

[54] **CLUSTERABLE LEARNING MODULE**
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 [22] Filed: **Sept. 11, 1972**
 [21] Appl. No.: **287,842**

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[52] U.S. Cl..... 108/60, 108/64, 108/153,
 312/196, 312/257 R
 [51] Int. Cl..... A47b 57/00
 [58] Field of Search..... 108/60, 64, 111, 153, 107,
 108/109, 114; 35/35 C, 8 R; 312/257 R, 257
 A, 263, 264, 239, 196; 211/177

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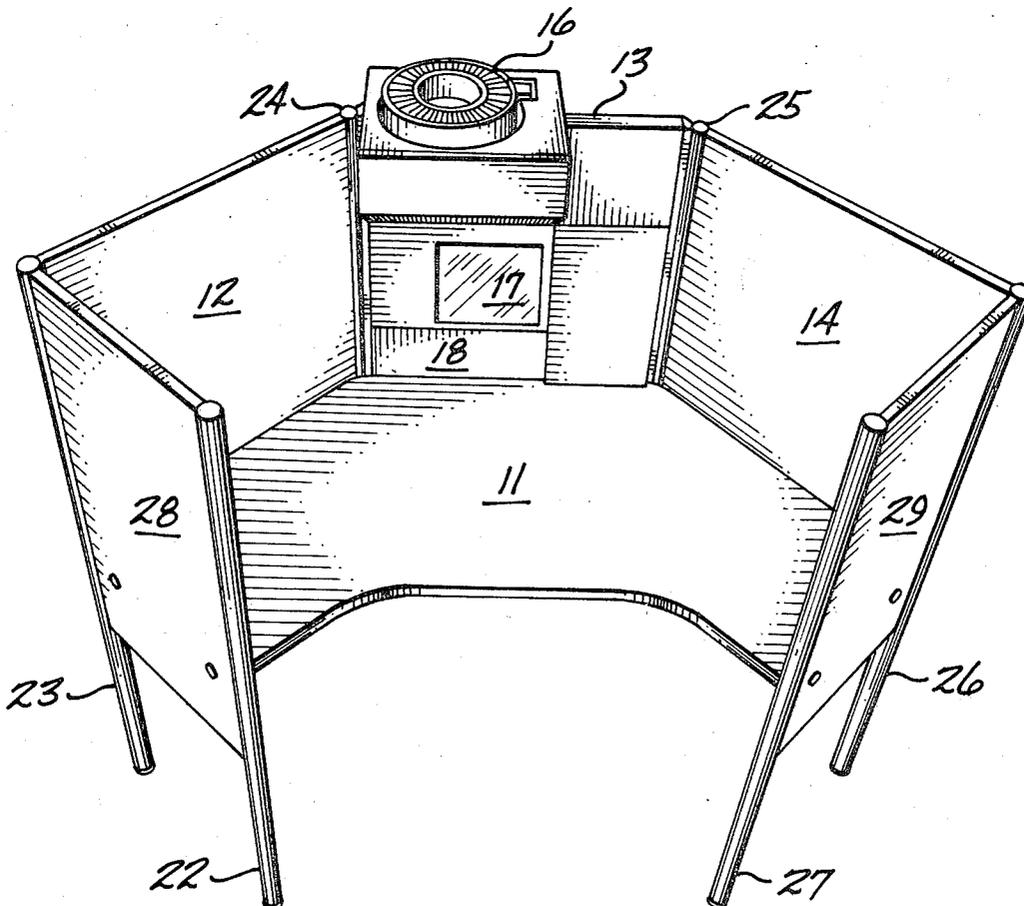
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[57] **ABSTRACT**

An educational module, having removable panels, the individual modules being capable of being clustered into different groupings. Six vertical poles and two fixed end panels provide support for a writing surface approximately midway of the length of the poles. The majority of the writing surface is enclosed by panels extending between the poles from slightly below the writing surface to the tops of the poles. Five panels are provided, with several of the panels being removable and interchangeable without dismantling the module.

