United States Patent

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[54] **MODULAR CONSTRUCTION**
5 Claims, 8 Drawing Figs.

[52] **U.S. Cl.** **297/118,** 297/440, 312/107
[51] **Int. Cl.** **A41c 13/00**
[50] **Field of Search** 297/1.3, 118, 119, 232, 239, 338, 442, 418, 440; 211/148, 153, 177; 312/107

[56] **References Cited**
UNITED STATES PATENTS

D210,735	4/1968	Magistretti	108/91UX
1,252,816	1/1918	Kuehl	108/91
2,466,350	4/1949	Anderson	297/338X
2,625,456	1/1953	Rostav	312/107
2,776,700	1/1957	Potter	297/3
3,491,896	1/1970	Crary	211/148

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ABSTRACT: A modular construction adaptable for a multitude of furniture purposes consisting of a generally cubed-shaped structure having a first planar surface and two parallel planar surfaces extending at 90° from the first planar surface and a recessed surface located between said parallel planar surfaces and said recessed surface having means for receiving an holding rigid planar elements.

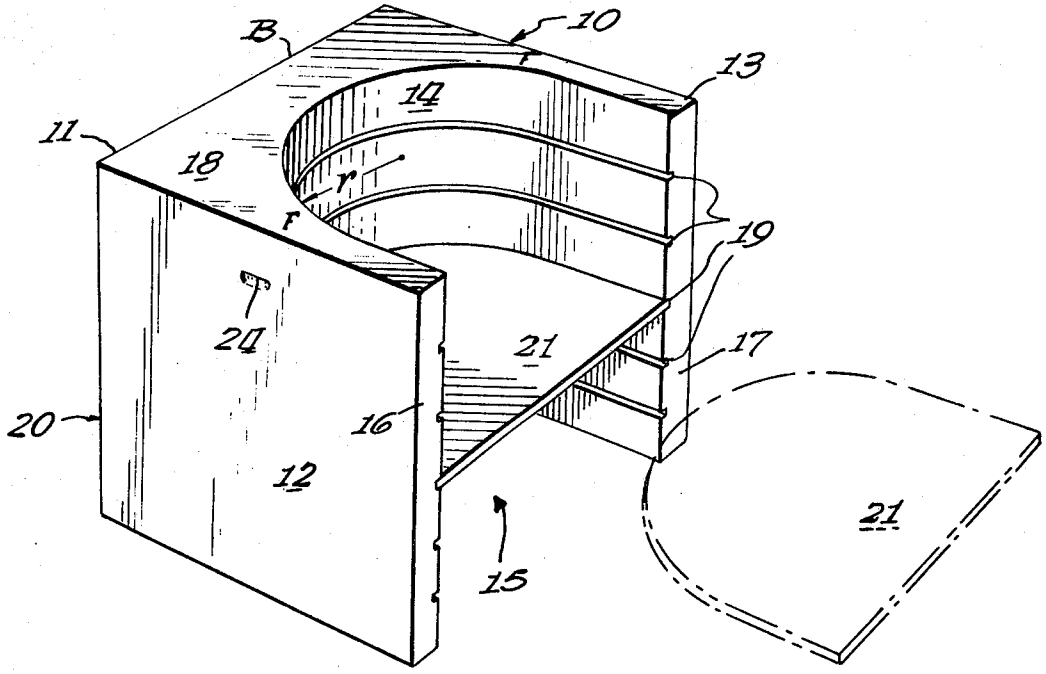

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Fig. 1

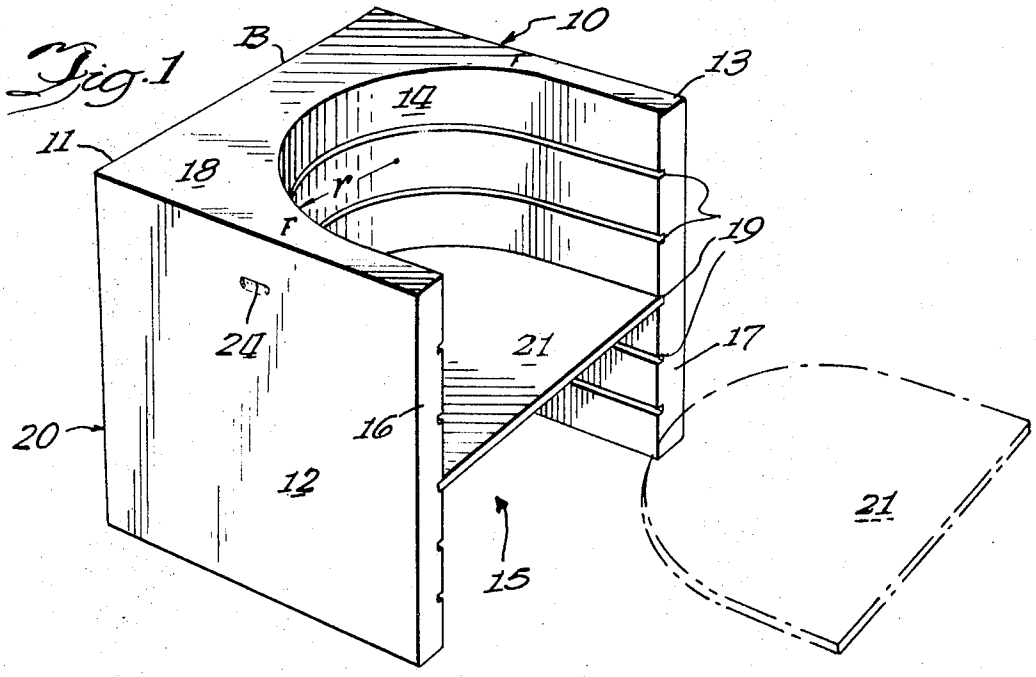

Fig. 2

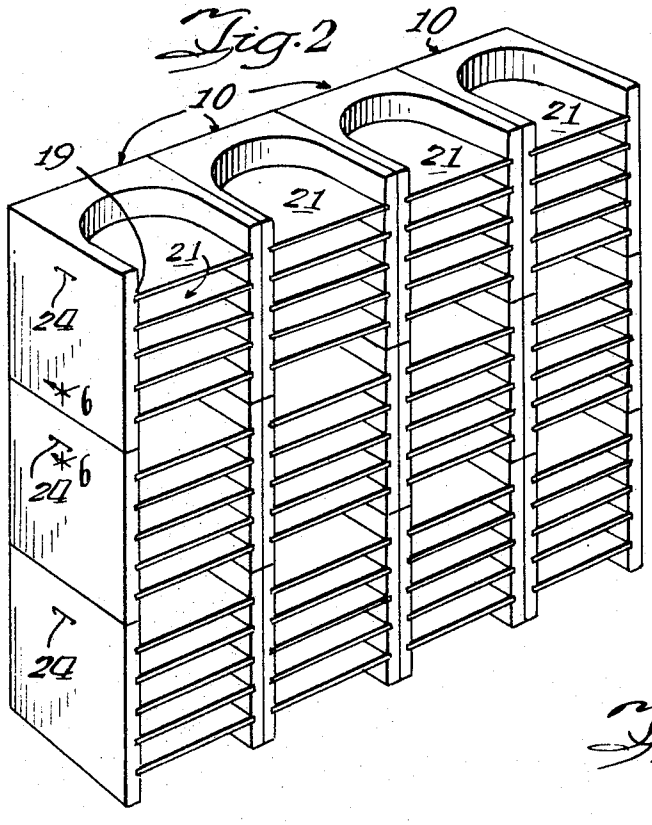

Fig. 6

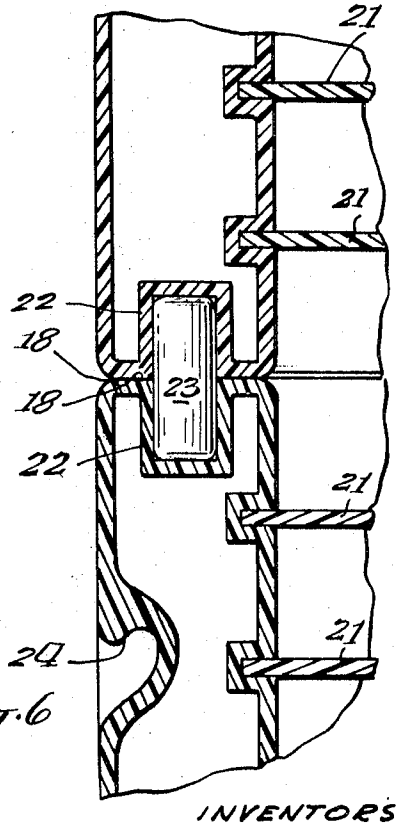

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Fig. 3

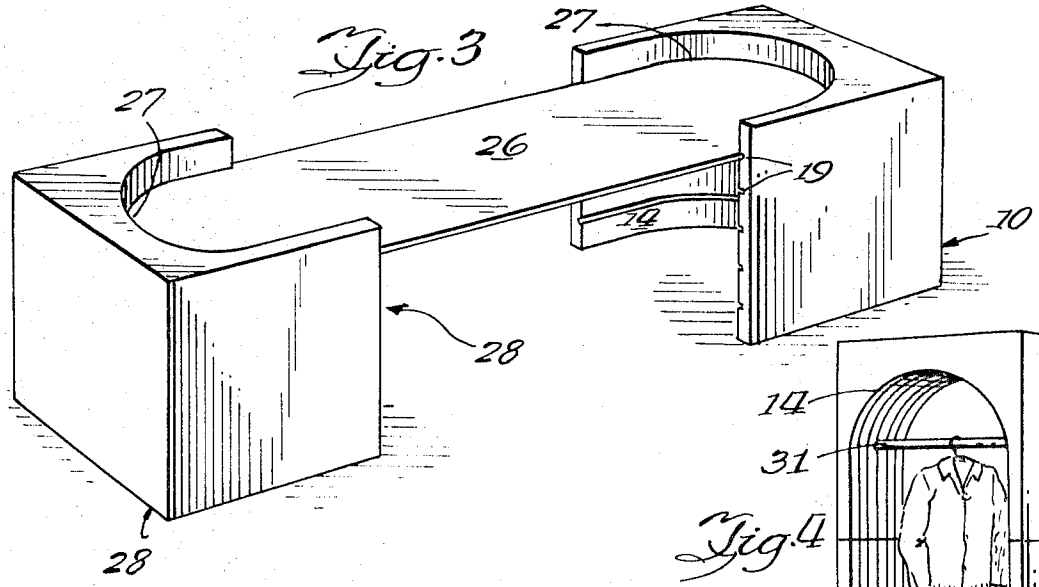
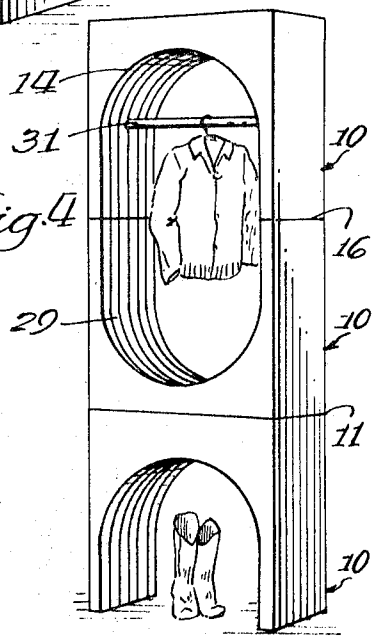


