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A. SAK ET AL

3,352,428

ADJUSTABLE MOUNTING ASSEMBLY

Filed Oct. 23, 1965

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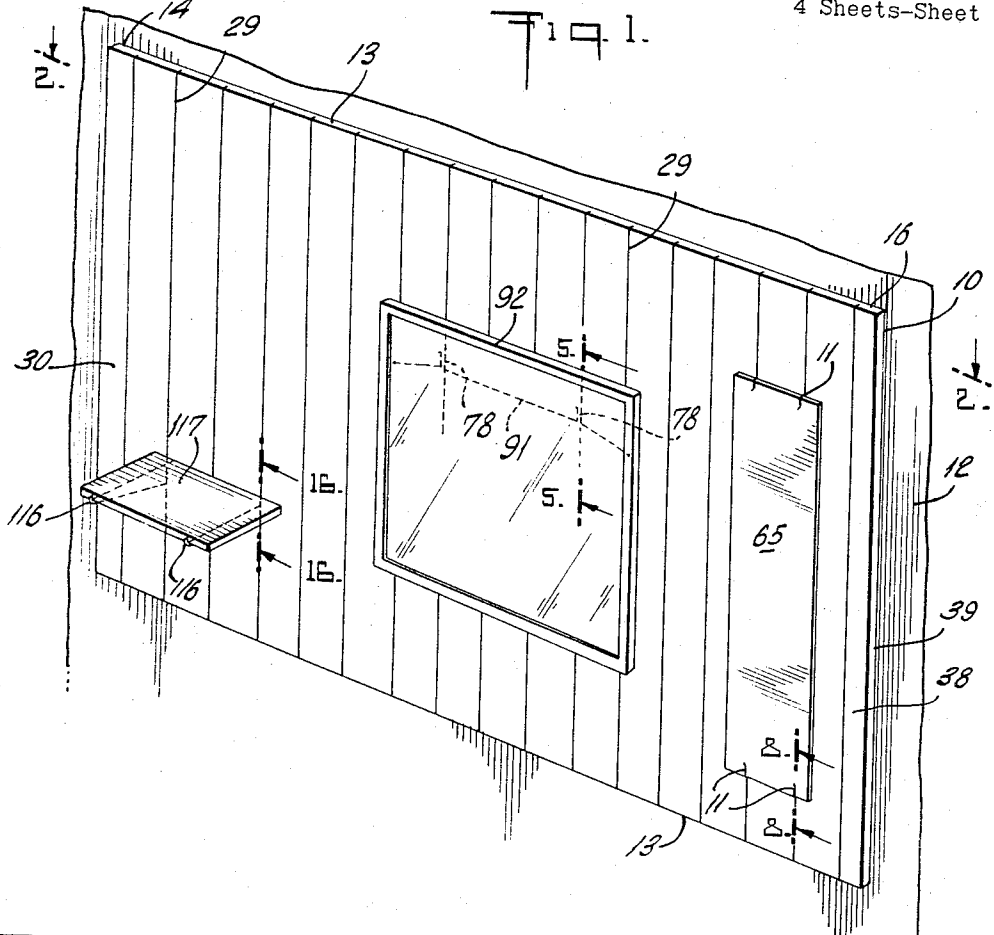
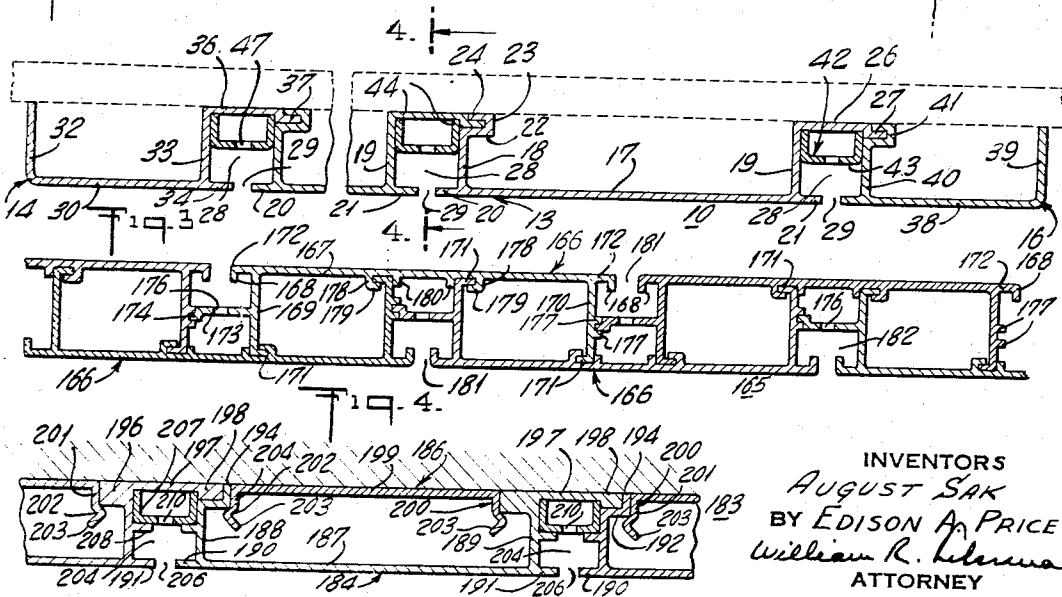


Fig. 2.



