

No. 712,158.

Patented Oct. 28, 1902.

H. L. VAN ZILE.
BAFFLING TILE.

(Application filed Apr. 1, 1902.)

(No Model.)

Fig. 1.

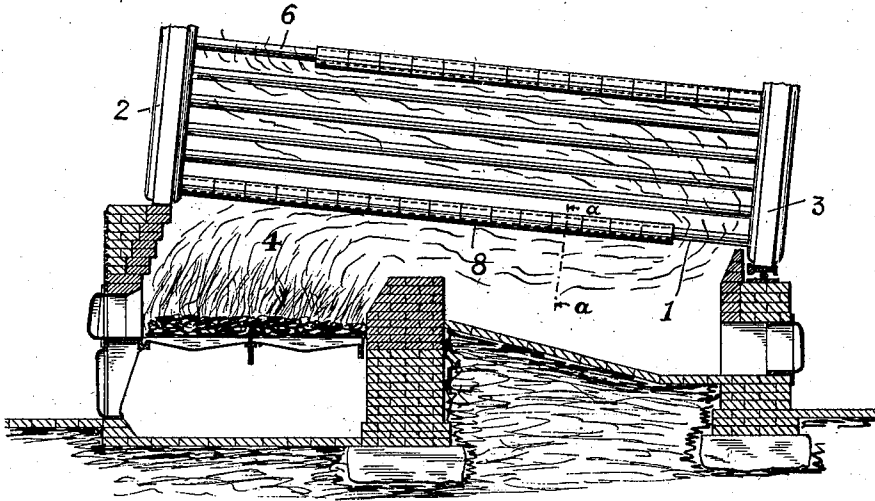


Fig. 2.

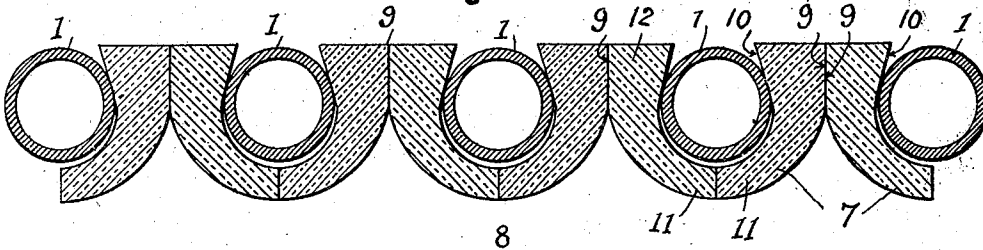


Fig. 4.

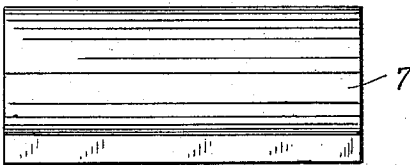
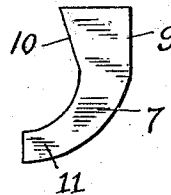


Fig. 3.



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UNITED STATES PATENT OFFICE.

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BAFFLING-TILE.

SPECIFICATION forming part of Letters Patent No. 712,158, dated October 28, 1902.

Application filed April 1, 1902. Serial No. 100,942. (No model.)

To all whom it may concern:

Be it known that I, HARRY LEE VAN ZILE, a citizen of the United States of America, and a resident of the city, county, and State of New York, have invented certain new and useful Improvements in Baffling-Tiles, of which the following is a specification.

My invention relates to baffling-tiles for water-tube boilers, the object being to produce a tile adapted to be used in connection with one or more rows of tubes of a water-tube boiler for the purpose of controlling the course of gases of the products of combustion as they pass from the firing-chamber through the boiler and which at the same time shall protect the tubes from direct contact with the intense heat of the fire.

My object is, further, to produce a tile of this class which may be easily placed in position and which shall resist the tendency to slip or creep out of position better than tiles heretofore used for this purpose.