8 Claims, 24 Drawing Figures



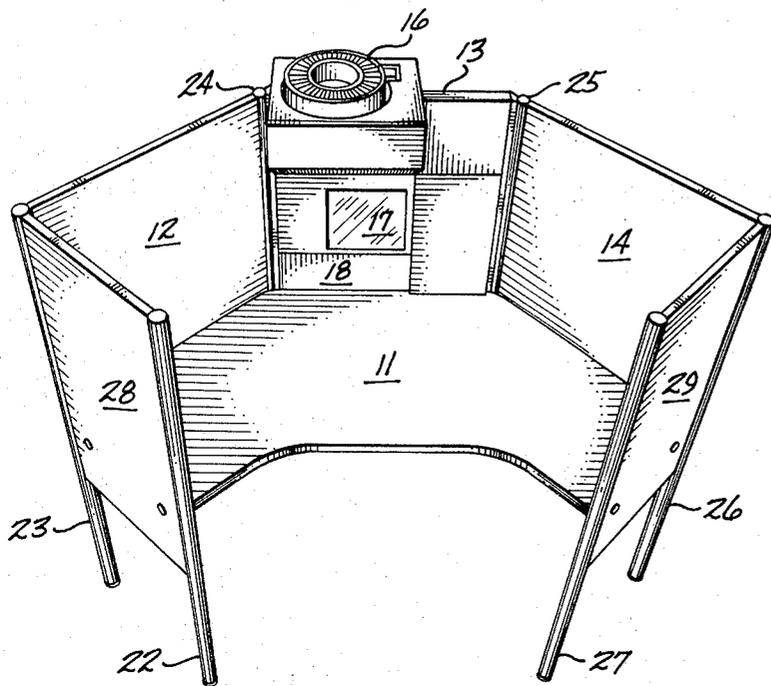


Fig. 1

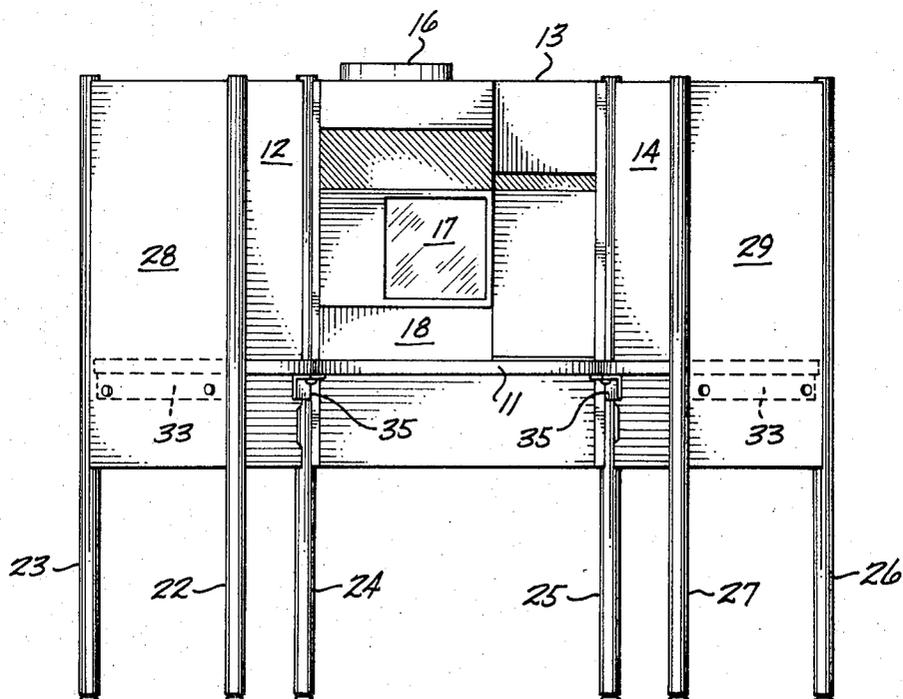


Fig. 2

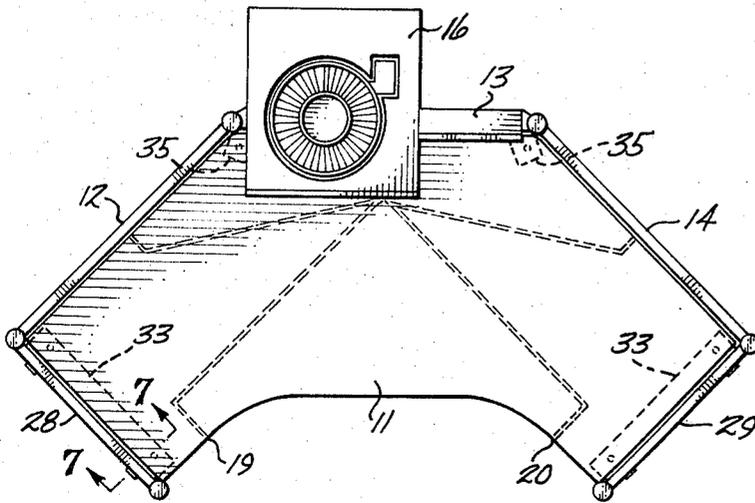


Fig. 3

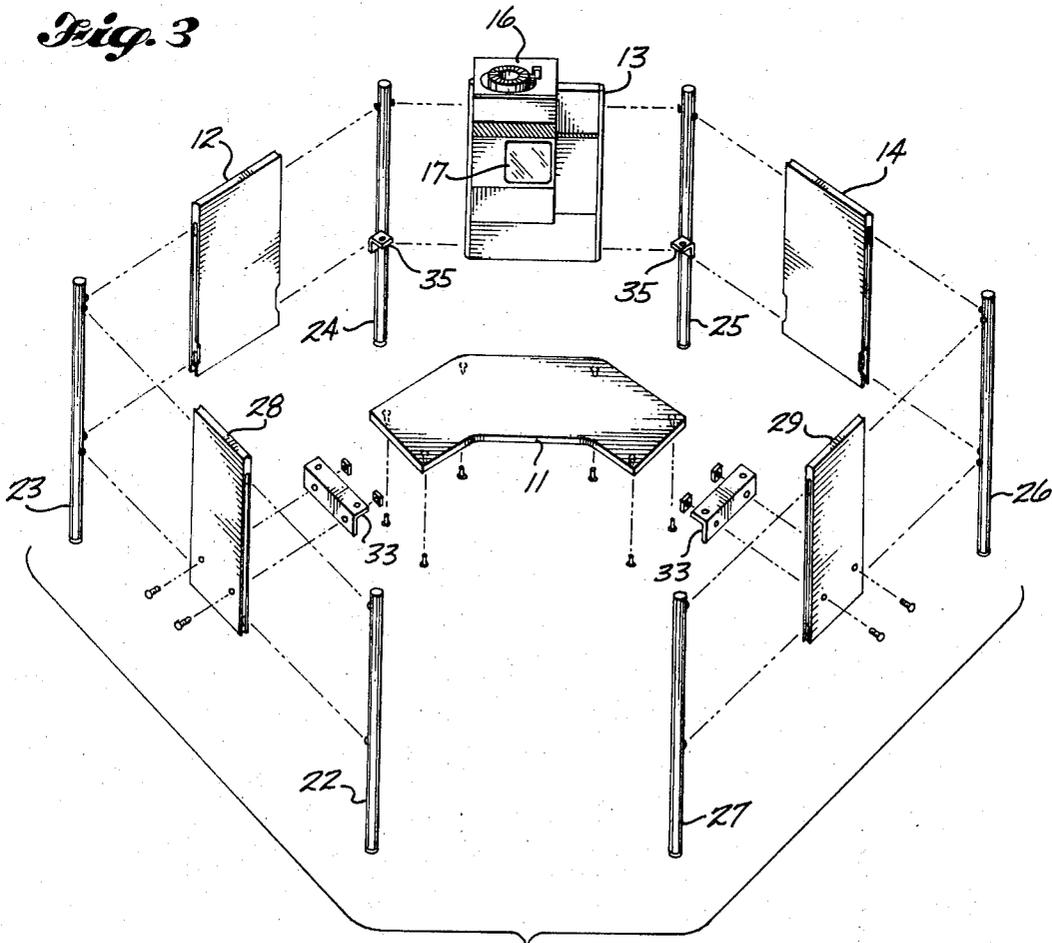
