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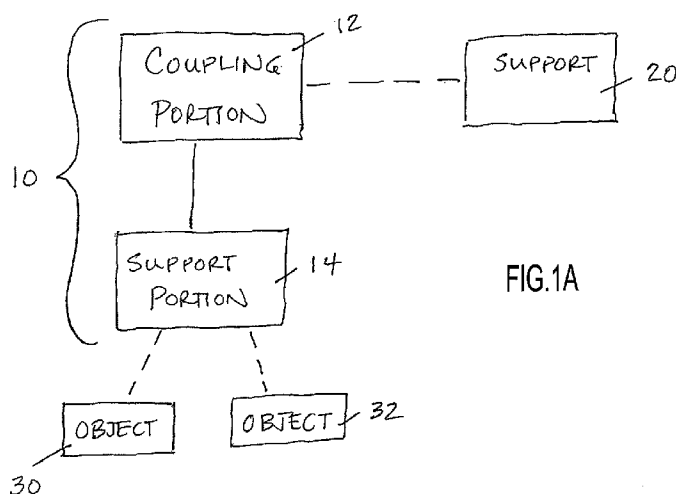
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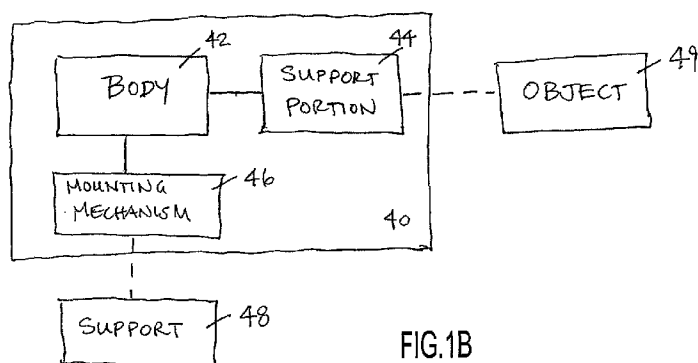
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(54) Title: SUPPORT STRUCTURES AND METHODS OF USING THE SAME



(57) Abstract: The present invention relates to support structures, and in particular, to structures that can be used to support one or more objects. The structures can be used to support objects in a variety of positions and in a variety of manners. The structures can be used in different environments to easily store objects. In addition, the structures can be used to provide space convenience for travelers.





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SUPPORT STRUCTURES AND METHODS OF USING THE SAME

FIELD OF THE INVENTION

[0001] The present invention relates to support structures, and in particular, to structures that can be used to support one or more objects. The structures can be used to support objects in a variety of positions and in a variety of manners. The structures can be used in different environments to easily store objects. In addition, the structures can be used to provide space convenience for travelers.

BACKGROUND OF THE INVENTION

[0002] Typically, travelers need to have access to many different items or objects. During travel, easy access to entertainment devices or other items is greatly desired. However, usually space is limited for such devices in the conventional modes of transportation. For example, travelers on airplanes have limited space in which to store items so that they are accessible. Available storage on an airplane is typically limited to a pouch or pocket formed on the back of the seat in front of the traveler. The pouch is placed at an inconvenient location that interferes with the traveler's knee and leg room. In addition, travelers using trains, vehicles, and other modes of transportation encounter similar storage space restrictions and issues.

[0003] Travelers sometimes want to use an electronic device for entertainment during travel. However, depending on the mode of transportation, the space for the use of an electronic device may be very limited. In addition, some electronic devices have a screen on which programming and content can be displayed. To be viewed effectively by a user, such screens should be oriented in a particular direction. However, various space limitations, such as the reclining of a seat in front of a traveler, can affect the amount of available space.

[0004] Therefore, a need exists for a support structure that can be used to provide storage for items or objects in an accessible manner. In addition, a need exists for a support structure that can permit the use of an electronic device in various arrangements.

SUMMARY OF THE INVENTION

[0005] The present invention relates to a support structure that can be used to support an object or item. In one embodiment, the support structure can be coupled or mounted to a support, such as a support involved with travel. Some examples of support structures include bags, pouches, headrest covers, slings, hammocks and other supporting devices that can be used to support or hold objects and that can be configured to be mounted or coupled to various supports, including seats or other structures associated with vehicles, trains, airplanes and any other modes of transportation.

[0006] Various objects can be stored on or in the support structure. The support structure can be collapsed into a closed and smaller configuration. In one embodiment, the support structure can include couplers that facilitate the connection of another support structure thereto. In another embodiment, the present invention relates to a support structure that can be used to hold or support an electronic device. The electronic device may include a display that can be viewed by a user. The desired orientation of the display can be controlled by the support structure.

[0007] The configurations of the support structures according to the invention facilitate access to articles and objects in a variety of environments and uses. In one exemplary use, a support structure can be used on an airplane and is mountable to an airline seat back tray. In another exemplary use, a support structure can be used in a motor vehicle and is mountable to a seat in the vehicle. For example, a support structure can be mounted to a headrest in the vehicle. In another exemplary use, a support structure can be mounted to a stroller for use.

In yet another exemplary use, a support structure can be mounted on a train seat and/or tray proximate to a seat on a train.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] Fig. 1A illustrates a schematic diagram of an embodiment of a support structure and its use in accordance with an aspect of the present invention.

[0009] Fig. 1B illustrates a schematic diagram of an alternative embodiment of a support structure and its use in accordance with an aspect of the present invention.

[0010] Fig. 2 illustrates a front perspective view of an alternative embodiment of a support structure in accordance with an aspect of the present invention.

[0011] Fig. 3 illustrates a side view of the support structure illustrated in Fig. 2 in accordance with an aspect of the present invention.

[0012] Fig. 4 illustrates a bottom view of the support structure illustrated in Fig. 2 in accordance with an aspect of the present invention.

[0013] Fig. 5 illustrates a perspective view of the support structure illustrated in Fig. 2 coupled to a support in a deployed position in accordance with an aspect of the present invention.

[0014] Fig. 6 illustrates a front view of the support structure and support illustrated in Fig. 5 in an intermediate position in accordance with an aspect of the present invention.

[0015] Fig. 7 illustrates a front view of the support structure and support illustrated in Fig. 5 in a stored position in accordance with an aspect of the present invention.

[0016] Fig. 8 illustrates a cross-sectional side view of the support structure and support illustrated in Fig. 7 in accordance with an aspect of the present invention.

[0017] Fig. 9 illustrates a schematic block diagram of an alternative embodiment of a support structure in accordance with an aspect of the present invention.

[0018] Fig. 10 illustrates a front view of an alternative embodiment of a support structure in accordance with an aspect of the present invention.

[0019] Fig. 11 illustrates a front view of the support structure illustrated in Fig. 10 with objects stored thereon in accordance with an aspect of the present invention.

[0020] Fig. 12 illustrates a close-up perspective view of part of the support structure illustrated in Fig. 10 in accordance with an aspect of the present invention.

[0021] Fig. 13 illustrates a close-up top view of a compartment of the support structure illustrated in Fig. 10 in accordance with an aspect of the present invention.

[0022] Fig. 14 illustrates a front perspective view of some of the components of the support structure illustrated in Fig. 10 in accordance with an aspect of the present invention.

[0023] Fig. 14A illustrates a front perspective view of an alternative embodiment of a support structure in accordance with an aspect of the present invention.

[0024] Fig. 14B illustrates an exploded front view of the support structure illustrated in Fig. 14A including a strap in accordance with an aspect of the present invention.

[0025] Fig. 15 illustrates a front view of the support structure illustrated in Fig. 10 in a closed or collapsed configuration in accordance with an aspect of the present invention.

[0026] Fig. 16 illustrates a perspective view of the support structure illustrated in Fig. 15 in accordance with an aspect of the present invention.

[0027] Fig. 17 illustrates a perspective view of the support structure illustrated in Fig. 16 with the flaps opened in accordance with an aspect of the present invention.

[0028] Fig. 18A illustrates a cross-sectional side view of some of the components of the support structure illustrated in Fig. 10 in accordance with an aspect of the present invention.

[0029] Fig. 18B illustrates a top view of a portion of the support structure illustrated in Fig. 18A in accordance with an aspect of the present invention.

[0030] Fig. 19 illustrates a top perspective view of the support structure illustrated in Fig. 10 coupled to a support in a deployed position in accordance with an aspect of the present invention.

[0031] Fig. 20 illustrates a front view of the support structure and support illustrated in Fig. 19 in an intermediate position in accordance with an aspect of the present invention.

[0032] Fig. 21 illustrates a front view of the support structure illustrated in Fig. 19 coupled to a support in a raised position in accordance with an aspect of the present invention.

[0033] Fig. 22A illustrates a front view of the support structure illustrated in Fig. 19 relative to a support in accordance with an aspect of the present invention.

[0034] Fig. 22B illustrates an exploded front view of an embodiment of a support structure and a support in accordance with an aspect of the present invention.

[0035] Fig. 22C illustrates a top view of the support structure and support illustrated in Fig. 22B with the support structure coupled to the support in accordance with an aspect of the present invention.

[0036] Fig. 22D illustrates a perspective view of an embodiment of a coupler of the support structure illustrated in Figs. 22B and 22C in accordance with an aspect of the present invention.

[0037] Fig. 23 illustrates a front view of an alternative embodiment of a support structure in a first configuration in accordance with an aspect of the present invention.

[0038] Fig. 24 illustrates a front view of the support structure illustrated in Fig. 23 in a second configuration different than the first configuration illustrated in Fig. 23 in accordance with an aspect of the present invention.

[0039] Fig. 24A illustrates an exploded perspective view of an embodiment of a tray portion and a support in accordance with an aspect of the present invention.

[0040] Fig. 24B illustrates a perspective view of the tray portion and the support illustrated in Fig. 24A illustrated in a deployed configuration in accordance with an aspect of the present invention.

[0041] Fig. 24C illustrates a rear view of the tray portion and another embodiment of a support in a stored configuration in accordance with an aspect of the present invention.

[0042] Fig. 24D illustrates a top view of the tray portion and the support illustrated in Fig. 24C in the stored configuration in accordance with an aspect of the present invention.

[0043] Fig. 24E illustrates a top view of the tray portion and the support illustrated in Fig. 24C with the support disposed in a deployed position in accordance with an aspect of the present invention.

[0044] Fig. 24F illustrates a top view of the tray portion and the support illustrated in Fig. 24C in a deployed configuration in accordance with an aspect of the present invention.

[0045] Fig. 24G illustrates a perspective view of an alternative embodiment of a tray portion in accordance with an aspect of the present invention.

[0046] Fig. 24H illustrates a side view of the tray portion illustrated in Fig. 24G in accordance with an aspect of the present invention.

[0047] Fig. 24I illustrates a side view of the tray portion illustrated in Fig. 24G mounted to a support in accordance with an aspect of the present invention.

[0048] Fig. 25 illustrates a front view of an alternative embodiment of a support structure in a first configuration in accordance with an aspect of the present invention.

[0049] Fig. 26 illustrates a front view of the support structure illustrated in Fig. 25 in a second configuration different than the first configuration illustrated in Fig. 25 in accordance with an aspect of the present invention.

[0050] Fig. 27 illustrates a front view of an alternative embodiment of a support structure in accordance with an aspect of the present invention.

[0051] Fig. 28 illustrates a front view of the support structure illustrated in Fig. 27 with objects coupled thereto in accordance with an aspect of the present invention.

[0052] Fig. 29A illustrates a perspective view of the support structure illustrated in Fig. 10 coupled to a support in accordance with an aspect of the present invention.

[0053] Fig. 29B illustrates an exploded front view of the support structure and support illustrated in Fig. 29A in accordance with an aspect of the present invention.

[0054] Fig. 29C illustrates an exploded front view of another embodiment of the support structure and a support in accordance with an aspect of the present invention.

[0055] Fig. 29D illustrates a front view of another embodiment of a support structure in accordance with an aspect of the present invention.

[0056] Fig. 30 illustrates a rear view of the support structure illustrated in Fig. 10 coupled to another support in accordance with an aspect of the present invention.

[0057] Fig. 31 illustrates a top view of the support structure and support illustrated in Fig. 30 in accordance with an aspect of the present invention.

[0058] Fig. 32 illustrates a top perspective view of the support structure and support illustrated in Fig. 30 in accordance with an aspect of the present invention.

[0059] Fig. 33A illustrates a front perspective view of the support structure and support illustrated in Fig. 30 in accordance with an aspect of the present invention.

[0060] Fig. 33B illustrates an exploded perspective view of an embodiment of a support structure and a support in accordance with an aspect of the present invention.

[0061] Fig. 34 illustrates a schematic block diagram of an alternative embodiment of a support structure in accordance with an aspect of the present invention.

[0062] Fig. 35 illustrates a schematic side view of a support and a support structure in a first configuration in accordance with an aspect of the present invention.

[0063] Fig. 36 illustrates a schematic view of the support and support structure illustrated in Fig. 35 in a second configuration in accordance with an aspect of the present invention.

[0064] Fig. 37 illustrates a perspective view of a support structure and a device in a first configuration in accordance with an aspect of the present invention.

[0065] Fig. 38 illustrates a perspective view of the support structure and the device illustrated in Fig. 37 in a second configuration in accordance with an aspect of the present invention.

[0066] Fig. 39 illustrates a perspective view of the support structure and the device illustrated in Fig. 37 in accordance with an aspect of the present invention.

[0067] Fig. 40 illustrates an exploded perspective view of some components of a frame in accordance with an aspect of the present invention.

[0068] Fig. 41 illustrates a front view of the support structure illustrated in Fig. 37 in accordance with an aspect of the present invention.

[0069] Fig. 42 illustrates a close-up perspective view of a corner portion of the support structure illustrated in Fig. 41 in accordance with an aspect of the present invention.

[0070] Fig. 43 illustrates a perspective view of an alternative embodiment of a support structure in a first configuration in accordance with an aspect of the present invention.

[0071] Fig. 44 illustrates a front view of the support structure illustrated in Fig. 43 in a second configuration in accordance with an aspect of the present invention.

[0072] Fig. 45 illustrates a rear perspective view of the support structure illustrated in Fig. 43 in accordance with an aspect of the present invention.

[0073] Fig. 46 illustrates a rear view of the support structure illustrated in Fig. 43 in accordance with an aspect of the present invention.

[0074] Fig. 47 illustrates a rear view of the support structure illustrated in Fig. 43 with the back portions decoupled in accordance with an aspect of the present invention.

[0075] Fig. 48 illustrates an exploded view of the back portions of the support structure illustrated in Fig. 43 in accordance with an aspect of the present invention.

[0076] Fig. 49 illustrates an exploded view of the upper section and lower section of the support structure illustrated in Fig. 43 in accordance with an aspect of the present invention.

[0077] Fig. 50 illustrates an exploded view of the upper section and the lower section of the support structure illustrated in Fig. 43 in accordance with an aspect of the present invention.

[0078] Fig. 51 illustrates a front view of an alternative embodiment of a support structure in accordance with an aspect of the present invention.

[0079] Fig. 52 illustrates a front view of the support structure illustrated in Fig. 51 mounted on a support in accordance with an aspect of the present invention.

[0080] Fig. 53 illustrates a front view of an alternative embodiment of a support structure in accordance with an aspect of the present invention.

[0081] Fig. 54 illustrates a cross-sectional side view of the support structure illustrated in Fig. 53 in accordance with an aspect of the present invention.

[0082] Fig. 55A illustrates a top perspective view of the support structure illustrated in Fig. 53.

[0083] Fig. 55B illustrates a rear perspective view of an alternative embodiment of a support structure in accordance with an aspect of the present invention.

[0084] Fig. 55C illustrates an exploded perspective view of an alternative embodiment of a support structure in accordance with an aspect of the present invention.

[0085] Fig. 55D illustrates a perspective view of the support structure illustrated in Fig. 55C in accordance with an aspect of the present invention.

[0086] Fig. 55E illustrates a cross-sectional side view of the support structure illustrated in Fig. 55D taken along the line "55E-55E" in accordance with an aspect of the present invention.

[0087] Fig. 55F illustrates a cross-sectional side view of an alternative embodiment of a support structure in accordance with an aspect of the present invention.

[0088] Fig. 55G illustrates a perspective view of an alternative embodiment of a coupler that can be used with the support structure illustrated in Fig. 55F in accordance with an aspect of the present invention.

[0089] Fig. 55H illustrates a side view of the coupler illustrated in Fig. 55G in accordance with an aspect of the present invention.

[0090] Fig. 56 illustrates a top perspective view of an alternative embodiment of a support structure in accordance with an aspect of the present invention.

[0091] Fig. 57 illustrates a top view of the support structure illustrated in Fig. 56 in accordance with an aspect of the present invention.

[0092] Fig. 58 illustrates a front view of an alternative embodiment of a support structure relative to a support in accordance with an aspect of the present invention.

[0093] Fig. 59 illustrates an exploded front view of the support structure illustrated in Fig. 58 in accordance with an aspect of the present invention.

[0094] Fig. 60 illustrates a front view of an alternative embodiment of a support structure in accordance with an aspect of the present invention.

[0095] Fig. 61 illustrates a front view of an alternative embodiment of a support structure in accordance with an aspect of the present invention.

[0096] Fig. 62 illustrates a cross-sectional side view of the support structure illustrated in Fig. 61 taken along the line "62-62" in accordance with an aspect of the present invention.

[0097] Fig. 63 illustrates a top view of an alternative embodiment of a support structure in accordance with an aspect of the present invention.

[0098] Fig. 64 illustrates a front view of an alternative embodiment of a support structure in accordance with an aspect of the present invention.

[0099] Fig. 65 illustrates an exploded front view of an alternative embodiment of a support structure in accordance with an aspect of the present invention.

[0100] Fig. 66 illustrates a side view of another embodiment of a support structure and a support in accordance with an aspect of the present invention.

[0101] Fig. 67A illustrates a side view of another embodiment of a support structure and a support in accordance with an aspect of the present invention.

[0102] Fig. 67B illustrates a perspective view of the support structure and the support illustrated in Fig. 67A in accordance with an aspect of the present invention.

[0103] Fig. 67C illustrates a perspective view of the support structure illustrated in Fig. 67A in accordance with an aspect of the present invention.

[0104] Fig. 67D illustrates a front view of the support structure illustrated in Fig. 67C in accordance with an aspect of the present invention.

[0105] Fig. 67E illustrates a cross-sectional side view of the support structure illustrated in Fig. 67D taken along the line “67D-67D” in accordance with an aspect of the present invention.

[0106] Fig. 67F illustrates a cross-sectional side view of the support structure illustrated in Fig. 67E in a different configuration in accordance with an aspect of the present invention.

[0107] Fig. 67G illustrates a perspective view of an alternative embodiment of a support structure in accordance with an aspect of the present invention.

[0108] Fig. 67H illustrates a rear view of an embodiment of a cover in accordance with an aspect of the present invention.

[0109] Fig. 68 illustrates a front view of an alternative embodiment of a support structure in accordance with an aspect of the present invention.

[0110] Fig. 69 illustrates a cross-sectional side view of the support structure illustrated in Fig. 68 taken along the line “69-69” in accordance with an aspect of the present invention.

[0111] Fig. 70 illustrates a cross-sectional side view of another embodiment of a support structure in accordance with an aspect of the present invention.

[0112] Fig. 71 illustrates a cross-sectional side view of another embodiment of a support structure in accordance with an aspect of the present invention.

[0113] Fig. 72 illustrates a front perspective view of an alternative embodiment of a support structure in accordance with an aspect of the present invention.

[0114] Fig. 73 illustrates a side view of the support structure illustrated in Fig. 72 in a first configuration in accordance with an aspect of the present invention.

[0115] Fig. 74 illustrates a side view of the support structure illustrated in Fig. 72 in a second configuration in accordance with an aspect of the present invention.

[0116] Fig. 75 illustrates a front perspective view of an alternative embodiment of a support structure in accordance with an aspect of the present invention.

[0117] Fig. 76 illustrates a rear perspective view of the support structure illustrated in Fig. 75 in accordance with an aspect of the present invention.

[0118] Fig. 77 illustrates a rear perspective view of an alternative embodiment of a support structure in accordance with an aspect of the present invention.

[0119] Fig. 78 illustrates a side view of the support structure illustrated in Fig. 77 with a cross-sectional side view of the mounting component taken along the line “78-78” in accordance with an aspect of the present invention.

[0120] Fig. 79 illustrates a perspective view of the support structure illustrated in Fig. 77 mounted on a support in accordance with an aspect of the present invention.

[0121] Figs. 80-81 illustrate rear perspective views of alternative embodiments of a support structure in accordance with an aspect of the present invention.

[0122] Figs. 82-83 illustrate a rear perspective view and a partial cross-sectional view of an alternative embodiment of a support structure in accordance with an aspect of the present invention.

[0123] Fig. 84 illustrates a front perspective view of an alternative embodiment of a support structure in accordance with an aspect of the present invention.

[0124] Fig. 85 illustrates a top view of the support structure illustrated in Fig. 84.

[0125] Fig. 86 illustrates a front perspective view of the support structure illustrated in Fig. 84 in an alternative deployed configuration.

[0126] Fig. 87 illustrates a side cross-sectional view of the support structure illustrated in Fig. 86 taken along the line “87-87” in a deployed configuration.

[0127] Fig. 88 illustrates a side cross-sectional view of the support structure illustrated in Fig. 87 in a collapsed configuration.

[0128] Fig. 89 illustrates a perspective view of the support structure illustrated in Fig. 84 in an exemplary deployed use in accordance with an aspect of the invention.

[0129] Fig. 90 illustrates a perspective view of the support structure illustrated in Fig. 84 in another exemplary deployed use in accordance with an aspect of the invention.

[0130] Fig. 91 illustrates a front perspective view of an embodiment of a holder that can be used with the support structure illustrated in Fig. 84 in accordance with an aspect of the invention.

[0131] Fig. 92 illustrates a front perspective view of an alternative embodiment of a support structure in accordance with an aspect of the invention.

[0132] Fig. 93 illustrates a front view of the support structure illustrated in Fig. 92 mounted on a tray.

[0133] Fig. 94 illustrates a front perspective view of an alternative embodiment of a support structure in accordance with an aspect of the invention.

[0134] Fig. 95 illustrates a side view of the support structure illustrated in Fig. 94.

[0135] Fig. 96 illustrates a side view of the support structure illustrated in Fig. 94 in an intermediate configuration.

[0136] Fig. 97 illustrates a side view of the support structure illustrated in Fig. 94 in an opened configuration.

[0137] Fig. 98 illustrates a front perspective view of the support structure illustrated in Fig. 97.

[0138] Fig. 99 illustrates a side view of an alternative embodiment of a support structure in accordance with an aspect of the invention.

[0139] Fig. 100 illustrates a front perspective view of an alternative embodiment of a support structure in a collapsed configuration in accordance with an aspect of the invention.

[0140] Fig. 101 illustrates a front perspective view of the support structure illustrated in Fig. 100 in an expanded configuration.

[0141] Fig. 102 illustrates a partial cross-sectional view of some of the components of the support structure illustrated in Fig. 100.

[0142] Fig. 103 illustrates a front view of an alternative embodiment of a support structure in accordance with an aspect of the invention.

[0143] Fig. 104 illustrates a perspective view of an embodiment of a platform in accordance with an aspect of the invention.

[0144] Fig. 105 illustrates a side view of the support structure illustrated in Fig. 103 and the platform illustrated in Fig. 104.

[0145] Fig. 106 illustrates a front perspective view of an embodiment of a support structure in accordance with an aspect of the invention.

[0146] Fig. 107 illustrates a front view of the support structure illustrated in Fig. 106.

[0147] Fig. 108 illustrates a front view of the support structure illustrated in Fig. 106 mounted on a support.

[0148] Fig. 109 illustrates a partial cross-sectional view of a portion of the support structure illustrated in Fig. 108.

[0149] Fig. 110 illustrates a perspective view of an embodiment of a mounting element in accordance with an aspect of the invention.

[0150] Fig. 111 illustrates a top view of an alternative embodiment of a support structure in accordance with an aspect of the invention.

[0151] Fig. 112 illustrates a top view of an alternative embodiment of a support structure in accordance with an aspect of the invention.

[0152] Figs. 113 and 114 illustrate top views of an alternative embodiment of a support structure in accordance with an aspect of the invention.

[0153] Fig. 115 illustrates a top view of an alternative embodiment of a support structure in accordance with an aspect of the invention.

[0154] Fig. 116 illustrates a partial top cross-sectional view of part of the support structure illustrated in Fig. 115.

[0155] Fig. 117 illustrates a side view of an alternative embodiment of a support structure in accordance with an aspect of the invention.

[0156] Fig. 118 illustrates a rear perspective view of the support structure illustrated in Fig. 117.

[0157] Fig. 119 illustrates a partial exploded view of some of the components of the support structure illustrated in Fig. 118.

[0158] Fig. 120 illustrates a rear view of an alternative embodiment of a support structure in accordance with an aspect of the invention.

[0159] Fig. 121 illustrates a partial cross-sectional side view of the support structure illustrated in Fig. 120.

[0160] Fig. 122 illustrates an exploded perspective view of a mounting structure and a pillow in accordance with an aspect of the invention.

[0161] Fig. 123 illustrates a rear view of an embodiment of a pillow in accordance with an aspect of the invention.

[0162] Fig. 124 illustrates a perspective view of a support structure and a pillow in accordance with an aspect of the invention.

[0163] Fig. 125 illustrates a front perspective view of an alternative embodiment of a support structure in accordance with an aspect of the invention.

[0164] Fig. 126 illustrates a rear perspective view of the support structure illustrated in Fig. 125.

[0165] Fig. 127 illustrates a side view of the support structure illustrated in Fig. 125.

[0166] Fig. 128 illustrates a rear perspective view of the support structure illustrated in Fig. 125 with the mounting elements removed.

[0167] Fig. 129 illustrates a partial cross-sectional side view of a portion of the support structure illustrated in Fig. 126 taken along the line "129-129."

[0168] Figs. 130 and 131 illustrate cross-sectional front views of the support structure illustrated in Fig. 127 taken along the line "127-127" with the flap illustrated in different positions.

[0169] Fig. 132 illustrates a cross-sectional front view of the support structure illustrated in Fig. 125 mounted on a support in accordance with an aspect of the invention.

[0170] Fig. 133 illustrates a partial cross-sectional side view of the support structure and support illustrated in Fig. 132.

[0171] Fig. 134 illustrates a front perspective view of an alternative embodiment of a support structure in accordance with an aspect of the invention.

[0172] Fig. 135 illustrates a side view of the support structure illustrated in Fig. 134.

[0173] Fig. 136 illustrates a top view of the support structure illustrated in Fig. 134.

[0174] Fig. 137 illustrates a partial cross-sectional view of the support structure illustrated in Fig. 134 taken along the line “137-137.”

[0175] Fig. 138 illustrates a front perspective view of an alternative embodiment of a support structure in accordance with an aspect of the invention.

[0176] Fig. 139 illustrates a partial cross-sectional view of the support structure illustrated in Fig. 138 taken along the line “139-139.”

[0177] Fig. 140 illustrates a perspective view of the support structure illustrated in Fig. 138 in an exemplary collapsed configuration in accordance with an aspect of the invention.

[0178] Fig. 141 illustrates a perspective view of the support structure illustrated in Fig. 138 in another exemplary collapsed configuration in accordance with an aspect of the invention.

[0179] Fig. 142 illustrates a rear perspective view of an alternative embodiment of a support structure in accordance with an aspect of the invention.

[0180] Fig. 143 illustrates a rear view of the support structure illustrated in Fig. 142.

[0181] Fig. 144 illustrates a partial cross-sectional side view of the support structure illustrated in Fig. 142 taken along the line “144-144.”

[0182] Fig. 145 illustrates a perspective view of a mounting component of the support structure illustrated in Fig. 142.

[0183] Fig. 146 illustrates a rear perspective view of an alternative embodiment of a support structure in accordance with an aspect of the invention.

[0184] Fig. 147 illustrates a partial cross-sectional view of the support structure illustrated in Fig. 146 taken along the line “147-147.”

[0185] Fig. 148 illustrates a rear perspective view of an alternative embodiment of a support structure in accordance with an aspect of the invention.

[0186] Fig. 149 illustrates a side view of the support structure illustrated in Fig. 148.

[0187] Fig. 150 illustrates an exploded perspective view of the components of the support structure illustrated in Fig. 139.

[0188] Fig. 151 illustrates a front view of the support structure illustrated in Fig. 148 coupled to a support in accordance with an aspect of the invention.

[0189] Fig. 152 illustrates a side view of the support structure and support illustrated in Fig. 151.

[0190] Fig. 153 illustrates a rear perspective view of an alternative embodiment of a support structure in accordance with an aspect of the invention.

[0191] Fig. 154 illustrates a cross-sectional side view of the support structure illustrated in Fig. 153 taken along the line "154-154."

[0192] Figs. 155 and 156 illustrate a front perspective view and a side view, respectively, of an alternative embodiment of a support structure in accordance with an aspect of the invention.

[0193] Fig. 157 illustrates a side view of an alternative embodiment of a support structure in accordance with an aspect of the invention.

[0194] Fig. 158 illustrates a rear perspective view of an alternative embodiment of a support structure in accordance with an aspect of the invention.

[0195] Fig. 159 illustrates a rear perspective view of an alternative embodiment of a support structure in accordance with an aspect of the invention.

[0196] Fig. 160 illustrates a rear perspective view of an alternative embodiment of a support structure in accordance with an aspect of the invention.

[0197] Fig. 161 illustrates a front perspective view of an alternative embodiment of a support structure in accordance with an aspect of the invention.

[0198] Like reference numerals have been used to identify like elements throughout this disclosure.

DETAILED DESCRIPTION OF THE INVENTION

[0199] In one embodiment, the present invention includes a support structure that can be used to support an object or item. In one embodiment, the support structure can be coupled or mounted to a support, such as a support involved with travel. Various objects can be stored on or in the support structure. The support structure can be collapsed into a closed and smaller configuration. In one embodiment, the support structure can include couplers that facilitate the connection of another support structure thereto. In another embodiment, the support structure can be used to hold or support an electronic device that includes a display.

[0200] The term “support” is used herein to refer to any item from which an object can be supported or hung or to which an object can be mounted or attached. Some exemplary items that can be considered as supports include, but are not limited to, seats, chairs, trays, strollers, etc.

[0201] The term “support structure” is used herein to refer to any item that can be used to support, hold, or retain another item. As described below, some embodiments of support structures according to the invention can resemble a bag design or configuration. The support structures according to the invention can have a variety of uses. In one implementation, the support structure can be a media-related bag with which electronics such as DVD players, cell phones, and iPods® can be used and in which related items such as batteries can be placed. In another implementation, the support structure can be an infant-related bag that is configured for use with infant travel necessities such as diapers, ointment, bottles, etc. In another implementation, the support structure can be a kids-related bag that is

configured for use with children, such as providing storage for games, books, etc. In another implementation, the support structure can be a general travel-related bag that includes storage components for cell phones, glasses, reading material, batteries, a cup or bottle, etc.

[0202] The terms “coupler,” “connector,” “coupling mechanism,” and “connecting mechanism,” and other similar terms are interchangeably used to refer to any type of structure or mechanism that couples, connects, and/or attaches two or more items together. Some exemplary structures or mechanisms include, but are not limited to, buckles, magnets, clips, snaps, buttons, and hook and loop materials.

[0203] A schematic block diagram of an embodiment of a support structure is illustrated in Fig. 1A. In this embodiment, the support structure 10 includes a coupling portion 12 and a support portion 14. The coupling portion 12 and the support portion 14 can be integrally formed or can be separately formed and configured to be coupled together. The coupling portion 12 is configured to engage a support 20. Such engagement may include the mounting or attaching of the coupling portion 12 to the support 20. In one implementation, the coupling portion 12 includes a recess that is configured to receive a portion of the support 20 to mount the support structure 10 to the support 20.

[0204] The support portion 14 is configured to receive and retain or hold one or more objects 30 and 32. The support portion 14 may include multiple compartments that are configured to retain objects 30 and 32. Some exemplary types of compartments include pockets, receptacles, and pouches. In one embodiment, the support portion 14 may include couplers or connectors, such as buckles, snaps, magnets, hook and loop material structures, otherwise known as VELCRO, to couple either or both objects 30 and 32 to the support portion 14.

[0205] A schematic block diagram of an alternative embodiment of a support structure is illustrated in Fig. 1B. In this embodiment, the support structure 40 includes a body or body portion 42, a support portion 44, and a mounting mechanism 46. Similar to support portion

14 described above relative to Fig. 1A, support portion 44 can be configured to retain, hold, couple, attach or otherwise connect an object 49.

[0206] The mounting mechanism 46 is configured so that the body 42 can be mounted to a support 48. In one embodiment, the mounting mechanism 46 can include a recess that is configured to receive part of the support 48. In another embodiment, the mounting mechanism 46 can be a connector or coupler, such as a strap with a buckle, that is used to couple the body 42 to the support 48.

[0207] Referring to Figs. 2-4, an alternative embodiment of a support structure is illustrated. Fig. 2 illustrates a front perspective view, Fig. 3 illustrates a side view, and Fig. 4 illustrates a bottom view of the support structure. The support structure 50 has a shape or configuration that resembles a bag-like structure. In this embodiment, the support structure 50 includes a coupling portion 52 and a support portion 54. The support portion 54 is formed on the front side or surface 60 of the structure 50. In alternative embodiments, the support portion 54 can include various compartments and features that facilitate the coupling of objects to the support portion 54.

[0208] As shown, the support structure 50 includes a rear side 62, opposite sides 64 and 66, and a top side 70. The front 60, rear 62, and top sides 70, with sides 64 and 66 collectively define a receptacle 78. The bottom side 72 of the support structure 50 is open as shown in Fig. 4. The open bottom side 72 is configured so that it can receive part of a support.

[0209] In this embodiment, proximate to the top side 70 is an edge 74 that defines an opening or notch 76. The opening 76 is in communication with the receptacle 78. The function of such an opening formed along a portion of the top side of the support structure is similar to that described in detail below with respect to other openings in support structures. In one example, the opening is configured so that a latching mechanism for a seat back tray on an airline or train can be used to secure the tray in an upright or stored position while the support

structure is mounted on the tray. In other embodiments, the top side of support structure 50 does not include an opening or notch 76 such as, for example, the alternative embodiments of the support structures illustrated in Figs. 75-83.

[0210] Referring to Figs. 5-8, an exemplary use of an embodiment of a support structure is illustrated. In this embodiment, the support structure 100 includes a front portion 102, a rear portion 104, and a top 106 that collectively define a receptacle 114. The front portion 102 can be coupled to the rear portion 104 and/or the top 106 by stitching or sewing. In various embodiments, the front portion 102 can be a solid piece of material or one or more straps or elongate members. The front portion 102 can be used as a support portion 112 in a manner similar to support portions described below. The support portion 112 is configured to be facing a user during use.

[0211] The bottom 108 of the support structure 100 is open, thereby creating an opening to the receptacle 114. Proximate to the top 106 is a notch or opening 110 that is in communication with the receptacle 114. In this embodiment, the support structure can be a nylon material or other material of relatively similar durability and/or strength so that items can be supported on front portion 102.

[0212] Referring to Fig. 5, the support structure 100 is illustrated as being used with a support 130, which in this implementation includes an airline seat 132 and a tray 150. The tray 150 is pivotally mounted to the seat 132 via arms, and can be disposed in multiple positions relative to the seat 132. For example, the tray 150 can be placed in a deployed or lowered position 156 as illustrated in Fig. 5. In addition, the tray 150 can be placed in a stored or raised position 158 as illustrated in Fig. 7.

[0213] In this example, the seat 132 includes a seat back 134 that has a locking mechanism 136 which is configured to retain the tray 150 in its raised and locked / secured position 158. The locking mechanism 136 includes a pivotally mounted latch 138 that can be moved

between a release position 140 and a locking position 142. The tray 150 includes a locking portion 155, such as a recess, that is configured to receive part of the latch 138. Depending on the position of the tray 150, either a use surface 152 or an outer surface 154 will be facing the user.

