July 27, 1965 M. M. ROSENFELD 3,196,582

WALL AND BLOCK THEREFOR

Filed Jan. 17, 1962

FIG. 1

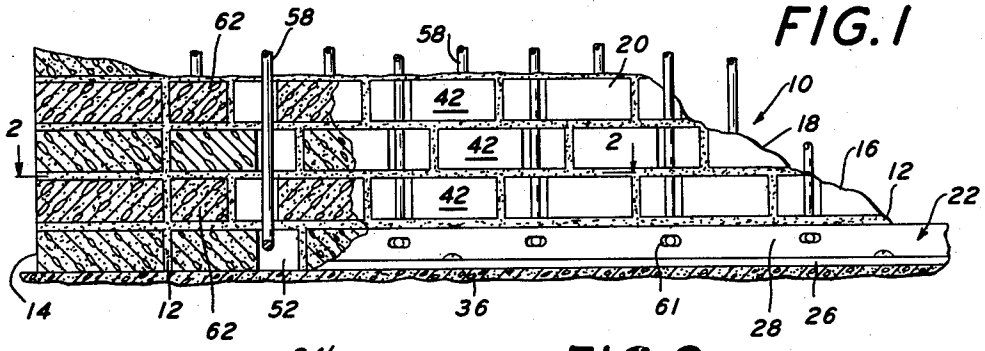


FIG. 2

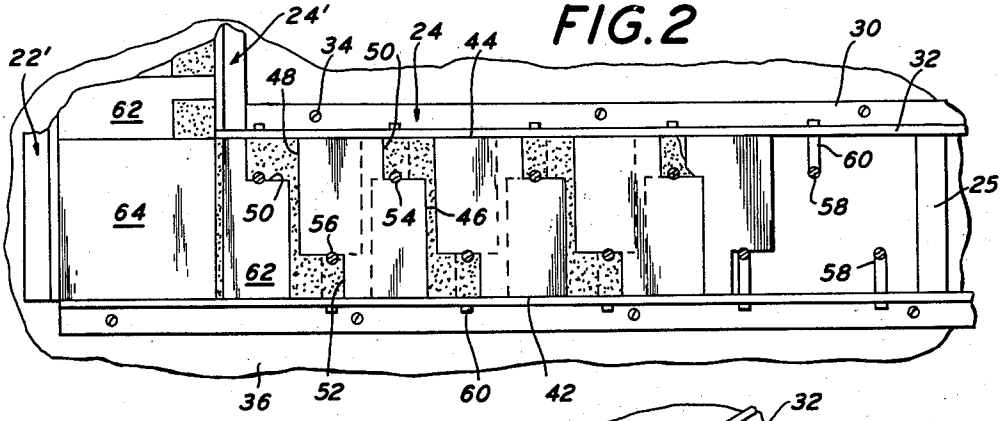
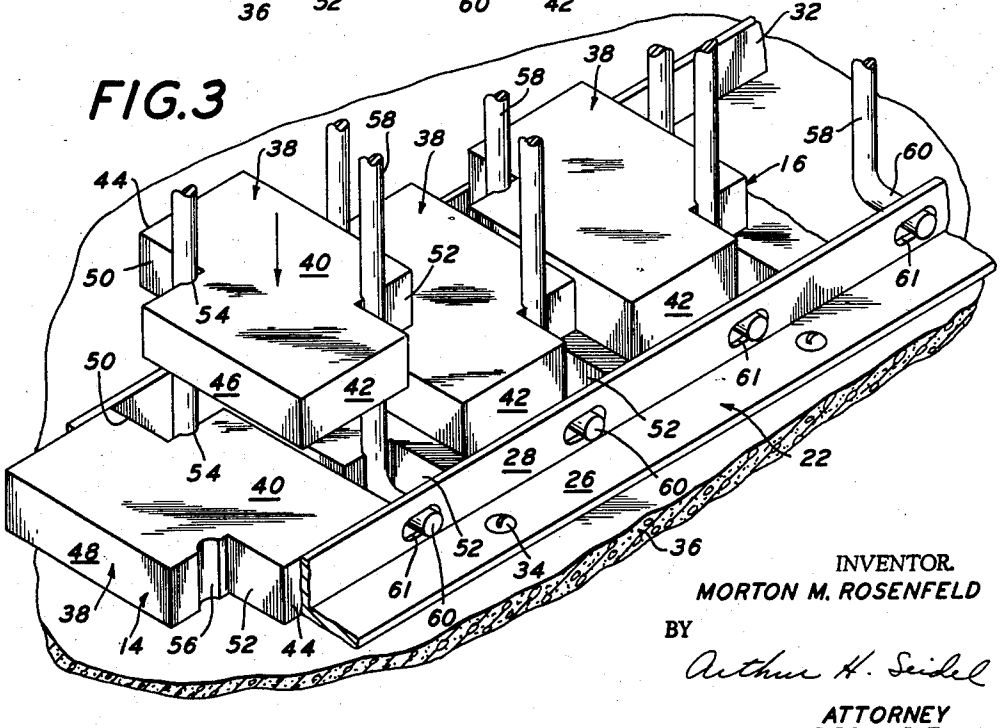


FIG. 3



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WALL AND BLOCK THEREFOR

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1 Claim. (Cl. 50—144)

This invention relates to a wall and a block therefor. More particularly, the present invention is directed to a wall formed from a plurality of superimposed courses with a layer of cementitious mortar therebetween and a novel block from which the wall may be constructed.

