United States Patent [19]

Doubleday et al.

[11] **3,756,555**

[45] **Sept. 4, 1973**

[54] **GANG LOOP WALL TIE HOLDING BOLT**

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[73] Assignee: **Harsco Corporation,** Harrisburg, Pa.

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[52] **U.S. Cl.** **249/207,** 249/191

[51] **Int. Cl.** **E04g 17/06**

[58] **Field of Search** ..... 249/41, 44, 45, 191, 249/192, 219 R, 205, 207

[56] **References Cited**

UNITED STATES PATENTS

3,067,479	12/1962	Schimmel	249/41
3,142,883	8/1964	Kort et al.	249/45

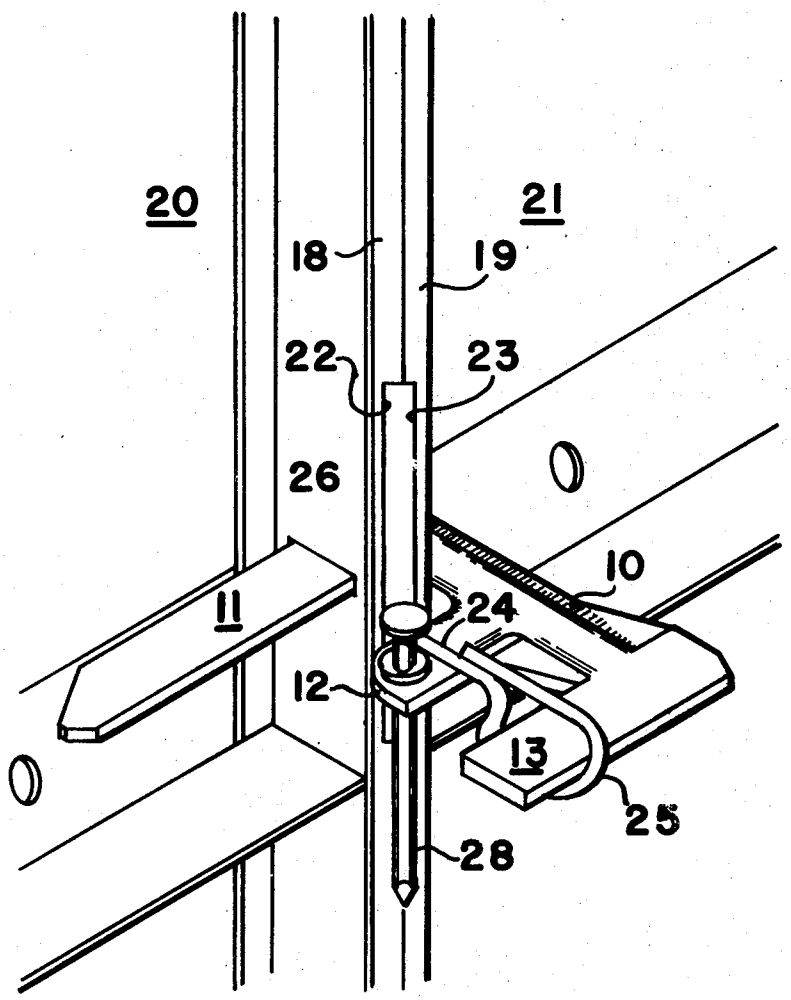
Primary Examiner—Robert D. Baldwin

Attorney—William B. Kerkam, Jr. et al.

[57] **ABSTRACT**

A gang loop wall tie holding bolt holding tie rods of multiple panel units in gang form sections for pouring concrete has a body portion from which extend laterally in the same direction a finger to extend through adjacent frame members of adjacent panel units. Spaced from this finger is a shorter medial extension having a hole therethrough and spaced from the medial extension at the other end of the body portion is a tie rod receiving stud offset from the plane of the finger and medial extension. The body portion may be reinforced by forming a longitudinally extending partial corrugation therein, ending short of the ends of the body portion and having an extension directed toward the medial extension.

