United States Patent

Martin

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[54] **ARRANGEMENT FOR CONNECTING CONCRETE OR CLAY BRICKS, BLOCKS, PANELS, AND SLABS**

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[52] **U.S. Cl.** **52/438,** 52/442, 52/586, 52/720

[51] **Int. Cl.**.....**E04c 1/10**

[58] **Field of Search**.....52/438, 442, 585, 586, 621, 52/720

[56] **References Cited**

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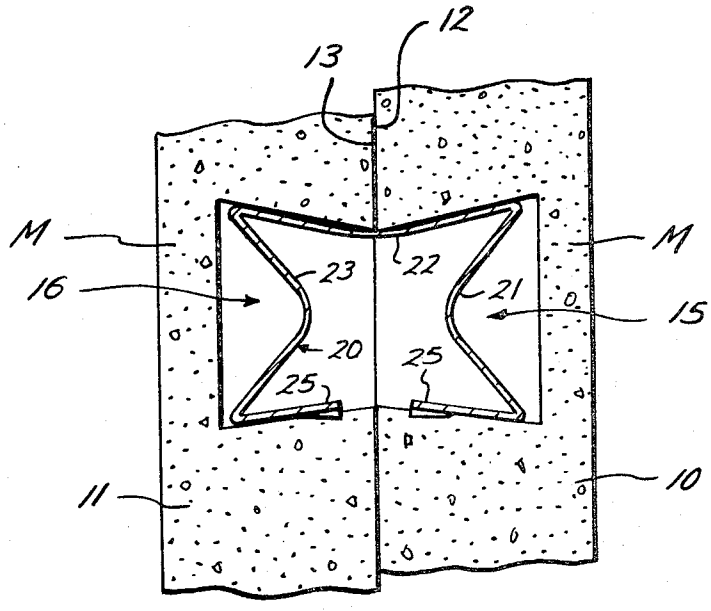
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[57] **ABSTRACT**

An arrangement for connecting members such as concrete or clay bricks, blocks, panels, and slabs together wherein the members are provided with opposed mating dovetail grooves when the members are positioned in end to end relationship. A hollow key member, the longitudinally extending surfaces of which are generally concave, is resilient or flexible and may be partially collapsed to fit within the mating dovetail grooves of the members to be interlocked together. The resiliency of the key member tends to expand it and thereby aid in retaining it in position as well as locking the members together.

3 Claims, 4 Drawing Figures



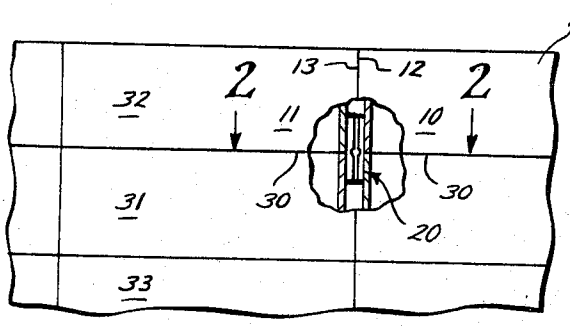


Fig. 1

Fig. 2

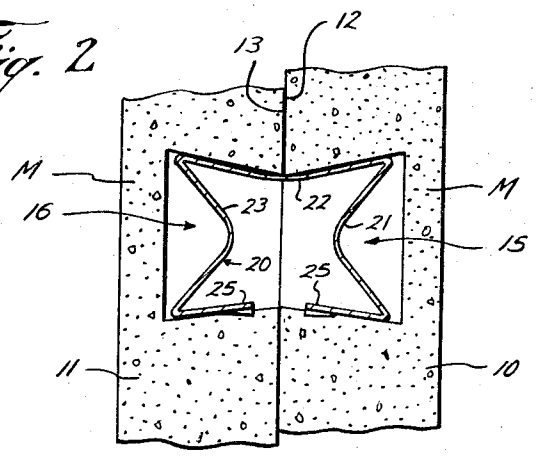


Fig. 3

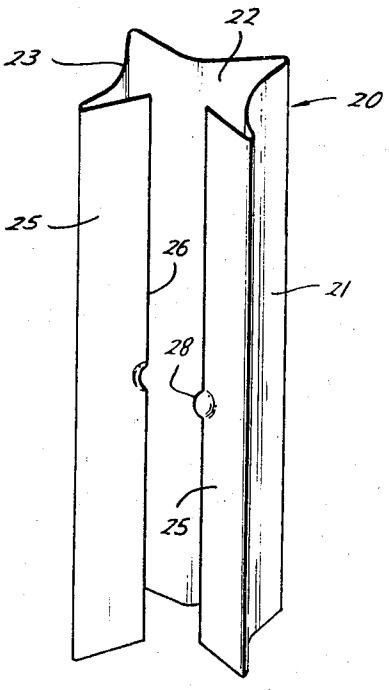
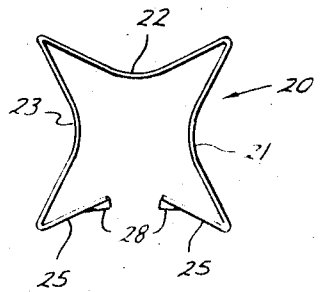


Fig. 4



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ARRANGEMENT FOR CONNECTING CONCRETE OR CLAY BRICKS, BLOCKS, PANELS, AND SLABS

BACKGROUND OF THE INVENTION

The present invention relates to an arrangement for connecting members such as concrete or clay bricks, blocks, and the like together.