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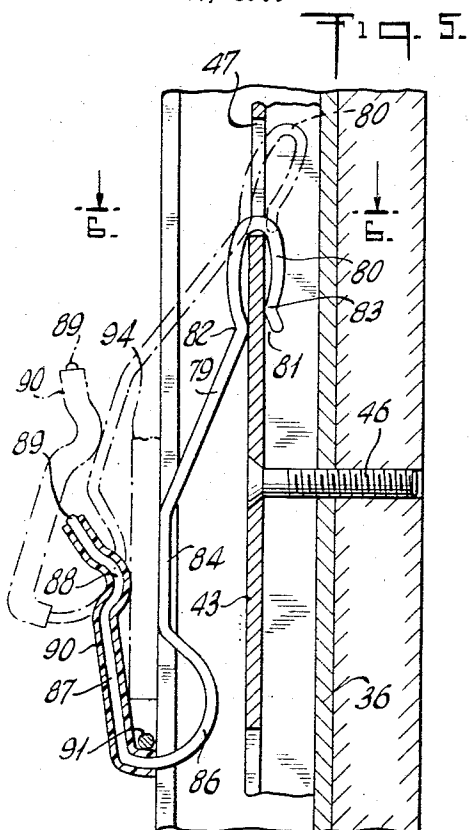
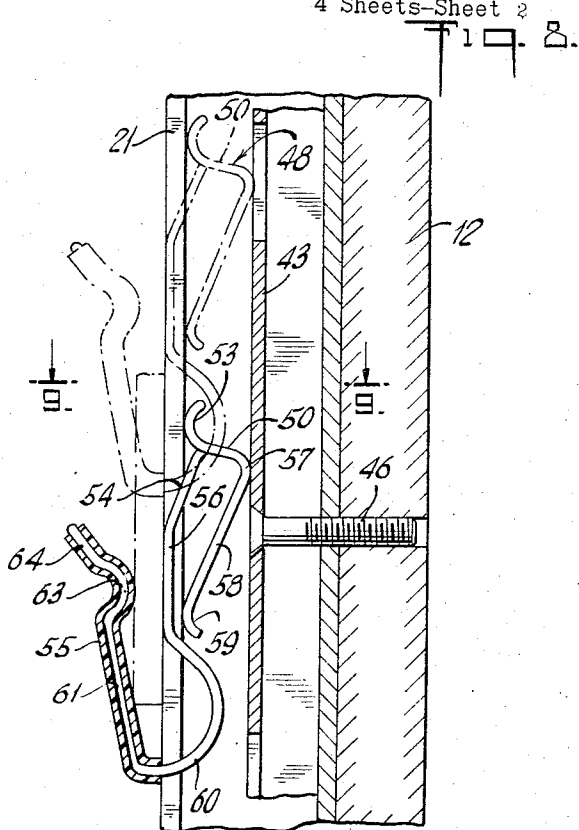
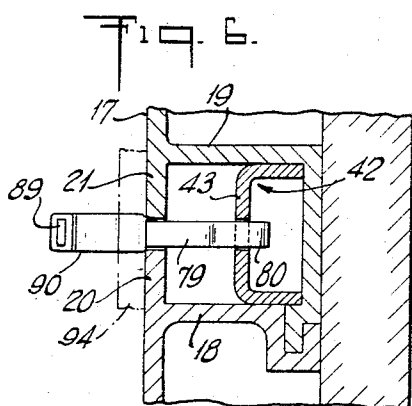
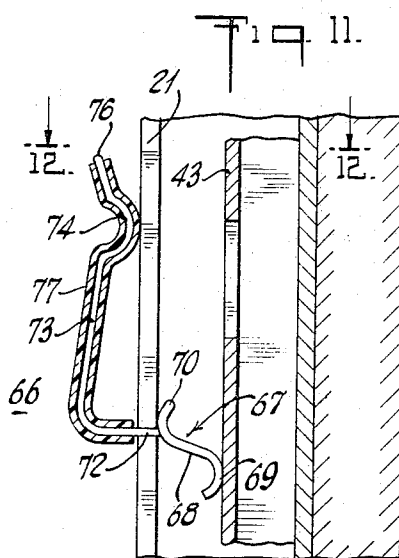
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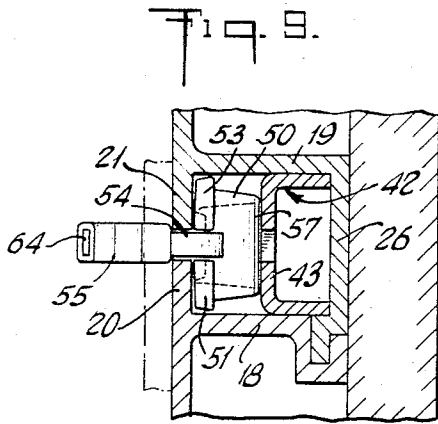
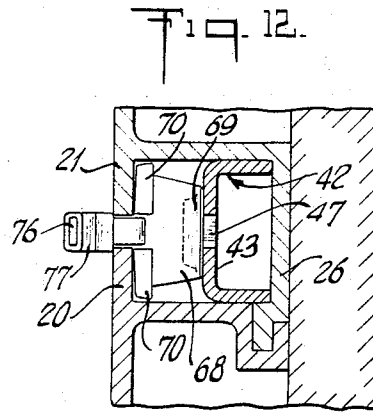
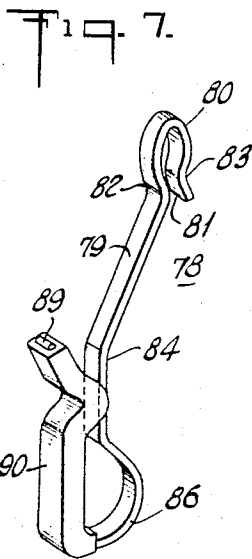
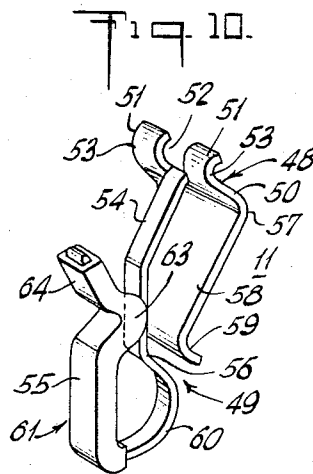
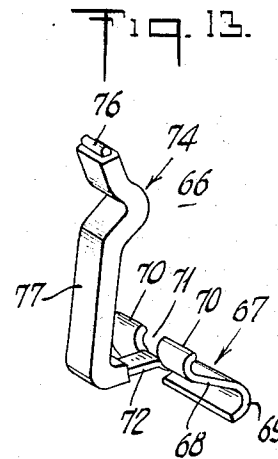
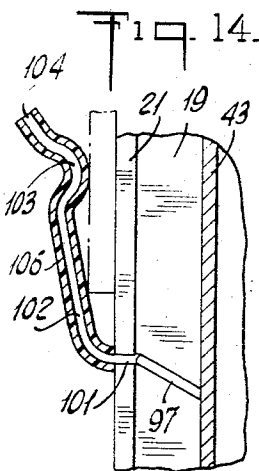
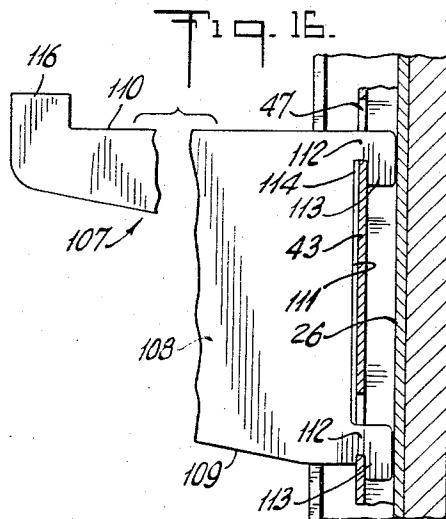
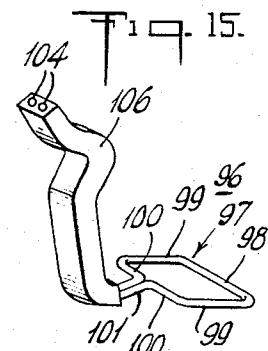
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ADJUSTABLE MOUNTING ASSEMBLY

