

June 2, 1931.

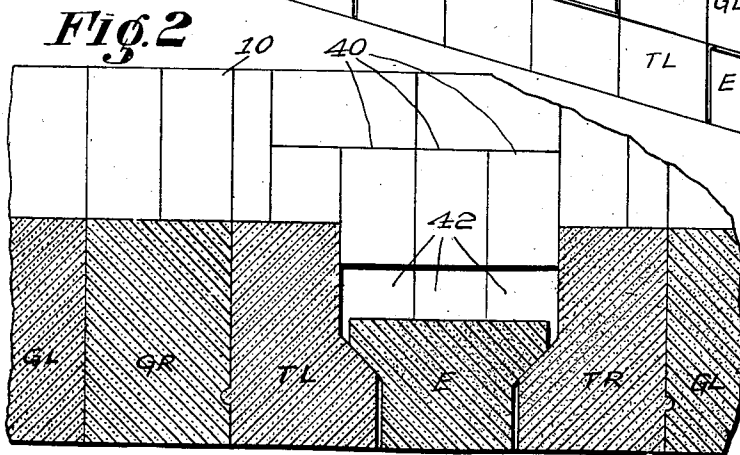
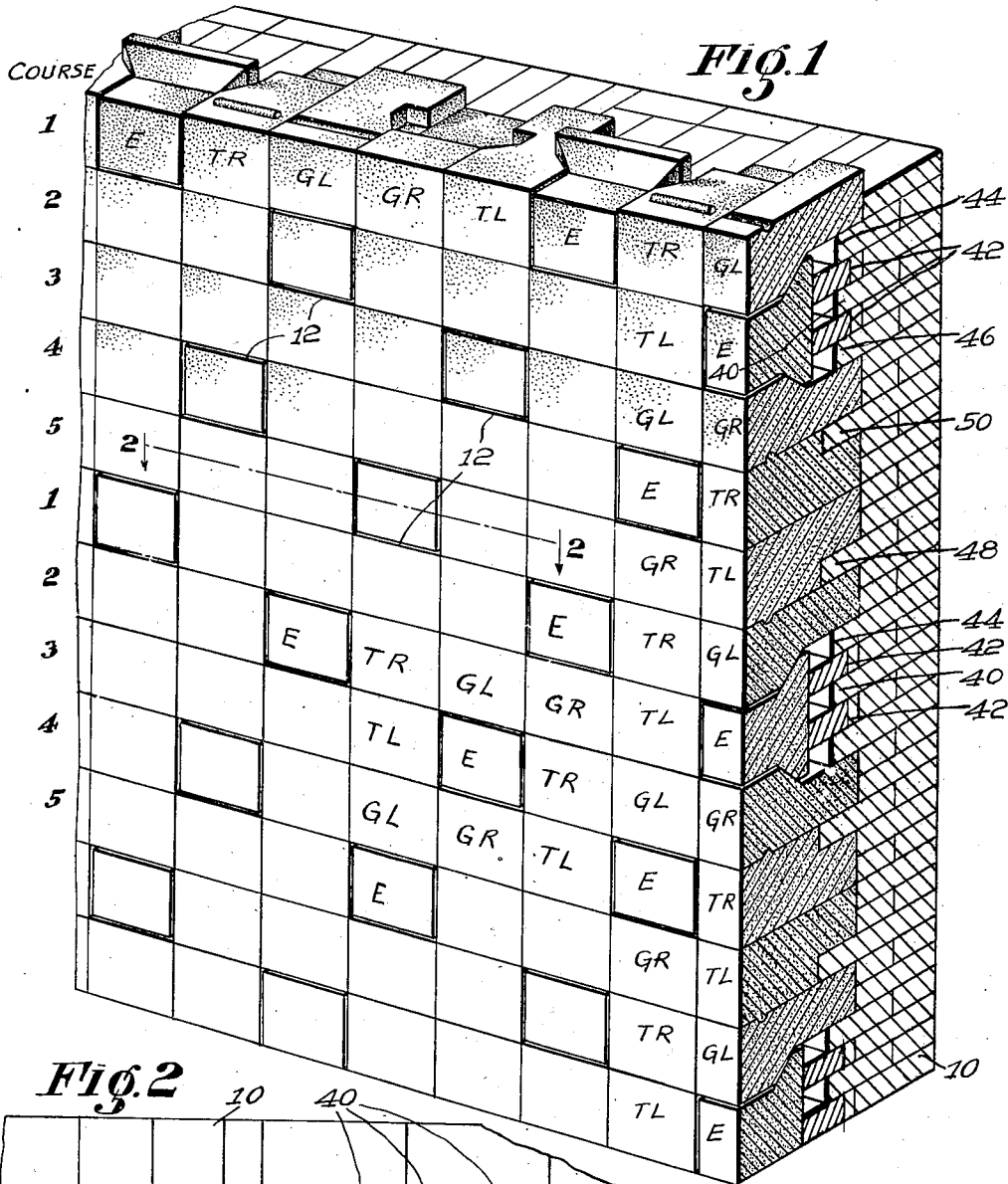
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EXPANSION FURNACE WALL

