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Fanini

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[54] **MODULE FOR FURNITURE DEVELOPMENT**

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[52] **U.S. Cl.**..... **312/257 R,** 312/111, 312/198, 312/214, 312/263

[51] **Int. Cl.**..... **A47b 43/00,** A47b 87/00, A47f 5/08

[58] **Field of Search** ..... 312/107, 108, 111, 198, 312/257 R, 257 SK, 263, 214

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[57] **ABSTRACT**

A module for integration with related modules for developing a substantial variety of articles of furniture. The module, fabricated of a synthetic material, contains side walls each of which is comprised of two mating shells; said side walls having spaced series of vertically aligned openings; bottom and top walls having laterally disposed tongues for engagement within the side wall openings, and a rear wall maintaining said walls against displacement. By the tongues and cooperating openings and like means each module may be adapted for engagement to adjacent modules, both in vertical and horizontal relationship, as well as to receive internally shelves, drawer guides, and the like, and to mount swingable front closures, whereby said modules are endowed with the capacity for presenting a multiplicity of preselected functional characteristics.

11 Claims, 6 Drawing Figures

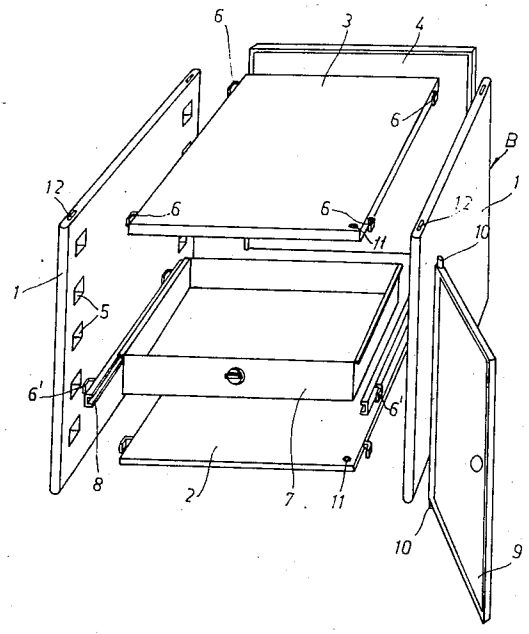


FIG. 1

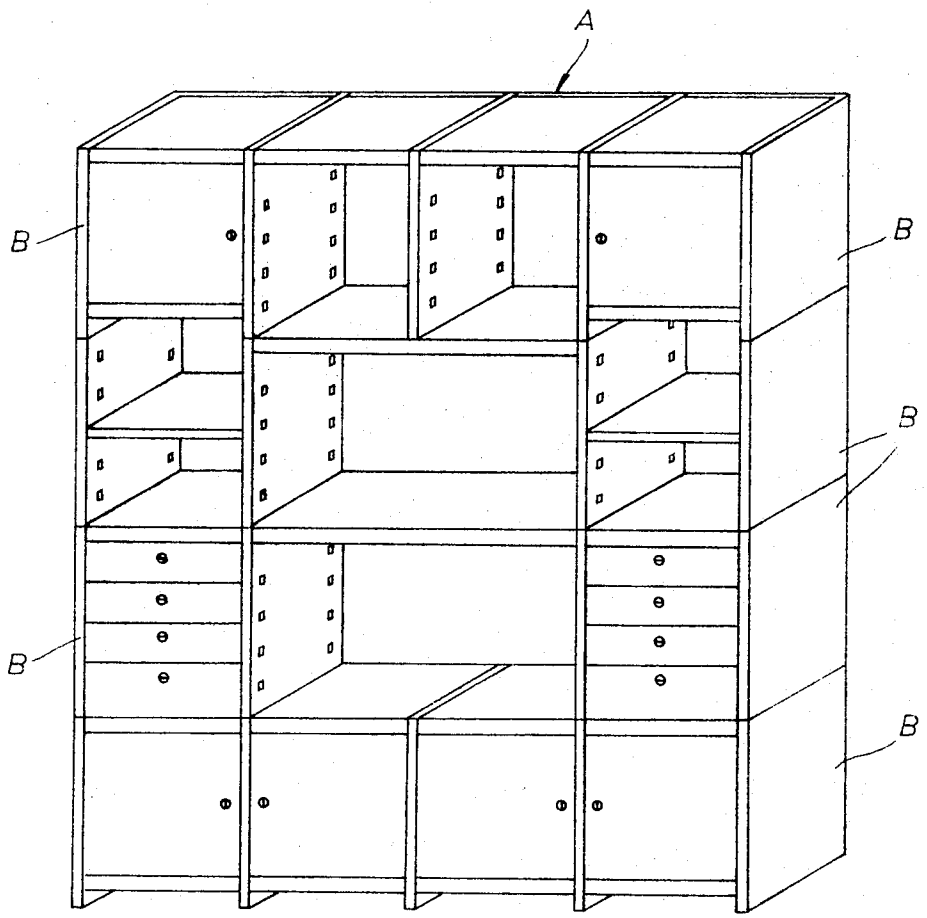


FIG. 2

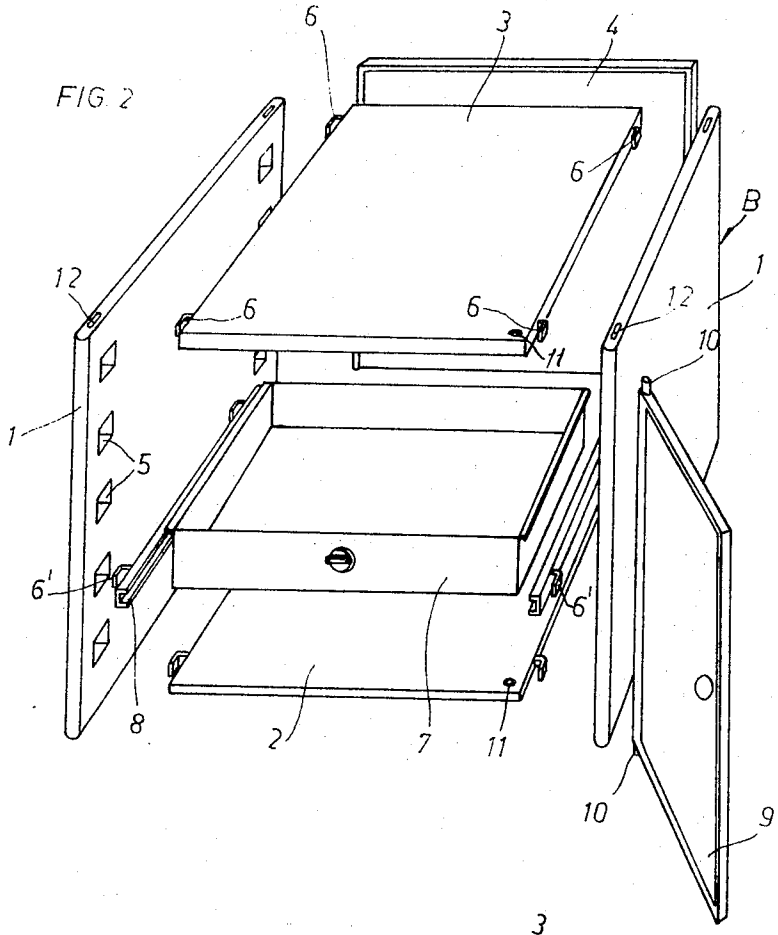


FIG. 6

