Dec. 23, 1941. W. R. McLAIN 2,266,785

REFRACTORY BRICKWORK

Filed Aug. 10, 1939

FIG. 1.

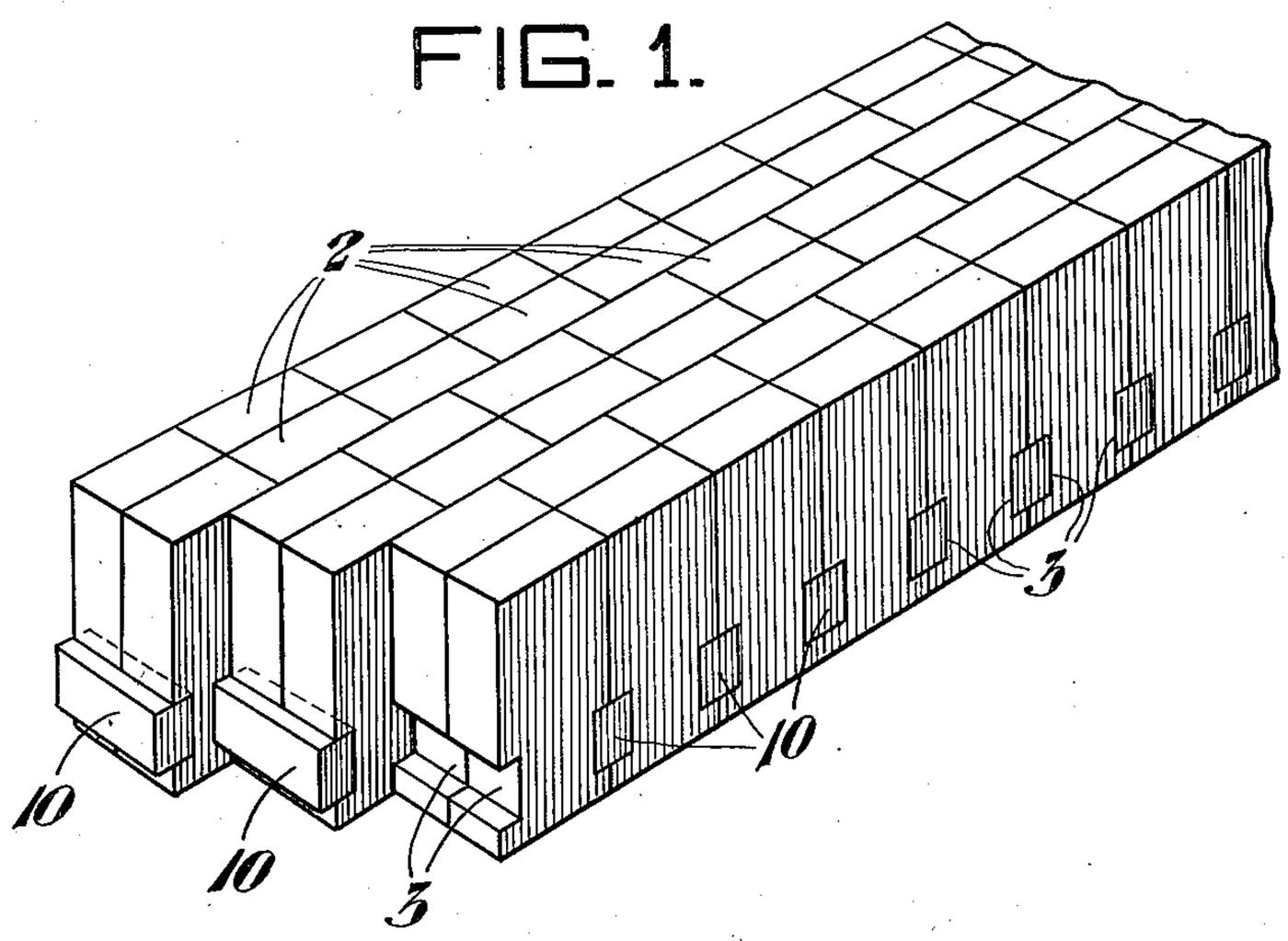


FIG. 2.