[0214] As shown to Fig. 5, the support structure 100 can be mounted on the tray 150. When the tray 150 is moved from its stored position 158, the support structure 100 can be slid onto the tray 150. The receptacle 114 of the support structure 100 is configured to receive the tray 150 slidably therein (see Fig. 8). Once the support structure 100 is slid onto the tray 150, the tray 150 can be moved upwardly (see Fig. 6) to its stored position 158 (see Fig. 7). The notch 110 formed in the support structure 100 is configured so that the latch 138 on the seat back 134 can engage the locking portion 155 of the tray 150. In this position, the front portion 102 of the support structure 100 will be facing the user and any articles or objects that are coupled thereto can be utilized or accessed.

[0215] A schematic block diagram of an alternative embodiment of a support structure is illustrated in Fig. 9. In this embodiment, support structure 200 includes a body 202 with a support portion 204 and a mounting component 206. The mounting component 206 can be configured to operably engage a support 214. In one embodiment, the mounting component 206 may include a receptacle that is configured to receive part of the support 214. In a different embodiment, the mounting component 206 may include one or more couplers that are configured to be coupled directly or indirectly to the support 214. Some exemplary structures that can function as mounting components are described below.

[0216] Support structure 200 includes a closure mechanism 212 that can be used to retain the body 202 in a particular position or configuration. For example, body 202 may include two portions that can be folded relative to each other, such as to reduce the size of the body 202. Some exemplary closure mechanisms 212 include a zipper, a loop and hook combination, a

magnet, a snap or button arrangement. The closure mechanism 212 can be used to keep the body portions together in a collapsed configuration.

[0217] In one embodiment, support structure 200 may also include two couplers 208 and 210 that are connected to or supported on the body 202. The couplers 208 and 210 may be configured to cooperate with each other, such as by a hook and loop material arrangement. The couplers 208 and 210 can be used to control access to an interior region of the body 202. In other embodiments, the support structure may not include any such couplers.

[0218] An alternative embodiment of a support structure is illustrated in Figs. 10-18B. In this embodiment, the support structure 220 includes a body 222 with a support portion 224. When the support portion 224 is opened or otherwise oriented as illustrated in Fig. 10, then a working surface 226 of the support portion 224 is exposed or open to the user. The body 222 includes a lower or bottom end 286.

[0219] As illustrated in Figs. 10-12, the support portion 224 may include several compartments in which items or articles can be stored. The compartments 228 may include mesh pockets 230, 232, and 234 that have openings in communication with receptacles into which articles can be inserted. The compartments 228 may also include pockets 236, 238, and 240 with closure mechanisms 239, such as zippers, snaps, and VELCRO. The compartments 228 may also include one or more receptacles 242 into which items such as bottles or cups can be inserted.

[0220] As shown in Fig. 12, a flap or lid 244 may be provided proximate to the receptacle 242. The lid 244 includes a hole or opening 246 through which a portion of an inserted item may extend. The lid 244 may include a coupler 247, such as a hook or loop component, and the receptacle 242 may include a cooperating coupler 243, being the other of the hook or loop component. Couplers 243 and 247 can engage each other to secure the lid 244 relative to the receptacle 242.

[0221] Referring to Fig. 10, the support portion 224 includes several straps 248, 249, 250, and 251. Each of the straps includes two ends, with one end connected to the body 222, such as by stitching or sewing, and the other end being free. The straps include a combination of snaps or hook and loop materials 252 placed at separate locations along the strap so that each strap can be folded back and secured to itself to retain or hold an item (see Fig. 13). For example, as shown in Fig. 11, strap 248 can pass through and retain item 344 and strap 250 can pass through and retain item 346. As shown in Fig. 11, various other items or objects 330, 332, 334, 336, 338, 340, and 342 can be inserted into and held in the compartments of the support structure 220.

[0222] Referring to Fig. 14, a perspective view of the support structure 220 is illustrated. In this view, many of the various components of the support portion 224 are not illustrated for ease of reference only. The body 222 includes upper portions 270 and 272 that have edges 274 and 276, respectively. The front or support portion 224 includes an edge 262 that defines an opening or recess 264. Similarly, as shown in Fig. 15, the rear portion 280 includes an edge 282 that defines an opening or recess 283. In one embodiment, the openings 264 and 283 define a notch or opening 278 that is configured to allow the latch 138 on a seat back to engage a tray such as tray 150 as previously described. The opening 278 is in communication with a receptacle 284 that is configured to receive a support, such as tray 150.

[0223] The support structure 220 is selectively disposable in at least two configurations. In an opened or deployed configuration 350 (see Figs. 10 and 11), the support structure 220 has its support portion 224 exposed and available to a user. Referring to Fig. 14, the support structure 220 includes a first side portion 266 and a second side portion 268. The support structure 220 can be folded so that the side portions 266 and 268 are positioned proximate to each other. For example, second side portion 268 can be moved along the direction of arrow

“A” so that the support structure 220 is in a collapsed configuration 352 as illustrated in Fig. 15.

[0224] Referring to Fig. 11, the support structure 220 includes a closure mechanism or component 256 that can be used to retain the support structure 220 in its collapsed configuration. The closure mechanism 256 includes a zipper 258 that can be moved along zipper teeth 260. The closure mechanism 256 can be coupled to the body 222 along the perimeter of the sides or side portions and the lower or bottom surface of the body 222.

While the closure mechanism 256 is illustrated in Fig. 11 as including a tail or free end piece of material, the closure mechanism 256 can be sewn into the support structure 220. For example, the closure mechanism 256 illustrated in Fig. 14 includes the end of the mechanism 256 (such as a zipper) sewn into the support structure 220. Either type of closure mechanism can be used in different embodiments.

[0225] As shown in Figs. 10 and 14, the support structure 220 includes a flap 300 that is coupled to the body 222. The flap 300 can be sewn to the body 222, such as by being sewn in along a seam. In this embodiment, the flap 300 is coupled to the body 222 proximate to the rear side or surface of the body 222. The flap 300 includes on one side several couplers or coupling mechanisms 302, 304, and 306. The couplers 302, 304, and 306 can be either a hook type material or a loop type material, snaps, magnets or other similar connecting mechanisms.

[0226] The support structure 220 also includes flap 310 that is similarly coupled to the body 222. As shown in Fig. 14, the flap 310 is coupled to the body 222 proximate to the rear side or surface of the body 222. The flap 310 includes on one side several couplers 312, 314, and 316. The couplers 312, 314, and 316 can be the other of the hook-type or loop-type material so that the couplers 312, 314, and 316 can engage the respective ones of couplers 302, 304, and 306. Alternatively, the couplers 312, 314, and 316 can be snaps, magnets or other similar

connecting mechanisms. While each flap 300 and 310 is illustrated with couplers, in different embodiments, the quantity of couplers for each flap can vary.

[0227] In one embodiment, the support structure 220 includes handles 320 and 322 that are configured to be used to carry or transport the support structure 220. In various embodiments, the handles 320 and 322 can be different sizes or configurations.

[0228] An alternative embodiment of a support structure according to the invention is illustrated in Figs. 14A and 14B. Referring to Fig. 14A, support structure 220' is shown with several reference numerals similar to reference numerals used for support structure 220 to indicate similar structural elements. The support structure 220' includes a body 222 with sections or portions 266 and 268 that can be folded proximate to each other.

[0229] The body 222 includes a front or support portion 224 that has seams 223A and 223B that are formed proximate to the front portion 224. In this embodiment, the seams 223A and 223B are formed proximate to the intersection of the front portion 224 and the upper portions 270 and 272, respectively. The seams 223A and 223B form part of the front edge of the body 222.

[0230] The support structure 220' includes handles 320 and 322 that are coupled to the body 222 proximate to the front portion or front edge of the body 222 (see Fig. 14A) to allow an unobstructed fit and contour of the top edge of receptacle as noted in Fig. 8. This allows the support structure to be slid over the tray 150 and recessed smoothly. In other embodiments, the support structure 220' does not include one or both of the handles 320 and 322.

[0231] As shown in Figs. 14A and 14B, the support structure 220' includes rings or connectors 305, 315 and 315A that are coupled to the body 222 using any conventional technique, such as sewing, adhering, coupling, etc. For example, the rings 305, 315 and 315A can be sewn into the front seams 223A and 223B. In other embodiments, the rings 305,

315 and 315A can be coupled to the body 222 along the front portion 224 or the upper portions 270 and 272 near, but not as part of, the seams 223A and 223B.

[0232] Each of the rings 305 and 315 includes an opening that is configured for use with a strap 324. Referring to Fig. 14B, an exemplary strap 324 includes two ends, each of which includes a connector 325A and 325B coupled thereto. The connectors 325A and 325B are configured to be used with rings 305, 315 and 315A to couple the strap 324 to the body 222 and thereby facilitate the mounting and carrying of the support structure 220'. The support structure 220' includes loops 315B and 315C that are coupled thereto to store objects such as writing utensils, including pencils, pens, etc. As shown in Fig. 14B, the strap 324 includes a storage unit 327A coupled thereto. The storage unit 327A is a pocket or receptacle 327B with a flap 327C that can be closed. The pocket or receptacle 327B can be used to store or contain various objects, including electronic devices such as an IPOD, a cell phone, etc. In one embodiment, the width of the pocket 327B can be same as the width of the strap 324. In other embodiments, the width of the pocket 327B can be larger than or smaller than the width of the strap 324. The pocket 327B can be coupled to the strap by stitching, a clip mechanism or other conventional mechanism or technique.

[0233] Referring to Fig. 14A, the support structure 220' includes two flaps 300' and 310' coupled thereto. Flap 300' includes couplers 302 and 306 and flap 310' includes couplers 312 and 316, which are configured to engage couplers 302 and 306. As shown, flap 300' is coupled to the body 222 proximate to the front portion 224 and in particular, proximate to the front edge of the body 222 and front portion 224. In one example, a portion of the flap 300' is coupled to the body 222 at seam 223A in a conventional manner. In this example, the portion of the flap 300' can be disposed between part of the front portion 224 and part of the upper portion 270 and secured thereto by stitching that couples the three elements together. In a similar manner, a portion of flap 310' is coupled to the body 222 proximate to the front

edge of the body 222 and front portion 224. In one example, the flap 310' can be coupled to the body 222 at seam 223B, which can be formed between part of the front portion 224 and part of the upper portion 272.

[0234] In other embodiments, the flaps 300' and 310' can be secured to the body 222 of the support structure 220' in different manners. For example, the flaps 300' and 310' can be coupled to the body 222 near, but not in, the seams 223A and 223B. In other words, the flaps 300' and 310' can be coupled to either the front portion 224 or the corresponding upper portion 270 or 272 by sewing, stitching, an adhesive, and/or connectors (such as snaps, magnets, VELCRO, buttons, clips, or buckles).

[0235] Referring to Fig. 14B, the configuration of the flaps 300' and 310' in this embodiment are illustrated. As shown, flap 300' extends along part of the length of the upper portion 270, but not the entire length. A space or gap 301 is formed between an end 307A of the flap 300' and a side of the body 222 which corresponds to an end of the upper portion 270. A space or gap 303 is formed between opposite end 307B of the flap 300' and the other end of the upper portion 270.

[0236] As shown, flap 310' has a similar configuration. Flap 310' extends along part of the length of the upper portion 272, but not the entire length. A space or gap 311 is formed between an end 317A of the flap 310' and a side of the body 222 which corresponds to an end of the upper portion 272. A space or gap 313 is formed between the opposite end 317B of the flap 310'.

[0237] The spaces 301, 303, 311, and 313 are configured to facilitate the connection of the shoulder strap 324 to the body 222. In particular, the spaces 301, 303, 311 and 313 allow for the shoulder strap 324 to protrude easily from the inside outermost edges of the support structure 220', especially when the sections 266 and 268 are folded together and the flaps 300' and 310' coupled together.

[0238] In other embodiments, the ends 307A and 317A of the flaps 300' and 310' may extend to the corresponding edges of upper portions 270 and 272 so spaces 301 and 311 are eliminated. In this example, only spaces 303 and 313 are formed and align with rings 305, 315 and 315A. In other embodiments, the locations of the rings 305, 315 and 315A can vary. For example, ring 305 can be aligned with either space 301 or 303 and ring 315 can be aligned with either space 311 or 313. In another embodiment, the support structure 220' can include rings or connectors coupled to the body 222 at positions aligned with spaces 301, 303, 311, and 313, such as ring 315A.

[0239] Referring to Figs. 15-17, the support structure 220 is illustrated in its closed or collapsed configuration 352. The closure mechanism 256 including the zipper 258 can be used to keep the first side portion 266 and the second side portion 268 proximate to each other. As shown in Fig. 16, the flaps 300 and 310 are positioned proximate to each other so that the coupling mechanisms 302, 304 and 306 can engage coupling mechanisms 312, 314, and 316. In this arrangement, the flaps 300 and 310 close the top end of the collapsed support structure 220.

[0240] As shown in Fig. 17, the coupling mechanisms 302, 304, and 306 have been decoupled from coupling mechanisms 312, 314, and 316 and the flaps 300 and 310 spread apart. When the perimeter of the support portion 220 is zippered, a receptacle or area 354 is formed by the first and second side portions 266 and 268.

[0241] Referring to Figs. 14-18B, the mounting component of the support structure 220 is illustrated. The support structure 220 includes a mounting component 360 that is disposed on the rear of the support structure 220. The mounting component 360 includes a rear panel 362, two side panels 364 and 366, and a top portion, or closed end, 367 that collectively define a receptacle 370. As shown in Fig. 18A, the rear panel 362 has a lower edge 368,

which with the rear portion 280 defines an opening 369 that is in communication with the receptacle 370.

[0242] While the top end 367 of the compartment 360 is illustrated as being closed, in an alternative embodiment, such as illustrated in Fig. 18B, an opening or slot 374 can be formed in the upper surface 371 of the compartment 361. The opening 374 can be configured to allow a handle or other part of a piece of luggage or other item to extend through the receptacle 370 and the opening 374. A closure mechanism 372, such as a zipper, can be moved along the directions of arrow "C." The closure mechanism 372 can be used to close the opening 374 so that the compartment 361 has a closed upper end and can be used with a tray 150 or similar structure. This closed end / open end option can be provided with any of the support structures disclosed herein.

[0243] Referring to Figs. 19-21, the support structure 220 is illustrated as being mounted on or coupled to a support, which in this implementation is a tray 150. The structure 220 allows for storage and use at a level that is above the waist of the user, and even at eye level, and not at or below knee level. This location allows for increased knee space and comfort while traveling on an airplane or a train that has a tray with similar functionality to tray 150.

[0244] In Fig. 19, tray 150 is illustrated in its lower or deployed position. The distal end of the tray 150 has been inserted through opening 369 and into receptacle 370 that is formed by mounting component 360. In other words, the support structure 220 is positioned proximate to the tray 150 and the upper end of the tray 150 is slid into the mounting component 360. After the structure 220 is slid onto the tray 150, the tray 150 can be pivoted upwardly. In Fig. 20, the tray 150 is disposed in its raised or stored position and the support portion 224 of the support structure 220 is positioned so that it is readily accessible by a user.

[0245] Referring to Figs. 22A-22D, an alternative use of the support structure 220 is illustrated. As shown, when the tray 150 is moved to its lowered or deployed position 156,

the bars or rails 160 and 162 (shown in Fig. 19) to which the tray 150 is connected are accessible. The support structure 220 can be placed on the rails 162 (see Fig. 22B).

[0246] Support structure 220 can include clips 170 and 172 coupled thereto. The clips 170 and 172 can include engaging portions 174 and 176, respectively, that are configured to be snapped on or otherwise connected to the rails 160 and 162. The clips 170 and 172 can be either fixedly coupled to the support structure 220 or removably coupled to the support structure 220. In this configuration, a user can access the support portion 224 and utilize the use or working surface 152 of the tray 150 and the support structure 220 is stabilized.

[0247] Referring to Fig. 22B, the support structure 220 includes couplers 180 and 190 connected thereto. The couplers 180 and 190 can be formed from a semi-resilient material, such as plastic. In one embodiment, the couplers 180 and 190 can be connected to the body of the support structure 220 using any conventional technique, such as sewing, an adhesive, etc. In another embodiment, the couplers 180 and 190 can be integrally formed with the body of the support structure 220. The couplers 180 and 190 are connected to the support structure or bag 220 proximate the bottom center portion of the support structure 220.

[0248] Referring to Fig. 22D, an embodiment of a coupler is illustrated. While only coupler 180 is illustrated, it is to be understood that coupler 190 can have a similar shape and configuration to coupler 180. As shown, coupler 180 includes a body portion 182 and two laterally extending portions 184 and 186 that collectively define a receptacle 188 therebetween. The distance between the extending portions 184 and 186 is such that the rear edge 151 of the tray 150 (see Fig. 22B) can be inserted into the receptacle 188. The extending portions 184 and 186 can be configured to snap onto or otherwise frictionally engage the rear portion or edge 151 of the tray 150 as shown in Fig. 22C. The couplers 180 and 190 can be used to keep the support structure or bag 220 securely mounted to the tray 150 and positioned at the center of the tray 150.

[0249] An alternative embodiment of a support structure is illustrated in Figs. 23 and 24. Generally, support structure 375 is substantially the same as previously-described support structure 220. Support structure 375 can be disposed in a mounted position 376. In this embodiment, support structure 375 includes a tray portion or table 380 that is selectively disposable in a raised or stored position 382 (see Fig. 23) and in a lowered or deployed position 384 (see Fig. 24). The tray portion 380 can be moved from the raised position to the deployed position along the direction of arrow “D.” In the deployed position 384, a working surface 385 can be accessed and used by a user. The tray portion 380 is a partial tray as it has a width that is less than the width of the support structure 375.

[0250] In one embodiment, the tray portion 380 can be made of a rigid structure to include injection molded plastics supported by adjustable straps with buckles or snaps. In another embodiment, the tray portion 380 can include one or more rigid support arms that can be rotated outward from the support structure that will allow the working surface (table) to rest thereon, and thereby support the weight of the tray portion 380 and any objects thereon.

[0251] Referring to Figs. 24A and 24B, an embodiment of the tray portion 380 and an associated support is illustrated. In this embodiment, the tray portion 380 includes an upper or working surface 385 and an opposite lower surface 383. The tray portion 380 also includes a mounting end 381A that is coupled to a support structure 220 (not illustrated in Figs. 24A and 24B for ease of reference) and an opposite distal free end 381B.

[0252] The support that supports the tray portion 380 is shown in Fig. 24A. The support includes an elongate member or bar or arm 389 that has ends 389A and 389B. The bar 389 is supported by straps 386 and 388 that are coupled to ends 389A and 389B. Strap 386 has an end 386A that is coupled to the bar 389 and an opposite end 386B that is coupled to the support structure 220. The strap 386 includes an adjustment mechanism 387A that can be used to adjust the length of the strap 386 in a conventional manner. Similarly, strap 388 has

an end 388A that is coupled to the bar 389 and an opposite end 388B that is coupled to the support structure 220. The strap 388 includes an adjustment mechanism 387B that can be used to adjust the length of the strap 388 in a conventional manner.

[0253] Referring to Fig. 24B, the interaction between tray portion 380 and bar 389 in a deployed configuration 384 is illustrated. As previously mentioned, the mounting end 381A is coupled to the support structure 220. The bar 389 is moved to a position so that it is beneath the lower surface 383 of the tray portion 380. The position of the bar 389 relative to the support structure 220 is determined by the length of the straps 386 and 388, which can be adjusted as previously mentioned. The outer surface of the bar 389 may be textured or include additional material to increase the friction between the outer surface of the bar 389 and the lower surface 383 to reduce the likelihood of the bar 389 moving relative to the tray portion 380 during use. Note that such examples for alternative locking engagement for positioning of bar 389 to the lower surface 383 may include hook and loop materials, snaps, magnets, buttons, etc. as a way of coupling or friction increasing mechanisms.

[0254] Another embodiment of a support structure with a tray portion is illustrated in Figs. 24C-24F. In this embodiment, the support structure 220'' is substantially similar to the previously described support structures 220 and 220' as previously described. The support structure 220'' includes top portions 270 and 272 separated by a notch 278.

[0255] In Figs. 24C-24E, the tray portion 380 is illustrated in its stored or raised position in which the working surface 385 is proximate to the support structure 220'' and the lower surface 383 is oriented toward the user or passenger. A support or bar 396 is coupled to the support structure 220''. The bar 396 includes opposite ends 396A and 396B and in this embodiment, end 396A is pivotally or rotatably mounted to the support structure 220''. The bar 396 is rotatable along the direction of arrow "J" (see Fig. 24E) from the stored position shown in Fig. 24D to the deployed position 397 shown in Fig. 24E. The position of the bar

396 is adjustable in that the deployed position 397 can vary and be adjusted by a user.

Referring to Fig. 24F, once the bar 396 is disposed in its deployed position 397, the tray portion 380 can be pivoted downwardly so that the lower surface 383 engages and is supported by the bar 396.

[0256] Referring to Figs. 24G-24I, an alternative embodiment of a tray portion is illustrated.

In this embodiment, the tray portion 398 includes a main body portion 399A with a working surface 399D and a mounting portion 399B that is coupled to the main body portion 399A by a living hinge 399C (see Figs. 24G and 24H). The tray portion 398 can be made from an injection molded plastic material that facilitates the formation of the living hinge 399C. In this embodiment, the tray portion 398 is coupled to the support structure 220'' so that the mounting portion 399B is attached thereto, such as by using an adhesive, by sewing, by heat treatment, or other connecting mechanism. In an alternative embodiment, the mounting portion or end of the tray portion can be sewn to the support structure in a manner that allows pivoting in multiple positions relative to the support structure.

[0257] The tray portion 380 can be retained in the raised and lowered positions by using various types of connectors. For example, the tray portion 380 can be retained in its raised position by straps and buckles, hook and loop combinations, magnets, clips, etc.

Alternatively, the tray portion 380 can be pivotally mounted to the support structure 375 using a friction or incremental connection that retains the tray portion 380 in different positions. The extent to which the tray portion 380 is lowered can vary in different embodiments.

[0258] The tray portion 380 can be suspended by straps 386 and 388 to maintain a substantially perpendicular orientation relating to the support structure 375. The straps 386 and 388 can be lengthened or shortened by using conventional adjustment mechanisms.

Alternatively, the tray portion 380 may be adjustable through a supportable bar that is

disposed beneath the tray portion 380 and rotatable. This bar can be moved out from the support structure 375 horizontally and adjusted vertically when the support (such as the airline seat) to which the support structure 375 is attached is reclined. When the supportable bar is moved outwardly, the load of the tray portion 380 is supported by the bar.

[0259] In one embodiment, the tray portion 380 is permanently coupled to the support structure 375. In other embodiments, the tray portion is removably coupleable to the support structure 375 using conventional mechanisms, such as clips, hinges, etc.

[0260] An alternative embodiment of a support structure is illustrated in Figs. 25 and 26. Support structure 377 is substantially the same as previously described support structure 375 with the exception that the tray portion 390 which is coupled to support structure 377 is wider than tray portion 380 which is coupled to the support structure 375. Support structure 377 can be disposed in a mounted position 378. The tray portion 390 is selectively disposable in a raised position and in a lowered position 394 (see Fig. 26). The tray portion 390 can be moved from the raised position to the lowered position along the direction of arrow "E" in Fig. 25. In the deployed position 394, a working surface 395 can be accessed and used by a user. The tray portion 390 can be retained in the raised and lowered positions in a manner similar to that described above for tray portion 380.

[0261] An alternative embodiment of a support structure is illustrated in Figs. 27-28. In this embodiment, the support structure 400 includes a support portion 402 that has a working surface 404. The perimeter of the support portion 402 forms an edge 406 that defines an opening or notch 408. The support structure 400 also includes handles 410 and 412 coupled thereto that facilitate the carrying of the structure 400. A closure mechanism 414, such as a zipper with teeth 416, extends around substantially the entire perimeter as shown. The closure mechanism 414 can be used to retain a first section 420 proximate to a second section 422, thereby retaining the support structure 400 in a collapsed position.

[0262] The support portion 402 includes several compartments which may have various uses. The compartments may include pouches 432, 434, and 436 that have an elastic member 430 proximate to their openings. The compartments may include zippered pockets 440, 442, 444, and 446. In addition, the compartments may include a receptacle 438 that is configured to receive a cylindrical object. Various items, such as objects 470, 472, and 474 can be disposed in the compartments. In different embodiments, the quantity and types of compartments can vary and can have different sizes, shapes, configurations, and closure mechanisms.

[0263] The support structure 400 also includes straps 450 and 452 that can be used to couple objects 460 and 462 thereto. Each of the straps 450 and 452 can be folded back and secured to itself using hook and loop-type materials or snaps or magnets to retain a corresponding object.

[0264] The support structure 400 also includes loops 480 and 482 that are coupled to the support structure 400 by straps 484 and 486, respectively. Loops 480 and 482 are configured to receive a coupler, such as a clip, to hang or couple the support structure 400 to a support, such as a shoulder strap or hanging device.

[0265] Referring to Fig. 29A, another use of a support structure according to the invention is illustrated. The support structure 220 can be utilized in or on a motor vehicle. While structure 220 is illustrated in Fig. 29A as being mounted to a front seat, the structure 220 can be mounted to any type of seat at any location in the vehicle. By mounting the structure 220 as shown, objects are at convenient locations for the driver or passengers in the vehicle, thereby reducing distractions during travel in the vehicle.

[0266] In this implementation, the support structure 220 includes clips or loops 326 and 328 (see also Fig. 10), which can be similar to loops 480 and 482 described above. A strap or elongate member 324 with couplers or clips 325A and 325B at each end can be secured to

loops 326 and 328 (see also Fig. 15). In this configuration, the strap 324 forms a loop and is adjustable, thereby allowing the size of the loop to vary to accommodate supports of different sizes and shapes. In this use, the strap 324 is passed around a headrest 502 of a car seat 500 in a vehicle. In other uses of the support structure, the strap can be passed around any type of support. As described below, the support structure can be clipped or attached to a headrest cover that fits over the headrest of a vehicle seat.

[0267] In the implementation illustrated in Fig. 29B, the support structure 220 is coupled to a vehicle seat in a different manner. Vehicle seat 500 includes posts 504 and 506 that support headrest 502. Straps 510 and 512 are coupled to structure 220 through any conventional technique, including buckles, clips, sewing, etc. At the free ends of the straps 510 and 512 are clips 514 and 516, respectively. Clips 514 and 516 can have any structure that facilitates the coupling of the straps 510 and 512 to the posts 504 and 506. In this embodiment, the clips 514 and 516 include resiliently biased arms 517 and 518, that can be manipulated by a user. When the arms 517 and 518 are moved, the clips 514 and 516 can be connected to the posts 504 and 506.

[0268] Referring to Fig. 29C, another embodiment of a support structure and support is illustrated. In Fig. 29C, not every feature of support structure 200 that has been previously shown and described is illustrated in Fig. 29C for purposes of simplicity only. However, every support structure described herein, and in particular with reference to support structure 200, may include any combination and any quantity of pockets, pouches, receptacles, buckles, hooks, loops, closure mechanisms, etc. at various locations on the support structure 200. In Fig. 29C, the support structure 200 is illustrated as including internal pockets 236, 238, and 240, each of which includes a closure mechanism 239 that can be a zipper, a hook and loop combination, magnets, etc. The support structure 200 can also include pouches 230, 232, and 234 that can be formed of a mesh-like material as well as a receptacle 242.

[0269] In this embodiment, the support structure 220 includes straps 550 and 552 coupled thereto. The straps 550 and 552 have buckle portions 554 and 556, respectively, coupled to their free ends. The buckle portions 554 and 556 can have different structures, such as buckle portion 554 having a receiving configuration and buckle portion 556 having an insertable configuration that allows it to be inserted into a buckle portion with a receiving configuration. In other embodiments, the buckle portions 554 and 556 can have similar configurations.

[0270] In one embodiment, the straps 550 and 552 are connected to an inner surface of the support structure 220. In another embodiment, the straps 550 and 552 are connected to an outer surface of the support structure 220. In an alternative embodiment, the length of the straps 550 and 552 can be such that the straps 550 and 552 do not extend outside or beyond the perimeter of the support structure 220. As shown in Fig. 29C, the straps 550 and 552 can be disposed in deployed positions 551 or in stored positions 553 (illustrated in dashed lines).

[0271] In this implementation, a cover 560 is mounted onto the headrest 502 that is supported by posts 504 and 506. The cover 560 is configured to be slid onto the headrest 502 and secured thereto in any conventional manner, such as by using a drawstring. Coupled to the cover 560 are straps 570 and 572 that have buckle portions 574 and 576 coupled thereto, respectively. Buckle portions 574 and 576 are configured to be connected to buckle portions 554 and 556 to mount the support structure 220 to the cover 560. The straps 570 and 572 can be fixedly coupled, such as by sewing, or removably coupled to the cover 560 and positionable on either side of the seat 508 so that the support structure 220 can be placed on the front side or on the back side of the seat 508.

[0272] Referring to Fig. 29D, an alternative embodiment of a support structure according to the invention is illustrated. In this embodiment, the support structure 220 includes pockets 236, 238, and 240, each of which having a closure mechanism 239 associated therewith. Pouches 230, 232, and 234 and a receptacle 242 with a lid 244 and an opening 246 are

provided as additional storage compartments. The support structure 220 can also include straps 320 and 322 and flaps 300' and 310'. The support structure 220 can also include a notch 278, similar to the notches of the support structures described and illustrated herein.

[0273] As shown in Fig. 29D, the support structure 220 can include straps 3601 and 3611 that are coupled to the body of the support structure 220. Attached or coupled to each of the straps 3601 and 3611 is a buckle portion 3600 and 3610, respectively. The straps 3601 and 3611 are shorter in length than the straps 550 and 552 that are illustrated in Fig. 29C. One or more of the straps for a support structure 220 may include an adjustment mechanism that can be manipulated to adjust the length of the particular strap. As a result, the length of the straps 3601 and 3611 can be adjusted as desired.

[0274] Buckle portion 3600 and strap 3601 can be disposed in a stored or retracted position 3602 or in a deployed or extended position 3604 (illustrated in dashed lines). Similarly, buckle portion 3610 and strap 3611 can be disposed in a stored or retracted position 3612 or in a deployed or extended position 3614 (illustrated in dashed lines). While buckle portions 3600 and 3610 are illustrated as having different and cooperating configurations, the buckle portions 3600 and 3610 can have the same configurations.

[0275] Referring to Figs. 30-33A, another exemplary use of a support structure according to the invention is illustrated. As shown, the support structure 220 can be used with a stroller 520, which in this implementation functions as a support for the structure 220. Strollers 520 usually include a handle bar 522 with one or more grip portions 524 and 526 that can be grasped by a user to manipulate or control the stroller 520.

[0276] The support structure 220 can be configured so that a strap coupled thereto, similar to strap 324, can be wrapped around a portion of the handle bar 522 so that the support structure 220 is supported therefrom. In other embodiments, the support structure 220 can be coupled to one or more parts of the stroller 520 other than the handle bar 522.

[0277] In addition, handles 320 and 322 can be used to secure the support structure 220 to the stroller 520. Various mechanisms can be used to mounted the support structure 220. Such mechanisms include, but are not limited to, straps, clips, hanger devices, and hook and loop-type materials. For example, straps 540 and 542 with cooperating hook and loop-type materials can be coupled to the support portion 224 and wrapped around part of the stroller 520.

[0278] The support structure 220 is configured to facilitate use with infants, such as an insulated bottle holder. The structure 220 can also store various other useful items for walks, trips, and travel with an infant in the stroller 520. Such items may include infant-related products or parent-related products, such as debit/credit cards/cash/cell phones/and other electronic devices.

[0279] In the position illustrated in Figs. 30-33A, the structure 220 can be located in a convenient location on the stroller so that the structure 220 is easily accessible. The structure 220 reduces the need to place items in the compartment or bin that is located beneath the seat and often, inconvenient to access.

[0280] Referring to Fig. 33B, an alternative arrangement of a support structure and a support is illustrated. In this arrangement, the support structure 220 includes straps 586 and 596, each of which is coupled at one end to the support structure 220. Strap 586 includes a coupler 588 attached to its free end. Similarly, strap 596 includes a coupler 598 attached to its free end. In the illustrated embodiment, the couplers 586 and 596 are buckle portions which can be coupled to other buckle portions. In other embodiments, the couplers can be any type of connecting or coupling mechanism, including snaps, magnets, buttons, etc. In one embodiment, the straps 586 and 596 can be adjustable in length so that the position of the support structure 220 relative to a support can be modified. In addition, in various

embodiments, straps 586 and 596 can be located at any locations on the support structure 220.

[0281] As shown in Fig. 33B, the support is a stroller and in particular a stroller handle bar 522. The handle bar 522 may include one or more grip portions 524 and 526 that can be separately or positioned proximate to each other.

[0282] Selectively coupleable to the support or handle bar 522 are connectors 580 and 590. In this embodiment, connector 580 is an elongate member with opposite ends 581 and 582. Attached to end 581 is a coupler 583 that is configured to be connected to coupler 588. As shown, coupler 583 can be a buckle portion that can be connected to buckle portion 588. The connector 580 also includes coupling mechanisms 584 and 585 that are configured to engage each other. When the connector 580 is wrapped around a portion of the handle bar 522, coupling mechanisms 584 and 585 can be positioned to engage each other to retain the connector 580 on the support or handle bar 522. Coupler 583 can be connected to coupler 588 either before or after the connector 580 is mounted on the handle bar 522.

[0283] Similarly, connector 590 is an elongate member with opposite ends 591 and 592. Attached to end 591 is a coupler 593 that is configured to be connected to coupler 598. As shown, coupler 593 can be a buckle portion that can be connected to buckle portion 598. The connector 590 also includes coupling mechanisms 594 and 595 that are configured to engage each other. When the connector 590 is wrapped around a portion of the handle bar 522, coupling mechanisms 594 and 595 can be positioned to engage each other to retain the connector 590 on the support or handle bar 522. Coupler 593 can be connected to coupler 598 either before or after the connector 590 is mounted on the handle bar 522.

[0284] An alternative embodiment of a support structure is illustrated in Fig. 34, which is a schematic block diagram. In this embodiment, the support structure 600 is configured to

support a device 630, such as an electronic device. The support structure 600 can be mounted or coupled to a support or support structure 640.

[0285] As shown in Fig. 34, support structure 600 can include a body 602 that has one or more couplers 604 and 606 connected thereto. The couplers 604 and 606 are configured to engage and cooperate with couplers 642 and 644 that are connected to the support 640. In one embodiment, the couplers 604 and 606 are releasably securable to couplers 642 and 644.

[0286] In this embodiment, the support structure 600 includes a retaining mechanism 612 that is configured to secure or connect the device 630 to the body 602. The body 602 can be adjustable or reconfigurable to accommodate different sizes and shapes of devices 630. For example, the body 602 may include a width adjustment mechanism 608 that can be manipulated to vary the width of the receptacle formed by the body 602 for the device 630. The body 602 may also include a height adjustment mechanism 610 that can be manipulated to vary the height of the receptacle formed by the body 602. The body 602 may also include a configuration adjustment mechanism 614 that can be manipulated to vary the configuration of the body 602. Some exemplary mechanisms 608, 610 and 614 are described in detail below. In alternative embodiments, the support structure 600 may include any combination of adjustment mechanisms 608, 610, and 614.

[0287] Referring to Figs. 35 and 36, an exemplary use of a support structure according to the invention are shown. In Fig. 35, a support 660, such as a seat or chair, is illustrated. The support 660 has a front side 666 and a rear side 668. The support 660 can be disposed so that the rear side 668 is oriented toward a person located behind the support 660, such as in another support located behind support 660.

