

Aug. 11, 1942.

T. O. RAAD
BUILDING BRICK OR BLOCK

2,292,771

Filed May 24, 1939

Fig. 1.

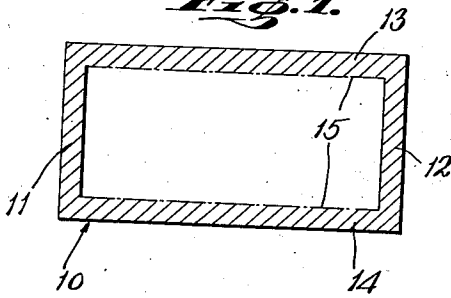


Fig. 2.

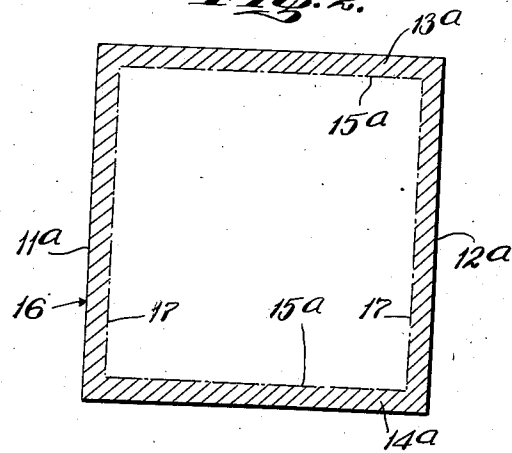


Fig. 3.

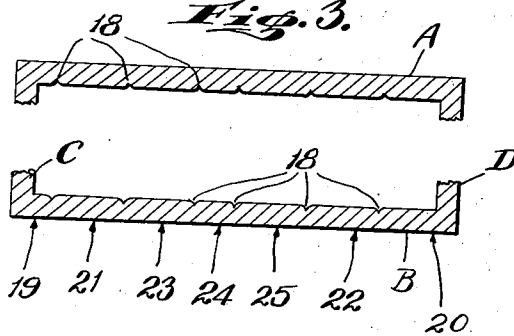


Fig. 4.

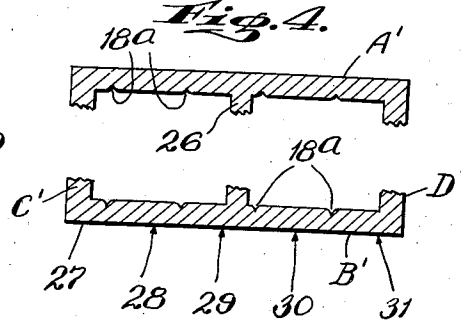


Fig. 5.

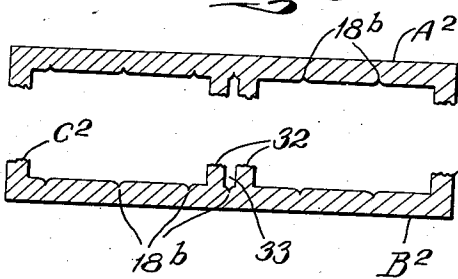
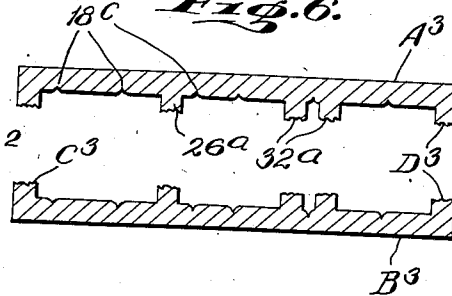


Fig. 6.



INVENTOR
THOMAS O. RAAD

BY
Samuel S. Thompson
ATTORNEY

UNITED STATES PATENT OFFICE

2,292,771

BUILDING BRICK OR BLOCK

Thomas O. Raad, Bronx, N. Y.

