United States Patent

Merideth

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[54] **MODULAR STRUCTURAL PLAQUE ASSEMBLY**

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[52] **U.S. Cl.** **52/578,** 52/284, 52/311, 52/594

[51] **Int. Cl.**.....**E04c 1/30**

[58] **Field of Search**.....52/495, 311, 578, 588, 594, 52/284, 593; 287/189.36 R, 20.92 T; 46/30, 31, 25

[56] **References Cited**

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Primary Examiner—Price C. Faw, Jr.
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[57] **ABSTRACT**

A modular structural plaque adapted for demountable telescopic assembly in a variety of arrangements with other similar modular plaques. Each plaque is fabricated by bonding separately molded components together including a bifurcated main frame member and a plurality of panel like members some of which have tongues and channels complemental to and interlockable with similar components of one or more other plaques. The plaques are adapted to be interlocked with one another in a wide variety of different patterns and arrangements as respects both their central frame members and their tongue and channel portions.

11 Claims, 5 Drawing Figures

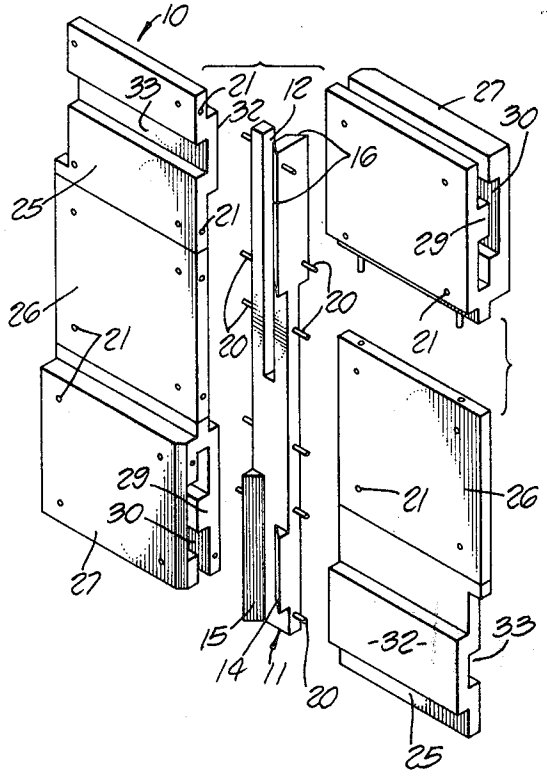


FIG. 1.

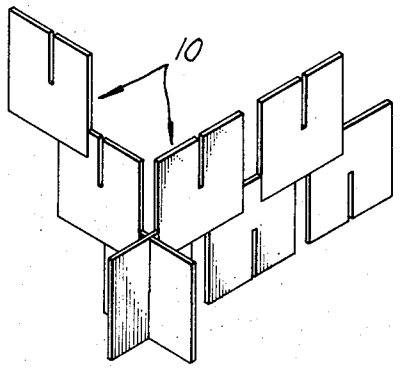


FIG. 2.