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4 Sheets-Sheet 3



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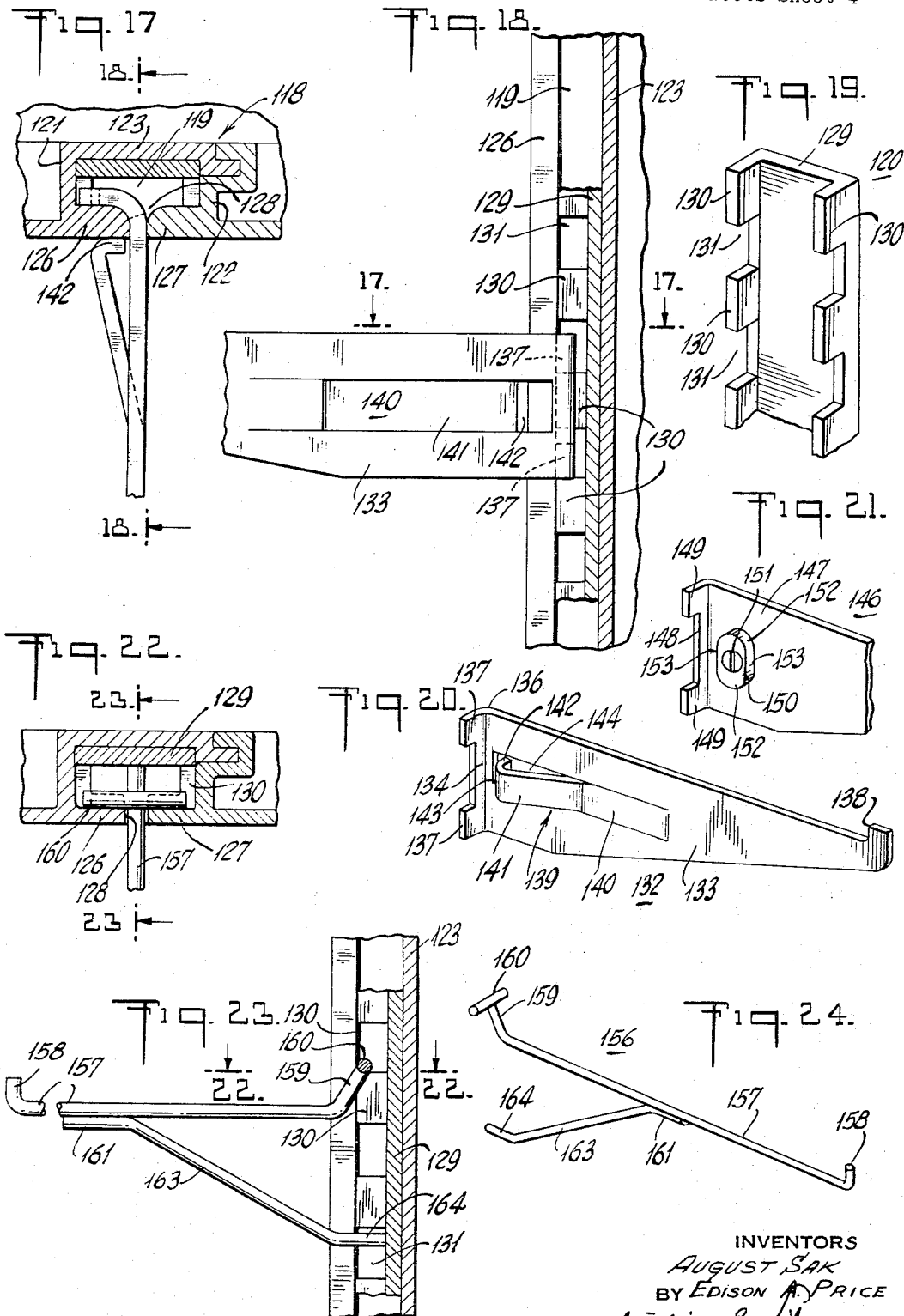
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ADJUSTABLE MOUNTING ASSEMBLY

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ADJUSTABLE MOUNTING ASSEMBLY

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ABSTRACT OF THE DISCLOSURE

A mounting assembly includes a vertical panel formed of interlocking vertical sections and provided with a plurality of laterally spaced vertical grooves formed therein bordered by inwardly directed lips delineating corresponding vertical slots. Mounting elements have shanks projecting through the slots and terminating in inclined cam plates which engage the rear wall of the groove and the rear face of the lips so that downward pressure in a mounting element effects a releasable locking of the cam plate between the groove wall and lips. The rear wall of the groove may be provided with vertically spaced slots for engaging mating projections or hooks of mounting members.

The present invention relates generally to improvements in mounting and support devices. It relates in particular to an improved system for supporting articles at selectively adjustable positions for display, storage or other purposes.

It is a common practice to mount articles on walls or vertical panels for storage, display or other purposes or functional association. Examples are the mounting of pictures for exhibition, charts, samples, illustrations, legends and the like for education, recreation and information purposes; the support of shelves and shelf brackets; tools; equipment; apparatus and the like. Many arrangements have been employed and proposed for the above purposes but these possess many drawbacks and disadvantages. They have been of unreliable and limited application, of little adaptability and reliability, of highly unattractive appearance and have otherwise left much to be desired.

It is, therefore, a principal object of the present invention to provide an improved mounting and support device.

Another object of the present invention is to provide an improved support panel on which articles may be adjustably mounted in pre-selected positions for display or other purposes.

Still another object of the present invention is to provide an improved support panel and associated connecting elements which permit the adjustable mounting on said panel of pictures, panels and the like.

A further object of the present invention is to provide an improved support panel and associated brackets adjustably mounted on said panel.

Still a further object of the present invention is to provide an improved mounting panel formed of a plurality of interlocking panel units thereby permitting the rapid assembly and erection of a mounting panel of the desired dimensions.

Another object of the present invention is to provide a mounting device of the above nature characterized by its ruggedness, reliability, versatility, adaptability, ease of use, assembly and erection, and attractive appearance.

The above and other objects of the present invention will become apparent from a reading of the following

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description taken in conjunction with the accompanying drawing, wherein:

FIGURE 1 is a front perspective view of a wall-supported mounting panel embodying the present invention and illustrated with cooperating coupling elements and brackets supporting shelves and other articles;

FIGURE 2 is an enlarged fragmentary sectional view taken along line 2-2 of FIGURE 1;

FIGURE 3 is a view similar to FIGURE 2 of another form of mounting panel;

FIGURE 4 is a view similar to FIGURE 2 of still another form of mounting panel;

FIGURE 5 is an enlarged sectional view taken along line 5-5 of FIGURE 1, the coupling element being shown by broken line in a position attendant to its insertion;

FIGURE 6 is a sectional view taken along line 6-6 of FIGURE 5;

FIGURE 7 is a perspective view of the coupling element shown in FIGURE 5;

FIGURE 8 is an enlarged sectional view taken along line 8-8 of FIGURE 1;

FIGURE 9 is a sectional view taken along line 9-9 of FIGURE 8;

