United States Patent [19]

Kniefel

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[45] **Feb. 12, 1974**

[54] **BUILDING BLOCK**

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[21] Appl. No.: **51,305**

[52] **U.S. Cl.** **52/593,** 46/26, 52/286, 52/608

[51] **Int. Cl.** **E04c 1/30,** A63h 33/10

[58] **Field of Search** 52/589–594; 46/24–26

[56] **References Cited**

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Primary Examiner—Frank L. Abbott

Assistant Examiner—James L. Ridgill, Jr.

[57] **ABSTRACT**

A building block having dovetail tongue and groove configuration for interlocking with adjacent blocks by sliding in a longitudinal direction. The dovetail tongue protrudes outwardly from one side of the block and has two widened longitudinal end portions have a cross-sectional shape defining an inverted triangular wedge which end portions are interconnected by an intermediate portion rectangular in cross section which intermediate portion extends one-third the length of the tongue. The opposite side surface of the block has a complementary shape inverse to that of the tongue forming a groove of constant depth. The end portions of the groove are of slotted dovetail configuration widening from the opposite side surface inwardly of the block. The ends of the recess have substantially the width of the intermediate portion of the tongue whereby the tongues may be longitudinally slid into the recess for interlocking engagement.

3 Claims, 10 Drawing Figures

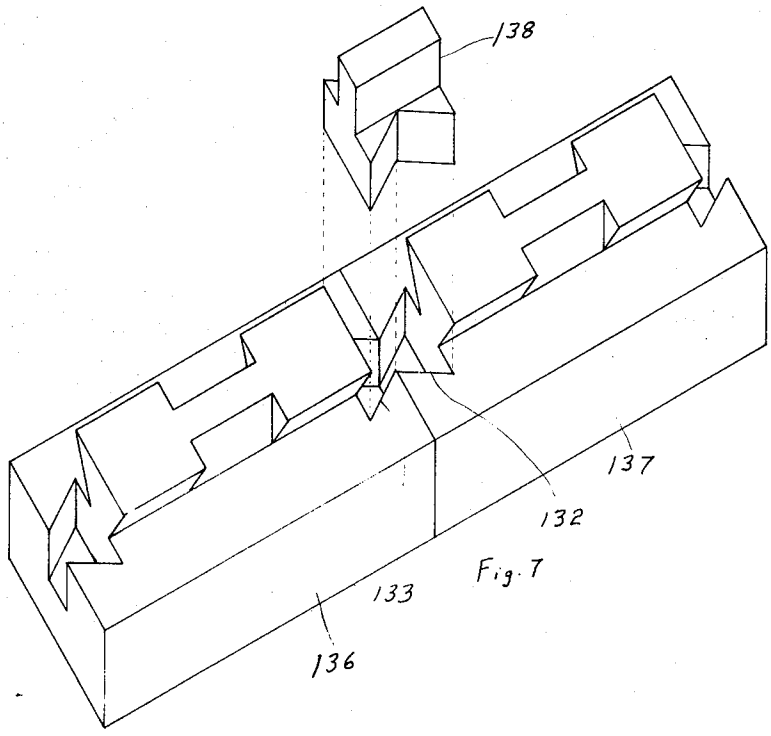


Fig. 7

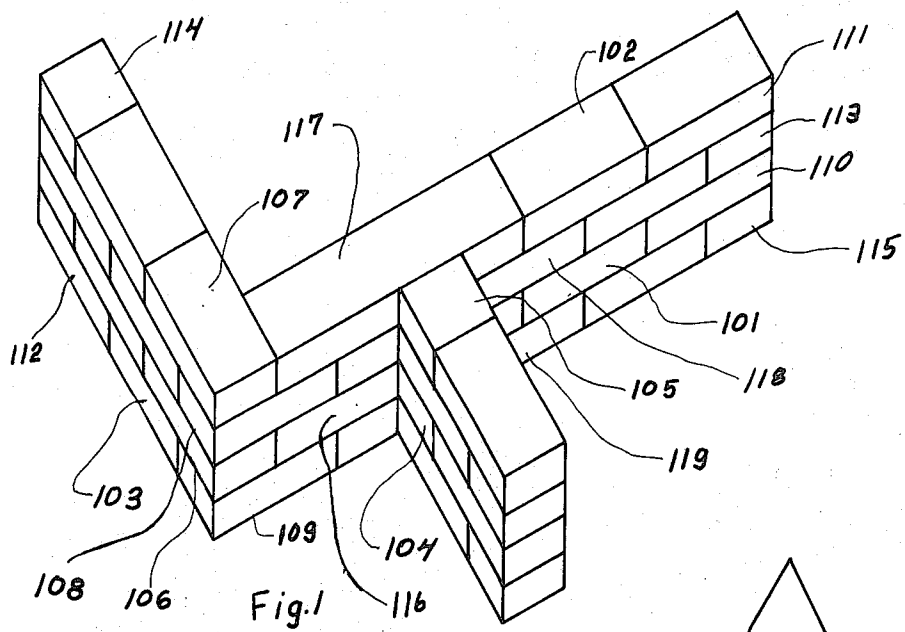


Fig. 1

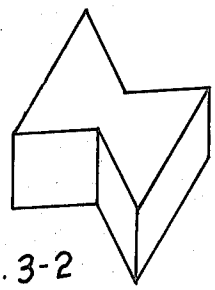


Fig. 3-2

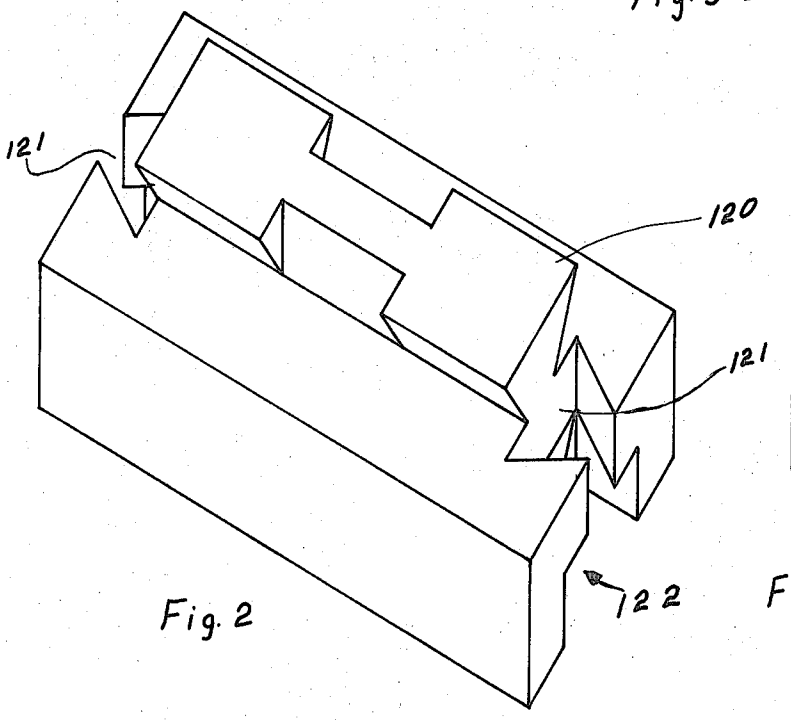


Fig. 2

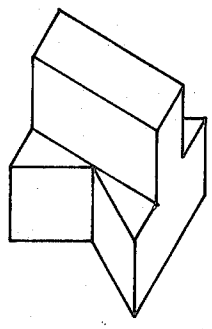


Fig. 3-1

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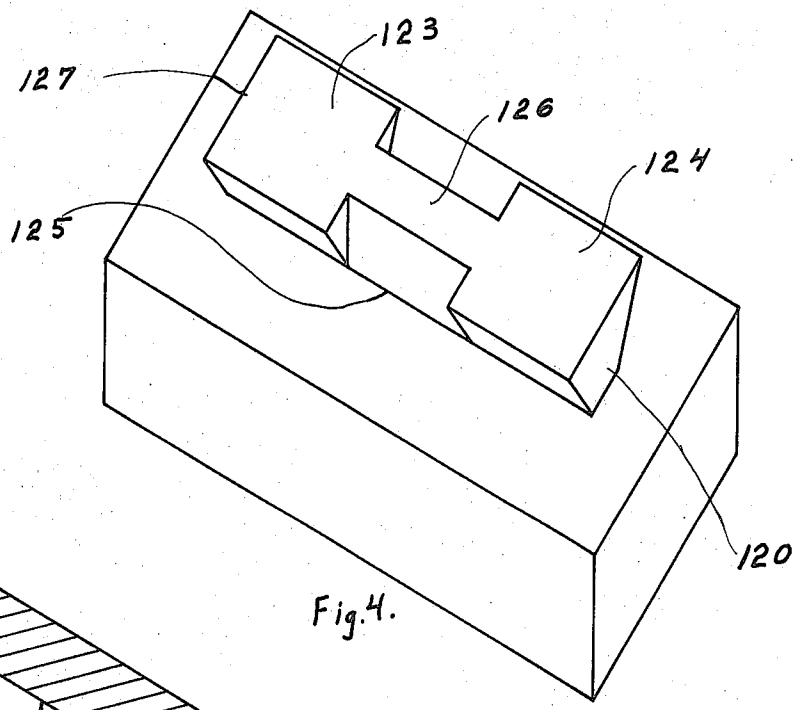


Fig. 4.

