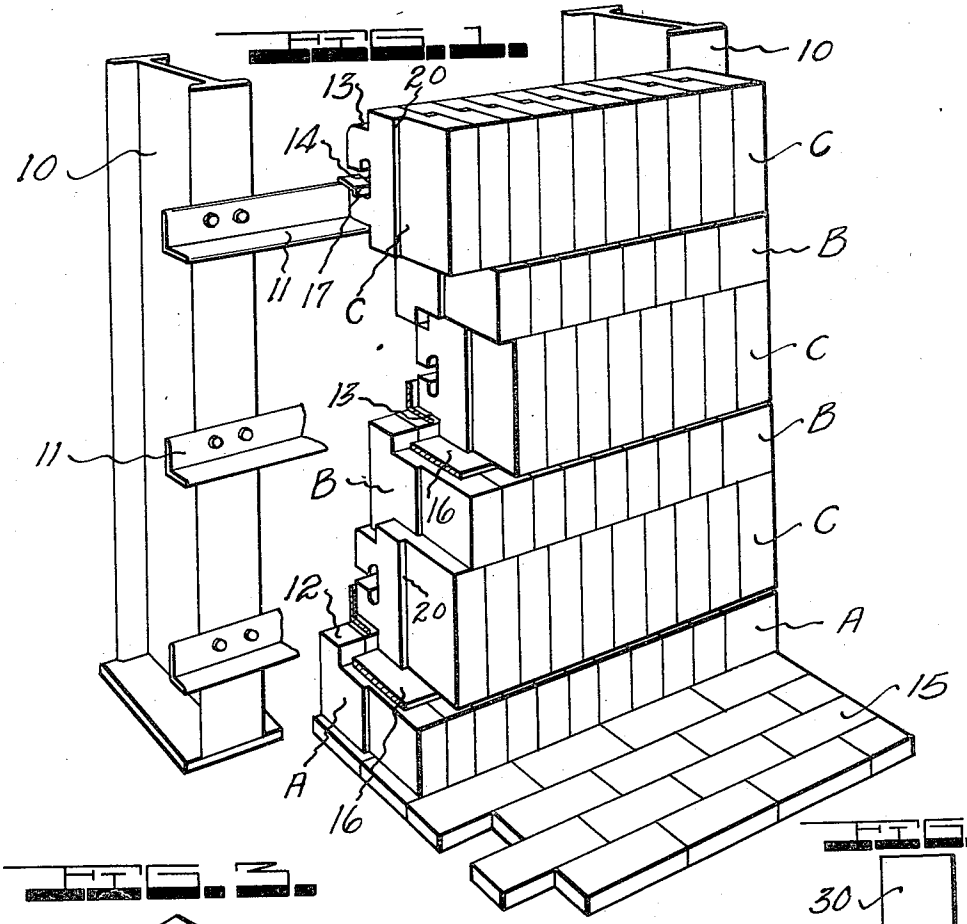
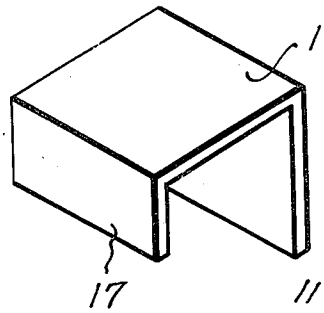
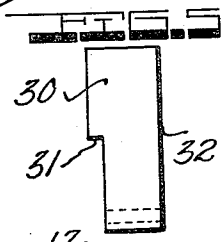
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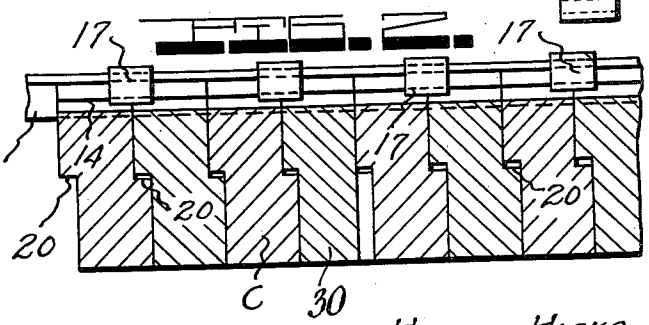
FURNACE WALL CONSTRUCTION

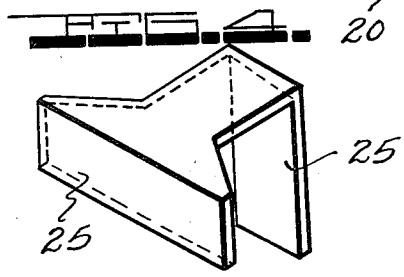
Filed April 15, 1939











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FURNACE WALL CONSTRUCTION

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2 Claims. (Cl. 72—101)

This invention relates to new and useful improvements in furnace walls and the construction thereof.

One object of the invention is to provide a furnace wall of especially constructed tile bricks hereinafter referred to as "thermo fire bricks."

Another object of this invention is to provide a furnace fire wall which is constructed throughout without the aid of retaining mortar or cement.

Still another object of this invention is to provide a furnace wall structure so arranged to be capable of having the fire bricks or tile placed in position either from the inside or from the outside of said wall structure.