Filed Oct. 30, 1926

3 Sheets-Sheet 1



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Fig. 3

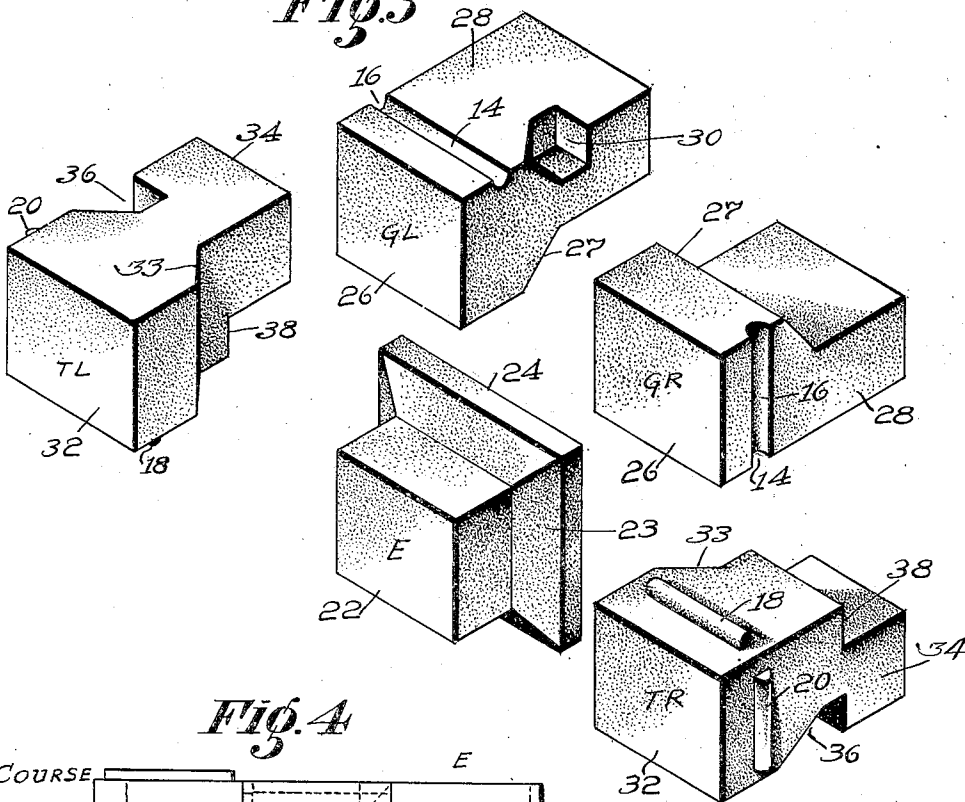


Fig. 4

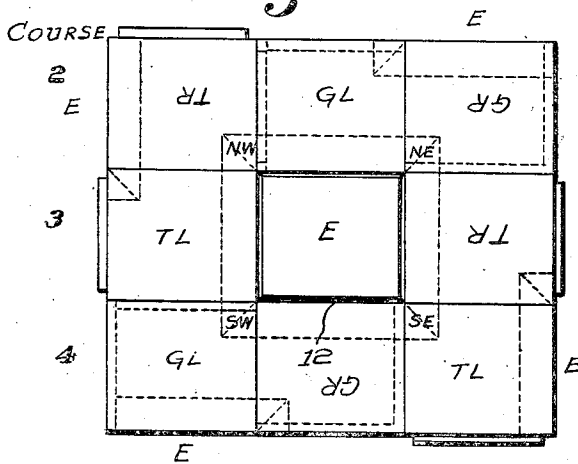
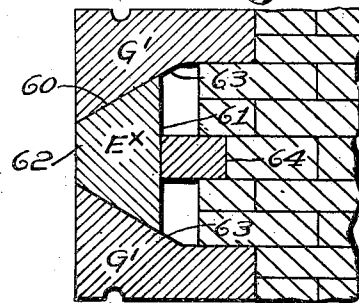