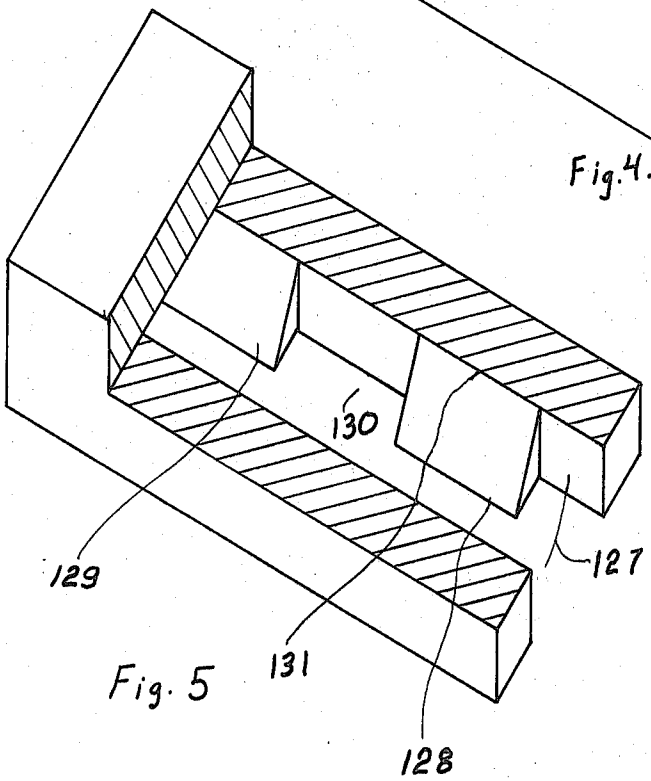


Fig. 5

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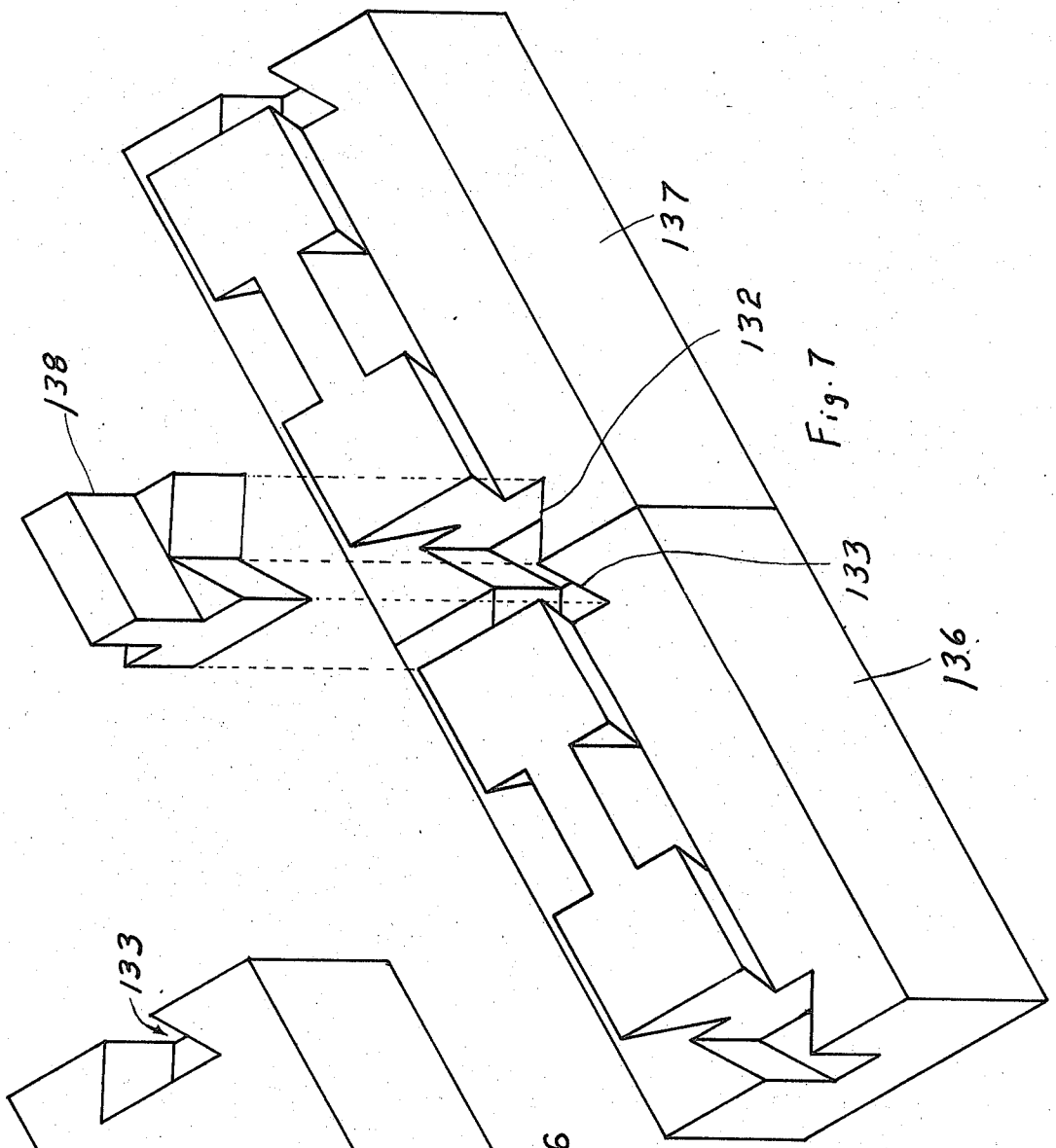


