

Sept. 15, 1925.

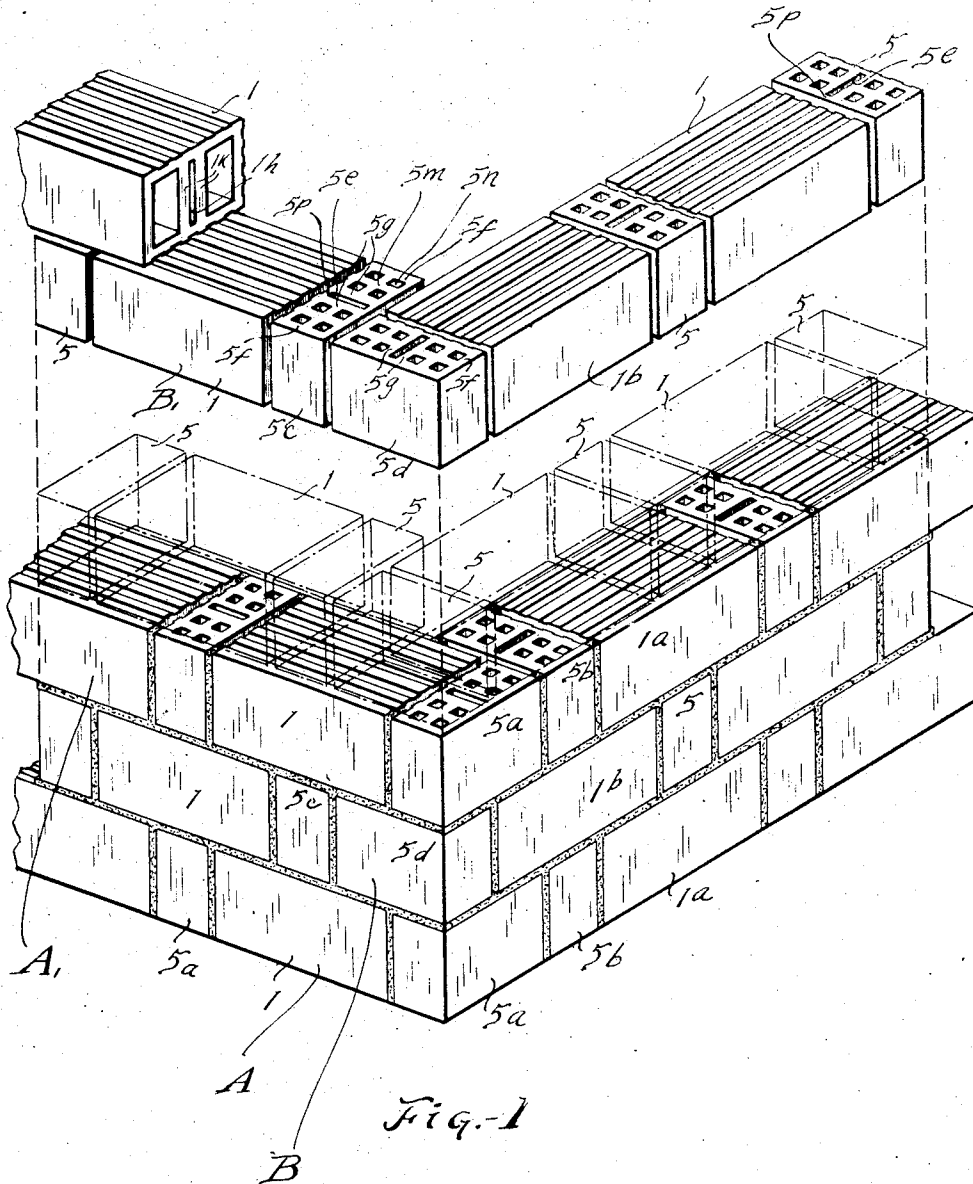
1,553,858

F. HEATH

HOLLOW TILE FLEMISH BOND WALL CONSTRUCTION

Filed Aug. 15, 1921

3 Sheets-Sheet 1



INVENTOR