[0288] In one embodiment, the support 660 can be selectively disposed in different configurations. In particular, the support 660 can be disposed in an upright configuration 662 (see Fig. 35) and in a reclined configuration 664 (see Fig. 36) as compared to configuration

662. An example of such a support is a seat on an airplane or a vehicle or train seat.

Typically, the seat can be adjusted by a user so that it is in an upright or in a reclined position.

[0289] Referring to Fig. 35, a support structure 670 is illustrated. In one embodiment, the support structure 670 can be similar to support structure 220 being coupled to a tray 150 that is associated with the seat 660. The support structure 670 includes one or more couplers 672 that are connected thereto. The coupler 672 is mounted so that it is support at point or axis 674 for movement in the front to rear directions. In other words, the coupler 672 can move toward and away from the support 660. In this implementation, the support structure 670 and the support 660 can be collectively referred to as a support.

[0290] An additional support structure 680 is illustrated in Fig. 35. In this embodiment, the support structure 680 is configured to retain or hold a device, such as an electronic device. The support structure 680 includes a coupler 682 that is configured to be connected to coupler 672. As a result, the support structure 680 and couplers 672 and 682 are suspended from structure 670. The configuration of the support structure 680 is such that it hangs downwardly in a substantially vertical direction or orientation. In this configuration, an angle 690 between the longitudinal axis of support structure 680 and an axis associated with the coupler 670 and support 660 is formed. As a user reclines the seat 660 from configuration 662 (see Fig. 35) to configuration 664 (see Fig. 36), the angle increases. As shown in Fig. 36, the angle 692 is larger than angle 690. The mounting arrangement maintains the support structure 680 and its associated electronic device in a particular orientation that is easy for viewing by the user behind support 660. The orientation remains substantially constant regardless of the angle of inclination of the support 660.

[0291] As illustrated in Figs. 35 and 36, the support structure 680 may include two support arms (only support arm 695 being illustrated) to stabilize the orientation and the position of the support structure 680 and as a result, any electronic device coupled thereto. The use of

support arm 695 retains the structure 680 in a specific vertical orientation and minimizes movement thereof. Referring to Fig. 35, the support arm 695 is pivotally coupled at one end to support structure 680 and releasably coupleable at its opposite end to structure 670. In other words, one end of the support arm 695 is attached to a side of support structure 680 and can be rotated to position the opposite end of the support arm 695 proximate to structure 670. In one alternative embodiment, the support arm 695 may include a hook-type or a loop-type material that is used to couple the one end to structure 670. The hook/loop material allows for ease in adjustment based on varying angles of inclination of the seat 660.

[0292] In an alternative embodiment, the support arms can be coupled to and detached from support 660. The support arm 695 includes two portions that slide relative to each other and an adjustment mechanism 697 that secures the two portions together. The support arms can be made of any material, such as molded plastic, that is sufficiently strong or stiff to resist the movement of the support structure 680. The support arms can be used with the various embodiments of support structures described herein.

[0293] Referring to Figs. 37 and 38, another exemplary embodiment of a support structure is illustrated. In this implementation, a support structure 220 is mounted on a tray (not shown) that is connected to seat 132. The tray is in its raised position, as previously described. The support structure 220 includes straps 249 and 250 with ends 654 and 656 that retain couplers or buckle portions 650 and 652, respectively. The ends 654 and 656 can be secured by buckles, snaps, etc. Also, it can be sewn with the ends of straps 249 and 250 containing buckles and/or adjustable straps that secure or connect to couplers 650 and 652.

[0294] In this embodiment, a support structure 700 is mountable to support structure 220. Support structure 700 includes buckle portions that can be connected to buckle portions 650 and 652. Support structure 700 also includes an upper section 710 and a lower section 900 as Fig. 37.

[0295] As shown in Fig. 37, the lower section 900 can be disposed in a raised position relative to the upper section 710. In this raised position, the lower section 900 extends at a substantially perpendicular angle relative to the upper section 710. As shown in Fig. 38, the lower section 900 can be removed entirely and not used with the upper section 710. The lower section 900 provides additional support and includes a body 910 with a mesh material 912 that forms a pocket 914.

[0296] An electronic device 1000 can be supported by structure 700. An exemplary electronic device is illustrated in Figs. 37 and 38. The electronic device 1000 includes an upper housing 1010 and a lower housing 1030. The upper housing 1010 has a display or display screen 1012 that can be used to generate visual outputs for a user. The upper housing 1010 and the lower housing 1030 can be disposed in an angled configuration 1040 (see Fig. 37). The lower housing 1030 can be rotated or moved relative to the upper housing 1010 to a substantially planar configuration 1042 (see Fig. 38).

[0297] As illustrated in Figs. 37 and 38, the mounting of structure 700 to support structure 220 allows the orientation of the display 1012 and the upper housing 1010 to remain substantially the same. As a person in seat 132 reclines the seat 132, the orientation of the display 1012 will remain substantially the same so that the user in the seat behind seat 132 will be able to continue watching any programming on display 1012.

[0298] An embodiment of a structure that is configured to be used to support a device is illustrated in Figs. 39-42. Referring to Fig. 39, the support structure 700 is shown. Structure 700 is configured to resemble a frame that can engage or being positioned proximate to one or more sides of a device 1000 to support and retain it. Generally, the structure 700 includes an upper section 710 that has upper and lower parts and left and right side parts.

[0299] As described in detail below, the parts of the upper section 710 are adjustable and can be manipulated to accommodate devices of different sizes and shapes. For example, the

lower / back parts 720 and 730 can be adjusted to accommodate devices having different widths. Moreover, the upper corners 790 and 810 can be adjusted vertically to accommodate devices having different heights. In other embodiments, the combination of parts and portions of the upper section that are adjustable can vary.

[0300] Referring to Fig. 39, the structure 700 includes two side portions 740 and 760. Each side portion 740 and 760 is coupled to or integrally formed with a lower portion 840 and 842, respectively. Each of the side portions 740 and 760 includes a front piece of material, a side piece of material, and a rear piece of material that collectively form a U-shaped channel in which part of the device 1000 can be placed. The front piece and side piece can be coupled together by stitching. In one embodiment, a binding can be used along the seam formed by the front piece and the side piece. Similarly, the rear piece and the side piece can be coupled together by stitching and/or by use of a binding. The various components of structure 700, including side portions 740 and 760, can be made of injection molded plastics, fabrics, straps, etc.

[0301] In one embodiment, the lower portions 840 and 842 can be extensions of the front piece, the side piece and the rear piece of a particular side portion 740 or 760. The lower portions 840 and 842 extend inwardly such that a portion of each lower portion 840 and 842 can be inserted into a gap or space that is formed between the lower edges of the upper housing 1010 and upper edges of the lower housing 1030.

[0302] Referring to Figs. 39-42, side portion 760 includes an upper end 762 and a slot 764 that extends inwardly from an opening in the upper end 762. Proximate to upper end 762 is a flap 766 that is coupled to side portion 760 while the other end of the flap 766 is free. Along a portion of the flap 766 is a coupling mechanism 768, such as a hook-type fastener or a loop-type fastener. Side portion 740 is structured similarly to side portion 760. In an alternative embodiment, the flap 766 can be any mechanism that permits the desired vertical height

adjustment. Some exemplary alternative mechanisms include a strap and buckle or plastic materials that allow for the adjustment of height at alternate positions.

[0303] Coupled to the side portion 760 is a strap 770 to which a coupler or buckle portion 772 is connected. Similarly, a strap 750 with coupler 752 is connected to side portion 740 below its upper end 742. The couplers 752 and 772 are configured to be connected to corresponding couplers connected to the lower section 900, as described in detail below.

[0304] The support structure 700 includes an upper portion 780 as well. In this embodiment, the upper portion 780 includes corner portions 790 and 810. Each of the corner portions 790 and 810 is generally triangularly shaped and defines a U-shaped receptacle into which an upper corner of the housing 1010 of the electronic device 1000 can be inserted. Corner portion 790 includes a front piece of material, a side piece of material, and a rear piece of material. The front and side pieces are coupled together using a binding and the rear and side pieces are coupled together using a binding. Corner portion 810 is structured substantially similar to corner portion 790 and defines a recess 811 (see Fig. 41). Corner portions 790 and 810 can be made of injected molded plastic material as well.

[0305] Referring to Fig. 39, the corner portion 810 has an end 812 from which a strap 816 extends. The strap 816 includes a coupling mechanism 818 such as one of a hook-type and loop-type material attached thereto. Strap 816 can engage strap 796 and be adjustable thereto to vary the width of the structure 700. The corner portion 810 has another end 814 from which an elongate member 824 extends. The functionality of end 814 is such that it slides inside the side portion 760 with side portion 760 being a receiver of end 814. In different embodiments, the end 814 can adjust or slide either inside or outside of the housing of side portion 760. The elongate member that is associated with side portion 740 on the other side has a similar configuration and functionality to elongate member 824.

[0306] As shown, the elongate member 824 includes a coupling mechanism 826 such as one of hook-type and loop-type material attached thereto. The elongate member 824 can be a rigid or semi-rigid structure or member, and in one embodiment can be made of plastic. Alternatively, the elongate member 824 can be made of a fabric material or a combination of a fabric and rigid or semi-rigid material. In alternative embodiments, the coupling mechanism can be disposed on corner portions 790 and 810 as opposed to being located on elongate member 824. In those implementations, the manner of attachment or coupling can be by hook and loop materials, snaps, straps and buckles, magnets, etc.

[0307] Referring to Fig. 40, a portion of elongate member 824 is illustrated. The elongate member 824 can include a retaining mechanism that keeps the elongate member 824 coupled to side portion 760. The similar elongate member coupled to corner portion 790 includes a similar retaining mechanism to keep the elongate member coupled to side portion 740.

[0308] As shown, elongate member 824 has an end 827 to which a connecting mechanism 828 is attached. In one embodiment, the connecting mechanism 828 can be one piece. In this embodiment, the connecting mechanism 828 can be a molded article, such as plastic, with shoulders or flanges 830 and 832 that extend outwardly. As shown in Fig. 40, the side portion 760 includes a slot 764 into which the connecting mechanism 828 is inserted. Adjacent the slot 764 are abutments or projections 774 and 776 that extend inwardly into the slot 764. After the connecting mechanism 828 moves along the direction of arrow "F" beyond the abutments 774 and 776, the shoulders 830 and 832 of the connecting mechanism 828 are positioned to engage the abutments 774 and 776 and thereby prevent the easy disengagement of the elongate member 824 from the side portion 760. To remove the connecting mechanism 828, either the connecting mechanism 828 or the side portion 760 can be manipulated so that shoulders 830 and 832 can pass by projections 774 and 776 and elongate member 824 can be moved along the direction of arrow "G."

[0309] The length of the elongate members extending from the corner portions 790 and 810 are sufficiently long so as to permit the adjustment of the positions of the corner portions 790 and 810 relative to the side portions 740 and 760. As shown in Fig. 39, when the coupling mechanism 768 on strap 766 is disengaged from the coupling mechanism 826 on elongate member 824, the elongate member 824 can be pulled outwardly from or pushed inwardly into the side portion 760. As a result, the relative position or the height of the corner portion 810 with respect to the side portion 760 can be adjusted, thereby accommodating devices with different heights. The relative position or the height of the corner portion 790 with respect to side portion 740 can be adjusted in a similar manner, thereby accommodating devices with different heights. In an alternative embodiment, the coupling mechanisms can be a part of corner portions 790 and 810. In various embodiments, the coupling mechanisms used for adjusting the vertical height positions of the corner portions 790 and 810 may include one or more different types of mechanisms, including but not limited to, hook and loop materials, buckles, straps, snaps, magnets, etc.

[0310] The corner portions 790 and 810 are disposed in different positions in Fig. 39 to illustrate the adjustability of the corner portions 790 and 810. When corner portion 810 is in its desired height, the strap 766 can be moved inwardly so that coupling mechanism 768 engages the coupling mechanism 826 on elongate member 824 and secures the height position of the corner portion 810. Corner portion 790 can be adjusted in a similar manner. Thus, the components of the corner portions 790 and 810 and the side portions 740 and 760 form a height adjustment mechanism for structure 700. In alternative embodiments, each of the corner portions 790 and 810 can include a flap similar to flap 766 with a coupling mechanism that can be used to secure the corner portions 790 and 810 in particular height positions.

[0311] Referring to Fig. 39, the structure 700 includes a retaining mechanism 850 that is positioned along a front side of the device 1000. The retaining mechanism 850 retains or holds the device 1000 within the frame defined by the side portions 740 and 760, the upper portion 780, and the lower portions 840 and 842.

[0312] In this embodiment, the retaining mechanism 850 includes a strap 852 that is connected to side portion 740. The strap 852 includes a loop 854 that has an opening through which another strap 856 can be inserted. Strap 856 is connected at one end to side portion 760 and the other end of the strap 856 is free. Once the free end of the strap 856 is inserted through the opening in loop 854, the strap 856 can be folded back over itself forming a loop 860 and secured in place via a coupling mechanism 858 on the strap 856, such as hook-type and loop-type materials.

[0313] Referring to Fig. 41, the upper section 710 of structure 700 is illustrated with the device 1000 removed. As shown, corner portion 790 includes ends 792 and 794 and a strap 796 that has a coupling mechanism 798. The coupling mechanism 798 can be any one of a hook and loop type material, snaps, buckles, magnets, etc.

[0314] The upper section 710 includes a first back portion 720 that has an inner surface 722 and an outer surface (not shown in this embodiment) that is opposite the inner surface 722. The inner surface 722 is proximate to a device 1000 when the structure 700 is coupled to the device 1000. The outer surface includes a coupling mechanism, such as one of a hook-type material and a loop-type material, coupled thereto. The upper section 710 also includes a second back portion 730 that has an inner surface 732 and an outer surface (not shown in this embodiment) that is opposite the inner surface 732. The inner surface 732 of back portion 730 includes a coupling mechanism, such as one of a hook-type material and a loop-type material, that is configured to cooperate and engage the coupling mechanism on back portion 720.

[0315] In one embodiment, the coupling mechanism on back portion 720 is a loop-type material and the coupling mechanism on back portion 730 is a hook-type material. The back portions 720 and 730 can be adjusted relative to each other and positioned so that the side portions 740 and 760 are the desired distance apart. That distance corresponds to the width of the structure 700 and can be varied by detaching the coupling mechanisms and moving the back portions 720 and 730 to their desired positions, and then attaching the coupling mechanisms together. Thus, the back portions 720 and 730 and their corresponding coupling mechanism form a width adjustment mechanism for structure 700, which can be adjusted to the proper width to accommodate and retain device 1000.

[0316] In this embodiment, the upper portion 780 includes a strap 800 and buckle 802 coupled to corner portion 790 and a strap 820 and buckle 822 coupled to corner portion 810 (see Figs. 41 and 42). The buckles 802 and 822 can be coupled to corresponding buckles of another structure.

[0317] Another embodiment of a support structure according to the invention is illustrated in Figs. 43-50. In this embodiment, the support structure 1100 is configured to hold a device, such as an electronic device 1400. The support structure 1100 is also configured to be supported by or mounted to another structure or support. While electronic device 1400 is illustrated as a DVD player, any type of electronic device may be used with support structure 1100.

[0318] Support structure 1100 includes an upper section 1110 and a lower section 1300. Referring to Fig. 43, the upper section 1110 and lower section 1300 can be disposed in positions that are substantially perpendicular to each other, such as is configuration 1342 (see Fig. 43). The upper section 1110 includes two back portions 1120 and 1130 that are movable relative to each other to adjust the width of the upper section 1110. The upper section 1110 also includes side portions 1140 and 1160 that together with back portions 1120 and 1140

form part of a frame for the device 1400. Side portion 1140 defines a channel 1141 and side portion 1160 defines a channel 1161 (see Fig. 43).

[0319] Referring to Fig. 49, the lower section 1300 includes a body 1310 that has two sections 1312 and 1314. A pocket or receptacle 1318 is formed by mesh material 1316 that is coupled along a portion of the perimeter of the lower section 1300. The lower section 1300 can be folded in half to allow for ease in storage.

[0320] Returning to Fig. 43, in this embodiment, the device 1400 is an electronic device with an upper housing 1410 and a lower housing 1430 that is pivotally coupled to the upper housing 1410. The lower housing 1430 can be disposed in a substantially perpendicular configuration 1440 relative to the upper housing 1410 (see Fig. 43) and in a substantially planar configuration 1442 relative to the upper housing 1410 (see Fig. 44). The upper housing 1410 includes a display or display screen 1412 and lower edges 1414 and 1416 that with an edge of the lower housing 1430 collectively form spaces or gaps 1418 and 1420 at the “hinged” point or area between the upper housing 1410 and the lower housing 1430. The lower housing 1430 includes several controls 1432 (such as buttons or switches) that can be manipulated to control the various outputs of the device 1400. In other embodiments, the device being supported by structure 1100 may have a single housing or may include multiple housings that are not adjustable. As shown in Fig. 43, the lower housing 1430 of the device 1400 is insertable into the pocket 1318 formed in the lower section 1300.

[0321] The lower section 1300 can be retained in a position relative to the upper section 1110. As illustrated, straps 1150 and 1170 are connected to the side portions 1140 and 1160, respectively. At the distal end of each strap 1150 and 1170 is a connector or buckle 1152 and 1172, respectively (see Figs. 43-44). Similarly, straps 1320 and 1330 with buckles 1322 and 1332 and adjustment mechanisms 1324 and 1334, respectively, are coupled to opposite sides

of the lower section 1300. Buckle 1152 can be connected to buckle 1322 and buckle 1172 can be connected to buckle 1332.

[0322] Referring to Fig. 50, a particular buckle arrangement is illustrated. As illustrated, the arrangement of buckles for the lower section 1300 is such that they can be clipped together to maintain the lower section 1300 in its folded or collapsed state or configuration for storage. In other words, buckle 1322 is a “male” configuration buckle and buckle 1332 is a “female” configuration buckle. Similarly, the buckle arrangement for the upper section 1110 is configured so that the buckles can be engaged together. Buckle 1172 is a “male” configuration buckle and buckle 1152 is a “female” configuration buckle. Accordingly, buckle 1152 and buckle 1172 can be clipped or coupled together to retain the upper section 1110 in a collapsed or stored configuration.

[0323] Referring back to Fig. 44, the upper section 1110 includes a retaining mechanism 1230. In this embodiment, retaining mechanism 1230 includes a strap 1240 to which a loop 1242 is connected. Strap 1240 is connected to side portion 1140. In addition, retaining mechanism 1230 includes a strap 1250 that is connected to side portion 1160. Strap 1250 includes a coupling mechanism 1252 that can be used to secure the strap 1250 to itself. The coupling mechanism 1252 can include loop-type material 1253B that can be coupled to a hook-type material 1253A (see Fig. 48). A free end of the strap 1250 can be inserted into an opening formed in the loop 1242. The free end can then be connected to the strap 1250 via coupling mechanism 1252. Thus, strap 1250 can be coupled to loop 1242 at area 1254.

[0324] Referring to Figs. 46-49, the first back portion 1120 and the second back portion 1130 are illustrated. The first back portion 1120 has an inner surface 1122 and an outer surface 1124 with a coupling mechanism 1126 attached thereto. The second back portion 1130 has an inner surface 1132 and an outer surface 1134 with a coupling mechanism 1136 attached thereto. The coupling mechanism 1126 and 1136 can be attached to and detached from each

other to retain the first back portion 1120 and the second back portion 1130 in positions relative to each other. Referring to Fig. 47, the second back portion 1130 is illustrated as being detached from the first back portion 1120. The second back portion 1130 can be moved along the direction of arrow “H” to widen the receiving area or receptacle of the structure 1100. Alternatively, the second back portion 1130 can be moved along the direction of arrow “I” to decrease the width of the receiving area or receptacle of the structure 1100.

[0325] As shown in Fig. 48, coupled to the first back portion 1120 is a strap 1180 with a buckle or connecting member 1204 proximate to its distal end. Similarly, a strap 1190 with a buckle or connecting member 1214 is coupled to the second back portion 1130. The connecting members 1204 and 1214 are configured to be coupled to a support so that the support structure 1100 is suspended.

[0326] Referring to Fig. 49, the lower section 1300 is illustrated. In this embodiment, the lower section 1300 includes a first section 1312 and a second section 1314. Each section may include a semi-rigid piece of material, such as plastic or a corrugate material, that is enclosed by a nylon shell. A narrow gap between the sections 1312 and 1314 may have no rigid material therein so as to allow the folding over of the section 1312 and 1314 proximate to each other (see Fig. 50). A binding can be sewn along the perimeter of the lower section 1300.

[0327] Another embodiment of a support structure is illustrated in Figs. 51-52. In this embodiment, the support structure 1500 can be coupled to or mounted on tray 1600. Support structure 1500 includes a body portion 1510 and two elongate members or straps 1520 and 1530 that are coupled to and extend beyond the body portion 1510.

[0328] Body portion 1510 can be formed of a mesh-like material 1512 and have one or more pockets 1514 and 1516 secured thereto. In an alternative embodiment, the body portion 1510 can be formed of a solid material. A lower member 1518A and an upper member 1518B can

be located at opposite ends of the material 1512 to provide additional support. In one implementation, the mesh-like material may contain a “solid” material behind it to form a pocket or receptacle for storage. The top edge of material 1512 may include an elastic material or a closure mechanism, such as a zipper, to enclose the pocket.

[0329] Strap 1520 has ends 1522 and 1524 to which cooperating couplers or buckles 1526 and 1528, respectively, are attached. Coupler 1526 is configured to be releasably connected to coupler 1528. Similarly, strap 1530 has ends 1532 and 1534 to which cooperating couplers 1536 and 1538, respectively, are attached. Coupler 1536 is configured to be releasably connected to coupler 1538. As shown in Fig. 52, when the straps 1520 and 1530 are wrapped around a support, such as tray 1600, the couplers for each strap can be coupled together. Alternatively, couplers 1528 and 1538 can be clips, buckles, snaps, magnets, etc.

[0330] In one embodiment, the straps 1520 and 1530 can include adjustment mechanisms 1525 and 1535, respectively, that can be manipulated to adjust the length of the straps 1520 and 1530. Accordingly, the support structure 1500 can be mounted on various sized supports. In this configuration, the straps are orientated to wrap around the top and bottom surfaces of the tray 1600. Accordingly, the support structure 1500 can be used with trays having a wide variety of widths and trays that have different heights, provided that the height is within the range of the adjustment mechanisms 1525 and 1535 of the straps 1520 and 1530.

[0331] The support structure 1500 includes straps 1540 and 1550 that are coupled to the body 1510 and/or to one of the straps 1520 and 1530. Attached to strap 1540 is a coupler 1542 that is configured to be connected to a corresponding coupler on another structure. Similarly, attached to strap 1550 is a coupler 1552 that is configured to be connected to a corresponding coupler on another structure. In addition, couplers 1517 and 1519, such as buckles, are attached to the support structure 1500 as illustrated in Figs. 51 and 52. Like couplers 1542 and 1552, couplers 1517 and 1519 are configured to be connected to corresponding couplers

on another structure, such as couplers 802 and 822 on support structure 700 (see Fig. 41) or alternatively, couplers 1204 and 1214 on support structure 1110 (see Fig. 43). Thus, the couplers 1517 and 1519 are configured to suspend a support structure such as support structure 700 or 1100 from structure 1500. Alternatively, the straps 1540 and 1550 and couplers 1542 and 1552 are configured to suspend support structures 700 or 1100.

[0332] An alternative embodiment of a support structure is illustrated in Figs. 53-55A. In this embodiment, the support structure 1600 is mountable to a tray 150. The tray 150 includes a recess 155 as described above. As shown, the support structure 1600 includes a top end 1602 and a bottom end 1604. The structure 1600 also includes a front portion 1610, a rear portion 1620, and side portions 1630 and 1640 that collectively define a receptacle 1650. The portions 1610, 1620, 1630, and 1640 can be integrally formed or formed separately and coupled together using conventional techniques.

[0333] In this embodiment, the top end 1602 has an open end through which a portion of the tray 150 can pass. The bottom end is also an open end. The structure 1600 is retained in a particular position on the tray 150 by coupling mechanisms 1660 and 1670. Coupling mechanism 1660 and 1670 are located on the sides of the structure 1600 and are manipulatable to tighten a portion of the structure 1600 sufficiently to hold the structure 1600 in place on the tray 150. An exemplary coupling mechanism 1660 is illustrated in Fig. 55A as including straps 1662 and 1664 attached to front portion 1610 and rear portion 1620, respectively. Buckle portions 1666 and 1668 are coupled to straps 1662 and 1664 and configured to be attached to each other along the directions of arrows "L" and "M." Adjustment mechanisms (not shown) can be provided on one or more of the straps 1662 and 1664.

[0334] Referring to Fig. 55B, an alternative embodiment of a support structure is illustrated. In this embodiment, support structure 3400 includes a body 3410 with a front portion 3412, a

rear portion 3414, opposite side portions 3416 and 3418, and top portions 3420 and 3422. The portions 3412, 3414, 3416, 3418, 3420, and 3422 collectively form an interior region or cavity 3428. A notch or opening 3426 is formed along the top of the front portion 3412 and a similar notch or opening 3424 is formed along the top of the rear portion 3414. Even though top portions 3420 and 3422 do not extend across the top of the body 3410, the top portions 3420 and 3422 form top supports for resting on the top of a tray, such as tray 150 in Fig. 54. The distances that the top portions 3420 and 3422 extend toward each other can vary and need not be substantial, provided that the top portions 3420 and 3422 can contact the edge of a support. In an alternative embodiment, the coupling mechanisms 1660 and 1670 illustrated in Figs. 53-55A can be used with structure 3400.

[0335] An alternative embodiment of a support structure according to an aspect of the invention is illustrated in Figs. 55C-55E. Referring to Fig. 55C, several of the features of the support structure 3700 are illustrated. The support structure 3700 can include the same features as support structure 220 that has been previously described as well as additional storage features. In this embodiment, support structure 3700 includes a body 3710 with a front or support surface or portion 3712, a rear surface or portion 3714, opposite side surfaces or portions 3716 and 3718, and top portions 3720 and 3722. These portions collectively define a receptacle or interior region 3428 therebetween (see Fig. 55E). The front portion 3712 includes several pockets with openings 3730, 3732, and 3734, pouches 3736 and 3738, and a receptacle 3740. The quantity, configurations, and locations of the pockets, pouches and receptacle can vary in different embodiments.

[0336] Support structure 3700 can be slid onto a support, such as a tray, which can be received in the interior region or receptacle 3428. The top portions 3720 and 3722 can be used to engage the upper edges or corners of a support or tray. In one use, the distance between the top portions 3720 and 3722 determines the width of the support or tray with

which the support structure 3700 can be used. While the inner edges or ends 3721 and 3723 of the top portions 3720 and 3722, respectively, are illustrated as being substantially planar, in other embodiments, the edges or ends can be angled, curved or have another shape or configuration. To the extent that a user intends to use the support structure 3700 with a support that has a width that is narrower than the distance between the top portions 3720 and 3722, one or both of the couplers or support devices 3770 and 3780 can be used so that the top edge of the support is engaged.

[0337] As shown in Fig. 55C, support device 3770 includes side portions 3772 and 3774 with coupling mechanisms 3776 and 3778 disposed on the inner surfaces of the corresponding side portions. In one embodiment, the coupling mechanism 3776 and 3778 can be hook or loop materials. In other embodiments, the coupling mechanisms 3776 and 3778 can be magnets, clips, buttons, snaps, etc. Similarly, support device 3780 includes side portions 3782 and 3784 with coupling mechanisms 3786 and 3788 disposed on the inner surfaces of the corresponding side portions.

[0338] As shown in Fig. 55C, coupling mechanisms 3750, 3752, 3754, and 3756 are coupled to the outer surface of the front portion 3712. Coupling mechanisms 3750, 3752, 3754, and 3756 can be one of a hook and loop material that is configured to cooperate with one of the coupling mechanisms 3776 and 3786 on support devices 3770 and 3780. Similarly, coupling mechanisms 3760, 3762, 3764, and 3766 (shown in dashed lines in Fig. 55C) are coupled to the outer surface of the rear portion 3714. The coupling mechanisms 3760, 3762, 3764, and 3766 can be one of a hook and loop material that is configured to cooperate with one of the coupling mechanisms 3778 and 3788 on support devices 3770 and 3780. In other embodiments, the coupling mechanisms can be magnets, clips, hooks, buttons, snaps, etc.

[0339] The coupling mechanisms previously described relative to Fig. 55C cooperate to releasably couple the support devices 3770 and 3780 to the body 3710 of the support

structure 3700. Accordingly, as shown in Fig. 55D, a user can move the support devices 3770 and 3780 along the direction of arrows “L” and “M” so that the support devices 3770 and 3780 are coupled to the support structure 3700 at different locations. In other embodiments, the support devices 3770 and 3780 can be fixedly coupled to the support structure 3700 using stitching, an adhesive, or other coupling method or technique that fixedly couples or attaches the support devices 3770 and 3780 in particular positions on the support structure 3700. As a result, the adjustability of the locations of the support devices 3770 and 3780 is not variable.

[0340] Referring to Fig. 55E, a cross-sectional view of a portion of the support structure 3700 illustrated in Figs. 55C and 55D is shown. The support structure 3700 includes several portions, including a front portion 3712, a rear portion 3714, and a top portion 3720. As described above, the portions of the support structure 3700 collectively define an interior region 3428. In this embodiment, the coupling mechanisms on the front portion 3712 (only coupling mechanism 3750 being shown) and the coupling mechanisms on the rear portion 3714 (only coupling mechanism 3760 being shown) are coupled to on located on the outer surfaces of the front portion 3712 and the rear portion 3714.

[0341] Referring to Fig. 55F, an alternative embodiment of a support structure in accordance with the present invention is illustrated. The illustrated portions of the support structure 3700' are a front portion 3712', a rear portion 3714', and a top portion 3720' that define an interior region 3428'. In this embodiment, the coupling mechanisms coupled to the front portion 3712' (only coupling mechanism 3790 is shown) are coupled to the inner surface of the front portion 3712'. Similarly, the coupling mechanisms coupled to the rear portion 3714' (only coupling mechanism 3793 is shown) are coupled to the inner surface of the rear portion 3714'. In other embodiments, the support structure may include one or more coupling mechanisms coupled to the inner surface and/or outer surface of the front portion

and/or rear portion of the support structure. In addition, the coupling mechanisms may be fixedly coupled, such as by sewing or an adhesive, or removably coupled.

[0342] Referring to Figs. 55G and 55H, an embodiment of a coupler that can be used with the support structure illustrated in Fig. 55F in accordance with an aspect of the invention is illustrated. In this embodiment, the coupler 3795 includes a body portion 3796 with side portions 3797 and 3798 that can be integrally formed therewith or formed separately and subsequently coupled thereto. Coupling mechanisms 3799A and 3799B are attached or coupled to the outer surfaces of the side portions 3797 and 3798, respectively. While coupling mechanism 3799A is illustrated as a loop type material and coupling mechanism 3799B is illustrated as a hook type material, any combination of loop-type and hook-type materials can be used on a coupler 3795 or on the body 3710 of a support structure 3700 or 3700'. The couplers 3770, 3780, and 3795 can be formed of any material that allows the associated support structure to be supported on a support, such as a tray.

[0343] An alternative embodiment of a support structure is illustrated in Figs. 56 and 57. In this embodiment, the support structure 1700 includes a top end 1702 and a bottom end 1704. The structure 1700 includes a front portion 1710, a rear portion 1720, and side portions 1730 and 1740 that are coupled together. The front portion 1710 may have various compartments and features similar to those previously described to form a support portion that allows a user to access and utilize various objects. The portions 1710, 1720, 1730 and 1740 collectively form a receptacle 1750.

[0344] In this embodiment, the top end 1702 includes a notch or opening 1755 formed therein and slits or openings 1760 and 1770 that extend from the opening 1755 toward the side portions 1730 and 1740. Closure mechanisms 1762 and 1772, such as zippers, are associated with openings 1760 and 1770, respectively. The closure mechanisms 1762 and 1772 are configured so that a user can modify the top end 1702 of the structure 1700. In

other words, if the user desires a closed end for the receptacle 1750, such as for use with tray 150, then the user can move the closure mechanisms 1762 and 1772 to close slits 1760 and 1770 so that only opening 1755 exists. If the user desired an open end so that a portion of a support can pass therethrough, such as in Figs. 53-55, the user can move the closure mechanisms 1762 and 1772 along the directions of arrows “J” and “K” in Fig. 57.

[0345] An alternative embodiment of a support structure is illustrated in Figs. 58-59. In this embodiment, the support structure 1800 is configured for use with a vehicle seat and in particular, for use with a headrest of a vehicle seat. As shown, a vehicle seat 1810 includes a headrest 1812 that is mounted to a body portion 1814.

[0346] The support structure 1800 includes a mounting portion 1830 and a support portion 1840 that is coupleable to the mounting portion 1830. The mounting portion 1830 may be made of an elastic material, or a material sufficient to meet the contours of headrest 1812, and define a receptacle 1836 that can receive the headrest 1812. The material of the mounting portion 1830 can expand or stretch to accommodate or receive the headrest 1812. Attached to the mounting portion 1830 are two couplers or connectors 1832 and 1834. Alternatively, two additional couplers (similar to couplers 2142 and 2152 illustrated in Fig. 63) can be positioned on the front side of mounting portion 1830 (opposite couplers 1832 and 1834) to support items attaching to mounting portion 1830 on both sides of headrest 1812.

[0347] Referring to Figs. 58 and 59, the support portion 1840 includes a body 1850 with a storage portion 1860 in which an object or objects can be disposed. Coupled to the body 1850 are straps 1880 and 1882 with connectors 1884 and 1886 coupled thereto. Connectors 1884 and 1886 are configured to be coupled to connectors 1832 and 1834, respectively, to attach the support portion 1840 to the mounting portion 1830. Alternatively, mounting portion 1830 and support portion 1840 can be coupled together and function as a single unit, similar to the embodiment described below and illustrated in Figs. 72-74.

[0348] The support portion 1840 may also include straps 1870 and 1872 that are configured to wrap around the body portion 1814 of the seat 1810 and be coupled to each other by connectors 1874 and 1876, such as buckles. One or both of the straps 1870 and 1872 may include adjustment mechanisms that allow the straps to be adjusted in length. The support portion 1840 can include connectors to which another support structure, such as support structure 700 and/or 1300 or for support structure 1100, can be mounted.

[0349] Referring to Figs. 58 and 59, the support structure 1800 may include rigid straps or elongate members 1851 and 1855, made of a plastic and/or fabric material, with hook and loop connection mechanisms 1853 and 1857, respectively. The elongate members 1851 and 1855 are attached to body 1850 and are pivotable outwardly to attach to structure 700 or structure 1300 to stabilize the vertical orientation when support structure 1800 and mounting portion 1830 is in an inclined or reclined position, thereby enabling a user to adjust the structure 1800 to the desired vertical orientation. In one embodiment, the rigid straps 1851 and 1855 can be a single rigid strap or elongate member. In other embodiments, the connection mechanisms 1853 and 1857 can be snaps, buttons, clips, magnets, etc.

[0350] Another embodiment of a support structure is illustrated in Fig. 60. In this embodiment, the support structure 1900 can be coupled to a car seat 1910 that includes a body 1912 and a headrest 1914 that is mounted on two posts 1916 and 1918. The support structure 1900 includes a body 1920 with an upper portion 1922 and a lower portion 1924. Straps 1926 and 1930 are coupled to the body 1920 and have connectors 1928 and 1930 coupled thereto. Straps 1926 and 1930 are configured to wrap around the body 1912 of the seat 1910. Coupled to the body 1920 is a strap 1940 that is configured to wrap around the posts 1916 and 1918 to mount the structure 1900 on the seat 1910. Similarly to structure 1800, a support structure can be mounted to structure 1900. Also, straps 1926 and 1930 can be used to secure the structure 1900 relative to the seat 1910 and prevent undesired

movement. Additionally, securing body 1850 can be done as illustrated in Fig. 29B through the use of clips 514 and 516 and arms 517 and 518 through the modification and use of straps 510 and 512 becoming a part of body 1850.

