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PIVOTAL DISPLAY PANEL INSTALLATION

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10 Claims

ABSTRACT OF THE DISCLOSURE

The pivotal display panel installation provides for the mounting of swingable panels between parallel mounting strips in any given position by means of aligned, longitudinally spaced holes in the strips which receive pivot pins projecting from a panel support clamp. The pivot pins are offset from the central, longitudinal axis of the panel support clamp to permit the support clamp, which grips one edge of a panel, to pivot the panel flush against a support surface.

The present invention relates to novel structural arrangements for mounting informational displays, and more particularly to novel pivotal display panel installations for mounting swingable panels upon a vertical support surface.

This application constitutes a continuation-in-part application of my co-pending application entitled Educational Device and Method, U.S. Ser. No. 573,371, filed Aug. 18, 1966 and now U.S. Pat. No. 3,425,568.

The importance of visual instruction and student participation as factors in the education process has been recently recognized. In the past, education was achieved primarily through lectures or demonstrations by an instructor followed by attempt by the individual students to put the newly learned information to work on a project, experiment or test. Classrooms were designed for this type of education, and little or no attempt was made to effectively utilize classroom wall space for visual educational aids.

The need has arisen for a simple, inexpensive display system which has versatility, may be stored in a minimum space, but which may be employed to illustrate a variety of ideas and concepts. Ideally, such a system should not only be easily altered to present illustrations in ever changing sequence, but should also be adapted to facilitate the physical removal and reinsertion of individual display illustrations within a given sequence.

Accordingly, one object of the present invention is to provide a novel and improved pivotal display panel installation for use in equipping a classroom or other area with an educational display which is constantly and readily available to students in addition to personal attention by the instructor.

Another object of the present invention is to provide a novel and improved pivotal display installation adapted to mount a plurality of display panels on a wall for movement between a display position and a storage position flush against the wall surface.

A further object of the present invention is to provide a novel and improved pivotal display installation including a display panel support clamp having pivot pins offset from the central longitudinal axis of the clamp to permit the clamp and a panel retained thereby to be pivoted flush against a mounting surface.

Another object of the present invention is to provide a novel and improved pivotal display installation including a mounting strip assembly adapted to cooperate with a panel support clamp to permit panels to be removably mounted in a number of positions along a supporting wall.

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A still further object of the present invention is to provide a novel and improved pivotal display installation including a display panel support clamp pivotally mounted upon a mounting strip assembly for releasably retaining a display panel.

Other objects and advantages of the present invention will become apparent to those skilled in the art from the following specification and appended claims and from the accompanying drawings wherein:

FIG. 1 is a perspective view of a section of the pivotal display panel installation according to the present invention;

FIG. 2 is a diagrammatic plan view of the pivotal display panel installation;

FIG. 3 is a cross sectional view taken along lines 3—3 of FIG. 1;

FIG. 4 is a perspective view of a section of the panel support clamp; and

FIG. 5 is a top plan view of the panel support clamp with a display panel inserted therein.

Referring now to the drawings, the pivotal display installation of the present invention indicated generally at 1 includes spaced, parallel mounting strips 2 which support swingable display panels 3. The display panels are removably retained by panel support clamps 4 which mount the panels for swinging movement relative to the mounting strips, and which may be inserted in vertically aligned holes 5 and 6 longitudinally spaced along the mounting strips.

The panels 3 are freely swingable and may be used for presenting illustrations, displays, test questions or any other graphic presentation. For example, a lecture or instruction may be presented by an instructor from a single panel or from a series of panels illustrating graphically the information to be learned. The panels may be sequentially arranged within the mounting strips 2 to depict a step-by-step illustration of techniques such as may be necessary in arts and crafts, the field of music, or any other field without limitation. The sequence may easily be altered during a lecture to either add new panels or rearrange existing panels.

The panels 3 may remain in full view of the students for use after the lecture is terminated, and selected panels may be removed by a student and taken to his desk for further study. When no longer in use, the panels may be folded flush against a supporting wall for storage.

The manner in which the display panels 3 are mounted for use will be best understood from a study of the details of the pivotal display panel installation 1. The mounting strips 2 are generally secured to a vertical wall, and a number of vertically spaced mounting strips may be employed so that the display panels may be positioned at various levels. Also, the mounting strips may be placed in continuous end-to-end relation without limitation.