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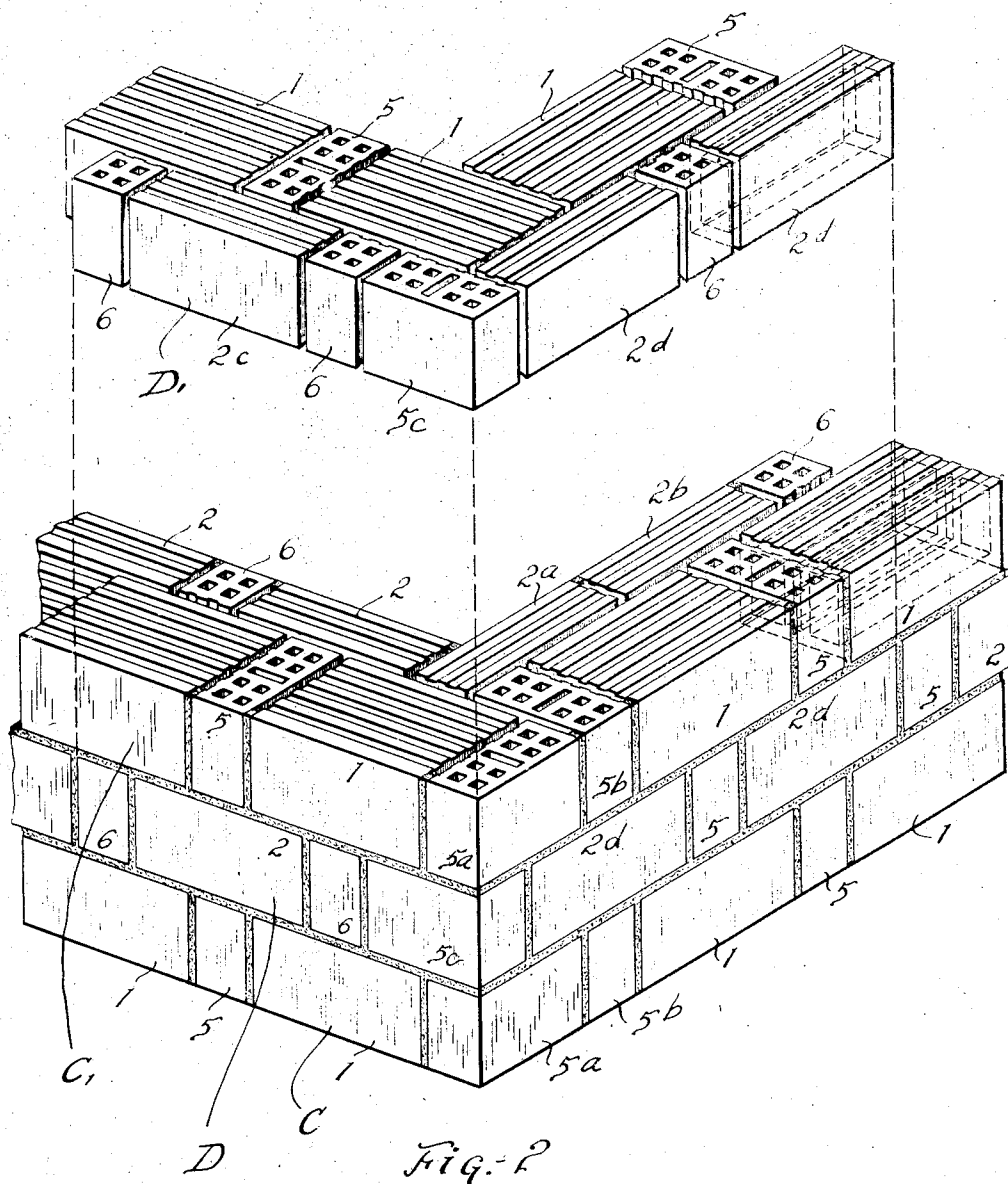
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3 Sheets-Sheet 2