Application May 24, 1939, Serial No. 275,405

11 Claims. (Cl. 72-41)

This invention relates to building bricks or blocks, sometimes referred to as tile, and particularly to devices of this kind of the hollow type including the load bearing type adapted for use in the construction of complete walls, or as outer facing brick or block; and the object of the invention is to provide a brick or block of the class described which is so constructed as to adapt the same for subdivision into the smallest useable sizes as well as many intermediate sizes or subdivisions in any particular brick or block sizes and in what might be termed the single and dual brick construction, single from the standpoint of having a single chamber or series of chambers in a relatively narrow brick, or dual or multiple transverse chambers in a wider brick; a further object being to provide a brick or block unit of the character described wherein the several brick sections thereof may be of even dimensions or of odd dimensions, thereby adapting the brick unit to the construction of walls having regular or other bonds; a further object being to provide a brick unit of the character described wherein the use of a brick of single predetermined construction may be utilized in forming, by subdividing it into the different possible brick section sizes, the complete wall of a building, aside from the use of a few very special types of bricks or blocks when required; a still further object being to provide a brick or block unit of the character described wherein the several subdivisions thereof are made possible by oppositely disposed kerfs or weakened wall portions in forming the various brick sections; and with these and other objects in view, the invention consists in a brick or block of the class and for the purpose specified, which is simple in construction, efficient in use, and which is constructed as more fully hereinafter described and claimed.

The invention is fully disclosed in the following specification, of which the accompanying drawing forms a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which:

Fig. 1 is a diagrammatic sectional view indicating the general contour of one type and kind of brick or block which may be employed.

Fig. 2 is a view similar to Fig. 1 diagrammatically illustrating another general type and kind of block.

Fig. 3 is a broken sectional view illustrating one arrangement of kerfing to blocks of the type and kind illustrated in Figs. 1 and 2 and

produced what may be termed a single chambered block.

Fig. 4 is a view similar to Fig. 3 showing the adaptation of the invention to a block incorporating solid partition walls in forming multiple chambered blocks.

Fig. 5 is a view similar to Figs. 3 and 4 showing the adaptation of the invention to a block incorporating a pair of closely related solid partition walls with kerfs or weakened wall portions for dividing the brick or block into multiple chambers, and

Fig. 6 is a view similar to Figs. 3, 4 and 5 illustrating the adaptation of both solid partition walls and pairs of closely related solid partition walls to a brick or block dividing the same into independent chambers.

My present invention relates to the construction of brick or block units of the single longitudinal chamber series type, or transverse multiple chamber type as is taught in my Patent #2,086,989 dated July 13, 1937, as well as in the transverse multiple chamber type as is taught in my Patent #2,151,798 dated March 28, 1939, and still further to single chambered blocks wherein kerfings are provided on two opposed walls in the first group which, for example, I will term the narrow blocks, and on all four walls of the duplicate blocks which I will term the wide blocks. These kerfings are so arranged in the wall structure of the respective blocks as to make it possible to divide or sever the block into the smallest sections, for example, one inch sections, while at the same time making it possible to divide or sever the block into all possible even sizes or all possible uneven sizes, or in fact in combinations of even and odd sizes, odd and even in this sense being used in connection with the odd and even numbers.

It will also be understood that my invention is applicable to bricks, blocks or tile having outer finished surfaces of various types and kinds. That is to say, all outer surfaces may have one finish thereon, and this finishing in some instances may consist of scoring, or for example in the construction of tile, one surface may be scored or unfinished and the other three surfaces finished in a particular manner or two surfaces may be scored and the other two surfaces finished in another manner.

It will also be understood that the brick or block units may be constructed of many dimensions, both as to width, length and height, and in the several dimensioned brick or block sections, the kerfs will be arranged to produce the desired re-

sults in the use of the various sections when broken or severed to form the independent sections in the construction of a wall, to provide the desired or required bonding, as well as to maintain load bearing properties where load bearing is essential. The latter is especially true with respect to the arrangement of the single and double webs in the block unit as will be apparent from the following detail description.

To simplify the illustration and to avoid the necessity of showing the numerous adaptations of the invention, I have shown at 10 in Fig. 1 of the drawing, diagrammatically, a single or narrow block unit wherein the end walls 11 and 12 are unkerfed, whereas the side walls 13, 14 have their inner surfaces indicated by dot and dash lines 15 to designate that these surfaces may include kerfings or webs in any particular or desired arrangement longitudinally thereof in the production of different brick or block units.