FIGURE 10 is a perspective view of the coupling element shown in FIGURE 8;

FIGURE 11 is a view similar to FIGURE 8 illustrating another form of coupling element;

FIGURE 12 is a sectional view taken along line 12-12 of FIGURE 11;

FIGURE 13 is a perspective view of the coupling element shown in FIGURE 11;

FIGURE 14 is a view similar to FIGURE 8 illustrating another form of coupling element;

FIGURE 15 is a perspective view of the coupling element shown in FIGURE 14;

FIGURE 16 is an enlarged sectional view taken along line 16-16 of FIGURE 1;

FIGURE 17 is a fragmentary transverse sectional view taken along line 17-17 of FIGURE 18 of another embodiment of the present invention;

FIGURE 18 is a sectional view taken along line 18-18 of FIGURE 17;

FIGURE 19 is a fragmentary perspective view of the support insert shown in FIGURES 17 and 18;

FIGURE 20 is a perspective view of the bracket shown in FIGURES 17 and 18;

FIGURE 21 is a fragmentary perspective view of another form of bracket member;

FIGURE 22 is a view similar to FIGURE 17, taken along line 22-22 of FIGURE 23 and illustrating another embodiment of the present invention;

FIGURE 23 is a sectional view taken along line 23-23 in FIGURE 22; and

FIGURE 24 is a perspective view of the bracket shown in FIGURES 22 and 23.

In a sense, the present invention contemplates the provision of an adjustable mounting assembly comprising a mounting panel having a plurality of transversely spaced, longitudinally extending vertical slots formed therein, each of said slots being bordered by at least one inwardly projecting longitudinally extending lip having a rearwardly directed front first face, means defining a forwardly directed second face disposed rearwardly of said first face and extending along the length thereof and a mounting element registering with at least one of said slots and adjustable along the length thereof and including a shank

projecting through said slot and a locking section mounted on said shank and releasably engaging said first and second faces to restrict the vertical movement of said mounting element.

According to a preferred form of the present combination, the mounting panel is advantageously formed of a plurality of interfitting similarly shaped panel units arranged side by side and connected by mating vertically extending tongue and groove joints. The vertical slots are bordered on opposite sides by inwardly directed lips the rear surfaces of which define the front first faces. Walls are rearwardly directed from the outer edges of the lips and are joined by rearwardly disposed cross webs to define therewith vertical housings. A channel member is nested in each of the housings and includes rearwardly directed legs engaging the housing walls, and a front cross web the front surface of which defines the second face, the channel member cross web having vertically spaced vertical slots formed therein in registry with the corresponding panel slot. The mounting element locking section is advantageously a cam member which is urged into locking engagement with the first and second faces upon the loading of the mounting element and disengaged therefrom upon opposite urging of the mounting element thereby to permit the adjustment thereof. The cam is preferably in the form of an inclined plate or frame the opposite edges engaging the first and second faces, the shank being connected thereto in a manner which effects the turning of the cam into locking engagement upon urging the shank along the direction of the load force. Shelf brackets may be provided having shanks insertable through a panel slot and terminating in hook sections which releasably engage corresponding slots in the channel web or suitably positioned stop members.

Referring now to the drawings and more particularly to FIGURES 1, 2, and 8 through 10 thereof, which illustrate a preferred embodiment of the present invention, reference numeral 10 generally designates the improved mounting panel, reference numeral 11 designates a preferred form of coupling element associated therewith, it being understood that other forms of coupling elements and mounting brackets may be employed with mounting panel 10 and other forms of mounting panels may be employed with the coupling elements and support brackets, as will hereinafter be set forth. Mounting panel 10 is secured to a wall 12 or other stable support and is of modular construction, being assembled from a plurality of interfitting intermediate panel units 13 and laterally terminating in complementary end panel units 14 and 16 respectively. Panel units 13, 14, and 16 are formed of metal as, for example, aluminum or other suitable material, and may be extruded or produced in other conventional manner.

Each intermediate panel 13 includes a rectangular vertical front plate 17 provided inwardly of opposite vertical edges thereof with rearwardly directed parallel vertical legs 18 and 19 respectively. The side borders of front plate 17 are defined by coplanar lips 20 and 21 respectively, the inner edges of which are delineated by the corresponding legs 18, 19. Leg 18 terminates at its rear edge in a laterally inwardly directed flange 22 provided at its inner end with a rearwardly directed arm 23 terminating in an outwardly directed laterally extending flange 24. Flange 24 is parallel to leg 18 and transversely spaced therefrom to delineate a coupling groove. Leg 19 terminates along its rear edge in an outwardly directed web 26, coplanar with flange 24, and which terminates in an inwardly offset tongue 27 which is adapted to mate with and to engage the groove delineated by the flanges 22 and 24 of an adjacent panel 13 to define a tongue and groove joint. It should be noted that the width of web 26 is more than twice the width of lip 21 and that tongue 27 is inwardly offset the thickness of flange 24. Thus, two or more intermediate panel units 13 may be coupled and assembled in side by side relationship by connecting the

tongues and coupling grooves in mating relationship to provide vertically extending housings 28 between adjacent panel units 13, the housings having vertical slots 29 formed in the front wall thereof delineated by the adjacent edges of lips 20 and 21. The housings are defined by legs 18 and 19 and rear webs 26.

End panel 14 includes a front wall 30 provided at its outer edge with a rearwardly directed leg 32 of a depth substantially equal to that of leg 19. Directed rearwardly from the inner border of wall 30, outwardly of the inner edge thereof, is a rearwardly directed vertical leg 33 which delineates a lip 34 along the vertical border of the wall. Leg 33 corresponds to the intermediate panel unit leg 19 and is provided along its rear edge with a laterally extending vertical web 36 terminating in a forwardly offset tongue 37 corresponding to the web 26 and tongue 27. The opposite end panel unit 16 includes a laterally extending front wall 38 provided at its outer edge with a rearwardly directed vertical wall 39 and along its inner border, spaced from the edge thereof, with a rearwardly directed vertical leg 40 provided along its rear edge with a coupling groove-defining channel 41 corresponding to that defined by flanges 22 and 24 and leg 18 of the intermediate panel units 13. One side of the assembled panel terminates with panel unit 14, the tongue 37 thereof mating with a corresponding coupling groove in the next adjacent intermediate panel unit 13, and the other end of the panel unit 10 terminates in a panel unit 16, the coupling section thereof being engaged by a tongue 27 of the next adjacent intermediate panel unit 13. It should be noted that end panel units 14 and 16 form, with the intermediate panel units, vertical housings 28 provided in the front faces thereof with vertical slots 29 defined by the inwardly directed legs of the borders of the respective panel unit front walls.