Each mounting strip 2, which may be formed by extrusions of plastic, lightweight metals such as aluminum, or in the alternative, wood stripping, is formed with a body or web portion 7 connecting two, vertically spaced horizontal flanges 8 and 9. These flanges are provided with the previously mentioned longitudinally spaced holes 5 and 6 respectively which are vertically aligned. The holes 5 and 6, which are used to mount the support clamps 4 in the mounting strips 2, are formed adjacent the outside edge of each of the flanges remote from a supporting wall to which the mounting strips are attached.

To permit the mounting strips 2 to be secured to a wall or other support surface, the web portions 7 thereof are provided with apertures 10 which receive screws or other suitable securing means 11. Also, guide channels 12 and 13 for mounting other wall supported units are defined by an upwardly extending projection 14 formed on

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the top flange 8 and a downwardly extending projection 15 formed on the bottom flange 9. Both projections are spaced outwardly from the supporting wall surface to which the strips 2 are secured as will be noted from FIG. 3.

The support clamp 4 constitutes an elongated, substantially U-shaped structure of extruded aluminum or similar lightweight material which is of sufficient length to extend between two parallel mounting strips 2. The support clamp is formed by two substantially parallel, rectangular clamping jaws 16 and 17, the inner ends of which are joined by a body portion 18. The clamping jaws define an elongated slot 19 which is of a width substantially equal to the thickness of a panel 3 and which is intended to receive and retain one longitudinal edge of the panel.

The body portion 18 extends laterally beyond the innermost clamping jaw 16 to form an integral post 20 of a length greater than that of the clamping jaws 16 and 17. The post extends outwardly beyond either end of the clamping jaws to form upper and lower pivot projections 21 for the support clamp 4. Each such pivot projection is dimensioned for insertion in the holes 5 and 6 in the mounting strips 2 and is laterally offset from the clamping jaw 16.

The width of the innermost clamping jaw 16 is greater than that of the outermost clamping jaw 17 to provide a panel starting lip 22. The leading edge of the free end of the shorter outermost clamping jaw is beveled inwardly toward the slot 19 at an angle of approximately 30° as indicated at 23 to permit the edge of a panel guided by the starting lip to enter the slot.

To hold a panel 3 securely within the slot 19 without gluing or the use of separate fastening means, a longitudinally extending lock ridge 24 is formed on the innermost locking jaw 16 intermediate the body portion 18 and the beveled leading edge of the locking jaw 17. This locking ridge is preferably in the form of an inverted V with an inclined leading edge 25 forming an apex with an oppositely inclined trailing edge 26.

The lock ridge 24 projects into the slot 19 so that a panel entering the slot is forced up the inclined leading edge 25 thereof. Generally the panels 3 are formed of corrugated cardboard or similar material so that the apex of the locking ridge is forced into the surface of the panel to securely retain the panel within the slot.

In the operation of the pivotal display panel installation, the panel support clamps 4 may be removed from the mounting strips 2 for the insertion therein of a desired panel 3. The support clamp is positioned over the edge of the panel with the starting lip 22 resting flush against a peripheral surface of the panel. The application of pressure against the body 18 and post 20 causes the beveled surface 23 of the clamping jaw 17 to guide the panel into the slot 19. Continued pressure causes the leading edge of the panel to move up the inclined surface 25 of the lock ridge 24 and into contact with the body 18. The lock ridge compresses the surface of the panel to secure it between the clamping jaws 16 and 17.

With the panel 3 locked within the support clamp 4, the panel may be positioned in the desired sequence on the mounting strips 2 by inserting the upper and lower pivot projections 21 in the holes 5 and 6 in spaced mounting strips 2 so that the panel and support clamp extend between mounting strips. The panel may now be pivoted relative to the mounting strips about the pivot projections. It is important to note that offset relationship between the pivot projections and the clamping jaws 16 and 17 permit the panel to be pivoted to a storage position close to a supporting wall as illustrated in FIG. 2. When sequential panels are stored against a wall surface, the offset design of the pivot projections permits the panels to lie closer to the wall surface the further apart the pivot projections are spaced in the mounting strips 2.