In Fig. 2 of the drawing, I have shown at 16 a dual or wide block unit having end walls 11a, 12a and side walls 13a, 14a. The latter have inner surfaces indicated by dot and dash lines 15a, whereas the end walls 11a, 12a also have inner surfaces indicated by dot and dash lines 17, so as to indicate that the walls 11a and 12a may have a series of kerfs thereon as well as one or more longitudinal webs, that is to say, webs extending from the wall 11a to the wall 12a in crossed relationship with webs that may be extended between the walls 13a, 14a.

In Figs. 3, 4, 5 and 6 of the drawing, I have shown diagrammatically and in broken section, wall portions applicable to either type of brick unit shown in Figs. 1 and 2 of the drawing in the four possible types and kinds. For example, Fig. 3 is intended to illustrate what may be termed a single chambered block unit. Fig. 4 is to illustrate block units incorporating one or more single webs. Fig. 5 is to illustrate units incorporating one or more double webs, whereas Fig. 6 is to illustrate units incorporating one or more of the single and the double webs.

In Figs. 3 of the drawing, the walls A, B, may represent the walls 13, 14 of the block 10, or the walls 13a, 14a of the block 16, and the walls C, D, may represent the walls 11, 12 of the block 10 and the walls 11a, 12a of the block 16. It will also be apparent that the walls A, B, may represent the walls 12, 11 of the block 10, in which event the walls C, D, will be represented by the walls 13, 14, and the walls A, B, may be represented by the walls 12a, 11a of the block 16, in which latter event, the walls A and B are represented by the walls 13a, 14a.

In other words, a narrow single chambered block as in Fig. 1, may have on opposed walls A, B thereof, kerfings 18 at various spaced intervals longitudinally of the block to provide weakened wall portions where said blocks may be severed into two or more brick sections. These kerfings may be arranged with respect to one end wall C to form all inch sections as at 19 or all sections of other dimensions such as 2", 3" or even 4" sections, or various combinations of all odd dimension sections, of even dimension sections or a combination of odd and even dimension sections. For example, in Fig. 3, the section 20 near the end wall D could be a 2" section, whereas the section 21 extending to the wall C, could be a 3" section. The section 22 extending to the wall D could be a 4" section and the section 23 extending to the wall C could be a 5" section. Assuming that the block is a 12" block, severing the

block on the center kerf would form two 6" sections, and it will thus appear that the section 24 extending to the wall D would form a 7" section. The section 25 extending to the wall C would form an 8" section. The section 23 extending to the wall D would form a 9" section. The section 22 extending to the wall C would form a 10" section, and the section 21 extending to the wall D would form an 11" section.

In connection with the foregoing it will be understood that where two small sections are removed from one brick or block unit, any remaining sections can be used as fill-ins as and where required. In other words, the diagrammatic illustrative lay-out in Fig. 3 of the drawing, shows one of many possible combinations of kerfings applicable to a single chambered narrow block. The same would also be applicable to the wider type of block shown in Fig. 2 which would have one or more transversely spaced webs of the single or double type so as to provide two or more longitudinal chambers spaced transversely of the block or between the walls 13a, 14a. This would also be applicable to blocks of the type shown in Fig. 2 of the drawing having other transversely spaced kerfings.

In Fig. 4 of the drawing the walls A', B', C' and D' have the same general relationship to the walls of the blocks of Figs. 1 and 2 as does the block shown in Fig. 3, but in this illustration, a shorter block is shown simply to indicate another adaptation of the invention; that is to say, a 9" block is shown having a central solid web 26. It will be understood, however, that the block of Fig. 4 is intended to diagrammatically illustrate the types and kinds of blocks wherein solid webs only are employed, and one or more of these webs may be arranged throughout the block depending entirely upon the type and kind of block to be produced, as well as the size and dimensions thereof. In this construction, kerfings 18a are shown to divide the block into a 1" section 27 and a series of 2" sections 28, 29, 30 and 31, which makes it possible to break or sever the block into 1", 3", 5", 7" and 8" sections as well as 2", 4" and 6" sections. It will be apparent, however, that the different arrangement of kerfings may be provided as in the teachings in Fig. 3 of the drawing.

Considering the structure of Fig. 4 from the standpoint that the walls A' and B' represent the walls 11a, 12a, it will be apparent that in such instance, the web 26 would form a single subdivision longitudinally of the block, and the walls C', D' may have any desired arrangement of kerfings and/or web or webs spaced longitudinally thereof in accordance with the teachings in Fig. 3 as well as in the teachings in Figs. 5 and 6, later described.