Disposed in each vertical housing 28 is a channel member or standard 42 having a forwardly disposed front vertical cross-web 43 located rearwardly of lips 20 and 21 in the correspondingly defined slots 29 and rearwardly directed side legs 44 which abut the side walls of housings 28 and extend to rear webs 26, 36. Regularly vertically spaced vertical coupling slots 47 are formed in each web 43, in transverse alignment with slots 29. Panel units 13, 14, and 16, and channel members 42 are locked in assembled condition and screwed to support wall 12 by means of screws 46 which register with vertically spaced pairs of transversely aligned openings formed in webs 43 and 26 and 36 respectively, and which engage corresponding aligned tapped bores in wall 12. It will be appreciated that other suitable means of locking the panel units in their assembled condition and mounting the assembled panels on the support structure may be employed.

Coupling unit 11 includes a releasable locking or cam section 48 and a support or hook section 49 connected thereto, cam section 48 being disposed within housing 28 and hook section 49 being connected thereto by a shank passing through slot 29 and so related to cam section 48 that a vertical pressure on hook 49 in the direction from the open to the closed end of the hook section effects a locking engagement between cam section 48 and the confronting faces of lips 20 and 21 and web 43. Coupling element 11 is advantageously integrally formed as a unit from resilient sheet metal or other material, cam section 48 comprising an upper plate 50, in the position illustrated in FIGURE 10, said plate 50 being upwardly forwardly inclined and terminating along its upper border in a curved forwardly convex section 51. A medially located recess 52 is formed in curved section 51 and in the upper plate 50 to delineate a pair of resilient legs 53, and a downwardly forwardly inclined arm 54 extends from the base of recess 52 and terminates in a depending leg 56. The lower border of inclined plate 50 is rearwardly convexed and curved to define a knee 57 from the lower edge of which extends a downwardly forwardly inclined plate 58 which

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terminates along its lower border in the forwardly convex curved section 59.

Hook section 49 includes a rearwardly convex arm 60 joined at its upper edge to leg 56 and provided at its lower edge forward of the leg 56 with an upwardly directed vertical leg 61. Leg 61 is provided at its upper edge with a rearwardly convex curved section 63 terminating in an upwardly forwardly inclined arm 64. A soft plastic sleeve 55 of polyvinyl chloride or an elastomeric or other suitable material engages hook sections 61, 63, and 64, and the hook member 49 is so sprung the the sheathed rear face of curved section 63 normally bears on the front face of leg 56.

It is important to note that arm 54 is connected to plate 50 adjacent its forward border so that pressure along arm 54 in a direction normal to and away from the plate 50 functions to turn the plate 50 towards a position transverse to the confronting faces of web 43 and lips 20 and 21 whereby to increase the pressure between the cam curved sections 51 and 57 and the aforesaid faces and effect a locking between the cam member 48 and the confronting faces of the aforesaid lips and crossweb. On the other hand, an opposite pressure on arm 54 tends to rotate the plate 50 towards a vertical or longitudinal position to release the pressure of the sections 51 and 57 on the lip and cross web faces and thereby to permit the longitudinal adjustment of the coupling element. Thus, whether the hook element is in the position illustrated in FIGURE 8 of the drawings or in an inverted position, the loading of the coupling element in a direction from the open end of the hook section toward the base thereof effects a locking of the cam section 48 in the longitudinal housing. As seen in FIGURE 1 of the drawings, a panel 65 may be supported on mounting panel 10 by a pair of inverted upper hooks 11 and a pair of upright lower hooks 11 registering with opposite slots 29 and engaging the upper and lower borders of the panels 65 respectively, thereby limiting the movement of the panel 65 in either vertical direction. Cam sections 48 of the coupling elements may be inserted into housings 28 in any suitable manner either through the open tops thereof or, where dimensions permit, through the vertical slots 29 by appropriate orienting and twisting of the coupling unit.

In FIGURES 11, 12, and 13, there is illustrated another form of coupling element 66 which is of somewhat simpler construction than coupling element 11 and may, in many applications, be substituted therefor. Specifically, coupling element 66 comprises a locking or cam member 67 including a transversely inclined plate 68, forwardly upwardly inclined as illustrated in the drawings, and terminating along its lower border in a rearwardly convex curved section 69 and along its upper border in a pair of laterally spaced convex curved legs 70 separated by a recess 71. Projecting forwardly from the base of recess 71 is a shank 72 provided at its forward edge with an upwardly slightly rearwardly directed arm 73 provided at its upper edge with a rearwardly convex curved section 74 terminating in a forwardly upwardly inclined leg 76. As in the first-described embodiment, the coupling element 66 is formed integrally as a unit of a resilient material and sections 73, 74 and 76 are ensheathed in a plastic or rubber sleeve 77. Coupling element 66 is employed in manner similar to that of coupling member 11 and it operates in like fashion.

As an alternate form of coupling member 78 which operates in a different manner from those previous described and which employs apertures 47 formed in channel members 42 is illustrated in FIGURES 5, 6 and 7 of the drawings. Coupling member 78 is formed of resilient metal wire or band and includes an upwardly rearwardly inclined arm 79 terminating at its upper edge in a downwardly facing small hook section 80 having a throat 81 disposed rearwardly and just above arm 79, the opposite faces of throat 81 being delineated by opposite curved sections 82 and 83 disposed at the lower end of the hook

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section 80. Depending from the lower end of arm 79 is a leg 84 terminating at its lower end in a rearwardly convex section 86 joined at its lower edge at a point forward of leg 84 in an upwardly directed leg 87 having formed at its upper border a rearwardly convex curved section 88 terminating in a upwardly forwardly directed leg 89. Coupling sections 87, 88 and 89 are covered by a plastic or rubber sleeve 90. It should be noted that the width of the material forming coupling element 78 is less than that of slots 29 to permit the insertion of the hook member 80 and the arm 79 therethrough.

One or more coupling elements 78 are mounted on a panel 10 by inserting the hook component 80 through the corresponding slot 29 and bringing the hook section 80 into engagement with the lower border delineating a coupling slot 47 at the desired level. As shown in FIGURES 1 and 5, a pair of laterally spaced coupling elements 78 may function as picture hooks to engage a picture supporting wire 91 connected to the frame of a picture frame 92 which is to be mounted on the panel 10. It should be noted that coupling element 78 may be employed to engage the lower border of a panel or frame 94 in the manner of coupling elements 11 and 66.

In FIGURES 14 and 15 of the drawing, there is illustrated another form of coupling element 96 which is of the nature of coupling element 66 but formed of resilient wire instead of sheet material and correspondingly modified. Specifically, the coupling element 96 includes a locking section defined by a wire frame 97 of greater depth than the distance between the confronting faces of lips 20 and 21 and cross web 43 so as to be transversely inclined when in use. Frame 97 includes a laterally extending rear leg 98 from the ends of which project forwardly parallel inclined side legs 99 which terminate in inwardly directed colinear legs 100. Projecting forwardly from the inner ends of legs 100 in side-by-side abutting relationship are legs 101 joined by curved sections with abutting upwardly forwardly inclined side-by-side legs 102 which join rearwardly convex sections 103 terminating in upwardly forwardly inclined legs 104. Sections 102, 103 and 104 are enclosed in a plastic or rubber sleeve 106.