Fig. 7

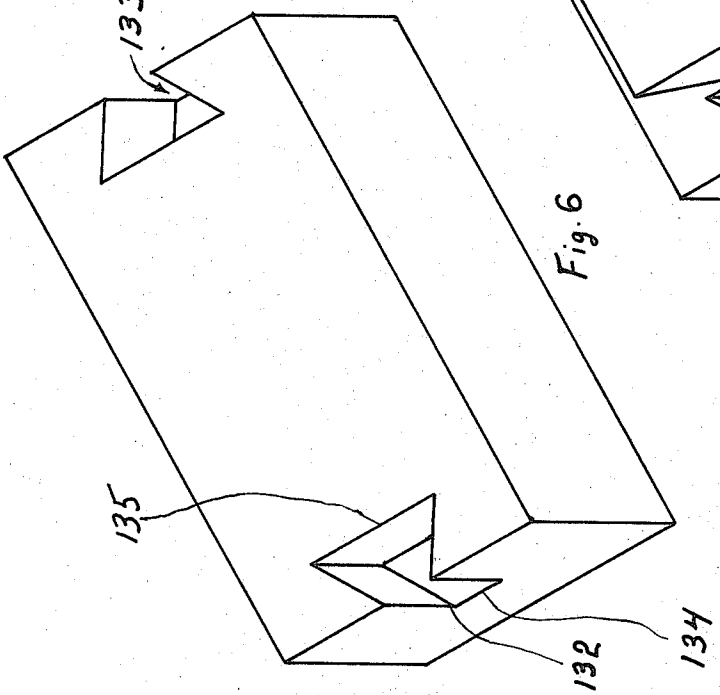


Fig. 6

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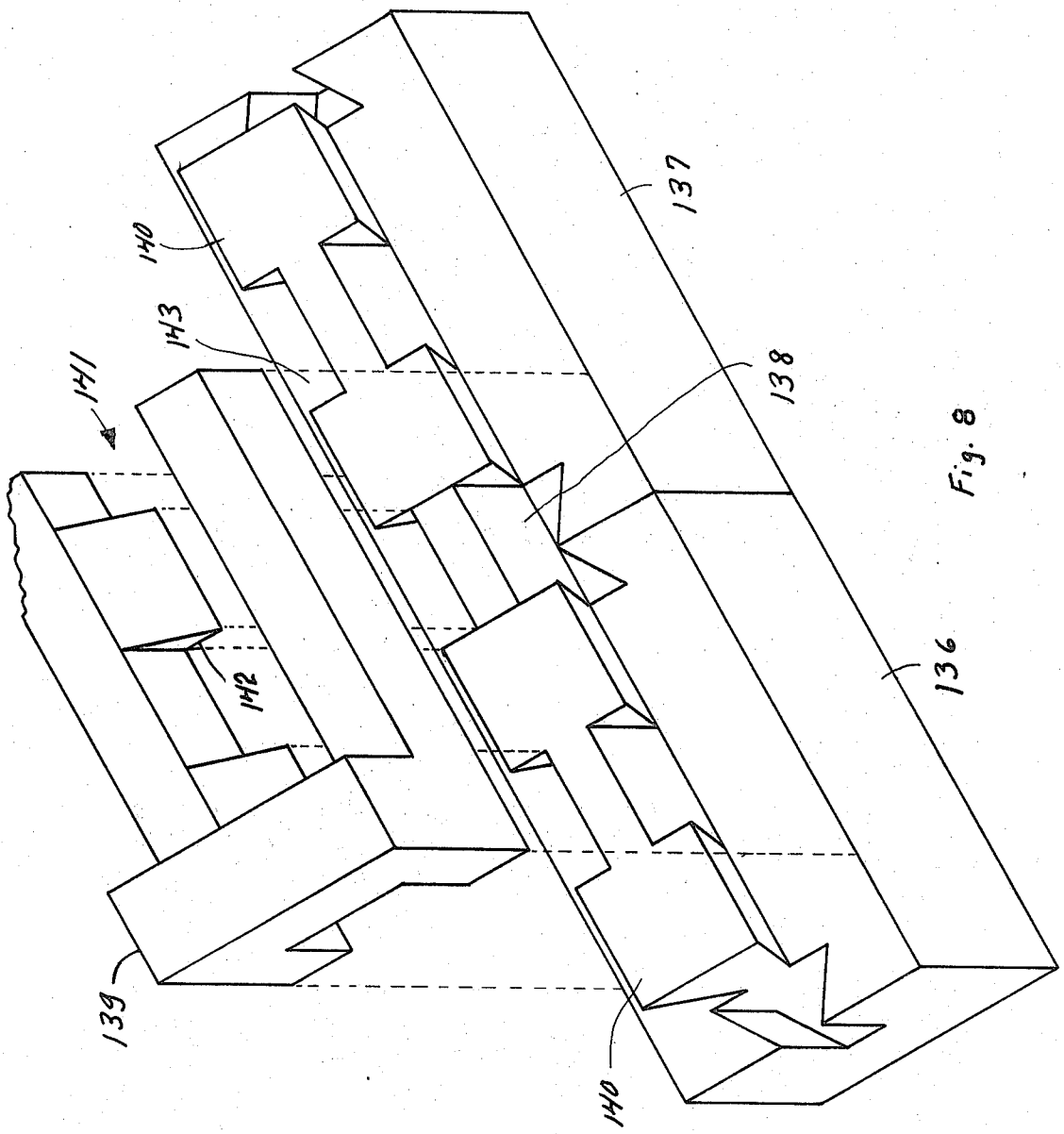