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3 Sheets-Sheet 3

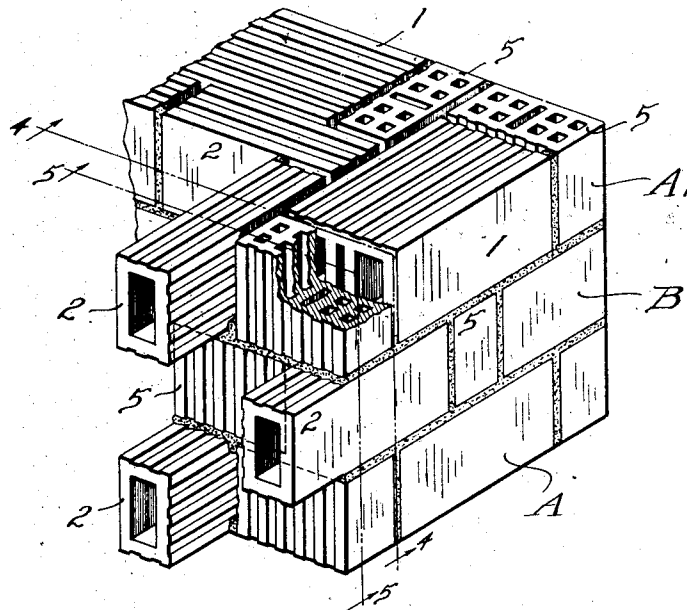


Fig.-3

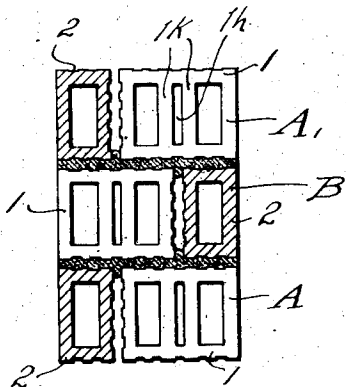


Fig.-4

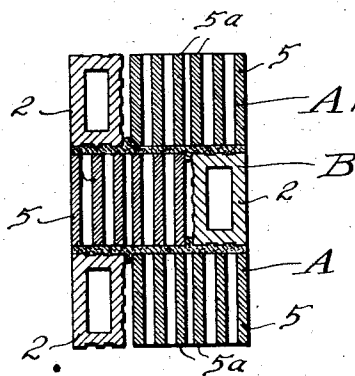


Fig.-5

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Patented Sept. 15, 1925.

1,553,858

UNITED STATES PATENT OFFICE.

FREDERICK HEATH, OF TACOMA, WASHINGTON, ASSIGNOR TO THE HEATH UNIT TILE COMPANY, OF TACOMA, WASHINGTON, A CORPORATION OF WASHINGTON.

HOLLOW-TILE FLEMISH-BOND WALL CONSTRUCTION.

Application filed August 15, 1921. Serial No. 492,343.

To all whom it may concern:

Be it known that I, FREDERICK HEATH, a citizen of the United States, residing at Tacoma, in the county of Pierce and State of Washington, have invented a certain new and useful Improvement in Hollow-Tile Flemish-Bond Wall Construction, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates to the construction of hollow walls by the use of hollow tile, having certain unique characteristics and relative proportions, whereby the wall may be constructed in a simple convenient manner, and have many advantages over the ordinary wall built of the usual hollow tile.

A particular object of the invention is to produce an effect both as relates to the mechanical construction of the wall and the architectural effect of the exterior of the wall, corresponding to walls built of brick and employing the Flemish bond method of laying, i. e., where the outer courses consist of alternate stretchers and headers.

In building such walls, I use as units of construction tile known as my single and double tile, the one having a single void and the other three voids, the central void of which corresponds to the natural longitudinal spacing between adjacent blocks in the same course, such as shown and described in my prior Patent No. 1,215,149, granted Feb. 6, 1917.