Coupling element 96 is employed and operates in the manner of coupling element 66, locking frame 97 corresponding in function to cam 67.

Mounting panel 10, as best seen in FIGURES 1 and 16 of the drawings, may be employed for adjustably supporting shelf brackets, for example, the type of shelf bracket 107 illustrated. This shelf bracket 107 is of conventional construction and includes a forwardly projecting arm 108 having a forwardly upwardly inclined lower edge 109, a horizontal upper edge 110 and a vertical rear edge 111. Directed rearwardly from the upper and lower sections of the rear edge 111 are short arms 112 terminating in depending fingers 113 which are separated from the rear edge 111 by vertical grooves 114 of slightly greater width than the thickness of channel web 43, arms 112 being separated a distance approximately that of the vertical separation of web slots 47, and legs 113 being of a height somewhat less than the height of slots 47. Bracket arm 108 terminates at its forward end in a short upwardly directed leg 116 extending to a level a short distance above that of edge 110.

Two or more shelf brackets 107 are inserted at the desired level through slots 29 into mating engagement with corresponding slots 47 in the known manner. A suitably dimensioned shelf 117 is supported on the arm edges 110 directly rearwardly of the legs 116.

In FIGURES 17 through 20 of the drawings, there is illustrated a modified form of mounting panel and shelf bracket arrangement. Mounting panel 118 is, like the mounting panel 10, of modular construction and differs from the mounting panel 10 primarily in that the vertical housing 119 is of lesser depth than corresponding housing 28 and a standard 120 is substituted for channel member 42. As in the mounting panel 10, the adjacent units

of panel 118 are coupled by mating tongue and groove joints and housing 119 is delineated by side legs 121 and 122 of adjacent panel units, a rear wall 123 projecting laterally from the trailing edge of leg 121, and a pair of front lips 126 and 127 directed towards each other from adjacent panels and separated by a vertical slot 128 provided with rearwardly diverging curved faces.

Disposed in housing 119 and extending for substantially the full length thereof, is the vertical standard 120 which includes a rear cross web 129 abutting the front face of the housing wall 123 and provided along its vertical side edges with vertically spaced forwardly directed parallel rectangular legs or teeth 130, the outer faces of which abut the inner faces of housing walls 121 and 122 and the front edges of which abut the outer rear faces of lips 126 and 127. Successive legs 130 are separated by rectangular recesses 131, the upper and lower edges of which are defined by the confronting edges of vertically spaced legs 130. Standard 120 and the mounting panel 118 are assembled in any suitable manner and mounted as desired in manner earlier described.

Self-locking shelf brackets 132 are associated with mounting panel 118, and each bracket includes a forwardly projecting bracket arm 133 terminating at its rear edge in a laterally projecting panel 134 connected thereto by a curved knee section 136 which complements the inner rear face of lip 126. Formed along the outer edges of the panel 134 are a pair of coplanar parallel laterally projecting rectangular legs 137, the distance between the lower edges thereof being approximately equal to the distance between the upper edges of a pair of successively spaced standards legs 130. The height of each leg 137 is somewhat less than the height of each recess 131. The upper edge of bracket arm 133 is horizontal and terminates in an upwardly directed leg or abutment 138.

A resilient latching member 139 extends from bracket leg 133 and is integrally formed therewith and includes a rearwardly directed leg 140 registering with a corresponding slot in bracket arm 133 and having formed along its trailing edge a rearwardly laterally inclined arm 141 disposed on the same side of bracket arm 133 as panel 134 and terminating in an oppositely laterally directed leg 142 connected to the arm 141 by a curved knee section 143. A slot 144 is provided in bracket leg 133 in alignment with arm 141 and leg 142 and from which the arm 141 and leg 142 are formed.

Brackets 133 are mounted on panel 118 at the desired location by inserting panel 134 and legs 137 of bracket 132 into a selected slot 128 at the desired level, with legs 137 at the levels of a pair of respective recesses 131. Bracket arm 133 is then turned from its laterally extending position to a forwardly extending position to bring legs 137 into registry with corresponding recesses 131, the lower edges of legs 137 resting on the upper edges of respective legs 130. In the aforesaid position, latching leg 142 is resiliently urged into engagement with the front face of lip 126 to lock the bracket arm 132 in its pre-selected inserted position.

As seen in FIGURE 21 of the drawings wherein there is illustrated a modified form of shelf bracket 146, the resilient latching arm 139 may be replaced by a hand-manipulated locking cam, the shelf bracket 146 being otherwise similar to the shelf bracket 132. Specifically, shelf bracket 146 includes a bracket arm 147 provided along its trailing edge with a laterally projecting panel 148 having vertically spaced laterally directed legs 149. Positioned on the face of leg 147 on the same side as panel 148 is a rotatable cam 150 pivotally mounted on bracket arm 147 for rotation about a laterally extending axis by a screw pin 151. The cam 150 includes raised sections 152 which, when directed toward panel 148, are spaced therefrom a distance somewhat less than the thickness of lip 126, and depressed sections 153 which, when facing panel 148, are spaced therefrom a distance greater than the thickness of lip 126.

Shelf bracket 146 is applied to mounting panel 118 by inserting legs 149 and panel 148 through slot 128 in the manner earlier described, with cam 150 in a vertical position as illustrated in FIGURE 21. Bracket arm 147 is then turned to a forwardly directed position to bring legs 149 into registry with corresponding recesses 131, and cam 150 is turned to bring a raised section thereof into engagement with the front face of the lip 126 thereby releasably to lock shelf bracket 146 into position on mounting panel 118.

An alternate type of bracket, formed of wire, is illustrated in FIGURES 22 through 24 of the drawings and may be employed with mounting panel 118. Bracket 156 includes an elongated wire leg 157 bent upwardly at its leading end to define a vertical leg 158 and provided at its trailing end with an upwardly rearwardly inclined leg 159. Mounted atop leg 159 is a wire cross-bar 160 of length somewhat greater than the distance between the confronting inner faces of opposite standard legs 130. Secured to the under face of bracket arm 157, at a point approximately intermediate of the ends thereof, is a parallel leg 161 provided at its trailing end with a rearwardly downwardly inclined arm 163 terminating in a rearwardly directed leg 164 parallel to arm 157. The end of arm 164 is disposed rearwardly of cross-bar 160 so that when cross-bar 160 bears on the rear face of lips 126 and 127 and the free end of leg 164 bears on the front face of web 129, bracket arm 157 is horizontal.