2 Claims, 6 Drawing Figures



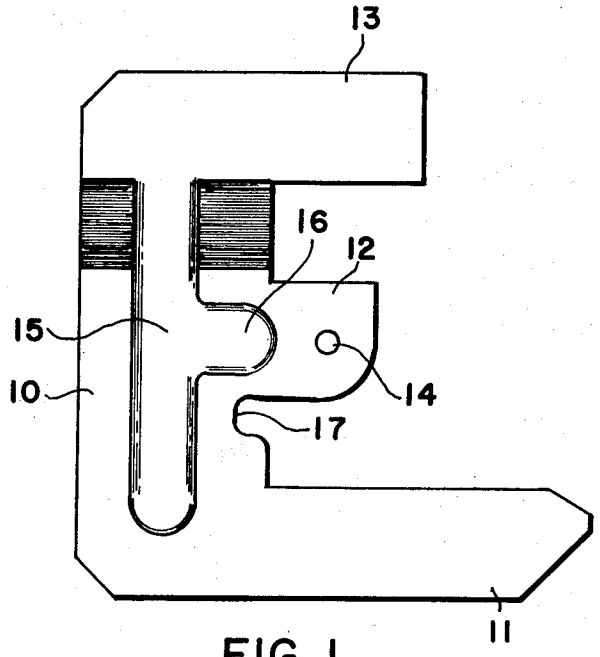


FIG. 1

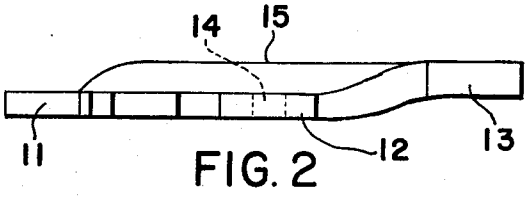


FIG. 2

FIG. 3

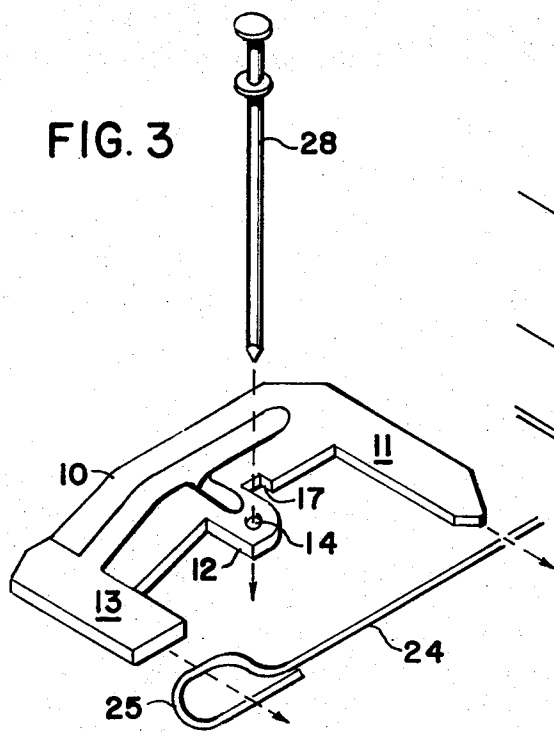


FIG. 4

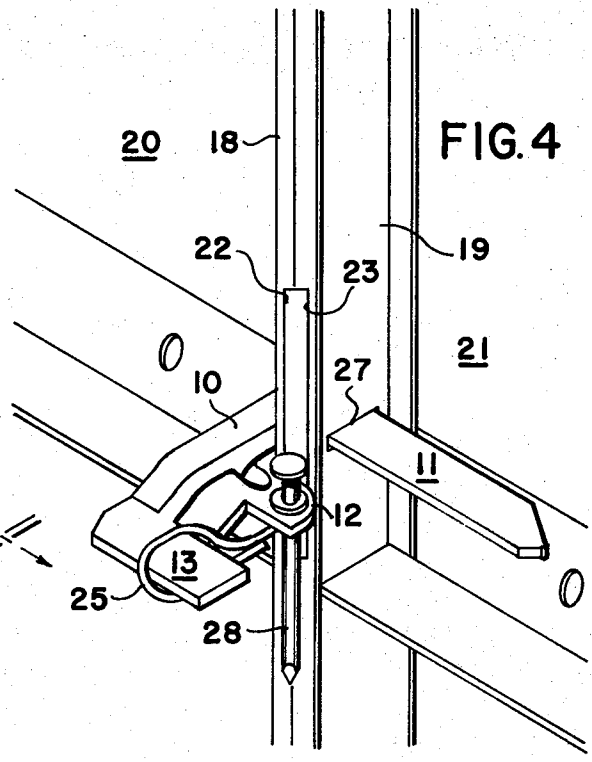


FIG. 6

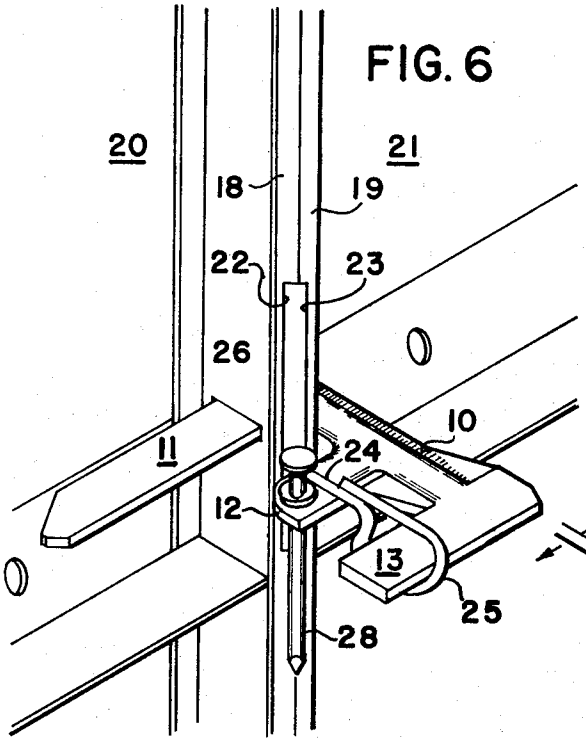
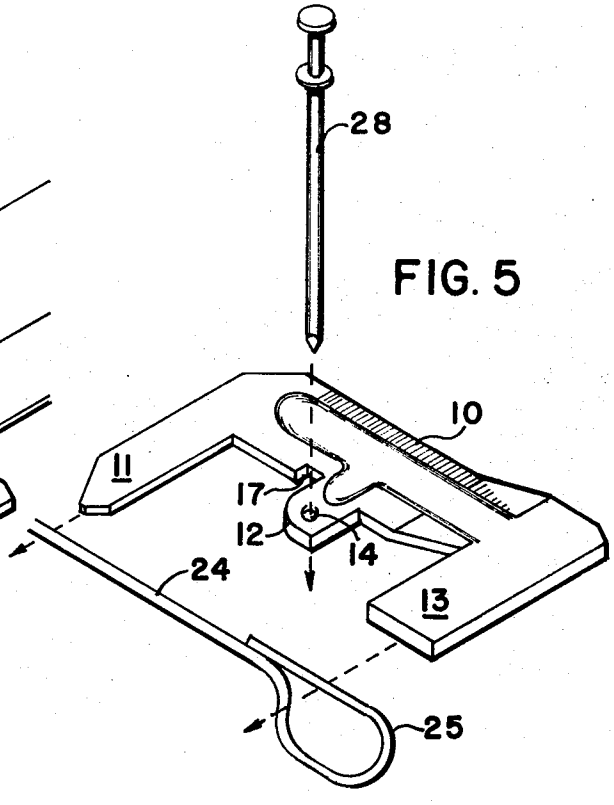


FIG. 5



GANG LOOP WALL TIE HOLDING BOLT

BACKGROUND OF THE INVENTION

The use of prefabricated panels in a gang of formed sections either preassembled or assembled on the job is well known in the concrete pouring art. Such prefabricated units usually have a flat face of plywood or other suitable material of appropriate dimensions reinforced by a metal frame extending around the periphery of each unit. The metal frame is usually of H-shape cross-section and edges thereof abut when the panel units are in position. These edges are suitably cut away to provide space for the insertion of tie rods to extend between spaced gang form sections between which the concrete is to be poured. The tie rods prevent the weight of the concrete from forcing the gang form sections away from each other.

Gang form bolts for locking adjacent sections together and for holding the looped ends of the tie rods have heretofore been proposed and their use described as in U.S. Pat. No. 3,067,479, granted Dec. 11, 1962, to V. R. Schimmel and entitled Panel-Securing Tie Rod Anchor Bolt With Offset Anchor Point.

SUMMARY OF THE INVENTION

A tie rod anchor bolt comprises a body portion, a finger extending from one end of the body portion to pass through slots in adjacent frame members of panel units, a medial extension extending from said body portion in the same plane and in the same direction as said finger and spaced therefrom, an opening in said medial extension and a tie rod receiving stud extending from the other end of the body portion parallel to the finger and to the medial extension and offset from the plane thereof, the body portion being reinforced by a corrugation terminating short of the ends of the body portion and having an extension toward the medial extension, a metallic pin passing through the aperture in the medial extension to hold the bolt in place and prevent the looped end of the tie rod from leaving the tie rod receiving stud.

