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3,300,936

PREFABRICATED STRUCTURE

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FIG. 1

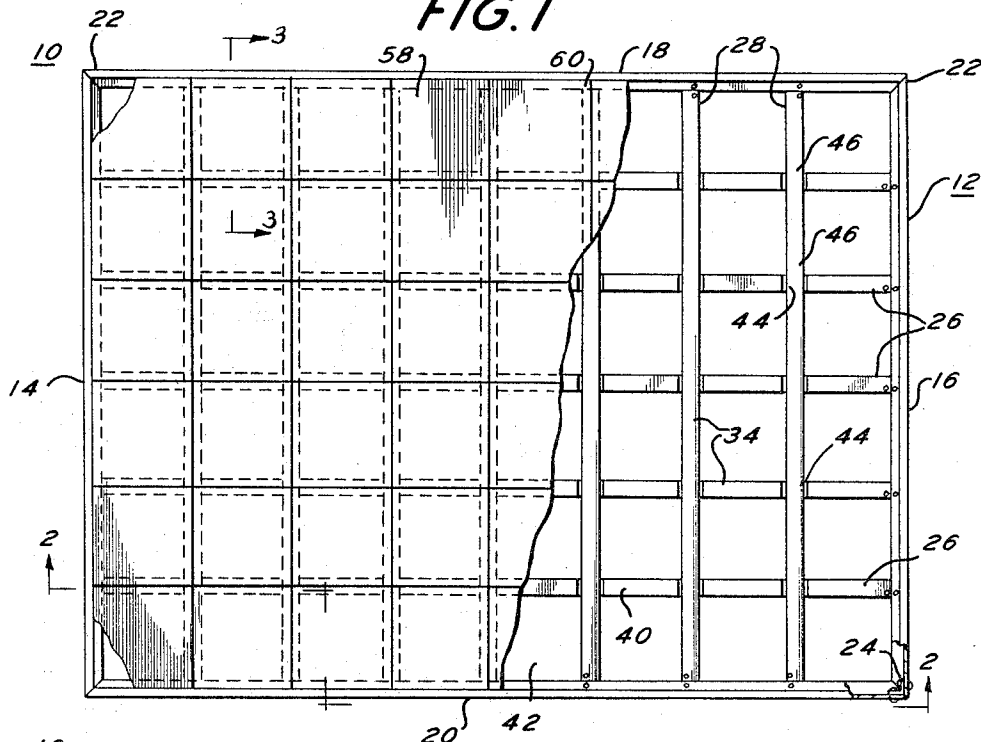


FIG. 2

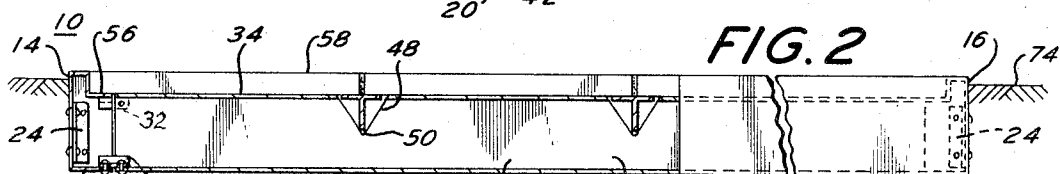
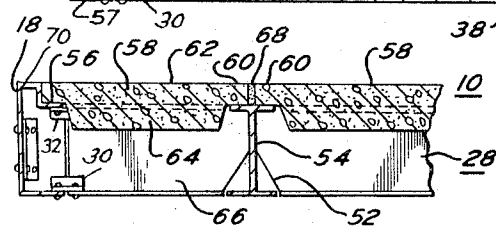


FIG. 3

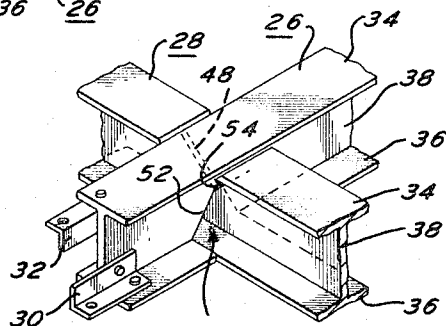


FIG. 4

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PREFABRICATED STRUCTURE

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5 Claims. (Cl. 52-477)

This application is a continuation-in-part application of application Serial Number 266,437, filed March 19, 1963, by the applicant and entitled, "Prefabricated Patio System."

The invention relates to a prefabricated structure, and more particularly to a structure for supporting slab units providing patio structures and the like, or for supporting slab material, such as tile, stone, etc., to provide a wall surface.

Heretofore, the preparation of a foundation for the construction of an outdoor patio of slate, terrazzo, marble, tile or other such materials has required considerable labor, while the setting of such surface units in cement upon such a foundation has required considerable and expert skills.

