April 2, 1929. F. H. DUNBAR 1,707,347

WALL CONSTRUCTION

Filed Nov. 18, 1925

FIG. 1.

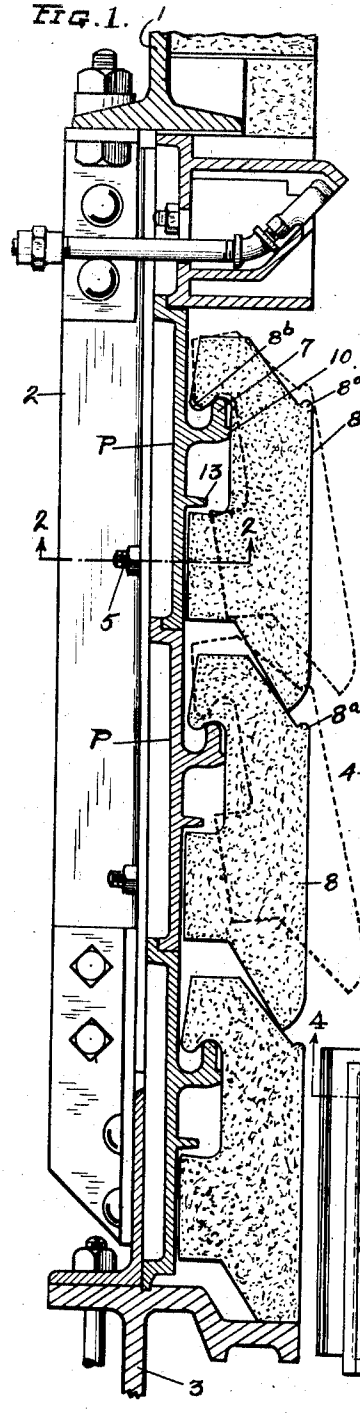


FIG. 4.

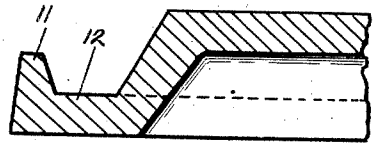


FIG. 5.

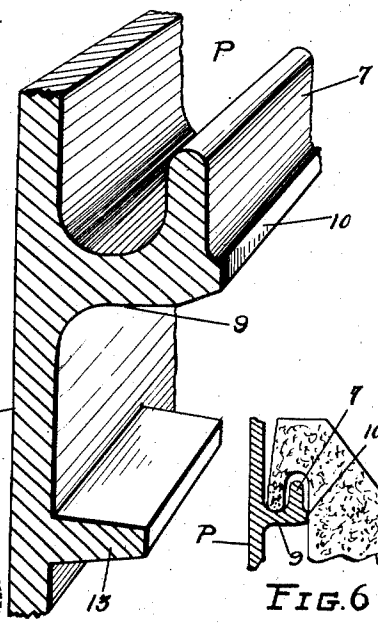


FIG. 6

FIG. 2.

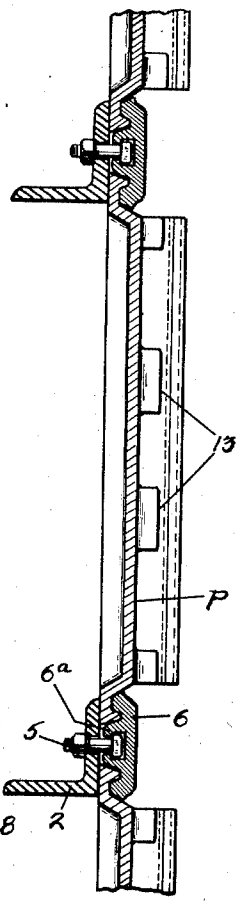
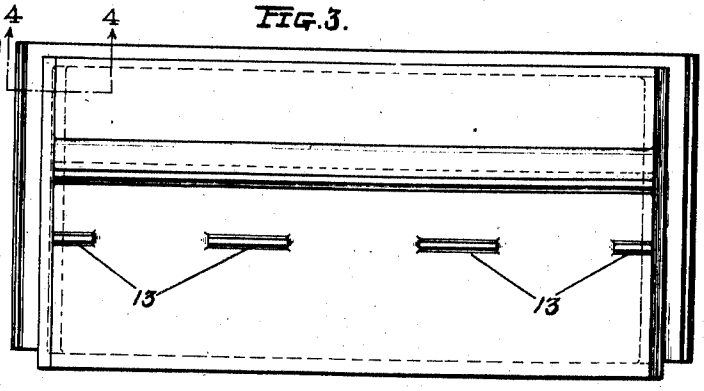


FIG. 3.



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Patented Apr. 2, 1929. 1,707,347

UNITED STATES PATENT OFFICE.

FRANK H. DUNBAR, OF CLEVELAND, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE ALLEN-SHERMAN-HOFF COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

WALL CONSTRUCTION.

Application filed November 18, 1925. Serial No. 69,800.

This invention relates to wall construction, particularly walls for ash hoppers. It is concerned primarily with a wall comprising sectional plates provided on one side with means for attachment with a skeleton frame work and on the other side with means for removably supporting lining units.

One object of my invention is to provide a wall forming member having means for supporting lining units and also having means for protecting such means against damage in transportation, handling and erection.

Another object is to provide a wall forming member having strengthening and liner supporting means on its inner surface.

Further objects will appear and be pointed out hereinafter in a description of a practical embodiment of my invention. In the drawing accompanying this application and forming a part thereof:

Fig. 1 is a fragmentary section of a wall structure showing the lining units hung in position.

Fig. 2 is a view in section taken on line 2—2 of Fig. 1 with the lining units removed.

Fig. 3 is a view of the interior side of one of the wall plates.

Fig. 4 is a cross section taken on line 4—4 of Fig. 3.

