

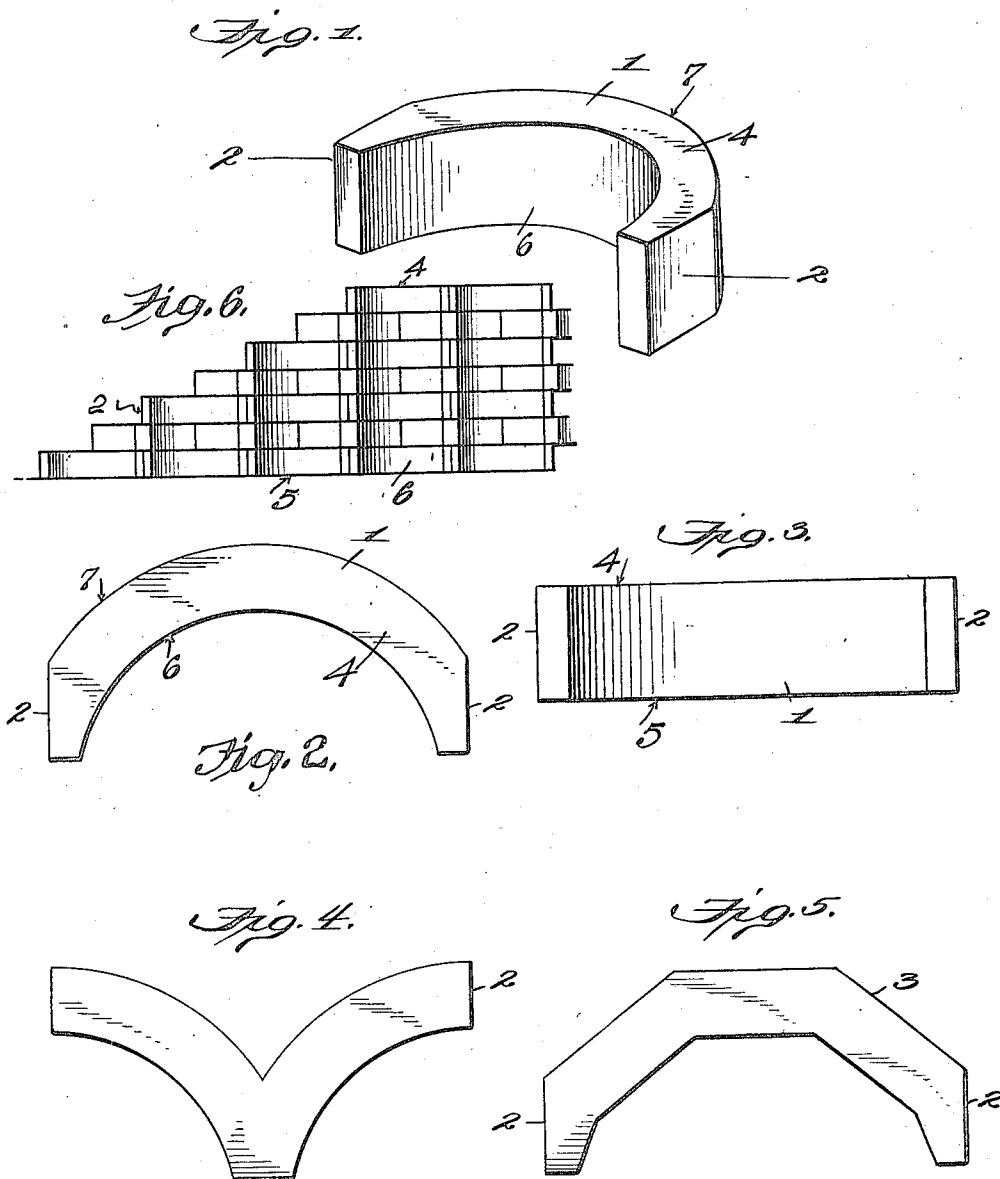
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C. F. BINNS

BRICK OR TILE FOR FURNACE CONSTRUCTION

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BRICK OR TILE FOR FURNACE CONSTRUCTION.