Recent strides in technology have indicated that explosives have been constructed having the equivalent blasting effect of a fifty megaton bomb. As the deterrent effect of explosives increases, new and better ways must be devised to construct walls for buildings, bomb shelters and the like so that they may withstand the increased pressures involved with the higher destructive effects of recently devised explosives. In the immediate area of a fifty megaton blast, everything will be completely demolished. Present techniques for constructing walls and the like will not result in a wall capable of withstanding the pressure and heat effect of a fifty megaton bomb exploding at a distance of five miles therefrom.

The wall of the present invention has been designed so that it may withstand a pressure equivalent to the blasting effect of a fifty megaton bomb which has exploded at a distance of approximately five miles from the structure having the wall of the present invention. In this regard, the wall of the present invention is constructed from a plurality of courses of blocks superimposed over one another with internal reinforcement being provided in a novel manner facilitated by the design of the blocks. In constructing the wall of the present invention, three different types of blocks will be utilized. Substantially the entire wall will be constructed of one type of block. Half blocks will be utilized adjacent to corners of the wall and a corner block will be utilized at the corners.

It is an object of the present invention to provide a novel wall structurally interrelated in a manner so as to withstand higher pressures.

It is another object of the present invention to provide a novel building block.

It is another object of the present invention to provide a wall which is much stronger than those proposed heretofore, and yet is capable of being rapidly constructed by a novice.

It is another object of the present invention to provide a novel wall which may be rapidly constructed from blocks which are identical with blocks there above and there below with internal reinforcement being provided.

It is still another object of the present invention to provide a wall comprised of superimposed courses of blocks with all of the blocks in one course being similarly disposed, and with the blocks in an adjacent course being oppositely disposed from those in the first course.

Other objects will appear hereinafter.

For the purpose of illustrating the invention there is shown in the drawing a form which is presently preferred; it being understood, however, that this invention is not limited to the precise arrangements and instrumentalities shown.

FIGURE 1 is an elevational view of a wall of the present invention, with a portion thereof broken away for purposes of illustration.

FIGURE 2 is a sectional view taken along the lines 2—2 in FIGURE 1.

FIGURE 3 is a partial perspective view of a partially constructed wall in accordance with the present invention.

Referring to the drawing in detail, wherein like numerals indicate like elements, there is shown in FIGURE 1 a wall designated generally as **10**.

The wall **10**, as illustrated, comprises a plurality of courses **14**, **16**, **18**, and **20** superimposed over one another. Mortar **12** is disposed between adjacent courses and between adjacent blocks in the same course. While only four courses are illustrated, it will be obvious that a greater number of courses may be provided as desired.

As shown more clearly by a comparison of FIGURES 2 and 3, the wall **10** is constructed in a plane between templates **22** and **24**. Each template is L-shaped in transverse cross section. Template **22** includes a horizontally disposed portion **26** and an upright portion **28**. Template **24** includes a horizontally disposed portion **30** and an upright portion **32**. The templates **22** and **24** are interconnected by a spacer bar as shown more clearly in FIGURE 2. Fasteners **34** are provided to releasably secure the horizontally disposed portions of the templates **22** and **24** to a floor or other supporting surface **36**.

Except for the corners of the wall **10**, the wall **10** is comprised of a plurality of courses of blocks **38**. Each of the blocks **38** are identical. As shown more clearly in FIGURES 2 and 3, each block **38** includes a top face **40** and a bottom face opposite thereto. Each block **38** includes an end face **42** and an end face **44**. Each block **38** is provided with side faces **46** and **48** extending between the end faces **42** and **44**.

The distance between the end faces **42** and **44** is greater than the distance between the side faces **46** and **48**. Each block **38** is provided with a notch **50** at one corner and a notch **52** at a diametrically opposite corner. A wall of the block **38** which is parallel to the end faces and partially defines the notch **50** is provided with an upright groove **54** extending between the top and bottom faces of the block. A groove **56** is similarly provided on a corresponding wall partially defining the notch **52**.

The wall **10** is internally reinforced by upright rods **58**. The rods **58** have a toe **60** which extends in a direction substantially perpendicular to the longitudinal axis thereof. The rods **58** are of a diameter so that they may be partially received in the grooves **54** or **56** and the toe is adapted to extend through an elongated hole **61** in the upright portions **28** or **32** of the templates. Alternate courses of the wall **10** includes starter blocks **62** which are one-half the width of the blocks **38**. Corner blocks **64** are utilized to form corners of the wall **10**. The distance between side faces of the corner blocks **64** corresponds with the distance between the end faces **42** and **44** of the blocks **38**.