[0351] Referring to Fig. 60, the support structure 1900 may include rigid straps or elongate members 1950 and 1960, made of a plastic and/or fabric material, with hook and loop connection mechanisms 1952 and 1962, respectively. The elongate members 1950 and 1960 are attached to body 1920 and are pivotable outwardly to attach to structure 700 or structure 1300 to stabilize the vertical orientation when support structure 1900 is in an inclined or reclined position, thereby enabling a user to adjust the structure 1900 to the desired vertical orientation. In one embodiment, the rigid straps 1950 and 1960 can be a single rigid strap or elongate member. In other embodiments, the connection mechanisms 1952 and 1962 can be snaps, buttons, clips, magnets, etc.

[0352] An alternative embodiment of a support structure is illustrated in Figs 61-62. As shown, the support structure 2000 includes a body 2002 that has an outer surface 2004 and an inner surface 2006 that defines an interior region 2010. Support structure 2000 is configured to be placed on a headrest of a seat, such as a seat in a vehicle, on a train or on an airplane. The interior region 2010 is configured to receive the headrest. The material of the support structure 2000, which can be referred to as a headrest cover, is a stretchy, resilient material that allows the support structure 2000 to take on the shape of the headrest and accommodate different sizes of headrests. In one embodiment, the body 2002 includes a lower surface 2010 that can have a binding material 2012 (see Fig. 61) along its length.

[0353] Support structure 2000 includes a strap or connector 2020 that is connected to the inner surface 2006 of the body 2002 using stitching, an adhesive, or any other conventional connecting technique or mechanism. The connector 2020 has a coupler 2022 (such as a buckle or alternatively, a snap, magnet, button, etc.) attached to one end that is configured to

be connected to a coupler that is attached to another support structure, which can be similar to any of the support structures previously described herein (including support structures 220, 700 and/or 1100).

[0354] Similarly, support structure 2000 includes a strap or connector 2030 that is connected to the inner surface 2006 of the body 2002. Connector 2030 has a coupler 2032 attached to one end that is configured to be connected to a coupler that is attached to a support structure. In different embodiments, the support structure 2000 can include any number of connectors with couplers attached thereto.

[0355] An alternative embodiment of a support structure is illustrated in Fig. 63, which illustrates a top view of support structure 2100. In this embodiment, support structure 2100 includes a body 2102 that has a front portion 2110, a rear portion 2112, and two opposite side portions 2114 and 2116. The body 2102 can be substantially similar to body 2002

[0356] As shown, the body 2102 includes a pocket or compartment 2120 proximate to side portion 2114. The compartment 2120 includes an interior region or receptacle 2122 into which various objects can be inserted to be stored. The compartment 2120 can be formed separately can coupled to the body 2102 using any conventional technique or method, such as stitching or an adhesive. In some embodiments, the body 2102 may also include a pocket or compartment 2130 proximate to the opposite side portion 2116. Compartment 2130 includes an interior region or receptacle 2132 into which various objects can be inserted.

Compartment 2130 can be coupled to the body 2102 using any conventional technique or method. In various embodiments, the quantity of compartments, the locations of the compartment(s), and the sizes and configurations of the compartment(s) on a body can vary.

[0357] Support structure 2100 also includes features that facilitate the coupling of another structure to either or both the front and rear sides of the support structure 2100. For example, if the support structure 2100 is mounted on a headrest of a seat, a structure can be attached to

the front portion 2110 or to the rear portion 2112 of the structure 2100 which would correspond to the front side and the rear side of the seat, respectively.

[0358] In particular, straps or connectors 2140 and 2150 with couplers 2142 and 2152, respectively, can be attached to the inner surface or to the outer surface of the front portion 2110 of the body 2102. In addition, straps or connectors 2160 and 2170 with couplers 2162 and 2172, respectively, can be attached to the inner surface or to the outer surface of the rear portion 2112 of the body 2102. Any corresponding coupler that is attached to a support structure can be connected to couplers 2142, 2152, 2162, and 2172 as desired.

[0359] An alternative embodiment of a support structure is illustrated in Fig. 64. As shown, support structure 2200 includes a body 2202 with an outer surface 2204. The body 2202 is configured so that the support structure 2200 can be mounted on a headrest or other portion of a seat for a vehicle, train, airplane, etc. Proximate to the lower surface of the body 2202 is a channel 2206 that is formed by material.

[0360] The support structure 2200 includes a tightening mechanism 2230 that can be manipulated by a user to tighten the body 2202 so that it is securely mounted on a headrest or other support. The tightening mechanism 2230 includes an elongate member, such as a string or cord 2232 with ends 2234 and 2236 that is passed through the channel 2206. A clamping mechanism 2240 slidably receives the ends 2234 and 2236 of the elongate member 2232.

The clamping mechanism 2240 can include a spring-biased component that can be manipulated by a user to allow the user to pull the ends 2234 and 2236 along the direction of arrow "N" to tighten the lower surface. The clamping mechanism 2240 can be manipulated by a user as well to loosen the lower surface of the body 2202.

[0361] The support structure 2200 includes straps or connectors 2210 and 2220 with couplers 2212 and 2222, respectively, coupled to the outer surface 2204 of the body 2202 using stitching. In other embodiments, the connectors 2210 and 2220 can be coupled to the

body 2202 using other techniques or mechanisms. Couplers 2212 and 2222 can be connected to any type of cooperating coupler, such as those previously described. In alternative embodiments, the straps or connectors 2210 and 2220 can be located at the top edge and/or seam of the headrest cover or support structure 2200.

[0362] An alternative embodiment of a combination of support structures is illustrated in Fig. 65. In this embodiment, support structure 2300 includes a body 2302 with an outer surface 2304 and an inner surface 2306 that defines an interior region 2308 that is configured to receive a support, such as a headrest. Coupled to the body 2302 are straps or connectors 2310 and 2320 to which couplers 2312 and 2322, respectively, are attached.

[0363] Support structure 2350 includes an upper portion 2352 and a lower portion 2354 that are configured to receive and support various objects, such as electronic devices, for example, a DVD player. Coupled to support structure 2350, and in particular to upper portion 2352, are straps or connectors 2360 and 2370 with couplers 2362 and 2372, respectively. Couplers 2362 and 2372 are configured to be selectively engageable with couplers 2312 and 2322, respectively. As a result, support structure 2350 can be mounted to and detached from support structure 2300 which can remain mounted on a support, such as a headrest.

[0364] Support structure 2350 can include straps 2380 and 2384 with couplers 2382 and 2386, respectively. The straps 2380 and 2384 can be wrapped around a support, such as a seat, and couplers 2382 and 2386 can be connected together to secure the support structure 2350 relative to the support.

[0365] An alternative embodiment of a support structure is illustrated in Fig. 66. In this embodiment, the support structure 2400 includes a structure 2410 that is configured to be mounted on a head portion or headrest 2452 of a seat 2450, such as a seat for a train, an airplane or other vehicle. The seat 2450 can include a front side 2456 and a rear side 2454.

[0366] The structure 2410 includes a body 2411 to which a pocket or receptacle 2412 is coupled. The body 2411 is configured so that it is mountable on the headrest 2452 of the seat 2450. Connected to the front portion of the body 2411 is at least one strap or connector 2418 which has a coupler 2420 attached thereto. When not in use, connector 2418 can be moved along the direction of arrow "O" so that it is disposed internal to the body 2411. Connected to the rear portion of the body 2411 is at least one strap or connector 2414 which has a coupler 2416 attached thereto.

[0367] In this implementation, another support structure 2430, which can retain and support various objects consistent with the foregoing description, is provided. Support structure 2430 includes a strap or connector 2432 with a coupler 2434 that can be connected to coupler 2416. Alternatively, the support structure 2430 can be mounted on the front side 2456 of the seat 2450. In that implementation, coupler 2434 can be connected to coupler 2420. In various embodiments, the quantity of couplers on the front side and on the rear side of the body 2411 can vary.

[0368] An alternative embodiment of a support structure is illustrated in Figs. 67A-67F. In this embodiment, the support structure 2500 includes a body 2502 that is configured to be mounted on a headrest 2552 of a seat 2550. The body 2502 can include a front side or portion 2506 and a pocket or compartment 2504 that is coupled to a side portion 2508 of the body 2502. As shown, one or more straps or connectors 2510 with couplers 2512 can be connected or attached to the body 2502 of the structure 2500. Strap or connector 2510 is illustrated in Fig. 67A only and not in Figs. 67B-67F for purposes of simplicity only. It is to be understood that support structure 2500 illustrated in Figs. 67B-67F includes strap or connector 2510 as well.

[0369] As shown in Fig. 67A, the support structure 2500 may include couplers 2480 and 2482 secured thereto to which other couplers can be connected. The couplers 2480 and 2482

are mounted on side 2508 of the structure 2500. While not illustrated, additional couplers are mounted on side 2509 (opposite to side 2508) of the structure 2500. The couplers 2480 and 2482 are configured so that other items, support structures, or objects can be mounted or connected to the support structure 2500 via couplers 2480 and 2482.

[0370] In this embodiment, the body 2502 includes a pouch 2520 that is disposed at a level that is proximate to the neck region of a user or passenger that is seated in seat 2550. The pouch 2520 can be configured so that a cushion, such as a foam cushion or an air cushion, or a gel or liquid-filled object can be inserted therein to provide support to the passenger. The pouch 2520 can have any shape or configuration, including a curved configuration to provide lateral support to the neck region of the passenger as well. Pouch 2520 is illustrated in Fig. 67A only and not in Figs. 67B-67F for purposes of simplicity only. It is to be understood that support structure 2500 illustrated in Figs. 67B-67F includes pouch 2520 as well.

[0371] Referring to Fig. 67B- 67F, various views of the support structure 2500 are illustrated. The support structure 2500 includes a front portion 2506, a rear portion 2507, and side portions 2508 and 2509. The support structure 2500 has a surface 2530 that is the outer surface when the support structure 2500 is disposed on a headrest 2552 of a support, such as support 2550 (see Fig. 67B). As the outer surface, surface 2530 is the surface that is contacted by a user's head as well as the surface that is accessible to a user while the support structure 2500 is mounted on a support.

[0372] Referring to Fig. 67B, the support structure 2500 includes an end 2511 that defines an opening in communication with an interior region or receptacle. Proximate to the end 2511 is a channel 2513 that is formed along the perimeter of the end 2511. In one embodiment, the channel 2513 can be formed by folding over an end of the body of the support structure 2500 and sewing the end to the body so that a channel or passageway is formed. In another

embodiment, the channel 2513 can be formed by coupling a binding material along the perimeter of the end 2511.

[0373] As shown in Fig. 67C, a drawstring 2515 is inserted through the channel 2513 and includes exposed ends that are external to the channel 2513. The drawstring 2515 is an elongate member that may or may not have elastic properties. The position of the drawstring 2515 relative to the body of the support structure 2500 can be retained by using a locking mechanism 2517. The locking mechanism 2517 can be a conventional locking mechanism that is configured to be manipulated by a user to selectively secure or release the locking mechanism on the drawstring 2515. To tighten the end 2511 around a portion of a support, a user can pull on the drawstring 2515 along the direction of arrow “P” and then release the locking mechanism 2517 to secure the drawstring 2515 in place.

[0374] In an alternative use, the support structure 2500 can be used as a carrying device, such as a tote, bag, sack, etc. Referring to Fig. 67E, a cross-section of the support structure 2500 taken along the line “67E-67E” in Fig. 67D is illustrated. When the support structure 2500 is removed from a support, the interior region 2534 as defined by the inner surface 2532 (see Fig. 67E) is configured to receive articles, items, or objects therein. The drawstring 2515 can be manipulated by a user to close the opening 2531 and retain the articles, items, and/or objects therein.

[0375] In another use, the support structure 2500 can be inverted or reversed from its configuration illustrated in Fig. 67E to its configuration illustrated in Fig. 67F. Point or portion 2535 that is internal to the support structure 2500 can be moved by a user along the direction of arrow “N” so that the inner surface 2532 is disposed on the outside and the outer surface 2530 is disposed on the inside and configured to define receptacle 2536 (see Fig. 67F).

[0376] As illustrated in Figs. 67E and 67F, the support structure 2500 may include handles 2540 and 2542 coupled to one of its surfaces. In this embodiment, the handles 2540 and 2542 are substantially U-shaped and are coupled at their ends to the inner surface 2532. When the support structure 2500 is inverted to the configuration illustrated in Fig. 67F, the handles 2540 and 2542 are disposed on the outside of the support structure 2500. The length of the handles 2540 and 2542 may be such that a user can easily grasp the handles 2540 and 2542 to carry the support structure 2500 as a bag. In other embodiments, the handles 2540 and 2542 may be adjustable in length to accommodate different uses and modes of transporting the support structure 2500.

[0377] Referring to Fig. 67G, another embodiment of a support structure is illustrated. In this embodiment, the support structure 2400' is mountable on a support 2550 and includes a body 2410' to which several couplers 2462, 2464, 2466, and 2468 are attached or coupled. Each of the couplers can be one of a hook-type or loop-type material, a buckle, a snap, a magnet, or any other mechanism that can be used to couple an item to the support structure 2400'. The couplers 2462, 2464, 2466, and 2468 are located at spaced apart location on the support structure 2400'.

[0378] Referring to Fig. 67H, a support structure 2470 that can be coupled to support structure 2400' is illustrated. The support structure 2470 includes a body 2471 with a rear surface 2472 and an opposite front surface 2478 that can be contacted by a user when the support structure 2470 is connected to the support structure 2400'. Several couplers 2474, 2475, 2476, and 2477 (such as hook-type or loop-type materials, buckles, magnets, etc.) are attached to the structure 2470 at locations that correspond to couplers 2464, 2462, 2477, and 2476, respectively, on the support structure 2400'.

[0379] An alternative embodiment of a support structure is illustrated in Figs. 68-69. In this embodiment, the support structure 2600 includes a body 2610 that has an outer surface 2612

and an inner surface 2614 that defines an interior region 2616 that is configured to receive a support, such as a headrest. The body 2610 has a lower surface or end 2618 and side portions 2620 and 2622.

[0380] Support structure 2600 includes a pouch or compartment 2630 that is positioned to be proximate to the neck region of a user, such as a passenger in the seat to which the structure 2600 is mounted on the headrest. The compartment 2630 extends from end 2632 to end 2634, which in this embodiment, are positioned at opposite ends of the body 2610 (see Fig. 68). The compartment 2630 includes an outer surface 2636 and an inner surface 2638 that defines an interior region 2640 as shown in Fig. 69. The compartment 2630 can include therein a foam cushion, a liquid-filled object, and/or a liquid, such as a gel. The compartment 2630 can be formed of a material that has resilient properties that allow the compartment 2630 to change its configuration as a user presses against the compartment 2630. The material inside of the compartment 2630 provides support to the neck region and or head of the user.

[0381] Referring to Fig. 70, an alternative embodiment of a support structure is illustrated. In this embodiment, support structure 2700 includes a body 2710 that is similar to body 2610 described with respect to Figs. 68 and 69. The support structure 2700 also includes a pouch or compartment 2730 in which a supportive material can be disposed to provide support to a user's neck region and/or head.

[0382] As shown in Fig. 70, the compartment 2730 is formed by a piece of material 2732 that is coupled to the body 2710 by stitching, an adhesive, heat treatment, etc. The material 2732 includes an outer surface 2734 and an inner surface 2736 that defines an interior region 2738. The material 2732 includes a free end 2740 that has a coupling mechanism (not shown) attached thereto. The coupling mechanism can be any of a button, snap, hook or loop-type material, magnet, etc. The compartment 2730 is also formed in part by a piece of

material 2750 that is attached to the body 2710 using a conventional mechanism or technique. Material 2750 can include a coupling mechanism (not shown) attached thereto that cooperates with and/or engages the coupling mechanism on free end 2740 to close the opening 2760 to the interior region 2738 of the compartment 2730. In this embodiment, access to the interior region 2738 is facilitated so that users can adjust or change the supporting items disposed in the compartment 2730.

[0383] Referring to Fig. 71, an alternative embodiment of a support structure is illustrated. In this embodiment, support structure 2800 includes a body 2810 that is similar to body 2610 described with respect to Figs. 68 and 69. The support structure 2800 also includes a pouch or compartment 2830 in which a supportive material can be disposed to provide support to a user's neck region and/or head.

[0384] As shown in Fig. 71, in this embodiment, the compartment 2830 is integrally formed with the body 2810. The compartment 2830 includes an outer surface 2832 and an inner surface 2834 that defines an interior region 2836. A passageway 2838 is provided from the interior region of the body 2810 to the interior region 2836 of the compartment 2830. A user can insert the supporting items disposed in the compartment 2830 through the passageway 2838.

[0385] An alternative embodiment of a support structure is illustrated in Figs. 72-74. In this embodiment, support structure 2900 includes an upper portion 2910 and a lower portion 2940. The upper portion 2910 includes a lower end 2912 that has an opening (not shown) that allows the upper portion 2910 to be mounted on a support such as a headrest. The lower portion 2940 is pivotally coupled to the upper portion 2910 and is selectively disposable in a lower position 2944 (see Fig. 73) and in an upper position 2946 (see Fig. 74). Alternatively, this position can vary and be any angle in addition to the two illustrated positions.

[0386] Referring to Fig. 72, the lower portion 2940 defines a receptacle 2942. The receptacle 2942 is configured to receive a portion of an object 2970 (see Fig. 73), which in this embodiment is an electronic device, such as a DVD player. The object 2970 includes an upper portion 2972 and a lower portion 2974 as shown.

[0387] Attached to the upper portion 2910 are straps 2920 and 2930 that are used to retain or secure the object or device 2970. Strap 2930 can be passed through a buckle 2922 attached to strap 2920 and folded back on itself so that coupling mechanisms 2932 and 2934 can engage each other and retain the strap 2930 in a particular position. Strap 2930 can be used to secure the device 2970 as shown in Fig. 73.

[0388] As shown in Figs. 73 and 74, a strap or connector 2950 with a coupler 2952 is attached to the upper portion 2910. While not illustrated, a similar strap or connector with a coupler is attached to the opposite side of the upper portion 2910. A strap or connector 2960 with a coupler 2962 is attached to the lower portion 2940. While not illustrated, a similar strap or connector with a coupler is attached to the opposite side of the lower portion 2940.

[0389] The lower portion 2940 can be disposed in a lower position 2944 as illustrated in Fig. 73. The lower portion 2940 can be moved to an upper position 2946 as illustrated in Fig. 74 and retained in that position by connecting the couplers 2952 and 2962 together as shown. Couplers 2952 and 2962 can be disconnected and the lower portion 2940 moved back downwardly to its lower position 2944 as desired or to any position or any angle in addition to the two illustrated positions through the use of one or more adjustment mechanisms associated with straps 2920 and 2930 consistent with the various adjustment mechanisms described herein and conventional adjustment mechanisms for straps.

[0390] Referring to Figs. 75 and 76, an alternative embodiment of a support structure is illustrated. In this embodiment, the support structure 3000 includes a body or body portion 3010 that has a front surface or portion 3012 that can be a support portion configured to

support objects as previously described. The support structure 3000 can include the same features and components as illustrated and described relative to support structure 220.

Alternatively, the support structure 3000 may include fewer or more features and components than support structure 220. In this embodiment, the body 3010 also includes a rear surface or portion 3014, opposite side portions (only 3016 is illustrated), a top surface or portion 3018, and a bottom surface or portion 3020. While body 3010 is illustrated as having a substantially rectangular shape or configuration, the body 3010 can have any size, shape or configuration in different embodiments.

[0391] Referring to Fig. 76, the body 3010 includes mounting structures that are formed in the rear surface 3014. The rear surface 3014 of body 3010 can be referred to as a primary portion or panel in that the rear surface 3014 forms the basic structure of the body 3010 and functions as an external or outer surface. In this embodiment, the mounting structures are slots or slits 3030 and 3040 that are formed in the rear surface or portion 3014. The slots 3030 and 3040 are oriented at angles relative to the top surface 3018 and the bottom surface 3020. The length of the slots 3030 and 3040 can vary in different embodiments. The function of the slots 3030 and 3040 is described in detail below relative to Fig. 79.

[0392] Referring to Figs. 77 and 78, an alternative embodiment of a support structure is illustrated. In this embodiment, the support structure 3100 includes a body 3110 with a front portion 3112, a rear portion 3114, opposite side portions (only 3116 is illustrated), a top portion 3118, and a bottom portion 3120. As shown in Fig. 77, the support structure 3100 includes a mounting component or mechanism 3130 that can be used to mount the structure 3100 to a support, such as a tray on an airplane, train, etc. The mounting component 3130 can be referred to as a secondary or additional portion or panel in that it forms an additional structure that is coupled to the basic structure of the support structure 3100. As shown in Fig.

78, the mounting component 3130 includes an upper part 3132 and a main part 3134 that define an interior region 3136 with an opening 3138.

[0393] Referring to Fig. 77, the mounting component 3130 includes slots or slits 3140 and 3150 formed therein in a manner similar to slots 3030 and 3040 illustrated in Fig. 76. Thus, slots or slits 3140 and 3150 are formed in a secondary or additional panel or portion as opposed to slots or slits 3030 and 3040 illustrated in Fig. 77. The length of the slots 3130 and 3140 as well as the particular orientation of the slots 3130 and 3140 can vary in different embodiments.

[0394] Referring to Fig. 79, an exemplary use of the slots of a support structure is illustrated. As shown, the support structure 3000 can be mounted on a support 3070 by using the slots 3030 and 3040. In this implementation, the support 3070 resembles a tray of an airplane, train, or other mode of transportation. The support 3070 includes corner portions 3072 and 3074 and can be disposed in a raised or upright position. The support 3070 can be mounted to pivoting arms (not shown) can enable movement of the support 3070.

[0395] Referring to Fig. 79, slot 3030 is defined by an edge 3032 and is configured to receive part of corner portion 3072. Similarly, slot 3040 is defined by an edge 3042 and is configured to receive part of corner portion 3074. The use of slots 3030 and 3040 to mount the structure 3000 eliminates the need for a notch or an opening to be formed in the top surface 3018 to permit the engagement of a latch (not shown) with the support 3070, as described above relative to other embodiments. However, in other embodiments, a notch or opening can be formed in the top surface 3018 to provide an additional method of mounting the support structure 3000. While support structure 3000 with slots 3030 and 3040 is illustrated, it is to be understood that the support structure 3100 with slots 3130 and 3140 (see Fig. 77) can be used in a similar manner relative to support 3070.

[0396] Referring to Fig. 80, an alternative embodiment of a support structure is illustrated. In this embodiment, the support structure 3200 includes a body 3210 with a rear portion 3212 and a top portion 3214. The support structure 3200 includes mounting components 3220 and 3230. Mounting components 3220 and 3230 are configured to be used to mount the structure 3200 to a support, such as a tray on an airplane, a train, or other mode of transportation.

[0397] Mounting component 3220 includes a flap 3226 that is defined by an edge 3222 that forms a slot 3224. Mounting component 3230 includes a flap 3236 that is defined by an edge 3232 that forms a slot 3234. Flap 3226 is illustrated in a relatively closed position with respect to the rear surface 3212. However, flap 3236 is illustrated in a relatively opened position in that the corner of the flap 3236 has been pulled back to expose more of the slot 3234. The slots 3224 and 3234 are configured to receive corner portions of a tray, such as corner portions 3072 and 3074 of tray 3070 as illustrated in Fig. 79.

[0398] An alternative embodiment of a support structure is illustrated in Fig. 81. In this embodiment, support structure 3300 includes a body 3310 with a rear portion 3312 and a top portion 3314. The support structure 3300 includes mounting components 3320 and 3330. Mounting components 3320 and 3330 are configured to be used with corner portions of a support or tray in a manner consistent with the previously described embodiments.

[0399] As shown in Fig. 81, mounting component 3320 includes a slot 3322, which can be linear or curved as illustrated. The slot 3322 forms a movable portion or flap 3324. The slot 3322 can be closed by a closure mechanism 3326, such as a zipper. Thus, when the use of slot 3322 is not desired, a user can close the slot 3322 by using closure mechanism 3326. Similarly, mounting component 3330 includes a slot 3332 that forms a movable portion or flap 3334. The slot 3332 can be closed by a closure mechanism 3336, such as a zipper. Thus, when the use of slot 3332 is not desired, a user can close the slot 3332 by using closure mechanism 3336.

[0400] An alternative embodiment of a support structure is illustrated in Figs. 82-83. In this embodiment, support structure 3500 includes a body 3510 with a rear portion 3512 and a top portion 3514. The support structure 3500 includes mounting components 3520 and 3530. Mounting components 3520 and 3530 are configured to used with corner portions of a support or tray in a manner consistent with the previously described embodiments.

[0401] As shown in Figs. 82-83, mounting component 3520 includes an edge 3522, which can be linear or curved as illustrated. The edge 3522 is an edge of material. The mounting component 3520 includes a movable portion or flap 3524 that overhangs or extends beyond the edge 3522. One or more closure mechanisms 3526 (and 3528), such as hook or loop material, snaps, buttons, magnets, etc. can be provided along the edge 3522 and configured to engage one ore more closure mechanisms 3525 on the inner surface or side of the flap 3524. The coupling of the closure mechanisms 3526 and 3525 can enable a user to open and close the flap 3524 as desired. Thus, when the use of slot is not desired, a user can close the slot by using closure mechanism 3525 and 3526.

[0402] Similarly, mounting component 3530 includes an edge 3532, which can be linear or curved as illustrated. The edge 3532 is an edge of material. The mounting component 3530 includes a movable portion or flap 3534 that overhangs or extends beyond the edge 3532. One or more closure mechanisms 3536 (and 3538), such as hook or loop material, snaps, buttons, magnets, etc. can be provided along the edge 3532 and configured to engage one ore more closure mechanisms (not shown) on the inner surface or side of the flap 3534. The coupling of the closure mechanisms can enable a user to open and close the flap 3534 as desired. Thus, when the use of slot is not desired, a user can close the slot by using the closure mechanisms. The overlapping of material for the mounting components 3520 and 3530 facilitates the opening and closing of the corresponding slots or openings.

[0403] Referring to Figs. 84-91, an alternative embodiment of a support structure in accordance with an aspect of the invention is illustrated. Referring to Figs. 84-86, perspective and top views of the support structure 4000 are illustrated. The support structure 4000 includes a support portion 4100 and a coupling portion 4200. In this embodiment, the support portion 4100 includes a body 4110 with a front wall 4120 and an upper wall 4140. The body 4110 can include one or more pockets or receptacles formed therein, as discussed in greater detail below. The front wall 4120 can include a closure mechanism 4126, which can be a zipper, that is manipulated to allow and to prevent access to an internal receptacle. The upper wall 4140 includes a closure mechanism 4144, such as a zipper, that can be moved to open and to close an internal receptacle as well. In other embodiments, the quantity and types of closure mechanisms can vary. For example, snaps, buttons, hook and loop materials, magnets, and other components can be used as the closure mechanism in lieu of the zippers.

[0404] As shown in Figs. 84 and 85, the coupling portion 4200 includes a body 4210 that extends from end 4212 to end 4214. The body 4210 has a front surface 4220 that is proximate to the support portion 4100. In this embodiment, as shown in Figs. 84 and 86, the coupling portion 4200 includes pockets 4230 and 4240. Pocket 4230 is formed by coupling a piece of material 4234 to the front surface 4220 and providing a flap 4232 that can be opened and closed by a user. Pocket 4240 is formed internally to the body 4210 and includes a closure mechanism 4242, such as a zipper, that can be manipulated by a user. In other embodiments, the quantity and locations of pockets on the coupling portion 4200 can vary.

[0405] In this embodiment, the support structure 4000 includes couplers 4250 and 4260 that can be used to mount the support structure 4000 to an object, such as a person. As shown in Figs. 84-86, coupler 4250 includes a strap 4252 that is attached to the coupling portion 4200 at one end and has a buckle portion 4254 attached to its opposite end. Similarly, coupler 4260 includes a strap 4262 that is attached to the coupling portion 4200 at one end and has a

buckle portion 4264 attached to its opposite end. In this implementation, strap 4262 includes an adjustment mechanism 4266 that can be manipulated by a user to adjust the length of strap 4262 and thereby allow the support structure 4000 to be mounted to different sized objects.

[0406] Referring to Figs. 85 and 86, the support structure 4000 includes a mounting portion 4300 as well. As discussed in greater detail below, mounting portion 4300 can be disposed in a collapsed configuration 4350 and in a deployed configuration 4352. A top view of the collapsed configuration 4350 is shown in Fig. 85 and a perspective view of the deployed configuration 4352 is shown in Fig. 86.

[0407] The mounting portion 4300 is coupled to or formed integrally with the coupling portion 4200. As shown in Figs. 84 and 85, the mounting portion 4300 is disposed behind the coupling portion 4200 when it is in its collapsed configuration 4350. As shown in Fig. 86, the mounting portion 4300 extends upwardly from the coupling portion 4200 when it is in its deployed configuration 4352. Referring to Fig. 86, the mounting portion 4300 extends between ends 4302 and 4304 and includes a front portion 4310. A notch 4360 is formed in the mounting portion 4300, similar to notches previously described for other embodiments of support structures.

[0408] Referring to Figs. 87 and 88, some exemplary elements of the support portion 4100 are illustrated. As shown in Figs. 87 and 88, the body 4110 of the support portion 4100 has a front portion or wall 4120, an upper portion or wall 4140, a lower portion or wall 4150, and a rear portion or wall 4170. In one embodiment, the coupling portion 4200 is the rear portion 4170 of the support portion 4100. The body 4110 also includes an inner wall 4122 that defines receptacles or areas 4130 and 4160 with some of the other walls. Openings 4124 and 4142 and closure mechanisms 4126 and 4144 are illustrated as well. It is to be understood that in different embodiments, the size and configuration of the body 4110 of the support

portion 4100 can vary in terms of the configuration and quantity of portions or walls, openings, and closure mechanisms.

[0409] Referring to Figs. 87 and 88, the deployed configuration 4352 and the collapsed configuration 4350 of the mounting portion 4300 of the support structure 4000 are illustrated, respectively. As shown in Fig. 87, the mounting portion 4300 includes a front portion 4310 that has an outer surface 4312 and an inner surface 4314. The mounting portion 4300 also includes a rear portion 4330 that has an outer surface 4332 and an inner surface 4334. The rear portion 4330 terminates at an end 4335. The inner surfaces 4314 and 4334 define an interior region 4350 therebetween that is in communication with an opening 4352. The notch 4360 is defined in part by edges 4336. The mounting portion 4300 is attached to the upper end 4174 of the rear wall 4170.

[0410] In its deployed configuration 4352 (as shown in Fig. 87), the mounting portion 4300 is configured so that it extends upwardly beyond the support portion 4100 and the coupling portion 4200. To move the mounting portion 4300 to its collapsed configuration, the mounting portion 4300 is moved along the direction of arrow “Q” in Fig. 87 toward the rear surface 4172 of the rear portion 4170. Referring to Fig. 88, the mounting portion 4300 has been moved along the direction of arrow “R” and is positioned such that rear portion 4330 is proximate to the rear surface 4172.

[0411] Referring to Figs. 89 and 90, two exemplary uses of the support structure 4000 are illustrated. In Fig. 89, the mounting portion 4300 is disposed in its deployed configuration 4352 and the support structure 4000 is in an overall deployed configuration 4010. In this configuration 4010, the support structure 4000 can be mounted onto a support, such as a tray. The tray can be inserted into the interior region 4350 of the mounting portion 4300. In one embodiment, the length of the mounting portion 4300 between ends 4302 and 4304 is such that the full width of the tray can be inserted into the interior region 4350. The notch 4360

provides access to the locking mechanism of the tray. As shown, the body 4110 including its front surface 4120 is oriented toward a passenger who is located behind the seat to which the support structure 4000 is mounted.

[0412] In Fig. 90, the mounting portion 4300 is disposed in its collapsed configuration 4350 and the support structure 4000 is in an alternative overall deployed configuration 4020. In this configuration, the support structure 4000 can be worn on a user. The mounting portion 4300 is folded down behind the coupling portion 4200, thereby reducing the overall height of the support structure 4000. The couplers 4250 and 4260 (not shown in Fig. 90) can be used to secure the support structure 4000 around the person, such as around the person's waist. The support structure 4000 can be oriented so that the front surface 4120 is located in a position desired by the wearer.

[0413] In one embodiment, the support structure 4000 can include a holder 4400 that can be releaseably mounted thereto. As shown in Fig. 90, the holder 4400 can be located proximate to the support structure 4000 and can be used to hold an object 4450, such as a liquid container. An exemplary embodiment of a holder according to the invention is illustrated in Fig. 91. Holder 4400 can include a body 4410 that defines a receptacle 4412 that has an opening 4414 at its top. The receptacle 4412 is bounded by a lower end 4416. An upper portion or piece of material 4420 is attached to the body 4410 and to a coupler 4430 that is configured to be coupled to a corresponding coupler on the support structure 4000.

[0414] An alternative embodiment of a support structure according to the present invention is illustrated in Figs. 92 and 93. In this embodiment, the support structure 5000 is shown generically as having a body 5010 with a front portion 5012. In various embodiments, the body 5010 and front portion 5012 can have any quantity of features and components similar to other support structures discussed herein. The body 5010 also includes opposite sides 5014 and 5016.

[0415] Attached to the body 5010 are mounting elements 5020 and 5030, which in this embodiment are elongate members, such as straps. The mounting elements or elongate members 5020 and 5030 can be referred to as loops or loop portions. Mounting element 5020 has ends 5022 and 5024 and defines an opening 5026. Similarly, mounting element 5030 has ends 5032 and 5034 and defines an opening 5036. Each of the ends 5022, 5024, 5032, and 5034 is attached to the body 5010.

[0416] Referring to Fig. 93, the support structure 5000 is shown mounted to a support 5040, such as a tray. In this implementation, the support or tray 5040 includes corners 5042 and 5044 that are inserted into the openings 5026 and 5036, respectively, and around which the mounting elements 5020 and 5030 extend. The mounting elements 5020 and 5030 facilitate the mounting of the support structure 5000 to the support 5040.

[0417] Referring to Figs. 94-98, an alternative embodiment of a support structure in accordance with the present invention is illustrated. Referring to Figs. 94 and 95, the support structure 5100 is illustrated in a closed configuration 5102. Support structure 5100 includes a body 5110 that has a top portion 5112, side portions 5114 and 5116, a front portion 5118, a rear portion 5120, and a bottom portion 5122.

[0418] Movably coupled to the body 5110 is a panel 5200 that has a front or outer side 5202 and a lower end 5203. The outer side 5202 includes several compartments in which items can be placed and stored. While in this embodiment, the outer side 5202 includes compartments 5204, 5206, and 5208, in other embodiments, any quantity of compartments may be provided with any type of configuration.

[0419] The panel 5200 is coupled to the body 5110 in a manner that allows the panel 5200 to be rotated along the direction of arrow "S" in Fig. 95 about a pivot axis 5160. The panel 5200 can be formed separately from the body 5100 and subsequently coupled thereto, such as by sewing. The panel 5200 is illustrated in a closed position 5250 in Fig. 95.

[0420] Referring to Figs. 96-98, different opened configurations of the support structure 5100 are illustrated. An intermediate configuration 5104 is shown in Fig. 96 and a full opened configuration 5106 is shown in Figs. 97 and 98.

