Jan. 18, 1966 G. F. STROBEL 3,229,439

UBIETOUS BLOCK

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FIG_1

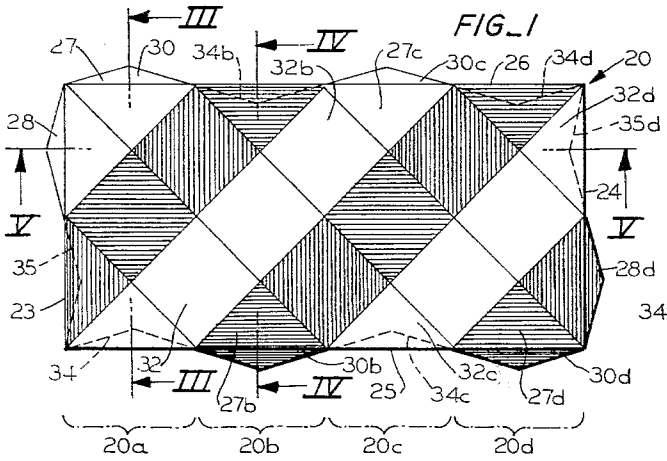


FIG_3

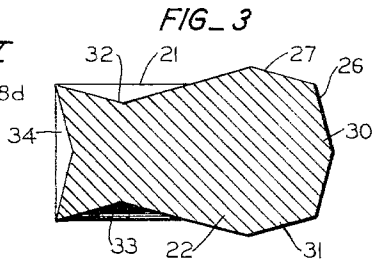


FIG_2

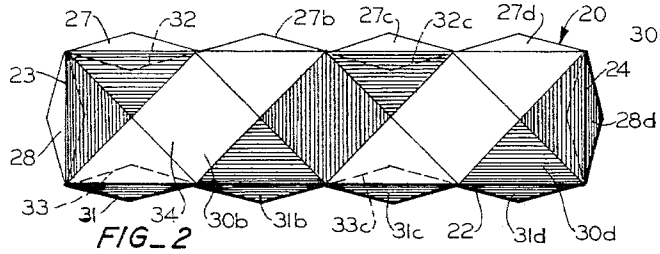


FIG_4

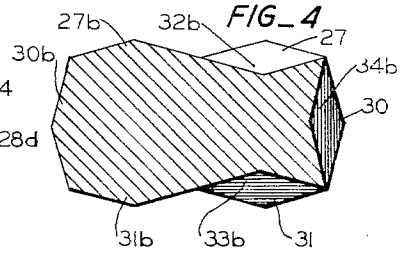


FIG_6

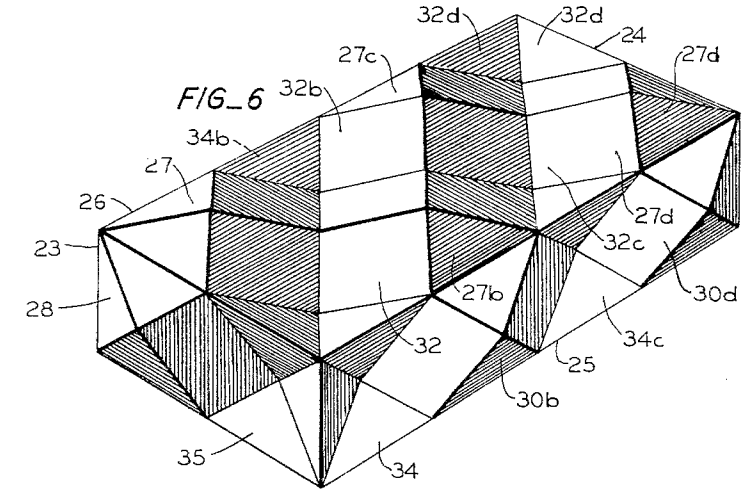
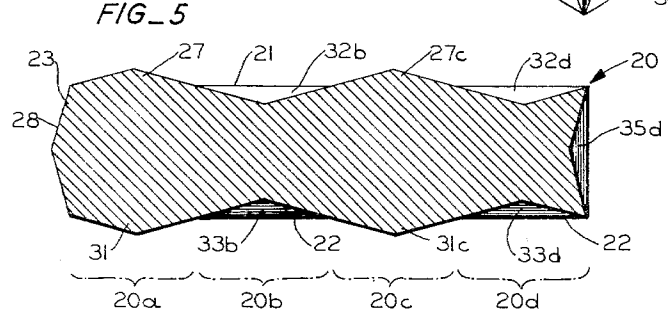


