

C. A. SIMONTON.  
HOT AIR FURNACE.  
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943,710.

Patented Dec. 21, 1909

Fig. 1.

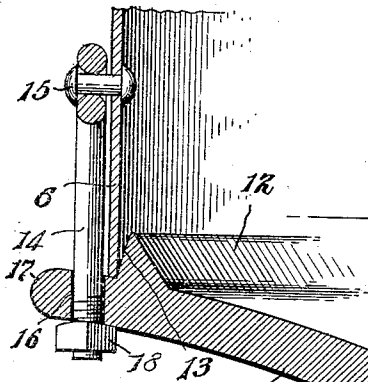
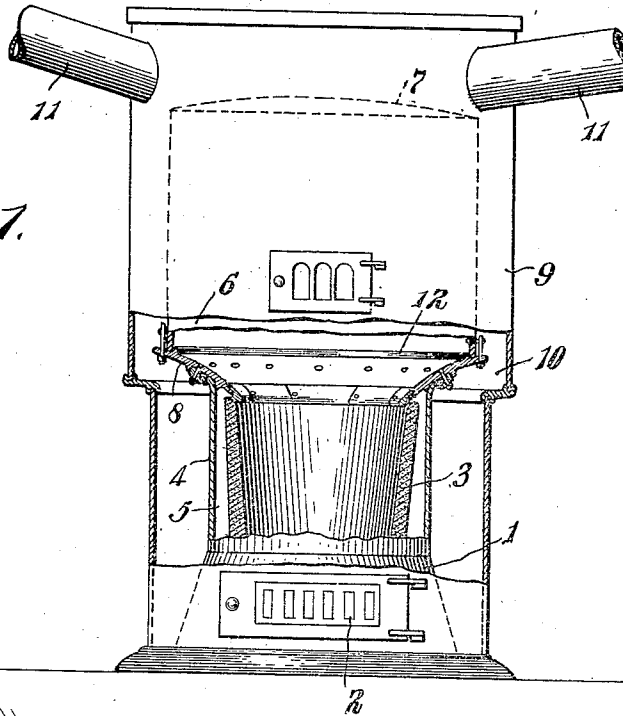


Fig. 2.

Fig. 4.

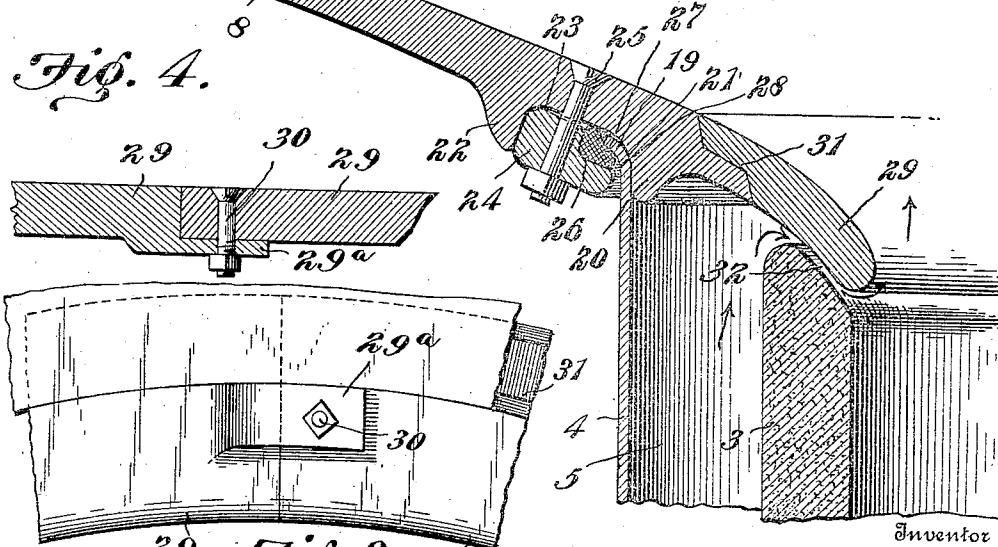


Fig. 3.

Witnesses

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# UNITED STATES PATENT OFFICE.

CHARLES A. SIMONTON, OF CRESTLINE, OHIO.

## HOT-AIR FURNACE.

943,710.

Specification of Letters Patent. Patented Dec. 21, 1909.

Application filed October 12, 1908. Serial No. 457,273.

*To all whom it may concern:*

Be it known that I, CHARLES A. SIMONTON, a citizen of the United States, residing at Crestline, county of Crawford, and State of Ohio, have invented certain new and useful Improvements in Hot-Air Furnaces, of which the following is a specification.

My invention relates to hot air furnaces and the object of my invention is to provide an improved joint between the fire-pot and the lower head of the radiator which shall be perfectly gas and smoke tight, to the end that gas and smoke shall be prevented from entering the hot air flues and carried to the rooms to be heated.

Other objects will appear hereinafter.