It is, therefore, an object of the invention to provide a new and improved prefabricated structure highly suitable for use as a patio, terrace or garden walk, which can be erected quickly with a minimum of effort.

It is a further object of the invention to provide a terrace or patio which can be laid out without the need of a concrete slab or anything more than the grading of the area where it is to be installed.

It is another object of the invention to provide a patio which can be floored or topped with a wide variety of materials including slate, marble chips, terrazzo, tile and the like.

It is another object of the invention to provide a modular patio floor comprising a plurality of prefabricated elements which require only minimal assembly at the construction site by unskilled labor.

Other objects of the invention are to provide an improved structure which is sturdy in construction, economical to produce and install, and highly satisfactory in endurance and esthetic appearance.

Another object of the invention is to provide an improved prefabricated structure which is made of light weight metallic members providing a sturdy, rigid structure which may readily be moved or positioned for placement on a ground site.

The foregoing and other objects of the invention will become more apparent as the following detailed description of the invention is read in conjunction with the drawings, in which:

FIGURE 1 is a front elevational view with portions broken away of a prefabricated structure embodying the invention,

FIGURE 2 is an enlarged sectional view taken on line 2-2 of FIGURE 1 with the structure shown positioned at ground level for use as an outdoor patio,

FIGURE 3 is an enlarged sectional view taken on the line 3-3 of FIGURE 1, and

FIGURE 4 is a perspective view with portions broken away of a pair of intersecting members of said structure shown in FIGURE 1.

Like reference numerals designate like parts throughout the several views.

Refer to FIGURES 1 through 4 which disclose in detail a prefabricated structure 10 embodying the invention. The structure 10 comprises an outer frame 12 providing a periphery for the structure comprising parallel side elements 14 and 16 joined respectively at their top and bottom ends by parallel elements 18 and 20. The frame elements 14, 16, 18 and 20 are in the form of channels,

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as clearly shown in FIGURES 2 and 3, which may be made of light weight metal, such as aluminum, and secured at their corners 22 by riveted or bolted angle brackets 24, as shown in FIGURES 1, 2 and 3.

A plurality of longitudinal grid members 26 are secured between the frame elements 14 and 16, the members 26 being equally spaced from each other, while a plurality of parallel transverse grid members 28 are equally spaced from each other and connected between the parallel frame elements 18 and 20.

The longitudinal and transverse members 26, 28 are also preferably composed of a light weight metallic substance, such as aluminum, and each have their ends secured with their frame elements 14, 16, 18 and 20 by angle brackets 30, 32 (see FIGURE 4) which may be riveted or bolted therebetween, or in any other suitable manner. (See FIGURES 2 and 3.)

From the above description of the frame elements 14, 16, 18, 20 and 22 and the connection of the grid members 26, 28 with the frame elements, it is noted that the light weight elements and members may be prefabricated and transported in disassembled form to the construction site, or if desired, can be preassembled as a light weight frame and grid structure and transported ready for use at the construction location.

The longitudinal and transverse members 26, 28 are provided with a cross section having a substantially I configuration including a top flange 34, bottom flange 36 and an intermediate vertical connecting wall 38 providing a highly rigid structure.

The longitudinal and transverse members 26, 28 intersect each other to form a grid 40 with a plurality of rectangular modules 42 within the frame 12. Interlocking means 44 (see FIGURE 4) are provided at the intersections 46 of the longitudinal and transverse members 26 and 28.

To provide the interlocking means 44, each of the longitudinal members 26 is provided along its length, at equally spaced intervals, with a plurality of cut-out portions 48 extending through the top flange 34 and into the connecting wall 38 of the member 26. The cut-out portions 48 have a substantially V configuration with its apex 50 extending at least midway between the upper and lower flanges 34, 36 of the member 26.

The transverse members 28 are also provided with similar spaced cut-out regions 52 at spaced intervals along the length of each member 28 for engaging the cut-out portions 48 of the members 26 at their cross-over locations or intersections 46. The cut-out regions 52 of the transverse members 28 have a substantially inverted V configuration extending through the bottom flange 36 and into the interconnecting wall 38 with its apex 54 extending at least half way between the flanges 36 and 34 of the member 28.

From the above description of the longitudinal and transverse members 26 and 28, it is noted that these members may be identical to each other except that the transverse members in assembly are positioned oppositely to the longitudinal members 26, so that their cut-out region 52 has an inverted V configuration. Thus, common stock material may be utilized for producing either the longitudinal or transverse members 26 and 28.