Fig. 5



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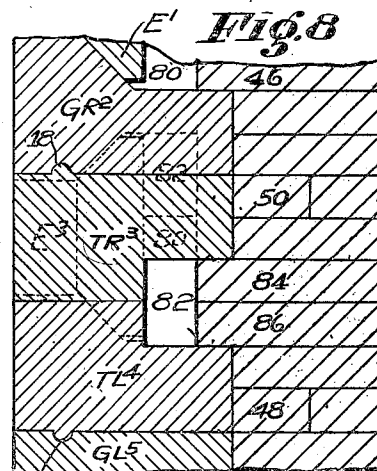
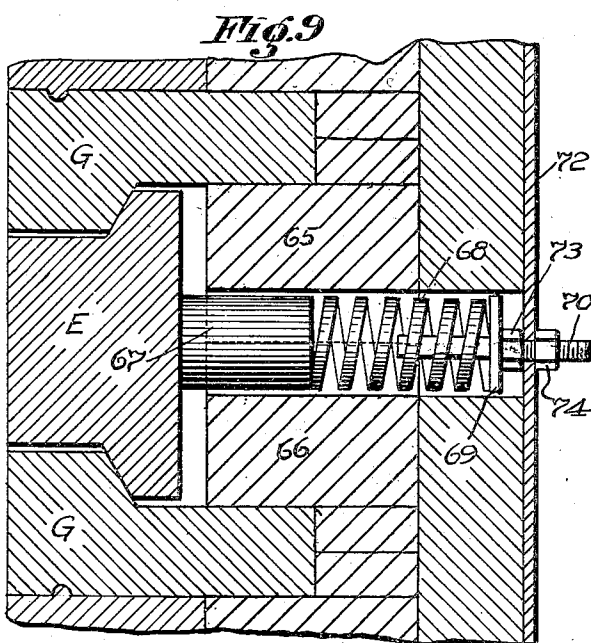
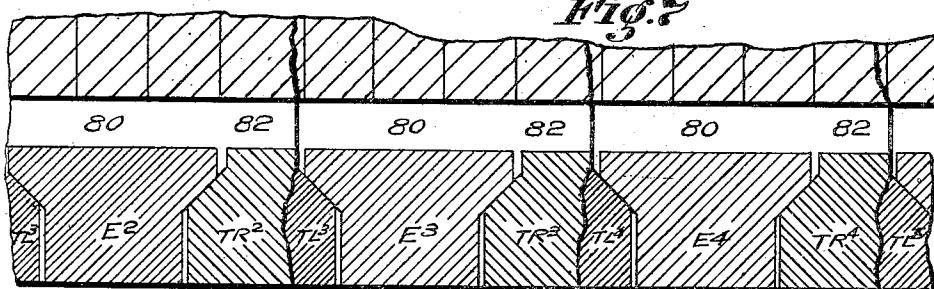
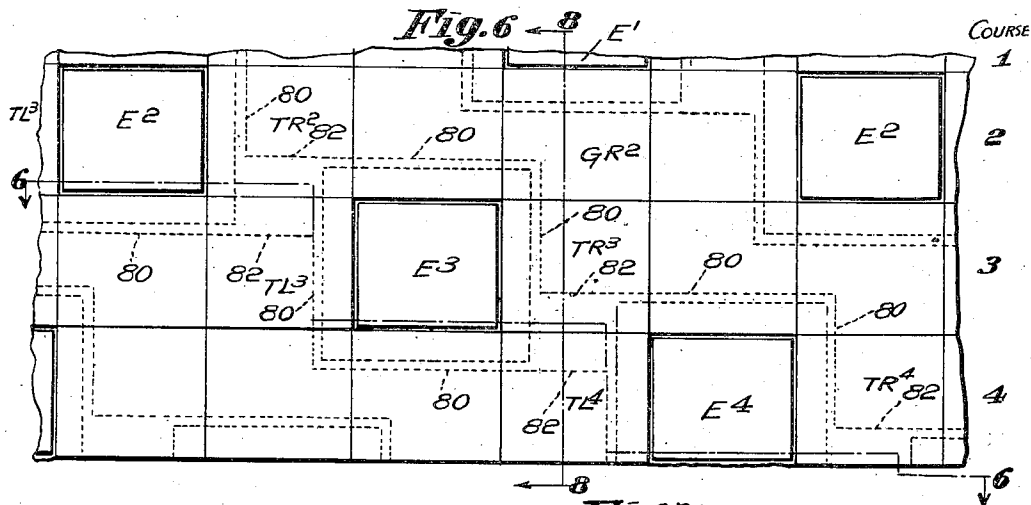
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EXPANSION FURNACE WALL

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3 Sheets-Sheet 3



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EXPANSION FURNACE WALL

Application filed October 30, 1926. Serial No. 145,270.

This invention relates to wall structures and more particularly to furnace walls having a construction that permits an adequate free expansion of the blocks of which it is built under the intense but variable heat within the furnace. The invention is especially applicable to furnaces employing a forced air feed.

The primary object of the present invention is to improve the construction of prior known expansion furnace walls by providing for either a successive or a simultaneous expansion of different areas of the wall at any time that expansion is requisite to preserve the wall structure, thus giving a longer life to the wall. A further object of the invention is to simplify the construction of expansion furnace walls.

Accordingly an important feature of the invention consists in the construction and relative arrangement of the blocks of which the heat resisting wall is built whereby each side or surface thereof is divided into relatively small units or areas each having its own individual expansion joints. Preferably the arrangement is such that these wall units overlap each other or, stated in another way, the expansion joints provided primarily for one unit also function to contribute to, or aid in, the expansion of all surrounding units. An equally important feature consists in a wall design embodying a multiplicity of small expansion units each of which may be built from a relatively small number of differently formed blocks so that, while the entire wall is capable of free expansion, its construction is not complicated by the requirement of a large number of new shapes and the cost is thereby kept at a relatively low figure.