A more specific object of the present invention is to employ another standard tile unit known as my pilaster tile, and particularly shown, described and claimed in my co-pending application, Serial No. 378,056, filed May 1, 1920, which has matured into Patent No. 1,453,837 granted May 1, 1923, in such manner that I obtain the effect of a transverse as well as a longitudinal bond, while carrying out the theme of wall construction disclosed in the patent above named, that is, the even continuity of horizontal courses and mortar beds, with the vertical webs of all the blocks of the wall lying in a series of vertical planes and in direct vertical alignment and with the spaces between adjacent blocks in one course in corresponding vertical alignment with voids of the tile above and below.

The method of constructing a wall containing these advantages is illustrated in the

accompanying drawings, in which Fig. 1 is a perspective of a wall construction, a portion of which is illustrated above its natural position to show the relative connections between the elements of the tile as laid in an 8 inch wall; Fig. 2 is a corresponding view of my construction embodied in a 12 inch wall; Fig. 3 is a fragmentary view of a corner looking in another direction, and showing the relation of the single tile and bonding units; Fig. 4 is a sectional end elevation of three courses of the wall on the plane indicated by the line 4-4 of Fig. 3; Fig. 5 is a similar section taken substantially on the plane indicated by the line 5-5 of Fig. 3.

The wall constructed in accordance with the present invention is composed of two forms of blocks and divisions thereof. What I choose to designate as a double block consists of an oblong hollow tile having three longitudinal voids, the intermediate webs of which are arranged to provide a comparatively small central void corresponding to the normal distance between blocks or bricks in a vertical mortar joint. This block is shown and described in my Patent No. 1,215,149, with this block I use a single width corresponding to approximately one-half of the double block, having one internal void and whose dimensions correspond with the dimensions in the double block in length and height, while in width it is such that two single blocks plus a mortar joint equals the width of the double block. In the drawings the double blocks are designated 1, the single blocks 2.

In completing a wall embodying the Flemish bond construction, I use what I term my "pilaster tile", above referred to as disclosed in my co-pending application, previously herein designated. In the drawings these blocks are shown as 5. It will be noted that they correspond in length to the width of the double block, in height to the height of the double block, and they have a thickness or face length such that three of these blocks plus two intervening mortar joints equals the length of the double and single units 1 and 2. These blocks 5 adapt themselves readily to use for corner and pilaster construction and for end closures at the termination of a course of tile. It will be noted that they have essentially two side webs 5' and two intervening webs 110

5^e and an intermediate space 5^o corresponding to the space 1^h between the two intermediate webs 1^k of the double block, but instead of the open voids between the side webs and the intermediate webs 5^e I have two cross webs 5^m leaving four comparatively small voids 5ⁿ at each side of the central void. It will be noted also that this central void is so proportioned that the wall of the block is thinned at its middle portion 5^p, whereby it may be readily broken by the use of the mason's trowel or similar instrument, to make single blocks such as shown in the 12 inch wall at 6. The webs of the tile blocks 5, it will be noted, align both longitudinally and vertically with the corresponding webs of the double and single unit tile 1 and 2, wherever they occur by reason of the dimensions and arrangements shown, as clearly illustrated in Figs. 3 and 5.

Various advantages to be obtained from combinations and arrangements using the forms of tile above mentioned and shown in the drawings, have formed subject matter of other patents and pending applications, but in this instance what the inventor considers as essential in the present invention, is the use of these forms of blocks to obtain the architectural effect as to appearance and mechanical advantages of wall construction by an arrangement of alternate headers and stretchers in walls of various thickness, wherefore the wall construction of Fig. 1, showing the use of the double unit 1 and units 5 in a wall corresponding in thickness to the width of my standard double unit tile.

To lay up this wall a lower course A is started, using alternate headers and stretchers, in which the stretchers are the double unit tile 1 and the headers are the units 5, extending transversely through the wall, while at the corner a header 5^a is used to close the ends of the adjacent double unit and next to which comes a transverse tile 5^b, while next to this is a double unit 1^a, as shown at the right of the corner in Fig. 1. In the next course B a block 5^a is placed on the mortar bed overlapping the block 5^a below it, so that its outside surface is flush at the corner and extending over the adjacent end of the block 1. Next to this is a transversely laid block 5^c, and next to block 1, while running the other way from the corner is a block 1^b closed by a block 5^d extending over the corners and adjacent block of the course below and bonding over the block 1.