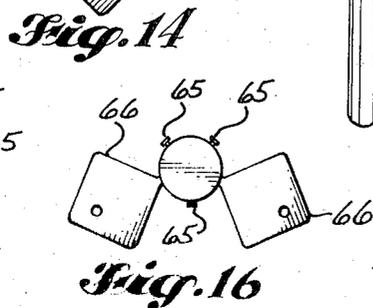
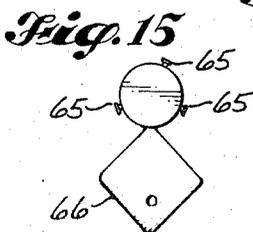
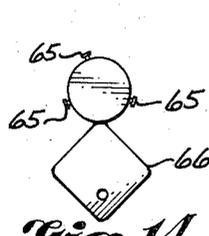
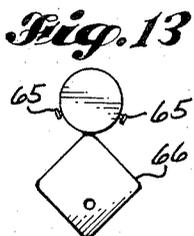
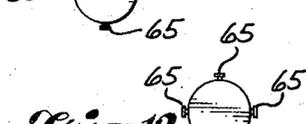
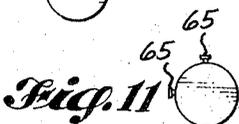
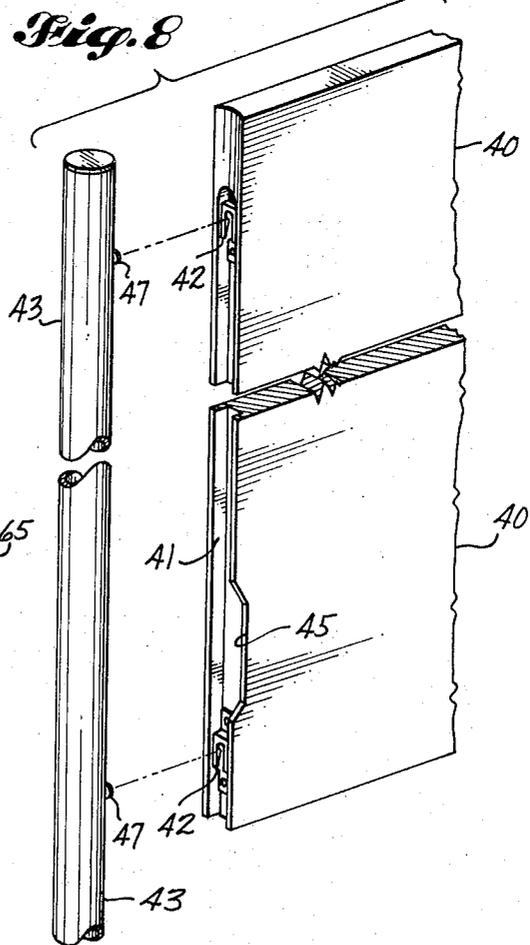
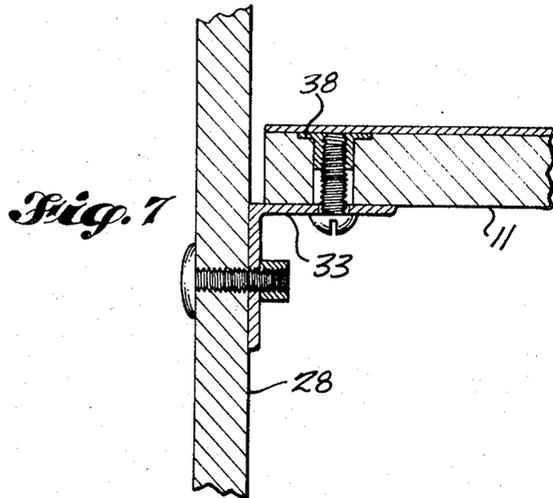
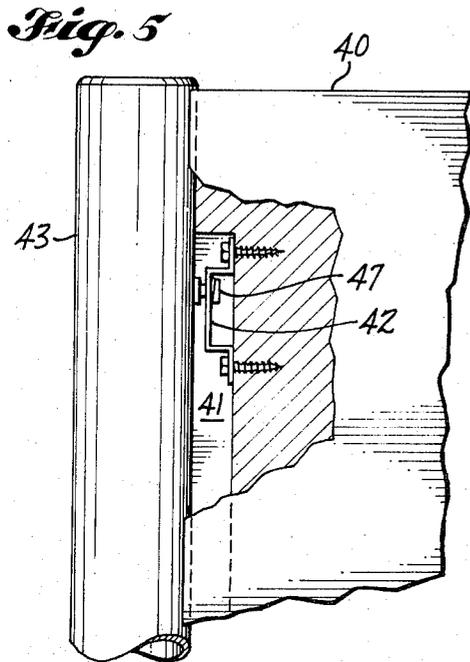
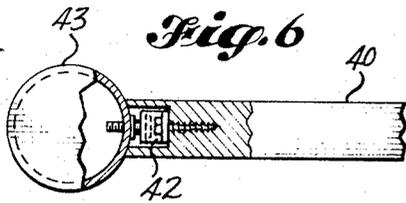