FIG_5



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UBIETOUS BLOCK

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FIG_7

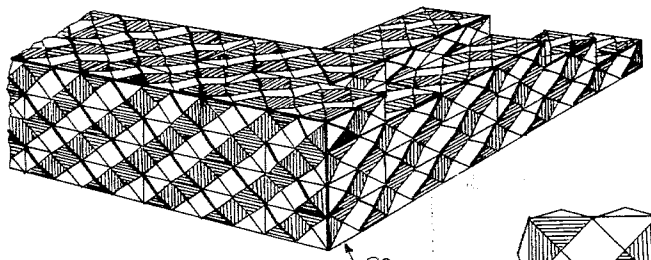


FIG_8

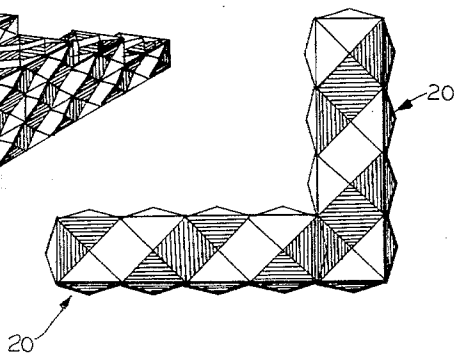


FIG_9

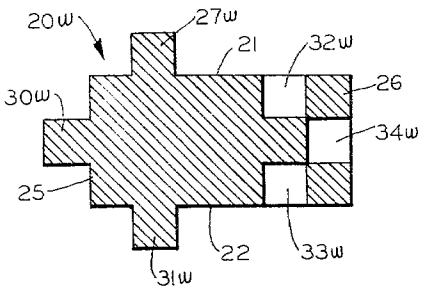


FIG_10

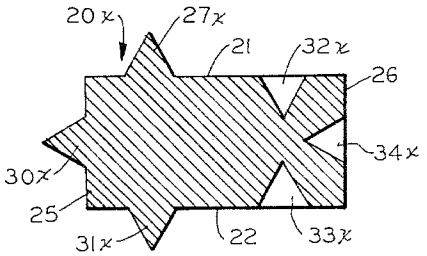


FIG_11

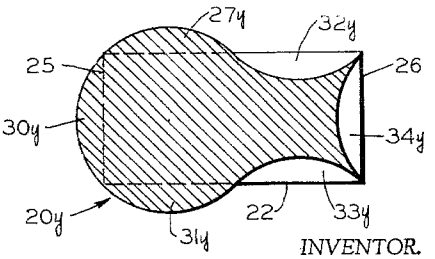
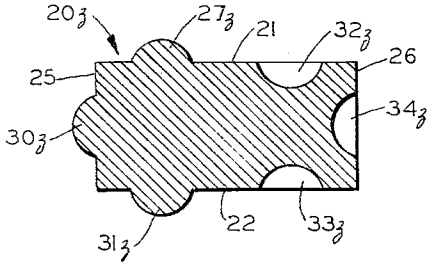


FIG_12



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3,229,439

UBIETOUS BLOCK

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3 Claims. (Cl. 52—591)

The invention relates to a six-sided block which has inherent advantages for interlocking strength, for texture and for design. It finds particular usefulness as a building block much the same as common brick, and for numerous other uses and purposes.

The common six-sided brick has been in use for hundreds of years as a primary building element, and although it has varied in size, it has always had dimensions which would permit modular use in almost any combination. In general it has always been twice as long as its width and one-fourth as thick as it is long. With such a modular shape it was possible to use half bricks, quarter bricks and even eighth bricks in combination with whole bricks in order to achieve various designs, shapes and contours with respect to any particular building unit.

It is therefore an object of the present invention to provide a building unit element which will maintain the advantages of the common brick form and which will achieve in addition an increased usefulness, both in structural integrity and in aesthetic appeal.

It is an object of the present invention to provide a primary building element or block which is based upon a surface configuration of one male and one female, or one convex and one concave portion of any suitable geometric design, mating with each other with respect to any of its six faces.

It is a further object of the invention to provide a primary building element which mates with another similar building element or portion thereof on any of its six sides to form a building unit.

It is a further object to provide primary building elements which are mutually self-aligning and will lay up in true vertical, lateral or angled positions with a minimum of skill and without the use of special tools.

While it is not quite accurate to say that the building unit of the present invention interlocks with other similar units, nevertheless there is a sufficient mating to provide an interrelationship or interlocking so that it is reasonable to state that it is an object of the present invention to provide an interlocking building unit which will accomplish this function on all six sides and provide higher shear strength than has heretofore been obtainable with flat-sided building units such as brick.