Fig. 4



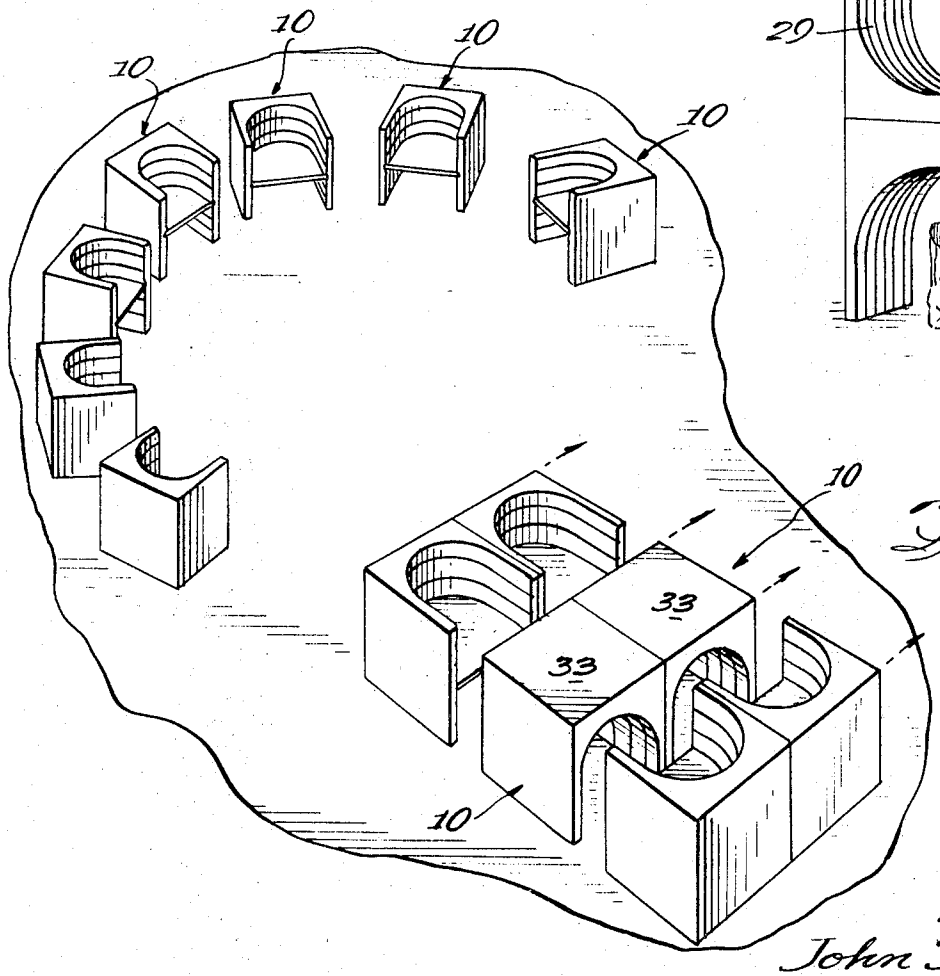


Fig. 5

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Fig. 7

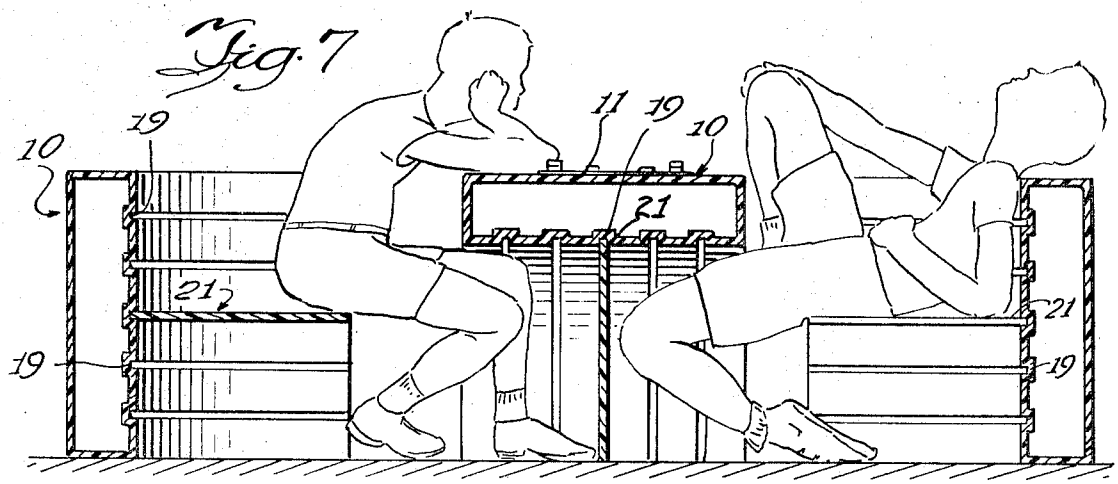


Fig. 9

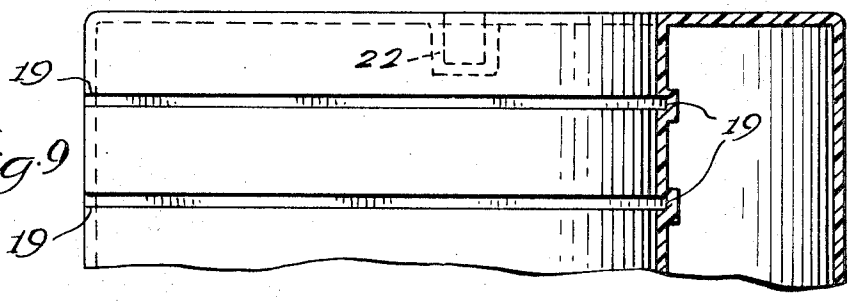
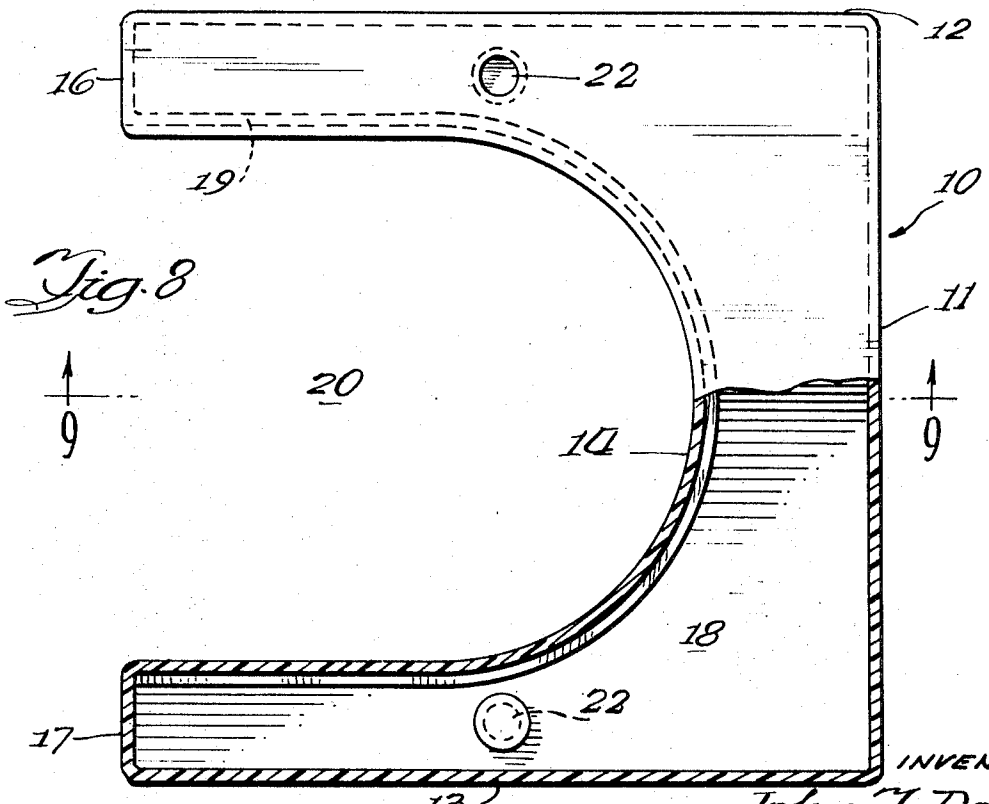


Fig. 8



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MODULAR CONSTRUCTION

BACKGROUND OF THE INVENTION

The subject invention relates to a modular construction and particularly to a modular construction which is adaptable either alone or in cooperation with other similar modules for creating a multitude of furniture pieces and arrangements.

Conventional chairs, tables, desks, bookcases, and clothesracks are, of course, well known. In most instances, each of these elements are of a sufficiently distinct construction and design so that, for instance, a chair may not be used as a clothesrack or as a table, etc., similarly, a bookcase or the like will only serve the function of being a bookcase.

The present invention is designed to provide a basic module which, with a minimum of rearrangement and/or with the inclusion of a simple accessory, can be used either as a chair, shelving, clothesrack, table, couch, bench or as recreational structures, through, or upon which, children may climb or play.

Although the modules disclosed herein may be large enough to be suitable for adults, it is believed that their greatest use will be as classroom furniture, particularly for children in the early years of their elementary school education.

The module is an essentially cubed or rectilinearshaped structure having a first planar surface, two parallel planar surfaces extending at 90° angles from parallel ends of the first planar surface and a fourth substantially arcuate surface located between said parallel planar surfaces. The arcuate surface is provided with a plurality of spaced parallel grooves or channels adapted for slidably receiving rigid planar elements. The perimeters of said rigid planar elements are of a configuration substantially conforming to a cross section of the arcuate surface. When used as a chair, for example, the first planar surface is the back, the two parallel planar surfaces are the sides, and a rigid planar element is inserted in one of the grooves in the recessed arcuate surface to provide a seat.

The modules can be employed to produce storage pieces such as coat and boot facilities, shelving, bins and cabinets; as work areas, where they can be arranged to provide area dividers, desks, chairs, benches, worktables; or as environmental game units wherein the modules can be placed in an infinite variety of arrangements for group meetings, and classroom discussions or as recreational building units such as blocks, tunnels and the like.