Fig. 4



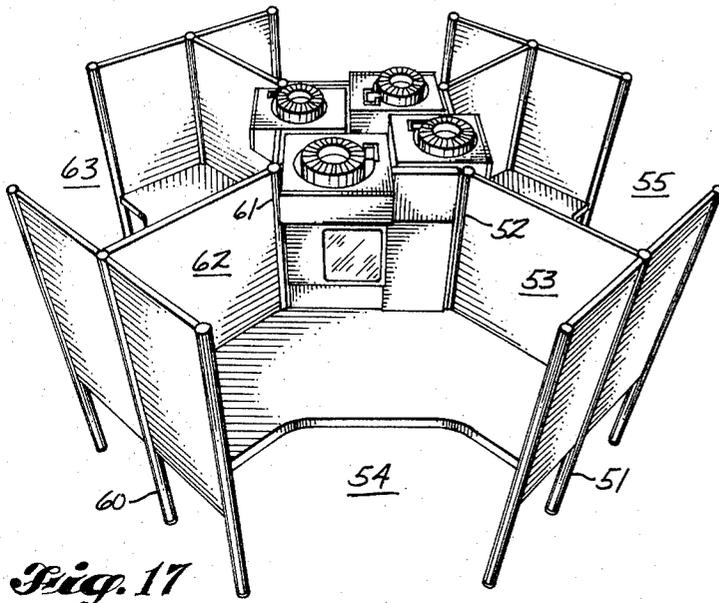


Fig. 17

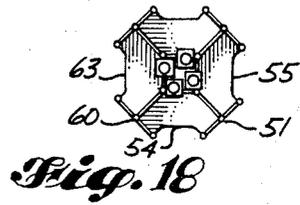


Fig. 18

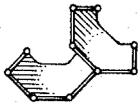


Fig. 19

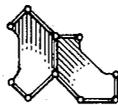


Fig. 20

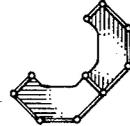


Fig. 21

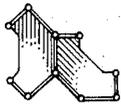


Fig. 22

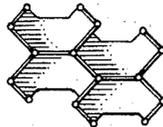


Fig. 23

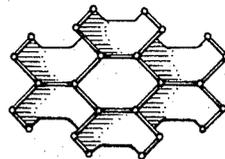


Fig. 24

CLUSTERABLE LEARNING MODULE

BACKGROUND OF THE INVENTION

This invention relates broadly to the educational module art, and more specifically to that art concerned with educational modules which may be clustered or grouped into various configurations.

In many educational and learning situations, it is desirable to provide an environment by which individual students have the opportunity to view programed instruction or slides, or for concentrated study in relative privacy. It is almost impossible, from a practical standpoint, however, to provide separate rooms for such individual study or instruction. An alternative has been the educational module, or carrel, which, due to its partition-like structure, is capable of providing an individual study area with a degree of privacy within an otherwise open room. The carrels are frequently arranged so as to give maximum use of the available space with minimum loss of individual study privacy.

These carrels, however, usually have significant disadvantages, in that they can be clustered only in limited configurations and in limited numbers. Additionally, when it is desired that a carrel be moved or clustered in a somewhat different fashion, it is necessary to completely disassemble the individual carrels to recluster them in the desired configuration. This is because the partitions and the supporting members in each carrel are a structural integral and are in some fashion rigidly affixed to one another.

A further problem which limits the usefulness of prior art educational carrels is their rather inflexible physical structure. These carrels usually have only one function—to provide a degree of study privacy for individual students. If it was desired that partitions other than plain paneling be used in the carrel, for instance, pegboard, or an audio-visual panel for viewing slides, it was necessary to make a special modification of the carrel, and to completely disassemble and then reassemble the carrel with the appropriate desired panels in place. This process, of course, is time consuming, and discourages the flexible use of such modules or carrels for instruction. Thus, the general functional inflexibility of carrel structures currently in use, as well as the restricted number of potential clustering configurations places a significant limitation on their usefulness.

In view of the above, it is an object of the present invention to provide an educational module which is substantially enclosed so as to provide privacy for the individual student.

It is another object of the present invention to provide an educational module having removable partitions so that different educational functions may be realized utilizing one basic module.

It is another object of the present invention to provide an educational module having partitions or panels which may be removed without significantly lessening the structural integrity of the module.

It is still another object of the present invention to provide an educational module in which the individual partitions or panels may be removed without disassembling the module.

It is a further object of the present invention to provide an educational module which may be combined with other modules to form various configurations or clusters of modules.

It is a still further object of the present invention to provide an educational module which may be clustered into various configurations, utilizing common walls and other common members between adjoining modules.

SUMMARY OF THE INVENTION

Briefly, in accordance with the preferred embodiment, the present invention includes a writing surface, a plurality of support members arranged in a predetermined fashion around the periphery of the writing surface, and a plurality of panel members arranged between said support members such that said writing surface is substantially enclosed. The writing surface is supported by the support members and the panel members in such a fashion that at least one panel member may be removed from the structure without dismantling the module.