Fig. 8

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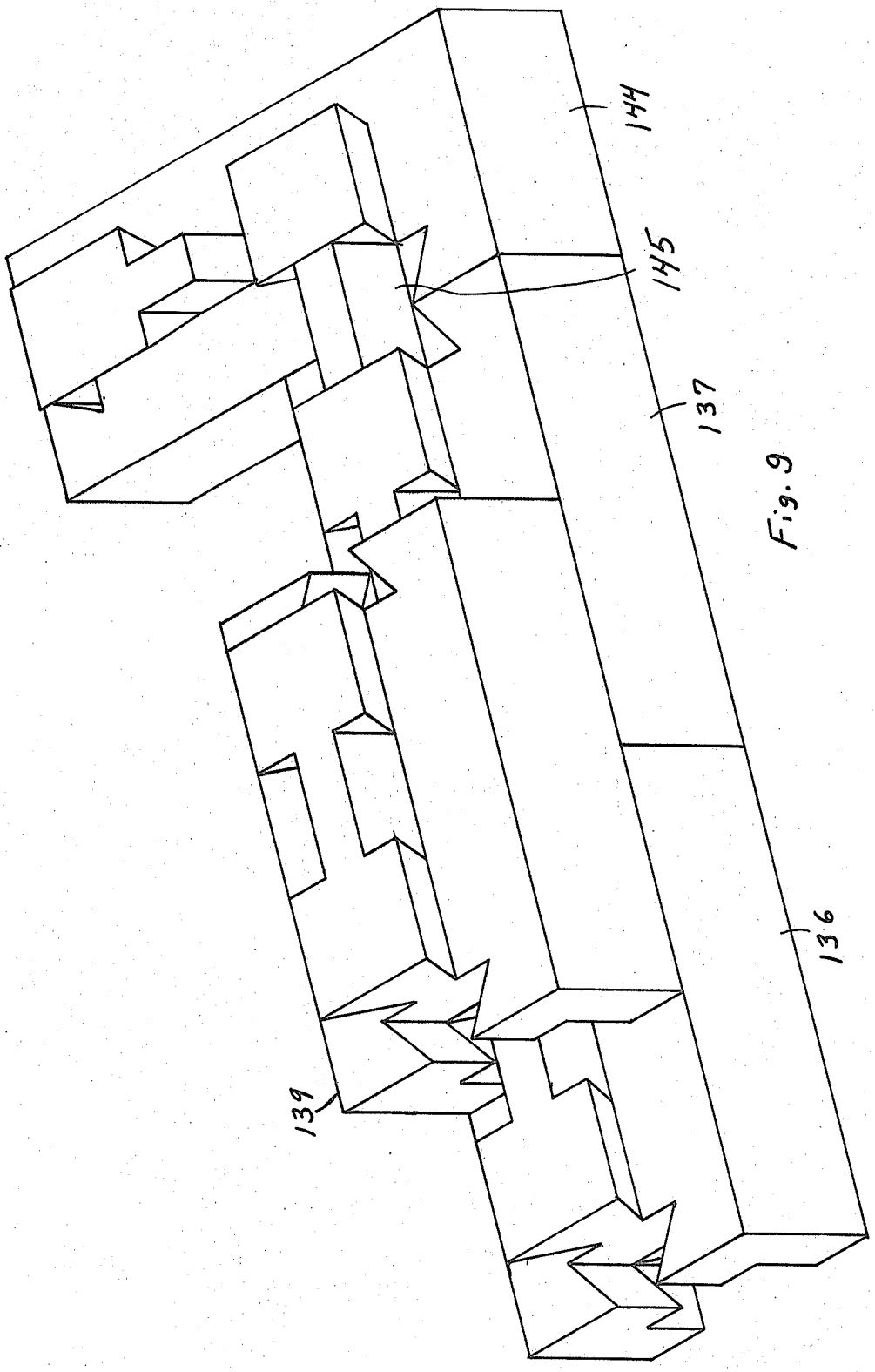