To the accomplishment of these objects and such others as may hereinafter appear, as will readily be understood by those skilled in the art from the following description, the invention comprises the novel constructional features, arrangement and combination of parts for furnace walls hereinafter described in their preferred form and then particularly pointed out in the appended claims.

The various features of the invention will

best be understood from a description of the best form at present known to me, illustrated in the accompanying drawings, in which:

Figure 1 is a view, in perspective, of a portion of a masonry wall for furnaces lined with an inner facing of high grade refractory material having the novel characteristics of the present invention;

Fig. 2 is a view, in sectional plan, of a portion of the wall shown in Fig. 1, on the line 2-2 of Fig. 1;

Fig. 3 is a view in which each of the three different shapes, for the blocks from which the wall is built, is shown separately in perspective. In this figure two of the shapes are shown in each of the two different positions in which they are placed when building them into different portions of the wall;

Fig. 4 is a view, in front elevation, of a single expansion area or unit illustrating how the three shapes are duplicated and combined to produce said unit;

Fig. 5 is a view, in vertical sectional elevation, of a modified construction of key-block for providing for expansion of the surrounding blocks in the wall;

Fig. 6 is a view, in front elevation, of a portion of the type of expansion wall shown in Fig. 1, but modified to provide continuous lateral air-spaces;

Fig. 7 is a view, in section, on the line 6-6 of Fig. 6 illustrating the continuity of a lateral air-space;

Fig. 8 is a view, in sectional elevation, on the line 8-8 of the modified wall of Fig. 6 showing a lateral air-space; and

Fig. 9 is a view, in vertical sectional elevation, of a further modification of the means for yieldingly supporting the key-block of each expansion joint.

In the embodiment of the invention illustrated by Figs. 1 to 4 inclusive 10 indicates the outer masonry wall of the furnace which is of equal thickness or depth throughout its height except that it is provided at certain intervals on its inner face with projecting shelves or supporting brick by means of which the fire wall or inner facing is bound to the permanent wall. These projecting supports are so arranged as to present repeated groups

which, however, are not definitely separable except in the case of certain centrally arranged supports, but each such complete group comprises the requisite number of supporting shelves for maintaining in position in the fire wall a certain definite number or group of blocks forming what may be termed an "expansion unit." It will be understood from the drawing that the fire wall, in its preferred form, is composed of building blocks all of which present a rectangular face at the inner or heat resisting surface of the wall. This fact should be borne in mind in following the detailed description of the fire wall now to be given.

Each complete expansion unit is composed of nine building blocks which form a rectangle (see Fig. 4) but these units are so built into the fire wall, or the wall is so designed, that each block forming each unit, except the central block, also forms a part of some adjoining unit. The central block of each group of nine makes ample provision for expansion of all the blocks of the expansion unit of which it is the center, but because of the fact that each expansion unit extends into the structure and forms a part of those that are adjacent it, the expansion joints provided by these central blocks do duty for more than one unit as will presently be explained.

The general scheme of the fire wall construction will be recognized by comparing the single expansion unit illustrated by Fig. 4 with the larger portion of a wall built from a number of these units, illustrated by Fig. 1. The construction of a single expansion unit will first be described and then the building of a complete fire wall will be described. Referring first, then, to Fig. 4:

The central block of an expansion unit may be termed the "expansion block" and is designated by E. This block has a rectangular heat resisting end or face that is somewhat smaller in area than the inner ends of the eight blocks which surround it. In practice the dimensions of the inner end of expansion block E may conveniently be about $\frac{1}{2}$ " less on each side than those of the surrounding blocks. When these eight surrounding blocks are formed into a hollow rectangle, and the block E is held centrally in the central opening, an air space or expansion joint 12 will be produced of rectangular formation and completely separating all eight surrounding blocks from the block E. The manner of holding each block E centrally as just described will be explained when the wall construction is explained.

There are eight blocks surrounding the expansion block E in each complete expansion unit but the design of these blocks is such that only two differently shaped blocks are required to fill all eight positions. One of these shapes, designated by T, is tongued and the

other, designated by G, is grooved on two sides of its head near its inner end.

This manner of binding the blocks together to form a unitary structure permits a sliding movement of one block on another in two directions and effectually accommodates the wall expansion both horizontally and vertically. The blocks G are provided with grooves 14 and 16 on two adjoining sides and the other two sides are plane surfaces. Likewise the blocks T are provided with tongues 18 and 20 on only two sides but these tongues (see Fig. 3) are on the sides corresponding to the grooved sides of the blocks G. When built into the wall the blocks G are always placed above and below a block E, those above having the grooves 14 and 16 at the top and left, hence called GL blocks, and those below having the grooves 14 and 16 at the bottom and right, hence called GR blocks. The blocks T are always formed in the wall at either side of a block E, those at the left having the tongues 18 and 20 at the bottom and left, hence called TL blocks, and those at the right having the tongues 18 and 20 at the top and right, hence called TR blocks. As heretofore stated the G blocks are all alike and the T blocks are all alike. The apparently differing positions of the tongues and grooves results from placing half of the blocks in a normal or upright position and the other half in a reverse position. An inspection of Fig. 4 illustrates how four tongued and four grooved blocks may be fitted together about a block E to form an expansion unit.