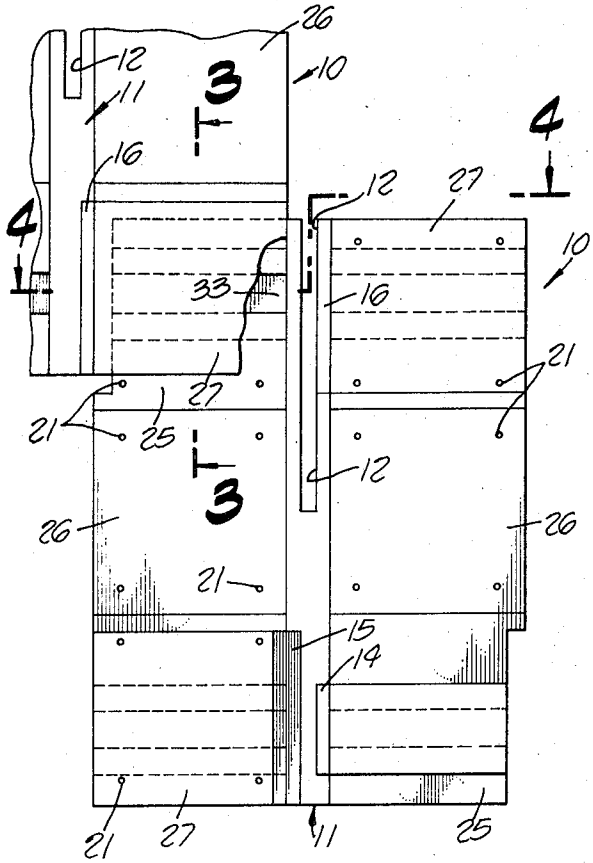


FIG. 5.

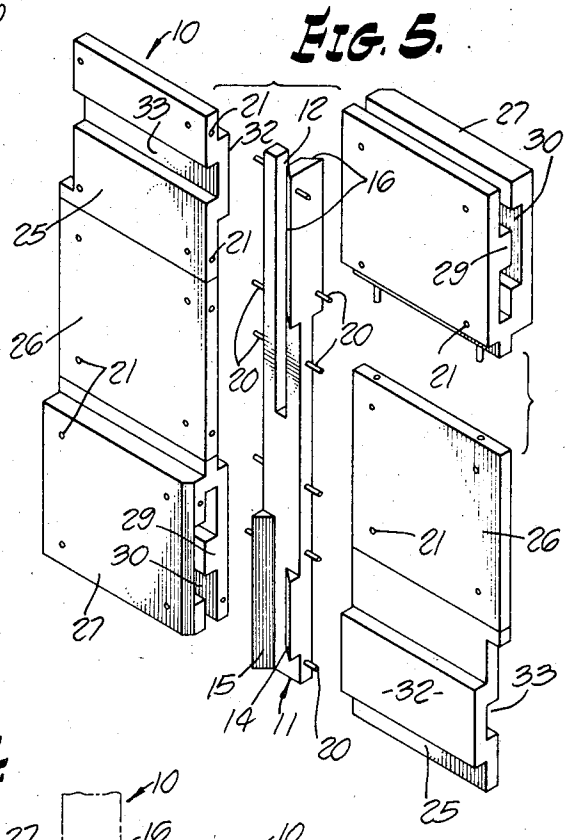


FIG. 4.

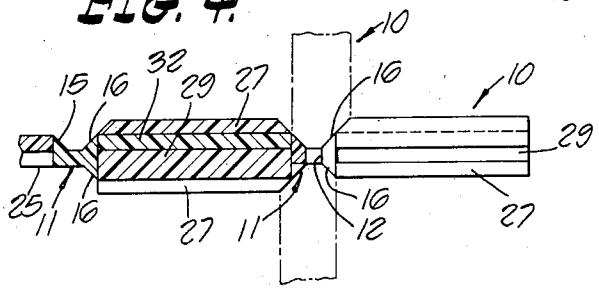
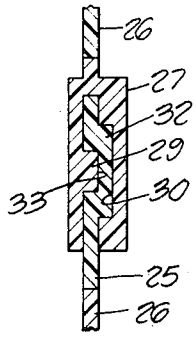


FIG. 3.



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MODULAR STRUCTURAL PLAQUE ASSEMBLY

This invention relates to structural assemblies, and more particularly to a modular structural plaque so designed and constructed that it can be demountably and interlockably assembled in a wide variety of patterns with other plaques of either identical or differing construction.

The present invention represents certain improvements and advantages over my prior U.S. Pat. No. 3,480,312 granted Nov. 25, 1969. In that earlier construction each of the modular plaques were formed in one unitary piece and included interlocking tongue and groove portions which could be clipped to one another in a wide variety of arrangements by means of an assembly clip embracing portions of two or more adjacent plaques. The present invention eliminates the need for the retainer or connector clip used in my aforesaid patent and features a modular plaque fabricated from a plurality of pieces each separately molded to high tolerance specifications and bonded to one another along their juxtaposed marginal edges. By this technique it is possible to vary the design configuration of any component independently of the other without need for a complete new mold for the entire plaque assembly. Likewise, the size and shape of the individual components can be changed with relatively unlimited freedom without need for changing other of the components. A preferred manner of fabricating the plaques from the individually molded parts is to provide their abutting edges with shallow seating wells to seat connecting dowels integral with or similarly assembled to an adjacent part. Each plaque includes an elongated central frame member bifurcated for one half its length for telescopic assembly with the similarly contoured central frame member of another plaque. Dowel pins carried by the opposite lateral edges of the central frame member assure the accurate assembly of one or more additional panel like components some of which are preferably provided with tongues and channels for telescopic assembly to complementally shaped mating components of another modular plaque.

