

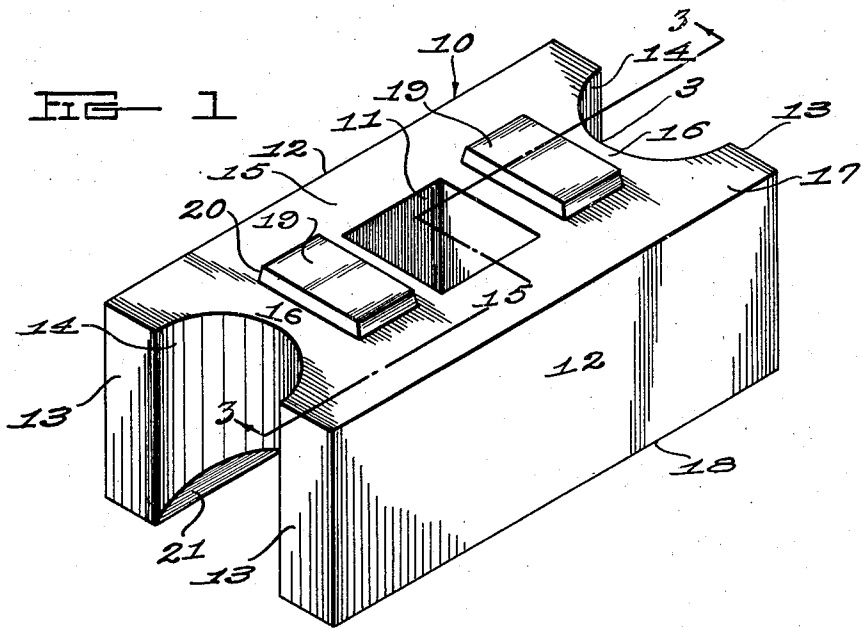
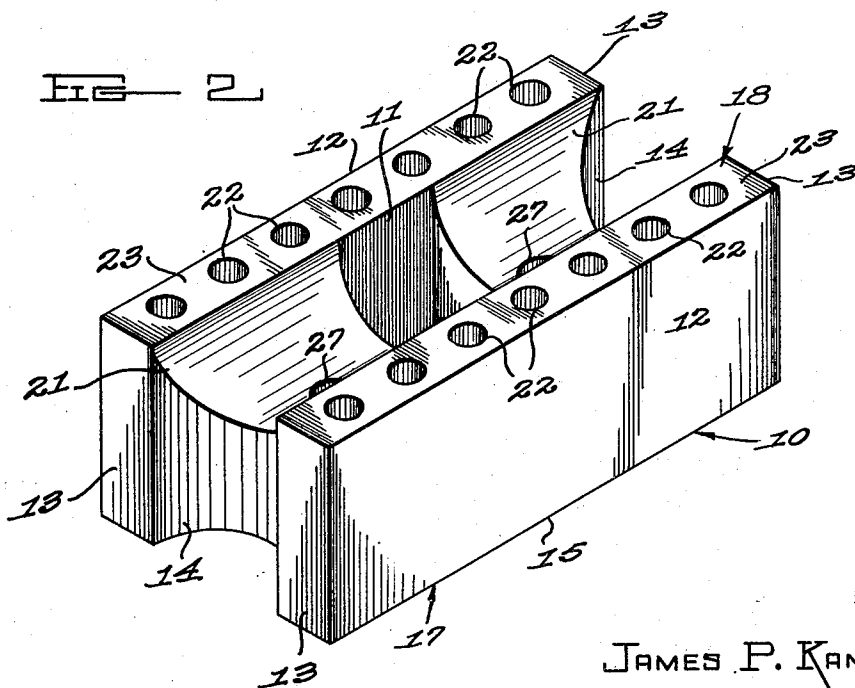
Feb. 21, 1950

J. P. KANY
BUILDING BLOCK

2,498,276

Filed March 27, 1946

3 Sheets-Sheet 1



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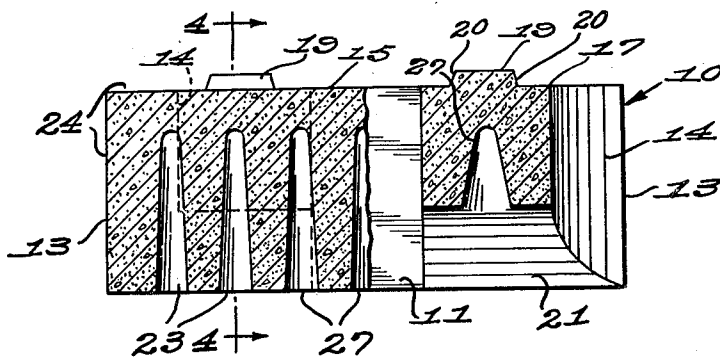


