No. 893,197. PATENTED JULY 14, 1908.

D. S. RICHARDSON.

AIR HEATING FURNACE.

APPLICATION FILED MAR. 23, 1908.

Fig. 1.

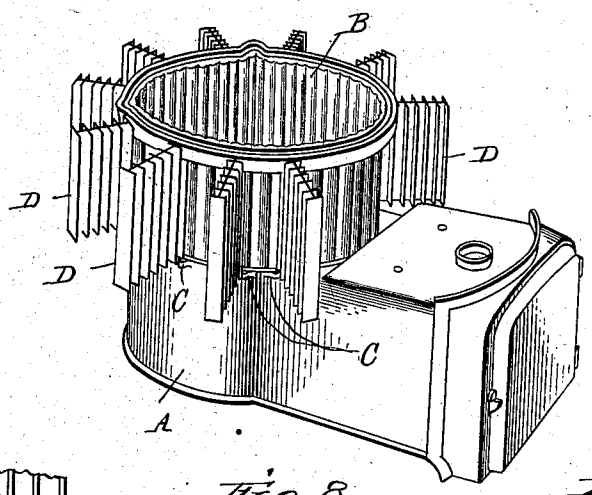


Fig. 2.

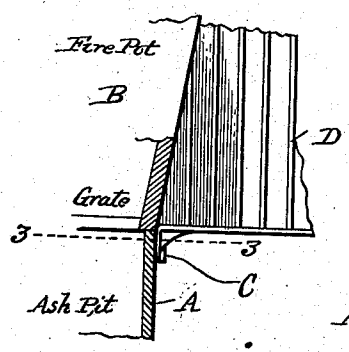


Fig. 8.

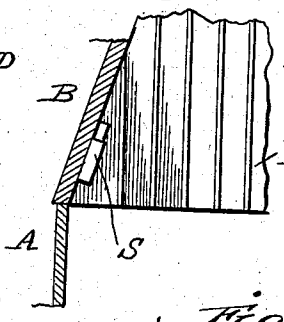


Fig. 6.

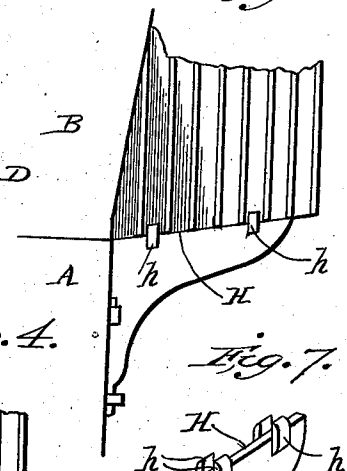


Fig. 3.

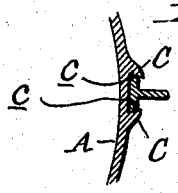


Fig. 4.

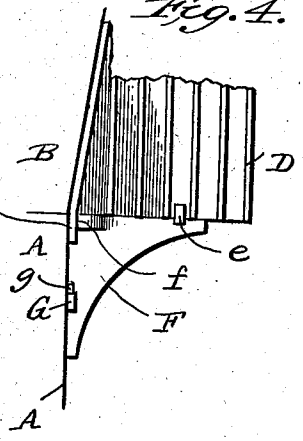


Fig. 7.

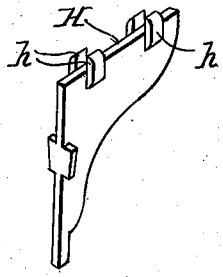
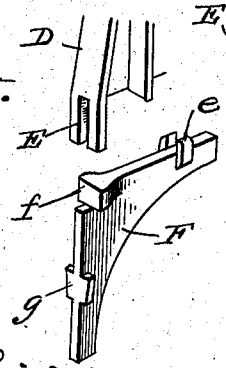


Fig. 5.



Witnesses

Elizabeth Griffith

Thomas Durant

Inventor

Dwight S. Richardson,

By Church & Church

his Attorneys

UNITED STATES PATENT OFFICE.

DWIGHT S. RICHARDSON, OF NEW YORK, N. Y.

AIR-HEATING FURNACE.

No. 893,197. Specification of Letters Patent. Patented July 14, 1908.

Application filed March 23, 1908. Serial No. 422,748.

To all whom it may concern:

Be it known that I, DWIGHT S. RICHARDSON, a citizen of the United States, residing at New York, in the county and State of New York, have invented certain new and useful Improvements in Air-Heating Furnaces; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the figures and letters of reference marked thereon.

The present invention relates to air heating furnaces of that type described in my prior patent No. 820,130, dated May 8th, 1906, one of the objects of the present invention being to provide for the support of the radiating flanges with their inner edges in contact with the wall of the fire pot by a supporting means having a constant tendency to force the contacting edges of the flanges into more intimate contact with the fire-pot.

A further object of the invention is to provide supporting means independent of the fire pot itself and preferably carried by parts not subjected to such extremes of temperature.

A further object is to simplify the construction, reduce liability of breakage due to changes in temperature and when desired to leave the fire pot casting free from integral irregular projections of such character as would tend to cause early destruction of the casting.