It is intended that said modules be constructed of a rigid plastic so that each module will be portable, lightweight, unbreakable, inexpensive to manufacture, colorful and washable, all of which characteristics will permit children to play and work with or about the modules. Due to these physical characteristics, the modules will also provide an experiential and educational benefit.

The invention will be better understood with reference to the drawings wherein:

FIG. 1 is a perspective view of a module and one of the accessories used therewith;

FIG. 2 is a perspective view of a number of modules and accessories combined to produce a storage area;

FIG. 3 is a perspective view of two modules and an accessory arrangement to form a bench or worktable;

FIG. 4 is a perspective view of three modules arranged to provide a storage area;

FIG. 5 is a perspective view of a number of modules arranged for meeting or classroom use as chairs and desks;

FIG. 6 is a fragmentary cross-sectional view of two modules in nesting arrangement;

FIG. 7 is a sectional elevation of the modules as they may be used as chairs and a desk;

FIG. 8 is a plan view of a module; and

FIG. 9 is a fragmentary cross-sectional view of a module taken along line 9–9 of FIG. 8.

Referring initially to FIG. 1, the module 10 may be simply described as a base portion B having spaced flanges F depending therefrom, the facing surfaces of flanges F defining an arcuate surface 14, said arcuate surface 14 being provided with a plurality of parallel spaced channels, extending from the free end 16 or 17 of one flange to the free end 16 or 17 of the other flange.

In view of the variety of uses to which the module 10 may be put by merely having it cooperate with other modules or accessories or by changing the side upon which it rests, a more detailed description is provided herewith.

Referring again to the drawings wherein common reference numerals will be used throughout, and particularly now to FIG. 1, 8 and 9, there is shown a module 10 having a planar surface 11 (one surface of base portion B previously referred to) and parallel planar surfaces 12 and 13 (previously referred to as flanges F) extending at right angles from the ends of planar surface 11. Between said parallel planar surfaces 12 and 13 is arcuate recessed surface 14 which defines an opening 15. Module 10 is shown in FIG. 1 as a chair 20.

Although the drawings herein show arcuate recessed surfaces, said surfaces may be rectangular, scalloped or of any configuration suitable for the intended purpose. The term "arcuate" as used herein includes any such configuration.

In addition, although reference is made to planar surfaces and sides of the module as being at right angles or parallel to each other, the surfaces may be curved and the perimeter of the module may not define a parallelogram. Some combinations of modules are best made with essentially cubed or rectilinear-shaped modules and, therefore, that structure is referred to herein for purposes of illustration.

The module is here shown with facing surfaces 16 and 17 which, however, may be eliminated or reduced by increasing the radius R, and thereby the size of opening 20. Such surfaces are desirable particularly when a plurality of modules are placed in cooperating relation such as in FIG. 4.

Planar surfaces 18 are located at opposite ends of opening 15 and extend at right angles from planar surface 11 to facing surfaces 16 and 17.

Arcuate surface 14 is provided with a plurality of spaced grooves or channels 19 which channels extend continuously from facing surface 16 to facing surface 17. Channels 19 are of sufficient depth and thickness to slidably receive and maintain planar accessory elements 21 which accessory elements 21 may be placed in any one of the channels 19 to provide a variable seat level or divider. A half-channel (not shown) or shoulder may be supplied where planar surfaces 18 intersect arcuate surface 14 to provide continuous spaced channels when modules 10 are stacked as in FIG. 2.

Finger grips or handles 24 are provided in planar surfaces 12 and 13 for ease in moving and arranging modules 10. Similar finger grips and handles may be provided in any of the surfaces 11, 12, 13, 14, 16, or 18. Referring also to FIG. 6, any of the surfaces 11, 12, 13, 16 or 18 may be provided with detents 22 shown here in surface 18 in FIG. 8, in which detents 22 may be inserted a pin or the like 23 so that modules 10 may be placed one on top or adjacent the other and be maintained in that relationship.

Referring now to FIG. 2, a plurality of modules 10 are shown arranged to provide a shelf, bookcase or storage area wherein a plurality of accessories 21 have been slidably received in channels 19. The modules 10 are maintained in this arrangement by means of detents 22 and pins 23 as shown in FIG. 6.