My invention consists in forming tiles of prismatic shape adapted to fill the space between adjacent tubes in such a way as to produce a wedging action between the surfaces of the tiles and of the tubes and in forming a curved portion which extends under the tubes in such a way as to protect them from direct contact with the fire.

In the drawings accompanying and forming part of this specification, Figure 1 represents a partial longitudinal section, in a vertical plane, through a water-tube boiler, showing the baffling-tiles in place and their relation to the firing-chamber. Fig. 2 represents a transverse section, on an enlarged scale, at right angles to the tubes on line *a a* of Fig. 1. Fig. 3 represents an end view of one of the tiles, and Fig. 4 represents a side view of the same.

The reference characters are used in the same sense in all of the drawings and the specification.

N numeral 1 represents the lower row of tubes of a water-tube boiler.

2 represents the front and 3 the rear water-leg.

4 represents the firing-chamber.

6 represents the upper row of tubes.

7 represents the tiles, which are supported

by each other and by the tubes 1 and together form the continuous baffle 8.

9 represents the vertical plane surfaces of the tile, which when the tile is in place occupy a position midway between the tubes, the surface 9 of one tile engaging the surface 9 of the corresponding tile occupying the other half of the space between two adjacent tubes.

10 represents the plane surfaces of the tile parallel to the axis of the tile and of the tubes, but inclined to the surface 9 at such an angle as to produce a wedging action.

11 represents the curved portion of the tile, which starts about on a line joining the centers of the tubes and extends under the tube and protects it from the intense heat of the furnace, as will be readily understood from the drawings. The thickness of the curved portion 11 is somewhat less than one-half the space between the tubes where it joins the head 12 and gradually diminishes toward the lower end.

12 represents the wedge-shaped head of the tile included between the surfaces 9 and 10.

The tubes of water-tube boilers are inclined from the front end downward toward the rear, and this inclination, together with the vibration of the tubes, has a tendency to cause the tiles to slip or creep toward the lower ends of the tubes. I have discovered that the tendency to slip or creep is successfully overcome by means of the wedging action hereinbefore referred to. The surface 10 may of course be curved, provided that the common tangent to the tube and the surface 10 at the point of contact is at such an angle as to produce the desired wedging action. This angle should be under ordinary conditions between fifteen and twenty degrees with the vertical, a greater inclination of the tubes of the boiler requiring a smaller angle. It will be seen that the shape of the tiles is such that they settle securely into position by their own weight and that by turning them up over the tubes they will be free and clear of each other and may be easily taken out and replaced.

Having thus described my invention, what I claim is—

1. A tile for the roof of a boiler fire-chamber of prismatic form having the plane side

9, the plane side 10 inclined thereto, and the curved portion 11.

2. In a baffle for water-tube boilers the combination with the lower row of tubes, of a
5 double row of tiles between adjacent tubes, said tiles having wedge-shaped heads which bear against the tubes.

3. In a baffle for the fire-chamber of water-tube boilers, the combination with the lower
10 row of tubes, of prismatic tiles occupying the spaces between adjacent tubes, said tiles having wedge-shaped heads above the center of said tubes and curved portions extending beneath said tubes.

15 4. A tile for water-tube boilers having a wedge-shaped head and a curved lower portion of gradually-diminishing thickness.

5. In a baffle for water-tube boilers the com-

bination with a row of inclined water-tubes, of wedge-shaped tiles between said tubes, 20 having their wedging-surfaces adapted to impinge upon the surfaces of said tubes at a point slightly above their centers.

6. In a baffle for water-tube boilers the combination with a row of tubes, of wedge-shaped 25 tiles supported by the engagement of their wedge-surfaces with said tubes, the said wedge-surfaces being tangent to the tubes at a point slightly above their centers.

In testimony whereof I have signed my 30 name to this specification in the presence of two subscribing witnesses.

HARRY LEE VAN ZILE.

Witnesses:

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ELLA TUCK.