Fig- 4

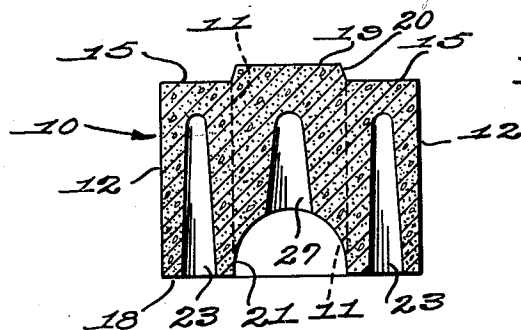
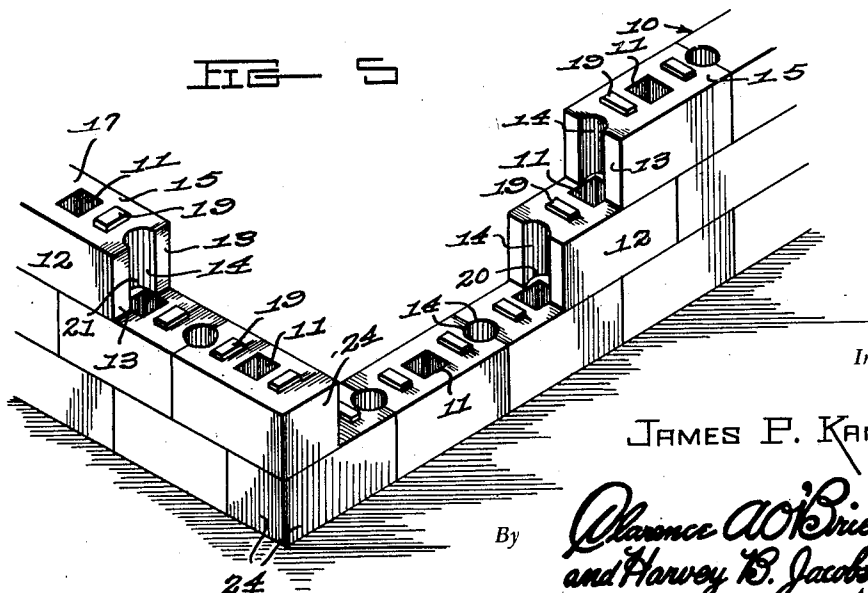