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To all whom it may concern:

Be it known that I, CHARLES F. BINNS, a citizen of the United States, residing at Alfred, in the county of Allegany and State of New York, have invented new and useful Improvements in Bricks or Tiles for Furnace Construction, of which the following is a specification.

This invention relates to bricks adapted for general application wherever thinness of the wall, together with relatively great stability is desired, where the saving of material is of importance, or thinness of the walls for any other reason may be advantageous, as in furnace construction where thinness of the wall together with great stability is desirable in order that heat may readily pass through the walls without the consequent buckling and disintegration of said walls.

In the construction of walls of the above character of one brick thickness, great difficulty has arisen where ordinary brick was used because of the small width of the base compared with the height and special difficulty has been met with in the construction of furnaces where the wall is subjected to great heat and where it is desirable to have a very thin wall in order to allow the heat to pass readily therethrough, since under the influence of heat the walls so constructed from ordinary brick buckle and disintegrate.

An object of the invention is the production of a brick characterized by thinness of wall, while at the same time having a sufficient width of base to render it self supporting.

Another object of the invention is the provision of a brick the base of support of which is made wide relative to the thickness of the brick.

A further object is to provide a brick adapted to be built into a structure, a single brick thick and of comparative great height and which will have the stability of a wall of greater thickness than one constructed of ordinary brick of the same thickness.

Still another object of the invention is the provision of a brick having the over-all dimensions of a standard brick in which the base of support is considerably wider than the thickness of the wall of said brick.

With the above and other objects in view, my invention consists in the improved brick illustrated in the accompanying drawings,

described in the following specification, and particularly claimed, and in such variations and modifications thereof as will be obvious to those skilled in the art to which my invention relates.

In the drawings accompanying and forming a part of this specification, and wherein the preferred embodiment of my invention is illustrated:—

Figure 1 is a view in perspective of a brick constructed according to my invention.

Figure 2 is a plan view of the same brick.

Figure 3 is a front elevation of the same.

Figure 4 is a brick having the shape of the abutting halves of two adjoining bricks and adapted to be laid over the joint between two bricks in order to break said joint.

Figure 5 is a modification showing a brick having plane surfaces instead of curved as shown in Figure 2.

Figure 6 shows an application of the bricks of my invention built into a wall which may be used in a furnace. It will be noted that the wall as shown is built of a combination of the forms of bricks shown in Figures 2 and 3.

Referring to the drawings in detail, 1 represents a brick formed in accordance with my invention in which there are parallel end faces 2, parallel top and bottom surfaces 4 and 5 and inside and outside surfaces 6 and 7, the inside surface being concave and the outside surface convexed, thereby defining a body which is offset from or bent out of alignment with the end surfaces 2, and affording a brick of comparative thinness of wall, while at the same time giving it a comparatively great base of support, the base of support being equal to the distance between the line constituting the cord of the arc of the inner surface and the tangent to the outer surface of the brick parallel to said cord. The bricks may be used in wall construction as shown in Figures 6 and 7 which walls may be built up by laying successive layers of the bricks with the bottoms 5 resting on the tops 4 of the next succeeding layer below and with the faces 2 of the bricks of each layer abutting against each other. When used in a furnace it will be readily seen that a wall is in this manner produced through which heat will readily pass and which has a comparatively wide base of support preventing the ready disin-

tegration of the wall under the influence of heat.

The laterally extended portion of said brick is convex on the outside and concave on the inside, the thickness of said portion being much less than the width of the base of support of said brick.

In the construction of kilns, furnaces or other heating devices it is important that the heat should be rapidly conveyed through the substance of which the wall of arch of said kiln is made. A brick wall or arch made from the ordinary standard brick is not less than $4\frac{1}{2}$ inches in thickness so that the heat passes through it slowly and with difficulty. Heretofore it has been impracticable to make the wall of said kiln any thinner than the $4\frac{1}{2}$ inch dimension of the ordinary brick on account of the fact that when laid in courses with its $2\frac{1}{2}$ inch dimension as the base, the ordinary brick buckles and fails when subjected to the heat of the kiln due to insufficient width of the base of support thereof.