The next course A¹ appears in solid lines, as exposed before the application of the mortar and corresponds precisely to the arrangement of blocks in the course A. Above this is a subsequent course B¹ corresponding to the second course B and which is raised in the drawing for clearness of

illustration, while a relative position of the blocks of this upper course B¹ is illustrated in broken lines.

It will be noted that in each instance the corner blocks 5^a extend over approximately one-half of a similar block 5^d and its webs align with the corresponding webs of that similar block in the course B below, as well as in the course B¹ above. These corner blocks also overlap a double block 1, whereby the running bond is accomplished, and that portion of the block 5, which overlaps the block 1, has at least two of its webs (outer webs) in alignment with corresponding portions of the webs of the block 1 both above and below.

The transverse blocks 5 also have four webs (the end webs and webs 5^e) lying in the same vertical planes as the webs of the double blocks above and below and at the same time adjacent blocks 1 extend half-way to accomplish the running bond, but overlapping corresponding blocks 1 in the course above and below. It will be noted that the appearance of the wall is pleasing in that the monotony is broken and diagonal rows of headers may be followed with the eye as well as occurring alternately in the courses to make up vertical rows, while the even horizontal courses of stretchers remain uniform.

In the wall illustrated in Figs. 2 and 5 inclusive, I have shown a construction consisting of a width or a thickness of wall equivalent to a thickness of a double block and a single block plus a mortar joint. In building this wall the first course C is started as in the case of the wall just described, and the single blocks 2 are laid inside so that the exposed course C¹ of the upper portion of the wall in Fig. 2 corresponds to the lower course C and is referred to for convenience. In this course it will be noted that the closure block 5^a comes at the end of a double block 1, next to which is a transverse header 5^b as previously described, while extending from the corner is a stretcher block 1 positioned across the end of the corner block 5^c and a portion of a stretcher block in the course D, while next to it is a double block 1, a header and double block as shown.

At the inside of the corner is a single block 2^a closed at its end by the double block 1 at right angles thereto and which extends across the short side of the first header 5^b and along the adjacent double block 1. Next to this may be placed another single block 2^b extending across the end of the next header, equally each way therefrom, and to accomplish an even spacing or uniform bonding of these single blocks I may next use a short block or preferably a one-half part of the block 5, as shown at 6. These blocks 6 may be used wherever necessary, to accomplish the uniform bonding and to effective-

ly stagger the transverse mortar joints throughout the wall, so that the mortar joints of any one course do not extend in a single plane through the wall. Extending the other way from the corner is a single block 2^a, and for uniformity a block 6, and another single block 2, and so on.

The next course D, which corresponds to the second course D from the bottom of the wall is shown as raised above the body of the wall in Fig. 2. Here a corner block 5^c has one-half positioned over one-half of the block 5^a below and extends over the adjacent block 1 in the course C¹ for approximately a third of the length of the block. To obtain the even bonding and Flemish bond appearance of the wall, a block 6 may be used and next a single block 2^c followed by another half block 6. The other way from the corner, a single block 2^d is closed by one-half of the corner block 5^c, while next to this comes a block 6, then another block 2^d, and so on.

Inside of this outer course of single tile width, I may place a double tile to fill the corner. It will be noted that this double tile extends across one-half the inner face of the corner block 5^c and the entire face of the block 6, and overlaps the block 2^c, while below it this inside corner block 1 rests approximately upon one-half the width of the double block below it, and also bonds across the header block 5^b adjacent the corner and across the end of the single block 2^a, and lies over the end of the single block 2 extending in the other direction. Next to this inside double block at the corner, I may place a header block 5, the inner half of which lies across the middle portion of the single block 2 and registers with the inner half of the header block 5 in the course below. Following this I may continue to alternate double blocks 1 and inside headers 5. In the other direction the corner is completed by a double block, whose ends stand adjacent the side of the inside double corner block, while this inside course is completed by inside headers, stretchers 1 and 5 alternating.