Still another object of the invention is to provide for the employment of commercial roll fire felt, asbestos or other refractory material, to be placed between the layers of tile or brick in place of the usual mortar or cement. The provision of this fire felt reduces infiltration or exfiltration into or from the furnace, thereby reducing heat losses.

Yet another object of this invention is to provide a clip to be used in combination with "thermo fire bricks," said clip retaining the fire bricks in position in place of the usual mortar or cement.

A construction designed to carry out the invention will be hereinafter described, together with other features of the invention.

The invention will be more readily understood from a reading of the following specification and by reference to the accompanying drawing, in which an example of the invention is shown, and wherein:

Figure 1 is a perspective view of a segment of a furnace wall constructed in accordance with the present invention and employing the improved brick clip and "thermo fire bricks."

Figure 2 is a horizontal cross sectional view of a furnace wall constructed in accordance with the invention showing a relief tile in the course.

Figure 3 is an isometric view of the preferred form of brick clip,

Figure 4 is an isometric view of a slightly modified form of brick clip.

Figure 5 illustrates a form of substitute or relief tile.

In the drawing, the numeral 10 designates vertical columns of a furnace wall structure, said columns being preferably formed of I-beams. Horizontal angle bars 11 form supports for the improved fire bricks as will hereinafter be explained.

By observing Figure 1, it may be seen that in the construction of a fire wall with the improved bricks, three types of bricks are employed in the wall. The bottommost row of bricks A employ bricks having a modified L-shape whereby the leg 12 of the L projects upwardly, while the body of the L forms a suitable base for the bricks thereabove. The second type of brick B to be used is of a T-shape, while the third type C is constructed with an upper and lower annular groove 13 in two of the corners. The rectangular bricks C are provided with T-shaped slots or channels 14.

In operation a floor 15 constructed of suitable bricks or tiles, now procurable on the open market, has the first row of bricks A laid thereon. A strip of roll fire felt or asbestos is then laid on the upper side of the body of the L adjacent the leg of said L. A row of bricks C is then laid over the first row A in such a manner that the bricks C lay over the strip of roll fire felt or asbestos while the lower groove 13 of the brick C engages over the upwardly extending leg of the L-shape brick A. A row of T-shape bricks B are then laid upon the first row of bricks in such a manner that one arm of the T engages the upper groove 13 of the brick B. Upon this row of bricks B a second row of rectangular bricks having a groove therein are laid. From this point upwardly alternate rows of T-shaped and rectangular bricks are employed until such time as the top of the furnace is reached. At this time another row of L-shaped bricks A is employed having the leg of the L extending downwardly to engage the upper groove 13 of the bricks C. It is to be noted that between each row of bricks a strip of fire felt 16 is used.

At each point in the structure where the rectangular grooved bricks C are employed, a horizontal angle bar 11 is employed in such a manner that the weight of the brick C rests upon the horizontal leg of the angle bar rather than on the brick immediately therebelow. Also these angle bars cooperate with clips 17 to support the wall in a vertical position.

By observing Figure 5 it will be seen that the clips 17 are arranged to engage the bricks C through the medium of the T-shaped slots therein as well as engaging the vertical leg of the angle bar 11. It is to be further noted that each clip is of sufficient width to retain two bricks in each separate row. In other words two clips will retain four bricks. To further facilitate the clips in retaining the bricks, the bricks themselves are

formed with opposite off-sets **20** in the longitudinal vertical sides of each brick.

In Figure 4 a slightly modified form of clip is shown. This clip **25** is flared at its inner end thereby contacting the bricks over a larger area within the T-shape slots of the bricks C thereby giving the structure a more rigid construction.

It is to be noted that due to the particular supporting means hereindescribed, the tiles or bricks B and C may be removed and replaced individually or as a complete course from the remaining structure. In order to accomplish this replacement however, a flat relief tile **30** such as shown in Figures 2 and 5 is employed having a shoulder **31** and a flat side **32**.

From the foregoing it may be seen that a fire wall for a furnace may be had, said wall being economical in manufacture and simple in construction. Also in this type wall, as has been hereinbefore stated, any mortar or cement is eliminated as far as structural purposes are concerned, the wall being retained in its vertical position only by the cooperation of the horizontal angle bars and brick clips.

Manifestly, the construction as shown and described is capable of some modifications and such modification as may be construed within the scope and meaning of the appended claims is also considered to be within the spirit and intent of the invention.

What is claimed is:

1. In a furnace wall construction, the combination comprising a supporting structure of vertically disposed I-beams having connected thereto relatively spaced horizontally disposed angles, superimposed courses of tile, each tile of each course having an offset body to define oppositely directed shoulders, each to conform with corresponding shoulders of contiguous tile, certain of said tile further having a T-shaped slot extending entirely across one face thereof to coincide with an analogous slot in the next adjacent tile, and a substantially U-shaped clip inverted to overlie one lip of the said T-shaped slot and a flange of one of said angles whereby to retain said wall in position.

2. A furnace wall structure as set forth in claim 1 in which a relief tile is interposed between selected tiles in each course and capable of withdrawal from the side of said wall when repairs are required on individual tile units.

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