Fig. 9

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BUILDING BLOCK

This invention relates to building assembly construction, more particularly, the invention is an interlocking construction technique adapted to blocks (or types of modular construction where adaptable) for assembly with other like blocks (or modular units) to form the building walls, ceiling, floors, roof, or other structural parts of buildings, bridges, or any structure built today.

Among the important objectives of the invention are the following:

To permit assembly of the unit by unskilled labor;

To eliminate the use of nails, screws, bolts, glue, cement, or other fasteners in the assembly of the unit;

To eliminate the necessity of tools during said assembly;

To provide a construction system that provides considerable more strength than previous construction methods have, with a great reduction in the amount of time required to complete the construction of a structure.

To permit manufacturing of blocks (modular units) by mass production methods, so that all that is necessary is to assemble them by a set procedure, so that further cutting or shaping is not necessary.

For further comprehension of the invention, and the objects and advantages thereof, reference is made to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are made particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

FIG. 1 is a perspective view of an assembled section of a wall.

FIG. 2 is an enlarged perspective view of a standard block (unit) with all the different basic locking devices present (with the exception of the key unit).

FIG. 3–1 is an enlarged perspective view of the key locking unit, the male part.

FIG. 3–2 is an enlarged perspective view of the key locking unit, the male part without top.

FIG. 4 is an enlarged perspective view of a unit with only the male part of the vertical locking device.

FIG. 5 is an enlarged perspective view partly in section showing the female part of the vertical locking device.

FIG. 6 is an enlarged perspective view of a unit with only the female part of the horizontal locking device.

FIG. 7 is an exploded view and perspective view illustrating the ends of the two units and a key unit to lock them horizontally.

FIG. 8 is an exploded, partly in section of a perspective view of how a female part of the vertical locking device fits on the male part.

FIG. 9 is an enlarged perspective view showing the final position of the block and showing how a right hand corner block is locked into a straight wall.