Before describing the manner of building the fire wall a brief description will be given of the characteristic features of the three block shapes E, G and T, of which the entire fire wall is built.

Expansion block E (Fig. 3) consists of a rectangular head 22 and a rectangular base 24 of larger proportions joined by a beveled surface 23 at each of the four sides. It has been found effective in practice to form the bevel 23 at a 45° angle to the plane of the head and base but this angle may be varied within reasonable limits without detriment.

Grooved blocks GR and GL (Fig. 3) are exactly alike and this nomenclature has been given because the block G is placed in reverse position when below the block E. This is indicated in Fig. 4 by the inverted lettering. Block G has a rectangular head 26, slightly larger than the head of block E both as to surface dimensions and depth, and a body 28 of less height than the head joined to the head by a bevel 27 on its under side only when in upright position (see GL block, Fig. 3). In the corner of the top face of GL, Fig. 3, opposite the right-hand end of the bevel, there is a recess 30 having the geometrical shape requisite to receive the SW, two-way beveled base-corner of a block

E. The block-locking grooves 14 and 16 are at the top and left when block G is upright and at the bottom and right when it is inverted (see GR, Fig. 3).

5 Tongued blocks TL and TR (Fig. 3) also are exactly alike but TR, situated always at the right of a block E is in a reversed position as compared to TL. This is indicated on Fig. 4 by the inverted lettering. Block
10 T has a rectangular head 32 of the same dimensions as the head 26 of block G and a body 34 of less width than the head joined to the head by a bevel 33 on its right side only when in upright position, (see TL block,
15 Fig. 3). In the corner of the top face opposite the upper end of the bevel there is a recess 36, like the recess 30 of the block G, for receiving the SE, two-way beveled corner of a block E. The block-locking tongues
20 18 and 20 are at the bottom and left when the block T is upright and at the top and right when it is inverted (see TR, Fig. 3). The block T is further distinguished from the block G by a rabbet 38 in the under face
25 of its body 34 (when upright) of such dimensions that the rear face of said body is the same height as the vertical dimension of the rear face of the body 28 of block G. In practice this height is equal to two courses
30 of the brick forming the outer masonry wall 10. It may be stated here that the vertical dimension of the rectangular base 24 of block E is slightly less than the height of five courses of the masonry wall brick, and that
35 the vertical dimension of the heads of both blocks G and T is equal to the height of three courses of the masonry wall brick (see Fig. 1).

The design of the inner fire wall is very
40 clearly disclosed by Fig. 1 from which it will be seen that in each course thereof every fifth block is an expansion block E thus providing four contacting building blocks G and T
45 horizontally between each two expansion blocks E. A like construction is found also in each vertical row of blocks and is obtained by offsetting the expansion blocks, in each successive course, by two positions, which
50 provides for four contacting building blocks G and T vertically between each two expansion blocks E. It will be observed that the design of each set of five courses is repeated but that the blocks G and T that surround
55 a first or fifth course expansion block to thus form an expansion unit are partly in one set and partly in another. In fact this interrelation of expansion units is a highly important characteristic of the fire wall. Each marginal block G or T is always a part of
60 two expansion units, shown in detail by Fig. 4.

Considering now the construction of a complete expansion unit of nine blocks it will be understood that a block E is always
65 the central block. Centrally back of this

block E is a group of three projecting brick 40 (Figs. 1 and 2) that, with the projecting brick 44 and 46 above and below, hold intermediate soft insulating or refractory brick 42 against which the base 24
70 of block E engages and is cushioned. Above and below block E with the bevels 23 and 27 in contact are blocks GL and GR, it being remembered that GR is merely GL inverted. Block GL is supported by its body 28 lying
75 between a projecting masonry brick 44 and a similar projecting brick 48 above. Likewise block GR is supported by its body 28 lying between a projecting masonry brick 46 and a similar projecting brick 50 below. To the
80 left and right of block E with the bevels 23 and 33 in contact are blocks TL and TR, and again TR is merely TL inverted. At the right and left of GL (above E) are found GR and TR respectively, their recesses 30 and 36
85 facing inward to receive the NE and NW corner-portions of the bevel 23 on block E, and joining together the bevels 27 and 33 on the adjoining blocks. Similarly at the right and left of GR (below E) are found TL and
90 GL respectively, their recesses 36 and 30 also facing inward to receive the SE and SW corner-portions respectively of the bevel 23 on block E, and also joining together the bevels 33 and 27 on the adjoining blocks. It
95 will be observed that a block TL is always found above a block GL and the rabbet 38 at the rear end of TL is provided to receive a projecting masonry brick 48 thus permitting its under face to contact with the upper face
100 of block GL. Likewise a block TR is always found below and fitting closely against the under face of a block GR, its rabbet 38 receiving a projecting masonry brick 50. As
105 thus assembled the tongues and grooves fit into each other as clearly shown by Fig. 4, permitting the various blocks to slide on each other in two directions when expanding under heat, but the various beveled surfaces hold
110 the block E centrally, preserving the continuous expansion joint 12 about this block while yet permitting each block to slide on the bevel as it expands. Such expansion wedges the blocks E inward against the soft
115 brick 42 or other yielding medium provided for this purpose.