FIGURE 4 shows in detail the interlocking means 44 provided by the cut-out portions 48 and 52 of members 26 and 28 in their interengaging relationship at a cross-over location. The interlocking relationship increases the rigidity and strength of the grid structure 40 and the frame 12 and allows the use of standardized longitudinal and transverse members 26, 28 while furthermore providing a single plane surface defined by the top surfaces of the top flanges 34 of the longitudinal and transverse members 26, 28.

As secured within the frame 12, the top flange 34 of the members 26, 28 forming the grid structure 40 is at an even elevation with the surface provided by the inner horizontal ledge 56 (see FIGURE 2) of the frame elements 14, 16, 18 and 20, while the lower flanges 38 of the members 26, 28 are at the same level with the bottom horizontal portion 57 of the elements of the frame 12.

A plurality of slab units 58 which may be made of slate, terrazzo, marble, stone, tile or like material, may be provided for each of the modules 42 to provide a walking or supporting surface in the case of a patio, terrace or path, or a wall surface with, for example, a stone or tile wall facing where the prefabricated structure is secured with a wall. The slabs 58 which are rectangular, conforming to the configuration of the modules 42, have an edge portion 60 which overlies or overlaps a portion of the surrounding top surface of the top flanges 34 of the members 26, 28. The slab units 58, such as those which border the frame 12, also have their edge portion 60 supported by the inner ledge 56 of the frame elements 14, 16, 18 and 20, as clearly shown in FIGURES 2 and 3.

The slab units 58 are each provided with an outer surface 62 and an inwardly extending portion 64 which is received within the cavity 66 provided within the modules 42 for retaining the slab units 62 on the grid 40 of the structure 10. An adhesive material for securing the slab units 58 with the frame 12 and grid 40 may be applied to the top surfaces of the top flanges 34 of the grid members 26 and 28 and to the inner flanges 56 of the frame elements 14, 16, 18 and 20. The cavity 66 of each of the modules may also be filled with a cementitious material including concrete, especially where a patio or floor structure is being built, for receiving and having embedded therein the inwardly extending portions 64 of the slab units 58 for firmly retaining same. Grout or like material may be applied to the space 68 between the edges 69 of adjacent slab units 58 in a manner well known in the art to further secure the units 58 and to provide a finished appearance, as clearly shown in FIGURE 3.

The elements of the frame unit 12 are each provided with an upper surface 70 (see FIGURE 3) above the surface of its inner ledge 56 which is substantially at the level of the top surface 62 of the slab units 58, thereby providing the frame unit 12 with a recessed structure for the slab units 58 and with a protective and finishing edge about the prefabricated structure 10.

FIGURE 2 illustrates the structure 10 used to provide a horizontal supporting structure, such as a patio, the structure 10 being embedded in earth with its surface units 48 at substantially grade level with the surrounding ground surface 74.

The structure 10 may readily be prefabricated for use at the construction location, reducing the amount of preparation and labor required for preparing and providing the foundation for the construction of patios, terraces, walks and so forth, and also eliminating the need for skilled labor and use of extensive building machinery and apparatus.

It will be obvious to those skilled in the art that the invention may find wide application with appropriate modification to meet the individual design circumstances, but without substantial departure from the essence of the invention.

What is claimed is:

1. A prefabricated structure comprising an outer frame provided by a plurality of connected elements, a grid comprising a plurality of intersecting longitudinal and transverse members of uniform height confined within said frame and connected with said frame elements, said members defining a plurality of rectangular modules and have interengaging cut-out portions at their intersections providing interlocking means between said members, and a plurality of slab units adapted to be received upon and overlap said grid modules, said frame elements and grid members being composed of light weight metallic material being connected and interlocked to provide a rigid open structure, said members having a cross section with a substantially I configuration and are provided with longitudinally spaced substantially triangular cut-out portions for providing said interlocking means between intersecting members, said longitudinal and transverse members having substantially identical configurations and are positioned with respect to each other so that their interengaging cut-out portions are in inverted relationship to each other, said longitudinal and transverse members each having a top flange and a bottom flange, said longitudinal members having their top flanges provided with said cut-out portions having a substantially V configuration while said transverse members have their bottom flanges provided with cut-out portions having a substantially inverted V configuration for providing said interlocking means between members.

2. The structure of claim 1 in which said slab units each have an exposed outer surface and an inner extending portion sized to fit and be retained within said grid modules.

3. The structure of claim 2 in which said frame elements have a top surface which is above the surface defined by the top flanges of said members and which is substantially at the same level as the outer surface of said slab units providing a recessed structure for said slab units and a protective and finishing edge thereabout.

4. The structure of claim 3 including means for securing said frame elements and members along a wall structure.

5. The structure of claim 3 in which said frame elements and grid members are composed of light weight metallic material being connected and interlocked to provide a rigid open structure.

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