In Fig. 5 of the drawing, I have diagrammatically illustrated another general type and kind of block wherein the wall portions A2, B2, C2 and D2 are similar to the walls A, B, C, and D. This construction is to diagrammatically illustrate the use of one or more double webs 32; that is to say, two closely arranged solid webs joined by an opening 33. In this construction the kerfings are indicated at 18b, and one of these kerfings extends into the opening 33 as will be apparent. The block diagrammatically shown in Fig. 5 being of the same general size as that shown in Fig. 3, will have, for illustrative purposes, a same arrangement of the kerfings as is shown in Fig. 3, to illustrate the possibility of severing the block into the many odd sizes as described in con-

nection with the structure shown in Fig. 3. Therefore, no further detail description is necessary in this connection with respect to Fig. 5 of the drawing, it being understood that any desired arrangement of odd, even, or combination of odd or even kerfings may be employed and any number of the dual webs may be provided.

In considering the block illustrated in Fig. 5 from the standpoint that the walls A2 and B2 represent the walls 11a, 12a of the block as shown in Fig. 2, it will thus be apparent that the structure of Fig. 3 as well as the structure of Fig. 4 may be incorporated in the wall C2, D2, and in fact a combination of single webs and dual webs as taught in Figs. 4 and 5 may be incorporated in conjunction with the walls C2, D2, and with one or more of the longitudinal dual webs 32, depending entirely upon the width of the block being produced. In this connection, it will also be apparent that at one side of the block as last considered, a continuous hollow chamber may be formed, let us say for example, between one part of the dual webs 32 of the wall C2, whereas between the other part of the web 32 and the wall D2, the block may be divided by one or more single or dual webs.

In Fig. 6 of the drawing the walls A3, B3, C3 and D3 again will be the same in their relationship to the structure shown in Figs. 1 and 2 and as the block shown in Fig. 3. Fig. 6 is shown to diagrammatically illustrate the arrangement of single webs 26a and dual webs 32a in a single block construction, one or more of each of these webs being employed. Here again the kerfings 18c are shown, for illustrative purposes, in the same arrangement as in Figs. 3 and 5 of the drawing, but may be arranged in any desired manner in the odd, even or combination of odd and even brick section sizes. It will be understood, however, that in all cases, the arrangement will be consistent with the location of webs and consistent with the type of webs employed, whether the same be single as at 26a or double as at 32a.

With the block unit as diagrammatically illustrated in Fig. 6, it will also appear that the walls A3, B3 may represent the walls 11a, 12a of the block as illustrated in Fig. 2, in which event the walls C3, D3 may be kerfed in the manner taught in connection with the showing in Figs. 3 to 6 inclusive, and also may have the structure of the blocks shown in Figs. 3, 4 and 5, and in fact, include the combination of webs as shown applied to the walls A3 and B3. In fact the longitudinal brick sections between the walls C3 and web 26a between the webs 32a and wall D3 or between the webs 26a, 32a, may each have a different arrangement of webs, or in fact, may have no webs whatever as in Fig. 3.

In all of the forms of blocks based on the illustration in Fig. 2 of the drawing, that is to say, blocks wherein one or more of the longitudinal webs are employed, and especially where one or more of the transverse webs are also included, that such blocks may be broken up or severed into various building blocks of irregular contour, such for example as different kinds of jamb blocks, corner blocks, flashing blocks, pipe chases, stretchers, beam seats, beam fillers, lintels, sills, etc., which result would be accomplished by removing corner, center or other sectional parts of a building brick unit.

It will of course be understood that the brick or block units described and diagrammatically illustrated are adapted for producing load bear-

ing as well as non-load bearing types. Blocks of this kind are also adaptable for use in the construction of interior partitions as well as complete exterior walls, in which latter instances, the facings will be constructed to adapt them to the respective uses. In this connection it will also be understood that with the different types of blocks under consideration, the same may be laid horizontally or vertically and in some instances in the construction of a wall, may be laid both horizontally and vertically.