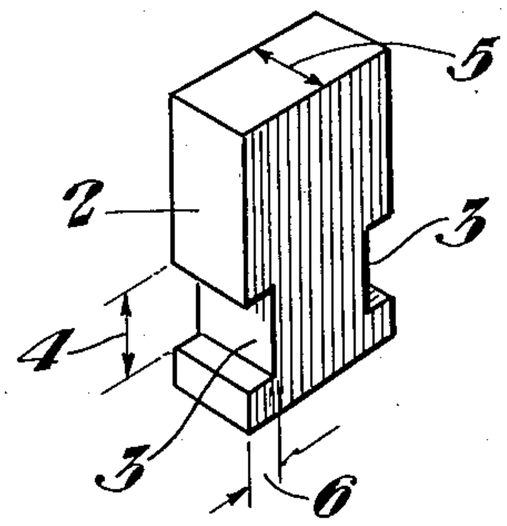
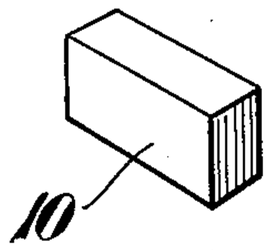


FIG. 3.



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Patented Dec. 23, 1941

2,266,785

UNITED STATES PATENT OFFICE

2,266,785

REFRACTORY BRICKWORK

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Application August 10, 1939, Serial No. 289,510

1 Claim. (Cl. 72—0.5)

This invention relates to refractory brickwork such as used in furnace bottoms and particularly in the bottoms of blast furnaces, although not limited thereto.

Blast furnace hearths as commonly installed are usually made of standard brick shapes of fire clay. Experience has shown that a considerable number of the standard shapes commonly used in hearth construction float out of said hearths, thereby decreasing hearth and furnace life, and increasing the risk of premature furnace shut-downs and the loss of metal, and concurrent hazards and costs.

It is an object of this invention to eliminate or materially reduce hearth brick floatation.

Another object of this invention is the provision of a refractory brickwork which is simple in design and one which is cheap and easy to manufacture and install.

Still another object is to provide a keying arrangement whereby all the horizontal joints in each key course is broken, thereby hindering to some extent any horizontal flow and penetration of molten metal.

A further object is the provision of an efficient brickwork of the type described in which a double row of bricks are keyed together.

The foregoing and further objects will be apparent after referring to the drawing, in which:

Figure 1 is a perspective of the refractory brickwork of the present invention;

Figure 2 is a perspective of one of the refractory bricks which make up the brickwork of Figure 1; and

Figure 3 is a perspective of one of the elements used to lock the refractory bricks in the positions shown in Figure 1.

Referring more particularly to the drawing, the numeral 2 designates a series of elongated refractory bricks which are oblong in cross section. The narrower sides of the refractory bricks 2 are transversely slotted adjacent one of their corresponding ends, these slots being rectangular in shape and designated at 3. The width of each of the slots 3, as illustrated by the line 4, is the same as the thickness 5 of each of the bricks. The depth of each of the slots 3, designated by the line 6, is one-half of the thickness of the bricks 2.

There are being manufactured at present standard refractory bricks of the form of the bricks 2 without the slots 3. As an example the 18 inch x 9 inch x 4.5 inch brick is cited. According to the construction of the present invention, one-quarter of a standard 9 inch x 4.5 inch x 2.25 inch brick will snugly occupy one of the slots 3 in the bricks 2 and one entire brick will serve as a key for four of the bricks 2, providing, of course, the latter are 18 inches x 9 inches x 4.5 inches. In assembling the bricks 2 and keys, designated hereinafter at 10, the former are placed upright with their grooves 3 adjacent their lower ends and with their narrower sides abutting. The next adjacent row of bricks 2 is identically composed and with the abutted edges of the bricks 2 in alignment with respect to the abutted edges of the bricks of the first row. The next two rows of bricks 2 and key bricks 10 are identically composed but with the abutted edges of the bricks in alignment with respect to each other but staggered with respect to the corresponding edges of the first two rows.

According to the foregoing construction, the keys 10 are composed of a standard-sized brick while the bricks 2 are standard in shape except for the keying grooves or slots, designated at 3. This provides not only for a refractory brickwork which is free from the objections referred to hereinbefore, but one which is inexpensive due to the fact that the bricks have the standard size and shape characteristics referred to.

In this construction the horizontal joints formed by the keys are broken by every second row of bricks.

While I have shown and described one specific embodiment of the present invention, it will be seen that I do not wish to be limited exactly thereto, since various modifications may be made without departing from the scope of the invention, as defined by the following claim.

I claim:

In a refractory brickwork, a pair of opposed rows of contacting substantially identical rectangular bricks similarly disposed in alignment, whereby the surfaces of the bricks of each row are substantially flush, a similarly formed and disposed pair of opposed rows of bricks in contact with, but staggered with respect to, said first-named pair of rows, the contacting faces of the bricks of each row having opposed rectangular recesses, thereby providing a keyway between four bricks forming a pair of rows and extending at right angles to the said rows, and a rectangular key disposed in said keyway.

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