The assembled section of a wall shown in FIG. 1, is made up of twenty different units. Their location in the wall are as follows: The standard unit **101** (FIG. 1); the standard unit, no male locking device **102** (FIG. 1); the standard unit, no female locking device **103** (FIG. 1); the standard unit one-half size **104** (FIG. 1); the standard unit one-half size, no male locking device **105** (FIG. 1); the left hand corner unit **106** (FIG. 1); the left hand corner unit, no male locking device **107** (FIG. 1); the right hand corner until **108** (FIG. 1); the right hand corner unit, no female locking device **109** (FIG. 1); the end unit **110** (FIG. 1); the end unit no male locking device **111** (FIG. 1); the end unit, no female locking device **112** (FIG. 1); the end unit one-half size **113** (FIG. 1); the end unit one-half size, no male locking device **114** (FIG. 1); the end unit one-half size, no female locking device **115** (FIG. 1); the 90° adjoining wall unit right **116** (FIG. 1); the 90° adjoining wall unit right, no male locking device **117** (FIG. 1); the 90° adjoining wall unit left **118** (FIG. 1); the 90° adjoining wall unit left, no female locking device **119** (FIG. 1); the key unit (FIG. 3–1); the key unit no top (FIG. 3–2). Each of the above are variations of the standard interlocking unit's interlocking devices. These interlocking devices are shown all together in one unit in FIG. 2; and separately in FIG. 3 through FIG. 6. FIG. 2 shows a standard unit with all of the different basic locking devices arranged in the proper position to be used in a straight wall to hold it vertically and horizontally. The male part of the vertical locking device is on the top, **120**, and two female parts of the horizontal locking device, **121**, and the female part of the vertical locking device, **122** (FIG. 3–1 and FIG. 3–2) shows the male horizontal locking device (key unit) used to lock the ends of the units horizontally together. FIG. 4 shows the male part of the vertical locking device that can be completely or practically eliminated in cases where it is not required for particular use. The male vertical locking device, **120**, is divided into three equal parts. The two end parts of the top **127**, of the locking device, **123** and **124**, are larger, than the bottom, **125**. The one-third in the middle, **125**, has the same width at the top as at the bottom. By the use of this basic arrangement any unit having the counter-part can be placed over the top and slid into place which will lock it vertically. This will be more clearly understood by the use of FIG. 5. FIG. 5 is a sectional perspective view showing the counterpart of the locking device shown in FIG. 4. The counterpart of the locking device is divided in the same way and an additional opening, **127**, is made at the end of the unit. There are two parts, **128** and **129**, that protrude into the opening from both sides which are larger at the bottom, **130**, than at the top, **131**. This forms the inverse part which holds the two units together vertically when placed together directly over each other or overlapping each other by one-half. FIG. 6 shows a block (unit) with two female horizontal locking devices, **132** and **133**. The opening at the end of the block, **134**, is smaller in size than the inner part, **135**. This will enable inserting one-half of the key unit into the end of a block which makes up one-half of the horizontal locking system. FIG. 7 shows how two blocks (units), **136** and **137**, are placed end to end so that the female horizontal locking