 47,049, dated March 28, 1865.

To all whom it may concern:

Be it known that I, PHILO P. STEWART, of the city of Troy, county of Rensselaer, and State of New York, have invented certain new and useful Improvements in Fire-Pots for Furnaces for Stoves, Heaters, Locomotive and other Engine Furnaces, &c.; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation thereof, reference being hereby had to the accompanying drawings, and to the letters of reference marked thereon, which said drawings make a part of this specification.

Like letters represent and refer to like or corresponding parts.

Figure 1 is a perspective view of the said fire-pot complete and ready to be put into use. Fig. 2 is a vertical section through the center from front to rear of said fire-pot. Fig. 3 is a top view of one of the horizontal sections of which the said fire-pot is composed, and more fully hereinafter described and set forth. Fig. 4 is a section showing one form of the construction and arrangement of the vertical air-chambers in the horizontal sections or layers of which the said fire-pot is composed, and is an enlarged view. Fig. 5 shows the manner of the construction of the said horizontal sections or layers and their relative position as to each other; also, the construction of the vertical and horizontal air-chambers hereinafter described; also, the manner and purpose of introducing the air into the fire-chamber or chamber of combustion and hereinafter more fully described and set forth.

The nature of my said invention and improvements consist in the construction, arrangement, and employment of horizontal sections or layers for fire-pot for stoves, heaters, furnaces, &c., of cast-iron or other required material, with horizontal air-chambers between the same, communicating with vertical air-chambers, and thence with the fire chamber or chambers of combustion, through which and by means of which atmospheric air is admitted to the fire at the sides thereof and above the surface to aid in the combustion of the fuel and in the more perfect consumption or combustion of the smoke and gases evolved from the burning fuel in the said fire-chamber or fire-pot in the manner substantially as herein described and set forth.

Having thus described the nature of my said

invention and improvements, and to enable others skilled in the art to which my said invention relates to make and use the same, I will here proceed to describe the construction and operation of the same, which is as follows, to wit:

A, Figs. 1 and 2, is the foundation or base on which I construct my said fire-pot, and which surrounds or forms the ash pit or chamber below to receive the ashes and other material falling from the fire-grate at the bottom of my said fire-pot. This may be of cast-iron, or of stone or other suitable material, all, however, depending upon the place and purpose when my said fire-pot is to be used. Upon the immediate top of this base or foundation I place the first horizontal section or layer, as seen at *g*, Fig. 2. Upon the top surface of this horizontal section or layer *g*, I place the second horizontal section or layer *f*. Upon this section or layer *f*, I place the third horizontal section or layer *e*. Upon this section or layer *e*, I place the fourth horizontal section or layer *d*. Upon this section or layer *d*, I place the fifth horizontal section or layer *c*. Upon this section or layer *c*, I place the sixth horizontal section or layer *b*. Upon this section or layer *b*, I place the seventh horizontal section or layer *a*, and thus in this manner may be continued the building up of the said fire-pot until the desired height is attained.

This fire-pot, it is manifest, may be built up of less than seven of said horizontal sections or layers, if deemed best so to do. All will, however, depend upon the thickness of each section or layer and the height of the fire-pot. The said sections or layers may be of uniform thickness, or some may be thicker than others, if deemed best so to make them. I prefer, however, to have them of even or uniform thickness. B is the fire pot or chamber of combustion. I will now proceed to describe the construction of the said horizontal sections or layers, which is as follows, to wit: Each of said horizontal sections or layers I construct of any size or thickness desired. They may be so constructed as to form a circular, square, or other shaped fire-pot or fire-chamber.

Each of said sections or layers is so constructed as to project its lower edge over the upper edge of the next section or layer immediately below in the manner substantially as shown at *i* and *j*, Fig. 5. This is for the pur-

pose of preventing the fuel in the fire or combustion chamber D from filling up the air passages or apertures between the air-chamber K, Fig. 5, and the combustion-chamber D, which said air passages or apertures are shown at the arrows *h* and H, Fig. 5, and there may be as many such openings or apertures as deemed best.

In the upper surface of each of the said horizontal sections or layers I construct an air-chamber, K, in the manner substantially as shown at Fig. 5, which entirely surrounds the said fire pot or chamber of combustion, as seen at Fig. 3. These I name "horizontal air-chambers," and each communicates with the chamber of combustion D by means of numerous small openings or apertures H and *h*, Fig. 5, as aforesaid.

I also construct vertical air-chambers G, Fig. 5, which may be of any size, shape, and number desired. These chambers pass in a vertical direction through the said air-chambers K, same figure. The air enters these chambers at the bottom or lower part of the said fire-pot, passes up and into the said respective horizontal air-chambers K, same figures, and thence into the sides of the fire in the chamber of combustion, through said openings or small apertures, as before described, and for the purpose of economy in the fuel by the burning or consumption of the gases and smoke evolved from the burning

fuel in the said chamber of combustion. These vertical air-chambers are closed at the upper ends thereof. They may also be constructed as shown at L, Fig. 4. *h*, Fig. 5, is a projection upon the under side of each of said sections or layers corresponding to a recess in the next section or layer below, and is for the purpose of holding each section or layer in its proper place or position. The projection of the lower part of each of said sections or layers, as before described and as fully shown at Fig. 5, protects the said small apertures or openings from becoming clogged up with ashes, cinders, or the like, and thereby preventing the air from entering said chamber of combustion in the manner and for the purposes aforesaid.

The said fire-pot may be applied to any stove, heater, or furnace in any manner and by any suitable means deemed best.

I claim—

The employment of a fire-pot constructed, arranged, and combined in the manner substantially as and for the purposes herein described and set forth.

In testimony whereof I have on this 13th day of February, A. D. 1865, hereunto set my hand.

P. P. STEWART.

Witnesses:

CHARLES D. KELLUM,
R. H. REILLE.