

April 23, 1929.

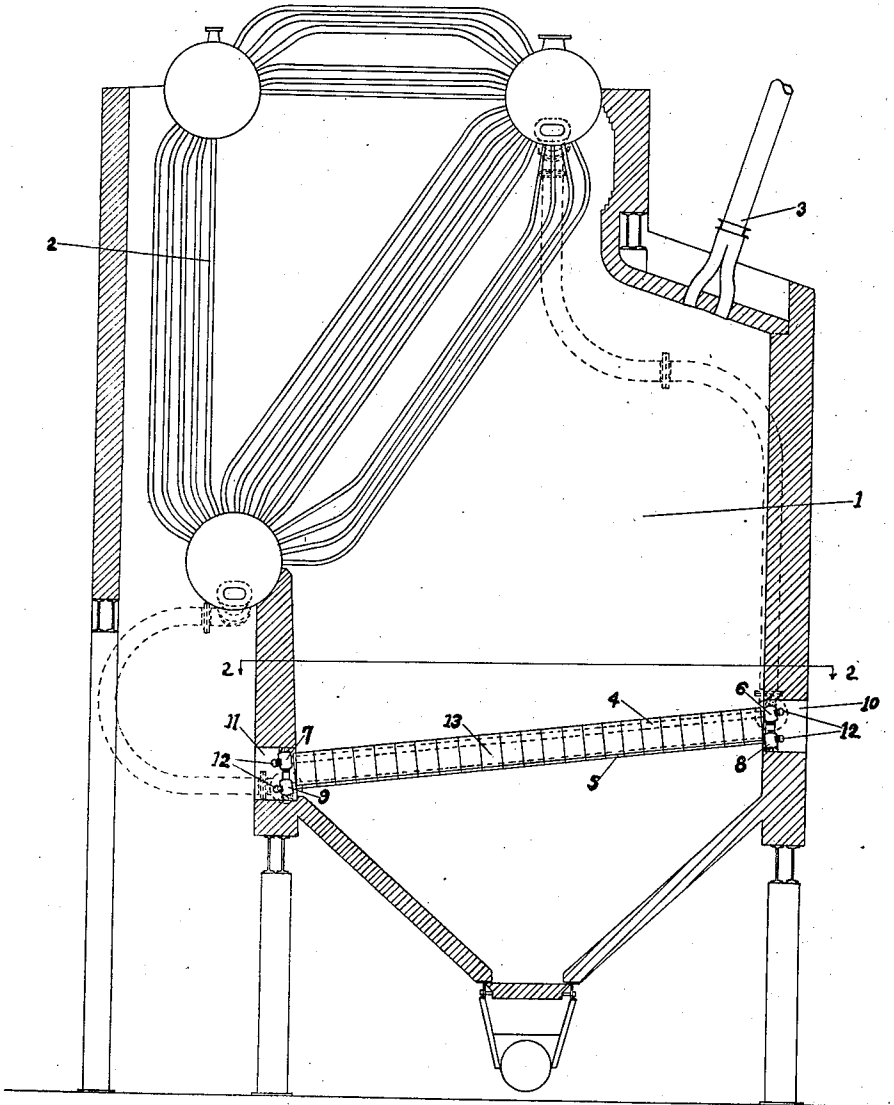
L. V. REESE

1,709,950

FURNACE

Filed Dec. 22, 1926

2 Sheets-Sheet 1



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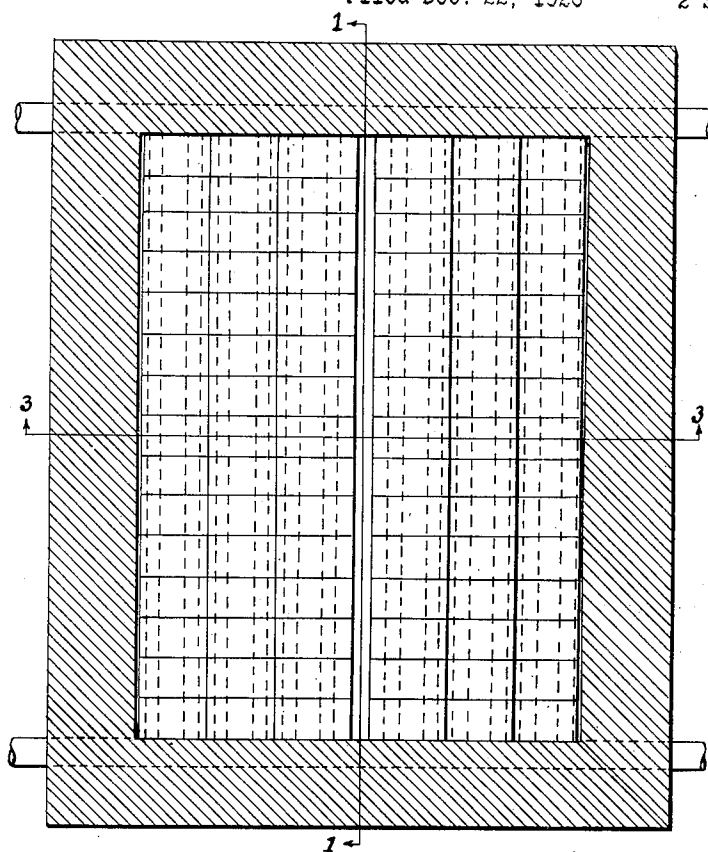


FIG-2.

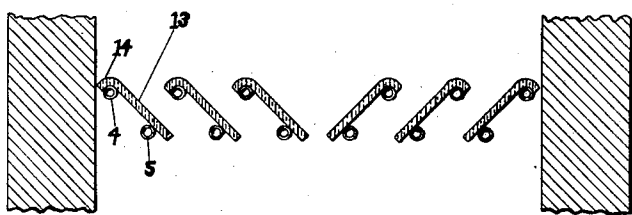


FIG-3.

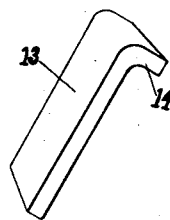


FIG- 4.

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UNITED STATES PATENT OFFICE.

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FURNACE.

Application filed December 22, 1926. Serial No. 156,494.

This invention is designed to improve furnaces for burning types of fuel subjecting the furnace to slagging temperatures. With such furnaces it is desirable to separate the floor of the ash pit from the body of the chamber in order that the slag may be chilled prior to reaching the ash pit so as to prevent agglomeration in the ash pit. Such a furnace has been illustrated and described in the patent to Frederick Seymour, #1,355,172, dated Oct. 12th, 1920 and the present furnace is in the nature of an improvement of said Seymour furnace. Features and details of the invention will appear from the specification and claims.

The invention is illustrated in the accompanying drawings as follows:—

Fig. 1 is a vertical section of the furnace on the line 1—1 in Fig. 2.

Fig. 2 a horizontal section on the line 2—2 in Fig. 1.

Fig. 3 a section on the line 3—3 in Fig. 2.