[0421] Referring to Fig. 96, the panel 5200 is moved along the direction of arrow “T” to an intermediate position 5252. In this position, the outer side or surface 5202 and the inner side or surface 5210 of the panel are illustrated. The inner surface 5210 includes a pocket or receptacle 5212 in which items can be placed (receptacle 5212 is shown in and described below relative to Fig. 98 as well). The body 5110 includes a retaining portion or wall 5140 that is exposed to a user when the panel 5200 is moved. Objects can be placed inside the body 5110 along the direction of arrow “W” when the panel 5200 is moved away from the front portion 5118 of the body 5110.

[0422] Referring to Fig. 97, the panel 5200 has been moved along the direction of arrow “U” to a lowered or opened position 5254. In this position, the panel 5200 hangs downwardly from the body 5110. A user can insert objects into the pocket 5212 that is located on the inner surface 5210. Although not illustrated in Figs. 96 and 97, the outer surface 5202 includes compartments 5204, 5206, and 5208 (which are shown in Fig. 94).

[0423] Referring to Fig. 98, the various components of support structure 5100 are illustrated. The panel 5200 is illustrated as hanging downwardly from the lower end 5136 of the body 5110. As shown, movement of the panel 5200 from its closed position 5250 in Fig. 94 to its lowered, opened position 5254 in Figs. 97-98 results in the exposure of the internal components of the support structure 5100. The front portion 5118 of the body 5110 includes an edge 5130 that defines an opening 5132 that leads to a chamber or interior region 5150 that is defined by the various walls of the body 5110. A perimeter or perimeter portion 5134 is located around the opening 5132. A closure mechanism 5138, such as a zipper, is disposed

along several portions of the perimeter 5134. In this embodiment, the closure mechanism 5138 extends along three portions of the perimeter 5134.

[0424] The body 5110 includes a wall 5140 that extends across the opening 5132 and retains objects or items that have been disposed in the chamber 5150. In one embodiment, the wall 5140 may include mesh portions 5142 and 5144. In alternative embodiments, a different quantity of mesh portions or no mesh portions at all may be included. Thus, a user can insert objects such as toiletries, snacks, beverages, etc. in the chamber 5150.

[0425] In this embodiment, the inner side or surface 5210 of the panel 5200 includes several compartments 5212, 5214, 5216, and 5218 that are defined by separators 5220, 5222, and 5224. In other embodiments, the quantity and configurations of compartments can vary. As the panel 5200 hangs downwardly, the user can use compartments 5212, 5214, 5216, and 5218 to store items in addition to chamber 5150.

[0426] The panel 5200 also includes a perimeter or perimeter portion 5230 along which a closure mechanism 5240, such as a zipper, is located. The closure mechanism 5240 on the panel 5200 is configured to be coupled to the closure mechanism 5138 on the body 5110 to secure the panel 5200 in its closed position. When the user wants to access the chamber 5150 or use the additional compartments 5212, 5214, 5216, and 5218 on the inner side 5210 of the panel 5200, the user can decouple the closure mechanisms 5138 and 5240 and move the panel 5200 along the direction of arrow “V” in Fig. 98. When the user wants to close up the body 5110, the user can move the panel 5200 along the direction of arrow “X” in Fig. 98 and couple the closure mechanisms 5138 and 5240 together.

[0427] In different embodiments, the width of the panel 5200 and the corresponding opening 5132 in the front portion 5118 of the body 5110 can be less than the width of the body 5110. For example, in one embodiment, the width of the opening 5132 and the panel 5200 can be half of the width of the panel 5200.

[0428] In one embodiment, the panel 5200 can be made from a transparent material that allows a user to see into the chamber 5150. The chamber 5150 can be used for storage of items, such as small travel sizes of shampoo and conditioner. The support structure 5100 can be used on a support, such as a tray, or can be hung on a support, such as a door or other structure, and used as a toiletry bag.

[0429] An alternative embodiment of a support structure according to the present invention is illustrated in Fig. 99. In this embodiment, the support structure 5300 includes a body 5310 with a panel 5320 movably coupled thereto. The panel 5320 can be retained in a particular lowered position, such as position 5322, by one or more straps 5330. As shown, a strap 5330 can be located on one side and coupled, either removably or fixedly, at its ends 5332 and 5334 to the body 5310 and to the panel 5320, respectively.

[0430] An alternative embodiment of a support structure according to the present invention is illustrated Figs. 100-102. In this embodiment, the support structure 5400 can be selectively disposed in a closed configuration 5402 and in an expanded configuration 5404. The support structure 5400 can be placed in the expanded configuration 5404 so that it can accommodate and retain more items and objects.

[0431] Referring to Figs. 100 and 101, the support structure 5400 includes a body 5410 that has a first portion 5420 and a second portion 5440. The first portion 5420 includes several portions, including a top portion 5422 and a side portion 5424, an edge 5426 and a coupler 5428 disposed proximate to the edge 5426 (see Fig. 101). Similarly, the second portion 5440 includes several portions, including a top portion 5442 and a side portion 5444, an edge 5446 and a coupler 5448 disposed proximate to the edge 5446. The second portion 5440 includes a front surface or portion 5425 that can include one or more pockets, compartments, and/or storage areas.

[0432] The second portion 5440 is movable relative to the first portion 5420. For example, the support structure 5400 can be reconfigured from its collapsed configuration 5402 in Fig. 100 to its expanded configuration 5404 in Fig. 101 by moving the second portion 5440 along the direction of arrow “Y” in Fig. 101. Second portion 5440 can be moved in the reverse direction to reconfigure the support structure 5400 from its expanded configuration 5404 to its collapsed configuration 5402.

[0433] As illustrated in Figs. 101 and 102 (which is a partial cross-sectional view of some of the components), the support structure 5400 includes material 5450 that is coupled along each of its ends 5452 and 5454 to the first portion 5420 and the second portion 5440, respectively. As shown in Fig. 102, when couplers 5428 and 5448 are coupled to each other, a connection 5460 is made between the first portion 5420 and the second portion 5440 (see Fig. 100 as well). In that configuration, the width of the material 5450 is greater than the distance between the points at which the ends 5452 and 5454 are coupled. As a result, the excess material 5450 droops downwardly and an area or region 5462 is formed.

[0434] In one embodiment, the material 5450 can be dimensioned to enable the first portion 5420 and the second portion 5440 to move apart by approximately three inches. In another embodiment, the size of the material 5450 can change, thereby varying the extent to which the first portion 5420 and the second portion 5440 can move apart.

[0435] Referring to Fig. 101, in one embodiment, the support structure 5400 may include couplers 5470 and 5480 attached thereto. The couplers 5470 and 5480 can be used to support or hang the support structure 5400 from a support, such as a bar. Each of the couplers 5470 and 5480 is movable between a stored position and a deployed position. For example, coupler 5470 can have a hook shape and be coupled to a base 5472 that is attached to (such as by sewing). The coupler 5470 can pivot along the direction of arrow “Z” from a lowered, stored position 5474 to an upper, raised position 5476 (shown in dashed lines). The coupler

5470 can be moved in the opposite direction when desired. When the coupler 5470 is disposed in its lowered position 5474, the coupler 5470 can be located in the chamber 5462 and thus, not extending outwardly, thereby reducing the likelihood that the coupler 5470 will snag or catch on any other object.

[0436] Similarly, coupler 5480 can have a hook shape and be coupled to a base 5482. The coupler 5480 can pivot along the direction of arrow “AA” from a stored position 5484 to a raised position 5486 as well as move in the opposite direction. Like coupler 5470, coupler 5480 can be positioned in the chamber 5462 when the first portion 5420 is connected to the second portion 5440 in the collapsed configuration 5402 shown in Fig. 100.

[0437] In different embodiments, the quantity and the configurations of couplers can vary. In addition, the location of any couplers on the body of the support structure can change. Moreover, the couplers 5428 and 5448, that are zippers in this embodiment, can be replaced with other types of couplers, such as snaps, buttons, magnets, hook and loop materials, etc.

[0438] In one embodiment, the material 5450 can extend continuously around all four sides (the top, bottom, and the sides) of the support structure 5400. In an alternative embodiment, the material 5450 can extend along the two sides and the bottom of the support structure 5400, but not along the top. As a result, a user would be able to insert into and remove the user's hand from the interior of the body 5410 to place or withdraw objects from the interior. In such an embodiment, the couplers 5470 and 5480 can still be used to hang the support structure 5400 from a support.

[0439] An alternative embodiment of a support structure is illustrated in Figs. 103-105. As shown in Figs. 103 and 105, support structure 5500 has a body 5510 with a top portion 5512, a bottom portion 5514, a rear portion 5516, a side portion 5518, and a front portion 5520. The body 5510 also includes a notch 5515 proximate to the top portion 5512. Various compartments or pockets, such as compartments 5522, 5524, 5526, 5528, 5530, 5532, and

5534, can be included on the front portion 5520. In different embodiments, any combination of compartments of varying sizes and types may be included.

[0440] In this embodiment, the support structure 5500 includes several couplers, such as buckles attached to the front portion 5520. As shown in Fig. 103, upper buckles 5540 and 5542 are connected to the front portion 5520 via straps 5541 and 5543. Similarly, lower buckles 5550 and 5552 are connected to the front portion 5520 via straps 5551 and 5553. The length of the straps 5541, 5543, 5551, and 5553 can vary and the buckles can be either male or female type in construction.

[0441] Referring to Fig. 104, an embodiment of a platform that is configured to be used with support structure 5500 is illustrated. As shown, the platform 5560 includes an upper surface 5562 on which an electronic device, such as a DVD player or other media device, can be placed. The platform 5560 includes sides 5564 and 5566 and a rear portion 5568.

[0442] Coupled to the platform 5560 are elongate members 5570 and 5580. Each of the elongate members 5570 and 5580 may include an adjustment mechanism that can be manipulated by a user to vary the length of the elongate members. The elongate members can be straps or other similar structures. Elongate members 5570 and 5580 have ends 5572 and 5582, respectively, that are coupled to the platform 5560. The opposite ends 5574 and 5584 of the elongate members 5570 and 5580 have couplers, such as buckles, 5576 and 5586 connected thereto. The buckles 5576 and 5586 are configured to be coupled to upper buckles 5540 and 5542, respectively, on the body 5510 (see buckle 5586 and buckle 5542 in Fig. 105).

[0443] As shown in Fig. 104, couplers or buckles 5590 and 5592 are also connected to the platform. Buckles 5590 and 5592 are configured to be engaged with lower buckles 5550 and 5552 on body 5510 (see buckle 5592 and buckle 5552 in Fig. 105). When the pair of buckles are coupled to each other, the platform 5560 is supported from the body 5510 of the support

structure 5500. The angle between the platform 5560 and the body 5510 can be varied by adjusting the length of the elongate members 5570 and 5580. Referring to Fig. 105, platform 5560 is illustrated substantially perpendicular to the front surface of the body 5510.

[0444] Referring to Fig. 106, an alternative embodiment of a support structure according to the present invention is illustrated. In this embodiment, the support structure 5600 includes a body 5610 with a front portion 5612 and a top portion 5614. The body 5610 can include a notch 5620 that is substantially similar to the notches identified in the prior embodiments of support structures disclosed above. The support structure 5600 is illustrated proximate to a support 5750, such as a tray. As shown, the support structure 5600 may have a width “W1” that is less than the width “W2” of the support 5750. Accordingly, the support structure 5600 does not have a sufficient width dimension for the full width of the support 5750 to slide therein to mount the support structure 5600 to the support 5750.

[0445] Referring to Fig. 107, the support structure 5600 includes mounting elements 5640 and 5660 that can be used to mount the support structure 5600 to a support 5750 that has a width dimension that is greater than the support structure 5600. In this embodiment, the mounting elements 5640 and 5660 are movable relative to the body 5610. For example, the mounting elements 5640 and 5660 may extend outwardly from the sides of the body 5610 in extended or deployed positions 5644 and 5664. In the deployed positions 5644 and 5664, the mounting elements 5640 and 5660 can be disposed to catch the upper corners of the support 5750 to hang the support structure 5600 on the support 5750.

[0446] When the mounting elements 5640 and 5660 are not needed, the mounting elements 5640 and 5660 can be moved within the profile or outer perimeter of the body 5610 so they do not interfere with or catch on a separate object or item. As shown in Fig. 107, the mounting elements 5640 and 5660 can be moved to retracted or stored positions 5642 and 5662, which are shown in dashed lines. In various embodiments, the manner in which the

mounting elements 5640 and 5660 move between their deployed positions and their retracted positions can vary.

[0447] Referring to Fig. 108, the support structure 5600 is illustrated as being mounted on the support 5750. As shown, mounting elements 5640 and 5660 extend outwardly from the body 5610 and are oriented to catch or receive parts of the upper corners of the support 5750.

[0448] Fig. 109 illustrates a partial cross-sectional view of the interaction between a mounting element and part of a support. In particular, the mounting element 5660 has received part of the support 5750 therein. Referring to Figs. 109 and 110, in this embodiment, the mounting element 5660 includes a top portion 5666, side portions 5672 and 5674, a lower end 5668, and an end portion 5678 (see Fig. 110). The lower end 5668 has an opening 5670 that is in communication with a receptacle or receiving area 5676 that is formed by the different portions of the mounting element 5660. The receptacle 5676 is configured to receive part of the support 5750.

[0449] Referring to Figs. 111-116, the support structure 5600 is illustrated with different embodiments of mounting elements. In each embodiment, the basic components of the support structure 5600 remain the same (such as the body 5610, the top portion 5614, the side portions 5616 and 5618, the notch 5620, and the rear portion or surface 5622), and the manner in which the mounting elements move and are structured changes. While several of the mounting elements are disclosed below as being coupled to the rear surface or portion of the body 5610, in different embodiments, the mounting elements can be coupled to the side portions of the body 5610.

[0450] Referring to Fig. 111, the support structure 5600 includes two mounting elements 5680 and 5690. The mounting elements 5680 and 5690 are movably coupled to the rear surface 5622. Mounting element 5680 is selectively disposable in a retracted position 5682 and in an extended position 5684 (shown in dashed lines). The mounting element 5680 can

be moved from its retracted position 5682 to its extended position 5684 along the direction of arrow "AB." The mounting element 5680 can be moved from its extended position 5684 to its retracted position 5682 by moving in the opposite direction. Similarly, mounting element 5690 is selectively disposable in a retracted position 5692 and in an extended position 5694 (shown in dashed lines). The mounting element 5690 can be moved from its retracted position 5692 to its extended position 5694 along the direction of arrow "AC." Mounting element 5690 can be moved in the opposite direction if desired as well. Thus, for this embodiment, mounting elements 5680 and 5690 are pivotally coupled to the rear portion 5622 and can be pivoted or rotated between their positions.

[0451] Referring to Fig. 112, the support structure 5600 includes two mounting elements 5700 and 5720. The mounting elements 5700 and 5720 are movably coupled to the rear surface 5622. Mounting element 5700 is selectively disposable in a retracted position 5702 and in an extended position 5704 (shown in dashed lines). The mounting element 5700 can be moved from its retracted position 5702 to its extended position 5704 along the direction of arrow "AD." The mounting element 5700 can be moved from its extended position 5704 to its retracted position 5702 by moving in the opposite direction. Similarly, mounting element 5710 is selectively disposable in a retracted position 5712 and in an extended position 5714 (shown in dashed lines). The mounting element 5710 can be moved from its retracted position 5712 to its extended position 5714 along the direction of arrow "AE." Mounting element 5710 can be moved in the opposite direction if desired as well. Thus, for this embodiment, mounting elements 5700 and 5710 are slidably coupled to the rear portion 5622 or body 5610 and can be slid between their positions.

[0452] Referring to Figs. 113 and 114, the support structure 5600 includes two mounting elements 5720 and 5730. In this embodiment, the mounting elements 5720 and 5730 are detachably or removably coupled to the rear surface 5622. In other embodiments, the

mounting elements 5720 and 5730 can be removably coupled to the body 5610 at other locations.

[0453] As shown in Fig. 113, mounting element 5720 includes a coupler 5722 that is configured to cooperate with a coupler 5725 on the rear surface 5622 of the body 5610. Similarly, mounting element 5730 includes a coupler 5732 that is configured to cooperate with a coupler 5735 on the rear surface 5622 of the body 5610. When the couplers engage each other, the mounting elements 5720 and 5740 are mounted to the body 5610 as shown in Fig. 114. In one embodiment, the couplers 5722, 5732, 5725, and 5735 can be cooperating pieces of hook and loop-type materials. Alternatively, the couplers can be magnets, snaps, buckles, buttons, or other similar elements. The removability of the mounting elements allows the mounting elements to be separated from the body 5610 of the support structure 5600 as desired by a user.

[0454] Referring to Figs. 115 and 116, another embodiment of a support structure according to the present invention is illustrated. As shown in Fig. 115, the body 5610 includes two receptacles or cavities 5624 and 5626 that are formed with open ends on opposite sides of the body 5610. Referring to Fig. 116, receptacle 5624 is illustrated with an open end 5627 that is formed in side portion 5616.

[0455] Referring back to Fig. 115, mounting elements 5740 and 5750 are movably mounted in receptacles 5624 and 5626, respectively. Mounting elements 5740 and 5750 can be moved along the directions of arrows “AF” and “AG,” respectively, from their retracted positions (in which they are disposed within the receptacles 5624 and 5626) to their extended positions 5741 and 5751, respectively, as shown. The mounting elements 5740 and 5750 can be moved their retracted positions from their extended positions as desired.

[0456] Referring to Fig. 116, in one embodiment, the mounting element 5740 may have a mechanism that limits the extent to which the mounting element 5740 moves relative to and

extends from the side of the body 5610. Mounting element 5760 may have a similar structure and is not discussed at this point for reasons of simplicity only. As shown, mounting element 5740 may include a projection 5742 that extends therefrom on both sides or in the alternative, on one side. The projection 5742 extends such that its ends are received in receptacles 5625A and 5625B which limit the length of travel of the mounting element 5760 along the directions of arrow "AH" and "AI." Projection 5742 also prevents the mounting element 5760 from completely moving through the opening 5627 and separating from the body 5610.

[0457] Referring to Fig. 117, an alternative embodiment of a support structure according to the present invention is illustrated. In this embodiment, the support structure 5800 includes a body 5810, a front portion 5812, a top portion 5814, a side portion 5818, and a rear portion 5822. A mounting element 5830 is illustrated proximate to the rear portion 5822. Support structure 5800 includes a cover 5850 that is disposed proximate to the rear portion 5822 and that is configured to cover the mounting element 5830 so that the mounting element 5830 is not exposed or visible when not in use. In one implementation, the cover 5850 can include a top end 5852 and a bottom end 5854. The top end 5852 and the bottom end 5854 can be detachably coupled to the rear surface 5822 using couplers 5862 and 5864, respectively.

[0458] Referring to Fig. 118, a rear perspective view of the support structure 5800 is illustrated. As shown, the body 5610 includes a side portion 5816 and a notch 5820. The cover 5850 extends between sides 5856 and 5858 and is configured to cover mounting element 5830 and mounting element 5840 as shown.

[0459] Referring to Fig. 119, a partial exploded perspective view of the cover 5850 and the body 5810 is illustrated. As shown, the cover 5850 can include a coupler 5866, such as a hook or loop-type material, disposed on a surface. The rear portion 5822 of the body 5810 can include a coupler 5824 that is configured to be engaged with the coupler 5866 on the

cover 5850. In various embodiments, the types of couplers 5824 and 5866 can vary. In addition, the locations of the couplers 5824 and 5866 can vary.

[0460] As mentioned above, the cover 5850 can be used to hide the mounting elements until they are needed. The cover can be attached in any number of ways, including a zipper, hook and loop-type materials, part of the structural construction of the support structure, etc. In different embodiments, the manner in which the cover is attached to the body of the support structure can vary.

[0461] In one embodiment, the cover can be secured at the top of the rear portion of the body above the notched area to allow the cover to be unsecured on the bottom or sides and thereby facilitate movement of the mounting elements outwardly to the sides. Alternatively, the cover can be secured on its sides and can have an alternate opening through which the mounting elements can move. In another embodiment, the cover can be completely removed from the body of the support structure, thereby exposing the mounting elements. Finally, the cover can remain secured on any of the four sides of the cover and can retract, such as by folding away or rolling up, to allow exposure of the mounting elements.

[0462] In yet another embodiment, the mounting elements on a support structure body can be fixed in place and not moveable relative to the body. For example, the mounting elements can be coupled to the body of a support structure in their extended positions and simply not moveable or retractable to any retracted positions. In one embodiment, the mounting elements are fixed in positions within the profile of the body of the support structure and do not extend beyond the sides of the body.

[0463] Referring to Figs. 120 and 121, an alternative embodiment of a support structure according to the present invention is illustrated. Support structure 6000 includes a body 6010 with a front portion 6012, a top portion 6014 having a notch 6016, side portions 6018 and 6020, a bottom portion 6022, and a rear portion 6024. In this embodiment, the support

structure 6000 includes a mounting element 6050 that extends the width of the body 6010. The mounting element 6050 is coupled to the rear portion 6024 of the body 6010. In one embodiment, the mounting element 6050 is fixedly coupled to the rear portion 6024 such as by sewing, stitching or an adhesive. In other embodiments, the mounting element 6050 can be removably coupled to the rear portion 6024 using couplers that allow the mounting element 6050 and the body 6010 to be easily detached from each other.

[0464] As shown, the mounting element 6050 has opposite ends 6052 and 6054 that extend beyond the side portions 6018 and 6020 of the body 6010. In other words, the length of the mounting element 6050 is greater than the width of the body 6010. The extent to which the ends 6052 and 6054 project beyond the side portions 6018 and 6020 determines the range of widths of supports with which the support structure 6000 can be used.

[0465] As shown in Fig. 121, the mounting element 6050 includes a top portion 6060, a rear portion 6062, and a front portion 6064. The portions 6060, 6062, and 6064 collectively define an interior region or receptacle 6066 into which part of a support, such as an edge of tray, can be inserted through an opening 6068. The mounting element 6050 is configured so that the entire top edge of a support, such as a tray, can be received in the receptacle 6066, thereby providing continuous mounting support along the width of the support structure 6000.

[0466] When the mounting element 6050 is not being used to mount the support structure 6000 to a support, the ends 6052 and 6054 can be folded toward each other and placed within the profile of the body 6010, thereby not overhanging any of the sides or edges of the body 6010. The ends 6052 and 6054 can be retained in their retraced positions by a fastener or other device (not shown). In different embodiments, the receptacle 6066 of the mounting element 6050 can vary in size.

[0467] Referring to Fig. 122, an alternative embodiment of a support structure in combination with a pillow is illustrated. In this embodiment, the support structure 6200 includes opposite side portions (only side portion 6210 is illustrated) that each has a pocket or compartment (only compartment 6212 is illustrated). Each compartment can be made of a mesh and elastic material. The bottom side 6220 of the support structure 6200 is open so that the support structure 6200 can be mounted on a support, such as a headrest. The support structure 6200 can be referred to as a pillow support.

[0468] The support structure 6200 includes a panel 6230 to which several couplers, such as buckles, are attached. In this embodiment, couplers 6240 and 6250 are located proximate to the upper corners of the panel 6230. In addition, couplers 6245 and 6255 are connected to straps 6242 and 6252 which are attached to the panel 6230. In one embodiment, the straps 6242 and 6252 can be adjusted so that the position of the couplers 6245 and 6255 can be moved.

[0469] In one implementation, a pillow or support 6300 can be supported by the support structure 6200. Pillow 6300 can have a contact surface 6310 that a user can contact. As shown in Fig. 123, the pillow 6300 can have a rear surface 6320 to which mounts 6332 and 6342 are attached. Couplers 6330 and 6340, such as buckles, are connected to the mounts 6332 and 6342, respectively. In one embodiment, the mounts 6332 and 6342 are configured to allow for the pivoting or rotating of the couplers 6330 and 6340. Such movement of the couplers 6330 and 6340 allows for the pillow 6300 to have a desired orientation. In addition, the location of the pillow 6300 can be varied by moving the couplers 6245 and 6255 by adjusting straps 6242 and 6252. Accordingly, adequate and comfortable neck positioning can be achieved by adjusting the position of the pillow 6300.

[0470] For example, the pillow 6300 can be positioned proximate to panel 6230 so that the couplers 6330 and 6340 can be connected to couplers 6245 and 6255, respectively.

Alternatively, the pillow 6300 can be rotated to a more vertical orientation and one of the couplers 6330 and 6340 can be connected to one of the couplers 6240 and 6250. Such a connection would support the pillow 6300 in a generally vertical orientation, and thereby provide a different contact and support to the user. For example, the vertical orientation would be beneficial for a user that wants to lean against a window or person.

[0471] The pillow support and pillow can be rolled up into a self-contained storage or tote bag that may have a shoulder strap coupled thereto. Exemplary pillows may be filled fabric or inflatable. In one embodiment, the pillow may have a gel filled center section and polystyrene filled ends. The ends can be sloped at 45 degree angles and the top to bottom transition can be at a 45 degree angle to allow the user's head to tilt back naturally.

[0472] An alternate mode of support for a pillow is illustrated in Fig. 124. Sometimes it is difficult to identify a comfortable sleeping position. In this mode of support, a pillow 6450 is positioned in front of a passenger so that the passenger can lean forward and comfortably rest his or her head on the pillow 6450. As shown in Fig. 124, a support structure 6400 can be mounted to a support 6510, such as a tray for a vehicle seat 6500. In this embodiment, the support structure 6400 includes couplers 6410 and 6420, such as buckles or clips. A pillow 6450 may include couplers 6460 and 6470, such as buckles or clips, as well. In one implementation, the pillow couplers 6460 and 6470 can be directly attached to the couplers 6410 and 6420. Alternatively, as shown in Fig. 124, additional connectors 6412 and 6422 can be attached to the pairs of couplers on the support structure 6400 and the pillow 6450. The connectors 6412 and 6422 can be elongate members, such as straps or links, that can be adjustable in length to allow a user to vary the position of the pillow 6450 as desired. In different embodiments, the quantity and locations of the couplers on the support structure and on the pillow can vary.

[0473] An alternative embodiment of a support structure according to the present invention is illustrated in Figs. 125-133. Front and rear perspective views of the support structure 7000 are illustrated in Figs. 125 and 126, respectively. A side view of the support structure 7000 is illustrated in Fig. 127. In addition, views of the support structure 7000 in use are illustrated in Figs. 132-133.

[0474] Referring to Figs. 125-127, the support structure 7000 includes a body 7010 with a top portion 7020, a front portion 7030, a rear portion 7040, opposite side portions 7060 and 7070, and a lower end 7080. As shown in Figs. 125 and 126, the rear portion 7040 of the body 7010 has an opening 7046 formed therethrough. The opening 7046 is defined by an edge 7048. The opening 7046 extends through the rear portion 7040 and into the interior region of the body 7010 as described below.

[0475] In this embodiment, the support structure 7000 includes two mounting elements 7200 and 7300 that extend beyond the perimeter of the body 7010. As shown in Fig. 126, mounting elements 7200 and 7300 can be disposed either in extended positions 7210 and 7310 or in retracted positions 7220 and 7320 (shown in dashed lines). In the extended positions 7210 and 7310, the mounting elements 7200 and 7300 can be used to mount the support structure 7000 to a support, such as a tray, in a manner similar to the previous embodiments described above. In an alternative embodiment, the mounting elements 7200 and 7300 can be replaced by a single mounting element that extends along the full width of the body 7010.

[0476] Referring to Fig. 128, the support structure 7000 can include a flap or panel 7100 that is disposable next to the opening 7046 formed in the rear portion 7040. In one embodiment, the opening 7046 and the panel 7100 have substantially rectangular shapes. In other embodiments, the opening 7046 and the panel 7100 may have other shapes, such as that of a

square, a circle, an oval, or other shape. Flap 7100 has sides 7102, 7104, 7106, and 7108 as shown.

[0477] Referring to Fig. 129, a partial cross-sectional side view of part of the support structure 7000 is illustrated. As shown, the top portion 7020, the front portion 7030, and the rear portion 7040 collectively define an interior region or receptacle 7090 therebetween. The opening 7046 that is formed in the rear portion 7040 extends from the outer surface 7042 to the inner surface 7044. The panel 7100 can be movably mounted to the rear portion 7040, such as by a pivoting connection. In one embodiment, the panel 7100 can be formed integrally with the rear portion 7040. In other embodiments, the panel 7100 can be formed separately from the rear portion 7040 and subsequently coupled thereto.

[0478] The panel 7100 can be placed or disposed in a closed position 7112 (shown in Fig. 129 in dashed lines) in which the panel 7100 covers or closes the opening 7046. The panel 7100 can be moved by a user along the direction of arrow "AL" to an opened position 7110. The panel 7100 can be moved in the opposite direction to its closed position as well. A user can insert a hand into the interior region 7090 to move the panel 7100 as desired.

[0479] Referring to Figs. 130 and 131, some of the internal components of the support structure 7000 illustrated in Fig. 127 are shown. In both Figs. 130 and 131, the support structure 7000 is illustrated with the front portion 7030 removed and the side portions 7060 and 7070 and the top portion 7020 shown in cross-section. Referring to Fig. 130, the panel 7100 is shown in its closed position 7112 relative to the opening 7046 formed in the rear surface 7044 of the rear portion 7040. A closure mechanism 7050, such as a zipper or a combination of hook or loop-type material, can be disposed around the perimeter of the opening 7046. Similarly, a corresponding mechanism 7051 can be disposed along part of the perimeter of the flap 7100. The flap 7100 can be secured to the rear portion 7040 to close the

opening 7046 by engaging the closure mechanism 7050 and the closure mechanism 7051 disposed on the flap 7100.

[0480] To open the flap 7100 and access the opening 7046, the closure mechanisms 7050 and 7051 are disengaged from each other and the flap 7100 moved about edge 7108 which is coupled to the rear portion 7040. The flap 7100 can be moved to its opened position 7110 (see Fig. 131) and the opening 7046 can be accessed. When desired, the flap 7100 can be returned to its closed position 7112.

[0481] Referring to Figs. 132 and 133, the purpose and function of the opening 7046 is illustrated and described. Referring to Fig. 132, the support structure 7000 is shown mounted to a support 7400, which can be a tray on a vehicle, such as an airplane. The support or tray 7400 can have a front surface 7410 that faces a passenger, opposite side edges or ends 7420 and 7430, and a top edge 7435. In this implementation, the width of the support 7400 from end 7420 to end 7430 is greater than the width of the support structure 7000. Accordingly, mounting elements 7200 and 7300 are used to accommodate the wider support 7400. As shown, each of the mounting elements 7200 and 7300 extends beyond a side portion 7070 and 7060 and has a receptacle 7230 and 7330, respectively, that is configured to receive a portion of the support 7400.

[0482] To mount the support structure 7000 on the tray 7400, the user lowers the tray 7400 and slides the support structure 7000 onto the tray 7400 by inserting the top edge 7435 of the tray 7400 into the receptacles 7230 and 7330 of the mounting elements 7200 and 7300, respectively. The support 7400 can then be moved to its locked or upright position, which can be next to a seat, such as an airline seat 7440 (a portion of which is shown in Fig. 133). Typically, a locking mechanism is used to retain the support 7400 in its locked position. In Fig. 133, the locking mechanism 7450 is mounted to the seat 7440 and includes a rotatably mounted post 7452 with a catch 7454. The post 7452 can be rotated so that the catch 7454 is

movable from its unlocked position 7462 (shown in dashed lines in Fig. 132) to its locked position 7460. In its locked position 7460, the catch 7454 is disposed on the front side of surface 7410 of the tray 7400, thereby preventing movement of the tray 7400. To unlock and move the tray 7400, the catch 7454 can be rotated in the opposite direction to its unlocked position 7462.

[0483] As shown in Fig. 132, when the flap 7100 is moved to its opened position, a user can access the catch 7454 via the interior region 7090 and move the catch 7454 as desired. For example, once the support structure 7000 is slid onto the tray 7400, the user can reach into the body 7010 can grasp the catch 7454. Depending on the desired position of the catch 7454, the user can then move the catch 7454 accordingly.

[0484] In different embodiments according to the invention, the size and configuration of the opening 7046 formed in the rear portion 7040 of the support structure 7000 can vary. In addition, the extent to which the closure mechanism extends around the opening and the flap associated with the opening can vary. In other embodiments, the quantity and locations of the mounting elements 7200 and 7300 can vary. The opening 7046 can be located anywhere along the rear portion 7040 so that the height to which the upper end of the support structure 7000 extends can vary. Thus, the rear fabric of the support structure 7000 extends upwardly beyond the top edge of the tray when the mounting elements 7200 and 7300 are used.

[0485] An alternative embodiment of a support structure in accordance with an aspect of the invention is illustrated in Figs. 134-137. In this embodiment, the support structure 7600 includes a body or body portion 7610 with a perimeter 7626. While body 7610 is illustrated in Fig. 134 as having a substantially rectangular shape, the body 7610 can have various shapes and configurations in different embodiments. The body 7610 is a substantially planar piece of material. In one implementation, the body 7610 may be formed by a single layer. In another implementation, the body 7610 may include two layers that are coupled together.

The two layers can be coupled together along a portion or all of their perimeters by stitching or an adhesive.

[0486] Referring to Figs. 134 and 135, the body 7610 includes a top edge 7612, a bottom edge 7614 and side edges 7616 and 7618. The shapes and lengths of the edges 7612, 7614, 7616, and 7618 can vary in different embodiments. The body 7610 also includes a front surface or portion 7620 that is configured to be oriented toward or accessible by a user when the support structure 7600 is in use. The body 7610 has a rear surface or portion 7622 that is opposite to the front surface 7620 as shown in Figs. 135 and 136.

[0487] In one embodiment, the body 7610 can be formed of a nylon material. In other embodiments, the body 7610 can be formed of other materials, such as natural or synthetic materials. As shown in Fig. 137, the body 7610 can include a stitching 7624 that is proximate to the edges of the body 7610. The stitching 7624 can be used to prevent or limit the fraying of the material of the body 7610 along the edges.

[0488] Referring to Figs. 134-136, body 7610 includes a storage area 7630 that is configured to store objects. The storage area 7630 includes a material panel 7640 that is coupled to the front surface 7620 by stitching or other coupling technique or mechanism. In this embodiment, the storage area 7630 includes several compartments or pockets 7660, 7662, 7664, and 7666 (as shown in the top view of Fig. 136). The panel 7640 is divided into the compartments by stitching 7646, 7648, and 7650 (see Fig. 134). In this embodiment, the upper end 7642 of the panel 7640 includes a binding 7644 therealong to prevent the fraying or separating of the material of the panel 7640.

[0489] In different embodiments of the support structure, the quantity of compartments formed in the storage area can vary. For example, a single compartment may be formed on the support structure. In addition, while panel 7640 is illustrated as a mesh panel, other types of material, such as nylon or cotton, can be used as the material for the panel 7640.

Moreover, some or all of the compartments for a support structure may include a closure mechanism associated therewith, such as a snap, a zipper, a buckle, a magnet, hook and loop-type materials, etc., that can be used to secure contents in a particular compartment.

[0490] Referring to Figs. 138 and 139, an alternative embodiment of a support structure in accordance with the present invention is illustrated. In this embodiment, the support structure 7700 includes a body 7710 with a perimeter 7712. While body 7710 is illustrated as being substantially rectangular, in different embodiments, the shape and configuration of the body 7710 can vary. Body 7710 includes a front surface or support portion 7720 and an opposite rear surface or portion 7722.

[0491] Body 7710 includes a storage area 7730 proximate to the front surface 7720. Storage area 7730 includes three compartments 7732, 7734, and 7736 that are configured to retain or hold various objects. The quantity and shapes of the compartments can vary in different embodiments.

[0492] Body 7710 has an outer edge 7714 that defines the perimeter 7712 of the body 7710. In this embodiment, the support structure 7700 includes a binding 7740 that extends around the perimeter 7712 of the body 7710 and covers the edge 7714 to prevent the fraying of the material of the body 7710, which can be a nylon material or other material. The binding 7740 can be secured in place by stitching 7742 and/or an adhesive material.