DESCRIPTION OF THE DRAWINGS

A more thorough understanding of the invention may be obtained by a study of the following detailed description taken in conjunction with the accompanying drawings in which:

FIG. 1 is a perspective view of the present invention.

FIG. 2 is a front view of the present invention.

FIG. 3 is a plan view of the present invention.

FIG. 4 is an isometric exploded view of the present invention.

FIG. 5 is a cutaway elevational view of the connection between a removable panel and a pole.

FIG. 6 is a cutaway plan view of the connection between a removable panel and a pole.

FIG. 7 is a section elevational view of the side panel bracket connection between the side panel and the writing surface.

FIG. 8 is an exploded view of the connection between a removable panel and a pole.

FIGS. 9-16 are the various pole configurations utilized to cluster the individual drawings.

FIG. 17 is a perspective view of a cluster of four modules.

FIG. 18 is a plan view of a cluster of four modules.

FIGS. 19-24 are plan views of various clustering configurations.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIGS. 1, 2, and 3, the general configuration of a preferred embodiment of the present invention is shown. The student using the carrel sits at a writing surface 11, made of wood, laminated plastic, or other suitable material, facing the three rear panels 12, 13, and 14. In the preferred embodiment, panels 12 and 14 are plain wood, suitable for use as a backdrop for instruction sheets or similar materials. In accordance with the preferred embodiment, however, both of these panels, although plain, are removable from the module, without significantly lessening the structural integrity of the module. Other panels, similar in size and shape, such as pegboard, or other instructional panels may thus be interchanged therewith.

The third removable panel shown is an audio-visual panel 13 having a slide carousel 16, with an associated projection screen 17, and a tape recorder 18, which may be synchronized with the audio-visual display. The tape recorder is provided with audio connections which travel through or under the writing surface 11 to output

jacks 19 and 21, for connection with the student's ear-phones. This permits the individual student to have both visual and audio instruction without disturbing other students in the immediate area or in adjoining modules. Other instruction panels may be substituted for the audio-visual panel; for instance, a television monitor, or a computer remote terminal, or a film strip projector associated with a tape recorder may be provided. The audio-visual instruction panel 13 and plain panels 12 and 14 being of the same shape and size may be easily interchanged within the module structure according to the needs and desires of the individual students and/or the particular configuration or clustering of the modules being used.

The educational module is provided with six support members or poles 22-27 which in conjunction with the panels, provide the support for the writing surface 11. In the preferred embodiment, panels 28 and 29 which are the end panels, are rigidly attached to the support poles 22, 23, 26, and 27. It is not necessary, however, that these panels be rigidly attached, as they also may be removable under the teaching of the present invention. Referring to FIGS. 4 and 7, support structure for the writing surface 11 is shown. Standard angle iron brackets 33-33 are secured to the end panels 28 and 29. The brackets are secured to the panels by a standard bolt and nut arrangement, as shown.

Free standing support poles 24 and 25 each have a bracket 35 welded to them to help support the writing surface 11. Each of these brackets has an appropriate opening in it to receive a bolt so as to secure the writing surface 11 to the bracket 35, and have, the poles 24 and 25. At this point, the rigid module structure consists of a writing surface 11, two fixed end panels 28 and 29, with their associated support poles 22, 23, 26, and 27, each panel having a bracket 33 securely attached thereto, and support poles 24 and 25, each pole having a bracket 35.

The writing surface 11 is bolted to the brackets 33-33 and the brackets 35-35 to provide the basic stable structure of the educational module. The manner in which the writing surface 11 is connected to the brackets 33-33, 35-35 is shown substantially in FIGS. 4 and 7. Appropriate securing means 38-38 such as standard hexagonal nuts, are fixedly embedded in the writing surface, below the top thereof, so that they do not interfere with the student using the writing surface. Appropriate holes are drilled in the bottom side of the writing surface so that matching bolts may be fitted into the embedded nuts 38-38.

The writing surface 11 is then rigidly affixed to the brackets 33-33 attached to the end panels 28 and 29, and to the brackets 35-35 of the free standing poles 24 and 25. The bolts are passed through openings in the brackets as shown and tightened into the embedded nuts. The module itself is now a structural integral and capable of free standing. Panels 12, 13, and 14 are at this point not included and not necessary to the support of the educational module. These three panels may thus be removable and/or interchangeable without significantly affecting the structural integrity of the module. Various panels may now be inserted into the basic educational module. One's choice of panels depends on the needs and desires of the individual student user. As apparent from FIG. 2, the upright panels would preferably extend below the writing surface at least one-

fourth of the distance between the writing panel and the surface on which the support poles rest.