The dotted lines at the four corners of the expansion unit illustrated by Fig. 4 show the
120 joiner of the recesses and bevels of the blocks for receiving portions of the bases 24 of the four expansion blocks E located at each of these corners as will be understood from an inspection of Fig. 1. Thus GR at the
125 NE corner of a block E, in course 2 for example, becomes GR below a block E located in course 1, and TR at the NW corner becomes TR at the right of a block E in course
130 2. Similarly TL at the SE corner becomes TL to the left of a block E in course 4, and GL at the SW corner becomes GL above a

block E in course 5. Each expansion joint 12 therefore aids every other expansion joint 12 in accommodating the expansion of the blocks at all four sides of any block E.

Throughout the wall there are never more than four building blocks between two expansion blocks, either horizontally or vertically, and the expansion joints 12 at each end of each such row of four blocks are ample to absorb the greatest increase in size due to expansion which, in any event, is not of great degree. With such a construction, providing a fire wall "spotted" with expansion joints each surrounded by freely slidable building blocks, any small portion of the wall may be submitted to heat of the most intense degree that will be met in the furnaces of superpower stations where a forced air feed is employed, and will be permitted to expand freely without regard to the temperature of any other portion of the wall. In like manner several or all of the expansion joints may function simultaneously. The location and nature of the multitude of expansion joints effectually accommodates the expansion of any number of building blocks from all directions and over large or small areas of the fire wall.

Fig. 5 illustrates a modified form of the central expansion member, denoted E^x, that may be used without loss of efficiency. In this form the bevels 60 are continuous from the rear face 61 to the front face 62. Accordingly each marginal block of the expansion unit must be modified by providing a longer beveled surface between their head and body portions. This longer bevel is shown at 63, in Fig. 5, for the blocks denoted G' above and below an expansion member E^x. The oblique surfaces 60 and 63 are in contact and the member E^x is wedged inward, when the surrounding blocks expand under heat, against the soft insulating brick 64 which, as before, projects from the surrounding brick of the masonry wall.

Fig. 9 is a further modification of the yielding support for the expansion blocks. In this figure the shape of the blocks E, G and T forming the fire wall is the same as in Figs. 1 to 4, but the masonry wall, immediately at the rear of each block E, is built from two bricks 65 and 66 shaped to form a cylindrical chamber or housing within the inner end of which is loosely seated a cylindrical block 67 which may be either ordinary fire brick or soft insulating brick. The sliding block 67 is backed by a coiled spring 68 the outer end of which is seated against a collar 69 loose on a screw threaded rod 70 within the coils of the spring. The outer end of the rod 70 passes through a steel casing 72 on the outer face of the masonry wall and is normally held in the position shown by lock nuts 73 and 74.

Figs. 6 to 8 illustrate a modification of the masonry wall construction of Fig. 1 to provide lateral air-spaces behind the fire wall.

The construction is so changed that the air spaces behind each expansion block E (see Fig. 1) are connected laterally instead of being isolated from each other by intervening solid brick. In Fig. 6 the dotted lines 80 about each expansion block E indicate the area of the air-space back of these blocks. The communicating lateral passages formed by the modified construction are indicated by the dotted lines 82. It will be observed that the passages 82 connect the lower portion of an air-space 80 with the upper portion of an air-space 80 in the next lower horizontal course of blocks, so that a complete lateral air-space extends across the wall in a diagonal direction. Referring to Fig. 3 it is noted that the normal T block is rabbeted at the rear of its body on the side that bears the tongue 18. Referring now to Fig. 8, in the construction for forming the lateral air-space the block T is rabbeted at the rear of its body, as before, but on the side that is opposite the tongue 18. This brings the two rabbets together and the blocks TR and TL are supported on the masonry wall by making the two bricks 84 and 86 as long as the bricks 40, 44 and 46 (Fig. 1) so that they will extend part way into the space formed by the two rabbets. The old masonry bricks 48 and 50 (Fig. 1) are shortened to the necessary extent. Thus a lateral passage 82 is formed through the two blocks TR and TL at the right and left (Fig. 6) of each descending series, across the fire wall, of expansion blocks E. Each lateral passage 82 communicates, at each end, with an air-space 80 (see Figs. 7 and 8). The series of lateral air-spaces extend diagonally across the fire wall, each in a series of steps, as shown by the dotted lines on Fig. 6 and by the shade lines on Fig. 7. On Figs. 6, 7 and 8 the blocks in the different horizontal courses have been differentiated by exponents.