It will be understood that the arrangement of the webs in the various block unit sizes will be such as to provide the desired load bearing properties when the sections are arranged in a predetermined bonding in brick or block units of the load bearing type. In some instances and in utilizing the minute subdivisions of the sections of the blocks as herein taught, a removed section may constitute in fact a solid block construction, whereas in most instances, the block becomes a hollow or chambered block, the chamber of which may be open or closed depending entirely upon the arrangement of the webs in the unit.

It will be understood that the webs may be of different dimensions and contour in different blocks, and the particular type of voids or kerfings provided may also be varied in contour and arrangement so as to provide the weakened wall portions where desired in a particular unit. It will also be apparent that in referring to various brick or block sizes as well as the dimensions of sections thereof, that in all instances, compensation may be made for the mortar disposed between adjacent sections to provide a proper bonding arrangement in a wall structure.

By this mortar compensation is meant that the over-all dimensions of a brick or block may be a standard dimension minus the clearance allowed for a mortar joint of predetermined dimensions. This is, of course, also true in allowances made in dimensions of part or all of the sections severed from a brick or block. In some of these instances the smallest removable section from a brick or block need not necessarily represent a dimension which would be a true divisor of the entire over-all dimension of the brick or block.

From the foregoing description when taken in consideration with the diagrammatic illustrations in the accompanying drawing, it will be understood that narrow brick units of more or less oblong construction are provided, either with a single chamber therein or with a plurality of chambers spaced longitudinally thereof, the chambers being subdivided by one or more dual webs or by combination of single webs and dual webs. In fact, with this type of block it is within the spirit of my invention of producing a unit having webs extending throughout the full length thereof at equally spaced intervals so that the unit might be divided into even dimension sections, each having a single transverse wall or web therein, while at the same time breaking the same up into sections, each having one, two or more walls or webs therein. On the other hand, with the construction according to the teachings in Figs. 2 of the drawing as exemplified with the teachings shown in Figs. 3 to 6, a brick or block may be oblong and rectangular in form or may be of square construction. In each instance, one or more of the longitudinal webs may be employed.

It will be apparent from a consideration of the foregoing description that in each of the possible

brick or block units formed in accordance with my invention, that in addition to producing the many dimensioned brick sections from a unit and the possibility of producing the small dimensioned sections, that with the present construction end sections may be severed from the unit which would have chambers opening through one side of the removed section to form a removed section having three outer walls, thus forming what might be termed a U-shaped outer wall construction. It will of course be apparent that in some of these instances, where a longitudinal web or webs are employed, these webs would form two or more chambers opening through the one side of the removed section, and such sections will also be regarded as U-shaped sections. It will also appear that in removing some of the intermediate sections, substantially T-beam sections will be formed where the webs are employed, whereas with hollow units of the type shown in Fig. 3, sections removed intermediate end sections would simply form slabs. It will further appear that where units of the type and kind illustrated in Fig. 2 are employed, all webbing will be kerfed in alignment with the kerfings provided on opposed walls so as to facilitate clean breakage or severing of the units into clean-cut sections.

From the standpoint of utilizing a single brick or block unit in the construction of walls of buildings and particularly outer walls, it will of course be understood that two or more different sized units may be supplied so as to construct what is commonly referred to as random bonding where different heights of brick units are employed, for example, one series of brick units may be double the height of another series of brick units, and the same interlocked in producing the irregular or random bonding.

It will be apparent that it is not absolutely essential that in all instances a rectangular or complete four-walled brick or block be initially provided. Such blocks as bull-nose blocks, that is to say, blocks having at least one corner rounded, are required in some types of building constructions, and in other instances, it is desirable to pre-fabricate the complete block with a chamber opening outwardly through one wall portion thereof in using such types of blocks as jamb blocks, lintels, for all uses including the mounting of steel sash and the like.

It will also be understood that the various outer walls of the brick or block units may be of any desired cross sectional contour. That is to say, they may consist of one dimensioned walls throughout the entire length thereof, except for the kerfings and webbing employed, or these walls may be of the hollow or irregular cross sectional contour to provide wide mortar beds which would also provide for a keying between adjacent blocks and also for the purpose of providing added load bearing properties without materially increasing the weight of the entire unit.

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

1. A hollow building block or brick having opposed walls connected by transverse webs, a plurality of kerfs arranged along said opposed walls in such manner that said block or brick may readily be severed into various sizes and shapes, and said kerfs being spaced from an end of the block or brick, a distance of one inch and multiples of one inch.