By way of illustration, I have found the following dimensions for the blocks to be adequate. All blocks are precast concrete blocks having a thickness of four inches. The thickness is to be measured between the top and bottom faces of the blocks. Blocks **38** and blocks **62** have a length of 1'4". A length of a block is to be measured between the end faces such as end faces **42** and **44**. The notches **50** and **52** are four inch square. Blocks **64** are square with a side length of 1'4". A wall constructed of blocks having these dimensions has been tested and found that it withstands a pressure equivalent to the pressure existing on a wall positioned five miles from the center of a blast of a fifty megaton bomb.

The wall **10** may be constructed as follows:

The first step in constructing the wall **10** is to removably secure the templates **22** and **24** to the floor **36**. Several courses of the corner blocks **64** may be constructed at the corners of the wall **10**. Thereafter, the course **14** is provided with the blocks **38** being positioned between the templates **22** and **24**. If desired, mortar may be provided between the floor **36** and the blocks of the first course. All blocks **38** of the first course will be positioned so that the notch **52** is to the left of the end face

44 and adjacent to the upright portion 28 of the template 22. Thereafter, a layer of mortar 12 will be provided over the first course 14.

In providing the second course 16, the blocks 38 will be flipped over so as to be oppositely disposed with respect to the blocks in the course therebelow. All blocks in the course 16 will be similarly disposed. Hence, the notch 52 on the blocks in the course 16 will be to the right of the end face 42. The blocks 38 in course 16 will be positioned so that they overlap one-half of the blocks in the course 14. In this manner, the corner notches 52 will overlap a portion of each other.

While only a portion of the corner notches 52 overlap each other, the position of the grooves 56 and 54 are such that the grooves 56 will be in line with each other. The positioning of the blocks in course 16 may be gauged by first aligning the grooves 56 on a block of course 16 with respect to the groove in a block in course 14. If the predetermined relationship of the blocks 38 is maintained in alternate courses as described above, all of the grooves 56 will be in line with one another and all of the grooves 54 will be in line with one another.

The rods 58 may be positioned as illustrated in the drawing prior to the construction of the various courses. Alternatively, the courses may be constructed and then the rods 58 positioned as illustrated. Thereafter, the channel formed by the overlapping corner notches 54 will be filled with mortar so as to conceal the rods 58. Since the rods 58 will be internally disposed with respect to the wall 10, the rods 58 reinforce the same. For increased strength, the rods 58 are preferably made from steel. However, the rods 58 may be made from other materials such as wood, plastic, etc.

Templates 22' and 24' will be utilized to provide a guide for another portion of the wall 10 around the corner from the portion described above. The manner in which the wall between the templates 22' and 24' is constructed is identical with that described above.

It will be noted that the starter or half block 62 is provided with a notch 50 and that a rod 58 is disposed within the last mentioned notch. In order for the notches 50 and 52 to have side walls corresponding to approximately one-third of the width of the distance between side faces of the blocks, the grooves 54 and 56 have their longitudinal axis spaced from an adjacent side face of the blocks 38 by a distance of approximately three inches when the blocks are made in accordance with the invention set forth above. Hence, it is possible for the blocks in one course to have a predetermined relationship with respect to each other and to have an opposite predetermined relationship in the next course thereabove or therebelow.

As illustrated, the blocks of the various courses are superimposed over one another. It is within the scope of the present invention to construct a wall where the blocks in the various courses are disposed one above the other. This alternative construction is not the preferred embodiment since the wall formed therefrom is not as strong as the wall formed from the preferred embodiment described above and illustrated in the drawing.

The present invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof and, accordingly, reference should be made to the appended claim, rather than to the foregoing specification as indicating the scope of the invention.

I claim:

A wall comprising a plurality of courses of blocks, a central portion of said wall having blocks in a first course disposed in a predetermined relationship with respect to each other, a second course next adjacent to said first course constructed from blocks identical to the blocks of said first course, the blocks in said second course having a predetermined relationship with respect to each other different from the relationship of the blocks in said first course, said blocks in said first course having side faces juxtaposed to one another and exposed end faces, said blocks in said second course having side faces juxtaposed to each other and exposed end faces, said blocks having corner notches at diametrically opposite corners, said notches in the blocks of the first course overlapping a portion of the notches of the blocks in the second course, thereby providing an upright channel, a reinforcement member disposed in said upright channel, templates, said templates being L-shaped in cross section and including an upright portion placed against the end faces of blocks in the lowermost course of said wall, said templates having an outwardly extending flange adapted to be secured to a horizontal surface, said upright portions of said templates having holes therein adjacent the corner notches of said lowermost course of blocks, said reinforcement member including a toe extending in a direction substantially perpendicular to the longitudinal axis of the reinforcement member, said toe being placed in the corner notch of the blocks in the lowermost course, said toe extending outwardly from said last-mentioned notch into the hole in said upright portion of said templates adjacent said last-mentioned corner notch.

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