Those skilled in the art will understand that the building of the masonry wall 10 follows the usual construction of such walls except for the feature of the specially located supporting shelves, hereinbefore described, for binding in the building blocks of the fire wall.

The invention is not limited to the use of the soft insulating brick 42 as a cushion for absorbing the inward thrust of the expansion blocks E while the wall is heating, since it is within the scope of the invention to utilize any suitable yielding element or device that is adequate for this purpose.

While it is preferred to employ the specific construction and arrangement of parts shown and described it will be understood that this construction is not essential except so far as specified in the claims, and may be changed or modified without departing from the broader features of the invention.

What is claimed as new, is:—

1. A furnace wall construction comprising a permanent masonry wall having a fire wall at its inner face comprised of refractory blocks all of which have the same dimensions at their heads except for certain of said blocks spotted over the wall whose heads are of smaller dimensions, all of the blocks surrounding each block having a smaller head being formed at their outer ends to engage a flange on the outer end of said central smaller headed block and support its head in spaced relation to the heads of said surrounding blocks. 70
2. A furnace wall construction comprising a permanent masonry wall having a fire wall at its inner face comprised of refractory blocks each having a rectangular inner end face a minority of which are of smaller dimensions at said end faces than the majority thereof, said wall being erected from vertical rows of said blocks, and each of said minority being wholly surrounded by blocks of said majority and held with its inner end in spaced relation to said surrounding blocks. 75
3. A furnace wall construction comprising a permanent masonry wall having a fire wall at its inner face comprised of refractory blocks each having a rectangular inner end face a minority of which are of smaller dimensions at said end faces than the majority thereof, each of said minority being wholly surrounded by blocks of said majority and held with its inner end in spaced relation to said surrounding blocks, each of said minority blocks having a space between its rear face and the permanent wall, and means projecting from the permanent wall into said space for engaging said rear faces. 80
4. A furnace wall construction comprising a permanent masonry wall having a fire wall at its inner face comprised of refractory blocks each having a rectangular inner end face a minority of which are of smaller dimensions at said end faces than the majority thereof, each of said minority being wholly surrounded by blocks of said majority and held with its inner end in spaced relation to said surrounding blocks, and yielding means supported by said masonry wall against which each of said minority blocks abuts. 85
5. A furnace wall construction comprising a permanent masonry wall in combination with a fire wall comprised of rectangular faced refractory blocks constructed and arranged to provide a plurality of rectangular expansion joints over the wall face each of which joints surrounds the face of a single block, said blocks so surrounded by an expansion joint being spaced from each other in the wall both horizontally and vertically by a plurality of blocks each in abutting relation to each other. 90
6. A furnace wall construction comprising a permanent masonry wall in combination with a fire wall comprised of rectangular faced refractory blocks constructed and arranged to provide a plurality of rectangular expansion joints over the wall face each of which joints surrounds the face of a single block, and means for holding said single blocks yieldingly in their centralized location within said expansion joints. 95
7. A furnace wall construction comprising a permanent masonry wall in combination with a fire wall comprised of rectangular faced refractory blocks constructed and arranged to provide a plurality of rectangular expansion joints over the wall face each of which joints surrounds the face of a single block, and a yielding support at the rear of each single block for maintaining their faces in the plane of the wall when the wall is cold but permitting an inward movement of said blocks when the expansion joints close as the wall is heated. 100
8. A furnace wall construction comprising a permanent masonry wall in combination with a fire wall comprised of rectangular faced refractory blocks constructed and arranged to provide a plurality of rectangular expansion joints over the wall face each of which joints surrounds the face of a single block, said masonry wall having a yielding member built into its structure at the rear of each of said single blocks. 105
9. A furnace wall construction comprising a permanent masonry wall in combination with a fire wall comprised of rectangular faced refractory blocks constructed and arranged to provide a plurality of rectangular expansion joints over the wall face each of which joints surrounds the face of a single block, said masonry wall having a chamber at the rear of each of said single blocks and a plug engaging the block backed by a spring seated in each chamber. 110
10. A fire wall for furnaces erected from refractory blocks having rectangular inner ends, said fire wall being spotted with a minority of blocks having inner ends of a smaller size than the majority providing rectangular expansion joints about these smaller sized faces, said joints being wholly surrounded by blocks of the majority that are otherwise in contact. 115
11. A fire wall for furnaces erected from refractory blocks having rectangular inner ends, said fire wall being spotted with a minority of blocks having inner ends of a smaller size than the majority providing rectangular expansion joints about these smaller sized faces, and means for holding the blocks surrounding the expansion joints in contact in a predetermined initial relation to each other but permitting expansion thereof and movement relative to each other. 120
12. A fire wall for furnaces, erected from refractory blocks having rectangular ends, characterized by a plurality of rectangular expansion units each comprising a plurality 125

of said blocks and each of which is provided with a central member providing for the expansion of the marginal blocks, said units being so spaced in the wall that the blocks at the margins of any one expansion unit are also included as marginal blocks of all contiguous expansion units.