It is another object of the present invention to provide a building unit or block in which the interlocking effect is sufficient to require a minimum of mortar or other adhesive to join them together into a unitary structure.

It is a further object of this invention to provide a unit building block where the joints can be staggered at any multiple of the primary element.

It is another object to provide an inter-related or interlocked building block unit where the joints have superior resistance to moisture penetration.

It is still another object of the invention to provide a unitary building block which can be made of any suitable material such as glass, plastics, clay, concrete or other natural or artificial solid building material.

It is a further object of this invention to provide interlocking or inter-mating building block units which are suitable for non-mortared or temporary work, for professional model building, architectural treatments of walls, artistic displays, or any other work where stability and an attractive surface are desired.

Instead of the plain face of a brick wall, it is an object

of the present invention to present a design or textured surface based upon the particular male and female shapes employed in the unit block.

It is still another object of the present invention to provide a building block unit of cubes, tetrahedrons and the like, which will function to interlock in a similar manner, in all cases where the turns are the conventional 90° angles and in all other angles with no mating at the ends.

Further objects are to provide a construction of maximum simplicity, economy and ease of assembly and disassembly, also such further objects, advantages and capabilities as will fully appear and as are inherently possessed by the device and invention described herein.

The invention further resides in the combination, construction and arrangement of parts illustrated in the accompanying drawings, and while there is shown therein a preferred embodiment thereof, and several variant forms, it is to be understood that the same is merely illustrative of the invention and that the invention is capable of modification and change and comprehends other details of construction without departing from the spirit thereof or the scope of the appended claims.

Referring to the drawings:

FIGURE 1 is a top plan view of a building unit block where the alternating male and female forms are four-sided equilateral pyramids having a very low elevation, or depression as the case may be;

FIGURE 2 is a side elevational view of the basic building unit;

FIGURE 3 is a transverse sectional view taken on the line III—III of FIGURE 1, and looking in the direction of the arrows;

FIGURE 4 is a transverse sectional view taken on the line IV—IV of FIGURE 1, and looking in the direction of the arrows;

FIGURE 5 is a longitudinal section taken on the line V—V of FIGURE 1, looking in the direction of the arrows;

FIGURE 6 is a perspective view of the block shown in plan view in FIGURE 1;

FIGURE 7 illustrates schematically the use of this building block unit in staggered relation as is customary in the laying of bricks in the making of a wall having a right angle turn;

FIGURE 8 is a schematic side elevational view of one block shown making a 90° vertical turn with another block;

FIGURE 9 is a variation of the block in which a cube or cylinder is used instead of the pyramidical forms shown in FIGURE 1;

FIGURE 10 is another variant form where the four-sided pyramidical form or a cone form interlocking extensions have depressions inward of the faces of the normal building element;

FIGURE 11 is a sectional view of a building unit where the male and female forms are spherical; and

FIGURE 12 is still another variant where the interlocking forms are either extending domes or hemispherical depressions spaced inwardly.

Referring now more particularly to the drawings, and particularly to the basic forms which are shown in FIGURES 1 to 8 inclusive, it will be seen that fundamentally the rectangular shape of the building block **20** is maintained. For ease of explanation and for better understanding of the present invention, the block **20** will be divided into four quarters, **20***a*, **20***b*, **20***c*, and **20***d*, each one of the quarters containing a system of male and female extensions or depressions. The numeral **21** represents the line for the top surface and **22** for the bottom surface. Likewise, the vertical planes of the end walls **23** and **24** are provided with male and female shapes or

portions. Furthermore, the sidewalls **25** and **26** are provided with alternately arranged male and female shapes. Looking at the quarter unit **20***a* and with particular reference to FIGURES 1, 2 and 3, it will be observed that the upper half is the male unit and is provided with a four-sided equilateral pyramidical extension **27** rising above the top surface **21**. The end wall **23** is provided with a substantially identical equilateral pyramidical form **28** and the sidewall **26** has its pyramidical extension **30**, while the bottom surface **22** has a substantialy identical pyramidical extension **31**. Thus the four adjacent surfaces have substantially identical outwardly extending pyramids which cover all of the available area in each instance.

The lower half of the quarter section **20***a* is the female portion integral with the male portion having a corresponding equilateral pyramidical depression **32** in the top surface **21**; a substantially identical depression **33** in the bottom surface **22**; a substantially identical depression **34** in the sidewall **25**, and still another depression **35** in the end wall **23**. Thus, in the end quarter **20***a* the four exposed surfaces have substantially identical geometric pyramidical forms **27**, **28**, **30** and **31** rising above their respective surfaces and the other half have identical and conforming pyramidical depressions **32**, **33**, **34** and **35** in its four surfaces. The transverse mid-section of the quarter **20***a* is shown in FIGURE 3. The angle of the pyramidical extensions and depressions may be from one to forty-four degrees in altitude but it has been found in tests and by experience that the ten degrees of elevation or depressions shown in the drawings is superior and provides the optimum results.