Referring to FIGS. 5, 6 and 8, a plain panel 40 is shown for purposes of illustrating the removable feature of the panels 12, 13, and 14. With respect to panel 40, each side which is to be mated with a support pole has a groove 41, as shown. At two locations in each groove, a receiving clip 42 is provided. A matching protrusion or extension is present on the support pole 43, which will receive the panel 40, only one pole being shown for illustrative purposes. Two such protrusions are provided on the pole as to lock with the two receiving clips 42-42 in the panel groove. Two such pole extensions and such clips are provided for each mating so that the panel may be fixed accurately and securely in place between support poles.

The space between the individual support poles is slightly greater than the matching panel dimension, so that the panel may fit between the individual poles. To facilitate the insertion and removal of the individual panels and to insure the tightest fit possible between the poles and the panel, a notch opening 45 is cut in one surface of the panel 40 as shown, so as to provide access to the groove by the extensions on the poles. These notches 45 in each side of the inner surface of the panel 40 allow the panel to be easily inserted and removed from the support poles while maintaining a close tolerance fit between the panel and the poles.

To insert the panel 40, it is only necessary to align the upper protrusion 47 on the pole 43, again showing only one pole with respect to the panel 40, for purposes of illustration, with the notch opening 45 and then move the panel so that the protrusion 47 fits in the groove 41 in the side of the panel. The panel may now be slid down between the support poles in the module, the protrusions within the grooves guiding the panel. The pole protrusions will lock into their associated receiving clips 42-42. The individual panel is now securely locked in place, and although not necessary to the structural integrity of the entire module, lends additional support to it.

To remove the panels, it is only necessary to slide the panel directly upwards, so that the protrusions come free of the receiving clips. The panel is slid upwards until the notch openings 45 on either side of the removable panel are even with the top pole protrusions. The panel is then aligned and moved so that the protrusions come free of the panel through the notched openings. Other panels, having the same size and shape and the same groove and clip configuration, may be just as easily inserted and removed from the educational module.

Although the audio-visual panel may likewise have such a configuration to receive the protrusions on the poles, only one receiving clip is provided in each side groove in the preferred embodiment, because of the inherent structural rigidity of the audio-visual panel. Otherwise, the process of inserting and removing the panel is identical to that of the plain panels described above. Thus, all three panels, 12, 13, and 14, are easily removable from the basic modular structure, and are furthermore of such a configuration that they are interchangeable with one another. The instructional nature of the three removable panels depends entirely upon the needs of the individual student-user, thus providing the basic educational module with a great deal of instructional flexibility.

The previous paragraphs have described a preferred embodiment of an educational module, and in particular the feature of removable panels and flexibility with respect to individual instruction. However, the basic individual module described above may be grouped in various configurations or clusters, one of which is shown in FIGS. 17 and 18. A basic cluster of four modules is shown, each utilizing the individual audio-visual panel described above. The individual modules, and the associated removable panels, are configured to fit together in such a fashion as to utilize certain common panels and support poles. Different poles and panels within an individual module are used in common, depending on the particular configuration of modules. For instance, in the cluster of four, it is clear that support poles 51 and 52 as well as panel 53 are common to both module 54 and module 55. Likewise, support poles 60 and 61 and panel 62 are common to modules 54 and 63. This sharing of support members occurs throughout the cluster, the number of common members depending on the configuration of clustering being used. Additional common configurations are shown in FIGS. 19-24, for illustrative purposes with respect to the flexibility of the educational module. Many other configurations, of course, are possible utilizing the module of the present invention.

To accomplish this clustering flexibility, however, various support poles must be available having special protrusion configurations. Although the individual panels making up the cluster may be utilized in any configuration, the common support poles must have the configuration of protrusions and brackets necessary to support the panels and writing surfaces of the particular cluster desired. A basic set of support pole configuration is shown in FIGS. 9-16. Utilizing the protrusions 65 and the brackets 66 of the poles, a great number of distinct clustering arrangements may be designed. The choice of the particular support pole utilized will thus depend on the location of the pole within the individual module, and how, if at all, it is used as a common member in a cluster of such modules.