[0493] In Fig. 138, the support structure 7700 is illustrated in a deployed or opened configuration 7750. In this configuration 7750, the front surface or support portion 7720 of the body 7710 is exposed and positioned so that it is accessible by a user. The support structure 7700 can be collapsed into various collapsed configurations. The collapsing can be achieved by folding, rolling, crushing, mashing, or otherwise moving the perimeter (as shown by the binding 7740) of the body 7710 inwardly toward other parts of the body 7710. The

support structure 7600 illustrated in Figs. 134-137 can be collapsed and deployed in the same manners as described herein for support structure 7700.

[0494] Referring to Fig. 140, the support structure 7700 is illustrated in a collapsed configuration 7752 in which it has been folded. In one example, the binding 7740 can be oriented so that it is all at one side. The collapsed configuration 7752 results in a compact size which facilitates storage and transportation. Referring to Fig. 141, the support structure 7700 is illustrated in a collapsed configuration 7754 in which it has been collapsed. In Fig. 141, the binding 7740 is oriented in various directions and is not uniformly arranged. While in the collapsed configurations 7752 and 7754, the support structure 7700 can be placed into a pocket, a receptacle or a compartment and subsequently removed and opened up to the deployed configuration 7750 (see Fig. 138) and used. As mentioned above, support structure 7600 can be collapsed and deployed in the same manner as support structure 7700.

[0495] Referring to Figs. 142-145, an alternative embodiment of a support structure in accordance with an aspect of the invention is illustrated. In this embodiment, the support structure 7800 includes a body 7810 with a perimeter 7812 and that can be disposed in a deployed configuration 7802. The body 7810 has a binding 7814 that is coupled to the body 7810 by stitching 7816 (see Fig. 144). In an alternative embodiment, the binding 7814 can be coupled to the body 7810 by an adhesive or other coupling technique or mechanism. The body 7810 can include a front surface 7820 and a rear surface 7822. The body 7810 has an edge 7824 that extends around the perimeter 7812 and an upper end 7826 and a lower end 7828.

[0496] In this embodiment, the mounting components 7830 and 7832 are panels 7840 and 7850 that are coupled to the body 7810. The panels 7840 and 7850 can have various shapes and configurations. In this embodiment, the panels 7840 and 7850 are generally triangular.

Referring to Fig. 145, the panel 7840 includes a lower edge 7842, an upper edge 7844, and an outer surface 7846.

[0497] Referring to Fig. 142, the panels 7840 and 7850 are coupled to the body 7810 proximate to the upper end 7826 of the body 7810. In particular, each of the panels 7840 and 7850 is coupled near one of the upper corners of the body 7810. Each of the panels 7840 and 7850 is configured to capture a portion of a support, such as a tray, between the panel and the rear surface 7822 of the body 7810.

[0498] Referring to Fig. 144, a cross-sectional view of a panel 7850 and the body 7810 is illustrated. As shown, the upper end or edge 7852 is disposed proximate to the edge 7824 of the body 7810. In this embodiment, the edges 7852 and 7824 are captured or encompassed by the binding 7814 which is coupled to the panel 7850 and the body 7810 by stitching. The panel 7850 includes an outer surface 7856 and an inner surface 7858. The inner surface 7858 of the panel 7850 and the rear surface 7822 of the body 7810 collectively form a receptacle 7860 therebetween into which a portion of a support, such as a tray or a chair, can be inserted. When the support is inserted into the receptacles defined by the mounting components 7830 and 7832, the support structure 7800 is supported by the support.

[0499] In an alternative embodiment, the support structure with which the mounting components 7830 and 7832 can be used does not have a binding around its perimeter. In other words, the mounting components 7830 and 7832 can be coupled to the body 7610 of support structure 7600 (Figs. 134-137) which does not include a binding around an edge or the perimeter of the body 7610.

[0500] Referring to Figs. 146-147, an alternative embodiment of a support structure in accordance with the present invention is illustrated. In this embodiment, the support structure 7900 includes a body 7910 that can be a single layer of material. In one embodiment, the body 7910 can be a planar or substantially planar layer of material. In other embodiments,

the body 7910 can have a configuration other than a planar or substantially planar configuration. In one embodiment, the body 7910 can have a substantially rectangular shape or configuration. In other embodiments, the body 7910 can have a different shape or configuration. The body 7910 includes an edge 7912 that extends around the body 7910. In addition, the body 7910 has a front surface or portion 7920 and a rear surface or portion 7922. The body 7910 has a width dimension that extends from side 7924 to side 7926. The body 7910 includes a notch 7924 formed along its upper end. The notch 7924 facilitates access by a user to the locking mechanism that is used with a support on which the support structure 7900 is mounted in a manner similar to previously described locking mechanisms.

[0501] Support structure 7900 includes a mounting component 7930, which in this embodiment, extends from one side of the body 7910 to the opposite side of the body 7910. The mounting component 7930 is a panel or layer of material 7940. The panel 7940 has an upper end 7942, a lower end 7944, an outer surface 7946, and an inner surface 7948. The upper end 7942 of the panel 7940 is coupled to the body 7910 by binding 7914 and a connector 7916, such as stitching. The panel 7940 and the body 7910 define a receptacle 7950 therebetween that is configured to receive part of a support. An opening or passageway 7952 can be formed between the panel 7940 and the body 7910 to allow for a portion of the support, such as a tray, to extend proximate to the upper end of the support structure 7900. As a result, a locking mechanism can be engaged with the support to retain the support in a locked or upright position, and thereby hold the support structure 7900 in a particular position or orientation. The width of the support with which the support structure 7900 can be used can vary because the panel 7940 extends along the width of the body 7910 of the support structure 7900. In other words, support structure 7900 can be used with a support having width slightly less than the width of the body 7910 as well as a support having width substantially less than the width of the body 7910.

[0502] Referring to Figs. 148-152, an alternative embodiment of a support structure in accordance with an aspect of the invention is illustrated. In this embodiment, the support structure 8000 includes a body 8010 with a perimeter 8012 having a binding material 8014 disposed therealong (see Fig. 148). The body 8010 includes an upper end 8016, a lower end 8018, a front surface or portion 8020 and a rear surface or portion 8022 (see Fig. 149).

[0503] Proximate to an upper end 8016 is a mounting mechanism 7025 which includes mounting components 7030 and 7032. In this embodiment, the mounting components 7030 and 7032 are elongate members 7040 and 7050, respectively. The elongate members 7040 and 7050 can be made of a stretchable, resilient material. Alternatively, the elongate member 7040 and 7050 can be made of a material that is not stretchable.

[0504] As shown in Fig. 148, mounting component 8030 or elongate member 8040 is coupled to the body 8010 near an upper corner of the body 8010. The elongate member 8040 can be moved from a lower position 8046 to an upper position 8048 along the direction of arrow "AJ." The elongate member 8040 can be moved from its upper position 8048 to its lower position 8046 as well. Similarly, mounting component 8032 or elongate member 8050 is coupled to the body 8010 near an upper corner of the body 8010. The elongate member 8050 can be moved from a lower position 8056 to an upper position 8058 along the direction of arrow "AK." The elongate member 8050 can be moved from its upper position 8058 to its lower position 8056 as well.

[0505] Referring to Fig. 150, an exploded perspective view of the components of the support structure 8000 is illustrated. The support structure 8000 includes body 8010, binding 8014, and mounting components 8030 and 8032. Elongate member 8040 includes ends 8042 and 8044 and elongate member 8050 includes ends 8052 and 8054. The ends of the elongate members 8040 and 8050 are disposed proximate to an edge of the body 8010 and coupled thereto. In one implementation, the ends of the elongate members 8040 and 8050 are coupled

to the body 8010 by stitching. In another implementation, the ends of the elongate members 8040 and 8050 are positioned proximate to the body 8010 and the binding 8014 is placed so that the binding 8014 covers the edge of the body 8010 as well as the ends of the elongate members 8040 and 8050.

[0506] Referring to Figs. 151 and 152, an exemplary use of the support structure 8000 is illustrated. As shown, the front surface 8020 may include a compartment or pocket 8024 coupled thereto or formed thereon. In other embodiments, the quantity and configurations of compartments on the front surface 8020 may vary.

[0507] The support structure 8000 can be used with a support 8060 that has upper corners 8062 and 8064, a front surface 8066, and a rear surface 8068. Elongate member 8050 is positioned such that it wraps around corner 8062 of support 8060. Similarly, elongate member 8040 is positioned such that it wraps around corner 8064 of support 8060. The elongate members 8040 and 8050 facilitate the mounting of the support structure 8000 to supports 8060 that have different widths and that have perimeters with different shapes and configurations.

[0508] Referring to Figs. 153-154, an alternative embodiment of a support structure in accordance with the present invention is illustrated. In this embodiment, the support structure 8100 includes a body 8110 with a perimeter 8112 that has a binding 8114 extending therealong. The body 8110 includes an upper end 8116, a lower end 8118, a front portion or surface 8120, and a rear portion or surface 8122. Body 8110 also includes a notch 8125 formed in the upper end 8116. The notch 8125 is configured to allow a user to access a locking mechanism of a support to which the support structure 8100 is mounted.

[0509] Coupled to the body 8110 is a mounting component 8130. Mounting component 8130 is a planar piece of material or panel that extends along the rear surface 8122 of the body 8110. The mounting component or sleeve 8130 includes an upper end 8132, a lower

end 8134, an outer side or surface 8136, and an inner side or surface 8138. The mounting component 8130 can be coupled to the body 8110 by stitching 8140. A receptacle 8150 is formed between the mounting component 8130 and the body 8110 and is configured to receive part of a support. The location of the mounting component 8130 relative to the upper end 8116 and the lower end 8118 of the body 8110 can vary in different embodiments. The notch 8125 is sized or configured to extend below the top edge of the sleeve 8130 so that a support that is inserted into the receptacle 8150 can be engaged by a locking mechanism that is located near the notch 8125.

[0510] Referring to Figs. 155-157, an alternative embodiment of a support structure in accordance with the present invention is illustrated. In this embodiment, the support structure 8200 includes a body 8210 with a perimeter 8212, an upper end 8214, and a lower end 8216. The body 8210 can be a single layer of material with a front surface 8220 and a rear surface 8222. The body 8210 can include a notch 8215 formed along the upper end 8214. The support structure 8200 can include a storage mechanism 8230, which in this embodiment includes compartments 8232, 8234, 8236, and 8238. As shown in Fig. 156, the body 8210 includes a mounting component or mechanism 8260 coupled thereto. The mounting component 8260 includes a notch that is located proximate to or aligned with notch 8215. A support and cooperating locking mechanism can be engaged with each other by way of the notches. The mounting component 8260 can be used to mount or couple the support structure 8200 to a support.

[0511] The support structure 8200 also includes a portion 8240 that can be used as a changing pad. The changing pad portion 8240 has a surface 8242 that can be disposed so that an infant or child can be placed thereon to facilitate the changing of a diaper or clothes of the infant. The changing pad portion 8240 can be placed on another surface, such as a seat or a floor, for use. The changing pad portion 8240 has a proximal end 8244 that is coupled to the

body 8210 and a distal end 8246 which is a free end. The changing pad portion 8240 can be selectively disposed in a deployed or use position 8250 and in a collapsed position 8252 and moved along the direction of arrow "AL" as desired. The portion 8240 can be moved to a position that is lower than deployed position 8250, such that portion 8240 and body 8210 are substantially planar.

[0512] Referring to Fig. 157, an alternative embodiment of a support structure in accordance with an aspect of the invention is illustrated. In this embodiment, the support structure 8300 is generally similar to support structure 8200. However, the body 8310 of the support structure 8300 is configured so that it includes a changing pad portion 8312 integrally formed therewith. In other words, while changing pad portion 8240 of support structure 8200 was formed separately from the body 8210 and coupled thereto using any conventional fastening or coupling technique or mechanism, body 8310 of support structure 8300 includes the changing pad portion 8312 formed as part of it. In one embodiment, the thickness of the layer of material of body 8310 can be varied to form a living hinge-like structure in the location desired for the upper end of the changing pad portion 8312. As shown in Fig. 157, the support structure 8300 includes a storage compartment 8320 and a mounting component 8330.

[0513] Referring to Fig. 158, an alternative embodiment of a support structure in accordance with an aspect of the invention is illustrated. In this embodiment, the support structure 8400 includes a body or body portion 8410 that has a rear surface or portion 8412, an upper end 8418 and a notch 8416 formed along the upper end 8418. In one embodiment, a binding 8414 is coupled to the body 8410 along the perimeter of the body 8410.

[0514] The body 8410 includes a sleeve 8420 that has ends or end portions 8422 and 8424. The ends 8422 and 8424 are coupled to opposite sides of the body 8410 using stitching, an adhesive, or other type of fastener or technique. The lower end 8426 and the upper end 8428

of the sleeve 8420 are not coupled to the body 8410, thereby allowing a support, such as a tray, to be inserted into and pass through the receptacle 8425 formed by the sleeve 8420 and the body 8410. The support can be moved so that its upper edge or corners engage mounting components 8430 and 8432 that are coupled to the body 8410 near the upper end 8418.

Similar to mounting components previously described, mounting components 8430 and 8432 define receptacles with the rear surface of the body 8410. These receptacles are configured to receive the upper corners of a support and mount the support structure 8400 thereto. When the mounting components 8430 and 8432 are engaged on the support, the sleeve 8420 retains the body 8410 proximate to the support and prevents the body 8410 from swinging relative to the support, and in particular, toward the user of the support structure 8400. For example, the sleeve 8420 prevents the body 8410 from swinging toward the user when the seat or support to which the support structure 8400 is reclined or otherwise moved toward the user. As a result, the support structure 8400 is securely and stably mounted to the support. In one embodiment, the height dimension of the sleeve 8420 between the upper end 8428 and the lower end 8426 is several inches. The height of the sleeve 8420 can vary in different embodiments so long as the sleeve 8420 can provide stability to the body 8410 relative to the support.

[0515] Referring to Fig. 159, an alternative embodiment of a support structure according to the present invention is illustrated. In this embodiment, the support structure 8500 includes a mounting component 8510 and a body or body portion 8540. The mounting component 8510 includes a rear panel 8512 and side panels 8514 and 8516 that collectively define a region or chamber. A notch 8518 is formed on the upper end of the mounting component 8510. The mounting component 8510 is configured to be slid onto a tray or other support.

[0516] The support structure 8500 includes handles 8520 and 8522 coupled thereto. The body 8540 includes a rear panel 8542 that has a side panel 8550 coupled thereto, such as by

stitching or sewing. The side panel 8550 is a one piece panel. The side panel 8550 has an edge 8552 along which a coupling component or mechanism 8554, such as a zipper, is located. The support structure 8500 also includes flaps 8530 and 8532 that can be magnetized or include a magnetic component.

[0517] Referring to Fig. 160, an alternative embodiment of a support structure according to the present invention is illustrated. In this embodiment, the support structure 8600 includes a mounting component 8610 and a body or body portion 8640. The mounting component 8610 includes a rear panel 8612 and side panels 8614 and 8616 that collectively define a region or chamber. A notch 8618 is formed on the upper end of the mounting component 8610, which is configured to be slid onto a tray or other support.

[0518] The support structure 8600 includes handles 8620 and 8630 coupled thereto. Handles 8620 and 8630 can be canvas webbing or any other material with sufficient strength. As shown in Fig. 160, handle 8620 is inserted into rings 8621 and 8622 which are coupled to the body 8640 via strap portions 8623 and 8624, respectively. A gripping portion 8625 is centrally located on the handle 8620. Similarly, handle 8630 is inserted into rings 8631 and 8632 which are coupled to the body 8640 via strap portions 8633 and 8634, respectively. Handle 8630 also includes a gripping portion 8635.

[0519] The body 8640 includes a rear panel 8642 that has a side panel 8650 coupled thereto, such as by stitching or sewing. The side panel 8650 is a one piece panel. As shown in Fig. 160, the layer of material 8662 is darted by folding along line 8664 and forming the inner portion of the corner 8660 of the body 8640. The side panel 8650 has an edge 8652 along which a coupling component or mechanism 8654, such as a zipper, is located. The support structure 8600 also includes flaps 8640 and 8642 that can be magnetized or include a magnetic component.

[0520] Referring to Fig. 161, an alternative embodiment of a support structure according to the present invention is illustrated. In this embodiment, the support structure 8700 includes a body or body portion 8710 with a notch 8712. The body portion 8710 has a first portion or side portion 8720 and a second portion or side portion 8722. The separation between the side portions 8720 and 8722 is defined by a member 8724. Side portions 8720 and 8722 include coupling portions 8728 and 8730, such as zipper teeth, respectively, along which a coupler or zipper 8726 can pass. Coupling portion 8728 is located along the edge of flap 8740 and coupling portion 8730 is located along the edge of flap 8742.

[0521] The body 8710 has a support portion 8714 that includes openings 8770, 8772, and 8774 that provide access to receptacles in which objects can be stored. In addition, mesh pockets 8780, 8782, and 8784 are provided with elastic binding along their upper ends. A bottle or container holder or pouch 8786 with an opening 8788 is also provided. The support structure 8700 also includes flaps 8750 and 8752, and several rings 8760, 8762, 8764, and 8766 as shown.

[0522] In various embodiments of the invention, any number of features, constructions, and/or elements disclosed relative to one or more embodiments can be combined with features, constructions, and/or elements disclosed relative to other embodiments. For example, the support structures described herein may include any number of compartments, pouches, pockets, receptacles, couplers, buckle portions, hooks, straps, closure mechanisms, and other components at various locations. In addition, any type of materials may be used for the various components of the support structures described herein.

[0523] While the invention has been described in detail and with reference to specific embodiments thereof, it will be apparent to one skilled in the art that various changes and modifications can be made therein without departing from the spirit and scope thereof. For example, it is to be understood that terms such as “top,” “bottom,” “front,” “rear,” “side,”

“height,” “length,” “width,” “upper,” “lower,” “interior,” “exterior,” “inner,” “outer,” and the like as may be used herein, merely describe points of reference and do not limit the present invention to any particular orientation or configuration. Thus, it is intended that the present invention covers the modifications and variations of this invention provided they come within the scope of the appended claims and their equivalents.

What is claimed is:

1. A support structure configured for use with a tray, the support structure comprising:
a body portion, the body portion being configured to support an item, the body portion being selectively disposable in a deployed configuration and in a collapsed configuration; and
a mounting portion, the mounting portion being coupled to the body portion, the mounting portion being configured to engage the tray when the body portion is in its deployed configuration so that the body portion is supported by the tray.
2. The support structure of claim 1, wherein the mounting portion includes a first portion, a second portion, and a third portion, the first portion, the second portion and the third portion collectively defining a receptacle that is configured to receive a portion of the tray.
3. The support structure of claim 2, wherein the mounting portion is configured to receive the tray in the receptacle, and the body portion is slidable onto the tray.
4. The support structure of claim 3, wherein the tray has a stored position and a deployed position, the tray being retainable in its stored position by a locking mechanism, and one of the body portion and the mounting portion of the support structure includes an opening formed therein such that the locking mechanism can engage the tray.
5. The support structure of claim 2, wherein the mounting portion includes a fourth portion, the fourth portion being coupled to the first portion, the second portion, and the third portion, the fourth portion defining an opening therein, the opening in the fourth portion

being configured to permit access to the receptacle and to the tray when the tray is disposed in the receptacle.

6. The support structure of claim 5, wherein the mounting portion includes a closure mechanism, and the closure mechanism is movable by a user to adjust the opening in the fourth portion.

7. The support structure of claim 5, wherein the opening is configurable to allow a portion of the tray to pass therethrough.

8. The support structure of claim 1, wherein the mounting portion includes a first opening and a second opening, each of the first opening and the second opening being configured to receive a portion of the tray.

9. The support structure of claim 8, wherein the body portion includes a rear panel and each of the first opening and the second opening is formed in the rear panel.

10. The support structure of claim 8, wherein each of the first opening and the second opening is configured to receive a corner of the tray.

11. The support structure of claim 1, wherein the body portion includes a first side portion and a second side portion, the body portion includes a perimeter, the perimeter extending around the first side portion and the second side portion, the body portion being substantially planar in its deployed configuration, and the first side portion of the body portion being disposed proximate to the second side portion in the collapsed configuration such that a

portion of the perimeter along the first side portion is proximate to a portion of the perimeter along the second side portion.

12. The support structure of claim 11, further comprising:

a coupling mechanism, the coupling mechanism is disposed along a portion of the perimeter, the coupling mechanism being configured to retain the first side portion proximate to the second side portion.

13. The support structure of claim 12, wherein in the collapsed configuration, the first side portion and the second side portion define a receptacle therebetween and an opening in communication with the receptacle, the body portion including a flap that is movable relative to the opening, the flap being configured to close the opening.

14. The support structure of claim 1, wherein the body portion includes a first connection point and a second connection point, the body portion has a strap coupled to the first connection point and to the second connection point, and the strap includes a receptacle coupled thereto.

15. The support structure of claim 1, further comprising:

a coupling mechanism, the coupling mechanism being attached to the body portion, the coupling mechanism being configured to retain the body portion in its collapsed configuration

16. The support structure of claim 1, wherein the mounting portion is configured to extend around a portion of the tray.

17. The support structure of claim 1, wherein the mounting portion includes a first elongate member and a second elongate member, the first elongate is coupled to the body portion, a second elongate member is coupled to the body portion, the first elongate member forms a loop, the second elongate member forms a loop, the first elongate member is configured to be wrapped around a first portion of the tray, and the second elongate member is configured to be wrapped around a second portion of the tray.

18. The support structure of claim 17, wherein the first portion of the tray is a first corner and the second portion of the tray is a second corner.

19. The support structure of claim 1, wherein the body is a substantially planar layer of material.

20. The support structure of claim 1, wherein the body portion has a first side and an opposite, second side, and the mounting portion extends along the body portion from the first side to the second side.

21. The support structure of claim 1, wherein the mounting portion includes a first mounting element and a second mounting element, the first mounting element is movably coupled to the body portion between an extended position and a retracted position, the second mounting element is movably coupled to the body portion being an extended position and a retracted position, the first mounting element in its extended position engages a portion of the tray, and the second mounting element in its extended position engages a portion of the tray.

22. A reconfigurable support structure for use with a support, comprising:
- a body portion, the body portion being disposable in a deployed configuration and in a carrying configuration;
 - a support portion, the support portion being formed on the body portion, the support portion being configured to support an object, the support portion being exposed when the body portion is in its deployed configuration; and
 - a mounting mechanism, the mounting mechanism being defined by the body portion, the mounting mechanism being configured to engage the support to mount the body portion on the support.
23. The reconfigurable support structure of claim 22, wherein the mounting mechanism includes a cavity formed in the body portion, the cavity being configured to receive a portion of the support, the support portion being exposed to a user when the body portion is mounted on the support via the mounting mechanism.
24. The reconfigurable support structure of claim 23, wherein the support is tray and the mounting mechanism is configured to receive a portion of the tray.
25. The reconfigurable bag of claim 22, wherein the mounting mechanism includes a first opening and a second opening, each of the first opening and the second opening being formed in the body portion and being configured to receive a portion of the support to mount the body portion on the support.

26. The reconfigurable support structure of claim 22, wherein when the body portion is in the carrying configuration, the body portion is configured to form a receptacle and the support portion is disposed internally and defines the receptacle.

27. The reconfigurable support structure of claim 22, wherein the body portion is a substantially planar layer of material.

28. The reconfigurable support structure of claim 22, wherein the support portion is a pouch.

29. A support structure for use with a support, the support structure comprising:
a body portion, the body portion having a perimeter around an outer edge of the body portion, the body portion being a layer of material that is selectively disposable in a first configuration and in a second configuration, the body portion being configured to be coupled to the support in the first configuration, the first body portion being configured to be carried in the second configuration, the body portion having a support portion configured to support an object on the body portion; and

a mounting mechanism, the mounting mechanism being coupled to the body portion, the mounting mechanism being configured to couple the body portion to the support.

30. The support structure of claim 29, wherein the body portion is substantially rectangular and includes a binding around the perimeter of the body portion.

31. The support structure of claim 30, wherein the body portion has a front side and a rear side opposite the front side, the front side forming the support portion, the rear side being disposed proximate to the support when the body portion is coupled to the support.

32. The support structure of claim 29, wherein the support is a tray, and the mounting mechanism is configured to receive a portion of the tray.

33. A support structure for use with a tray, the support structure comprising:
a body portion, the body portion consisting essentially of a layer of material and a support portion coupled to the layer of material, the body portion being selectively disposable in multiple configurations, the body portion being configured to be supported on the tray in one configuration and to be transported by a user in a different configuration, the support portion being configured to support an object on the body portion; and
a mounting portion, the mounting portion being coupled to the body portion and configured to secure the body portion to the tray.

34. The support structure of claim 33, wherein the tray includes a front side and a rear side opposite to the front side, the layer of material is disposed proximate to the front side of the tray when the body portion is coupled to the tray, and the mounting portion is disposed proximate to the rear side of the tray when the body portion is coupled to the tray.

35. The support structure of claim 33, wherein the layer of material is flexible.

36. The support structure of claim 33, wherein the mounting component has a retracted position relative to the body portion and an extended position relative to the body portion, the

mounting portion in its extended position being configured to secure the body portion to the tray.

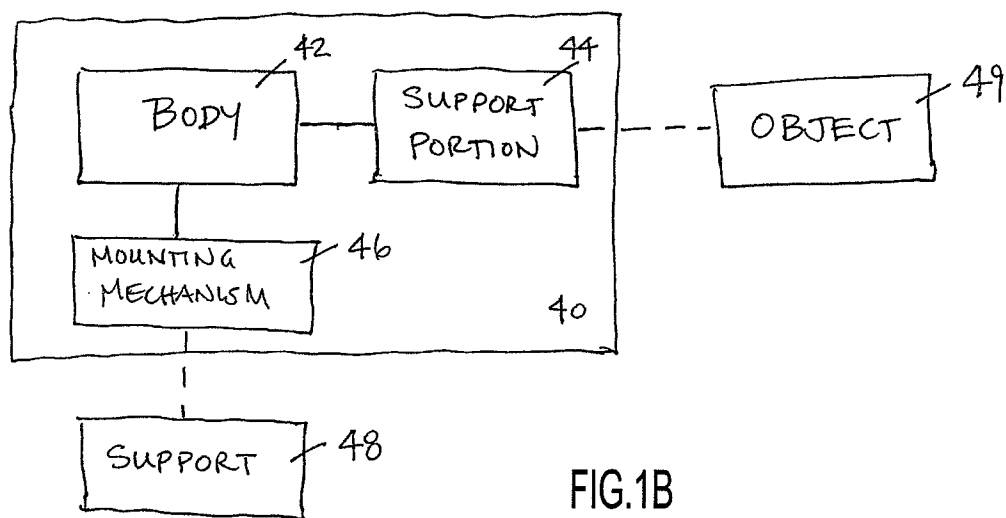
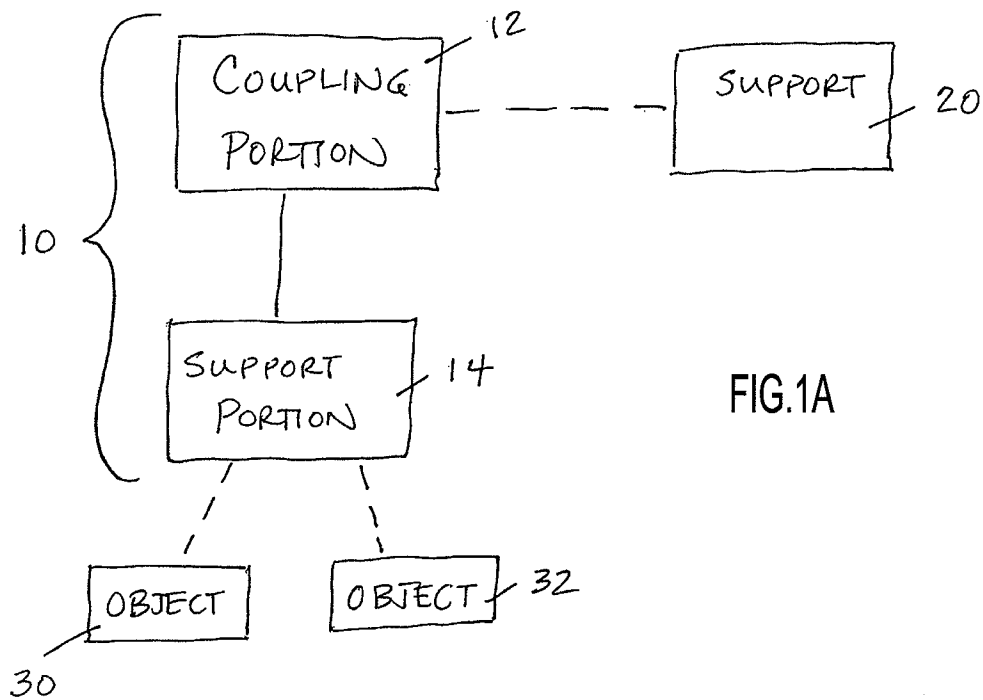
37. The support structure of claim 33, wherein the support portion defines a receptacle in which an object can be disposed.

38. The support structure of claim 33, wherein the tray includes a first corner and a second corner, and the mounting portion is configured to receive the first corner of the tray and the second corner of the tray.

39. The support structure of claim 38, wherein the mounting portion includes a first panel coupled to the body portion and a second panel coupled to the body portion, the first panel forming a first receptacle with the body portion to receive the first corner of the tray, and the second panel forming a second receptacle with the body portion to receive the second corner of the tray.

40. The support structure of claim 39, wherein the mounting portion includes a sleeve coupled to the body portion, the sleeve forming a third receptacle with the body portion to receive a portion of the tray therethrough.

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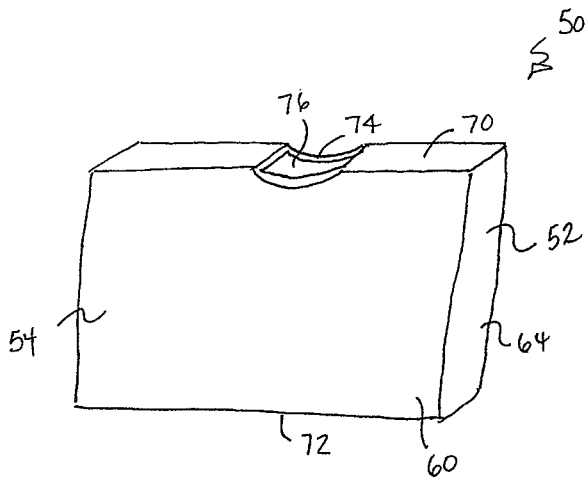


FIG. 2

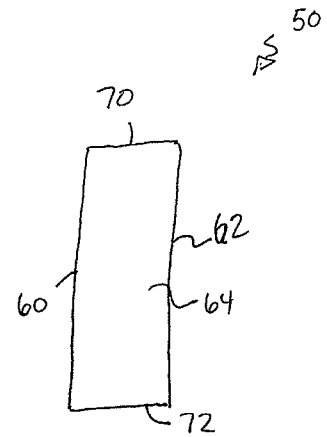


FIG. 3

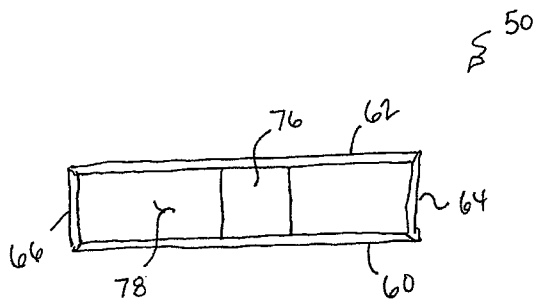
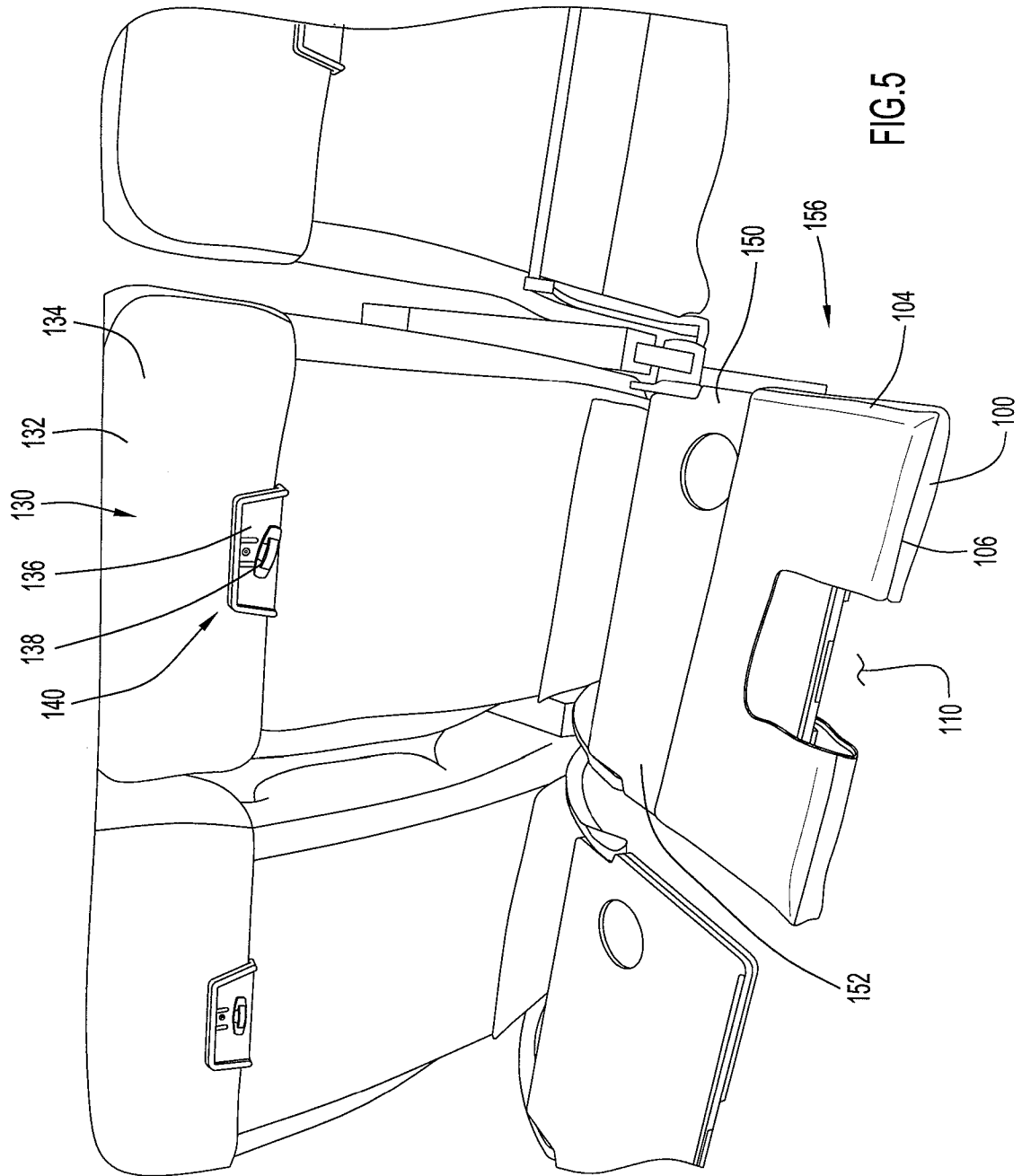