The bifurcation in the central frame member permits two plaques to be assembled to one another criss-cross fashion whereas the tongues and channels in the corners of the plaque permit a pair of plaques to be telescoped together in overlapping relationship only at their corners and lying substantially in the same plane with one another. It will therefore be apparent that the invention modular plaque unit is highly versatile and adapted to be assembled to provide shelters, screens, and sculptural structures for the home, sales room, shop window, as well as in the garden and a wide variety of landscape environments.

Structures capable of being assembled and demounted at any time from the invention plaques are of endless variety, size and nature limited only by the imagination of the user. Accordingly it is a primary object of the present invention to provide a unique modular structural plaque readily fabricated from individually molded components bonded together at their adjacent edges and designed for demountable interlocking assembly to one another.

Another object of the invention is the provision of a modular plaque assembly a plurality of which have complementally shaped interlocking parts adapted to be assembled in the same or different planes relative to other similar modular units.

Another object of the invention is the provision of a modular plaque having a central frame member bonded to a plurality of other components bonded thereto and to one another and shaped to interlock in any one of several different ways with other similarly constructed modular plaques.

These and other more specific objects will appear upon reading the following specification and claims and upon considering in connection therewith the attached drawing to which they relate.

Referring now to the drawing in which a preferred embodiment of the invention is illustrated:

FIG. 1 is a small schematic view in perspective showing one of the innumerable ways in which a plurality of the invention modules can be assembled for utilitarian and decorative purposes;

FIG. 2 is a fragmentary elevational view on an enlarged scale with parts broken away showing a pair of the invention modules telescoped together at an adjacent corner of each;

FIG. 3 is a fragmentary cross sectional view taken along line 3—3 on FIG. 2;

FIG. 4 is a fragmentary view taken along the broken line 4—4 on FIG. 2; and

FIG. 5 is an exploded perspective view of a single module with certain components thereof in assembled position and others separated from adjacent components.

Referring to the drawing, there is shown a typical illustrative embodiment of the invention modular plaque designed generally **10** and made from any suitable material including molded plastic, metal, wood, reinforced concrete, paperboard, etc. Although herein shown as having its parts lying in a common plane it will be understood that the panel portions to either side of the central frame member **11** may be curved and likewise that one set of panel components may lie at right angles to the other.

As herein shown by way of illustration, the elongated central frame member **11** is contoured as shown and one end is bifurcated or slotted at **12** to have a snug sliding telescopic fit with the bifurcated end of a central frame member of a second module. For this reason each slot **12** preferably extends over one half the length of each frame member.

The lateral edge portions of frame member **11** are also preferably formed with integral braces or extensions **14,15,16** having one face of each lying flush with the lateral edge of the frame member, as is made clear in FIG. **5**. These abutments increase the bearing surface between the abutting edges of adjacent components and serve to reinforce and strengthen the same as will become more readily apparent presently.

Each lateral edge of the central frame member is also provided with wells seating dowel pins **20**, there being at least one pair of these locator and connector pins for each panel component of the module. If preferred, the pins **20** may be molded integral with the central frame member and project a suitable distance there-from for telescopic seating engagement with wells **21** in the edges of adjacent panel members. It will be understood that the channeled face of panels **25** and either of panels **27** can be provided with dowel seating wells **21**

positioned and spaced to mate with dowels **20**. Accordingly, it will be recognized that the panels can be assembled to frames **11** using any selected and matching set of wells **21**.