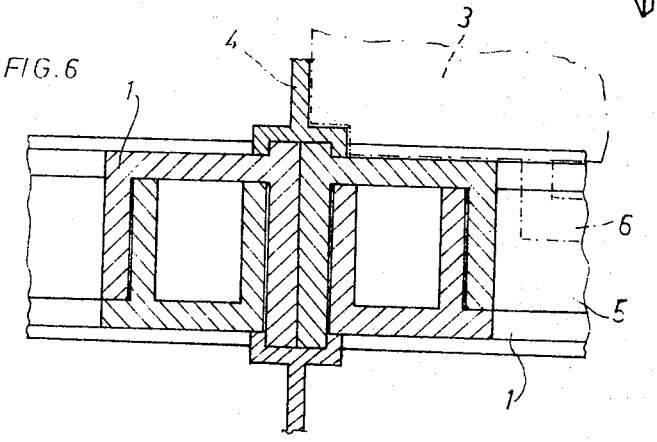


FIG. 3

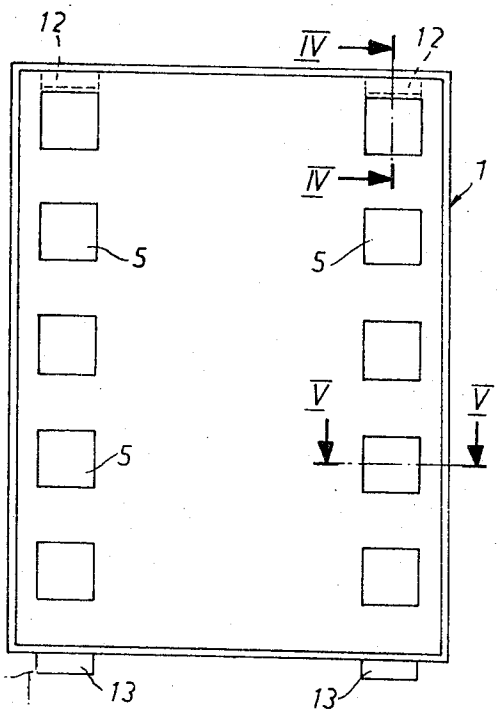


FIG. 4

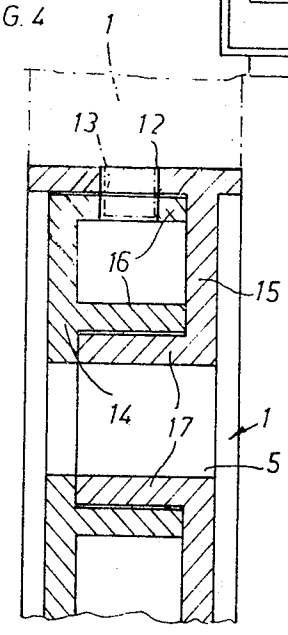
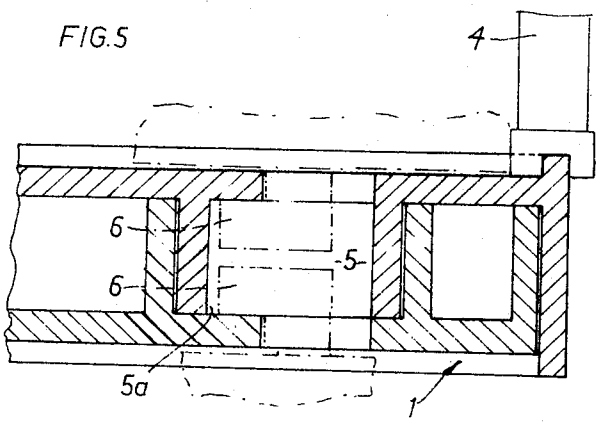


FIG. 5



MODULE FOR FURNITURE DEVELOPMENT

BACKGROUND AND SUMMARY OF THE INVENTION

The present invention relates in general to furniture and, more particularly, to a module adapted for integration with like modules into an infinite variety of assemblies for display, storage, and other like utilitarian purposes.

Heretofore, efforts have been made to develop modules for integration into various articles of furniture; however, all such prior efforts for the most part have been directed to the fabrication of such modules from wood or sheet metal. Efforts at producing such modules from synthetic materials, such as suitable resins, have been restricted to articles of relatively small dimensions in view of the difficulties caused by the particular mechanical characteristics inherent in such materials. Efforts to produce relatively larger articles of furniture from modules of snythetics have not, to the present time, proved satisfactory, whether viewed from an economic, aesthetic, or serviceable standpoint.

It is, therefore, an object of the present invention to provide a module of synthetic material for integration with like modules into articles of furniture of varying dimensions so that relatively large articles may be produced having the serviceability and the reliability heretofore associated only with natural materials of construction.

It is another object of the present invention to provide a module of the character stated, being of knockdown character and adapted for ready assembly as well as for ease of integration with like modules without requiring the use of tools and other auxiliary means conventionally considered requisite for assembly work of this character.

It is further object of the present invention to provide a module of the character stated which is adapted for incorporating a variety of components for rendering the module capable of a multiplicity of usages.

It is a further object of the present invention to provide a module of the character stated which is uniquely constructed for readily effecting interengagement of its constituents and being peculiarly adapted for maintenance of same in stable relationship.

It is another object of the present invention to provide a module of the character stated which is economic in production; durable and reliable in usage; and adapted for ease of assembly into myriad forms of furniture.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of an article of furniture constituted of integrated modules constructed in accordance with and embodying the present invention.

FIG. 2 is an exploded view of a module being equipped with drawer and door.

FIG. 3 is a side elevational view of the side wall of the module.

FIG. 4 is an enlarged vertical transverse sectional view taken on the line IV—IV of FIG. 3.

FIG. 5 is an enlarged horizontal transverse sectional view taken on the line V—V of FIG. 3.