Fig. 4 a perspective view of one of the tile.

1 marks the furnace chamber, 2 a boiler which, as shown, is of a conventional three-drum type although the furnace is not limited to a boiler furnace, or to a boiler of this type, and 3 the fuel delivering means as shown of a type to deliver pulverized fuel. Water tubes 4 and 5 are arranged across the furnace above the ash pit in two sets, the tubes 4 being in an upper set in a slightly varying inclination to the horizontal to assure circulation and the tubes 5 being arranged in a set in a plane preferably parallel to the tubes 4. The tubes are arranged in pairs, one tube of each pair being in the upper set and one tube of each pair in the lower set and the tubes of each pair are preferably off-set as shown. The tubes 4 extend into headers 6 and 7 and the tubes 5 into headers 8 and 9. The headers 6 and 8 are arranged in a recess 10 in the wall of the furnace and the headers 7 and 9 in a similar recess 11 in the rear wall of the furnace. These headers are provided with hand-holes opposite each tube, the hand-holes being provided with hand-hole covers 12. By removing the hand-hole covers 12 the tubes are so exposed as to permit of convenient cleaning or replacing. Tile 13 are provided with hooks 14 at their upper ends and a row of tile is arranged on each pair of tubes 4 and 5. Preferably the tile are inclined at each side so as to face the opposite wall.