Fig. 5 is a perspective view of one of the wall plates showing the supporting flange and heel.

Fig. 6 is a fragmentary section of a wall structure showing a modified form of supporting the lining units.

Referring more in detail to the drawings, the wall shown in Fig. 1 may be considered as the wall of an ash hopper in which, for example, the ash of a large furnace is accumulated.

A skeleton structure is provided comprising a girder 1 located at the top of the hopper to which are attached suitable spaced depending members 2 which support a frame member 3 which forms the lower end of the hopper and which is provided with an opening through which ashes collected in the hopper may be discharged at will.

P indicates the units or wall plates which cooperate with each other and with the members 2 to form a substantially solid or continuous wall. These units include means for engagement with other means by which they are secured in position against members 2. The wall plates are here shown as being secured to the spaced uprights 2 by means of bolts 5, which pass through the members and engage with T slots or lugs 6^a in clamps 6, which clamps fit into grooves arranged along the lateral sides of each plate.

Each wall plate P is formed of a body portion 4 which has one or more, in this case one, web 9 extending therefrom near the outer end of which web a flange 7 of variable width extends therefrom. The web 9 projects beyond flange 7, thereby adding strength to the flange and also protecting it from damage during transportation. The wall plate also has a series of short flanges or heels 13 located below the web 9 for the primary purpose of preventing displacement of the lining unit 8, for a more detailed description of which reference is made to the U. S. Patent to Frank B. Allen, No. 1,489,683, issued April 8, 1924. It will be understood, of course, that the heels 13 instead of being a series of unit lugs as shown in Fig. 3 may constitute a continuous member. Likewise, it will be understood that the flange 7 instead of being a continuous member may be a series of unit projections.

The lining units are carried by the wall plates P in a manner to permit independent removal of the units while preventing accidental displacement of the units. In the structure illustrated the web 9 carries the units indirectly through flange 7 which flange not only supports but retains the units. It will be understood however that the web 9 may support the units directly when the units contact with it, as by a shortening of the flange or lengthening of the slot in the unit in which case the flange will then perform primarily the function of preventing accidental displacement of the units from the web.

In case of breakage of a lining unit, it may be removed by pivotally revolving the unit above it so as to clear the projection 8^a thereon. The unit to be removed in the present illustration is pivoted about its supporting flange 7 to substantially the dotted line portion in Fig. 1, and then is raised clear of the flange 7 and withdrawn. This being clearly shown by the dotted lines in Fig. 1 which indicate the position of the upper and lower units when the lower unit is unlocked and ready to be removed from its support. The flange 7 is spaced at such a distance from the

body portion 4 and is of such a height that it will not bind the toe 8^b of the lining unit 8 so as to cause breakage thereof when the lining unit is pivotally revolved thereon. One of the preferred form of the wall plate may consist of having a web 9 extending at right angles to the body portion 4 and the flange 7 extending at right angles to the web 9 and the heels 13 also extending at right angles to the body portion 4.

Again referring to Fig. 1, these units, by the construction disclosed, fit so intimately together as to insure against accidental displacement by a crow bar or other such tool used from below for removing any clinkers or other obstructions that may have attached themselves to the wall.

Referring to Fig. 2 which shows the method of attaching the wall plates P to the uprights 2, the lateral side of each plate has an edge 11, and a groove 12 adjacent thereof. The clamping member 6 fits into groove 12 and is recessed to receive the edge 11. Each member 6 may secure two adjacent plates P to one member 2. By the arrangement of lugs 6^a and bolts 5 perforation of the wall plate is unnecessary. Referring again to Fig. 1 the horizontal joints of the wall plate are arranged by having the bottom of each plate projecting into a recess formed in the top of the next lower plate. The methods of joining the sides, tops and bottoms of the wall plates insure a wall which is impassive to any seepage of liquid therethrough.

Having thus described my invention what I deside to secure by Letters Patent is defined by what is claimed, it being understood that modifications and changes within the range of mechanical skill may be made without departing from the scope of my invention.

I claim as my invention:

1. A wall comprising a series of plates each having an outwardly extending web and an upwardly extending flange on said web adjacent the outer end, the flanges and webs of adjacent plates being in alignment to form supports for continuous courses of tiles.

2. A wall plate, a flange parallel thereto and a web integrally connected to the plate and flange and projecting beyond the latter.

3. A wall plate having a flange parallel thereto and spaced therefrom, a web integral with said plate and flange and projecting beyond the latter, and a heel projecting from said plate.

4. A wall plate comprising a body portion, a web cast integrally with the body portion, a tile supporting flange cast integrally with the web between the body portion and outer end of the web and extending outwardly therefrom, a heel cast integrally with the body portion and located below the web and projecting on the same side of the body portion for preventing accidental displacement of a tile assembled with the tile supporting flange.

5. A wall plate, a horizontally extending tile-supporting web, a vertically extending flange integral therewith and a projection extending beyond said flange.

6. A wall plate having tile-supporting webs thereon extending outwardly and then upwardly, vertical recesses extending along the sides of the plate and holding means in said recess for securing the plate against a supporting frame.

7. A wall plate, a flange parallel thereto, a web normal to the plate and flange and integrally connected to them, and a projection extending beyond said flange.

8. A wall plate, a flange parallel thereto, a web normal to the plate and flange and integrally connected therewith, and a second web projecting from said flange.

9. A wall plate having a flange parallel thereto, a web normal to the plate and flange and connecting the same, the web and flange forming a channel supporting and retaining lining blocks and recesses in the edges of the plate for receiving connectors for holding the plate to a supporting frame, the recesses being of such depth that the connectors will clear the lining blocks.

In testimony whereof I hereunto affix my signature this 4th day of November, 1925.

FRANK H. DUNBAR.