FIG. 6 is a horizontal transverse sectional view taken substantially on the line V—V of FIG. 3 but illustrating adjacent side walls engaged to a common rear wall.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now by reference numerals to the drawings which illustrate the preferred embodiment of the present invention, A generally designates an article of furniture comprised of a plurality of modules B assembled to demonstrate the versatility of said modules wherein the same may be, optionally, fitted with drawers; provided with doors for cabinet formation; provided with shelves; and/or presented in open condition to provide maximum storage volume. Thus, article of furniture A does not form a part of the present invention but merely illustrates the potential of modules B for developing a multiplicity of furniture forms.

Module B is fabricated of synthetic material, such as, for example, acrylic resin or the like, and basically comprises a pair of side walls **1**, a bottom wall **2**, a top wall or cover **3**, and a rear wall **4**. Each side wall **1** is provided on its inwardly directed face with vertically arranged series of openings **5** for reception therein of hook-like tongues **6** provided on the lateral edges of bottom and top walls **2,3**, respectively. Thus, said tongues **6** are presented for selected engagement within the openings **5** of the confronting series so that as shown in FIG. **2** each top and bottom wall **3,2** is engaged in its forward and rearward portions. As will be developed hereinbelow, openings **5** integrally contain off-set portions for accepting tongue **6** in a secure manner. Rear wall **4** serves to urge said top and bottom walls **3,2** forwardly so as to maintain tongues **6** in locked condition within the respective openings **5**.

Modules B, as indicated in FIG. **1**, may be equipped with drawers **7** by means of guides or tracks **8** having on their outer faces tongues **6'**, structurally similar to tongue **6**, for engagement within openings **5** of the adjacent side wall **1** thereby securing said guides in position for receiving the customary runners provided on the drawer **7**. Thus, based upon spatial considerations, modules B are adapted to receive a plurality of drawers.

Top and bottom walls **3,2**, respectively, may be provided in a forward corner portion with aligned openings **11** for bearingly receiving pivots **10** provided on a door or front closure **9** whereby module B may be fully enclosed as in the character of a cabinet.

Accordingly, from the foregoing, it will be seen that module B is uniquely adapted for a multiplicity of arrangements, whether as an opened or closed unit, or whether with or without drawers, or with shelves which would correspond in all respects to bottom and top walls **2,3**, respectively. In order to permit the assembly of modules B in a vertical arrangement, one above the other, side walls **1** are provided at their upper ends with forward and rearward upwardly opening recesses **12** for extension thereinto of complementarily formed projections **13** provided on the bottom edge of each side wall **1**. It is, of course, understood that recesses **12** and projections **13** are provided only on such side walls **1** as would be used in a vertically integrated structure so that with a two-unit arrangement the side walls of the bottom unit would obviously be devoid of projections **13** and the side walls of the top unit would be devoid of recesses **12** for aesthetic purposes. Recesses **12** and, hence, projections **13** are of such extent and interrelationship to provide a sturdy connection between the interengaged modules B.

In order to produce modules B from synthetic materials, such as suitable plastics, and yet provide the rigidity desired, but relative lightness in weight, the components of module B are of two-part construction. Exemplary of such construction are the side walls **1**, each of which is comprised of two cooperating components or so-called half shells **14, 15**; said components having a plurlity of mating flanges **16, 17**, respectively, for face to face abutment for joint development; with such confronting face portions being suitably glued or sealed together. Said flanges **16,17** also maintain the respective components **14,15** in desired relationship as well as reinforcing the related wall **1.** As shown in FIG. **4**, component **15** is provided with an opening for registering with a recess in the adjacent flange **16** of component **14** for defining projection-receiving recess **12** of the module B thereabove. As also illustrated in FIG. **4**, openings **5** in side walls **1** may be created by aligned openings in components **14,15** so as to develop a through aperture, as it were, useful when the related side wall **1** is used as a partition or common wall between a pair of modules B in side by side relationship so that tongue **6** may be introduced from either side of said side wall **1.** In the event the particular side wall is used as an end wall, the opening **5** may be closed to the outside as by the elimination of an aligned opening in component **14** so that tongue **6** may be inserted only from the inner side and with the exterior being thus unbroken for appearance purposes.