13. In an expansion furnace wall comprised of refractory blocks having rectangular heads, an expansion unit composed of a central block and eight marginal blocks enclosing said central block but spaced therefrom along their inner edges, said central block having an enlarged base joined to its rectangular head by an inwardly facing bevel at each side thereof, and said eight surrounding blocks each having an outwardly facing beveled portion adapted to engage said bevel of the central block.

14. In an expansion furnace wall comprised of refractory blocks having rectangular heads, an expansion unit composed of a central block and eight marginal blocks enclosing said central block but spaced therefrom along their inner edges, said central block having an enlarged base joined to its rectangular head by an inwardly facing bevel at each side thereof, the four corner blocks of said surrounding blocks each having a corner recess shaped to receive the four corners of said beveled base, and the remaining four of said surrounding blocks each having an outwardly facing bevel for engaging said inwardly facing bevel of the central block.

15. In an expansion furnace wall comprised of refractory blocks having rectangular heads, an expansion unit consisting of eight blocks contacting with each other and so assembled that their heads together form a frame hollow at the center and a ninth block in said hollow center having a head smaller than said center which is maintained out of contact with the heads of said surrounding blocks.

16. In an expansion furnace wall comprised of refractory blocks having rectangular heads, an expansion unit consisting of eight blocks contacting with each other and so assembled that their heads together form a frame hollow at the center and a ninth block in said hollow center having a head smaller than said center which is maintained out of contact with the heads of said surrounding blocks but which is movable in and out relative to the inner face of said wall.

17. A furnace wall in which a permanent masonry wall is combined with a fire wall, the latter comprising a plurality of horizontal courses of refractory blocks having aligned vertical joints, the heads of certain blocks in each course being smaller than the remaining blocks of the course in both width and height and being so located with respect to the contiguous vertical and horizontal blocks as to provide expansion joints en-

tirely surrounding them, the smaller blocks being spaced one from another by a plurality of full sized blocks.

18. A furnace wall in which a permanent masonry wall is combined with a fire wall, the latter comprising a plurality of horizontal courses of refractory blocks having aligned vertical joints, the heads of certain blocks in each course being smaller than the remaining blocks of the course in both width and height and being so located with respect to the contiguous vertical and horizontal blocks as to provide expansion joints entirely surrounding them, the smaller blocks being separated from one another in both the vertical rows and horizontal courses by the same number of the full sized blocks.

19. A furnace wall in which a permanent masonry wall is combined with a fire wall, the latter comprising a plurality of horizontal courses of refractory blocks having aligned vertical joints, the heads of certain blocks in each course being smaller than the remaining blocks of the course in both width and height and being so located with respect to the contiguous vertical and horizontal blocks as to provide expansion joints entirely surrounding them, the smaller blocks in each horizontal course being separate by at least four full sized blocks but in contiguous horizontal courses being offset horizontally with respect to one another.

20. A fire wall for furnaces comprising a plurality of refractory blocks having rectangular faces some of which blocks have smaller face dimensions than the remainder, the fire wall being spotted with said smaller blocks separated from one another by the full sized blocks, and means for holding said smaller blocks with the edges of their faces in spaced relation to the face edges of the surrounding blocks, whereby to provide expansion joints entirely surrounding said smaller blocks separating them from the remaining blocks which are otherwise in contact.

21. A furnace wall construction of the type in which a permanent wall is lined with a fire wall at its inner face, said fire wall being built of a plurality of courses of refractory blocks having heads so dimensioned and shaped that the joints at the meeting faces thereof are continuous vertically thus forming both vertical and horizontal rows of blocks, each of said courses having at regular spaced intervals a plurality of blocks each with a head of like shape but of smaller dimensions than the majority of blocks in a course with the relative positions of said smaller headed blocks in the several courses being so selected that the interval therebetween in the vertical rows is the same as that in the horizontal rows, and means for maintaining said smaller heads in spaced relation to all surrounding larger headed blocks.

22. In an expansion fire wall construction erected from refractory blocks having rectangular heads a plurality of rectangular expansion units each comprising eight marginal blocks having rectangular heads in contact with each other and a single central block having a smaller rectangular head, interlocking means on the central and the marginal blocks for maintaining a continuous expansion joint about said smaller headed block, and said expansion units being so built into the fire wall that each marginal block forms also a marginal part of a contiguous expansion unit of like construction.

23. In an expansion fire wall construction erected from refractory blocks having rectangular heads a plurality of rectangular expansion units each comprising eight marginal blocks having rectangular heads in contact with each other and a single central block having a smaller rectangular head, interlocking means on the central and the marginal blocks for maintaining a continuous expansion joint about said smaller headed block, said expansion units being so built into the fire wall that each marginal block forms also a marginal part of a contiguous expansion unit of like construction, and tongue and groove connections at certain of the meeting faces of said marginal blocks to permit relative sliding under expansion.

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