FIG. 4

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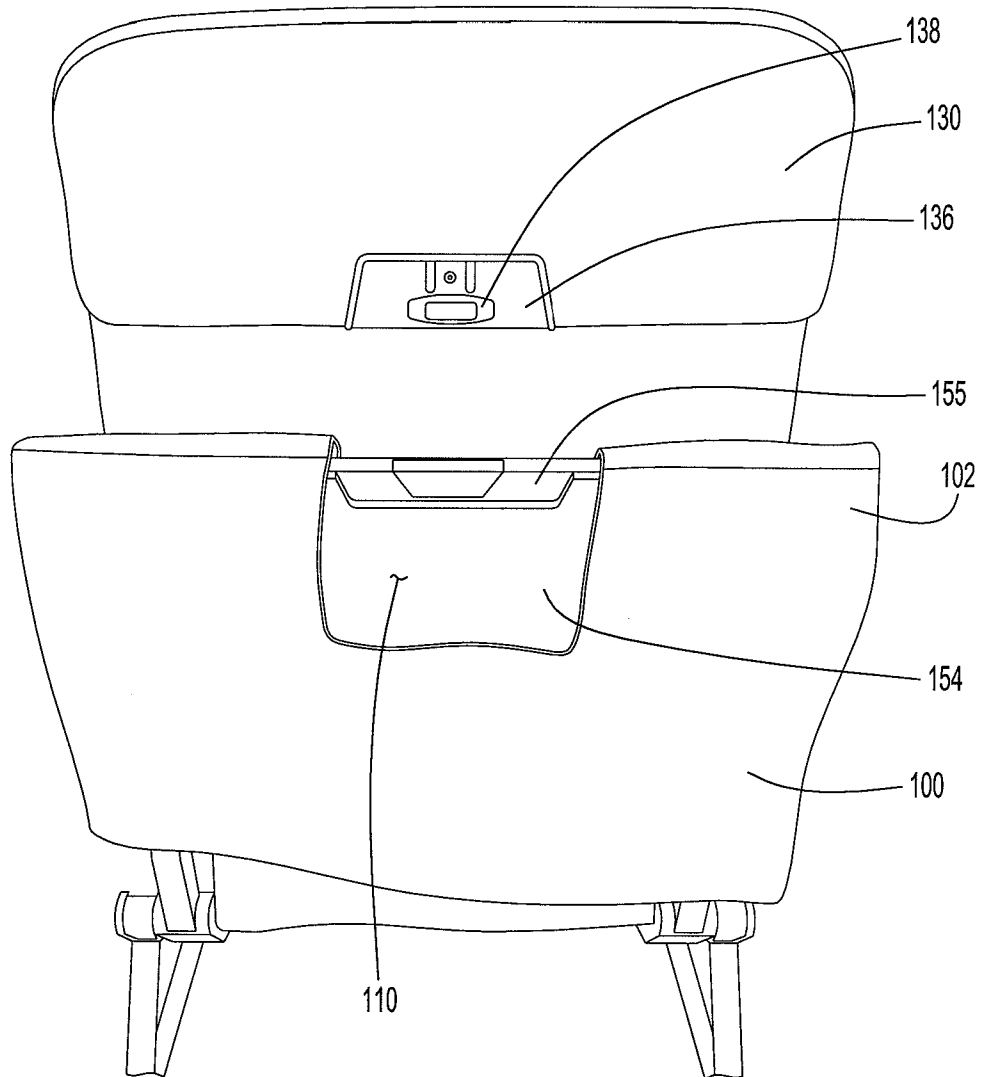


FIG.6

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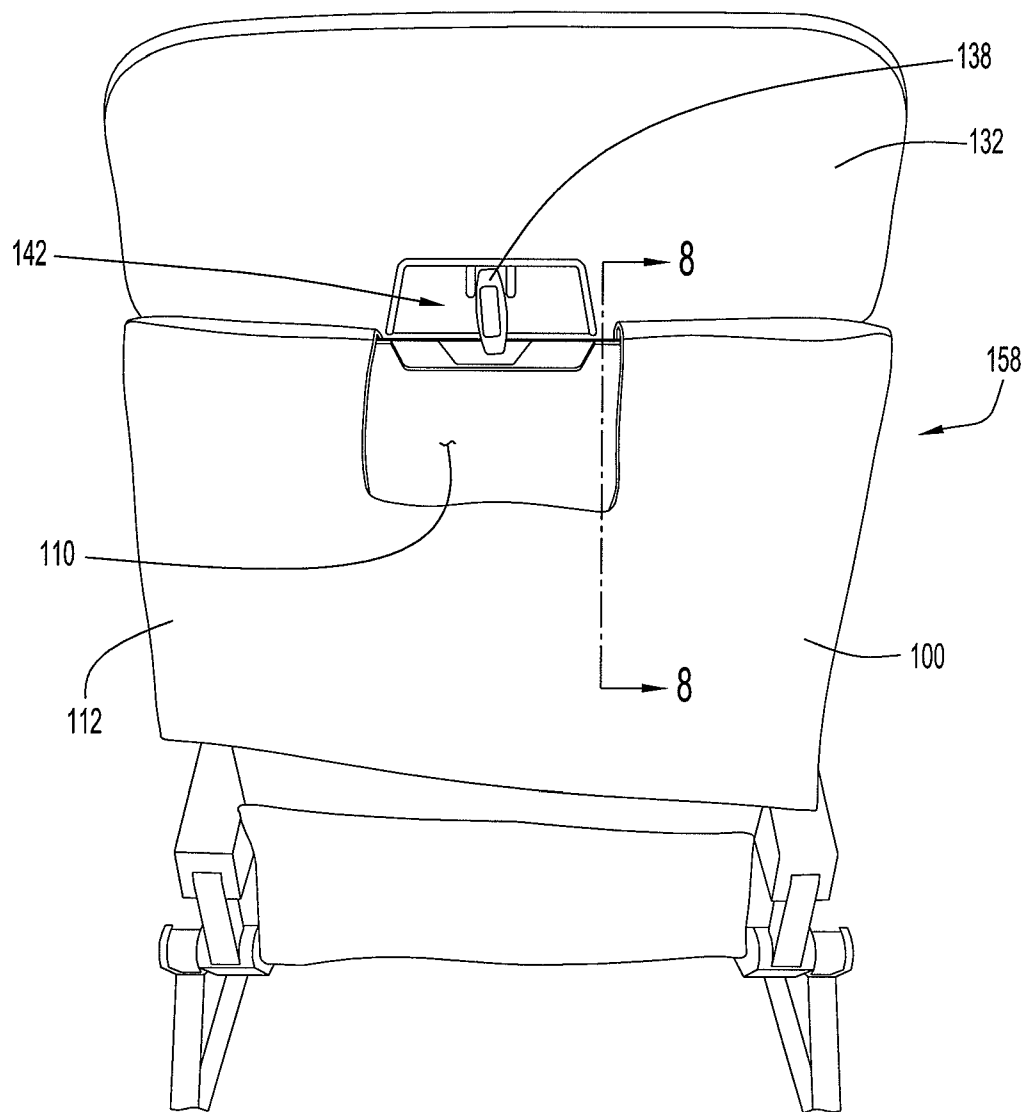


FIG. 7

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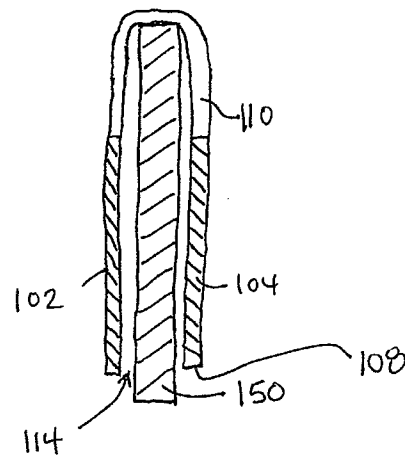


FIG. 8

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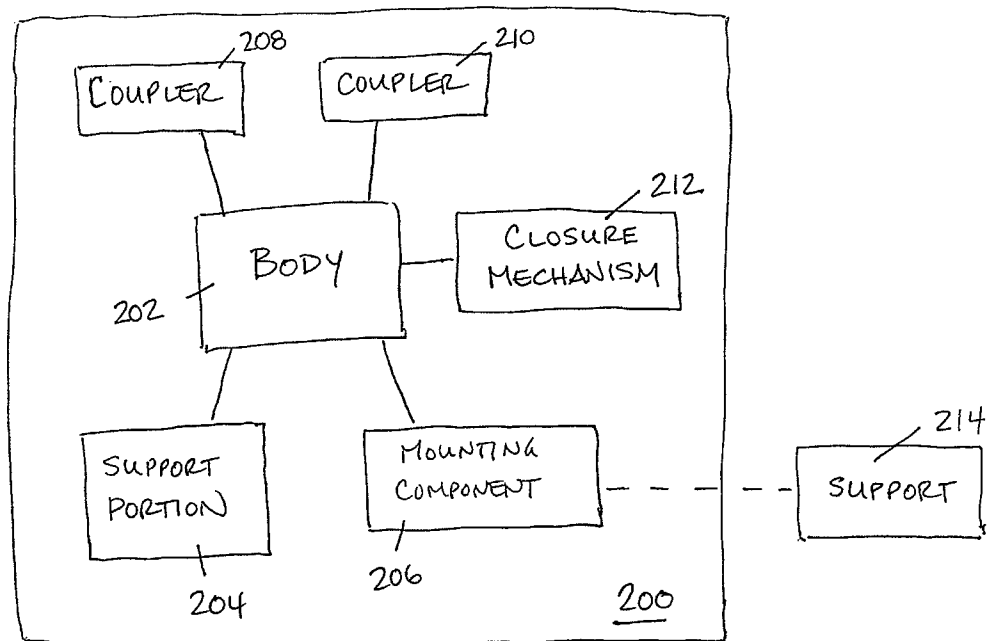


FIG.9

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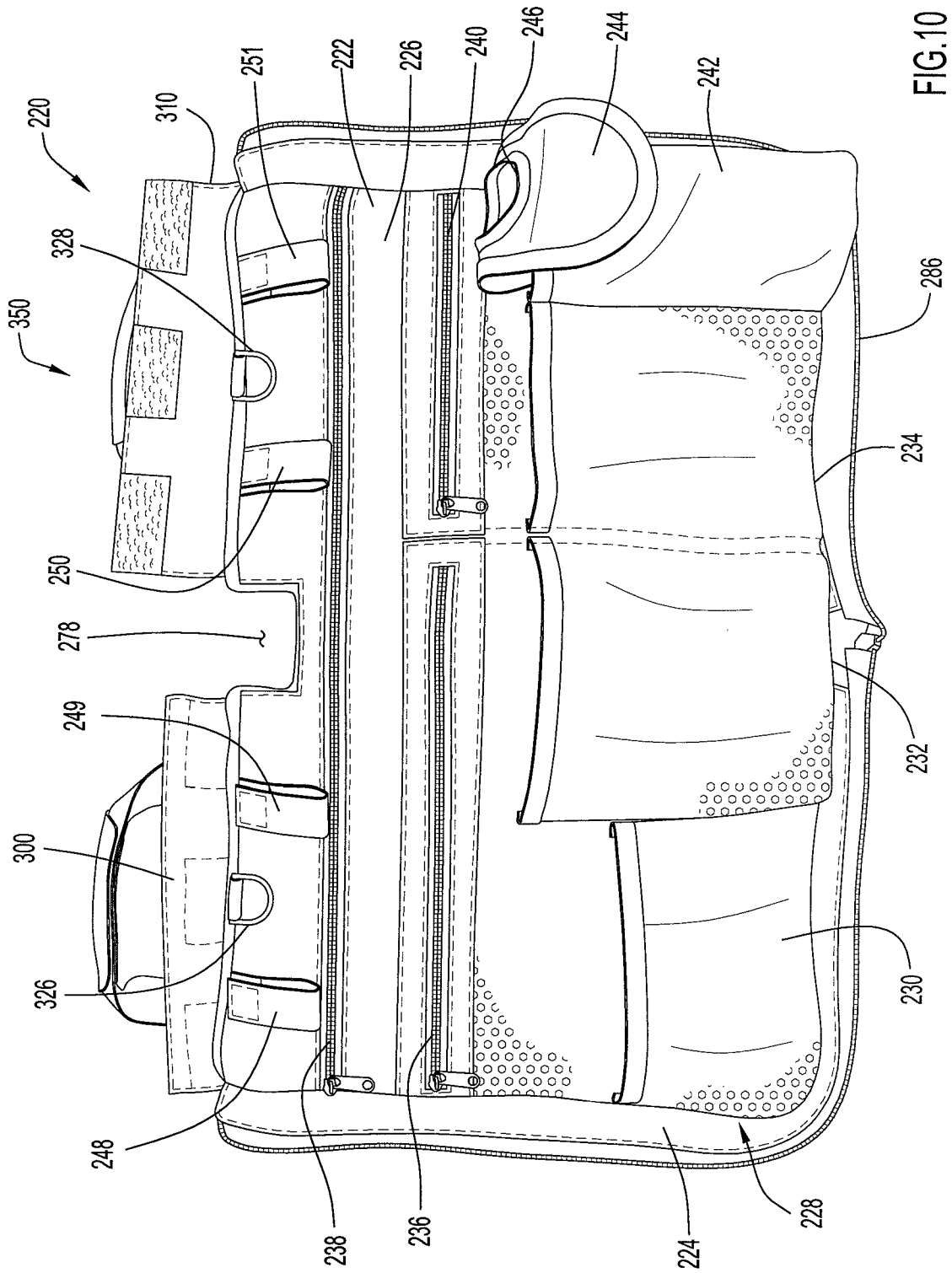


FIG. 10

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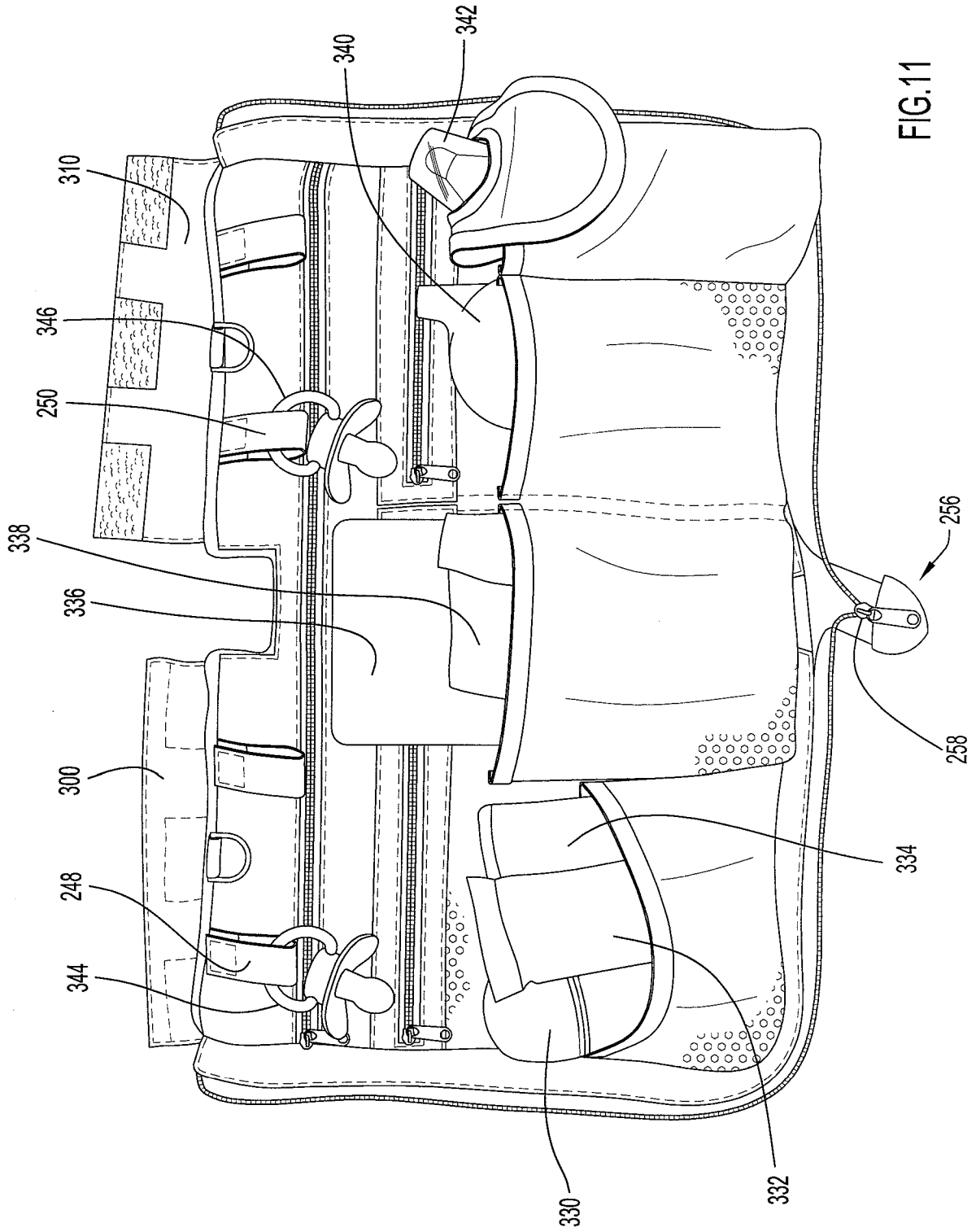


FIG. 11

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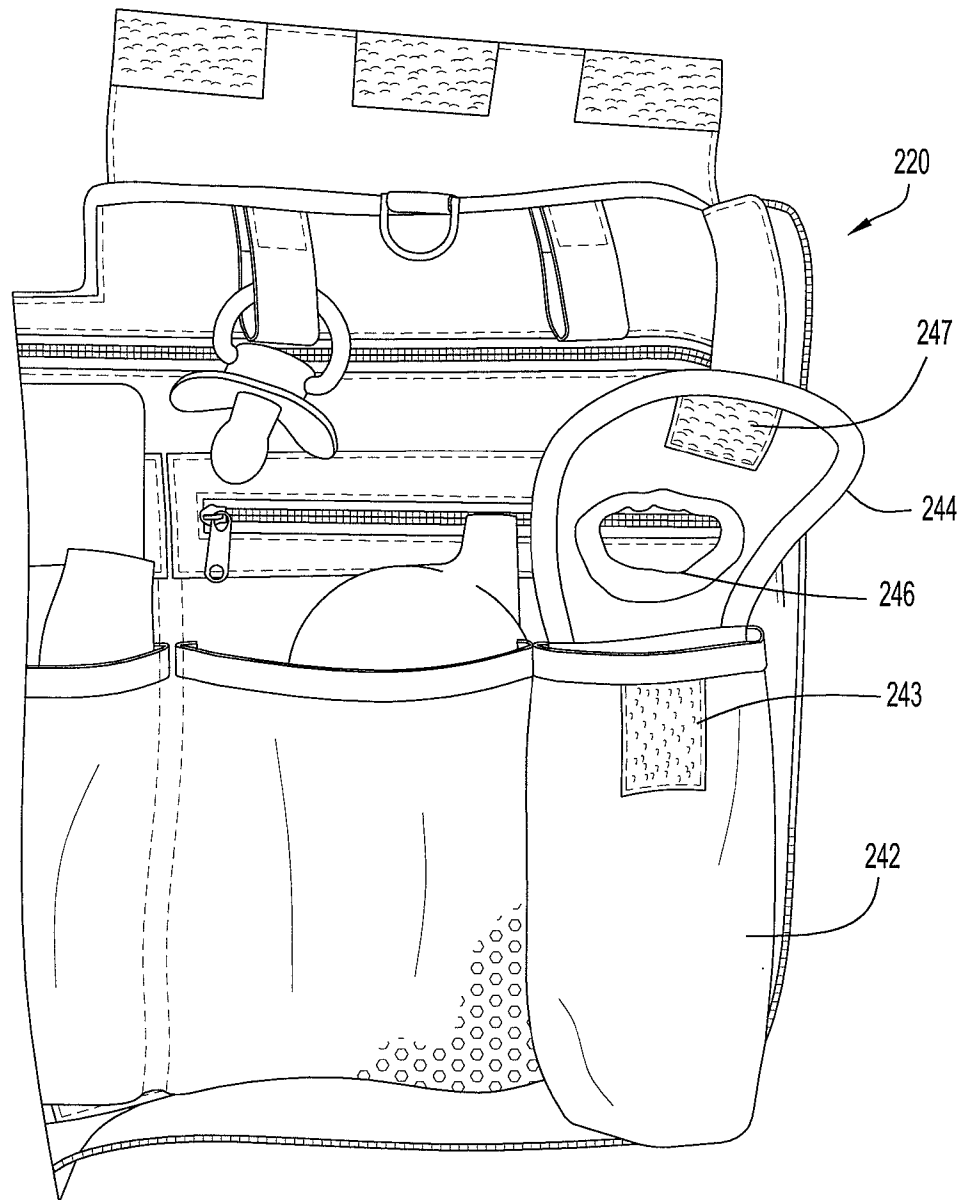


FIG.12

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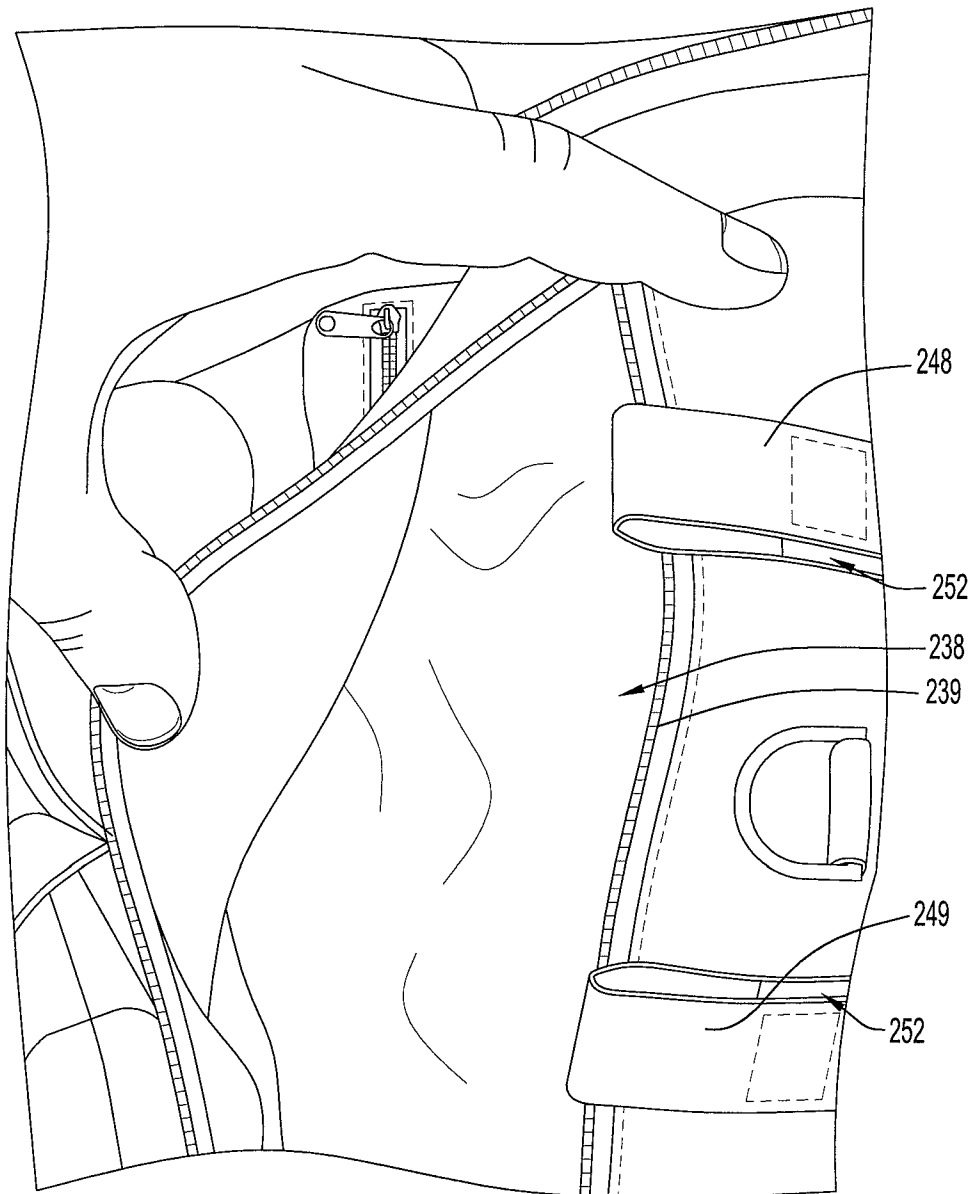


FIG.13

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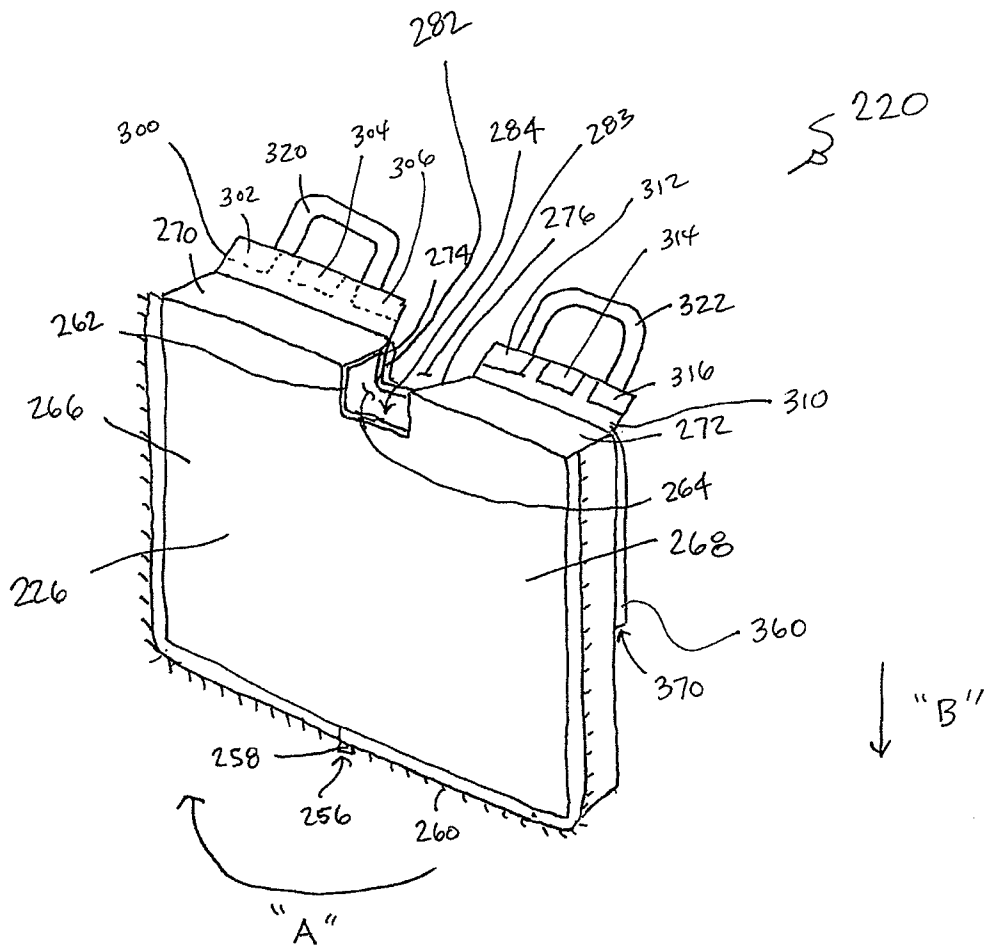
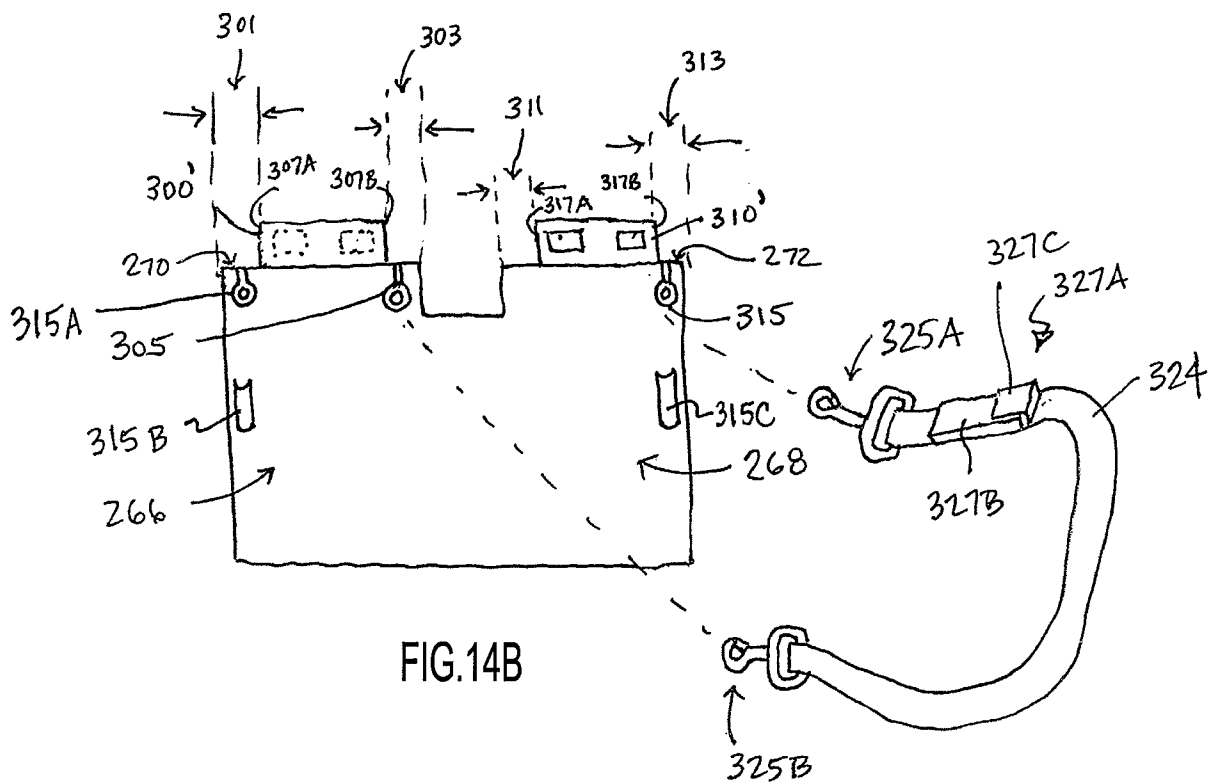
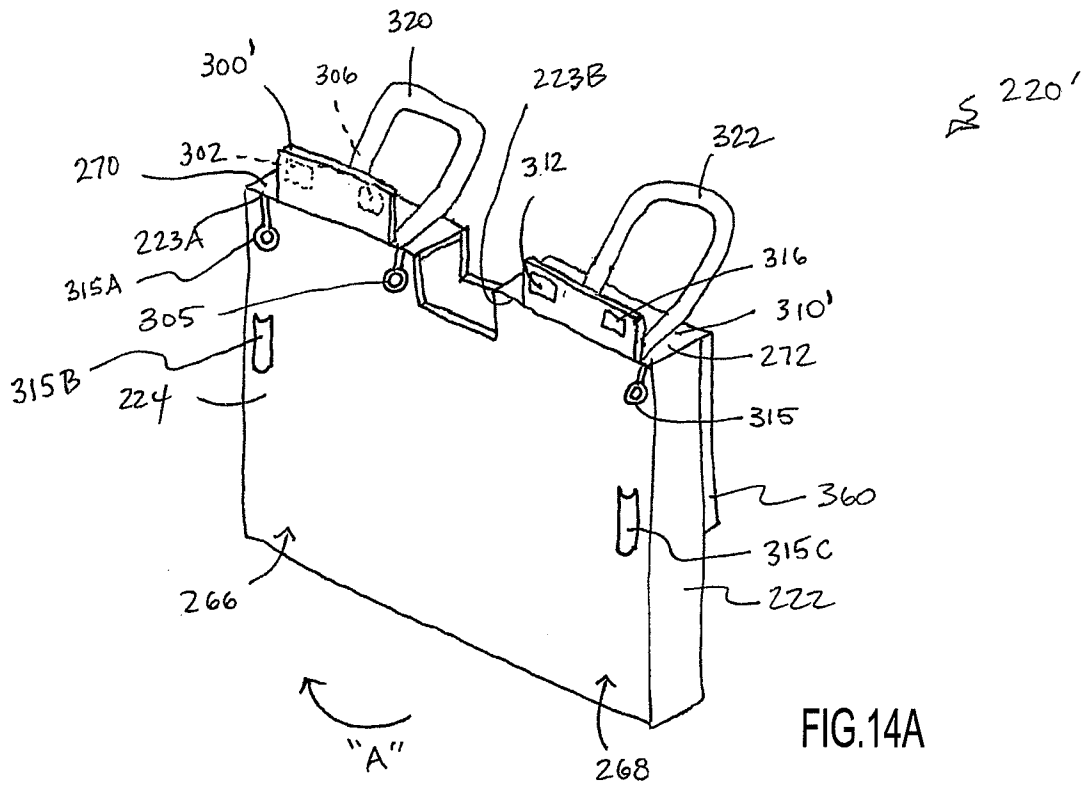