Some the prior art with which applicant is familiar is the patent to K. O. Knudsen, No. 3,296,758, issued on Jan. 10, 1967. In this device, a solid wedge or key is employed in opposed grooves but an additional interlocking arrangement is provided in this patent for holding the adjacent rows in interlocked relationship.

The patent to J. Roe, No. 2,392,551, issued on Jan. 8, 1946 again shows a solid key, but such arrangement is not adaptable to concrete or clay brick structural members in use at the present time. The blocks of the Roe patent are not adapted to be made on a standard block machine, and, of course, it would be difficult to align the hole in one row of blocks with the wedges to be employed therewith.

In the Frink U.S. Pat., No. 1,816,322, a solid key is again employed, and a block construction is shown which is not adapted to be formed on a standard block machine.

In the Shannon U.S. Pat., No. 2,158,732, an arrangement for aligning blocks is provided, but such arrangement is not contemplated for permanently retaining the blocks in position. It is contemplated that other means will be employed for holding the aligned blocks and interlocking them together.

The Steuler U.S. Pat., No. 2,933,920, issued on Apr. 26, 1960, also shows a solid key adapted to be fitted in a groove, but where a solid key is employed, it can be appreciated that there must be at least some clearance between the key and the groove in order to fit the key in the groove, or the groove and key must be carefully formed or cut so they will fit together.

In the Sams U.S. Pat., No. 3,292,331, another solid key arrangement is employed which has the same objections as that previously noted with the Steuler patent.

From the foregoing, it can be appreciated that all of the prior art devices with which applicant is familiar do not employ a means for connecting members such as concrete or clay blocks, bricks, or panels and slabs together in a relatively easy and uncomplicated manner. Also, the prior art does not appear to show an arrangement employing a hollow key which positions the structural members in both the vertical and horizontal position and retains or interlocks them together in a horizontal and vertical relationship.

It can be further appreciated that where solid keys are employed as illustrated by the prior art, or where specially cast units are required, additional time may be required to initially form the units as well as thereafter lay the units and also either the labor employed in laying the units must be trained or more skilled than that which is required in utilizing the present invention.

SUMMARY OF THE INVENTION

The present invention relates to an arrangement for interlocking concrete or clay bricks, blocks, panels, and slabs in a horizontal and vertical direction. More particularly, the present invention can be employed on concrete or clay bricks, blocks, panels, and slabs with relatively unskilled labor.

The present invention employs concrete or clay bricks, blocks, panels, and slabs in which is cast or cut a dovetail groove for receiving a hollow key. The hollow key may be of any suitable material such as metal, plastic, rubber, or other similar materials which will yield and may be flexed for insertion in the grooves of adjacent blocks for locking them together, and which key, by reason of its resiliency, tends to expand and thereby lock the adjacent blocks together in a horizontal and vertical direction.

If desired, a projection can be provided on the key so that after inserting longitudinally of adjacent blocks, it will project upwardly therefrom for engagement with the next row of blocks, bricks, or panels in the structure being formed.

An object of the present invention is to provide a relatively simple and economical arrangement for interlocking concrete or clay bricks, blocks, panels, and slabs in a horizontal and vertical direction to form a structure.

Still another object of the present invention is to use a hollow key which may be flexed and inserted within a groove to interlock structural members together.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a side elevation of a plurality of structural members such as concrete blocks, with a portion cut away illustrating the key and keyway construction for interlocking adjacent rows horizontally and vertically;

FIG. **2** is an enlarged sectional view on the line **2—2** of FIG. **1** to illustrate in greater detail the preferred arrangement of the mating dovetail groove in the abutting edges of the concrete blocks and the hollow key member positioned therein;

FIG. **3** is a perspective view of a preferred form of the key member; and

FIG. **4** is an end view illustrating the configuration of the key.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Attention is first directed to FIG. **1** of the drawings wherein a plurality of members M is shown as being stacked to form a wall of a building or the like. The members M may be concrete or clay bricks, blocks, panels, or slabs.

In FIG. **2**, the members M are again shown in sectional view with adjacent members M being represented at **10** and **11**. It will be noted that their vertical edges abut as at **12** and **13** and there is either cast or cut in the ends of the blocks **10** and **11** along the edges **12** and **13** dovetail grooves **15** and **16**.