device, **132** and **133**, of each block matches up with the other one and how the key unit, **138**, is placed into the two female openings to lock the blocks horizontally. FIG. 8 shows the two blocks, **136** and **137**, fastened together by the key, **138**, that is in place. There is another block, **139**, that is positioned so that when it is placed on top of the other blocks, **136** and **137**, the male locking device, **140**, will enter the female device, **141**, and then can be moved to the right, so that the larger areas of both the female, **142**, and male, **143**, locking devices are above one another. This will hod them together vertically. FIG. 9 shows how FIG. 8 will

look when the blocks, **136, 137** and **139** are in the final position. There is also a right hand corner block, **144,** that illustrates how the horizontal locking device works. The key unit, **145,** ties the two units, **137** and **144,** together horizontally.

By the use of the various combination and shapes of the basic interlocking devices, any desired shape or configuration of a structure can be erected by this system. The blocks or units do not have to be of a rectangular shape or have a flat external surface. It can be made in a circular form or in a triangular shape, just to name a few. One more added feature is that they can be disassembled in the reverse manner as they are put together.

I claim:

1. An elongated generally rectangular building block for stacking with other like blocks, said building block having a longitudinally disposed tongue protruding outwardly a substantially constant amount from one side surface of said block, said tongue including two widened longitudinal end portions, each end portion having a cross-sectional shape substantially defining an inverted triangular wedge, said end portions being interconnected by a relatively narrow intermediate portion of substantially rectangular cross-sectional shape, each of said two end portions and said intermediate portion extending approximately one-third the length of said tongue, the opposite side surface of said building block incorporating a longitudinal groove having a shape complementary and inverse to that of said tongue, said groove having a substantially constant depth from said opposite side surface and including a central substantially rectangular recess and two end recesses disposed to either side of said central recess and merging therewith, each end recess of said groove being of slotted dovetail shape widening from said opposite side surface inwardly with the width of each end recess at said opposite surface being substantially equal to the width of said intermediate portion of said tongue, said central recess of said groove being such as to receive either end portion of the tongue of another like block, said block thereafter being adapted to be slid longitudinally of one another whereby the end portion of said another like block are received and accommodated in said end recesses of said groove such that said blocks are interlocked together.

2. A building block as defined in claim **1,** further including a dovetail recess disposed in at least one end surface of said block adapted to receive a locking device of complementary shape whereby two blocks can be locked together end to end.

3. A building block as defined in claim **2,** further including a dovetail recess disposed in one side surface of the block adapted to receive a locking device of complementary shape whereby two blocks can be locked together at right angles to one another.

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