A selected panel 3 may be withdrawn from the support

clamp 4 by pulling the panel outwardly in the slot 19 from the body 18. The inclined rear surface 26 of the lock ridge 24 aids in releasing the panel from the clamping jaws 16 and 17.

From the foregoing, it will be appreciated by those skilled in the art that the present invention provides significant improvements in a pivotal display panel installation. Changes in the details of construction will suggest themselves and may be resorted to without departing from the spirit of the invention, wherefore it is my intention that no limitations be implied and that the hereto annexed claims be given a scope fully commensurate with the broadest interpretation to which the employed language admits.

The embodiments of the invention in which an exclusive property or privilege is claimed is defined as follows:

1. A pivotal display panel mounting unit for use as a demountable unit supported in aligned mounting holes provided in a pair of spaced, parallel, linear mounting strips secured to a support surface comprising: an elongated body portion, panel holding means of sufficient length to extend between said two parallel mounting strips, said panel holding means extending from said body portion for receiving the peripheral edge portion of a display panel, aligned pivot projections positioned at opposite ends of said body portion and being laterally offset extending transversely from said panel holding means, said pivot projections adapted to mount said panel mounting unit for pivotal movement in said aligned mounting holes of said parallel mounting strips.

2. The pivotal display panel mounting unit of claim 1 wherein said panel holding means includes first and second locking jaws extending in parallel, spaced relationship from said body portion the length between said two parallel mounting strips to define an elongated slot of a width substantially equal to the thickness of said display panel, said first locking jaw having a locking ridge formed therein at a point between the free end thereof and said body portion, said locking ridge projecting into the elongated slot and extending substantially the length of the panel holding means in substantially parallel relationship to said body portion.

3. The pivotal display mounting unit of claim 2 wherein said first locking jaw is of greater length than said second locking jaw and extends beyond the free end of said second locking jaw to provide a panel guiding lip for said panel holding means.

4. The pivotal display mounting unit of claim 3 wherein the free end of said second locking jaw is beveled to provide an end surface inclined toward said elongated slot.

5. The pivotal display mounting unit of claim 2 wherein said locking ridge includes an inclined lead surface and an oppositely inclined trailing surface.

6. The pivotal display mounting unit of claim 5 wherein said body portion extends laterally beyond said first locking jaw, said laterally extending section of said body portion being of a length greater than the length of said locking jaws to provide aligned projections at opposite ends of said display mounting unit, said projections forming said pivot projections.

7. The pivotal display mounting unit of claim 6 wherein said body portion, panel locking means and pivot projections constitute a unitary structure of extruded material.

8. A demountable pivotal display panel assembly comprising in combination:

a plurality of linear mounting strips adapted to be secured to a support surface in spaced, parallel, relationship to hold said demountable panel assembly between adjacent mounting strips, each of said mounting strips including mounting means for co-operation with said demountable panel assembly, said demountable panel assembly including a display panel, an integral elongated panel support extending the length between said parallel mounting strip for

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pivotaly mounting said panel assembly between said mounting strips, said panel support including panel locking means for receiving said display panel and aligned pivot projections positioned at opposite ends of said panel support and being laterally offset and extending transversely from said panel locking means, said pivot projections operative to mount said panel support for pivotal movement in said mounting strips.

9. The pivotal display panel assembly of claim 8 wherein the said mounting strips include a body portion for attachment to a support surface, said body portion including upper and lower surfaces adapted to extend outwardly from the support surfaces, said mounting means of said mounting strips including a plurality of vertically aligned longitudinally spaced holes in each of the upper and lower support surfaces adjacent the edge thereof, and said pivot projections of said demountable panel assembly adapted to extend through said vertically aligned holes in said mounting strip.

10. The pivotal display panel assembly of claim 9 wherein said display panel is formed of corrugated cardboard, said panel locking means including a body portion and first and second locking jaws extending in parallel, spaced relationship from said body portion to define an

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elongated panel receiving slot extending substantially the distance between said mounting strips and of a width substantially equal to the thickness of said display panel, said first locking jaw having a locking ridge formed therein at a point between the free end thereof and said body portion, said locking ridges projecting into said elongated slots and extending substantially the length thereof, one of said locking jaws being of greater length than the other locking jaw, the free end of said shorter locking jaw being beveled to provide an end surface inclined toward said elongated slot.

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