Referring now to FIG. **5**, it will be seen that openings **5** comprehend an off-set chamber **5a** for accepting the free end extremity of the associated tongue **6** for retaining same against displacement. It will thus be seen that tongues **6** have an extent effectively the same as openings **5** so that they may move freely thereinto. However, in order to assure of locking of said tongues **6**, the same are moved horizontally (see phantom lines in FIG. **5**) so that the end extremities are introduced into chambers **5***a*. As thus positioned, tongues **6** are locked and thereby conduce to the stability and rigidity of the assembled module B. Accidental displacement of tongues **6** from such condition is inhibited by rear wall **4** which interengages with side walls **1** as by means of a mortise and tenon arrangement (see FIG. **5**) which thus prevents rearward or unlocking movement of shelves **7**, drawer guides **8**, and top and bottom walls **3,2.**

Referring now to FIG. **6**, there is disclosed end walls **1** of adjacent modules B in end to end relationship so that as it were, the related modules B might open in opposite directions. Common rear wall members **4** are provided which at their ends have relatively enlarged vertically extending grooves or mortises for receiving the abutting tenons formed along the inner and outer end lateral portions of said side walls **1,1'**.

Thus, the foregoing merely demonstrates but limited forms of the present invention since it is obvious that with the aforesaid teaching in mind others could readily recognize equally suitable interengaging means which would not require the utilization of extrinsic tools or other implements to bring about assembly or disassembly. It is also indeed obvious that modules B could be provided with rollers for rendering the article of furniture mobile.

Having described my invention, what I claim and desire to obtain by Letters Patent is:

1. A module fabricated of synthetic material for integration with similar modules to develop articles of furniture and the like comprising a pair of side walls, each of said side walls being comprised of inner and outer components, each of said components having a main planar portion with inward and outward surfaces, said components having a plurality of flange-like projections on their inner confronting surfaces in mutual abutting relation, means fixedly uniting such abutting projections integrating said components into said unitary side walls, said side walls being hollow in the zones between said projections, a top wall, a bottom wall, a rear wall, cooperative means provided on said top and bottom walls and said side walls for detachably engaging said top and bottom walls to said side walls, and means securing said rear wall to said side walls.

2. A module as defined in claim **1** and further characterized by said side walls having upper and lower margins, there being at least one upwardly opening recess in said top margin, at least one projection extending from said lower margin for acceptance into the recess of a module located therebeneath whereby said modules may be interengaged in vertical relationship.

3. A module as defined in claim **1** and further characterized by a front wall, and means for pivotally mounting said front wall on said top and bottom walls to provide a swingable closure.

4. A module as defined in claim **1** and further characterized by at least one shelf and means for detachably mounting said shelf upon said side walls in planar parallel relationship to said top and bottom walls.

5. A module as defined in claim **1** and further characterized by a drawer having runners, a guideway for said drawer runners and means for detachably mounting said guideways on said side walls.

6. A module fabricated of synthetic material as defined in claim **5** and further characterized by said means for detachably mounting said guideways comprising tongue-like elements carried upon the outer surfaces of said guideways and being dimensioned for reception within the openings in said side walls.

7. A module fabricated of synthetic material as defined in claim **1** and further characterized by said inner components having openings between adjacent projections, said cooperative means comprising said side wall openings and tongue-like elements provided on said top and bottom walls receivable within said openings for maintaining said side walls, top wall and bottom wall in integrated relationship.

8. A module as defined in claim **7** and further characterized by said side wall openings being arranged in at least two vertical, horizontally spaced apart series, and said top and bottom walls having spaced apart hook like tongues for reception within one opening of each vertical series.

9. A module as defined in claim **7** and further characterized by said means securing said rear wall to said side walls further comprising said rear wall having lateral margins with laterally outwardly opening coextensive grooves, one of said components of each of said side walls having an end flange-like projection abutting on its forward surface against the cooperating flange-like projection on the other of said components, said end flange having an inwardly projecting tenon for extension into the proximate groove of said rear wall, said rear wall abutting on its forwardly presented face against the rearwardly presented edges of said top and

bottom walls for maintaining same in operative position.

10. A module fabricated of synthetic material as defined in claim **7** and further characterized by each of said side wall openings being of less transverse extent than the distance between the proximate projections thereby providing an entry into the adjacent hollow zone limited by said adjacent projections, said openings being of substantially the same length as said tongue-like elements so that the latter will lockingly project into said hollow zone upon shifting of the related top and bottom walls.

11. A module fabricated of synthetic material as defined in claim **7** and further characterized by said tongue-like elements being axially parallel with the adjacent side margin of the respective top and bottom walls, each of said tongue-like elements having a major portion displaced outwardly from the adjacent side margin of the said top and bottom walls, the extent of said offset being slightly greater than the thickness of the side wall component.

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