The invention consists in certain novel details of construction and combinations and arrangements of parts all as will be now described and pointed out particularly in the appended claims.

In the accompanying drawings: Figure 1 is a perspective view of the fire pot and ash pit sections of a hot air furnace embodying the present invention. Fig. 2 is a detail sectional elevation illustrating the means for supporting the radiating flanges in Fig. 1. Fig. 3 is a section on the line 3—3 of Fig. 2. Fig. 4 is an elevation, and Fig. 5 a perspective with the parts separated, of a modified form of radiating flange and a supporting bracket therefor. Figs. 6 and 7 are similar views of another modification. Fig. 8 is a side elevation of still another modification.

Like letters of reference in the several figures indicate the same parts.

Illustration and description of the furnace as a whole are not necessary as it may be of any preferred or usual type wherein the air is taken in at the bottom and wholly or partially heated in its upward passage around the ash pit, fire pot and superposed sections.

The parts illustrated in the drawings are the ash-pit section A and the fire pot section B, the latter being preferably slightly flared from bottom to top and with a vertically corrugated wall. This fire pot section, in order to avoid the destructive influences of unequal expansion and contraction, should be as uniform as possible, both in contour and in the thickness of its walls, and hence I preferably avoid, as far as possible, the addition of lugs or other irregularities thereto, and preferably support the radiating flanges from the ash pit section A.

As shown in Figs. 1, 2 and 3, the ash pit section is provided on the exterior with a series of sockets conveniently formed by lugs C with inclined walls *c*, and the radial radiating flanges D are provided with downwardly extending brackets or feet, shaped to fit the sockets and by downward movement in said sockets to wedge and draw the inner edges of the flanges tightly against the outer face of the fire pot section.

In Figs. 4 and 5 the radiating flange D is shown as provided with downwardly extending arms E adapted to seat behind shoulders *f* on a bracket F, and the latter is secured to the wall of the ash-pit section A by a socket G and flanges *g* corresponding to the socket and foot in Figs. 2 and 3. The lower edge of the radiating flange in this instance rests on the upper edge of the bracket F and the alinement of the two is preserved by lugs *e*. The arms E and shoulders serve to force the edges of the flanges against the fire pot when the bracket is seated in its socket.

Where it is desired to permit the radiating flanges to move radially the upper edge of the bracket may be inclined, as shown at H in Figs. 6 and 7, and guide lugs *h* provided for holding the flanges in correct upright position. The tendency of the flanges is to move down, the inclined faces keep them in intimate contact with the fire pot, and it is obvious that the inclination of the wedging faces may be made steep enough to insure a contact as intimate as may be desired.

It is obvious that when the parts have been made with great accuracy the wedging formation of the parts tending to force the radiating flanges into contact with the fire pot section is not necessary and so too, the sock-

ets may be on the bottom or lower part of the fire pot section as shown at S in Fig. 8 instead of on the top part of the ash pit section, the form of the sockets and parts coöperating therewith, however, being as hereinbefore set forth preferably as shown in Figs. 2 and 3.

With this new construction the manufacturer can make the fire pot of such form that it may expand and contract uniformly, the parts are each simple and adapted to be readily cast and shipped separately; they may be assembled by comparatively unskilled labor, and being duplicates require but one set of patterns in their production.

In assembled position, each radiating plate is heated by conduction through its edge contact with the inclined fire pot and being provided with vertical transverse flanges, as in the former patented furnace, each flange presents an exceedingly large radiating surface for heating and increasing the circulation of air through the furnace.

Having thus described the invention, what is claimed, is:

1. The combination with a cast iron fire pot, of removable radiating flanges arranged radially with respect to the fire pot and supports for said flanges formed with inclined faces for forcing the edges of the flanges into contact with the fire pot.

2. The combination with a cast iron fire pot, of removable radiating flanges arranged radially with respect to the fire pot and supporting means coöperating with the bottom portion of the flanges to hold the same with their inner edges in contact with the outer face of the fire pot.

3. The combination with a cast iron fire pot, of removable radiating flanges arranged radially with respect to the fire pot and supporting means formed with inclined faces and coöperating with the bottom portion of the flanges to hold the same in contact with the outer face of the fire pot.

4. The combination with the fire pot and ash pit sections of an air heating furnace, of removable radiating flanges supported by the ash pit section arranged radially with respect to the fire pot and held by their supporting means with their inner edges in contact with the outer face of the fire pot.

5. The combination with the fire pot and ash pit sections of an air heating furnace, of removable radiating flanges arranged radially with respect to the fire pot with their edges in contact therewith, and supports for said flanges located in the ash pit section.

6. The combination with the fire pot and ash pit sections of an air heating furnace, of removable radiating flanges arranged radially with respect to the fire pot, with their edges in contact therewith and inclined faced sockets on the ash pit section in which the flanges are supported.

DWIGHT S. RICHARDSON.

Witnesses:
W. B. BOOKSTARER,
ARTHUR NICHOLS.