Although a preferred embodiment of the invention has been disclosed herein for purposes of illustration, it will be understood that various changes, modifications, and substitutions may be incorporated in such embodiment without departing from the spirit of the invention as defined by the claims which follow:

I claim:

1. An educational module, comprising:

a generally horizontal writing panel of generally arcuate configuration in plan having a concavely configured edge presented adjacent a seated user, a convexly configured edge opposite from the user, and end edges joining said convexly and concavely configured edges and converging toward each other in the direction of the seated user, said convexly configured opposite edge comprising an intermediate edge portion directly opposite said seated user, and respective connecting edge portions between respective adjacent end edges and said intermediate edge portion, thereby defining six corners;

upright support leg members positioned at each of said six corners;

five upright panels successively connected to and extending between the successive leg members, two of said upright panels being rigidly secured to the

leg members and extending adjacent said end edges, said rigidly secured upright panels and their associated leg members forming first and second panel combinations respectively the remaining panels extending adjacent said connecting edge portions and said intermediate edge portion and being removably secured to and extending between associated support leg members;

first bracket means secured to at least each of the two leg members adjacent said intermediate edge portion and also secured to said writing panel; and, second bracket means secured to each of said first and second panel combinations, and also secured to said writing panel, said first and second bracket means cooperating to maintain said leg members in an upright position and said writing panel in a generally horizontal position, and in relation to each other such that portions of said leg members and said upright panels extend substantially above said horizontal writing panel at least to approximate head level of the user sitting at said concave edge, and further cooperate to maintain said leg members and said writing panel in position when one or more of said removably secured panels are removed from the module.

2. An apparatus of claim 1, wherein each of said rigidly secured panels includes a surface presented adjacent an end edge of said writing panel, and wherein said second bracket means extends substantially entirely across said surface.

3. An apparatus of claim 1, wherein each of said upright panels have a lower peripheral edge located below said horizontal writing panel when said upright panels are in place in said module, and wherein said removably secured panels are removable directly vertically at least until said lower peripheral edge of each panel being removed is above said horizontal writing panel.

4. An apparatus of claim 1, wherein said upright panels extend below said writing surface at least one-fourth of the distance between said writing panel and a surface on which said leg members rest.

5. An apparatus of claim 3, wherein said removably secured panels and said leg members have slot and pin connecting elements thereon, respectively, the edges of said removably secured panels adjacent associated support leg members having longitudinal grooves and lateral notches therein to accommodate said slot connecting elements and to pass the pin connecting elements upon panel removal, said grooves permitting displacement of the panel endwise of the leg members until at least the lower edge of the panel being removed is above the horizontal writing panel, said notches then permitting panel displacement transversely of the leg members, when the module is otherwise assembled.

6. An apparatus of claim 1, wherein said end edges are straight and at right angles to each other, and wherein said connecting edge portions adjacent said respective end edges are straight and at right angles to said respective end edges, and are at 45° to said intermediate edge portion.

7. An apparatus of claim 1, wherein at least one of said removably secured panels includes instruction means for presenting information to the seated user.

8. A system for forming selectively any of a number of various educational module clusters, the system comprising in combination:

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at least one generally horizontal writing panel of generally arcuate configuration in plan having a concavely configured edge presented adjacent a seated user, a convexly configured edge opposite from the user, and end edges joining said convexly and concavely configured edges and converging toward each other in the direction of the seated user, said convexly configured opposite edge comprising an intermediate edge portion directly opposite said seated user, and respective connecting edge portions between respective adjacent end edges and said intermediate edge portion, thereby defining a plurality of writing panel corners for each said writing panel;

at least a plurality of upright support leg members, one leg member being positioned adjacent each writing panel corner;

at least five upright panels, successively connected to and extending between successive leg members of each writing panel at least two of said upright panels associated with each writing panel being rigidly secured to the leg members and extending adjacent said end edges of each writing panel, each rigidly secured panel and its associated leg members forming a panel combination, the remaining panels ex-

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tending adjacent said connecting edge portions and said intermediate edge portion and being removably secured to and extending between associated support leg members;

first bracket means secured to at least each of the leg members adjacent an intermediate edge portion and also secured to any adjacent writing panels; and,

second bracket means secured to each panel combination and also secured to adjacent writing panels, said first and second bracket means cooperating to maintain said leg members in an upright position and said writing panels in a generally horizontal position, and in relation to each other such that one or more leg members and panels are common to more than one module and such that portions of said leg members and said writing panels extend substantially above said writing panel at least to approximate head level of the user sitting at said concave edge, and further cooperate to maintain said leg members and said writing panels in position when one or more of said removably secured panels are removed from the modules.

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