Thus the radiant heat from the tile is less destructive of the wall and is directed so as to increase the heat at the desired zone of combustion. The tile covering of one pair of tubes preferably overlaps the tile covering the adjacent pair of tubes so that observed vertically the tile will form a complete floor except for the central slot where the tile are oppositely inclined as shown. With these tile a sufficiently cooled zone may be maintained above the bottom of the ash pit to assure the chilling of the slag prior to its deposit in the ash pit so as to prevent its agglomeration in the ash pit. At the same time the cooling of the combustion chamber itself may be restricted as desired through the action of the tile.

What I claim as new is:—

1. In a furnace, the combination of a furnace chamber; two sets of tubes extending over the ash pit and below the combustion space of the chamber, one set above the other, said tubes being arranged in pairs, each pair having a tube in each set; and a tile covering comprising units, each unit extending from an upper tube of a pair to a lower tube of a pair and forming a plurality of openings between pairs of tubes and between the furnace chamber and the ash pit.

2. In a furnace, the combination of a furnace chamber; two sets of tubes extending over the ash pit and below the combustion space of the chamber, one set above the other, said tubes being arranged in pairs, each pair having a tube in each set and the tubes of each pair being off-set; and a tile covering comprising units, each unit extending from the upper tube of a pair to a lower tube of a pair, the covering for one pair of tubes being inclined in the same direction as the covering of an adjacent pair and forming openings between said pairs and between the ash pit and the furnace chamber.

3. In a furnace, the combination of a furnace chamber; two sets of tubes extending over the ash pit and below the combustion space of the chamber, one set above the other, said tubes being arranged in pairs, each pair having a tube in each set; and a tile covering comprising units, each unit extending from an upper tube of a pair to a lower tube of a pair, the tile covering for adjacent pairs overlapping, the covering for one pair of tubes being inclined in the same direction as

the covering of an adjacent pair and forming openings between said pairs and between the ash pit and the furnace chamber.

4. In a furnace, the combination of a furnace chamber; two sets of tubes extending over the ash pit and below the combustion space of the chamber, one set above the other, said tubes being arranged in pairs, each pair having a tube in each set and the tubes of each pair being off-set; and a tile covering comprising units, each unit extending from the upper tube of a pair to a lower tube of a pair, the face of the tile being inclined and forming inclined openings between the ash pit and the chamber.

5. In a furnace, the combination of a furnace chamber; two sets of tubes extending over the ash pit of the chamber, one set above the other, said tubes being arranged in pairs, each pair having a tube in each set and the tubes of each pair being off-set; and a tile covering comprising units, each unit extending from the upper tube of a pair to a lower tube of a pair, the face of the tile being inclined, those at one side of the furnace being oppositely inclined from those of the other and faced toward the opposite wall of the furnace, there being a plurality of pairs at each side of the furnace and a plurality of

openings between pairs of tubes at each side of the furnace connecting the furnace chamber with the ash-pit.

6. In a furnace, the combination of a furnace chamber; two sets of tubes extending over the ash pit of the chamber, one set above the other, said tubes being arranged in pairs, each pair having a tube in each set; and a tile covering comprising units, each unit extending from an upper tube of a pair to a lower tube of a pair, the tile of said covering having hooks engaging the upper tube of each pair.

7. In a furnace, the combination of a furnace chamber; two sets of tubes extending over the ash pit of the chamber, one set above the other, said tubes being arranged in pairs and each pair having a tube in each set, the tubes of a pair being off-set; and a tile covering for each pair, the tile of the covering having hooks engaging the upper tubes, said tile being inclined, the inclination at one side of the furnace being opposite to the inclination of the other side of the furnace and the tile at each side of the furnace facing the opposite wall of the furnace.

In testimony whereof I have hereunto set my hand.

LEMUEL V. REESE.