As herein shown, each module includes six panel-like members **25,26,27**. There are three identical pairs of these panels, panels **25,25** and **27,27** being diagonally opposed to one another on opposite sides of main frame member **11**. The identical flat panels **26,26** are diametrically opposite one another transversely of the mid portion of plaque **10**.

Panel members **27,27** are formed with a tongue **29** projecting into a channel **30** to form an irregularly shaped elongated passageway of non-circular cross-section complemental in shape to a right transverse section through panel members **25,25**. In other words it will be understood that the tongue **32** and channel **33** of panels **25** are sized to mate with and have a close sliding telescopic fit with panel members **27** of another one of the modular plaques **10**.

It follows that when two or more plaques are assembled to one another there is provided a highly rigidly stable self-locking structure of components which are firmly and immovably interlocked in all directions save that one direction of relative movement required for their assembly and disassembly.

From the foregoing it will be readily apparent that modules **10** can be fabricated in many different sizes and relative proportions. Thus panels **26** may be formed in different lengths thereby to increase the width of the panels and these panels may be molded with variously shaped cut-outs and designs inwardly of their peripheral edges. Although shown as being flat, it will be understood that panels **26** may be curved if desired so that their upper edges as shown in FIG. **5** lie generally in a plane at right angles to their lower edges. In this event, one of the corner panels, as **27**, need not be bonded to the edge of the central frame member but only to the outer edge of panel **26**. The module would not have the same strength as in the illustrated preferred form but strength is not a controlling factor in many applications wherein artistic values and variety take precedence.

While the particular modular structural plaque herein shown and disclosed in detail is fully capable of attaining the objects and providing the advantages hereinbefore stated, it is to be understood that it is merely illustrative of the presently preferred embodiments of the invention, and that no limitations are intended to the detail of construction or design herein shown other than as defined in the appended claims.

I claim:

1. A modular structural plaque having portions shaped for interfitting assembly to other plaques having portions of complemental shape, said plaque being formed of a plurality of separately molded components including an elongated central frame member having locator means lengthwise of two different surfaces thereof for interfitting assembly in accurate alignment with locator means in other of said components, and a plurality of panel like components having a pair of edges lying at right angles to one another equipped with locator means for seating connector means extending partially into and bondable to the aligned locator means in the edge of an abutting one of said components, and at least some of said panel like components having tongues and channels of non-circular cross-section adapted to be held telescopically assembled to the complementally shaped tongues and channels of a similarly constructed one of said structural plaques.

2. A structural plaque as defined in claim **1** characterized in that one of said panel like components is free of said tongues and channels.

3. A structural plaque as defined in claim **2** characterized in that said one panel like plaque has parallel smooth-surfaced faces.

4. A structural plaque as defined in claim **1** characterized in the provision of a plurality of said panel like components bonded together and projecting normal to a respective one of two different edges of said elongated central frame member.

5. A structural plaque as defined in claim **4** characterized in that all of said panel like components lie in substantially the same plane along the opposite lateral edges of said main frame member.

6. A structural plaque as defined in claim **1** characterized in that said main frame member in notched from one end thereof for telescopic assembly into the similarly notched main frame member of another of said structural plaque assemblies.

7. A structural plaque as defined in claim **6** characterized in that the panel like components in one pair of the diagonally opposed corners of said assembly are of one interlocking configuration and in that the other pair of diagonally opposed corner components have an interlocking configuration complemental thereto.

8. A structural plaque as defined in claim **7** characterized in that the interlocking tongues and channels of one of said pairs of corner components lie in parallel planes.

9. A structural plaque as defined in claim **1** characterized in the location of a pair of tongue and channel components and one flat surfaced component entirely to one lateral side of said main frame member and intimately bonded thereto and to the juxtaposed edges of one another.

10. A structural plaque as defined in claim **9** characterized in that the tongues and channels in said pair of tongues and channel components lie parallel to one another.

11. A structural plaque as defined in claim **1** characterized in that at least one of said panels along one lateral side of said central frame member has an edge thereof bonded to said central frame member and another lateral edge thereof bonded to the adjacent edge of a second one of said panels.

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