It will be noted that when these courses are superimposed, the outside headers of one course overlap and register with one-half of the inside headers of the adjacent courses above and below, as clearly illustrated by Fig. 3, thus effectually transversely bonding the wall at close intervals, and without disturbing the continuity of the running bond in each course. It will be further noted that wherever the blocks 5 or 6 occur, their two middle webs and the four outside webs align with corresponding webs in the course above and below by reason of the registration incident to the alignment of outer faces or inner faces of the respective blocks. In a wall of the character just described, at least five longitudinal voids occur broken

only by the headers, which of themselves have a corresponding number of voids.

The alternate bond of the single and double blocks 1 and 2 each course with the course above and below, is illustrated by the cross sectional showing in Fig. 4. In this figure, it will be noted that sections taken at a point corresponding with the ends of the double blocks 1 of necessity cuts through the single blocks, shown as sections in this view. This feature is apparent from the perspective shown in Fig. 3, and is emphasized by the transverse section of Fig. 5, which section is taken through the headers. It will be noted that the webs of the headers align at the middle portion of the wall, while each header has at least two webs in vertical alignment with corresponding webs of the single units 2. It is clearly apparent in this figure that the webs 5^t of the block 5 in each case align with an end web of the header above and below, while its mate aligns with the inner webs of the single unit above and below.

This characteristic of the block lends itself to a very effective wall construction. The wall construction comprises, it will be seen, a series of uniform horizontal courses which when finished presents a uniform horizontal surface for a mortar bed, extending transversely through the wall, which facilitates the laying of the next course in true alignment. Each course is interbonded with the adjacent course in the thicker walls, where this feature is necessary both by the overlapping of the double and single tile as well as by the headers. All these features lend themselves to an exceedingly strong wall construction, one which is very economical to build. The simplicity of the units are economical to manufacture and the special characteristics of the units are such that unusual strength is obtained in addition to the particular advantages of the Flemish bond.

Having thus described my invention, I claim:

1. A wall construction, consisting of hollow blocks arranged in courses and comprising two forms of blocks, one form having three longitudinal voids, and the other form extending transversely of the wall and having vertical voids, its length being equal to the width of the longitudinal blocks and its height equal to the height of that block, and arranged in the wall at intervals without destroying the even continuity of the mortar beds the corners being formed by the vertical void blocks.

2. A wall including hollow blocks having longitudinal voids, laid horizontally in even courses and blocks laid transversely of said first named blocks having vertical voids and closing the ends of the longi-

tudinal void blocks, all of said blocks having the same height and width in the wall and adapted to be laid in inter-bonding relation, the vertical webs and shells of the blocks forming compression load bearing members in true vertical alignment, the corners being formed by the vertical void blocks whereby the relative offset of the Flemish bond relationship is established.

3. A building wall composed of horizontal courses, each course including blocks having three voids arranged parallel and extending longitudinally of the wall, and other blocks having vertically extending voids, the blocks being laid alternately with each other, the central void of the three void blocks being in direct vertical alignment with the corresponding voids of the blocks in the upper and lower courses, the blocks with the vertical voids being laid transversely of the wall and having an intermediate or median void thereof aligned with the central voids of the blocks in the courses above and below and having a width equal to the width of the three void blocks

and a height equal to the height of the three void blocks, and being adapted to be divided at said median void into equal sized units.

4. In a building wall of the character described, the combination of two forms of blocks, one form consisting of longitudinal blocks having three voids, the central void being narrow and the block being divisible into two equal parts making single longitudinal blocks, and closure blocks of a height and width equal to the three void block having webs and shells adapted to align with the webs and shells of the three void block in longitudinal and vertical directions and laid in even courses whereby each course is horizontal and continuous, the corners and intermediate bonds being formed by vertical void blocks while maintaining the continuous vertical alignment of the webs in both forms of blocks.

In testimony whereof, I hereunto affix my signature.

FREDERICK HEATH.