BRIEF DESCRIPTION OF THE DRAWINGS

In the accompanying drawings, in which like reference characters indicate like parts, FIG. 1 is a view from above of a tie rod bolt of the present concept showing the relationship of the body portion to the extending finger, medial extension and tie rod receiving stud;

FIG. 2 is a view from the right of the embodiment of FIG. 1;

FIG. 3 is a view of the embodiment of FIG. 1 shown in position for insertion from left to right through adjacent frame members of adjacent panels showing the position of the tie rod loop;

FIG. 4 shows the bolt of FIG. 3 in position after movement from left to right and engaging the frames of adjacent panels with a nail holding the bolt and tie rod in position;

FIG. 5 is a view of the bolt of FIG. 1 in position for movement from right to left into position to engage the tie rod and the position of the loop end of the tie rod; and

FIG. 6 is a view of the bolt of FIG. 5 with the bolt in position engaging in the frames of adjacent panels with the tie rod and bolt held together by a nail.

DESCRIPTION OF THE PREFERRED EMBODIMENT

As seen in FIGS. 1 and 2, the tie rod bolt has a body portion 10 provided with a finger 11 extending in the principal plane thereof and a medial extension 12 spaced from finger 11 and in the plane of finger 11. A tie rod receiving stud 13 is spaced from extension 12 and extends parallel thereto and to finger 11. Stud 13 is offset from the plane of finger 11 and extension 12 as seen in FIG. 2. Extension 12 is provided with a through opening 14 to receive a pin or nail or broken end of a tie rod.

Body 10 is provided with a raised corrugation 15 having an extension 16 extending toward medial extension 12 for strengthening purposes.

A slot 17 is provided in body 10 adjacent the base of medial extension 12 adjacent finger 11.

Referring now to FIGS. 3 and 4, the tie bolt there being disposed for insertion from left to right through frames 18 and 19 of panels 20 and 21, respectively, frames 18 and 19 being provided in known manner, with half slots or openings 22 and 23, respectively, to receive a tie rod 24 having a conventional looped end 25. Frames 18 and 19 are also provided with mating opening 26 and 27 respectively, in known manner to receive finger 11 of the bolt.

The tie bolt is held with corrugation 15 facing down and finger 11 is entered in openings 26 and 27. The tie bolt is moved to the right until loop 25 passes over stud 13, the flat portion of the loop being disposed beneath stud 13. Medial portion 12 then passes over tie rod 24 and a pin nail or broken end of a tie rod 28 is then inserted through opening 14 to hold the bolt and tie rod together and in position so that stud 13 cannot disengage from loop 25 and finger 11 disengage from frames 18 and 19, the adjacent flange of frame 18 fitting into slot 17.

Referring now to FIGS. 5 and 6, the tie bolt is to be inserted through openings 26 and 27 of frames 18 and 19 from right to left. In this case the bolt is held with corrugation 15 upward and tongue 11 is slid into openings 26 and 27 until stud 13 enters loop 25 and extension 12 lies under tie rod 24. The flat part of loop 25 then lies on top of stud 13. Pin 28 is then entered through opening 14 to hold the elements in position, as above, and the adjacent flange of frame 19 enters slot 17.

The tie bolt does not function to lock frames 18 and 19 together, this being done by conventional wedge bolts, not shown.

Variations to the above-described preferred embodiment of the present invention may be made without departing from the inventive concept. Reference should therefore be had to the appended claims to determine the scope of this invention.

What we claim is:

1. A gang loop wall tie holding bolt for holding a tie rod passing through abutting frames of prefabricated panel units, the frames having mating slots, comprising a body portion, a finger extending from an end of said body portion for entry through the mating slots, a tie rod loop engaging stud extending parallel to said finger in the same direction from the other end of said body portion, an extension from said body portion spaced from and between said finger and said stud and extending in the same direction, said finger and said extension

lying in the same plane and the plane of said stud being offset from the plane of said finger and of said extension and a pin passing through said extension for holding the tie rod on said stud and for holding said finger in the mating slots.

2. A bolt as described in claim 1, said body portion having a strengthening corrugation therein.

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