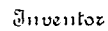


944,296.

2 SHEETS—SHEET 1.



Witnesses

Oliver J. Clarke

Chas. J. Welch

Frederick C. Stimmel.

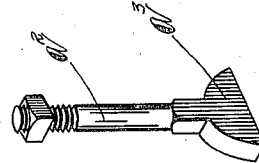
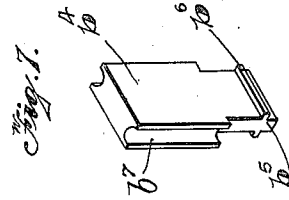
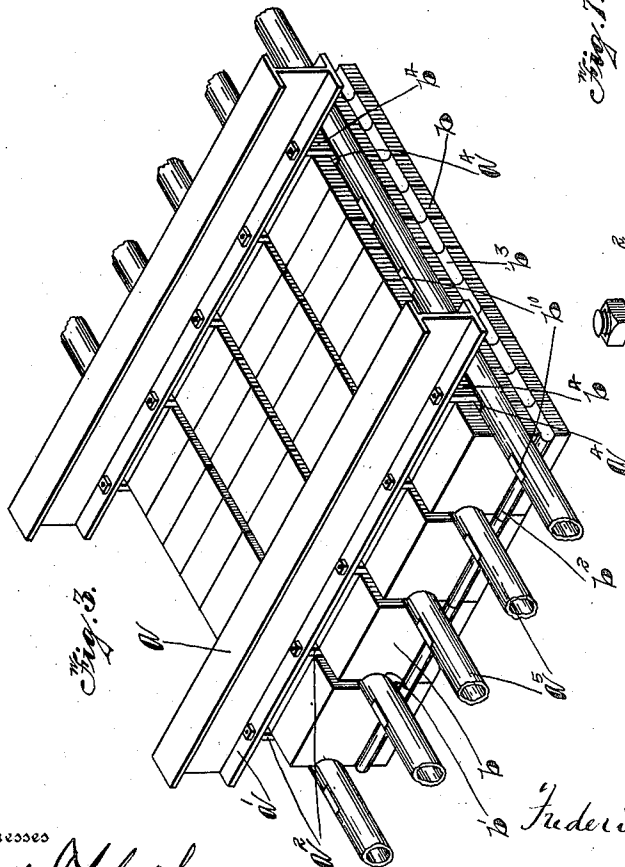
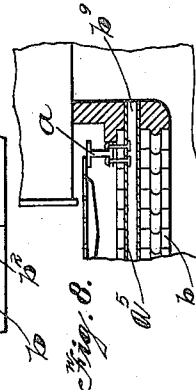
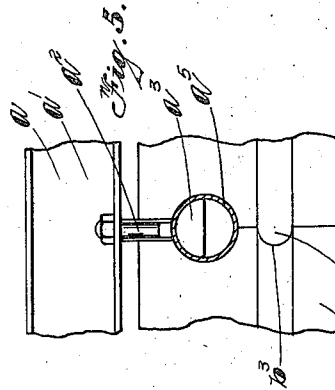
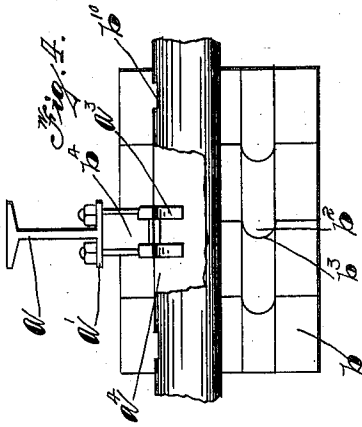
Key

Staley & Birman
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Patented Dec. 28, 1909.

2 SHEETS—SHEET 2.

944,296.



Inventor

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UNITED STATES PATENT OFFICE.

FREDERICK C. STIMMEL, OF CHATTANOOGA, TENNESSEE, ASSIGNOR TO THE CASEY-HEDGES COMPANY, OF CHATTANOOGA, TENNESSEE, A CORPORATION OF OHIO.

TOP FOR FURNACES.

944,296.

Specification of Letters Patent. Patented Dec. 28, 1909.

Application filed March 18, 1909. Serial No. 484,341.

To all whom it may concern:

Be it known that I, FREDERICK C. STIMMEL, a citizen of the United States, residing at Chattanooga, in the county of Hamilton and State of Tennessee, have invented certain new and useful Improvements in Tops for Furnaces, of which the following is a specification.

My improvement relates to an improved top for furnaces and relates especially to an improved flat top for all kinds of Dutch oven furnaces whether boiler furnaces or other kinds.

My object is to dispense with the ordinary arch top and employ in lieu of the old fashioned arch a flat top and so construct the parts that there will be an improved top casing, one that will be protected from the heat of the furnace with a maximum of strength in the supporting elements, while permitting ready access for repairs by the inexperienced mechanic.

Referring to the drawings, Figure 1 is a transverse sectional view showing two boilers above the flat top of the furnace. Fig. 2 is a longitudinal sectional view on the line *xx* of Fig. 1. Fig. 3 is a detail view showing the supporting girders and intermediate supporting elements for the brick or tile. Figs. 4 and 5 are detail views of the intermediate supporting element. Fig. 6 is a detail view of the bolt connecting the girder with the intermediate supporting element. Fig. 7 is a detail view of the spacing block. Fig. 8 shows a modification of the circulating means.

Like characters of reference indicate like parts throughout the several views.

Referring to the drawings, I preferably employ a plurality of main supports and have shown the ordinary I-beam, *a*, though it is obvious that any supporting means of similar character can be employed, the object being to support from said I-beam the intermediate elements which in turn support the brick or tile, and the intermediate element is so arranged that the air readily circulates through it, so as to minimize all danger of the parts buckling or breaking down so as to endanger the wall itself. Moreover, it will be seen that the efficiency of the furnace is improved as well as the circulation of air, as hereinafter more fully described.