Referring now to FIG. 3, modules 10 are shown in facing but spaced apart relationship. Elongated planar accessory 26 having end portions 27 conforming to the general configuration of the arcuate surface 14 is slidably received in the uppermost groove 19 of each of said modules 10 to provide a worktable or bench 28.

In FIG. 4, modules 10 are shown with facing surfaces 16, 17 in abutting relationship to form a compartment 29 which may be employed as a closet or the like. Rod 31 is shown extending between facing portions of arcuate surface 14 to provide means for hanging coats or the like. The two modules 10

forming the compartment 29 may be placed on top of an additional module 10 with first planar surfaces 11 in abutting relationship to provide a storage area for boots or the like. The detents and pin nesting means may be provided between abutting surface 16 and abutting surface 11.

Referring to FIG. 5, a plurality of modules 10 are shown in one instance to be arranged as a group of chairs in a semicircle as a suitable setup for classroom instruction and as in a desk and chair arrangement wherein two modules 10 are shown in position so that first planar surface 11 is a top horizontal surface to provide desks 33 and are shown positioned between modules arranged as chairs.

As show in FIG. 5, the module 10 can be arranged as a desk 33 by positioning planar surface 11 to be a horizontal surface. A desk may also be provided by placing the rigid planar accessory 21 in the uppermost channel 19 (refer to FIG. 1) and spacing that module across from a chair-arranged module.

In FIG. 7 is shown an arrangement of two modules 10 arranged as chairs with rigid planar element 21 in the middle most channel 19. Located between the chairs is a module 10 arranged as a desk with first planar surface 11 horizontally disposed and a rigid planar accessory 21 received in a channel 19 to provide a separation or divider between the two chairs.

In the preferred embodiment of the present invention wherein, for example, modules are to be supplied for kindergarten age youngsters, it is proposed that the module be constructed of acrylonitrile-butadiene-styrene, approximately 14 inches thick by 18 inches wide by 18 inches high. Facing surfaces 16, 17 are approximately 2½ inches wide.

It is suggested that the module be constructed of a plurality of panels to provide for a lighter, more portable structure, but it is contemplated that for some situations, a solid one-piece module may be manufactured.

The recessed surface 14 is to be of an arcuate configuration having a radius of 6½ inches. The channels 19 are one-fourth inch deep by nine thirty-second inches wide and the rigid planar accessories 21 are to be made of diecut plexiglass and are approximately one-fourth inch thick and with a radius of the curved portion approximately 6⅝ inches.

It is understood that many materials may be used for this accessory element depending upon the size and weight of the individuals for whom the modules are to be adopted. In some instances, a plywood seat will be sufficient for the purposes.

The detents 22 in surface 18 are to be 1 inch in diameter and 1 inch deep. The pins 23 to be received therein are plastic extrusions with a length equivalent to twice the depth of the detents 22 and a diameter of fifteen-sixteenths inch.

The arcuate surface 14 should be provided with seven parallel, uniformly spaced channels.

When intended for use by kindergarten age children, it is suggested that modules of at least two or three different dimensions be supplied so that one size can be used for chairs, another for tunnels, etc. and another for shelves, dividers, etc.

The number of arrangements of the modules and additional accessories for use therewith are unlimited and are well within the ordinary skill of those versed in the art. The above discussion is intended for purposes of illustration only, and is not intended to limit the scope of the invention.

We claim:

1. A module consisting of:
   - a base portion;
   - a pair of spaced flanges depending from said base portion, each of said flanges having a free end, said flanges having facing surfaces defining an arcuate surface therebetween; and
   - at least one channel extending continuously along said arcuate surface between said free ends of said flanges.

2. The combination including the module of claim 1 and a rigid planar element of finite thickness whereby said rigid planar element may be slidably received in one of said channels.

3. The combination described in claim 2 wherein said rigid planar element has an edge portion substantially conforming to the configuration of said arcuate surface.

4. The module of claim 1 having at least one detent provided in the surface thereof whereby said module can be joined to a second module provided with at least one detent, by means of a pin received in a detent in said module and a detent in said second module.

5. A module consisting of:
   - a first planar surface;
   - a pair of parallel planar surfaces extending at right angles from said first planar surface;
   - an arcuate recessed surface located between said parallel planar surfaces;
   - a plurality of parallelly spaced channels extending continuously along said arcuate surface;
   - means for gripping said modules whereby they may be manually moved; and
   - means for maintaining said module in contact with additional modules.