FIG-5



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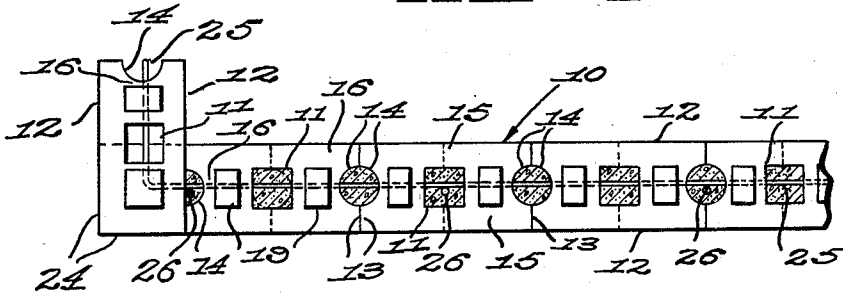
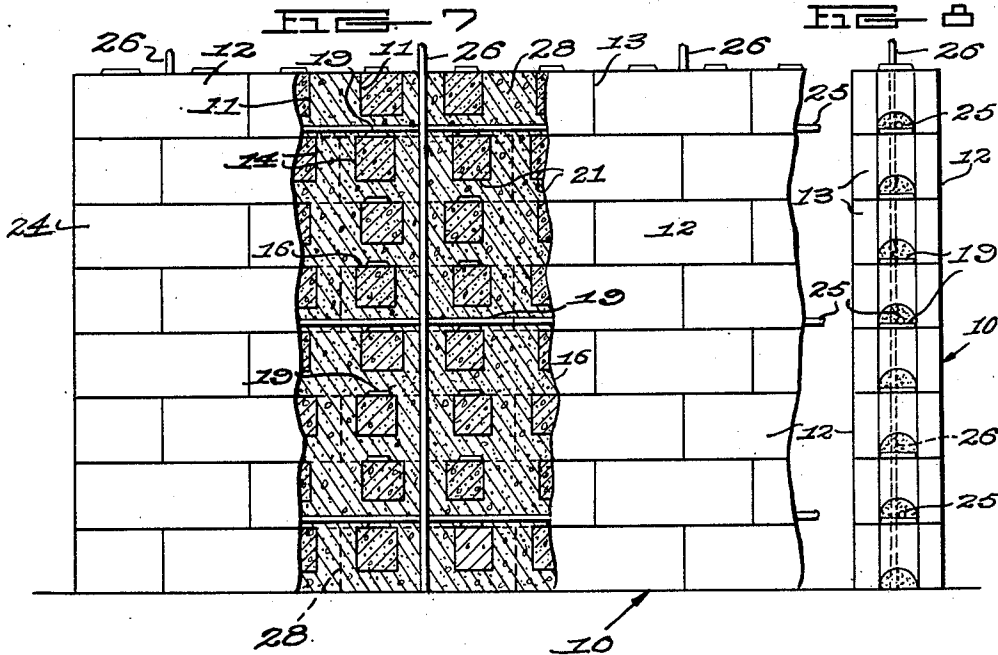
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FIG. 6



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UNITED STATES PATENT OFFICE

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BUILDING BLOCK

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Application March 27, 1946, Serial No. 657,489

2 Claims. (Cl. 72—30)

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This invention relates to building blocks and more particularly to a mortarless building block, in which the blocks are adapted to be assembled either without or with the use of mortar, but primarily, to be laid in proper relation to one another by a common laborer, on a very productive and economical basis for buildings or walls, and so designed, as to receive poured concrete or cement, so as to bind and hold the blocks in assembled relation to each other.

An object of the invention is to provide a building block, which may be used at intermediate points of a wall structure, or with slight modifications, at a corner, and which in addition to providing means for receiving concrete or cement to constitute tie means for effectively connecting the blocks in assembled relation, is also adapted to receive reinforcing or tie rods of metal, to reinforce the wall or walls vertically and longitudinally and effectively connect the walls, particularly at corners or angles, as an additional adjunct to the use of the block per se in wall construction.

A still further object of the invention is to provide a novel and simple block which may be stamped or pressed in a mold or otherwise, and formed of cement or other suitable material, thereby lending itself to economical and expeditious production, and which in addition to containing means for receiving an interlocking connecting means, such as cement or concrete, with reinforcing ties or metal rods, is also provided with a plurality of voids in the form of tapered holes or sockets, which are left empty, and therefore serve to increase the lightness and area of dead air space for insulation qualities in retaining a building warm in winter and cool in the summer, by excluding both cold and hot air from the outside.

Another object of the invention is to provide a building block which can be laid dry; which allows the use of unskilled labor, but permits the same to be laid in mortar by a mason, and in which a maximum of hollow air spaces is provided to seal each block individually, while giving extra insulation qualities in the blocks or walls produced therefrom, plus lightness for handling purposes, as well as being strong and durable and thoroughly tied in fixed relation, once connected by the interlocking poured concrete or cement connecting the same with or without reinforcing tie rods of metal.

A still further object of the invention is to equip the block with tongue and groove interlocking means which makes the laying of the

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blocks quicker, truer, neater and easier in constructing a wall, as well as adding strength by reason of the interlocking characteristics.

Other objects and advantages reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming part hereof, wherein like numerals refer to like parts throughout, and in which—

Figure 1 is a perspective view of a building block constructed in accordance with the invention in upright position.

Figure 2 is a perspective view of the building block in an inverted position or bottom side up.

Figure 3 is a staggered vertical sectional view taken along the plane of the section line 3—3 of Figure 1.

Figure 4 is a transverse vertical sectional view taken on the line 4—4 of Figure 3.

Figure 5 is a perspective view showing a pair of walls forming angular or corner portion of a building structure produced with the blocks.