In carrying out my invention I provide the fire-pot, which may be cast or of fire brick, with an outer steel jacket which is connected by a tight joint with the lower radiator head. The upper edge of the jacket is flared or curved outwardly and the under face of the lower radiator head is formed with a correspondingly shaped seat to receive it. Cement is preferably interposed between the upper edge of the jacket and the seat on the radiator head and a clamping ring is bolted to the radiator head to hold the flared edge of the jacket firmly in position. The clamping ring is formed with an annular pocket to receive said flared edge and asbestos packing, the asbestos packing extending over and completely closing the seam or joint between the jacket and the radiator head. The inner edge of the lower radiator head is provided with an annular extension which overhangs the wall of the fire-pot and the intermediate space, preventing coal or other material from being deposited between the fire-pot and the jacket. The annular extension is formed in sections and rests in position so that when burned out it may be readily replaced with but little expense.

My invention will be more readily understood by reference to the accompanying drawings forming a part of this specification and in which:

Figure 1, is a vertical sectional view of a furnace embodying my invention in its preferred form portions being shown in elevation and Fig. 2, is a detail sectional view on a much enlarged scale illustrating the connection between the fire-pot jacket and the lower radiator head and the manner of securing the radiator shell to the head, and

Figs. 3 and 4, are details of the manner of connecting the sections of the annular extension.

Referring now to the drawing, 1 indicates the ash pit or ash box of a furnace having the usual door 2, and 3 indicates the fire-pot resting thereon. The fire-pot may be of cast iron or of fire brick as desired. Surrounding the fire-pot 3 and resting upon the top of the ash pit 1, is a jacket 4 formed preferably of sheet steel. The jacket is preferably of greater diameter than the outer face of the fire-pot walls 3 in order to provide a small air space 5 between them which prevents the jacket 4 from being burned out by the fire. The upper end of the jacket 4 extends somewhat above the upper edge of the fire-pot walls and supports the radiator consisting of the sheet steel shell 6 and the upper and lower radiator heads 7 and 8 respectively. 9 indicates the outer radiator shell between which and the shells 4 and 6 is defined the hot air space 10 communicating with the hot air flues 11.

The lower head 8 of the radiator comprises a single annular casing which slopes inwardly and downwardly toward the fire box. Formed upon the upper face of the head 8, is an annular flange or rib 12 having a beveled outer face 13. The shell 6 fits snugly at its lower edge about the rib 12 and by drawing the same tightly down thereon a tight joint is formed between the shell 6 and the head 8. To draw the shell down tightly upon the head, and to securely hold it in position a plurality of eye-bolts 14 are secured to the shell by rivets 15 extending through the eye. The stems of the bolts extend through apertures 16 in the projecting rim 17 of the head and are provided with nuts 18. It is obvious that by tightening the nuts the shell will be held tightly and securely upon the head.

The upper edge of the jacket 4 is outwardly curved or flared as at 19 and the head 8 is provided with an annular depending flange or rib 20 having a curved outer face 21 forming a seat for the curved edge of the jacket. Concentrically arranged about the rib 20, is a similar depending rib 22, forming with the rib 20, an annular groove or channel 23. Arranged within the channel 23, is an annular clamping ring 24 formed of cast iron or steel, which may be made either in one piece or in sections. The ring 24 is held in place by bolts 25, and its

inner edge is shouldered forming an annular pocket 26 in which is arranged asbestos packing 27. The inner faces of the ribs 20 and 22 converge toward the bottom of the channel formed thereby, so that when the bolts 25 are tightened, the ring 24 will be wedged in the channel 23 and bind the packing 27 firmly against the out turned edge or rim 19 and also holds said rim against the seat 21. In assembling the device cement 28 is interposed between said rim and said seat. It should be noted that the annular pocket 26 is of ample size to permit the asbestos packing to cover the seam or joint between the jacket and the head and to impinge for a considerable distance upon the outer face of the rim 19 and the adjacent face of the head 8 beyond the edge of said rim, as shown clearly in Fig. 2.

The inner edge of the head 8 is provided with an annular extension 29 which overhangs the wall of the fire-pot and the intermediate space 5. This is formed in sections and the sections are secured together by bolts 30, each section being provided with a lug 29<sup>a</sup> which extends under the adjacent end of the next section and through which the bolt passes. The adjacent edges of the head 8 and the member 29 are rabbeted as at 31 to form a seat upon which the extension rests and forms a close joint. The extension 29 does not rest upon the upper edge of the fire-pot wall 3, but leaves a space or passageway 32 between them to permit egress of gases which might penetrate the wall 3 into the space 5, the draft of the fur-

nace being sufficient to keep the space 5 clear of gas. The extension 29 is exposed directly to the flame of the furnace and is liable to be quickly burned out. By forming the extension in detachable sections, it may be readily replaced when burned out and at little cost.

Having described my invention what I claim as new and desire to secure by Letters Patent is:

In a hot air furnace, a fire-pot, and a steel jacket surrounding said fire-pot, in combination with a radiator head comprising an annular casting resting upon the upper edge of said jacket, the upper edge of said jacket being outwardly flared, a pair of depending annular concentric ribs depending from the under face of said head forming an annular channel between them and the outer face of the inner rib being shaped to conform to the flared edge of said jacket, a ring arranged in said channel, bolts securing said ring in position and asbestos packing interposed between said ring, said flared edge and the adjacent face of said head, and the inner face of said outer rib being inwardly and upwardly inclined to wedge said ring against said flared edge, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES A. SIMONTON.

Witnesses:

CHANCE E. DEWALD,  
JOHN STORGH.