A bracket 156 is applied to the mounting panel 118 by axially aligning cross-bar 160 with a slot 128 at the desired level in registry with a pair of opposite recesses 131, the leg 164 being disposed forwardly of the front face of the mounting panel 118. Bracket 156 is then turned 90° to bring cross-bar 160 laterally horizontal, and the arm 163 in a position below arm 157, arm 157 being upwardly forwardly inclined. The leading end of arm 157 is then lowered to bring leg 164 to bear on the front face of web 129 in which position of bracket 156 bracket arm 157 is horizontal and forwardly directed.

In FIGURE 3 of the drawing, there is illustrated a mounting panel 165 which may be employed in the manner of mounting panel 10 and which differs therefrom primarily in that opposite faces of the panel 165 may be employed for supporting coupling elements, brackets and the like. Panel 165 is formed of a plurality of laterally offset interlocking panel units 166 of similar construction, the successive panel units forming opposite faces being oppositely directed as seen in the drawing. Each panel unit 166 includes an outer vertical laterally extending wall 167 terminating at opposite edges thereof in rearwardly directed flanges 168. These may be omitted if desired. Directed rearwardly from opposite borders of wall 167 inwardly of the outer edges thereof are side walls 169 and 170 which terminate in inwardly directed tongues 171 extending the height of walls 169 and 170. That part of front wall 167 between the outer edges thereof and the corresponding adjacent walls 169 and 170 defines lips 172.

Formed on the outer face of wall 169 intermediate its front and rear ends is a vertical lateral web 173 terminating at its outer end in a rearwardly offset tongue 174, web 173 having formed therein vertically spaced vertical coupling slots 176. Formed on the outer face of side wall 170 are a pair of transversely spaced ridges 177 which delineate a vertically extending groove adapted reasonably to engage tongue 174 of the next adjacent panel unit 166 to form a tongue and groove joint. A pair of laterally spaced legs 178 are formed on the rear face of front wall 169 and terminate in inwardly directed flanges 179. Inwardly of the free ends of flanges 179 there are located on the rear face of front wall 167 rearwardly directed lips 180 which are spaced from the free ends of flanges 179 to delineate therewith vertical slots which define throats into the enlarged vertical grooves delineated by flanges 179 the legs 178 and 180

and the corresponding portions of the front walls 167, grooves being of about the same or slightly greater size than lips 171 to permit slidable engagement of the lips and the grooves whereby to effect their mating intercoupling.

In the assembled condition of a plurality of panel units 166 into a mounting panel 165, tongues 171 of panel units 166 engage registering grooves defined by corresponding flanges 179 on the walls 167 of successive units 166, the tongue 174 engages a mating groove defined by the legs 177 of the next adjacent panel unit 166, and the opposite groove defined by the legs 177 of the unit 166 engages the tongue 174 of the next successive panel unit 166. Lips 172 of successive panel units 166 define vertical slots 181 located on the front and rear faces of assembled panel 165, each slot 181 providing access to a vertical housing 182 and being in transverse alignment with coupling slots 176 formed in crossweb 173.

Another form of mounting panel 183 is illustrated in FIGURE 4 and is assembled from a plurality of side-by-side panel modular units 184 which are releasably locked in assembled condition by a coupling device 186. Each panel unit 184 includes a vertical laterally extending in inwardly directed flanges 179. Inwardly of the free ends of flanges 179 there are located on the rear face of front wall 167 rearwardly directed lips 180 which are spaced from the free ends of flanges 179 to delineate therewith vertical slots which define throats into the enlarged vertical grooves delineated by flanges 179 the legs 178 and 180 and the corresponding portions of the front walls 167, grooves being of about the same or slightly greater size than lips 171 to permit slidable engagement of the lips and the grooves whereby to effect their mating intercoupling.

In the assembled condition of a plurality of panel units 166 into a mounting panel 165, tongues 171 of panel units 166 engage registering grooves defined by corresponding flanges 179 on the walls 167 of successive units 166, the tongue 174 engages a mating groove defined by the legs 177 of the next adjacent panel unit 166, and the opposite groove defined by the legs 177 of the unit 166 engages the tongue 174 of the next successive panel unit 166. Lips 172 of successive panel units 166 define vertical slots 181 located on the front and rear faces of assembled panel 165, each slot 181 providing access to a vertical housing 182 and being in transverse alignment with coupling slots 176 formed in crossweb 173.

Another form of mounting panel 183 is illustrated in FIGURE 4 and is assembled from a plurality of side-by-side panel modular units 184 which are releasably locked in assembled condition by a coupling device 186. Each panel unit 184 includes a vertical laterally extending

The panel 183 is assembled from a plurality of panel units 184 arranged in abutting side-by-side relationship with borders 198 matingly engaging the spaces delineated by the flanges 192 and lips 194 of the next respective successive panel units 184. Each assembled set of bars 196, panels 197, borders 198, flanges 192 and lips 194, nests between spring clips 200 of each respective pair thereof, the confronting faces of clip arms 201 bearing on the opposite outer faces of the corresponding bar 196 and lip 194 which are retained therein by the inclined arms 202. The inclined arms 203 facilitate the snap assembly of panel units 184 and the assembly locking device 186. The locked assembled panel 183 may be mounted and supported in any desired manner and is provided with vertical housing 204 having medially located vertical entrance slots 206 delineated by the spaced outer edges of corresponding pairs of flanges 190 and 191 of adjacent panel units 184. The housings 204 are delineated by the walls 188, 189 and 197 and lips 190 and 191 and a vertical mounting standard or channel member 207 is nested in the rear section of each hous-

ing 204 and a pair of flanges 208 are directed inwardly from walls 188 and 189 along the front face of each channel member 207 to retain the mounting standard 207 in position. Channel standards 207 are similar in disposition, structure and function to channel members 42 and are provided with vertically spaced vertical coupling slots 210.

Mounting panel 183 is employed in the manner of mounting panel 10 as previously described.

While there have been described and illustrated preferred embodiments of the present invention it is apparent that numerous alterations, omissions and additions may be made without departing from the spirit thereof.

What is claimed is:

1. An adjustable mounting assembly comprising a mounting panel having a plurality of transversely spaced longitudinally extending vertical slots formed therein, each of said slots being bordered by at least one inwardly projecting longitudinally extending lip having a rearwardly directed front first face, means defining a forwardly directed second face disposed rearwardly of said first face and extending along the length thereof and a mounting element registering with at least one of said slots and adjustable along the length thereof and including a shank and a cam member located at the inner end of said shank and responsive to pressure on said shank to tilt said cam member into locking engagement with said first and second faces to restrict the vertical movement of said mounting element, said shank projecting forwardly from said cam member through said slot and terminating in an upwardly directed resiliently supported leg disposed along the front face of said panel.

2. The adjustable mounting assembly of claim 1, wherein said cam member comprises a transversely inclined cross member extending between said first and second faces and said shank is connected to said cross member adjacent an edge thereof.

3. The adjustable mounting assembly of claim 1, wherein said cam member comprises a downwardly-rearwardly inclined plate extending between said first and second faces and said shank is connected to the forward section of said plate.