Figure 6 is a plan view showing a wall at a corner reinforced with poured concrete or cement and reinforcing rods.

Figure 7 is a side elevation thereof, partly in elevation and partly in section, and

Figure 8 is an end view.

As shown in the drawings, and more especially in Figures 1 and 2 thereof, the block, which is generally indicated at 10, is formed of poured cement, concrete or other suitable mixture, preferably in the form of a dry mix, in the proportions of 7 to 1 or otherwise, with suitable moisture or binding as desired. Generally, it is of rectangular and oblong shape and slightly less deep or shallow compared to its width. It is formed with a transverse, polygonal, rectangular or square vertical opening 11 centrally or intermediate the ends thereof extending entirely through the same and spaced from the sides 12 and the ends 13. At the ends, vertical concave or semi-circular grooves 14 are provided forming spaced narrow end walls at the ends 13 extending vertically. The vertical grooves 14 are spaced from the vertical opening 11, thus forming intervening longitudinal vertical wall portions or thicknesses 15 between the opening 11 and grooves 14 and the sides 12, and intervening wall portions 16 between the grooves 14 and the opening 11, of considerable thickness or length. The top surface of the block indicated at 17, as distinguished from the bottom surface 18, is provided with flat, shallow tongues or extensions 19 on the surfaces between the grooves 14 and

the opening 11, the same being preferably of rectangular form elongated transversely to correspond with the width of the opening 11 and the grooves 14, as clearly shown in the drawings. These tongues or extensions are also bevelled on the side edges thereof as indicated at 20, or tapered from their base portions corresponding to the top surface 17 of the block to the upper faces thereof, thus forming shallow frusto-pyramids.

Extending longitudinally and centrally of the bottom face or portion of the block, is a groove or tunnel 21 also shown substantially semi-circular or concaved in form and running the entire length of the block so as to communicate with the ends thereof and also with the grooves 14. The groove 21 also intersects and communicates with the central vertical opening 11, and at its sides, is tangential to and merges with the longitudinal or lateral sides of the opening 11, as particularly seen in Figures 2 and 4 of the drawings so as to be of the same width as the opening 11 and the grooves 14. Obviously, this may be varied as desired. In addition, a plurality of vertical tapered finger or pin holes or sockets 22, are provided in the wall portions between the sides of the groove 21 and the sides 12 of the block, and indicated at 23, to constitute flat, narrow longitudinal surfaces into which the holes or sockets 22 extend for a considerable distance to a point spaced from but relatively close to the top surfaces 15 with concaved ends, and forming voids designed to produce dead air spaces when the blocks are laid one upon the other to form a wall, in the manner shown in Figure 5 of the drawings. That is, these holes or sockets are sealed by the corresponding imperforate upper surfaces 15 of the block therebeneath and gives considerable dead air area or space as well as individual sealed dead air spaces in each instance producing extra insulation effectiveness in quality plus lightness for handling purposes, thereby sealing out hot as well as cold air. This reduces fuel consumption for heating in the winter, and makes a building produced by the blocks cooler in hot weather or summer. Also, it will be noted that relatively, there are two of aligned longitudinal grooves 21, one at each end of the block terminating at the opposite end wall of each vertical opening 11, and this construction is used for intermediate blocks of a wall while at the ends or corners of a wall or building, one of the grooves 21 is omitted between the opening 11 and the end of the block indicated at 13, as well as the corresponding vertical groove 14, thus producing a solid square end with flat surfaces, as clearly shown at 24 in Figures 3 and 5 of the drawings. Otherwise, the blocks, when laid end to end, will cause the end grooves 14 to mate with each other to form a comparatively circular opening, while each tongue or extension 19 will be received within the opening 21 at the bottom, of an adjacent staggered block placed thereon, at each end of a block, while alternately, the circular openings formed by the mating and registering vertical grooves 14, will align with a vertical opening 11 of rectangular outline, above and below the row of blocks provided therewith, and in opposite alternating relation in respect to the openings 11 at the intermediate portion of the blocks which are registered with the ends of the blocks thereabove and therebeneath, at the circular openings formed by the coating mating grooves 14. The result is, that when these blocks are placed together to form a wall, and either plastered or not, as desired, and filled with concrete or cement, as shown, at 28