2. A hollow building block or brick unit having

vertically extending voids therethru, said unit being adapted to be used as a full closure and stretcher type of block or brick, a plurality of weakened wall portions spaced in such a manner that said unit may readily be severed into various shapes and sizes, and said weakened wall portions spaced from the center of the unit a distance of one inch and multiples of one inch.

3. A hollow building block or brick having opposed longitudinal walls connected by transverse webs, said walls having oppositely disposed kerfs arranged along the inner surfaces thereof, and said kerfs being spaced from the end of the block or brick and from each other a distance which is a divisor of either dimension of said block or brick.

4. A hollow building block or brick unit having opposed walls connected by transverse webs, said unit being adapted to be used as a full closure and stretcher type of block or brick, said unit having a plurality of weakened wall portions forming cleavage points arranged along the inner surface of said opposed walls in such a manner that said unit can readily be severed into various sizes, shapes and types, and said cleavage points being spaced from the end of the unit, distances equal to predetermined multiples of a fractional part of an inch.

5. A hollow building block or brick unit having opposed walls connected by transverse webs, said unit being adapted to be used as a full closure and stretcher type of block or brick, said unit having a plurality of weakened wall portions forming cleavage points arranged along the inner surface of said opposed walls in such a manner that said unit can readily be severed into various sizes, shapes and types, said cleavage points being spaced from the end of the unit, distances equal to predetermined multiples of a fractional part of an inch, and the distance between at least two cleavage points and the adjacent cleavage point being a different dimension.

6. A hollow building block or brick unit having opposed walls connected by transverse webs, said unit being adapted to be used as a full closure and stretcher type of block or brick, said unit having a plurality of weakened wall portions forming cleavage points arranged along the inner surface of said opposed walls in such a manner that said unit can readily be severed into various sizes, shapes and types, said cleavage points being spaced from the end of the unit, distances equal to predetermined multiples of a fractional part of an inch, and said unit having at least one longitudinal line of cleavage points for subdividing the unit longitudinally thereof.

7. A hollow building block or brick unit of the full closure and stretcher type, having opposed walls connected by transverse webs, at least two of the opposed walls being of irregular cross-sectional contour to provide a wide mortar bed and means for keying blocks or bricks of adjacent courses and also providing additional load-bearing properties, said opposed walls having oppositely disposed weakened wall portions forming cleavage points arranged along the inner surfaces thereof in such a manner that said unit can readily be severed into various sizes, shapes and types, and said cleavage points being spaced from the end of the unit, distances equal to predetermined multiples of a fractional part of an inch.

8. A hollow building block or brick having spaced longitudinal walls connected by transverse webs, a plurality of opposed cleavage points

along said longitudinal walls spaced in such a manner that said block or brick may be severed into various shapes and sizes, and one of said opposed cleavage points spaced from the end of the block or brick, a distance equal to the thickness of the block or brick plus one-half the width of a mortar joint plus one-half the length of the block or brick.

9. A hollow building block or brick having spaced walls connected by transverse webs, a plurality of oppositely disposed cleavage points along said walls, and one of the cleavage points spaced from the end of the block or brick a distance equal to a length obtained by subtracting the thickness of the block or brick plus one-half the width of a mortar joint from one and one-half times the length of the block or brick.

10. A hollow building block or brick having outer walls connected by transverse webs, at least two of the outer walls being of irregular cross-sectional contour to provide a wide mortar bed and means for keying blocks or bricks of adjacent

courses and also provide additional load-bearing properties, a plurality of opposed cleavage points along the inner surfaces of said walls, and one of the opposed cleavage points spaced from the center of the block or brick a distance equal to the thickness of the block or brick plus one-half the width of a mortar joint.

11. A hollow building block or brick having outer walls connected by transverse webs, at least two of the outer walls being of irregular cross-sectional contour to provide a wide mortar bed and means for keying blocks or bricks of adjacent courses and also provide additional load-bearing properties, a plurality of opposed cleavage points along the inner surfaces of said walls, and one of the opposed cleavage points spaced from the center of the block or brick a distance obtained by subtracting the thickness of the block or brick plus one-half a mortar joint from the length of the block or brick.

THOMAS O. RAAD.