4. An adjustable mounting assembly comprising a mounting panel having a plurality of transversely spaced longitudinally extending vertical slots formed therein, each of said slots being bordered by at least one inwardly projecting longitudinally extending lip having a rearwardly directed front first face, means defining a forwardly directed second face disposed rearwardly of said first face and extending along the length thereof, and a mounting element registering with at least one of said slots and adjustable along the length thereof and including a shank projecting through said slot and a cam member located at the inner end of said shank and responsive to pressure on said shank to tilt said cam member into locking engagement with said first and second faces to restrict the vertical movement of said mounting element, and wherein said cam member comprises a downwardly-rearwardly inclined plate extending between said first and second faces and provided along its front edge with an upwardly extending forwardly convex border bearing on said first face and along its rear edge with a downwardly extending rearwardly convex border bearing on said second face, and said shank is connected to said plate adjacent said front edge.

5. An adjustable mounting assembly comprising a mounting panel having a plurality of transversely spaced longitudinally extending vertical slots formed therein, each of said slots being bordered by at least one inwardly projecting longitudinally extending lip having a rearwardly directed front first face, means defining a forwardly directed second face disposed rearwardly of said first face and extending along the length thereof and a mounting element registering with at least one of said slots and adjustable along the length thereof and including a shank

projecting through said slot and a cam member located at the inner end of said shank and responsive to pressure on said shank to tilt said cam member into locking engagement with said first and second faces to restrict the vertical movement of said mounting element, and wherein said shank depends from the forward part of said cam member and terminates in an upwardly directed resiliently supported leg disposed along the front face of said panel.

6. An adjustable mounting assembly comprising a mounting panel having a plurality of transversely spaced longitudinally extending vertical slots formed therein, each of said slots being bordered by at least one inwardly projecting longitudinally extending lip having a rearwardly directed front first face, means defining a forwardly directed second face disposed rearwardly of said first face and extending along the length thereof, and a mounting element registering with at least one of said slots and adjustable along the length thereof and including a shank projecting through said slot and a cam member located at the inner end of said shank and responsive to pressure on said shank to tilt said cam member into locking engagement with said first and second faces to restrict the vertical movement of said mounting element, said mounting element being integrally formed of a resilient metal and said cam member comprising a forwardly upwardly inclined plate forwardly and rearwardly curved along its front and rear edges respectively to define convex surfaces engaging said first and second faces, the front edge of said plate having a recess formed therein, said shank extending from the base of said recess.

7. An adjustable mounting assembly comprising a mounting panel having a plurality of transversely spaced longitudinally extending vertical slots formed therein, each of said slots being bordered by at least one inwardly projecting longitudinally extending lip having a rearwardly directed front first face, means defining a forwardly directed second face disposed rearwardly of said first face and extending along the length thereof, and a mounting element registering with at least one of said slots and adjustable along the length thereof and including a shank projecting through said slot and a cam member located at the inner end of said shank and responsive to pressure on said shank to tilt said cam member into locking engagement with said first and second faces to restrict the vertical movement of said mounting element, said mounting element being integrally formed of a resilient metal and said cam member comprising a forwardly upwardly inclined plate forwardly curved along its front edge to define a convex surface engaging said first face and provided along its rear edge with a depending forwardly inclined leg joined to said plate by a forwardly convex elbow bearing on said second face and terminating at its lower edge in a forwardly convex section bearing on said first face.

8. An adjustable mounting assembly comprising a mounting panel having a plurality of transversely spaced longitudinally extending vertical slots formed therein, each of said slots being bordered by at least one inwardly projecting longitudinally extending lip having a rearwardly directed front first face, means defining a forwardly directed second face disposed rearwardly of said first face and extending along the length thereof, and a mounting element registering with at least one of said slots and adjustable along the length thereof and including a shank projecting through said slot and a cam member located at the inner end of said shank and responsive to pressure on said shank to tilt said cam member into locking engagement with said first and second faces to restrict the vertical movement of said mounting element, said coupling element being integrally formed of wire and including an inclined rectangular frame defining said cam member and including front and rear legs bearing on said first and second faces respectively, said shank medially projecting from said frame front leg.

9. The adjustable mounting assembly of claim 1, wherein said mounting panel includes vertically extending channels located rearwardly of said first faces in registry with said slots.

10. The adjustable mounting assembly of claim 1, wherein said mounting panel includes vertically extending channels located rearwardly of said first faces in registry with said slots, said channels including cross webs, the front faces of said cross webs defining said second faces.

11. The adjustable mounting assembly of claim 1, wherein said mounting panel includes vertically extending channel located rearwardly of said first faces in registry with said slots, said channels including cross webs, the front faces of said cross webs defining said second faces, and said cross webs having vertically spaced coupling apertures formed therein.

12. An adjustable mounting assembly comprising a mounting panel having a plurality of transversely spaced longitudinally extending vertical slots formed therein, each of said slots being bordered by at least one inwardly projecting longitudinally extending lip having a rearwardly directed front first face, means defining a forwardly directed second face disposed rearwardly of said first face and extending along the length thereof and a mounting element registering with at least one of said slots and adjustable along the length thereof and including a shank projecting through said slot, and a locking section mounted on said shank and releasably engaging said first and second faces to restrict the vertical movement of said mounting element, said mounting panel including vertically extending channels located rearwardly of said first faces in registry with said slots and comprising channels located rearwardly of said first faces in each of said channels and including a front cross web positioned rearwardly of said first face and rearwardly directed side legs, said cross web having vertically spaced coupling apertures formed therein in registry with said slots.

13. The adjustable mounting assembly of claim 1, wherein each of said slots is bordered by a pair of laterally spaced longitudinally extending lips projecting toward each other and having rear surfaces defining said first face.

14. The adjustable mounting assembly of claim 1, wherein said mounting panel comprises a plurality of similarly shaped panel units arranged side-by-side, adjacent edges of said panel units being provided with vertically extending mating interlocking tongues and grooves.

15. The adjustable mounting assembly of claim 1, including a plurality of laterally spaced vertically spaced spring clips provided with forwardly directed spring arms along opposite vertical edges thereof, said mounting panel comprising a plurality of similarly shaped panel units arranged side-by-side and provided along opposite edges with vertically extending flanges releasably engaged by said spring arms.

16. An adjustable mounting assembly comprising a mounting panel having a plurality of transversely spaced longitudinally extending vertical slots formed therein, each of said slots being bordered by at least one inwardly projecting longitudinally extending lip having a rearwardly directed front first face, means defining a forwardly directed second face disposed rearwardly of said first face and extending along the length thereof, and a mounting element registering with at least one of said slots and adjustable along the length thereof and including a shank projecting through said slot and a locking section mounted on said shank and releasably engaging said first and second faces to restrict the vertical movement of said mounting element, said mounting panel comprising a plurality of similarly shaped panel units arranged side-by-side, adjacent edges of said panel units

being provided with vertically extending mating interlocking tongues and grooves.

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