In order to get fairly rapid heat conductivity through the walls of the kiln recourse has heretofore been had to thin tiles set on edge. The slender bearing which such tiles offer for their own support cause repeated failure under high temperature due to the walls buckling and giving way thus rendering constant repairs necessary. By my construction, the brick may be given a base of support of approximately $4\frac{1}{2}$ inches and it will be as self-sustaining as the ordinary brick wall. At the same time the wall of said brick may be made as thin as desired within reasonable limits.

By constructing some of the bricks as shown in Figure 2 with the concave flue side extending along the surface of the brick and by constructing some as shown in Figure 4, of the shape of the adjoining halves of two adjacent bricks it is possible to lay alternate rows of the one and the other and so build a wall having properly broken joints.

Instead of constructing the brick with curved surfaces it may be made polygonal as shown in Figure 5 in which plane surfaces 3 take the place of the curved surfaces shown in the other figures.

Having described my invention what I claim as new and desire to secure by Letters Patent, is:—

1. An article of manufacture comprising a building brick for wall construction having flat parallel coextensive top and bottom faces and flat parallel end faces, the body of said brick between the ends being bent laterally out of alignment with said end faces.

2. A building brick for wall construction comprising a body having parallel end

faces, said body being bent laterally out of alignment with said end faces and in cross-section a rectangle, said brick also having flat parallel top and bottom faces.

3. A wall of great height compared with its thickness composed of one thickness of bricks arranged in superposed layers having their body portions when built into the wall curved laterally out of alignment with the ends of the bricks and forming vertically extending channels in one side of the wall.

4. A vertical wall of wide base compared to its thickness comprised of bricks placed in layers one upon another and end to end in said layers and having their body portions bent to one side intermediate of their ends the contracting faces of the superposed layers conforming in contour with each other.

5. An article of manufacture consisting of a brick for wall construction having flat parallel end faces and flat parallel top and bottom faces, the body of said brick being bent laterally out of alignment with said end faces.

6. An article of manufacture comprising a brick for wall construction having parallel end faces, flat, parallel, coextensive top and bottom faces, and a laterally offset portion.

7. An article of manufacture comprising a brick for wall construction, said brick having flat top and bottom faces coextensive with the length and breadth of the brick and parallel aligned end faces, and a laterally offset portion intermediate of the end faces.

8. An article of manufacture comprising a building brick adapted for the construction of a vertical impervious wall, said brick having top and bottom faces adapted to abut against similar coextensive faces of bricks placed above and below said bricks, also having end faces adapted to abut against similar faces of bricks placed end to end with said brick, and having a laterally offset portion, affording a wide base of support relative to the width of the wall into which the bricks are built.

9. A vertical impervious wall, consisting of a plurality of superposed layers of bricks laid end to end, said wall being built of a single brick thickness, the body of the bricks being intermediately bent laterally out of alignment with their ends, forming a base of support of greater width than the thickness of the bricks.

10. A wall comprised of a plurality of superposed layers of brick, said wall having vertical channels formed therein, the bricks of alternate layers ending between the adjacent channels and in the middle of the channels respectively.

11. A vertical wall of one brick thickness, comprised of a plurality of superposed layers of bricks, the bodies of the bricks

comprising the wall being bent laterally out
of alinement with the ends of the bricks, and
forming vertical channels in the walls, the
bricks of alternate layers being bent in op-
posite directions and ending respectively
between said channels and in the middle of
said channels.

In testimony whereof I have hereunto set
my hand in presence of two subscribing wit-
nesses.

CHARLES F. BINNS.

Witnesses:

ALPHEUS B. KENYON,
HELEN A. TITSWORTH.