Referring now to the next adjacent quarter section **20***b* and with reference to FIGURE 4, the male pyramidical extensions are in reverse position on the top and bottom surfaces **21** and **22** respectively, and are indicated as **27***b*, **30***b* and **31***b*. Since the section **20***b* is contiguous and integral with sections **20***a* and **20***c*, it has no end walls. The corresponding female pyramidical depressions are indicated **32***b*, **33***b* and **34***b*. Here again, only the top, side and bottom surfaces are considered because of the integrity of the sections.

The next unit for purposes of description is **20***c* and this likewise is contiguous and integral with **20***b*. It is substantially identical with section **20***a*. On its top surface **21** it has the raised pyramid **27***c* and the corresponding depressed pyramidical shape **32***c*. On the vertical sidewall **26**, it has the outward extending pyramid **30***c* and on its opposite sidewall **25** it has the depressed pyramidical shape **34***c*. On the bottom surface **22** it has the pyramid **31***c* and the pyramidical depression **33***c*.

The next contiguous section is **20***d* and this conforms substantially with the section **20***b* except it has the end wall **24** in addition. It will be observed that section **20***d* is the reverse of section **20***a*. This section has the pyramid **27***d* in the corresponding position of **27***b* and the pyramidical depression **32***d* adjacent thereto on the top surface **21**. On the bottom surface **22** it has the pyramidical depression **33***d* and the raised pyramid **31***d*. On the sidewall **25** it has the raised pyramid **30***d* and on the opposite sidewall **26** it has the pyramidical depression **34***d*. On the end wall **24** it has the raised pyramid **28***d* and the pyramidical depression **35***d*.

It will be observed that on every surface the relationship of pyramids and pyramidical depressions alternate and reverse so that on each surface there is alternately a raised pyramid and a depressed pyramidical portion. This is not true, however, of the juncture of the surfaces as will be observed from FIGURES 1, 2, 3 and 4 where there is a raised pyramid on the top surface, there is a corresponding raised pyramid on the bottom surface and a raised pyramid on the sidewall between the juncture of the top and bottom surfaces. Where an end wall is involved there is likewise a raised pyramid between the top and bottom surfaces.

The converse is also true with respect to the pyramidical depressions. The top and bottom surfaces having pyramidical depressions are in the same relative location and the intersecting sidewalls between said sections have corresponding pyramidical depressions. Where an end wall is concerned, the end wall between the two surfaces likewise has a depression.

It is thus apparent that a block such as shown in FIGURE 1 will readily mate or nest with another block in exactly the same relative position, i.e., bottom surface **22** against the upper surface **21**, by moving the upper block either one quarter section or three quarters section. If placed in a continuous, contiguous line, the pyramid **28** of one block will be received in the pyramidical depression **35***d* of the next block, while the pyramid **28***d* will enter into and be received by the depression **35**. If placed side-by-side in a horizontal plane, the corresponding pyramids and depressions will mate precisely where the blocks are not offset relative to each other, or offset one half block.

On the other hand, if a half block vertical sequence is indicated, then the next upper row of blocks is rotated 180° so that the pyramid **27** will be received in the depression **32**.

Thus, in every position whether by half or by quarter increments or by whole increments, the blocks will mate one with the other and interlock to an extent that very little mortar or other cementitious material is required to hold them in interlocked position giving especial integrity and unusual strength to the wall formed thereby.

Referring to FIGURE 7, the conventional positioning of blocks in one half overlapping relationship, according to brick laying procedures, is shown and as indicated above, the blocks such as shown in FIGURE 1 will mate perfectly in forming such a wall. Obviously it is intended that the blocks **20** shall be the same for the entire wall and that it is not intended for use in conjunction with normal bricks or blocks. The rectangular blocks of FIGURE 7 are intended to be the same as the block **20** and only one block **20** is shown because of the difficulty of satisfactory representation by drawing.

FIGURE 8 shows the interlocking of the block **20** with a similar block **20** in a diagrammatic side elevational view.

Referring now to FIGURES 9 through 12, these all represent variant geometric forms which may be substituted for the raised pyramids and depressed pyramidical shapes shown and described with respect to FIGURE 1. FIGURES 9, 10, 11 and 12 are transverse vertical sections taken on a line which would correspond with the line IV—IV of FIGURE 1.