The I-beams, *a*, extend across the furnace

and are supported by the end walls in any desired manner. To each flange, *a*¹, of said I-beam are connected bolts, *a*². After the bolts have been inserted within the intermediate supporting element so as to support said intermediate supporting element, it still permits the circulation of air through said element. For this purpose, the bolt is formed with a head, *a*³, and same is adapted to be inserted within the slot, *a*⁴, formed in the top of the pipe or intermediate supporting element, *a*⁵. After the head of the bolt is inserted within said slot or opening, *a*⁴, formed in the top of the pipe, the bolt may be readily turned so that the same cannot be forced out of the pipe, and in this way the main supporting element—the I-beam, will support the intermediate supporting element—the pipe, *a*⁵. Referring to Fig. 3, it is seen that there are a plurality of intermediate supporting elements extending substantially transverse to the main supporting elements and each intermediate element is connected to each I-beam by two bolts, one suspended on each side of the I-beam from the lower flanges thereof. The intermediate supporting elements, *a*⁵, are open at their outer end, as indicated in Fig. 2, so that the air may readily circulate through said pipes for the purpose hereinafter more fully explained.

The brick or tile, *b*, (see Fig. 3) are formed at their sides with semi-circular grooves, *b*¹, and these grooves fit about the corresponding part of the pipe, so that each brick or tile is supported from each side by bearing against its associated pipe. As shown clearly in Fig. 2 there is a slight space or opening between the projecting ends of the brick or tile, *b*, and above the intermediate supporting element. The conformation of the tile or brick below the supporting end is clearly shown in Fig. 1 and each tile is formed with a tongue, *b*², on one side and a similar opening, *b*³, on the opposite side and the brick or tile are so assembled that the tongue, *b*², of one brick will fit within the opening, *b*³, of its associated brick, so as to form a close fit between the brick and prevent the gas or hot air from the furnace circulating through the brick. The spacing block, *b*⁴, (see Fig. 7) is adapted to fit between the two associated bolts, *a*², and it will be seen that each spacing block is formed with a reduced lower end, *b*⁵, hav-

ing projecting ledges, b^6 . The reduced end, b^5 , is adapted to fit within a slot, a^4 , of the upper part of the pipe, and the ledges, b^6 , rest upon the top of the pipe. In assembling the parts it is desirable to place the two associated bolts with their heads extending within the pipe holding them in the position to be assumed by same and then insert the spacing block between the two bolts so that each bolt will lie within the groove, b^7 , formed on each side of the spacing block and thereafter insert the tops of the bolts in the openings formed in the flanges of the I-beam, then secure said bolts by the ordinary nuts. In this manner the bolts will be held in proper position by the spacing blocks and the pipes or intermediate supporting elements will in turn be held by the bolts, and the brick or tile will be supported by the pipes.

The air passages formed in the end of the wall, indicated by b^8 , permit the air to circulate through the pipes, a^5 , and thence outwardly to a point above the top wall (Fig. 8) or to the furnace. I have also shown openings, b^{10} , which permit an improved circulation about the brick.

As shown in Fig. 2, I preferably employ supporting pipes open at both ends and connect the inner ends with an air passage, b^9 , which terminates above the furnace top so that the air may circulate entirely through the pipe and pass out through the air passage, b^9 , though I have shown in Fig. 8 a modification where the inner end of the pipe, a^5 , connects with a passage, b^9 , extending laterally and opening outwardly at the side wall. In said modification there is presented practically a smokeless furnace, since the air admitted to said furnace is heated air, as it can be readily seen that the air circulating through the pipes and orifice, b^9 , will be heated to a very high temperature. But, in either event, there will be a desirable circulation of air through the intermediate supporting elements so as to prevent the heat from the furnace buckling or causing the supporting elements to give way and permit the weight of the top to cause the entire top to collapse.

In this manner it is apparent that I have disclosed an improved flat top which is easily repaired, while presenting a very efficient construction overcoming evils that have been attendant upon constructions in use due largely to the fact that the top of

the furnace is exposed to excessive heat and destructive effects of gases. Furthermore, it is now apparent that the brick or tile lie in a true vertical position while protected against the destructive effect of the heat and gases, there being no strain on the brick while the supporting grooves, b^1 , are preferably curved, being rounded in the manufacture of the brick so that there is no tendency for the brick to crack as there would be if the supporting formations in the brick were angular or formed with sharp bends or turns to fit the intermediate supporting element.

Having thus described my invention, I claim:

1. In a top furnace wall, the combination of main supporting elements with intermediate supporting elements, said last mentioned elements being hollow and having openings extending to the interior thereof, connecting devices extending from said main supporting elements through the openings in said intermediate supporting elements and within the interior thereof, each having a head portion capable of being turned over after insertion leaving a passageway below said head portion and means adapted to close said openings, bricks having channels or grooves formed therein adapted to fit over said intermediate elements and inclose same, substantially as specified.

2. In a top furnace wall, the combination of main supporting elements with intermediate supporting elements, said last mentioned elements being hollow and having openings extending to the interior thereof, connecting devices extending from said main supporting elements through the openings in said intermediate supporting elements and within the interior thereof, each having a head portion capable of being turned over after insertion leaving a passageway below said head portion and means adapted to close said openings, bricks having channels or grooves formed therein adapted to fit over said intermediate elements and inclose same, said hollow members being adapted to have air passing therethrough, substantially as specified.

In testimony whereof, I have hereunto set my hand this 13th day of March 1909.

FREDERICK C. STIMMEL.

Witnesses:

W. E. LEGG,

JNO. A. STEWART.