there will be an interlocking checker board structure of the poured cement which when hardened will form an interlocking, connecting and binding means between the various blocks, to connect and reinforce the same, preventing individual displacement and rendering the entire structure one comparatively solid unit. In addition, tie rods 25 may be laid horizontally through the tunnels or grooves 21 resting upon the top surfaces of the tongues 19 so as to be supported thereby and exposing intermediate portions of said rods to be completely surrounded by the cement or concrete, which flows completely around the rods to form an extremely efficient anchor therefor and efficiently connects the various blocks in line. In addition, reinforcing vertical tie rods 26 may be provided, to extend down through the aligned openings 11 and the openings formed by the semi-circular end grooves 14, preferably in line with the ends of the blocks, so as to be completely tied or bound and adhere to the concrete or cement poured into the hollow spaces formed by said openings, to connect the vertical tiers of blocks as well as the horizontal rows, and if desired, the vertical tie rods may be welded or otherwise anchored to the horizontal reinforcing tie rods, to form a shock proof integral structure. Also, vertical openings or sockets 27, communicate with the grooves 21 between the openings 11 and the grooves or openings 14, centrally beneath the tongues 19, as shown in Figures 3 and 4 of the drawings to give additional dead air space area. These openings 27 are also tapered as are the openings 22 but are shorter. In the use of a block, to form a wall, the blocks are preferably laid solid and the voids or air spaces formed by the openings or sockets 22 and 27, form dead air spaces which give the block extra insulation quality plus lightness for handling purposes while being strong and durable. The tongue and groove interlocking qualities, when filled with cement or concrete as described, makes the laying of the blocks quicker, truer, neater and easier, plus the added strength of interlocking ability and means. The design also permits a horizontal and vertical reinforcement or tie rods to be easily inserted, they being merely laid in place, spaced according to building code requirement as the wall progresses, and imbedded and anchored in the poured concrete filling which subsequently hardens in the well-known, customary manner. The horizontal tie rods are supported at spaced intervals upon the tongues or projections 19, so as to be positively supported but surrounded by the concrete at intermediate points, where spaced from the top surfaces of the blocks and with the connecting and reinforcing tie means as described, the wall structure as an entirety, when composed of the blocks as described, is rendered resistant to earthquakes, hurricanes, in addition to being fireproof, resistant against termites and the like. However, due to the hollow nature of the blocks, it is immune to contraction, at least to any appreciable extent, expansion and heat cracks due to temperature changes. The block is especially desirable, because it permits quick and efficient construction of buildings and walls of materials which are plentiful.

In view of the foregoing description taken in conjunction with the accompanying drawings it is believed that a clear understanding of the construction, operation and advantages of the device will be quite apparent to those skilled in the art. A more detailed description is accordingly deemed unnecessary.

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It is to be understood, however, that even though there is herein shown and described a preferred embodiment of the invention the same is susceptible to certain changes fully comprehended by the spirit of the invention as herein described and the scope of the appended claims.

What I claim is:

1. A building unit comprising spaced parallel side walls, spaced webs joining the side walls adjacent their ends, the top edges of the side walls and the top faces of the webs lying in a common plane, a central frusto-pyramidal pad carried by the top of each web and projecting upwardly from its respective web beyond the common plane, said pads being of lesser width than the webs, each side wall having a longitudinal series of spaced parallel relatively deep pockets entering its bottom edge and the bottom faces of the webs being arched to form cavities in which the frusto-pyramidal pads of a lower course of units is adapted to be received and each web having a tapered pocket entering axially thereinto through its arched bottom.

2. A wall structure which includes horizontal courses of abutting building units; each such unit embodying spaced parallel sides, spaced parallel webs extending transversely between the sides to form passages which extend vertically through the unit, the bottoms and the remote ends of the webs being arched to form concave recesses in the bottom and ends of their respective units, and pads extending upwardly from the tops of the webs; the units of adjacent courses being staggered to cause the recesses in the ends of abutting units in one course to register with

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the passages in the units of adjacent courses and the passages in the units of alternate courses to align; reinforcing bars extending horizontally through the wall and lying on to pads of the units of one course and within the arched recesses in the bottoms of the units of the next course above; vertical reinforcing bars in the wall extending through the spaces formed by the recesses in abutting units in alternate courses and through the passages in the units in the courses adjacent thereto; and a moldable wet setting composition filling the spaces around the reinforcing bars.

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