In FIGURE 9, the shapes **27***w*, **30***w* and **31***w* extend out from the top surface **21**, the sidewall **25** and the bottom surface **22**. It is noted, however, that the shapes do not cover the entire area of the portion corresponding to the pyramids **27**, but are spaced inwardly and centrally in their respective areas. Exactly the same type of interlocking is obtained, only perhaps more positively because of the greater depth and the greater amount of angular contact and interlocking. However, precisely the same result is obtained in precisely the same manner as before described in connection with the building block member **20**. It should also be noted that the drawing of FIGURE 9 represents cylindrical shapes as well as cubes.

In FIGURE 10, there is a raised pyramid **27***x*, **30***x*, and **31***x*, but as in the case of the block **20***w*, the pyramid does not cover the entire area of the pyramid **27** and is higher in altitude. Accordingly, the depressions for receiving the pyramids, which are depressions **32***x*, **33***x* and **34***x* are correspondingly deep and centered within the area. Here again, the drawing of FIGURE 10 represents cone shapes as well as pyramidical shapes.

As shown by FIGURES 11 and 12, it is not necessary to maintain any angularity in order to obtain the advantages of this invention. A dome **27***y*, **30***y* and **31***y*

covering the entire area may be used to mate with corresponding spherical dimples 32*y*, 33*y* and 34*y*.

Even the domes do not need to be of a size to cover the entire area but may be less in area as shown by the domes in block 20*z* of FIGURE 12. Here the domes 27*z*, 30*z* and 31*z* are spaced inwardly and centrally of the area and are adapted to be received in the corresponding dimples such as 32*z*, 33*z* and 34*z*.

It is apparent that in all or any forms either illustrated in the drawings or devised by those skilled in the art, will all operate identically and will accomplish each and all of the advantages set forth in addition to many others. The term ubietous is particularly appropriate because of the importance of the face-to-face relationship, regardless of which face, which is characteristic of this type of block. The interlocking of the various forms provides a stable integral wall of great integrity and strength with a minimum of mortar and cementitious material, and at the same time providing an interesting and unusual texture to the wall surface.

It is equally apparent that the interlocking forms and shapes may be of almost infinite variety but that the essentials and fundamental concept is described with respect to the block 20 of FIGURES 1 to 5 inclusive.

It will be observed that the building block of the present invention is a parallalepiped with all faces rectangular.

As shown in FIGURE 7 the bottom blocks should have a flat surface in order to rest properly on a foundation or mud sill. Likewise it may be necessary to have the top of a wall, for example, flat. Both can be accomplished by having at least one surface plain and without any raised or depressed portions. Various combinations may be required, such as having one or both of the ends plain either alone or in combination with another flat surface. All of these are contemplated as a part of this invention.

I claim:

1. A six sided building block interlocking at any one of its six sides with any other such block at any one of its six sides, comprising a plurality of juxtaposed integral primary elements, each primary element composed of a pair of uniform size cubes joined symmetrically at one entire face, one cube having a convex pattern form on its exposed faces and the other having a complementary concave pattern on its exposed faces each interlocking with similar complementary concave and convex patterned faces of other identical blocks, said primary elements being juxtaposed in reverse units, each of said building blocks when composed of one or more of said primary elements having the convex patterned faces on all exposed surfaces at one corner thereof with the mating concave patterned faces on all exposed faces at the adjacent corner.

2. A modular six sided building block having a plurality of primary elements joined integraly side by side, said block having surfaces interlocking with identical blocks on any of its six sides, said primary elements being a pair of uniform size cubes joined symmetrically at one face, one cube having a uniform raised pattern on each of its exposed faces and the other cube having a uniform complementary depressed pattern on each of its exposed faces, said primary elements being arranged side by side alternately reversed, each of said building blocks when composed of an even number of said primary elements having the raised symmetrical shape on all exposed faces of one corner cube with the complementary depressed symmetrical shape on all exposed faces on the adjacent corner cube.

3. A self-aligning uniform building block having the six surfaces of a rectangular parallelepiped comprising a plurality of integral primary elements arranged side by side, each of said primary elements being uniformly sized cubes symmetrically joined at one face, one of said cubes having a raised symmetrical geometric shape on each of its exposed surfaces and the other cube having a depressed complementary symmetrical geometric shape in each of its exposed surfaces, said primary elements being in alternately reversed side by side arrangement, so that each of its six surfaces will interlock and receive the raised and depressed complementary geometric shapes of any other such block on any one of its six surfaces, each of said building blocks when composed of an even number of said primary elements having the raised symmetrical shape on all exposed faces of one corner cube with the complementary depressed symmetrical shape on all exposed faces on the adjacent corner cube.

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