In FIG. **3**, the longitudinally extending hollow key member **20** is shown and may be formed of any suitable materials such as metal, plastic, or the like, which permits the hollow key member **20** to flex. As shown in FIG. **3**, the key member **20** is provided with longitudinally extending side surfaces **21**, **22**, **23**, and **25**, all of which are of generally concave configuration extending longitudinally of the key member **20**. It will be noted the surface **25** is split as shown at **26** longitudinally thereof which more readily accommodates flexing or collapsing of the hollow key member **20** to permit it to be inserted vertically within the mating dovetail grooves **15** and **16** formed in the abutting edges **12** and **13** of the blocks **10** and **11**.

The key member **20** may, under some circumstances, be provided with a projection **28** at a predetermined point which is adapted to engage the upper edge **30** of the next adjacent row of members M as shown in FIG. **1** of the drawings. This enables the hollow key **20** to project upwardly beyond the edge **30** of the row **31** of members M so that the next adjacent row **32** may be also engaged with the key member **20** and thereby lock the rows **32** and **31** together vertically and horizontally.

Since the key member **20** is hollow, it can be appreciated that it may be readily grasped and collapsed and the inherent resiliency thereof will tend to expand the key member **20** after it has been inserted in the mating dovetail grooves **15** and **16** so as to aid in locking the adjacent blocks **10** and **11** together as well as the adjacent rows **31** and **32** of blocks M. Also, the generally longitudinally extending concave configuration of the key member **20** further accommodates the collapsing of the key member **20** to aid in the insertion thereof into the dovetail grooves **15** and **16**, and also aids in the expansion thereof after it has been seated within the groove so as to aid in interlocking the blocks together. As shown in FIG. **1**, the blocks are shown in a stack bond, that is, where the edges of the blocks are aligned horizontally and vertically. Under those circumstances where a running bond is employed either on concrete or clay, bricks, blocks, and panels, a dovetail groove may be formed on the center web of the bricks, blocks, and panels.

Where the invention is to be employed in a horizontal slab, the same method as that described hereinabove is employed except that the key member **20** is inserted within the slab when it is in a horizontal position in lieu of in a vertical position as shown in the drawing.

Under some circumstances, it may be desirable to provide additional bond between the blocks **10** and **11** and adjacent rows **31** and **32** as well as the row **33**, and other rows forming the wall or structure. In such circumstances, cement or other grouting material may be employed and poured in the dovetail grooves and in the hollow key member **20** after it is positioned.

From the foregoing, it can be appreciated that the present invention provides an arrangement for laying concrete or clay, bricks, blocks, panels, and slabs in a manner more readily than that heretofore employed. The construction and arrangement of the interlocking means is such that it may be utilized by relatively unskilled labor, and after the blocks have been interlocked together, a suitable finishing surface material may be provided thereon. Additionally, the present arrangement eliminates the need for masonry reinforcement whose principle purpose at the present time is to aid in tying the concrete or clay bricks, blocks, panels, and slabs more tightly together.

The corner units have flush, plain ends. The dovetail groove is cast or cut in the side a distance from the end to provide a flush joint.

The foregoing disclosure and description of the invention are illustrative and explanatory thereof, and various changes in the size, shape, and materials, as well as in the details of the illustrated construction may be made within the scope of the appended claims without departing from the spirit of the invention.

What is claimed is:

1. An arrangement for securing members in end-to-end abutting relationship wherein the members each have a vertically extending dovetail groove in their abutting ends comprising:

a. an elongated hollow key for fitting in the dovetail grooves in the abutting ends of the members to secure the members together, said key member:
   1. having four longitudinally extending side surfaces, each of which is of generally concave configuration;
   2. one of said side surfaces having a split extending longitudinally thereof;
   3. projections formed on said one side surface on each side of and adjacent the split; and

b. said key member positionable within the dovetail grooves so that one of said projections engages the upper surface of one of the abutting members and the other of said projections engages the upper surface of the other of the abutting members, and with the longitudinal split coinciding with the juncture of the abutting ends of the members.

2. A joint arrangement comprising:

a. two members in end-to-end abutting relationship;

b. each of said members having along their abutting ends opposed, complemental, aligned, longitudinally extending slots of dovetail transverse cross-section;

c. an elongated, hollow key for fitting in the dovetail grooves in said abutting ends of said members to secure said members together, said key member:
   1. having four longitudinally extending side surfaces, each of which is of generally concave configuration;
   2. one of said side surfaces having a split extending longitudinally thereof;
   3. projections formed on said one side surface on each side of and adjacent the split;

d. said key member positionable within the dovetail grooves so that one of said projections engages the upper surface of one of said abutting members and the other of said projections engages the upper surface of the other of said abutting members, and with the longitudinal split coinciding with the juncture of the abutting ends of said members whereby said key member projects upwardly from said members;

e. an additional pair of members for resting on the upper surface of said two members; and

f. each of said additional members having along their abutting ends opposed, complemental, aligned, longitudinally extending slots of dovetail transverse cross-section for engaging with said upwardly projecting key member to secure said additional members in end-to-end abutting relationship and in abutting relationship with the upper surface of said two members and with the longitudinal split in said key member coinciding with the juncture of the abutting ends of said additional members.

3. The invention of claim **2** wherein said dovetail grooves and hollow key member are filled with concrete.

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