FIG.14

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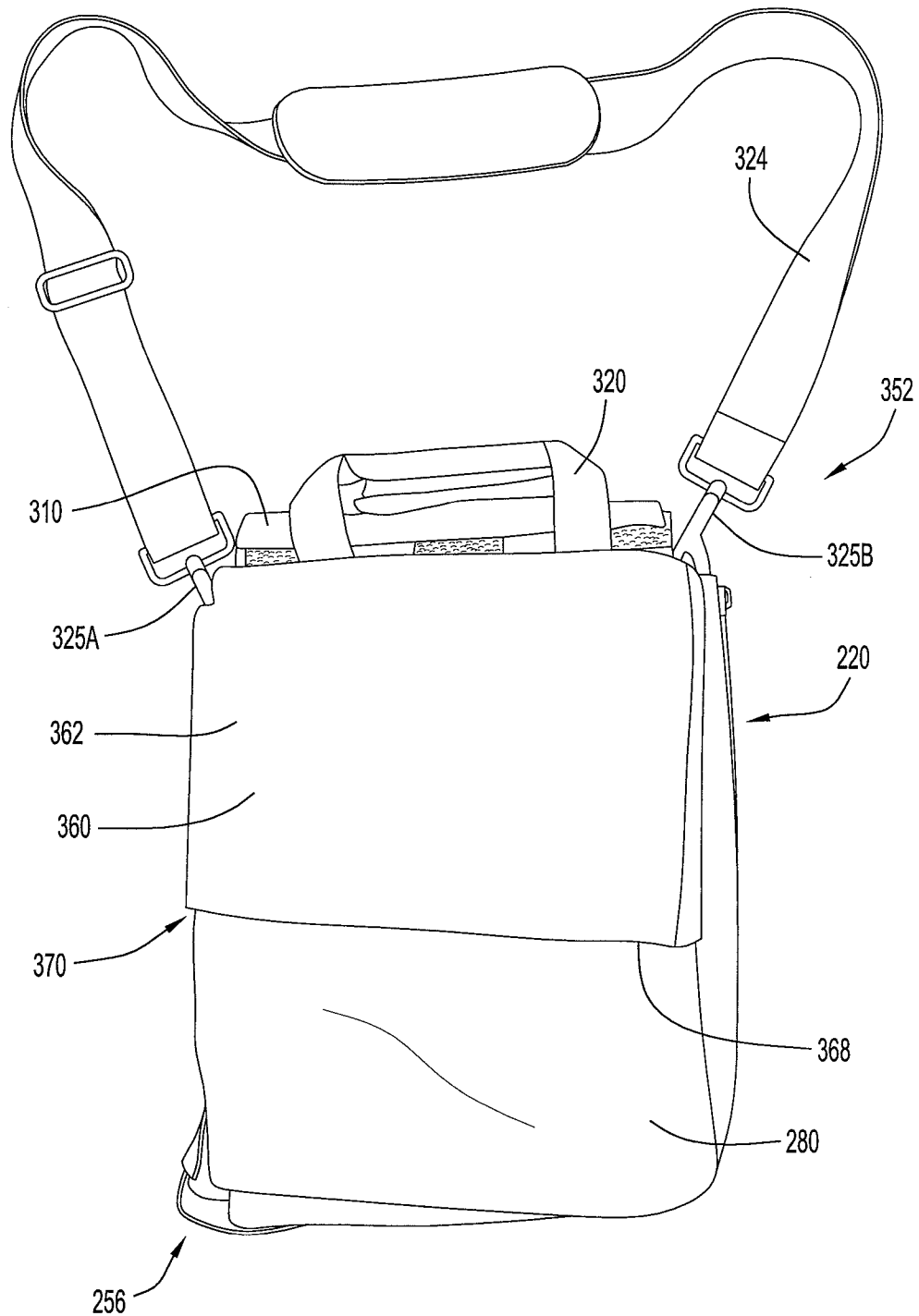
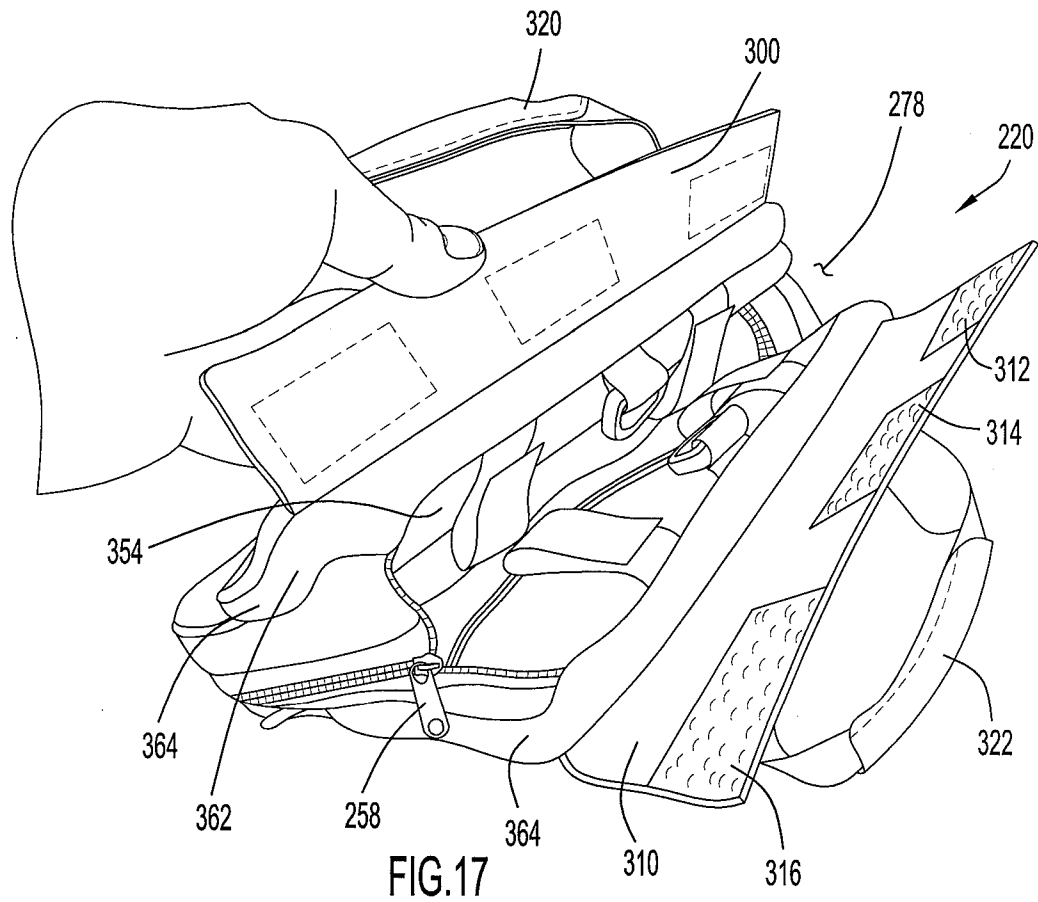
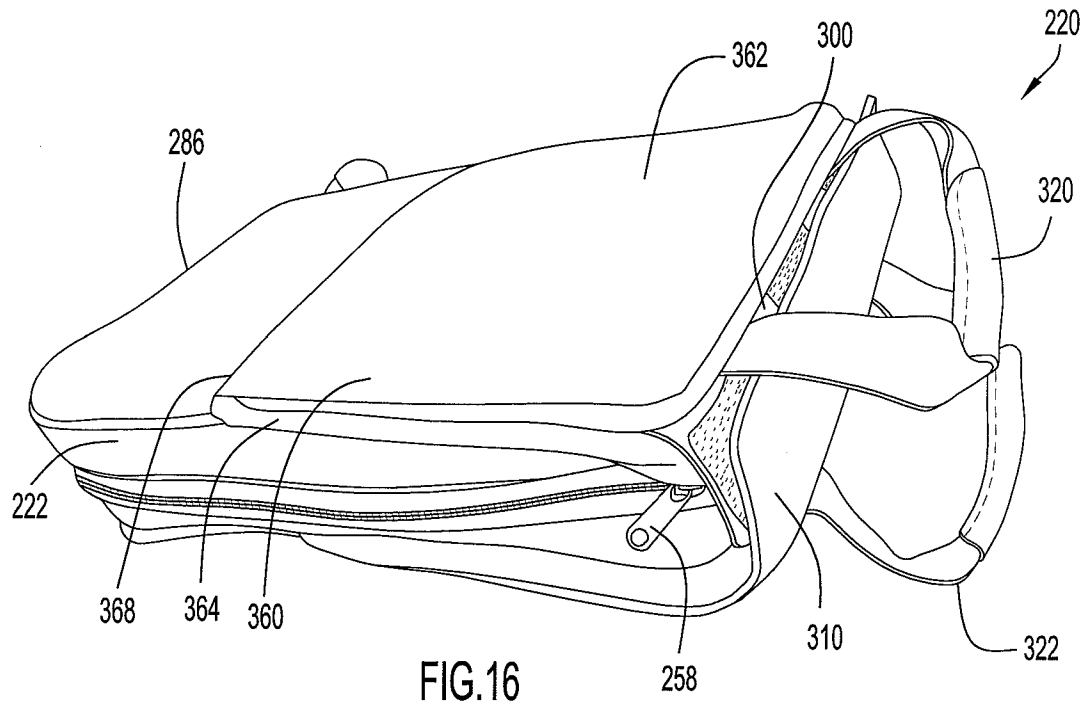


FIG.15

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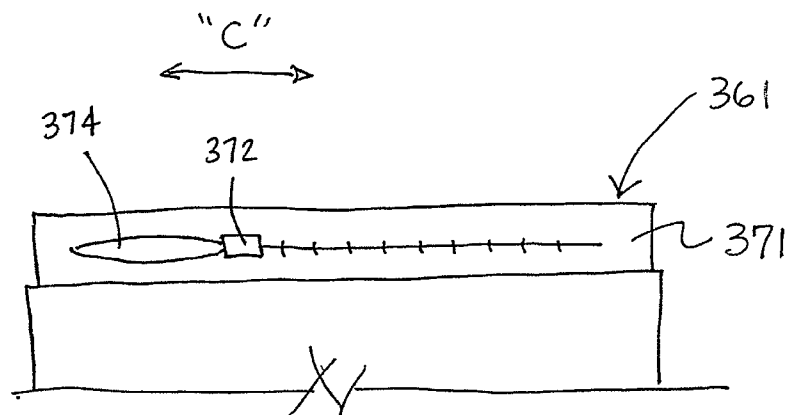
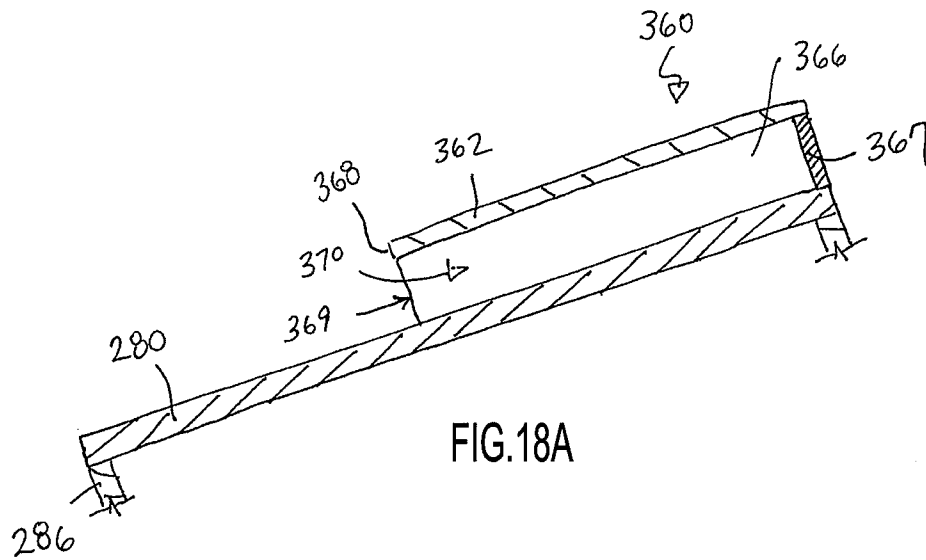


FIG.18B

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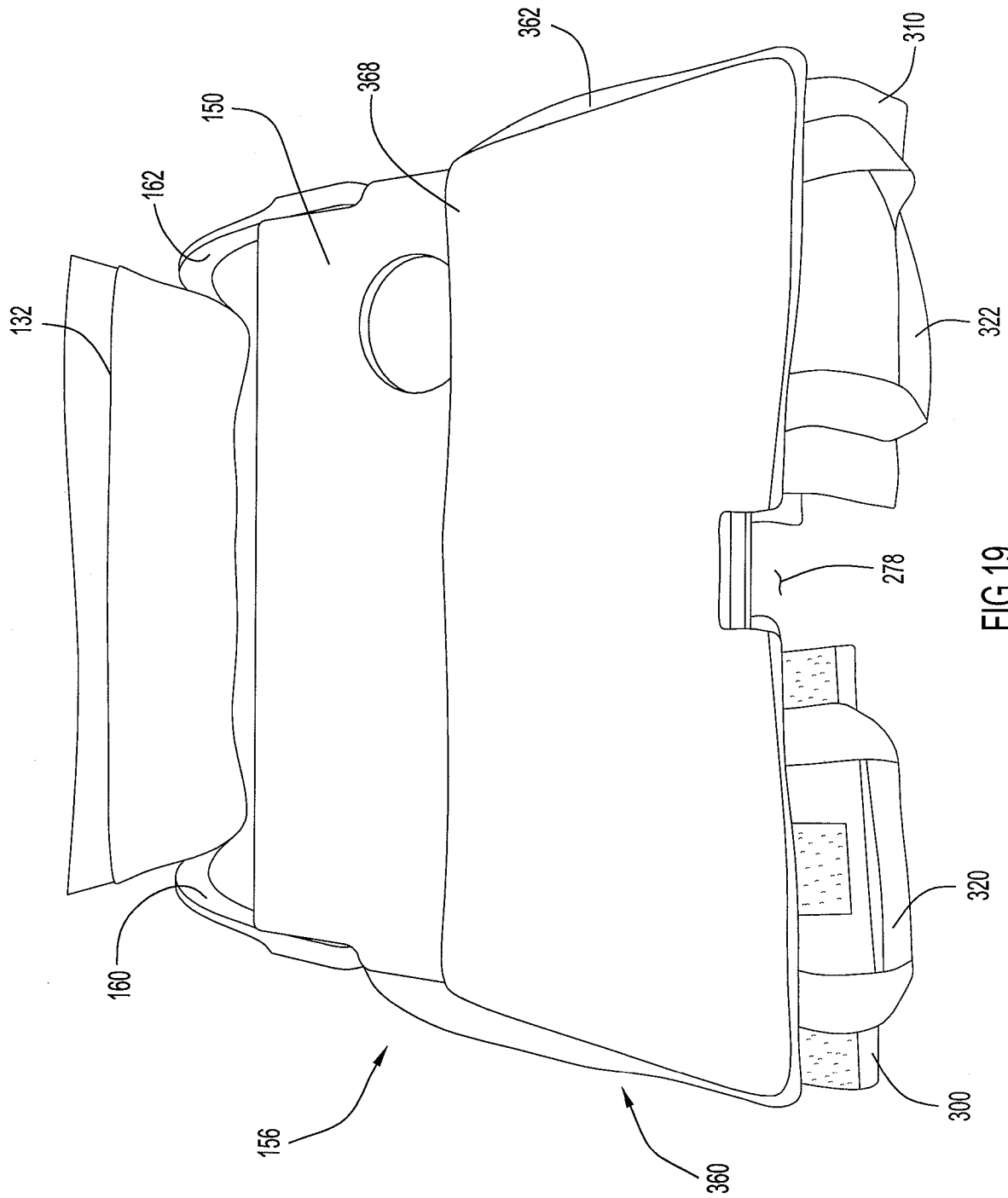


FIG. 19

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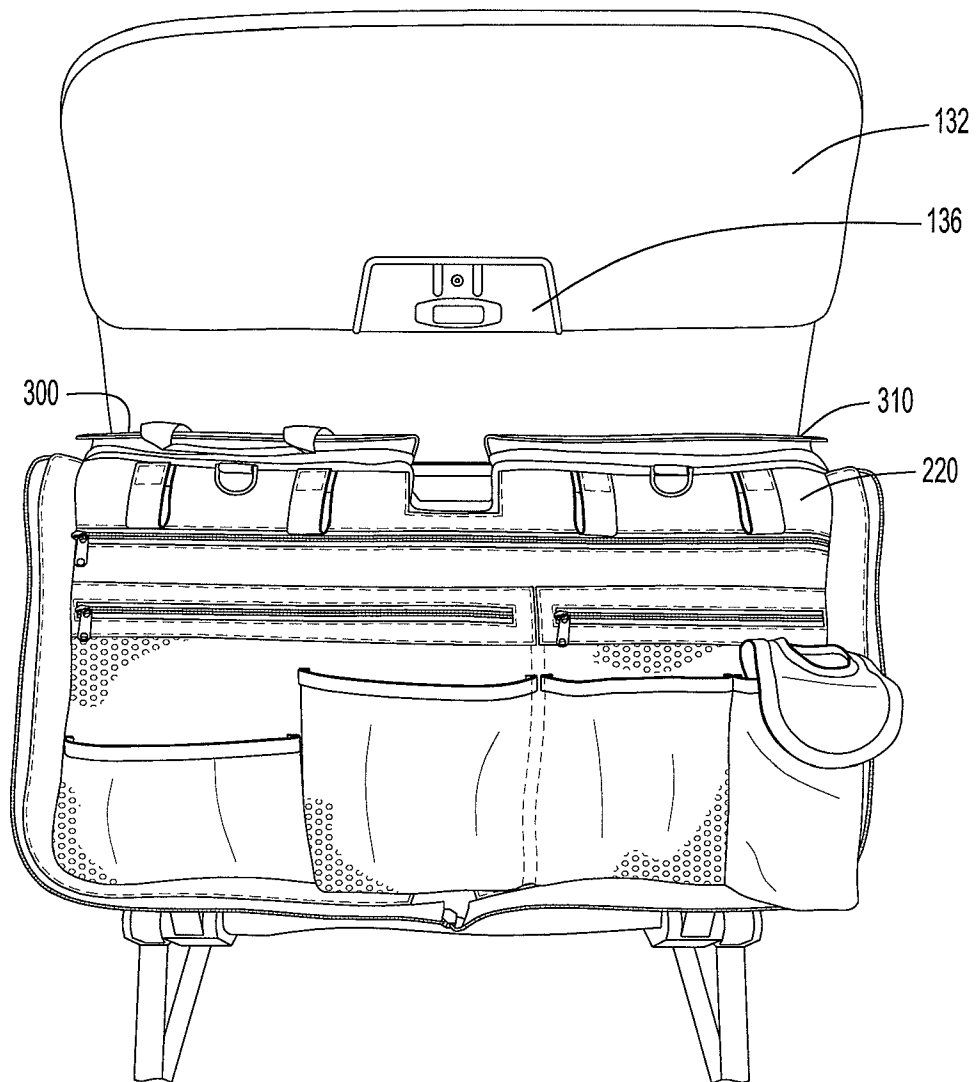


FIG. 20

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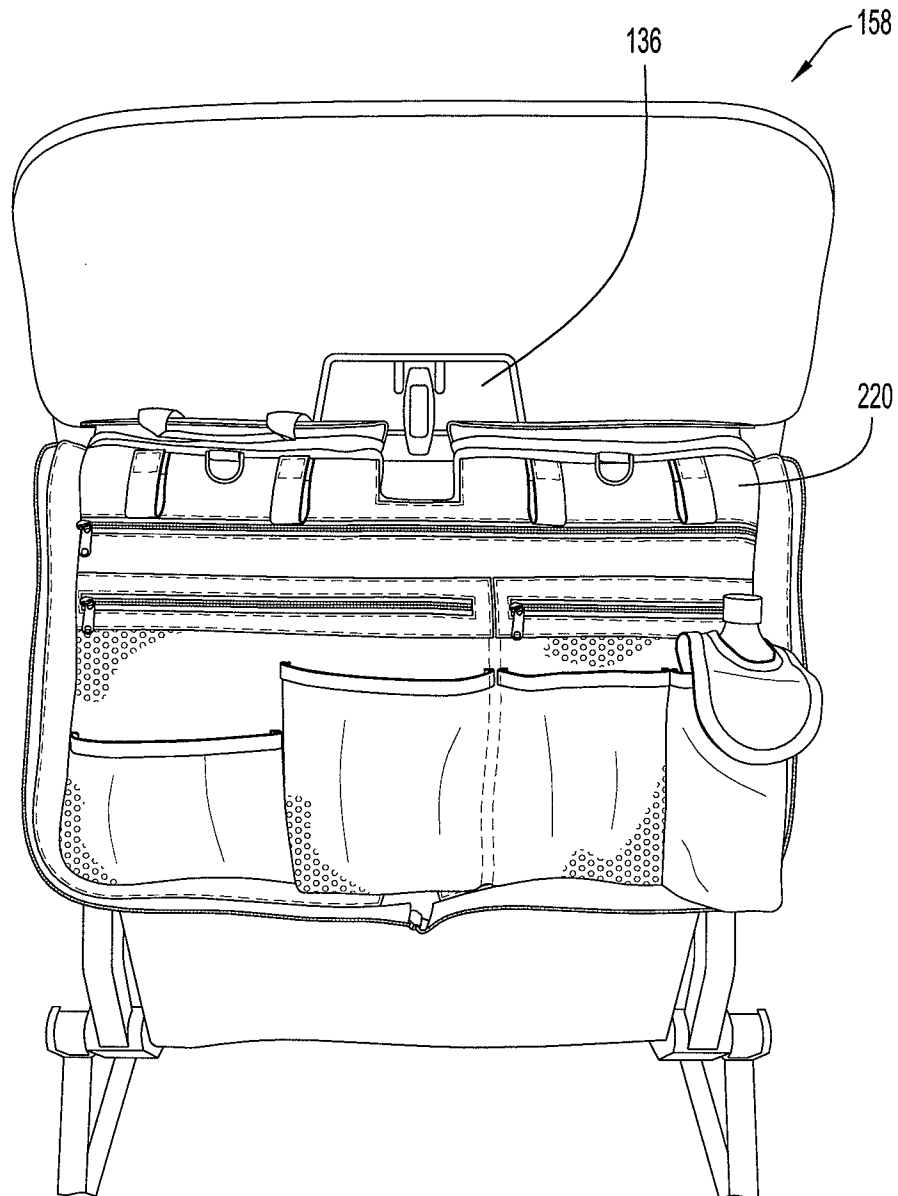


FIG. 21

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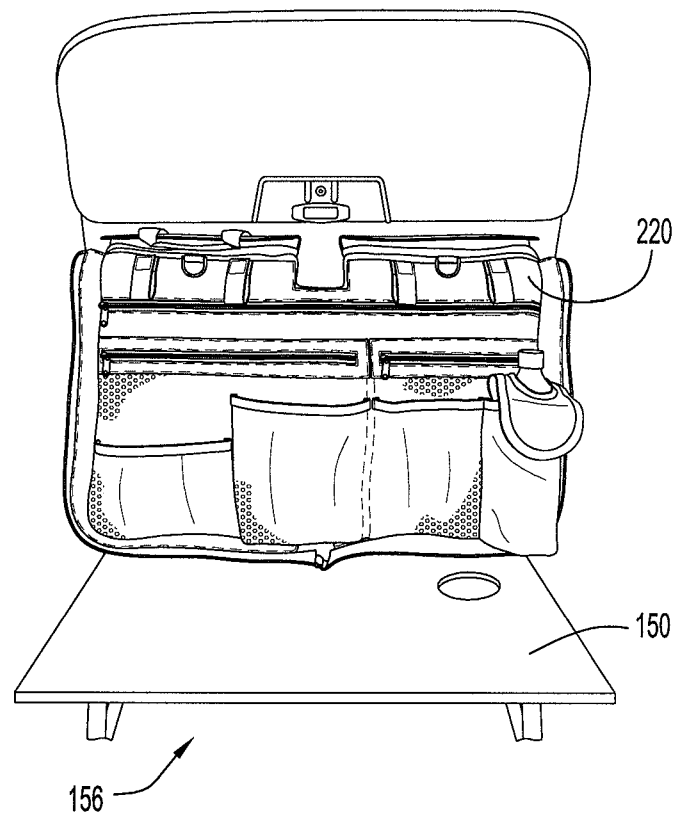


FIG. 22A

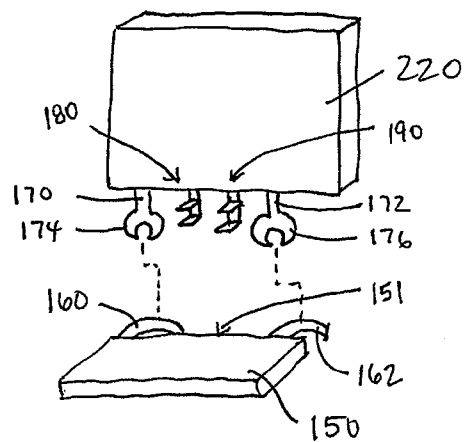


FIG. 22B

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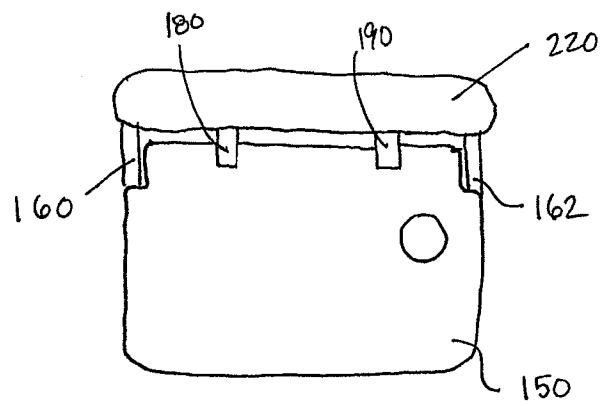


FIG. 22C

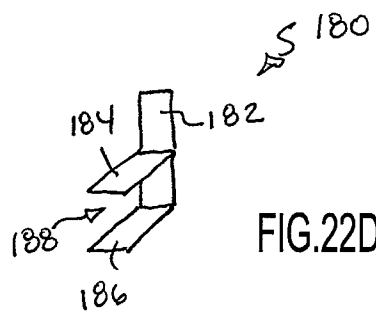


FIG. 22D

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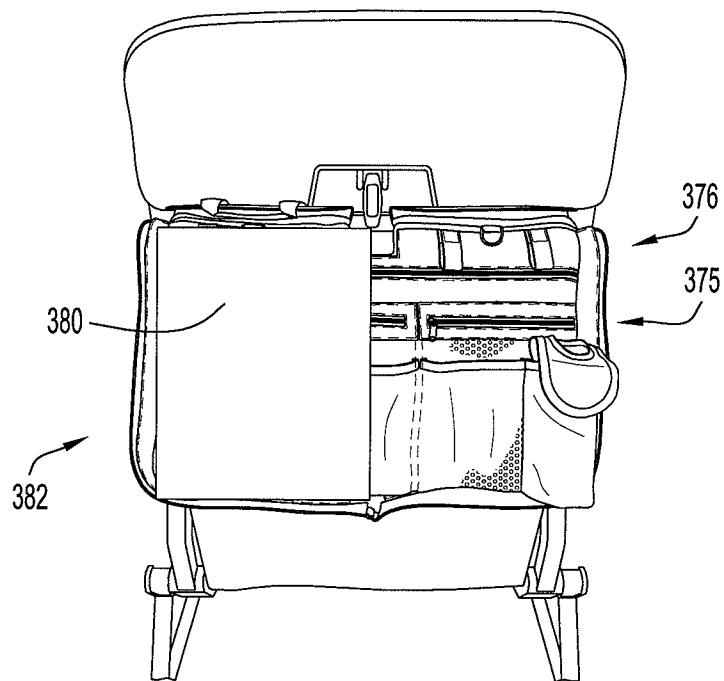


FIG. 23

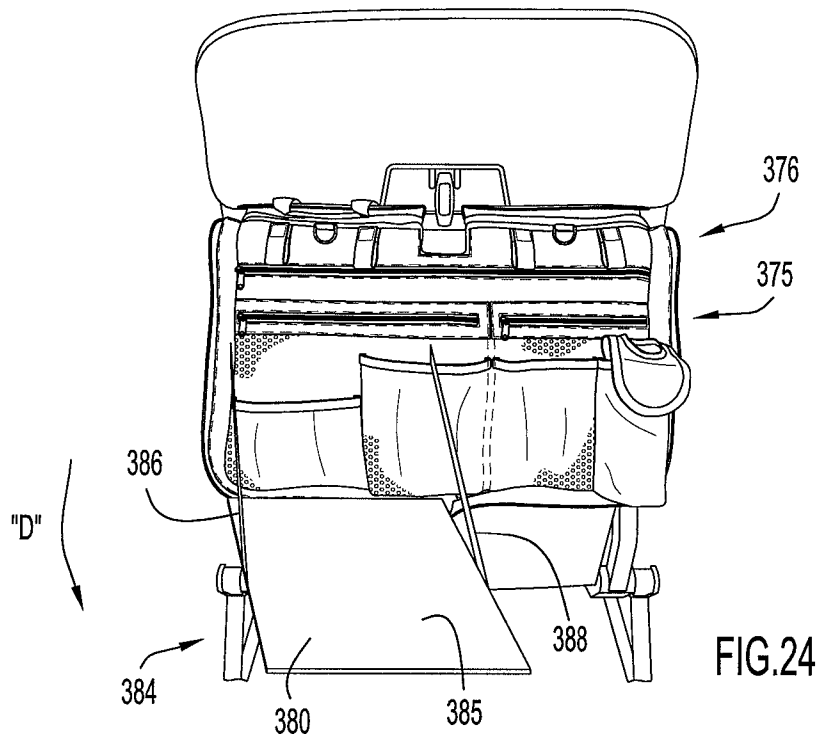


FIG. 24

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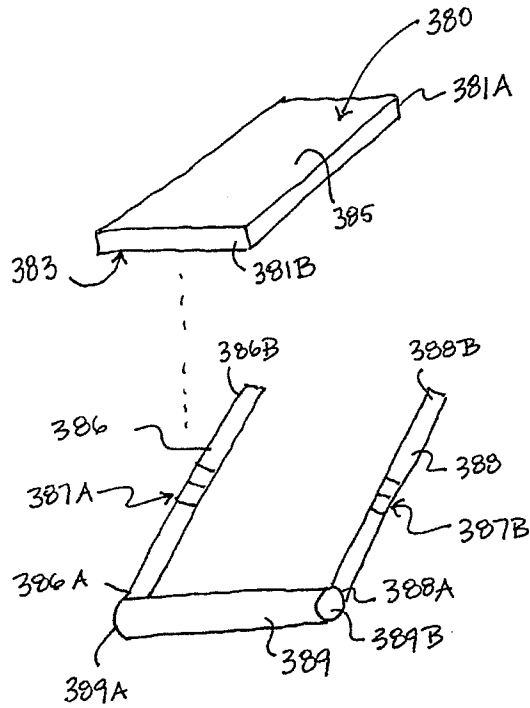


FIG. 24A

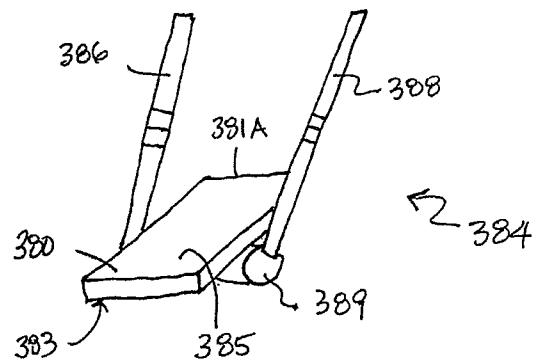
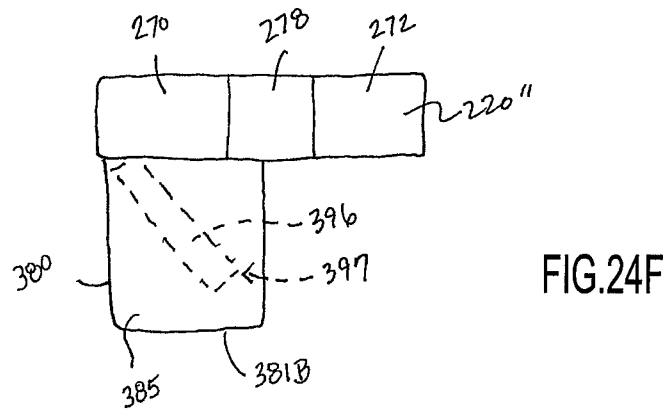
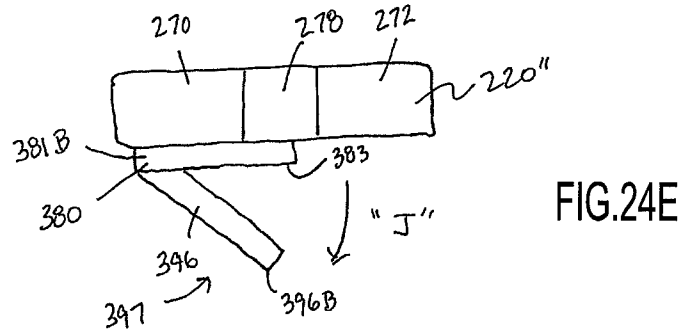
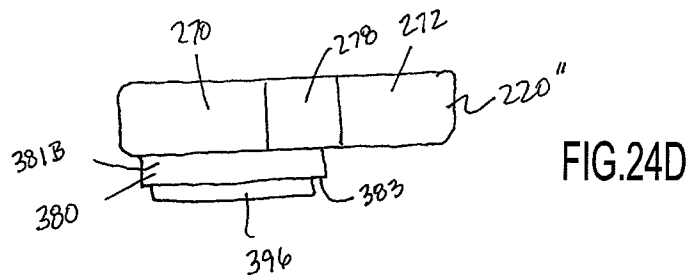
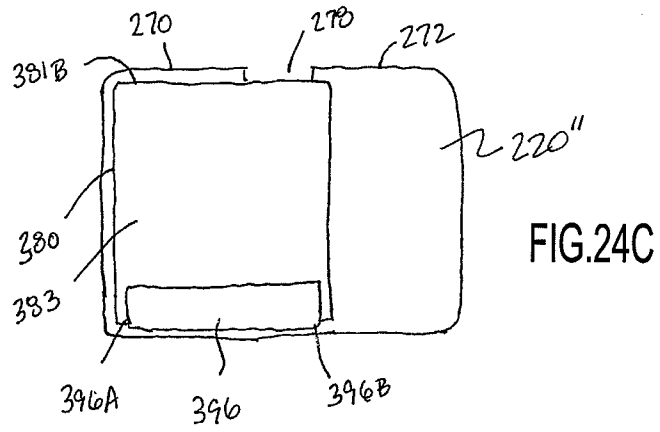
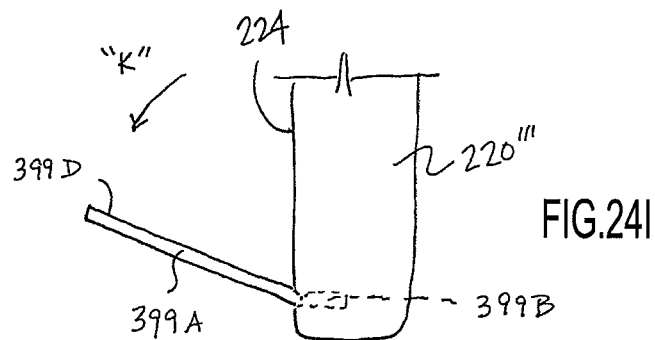
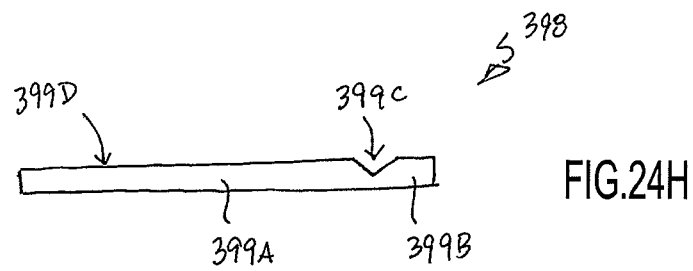
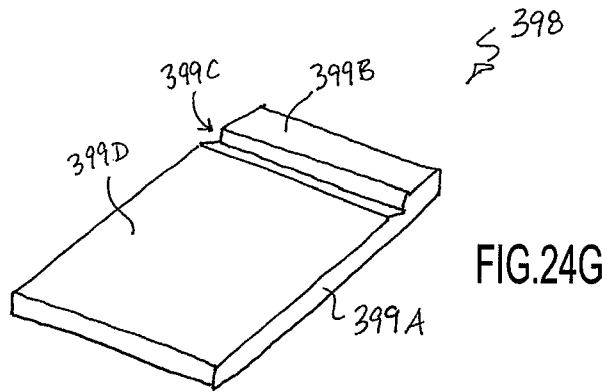


FIG. 24B

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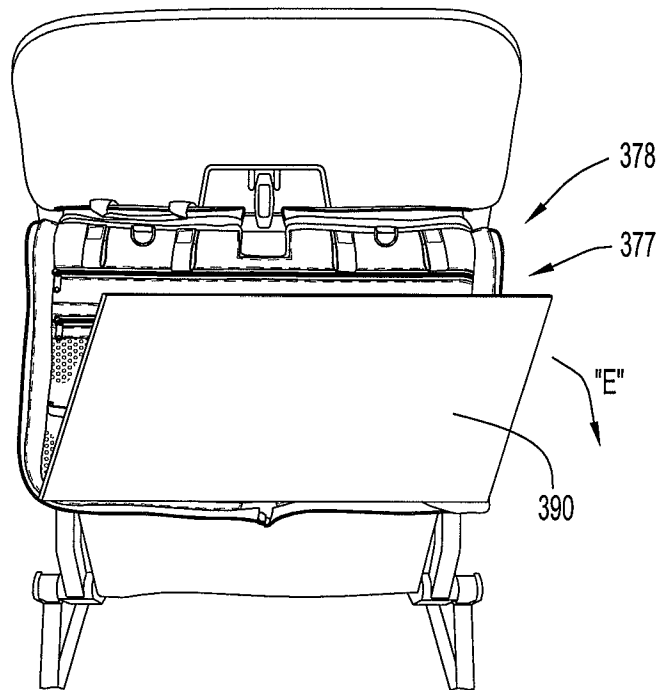


FIG. 25

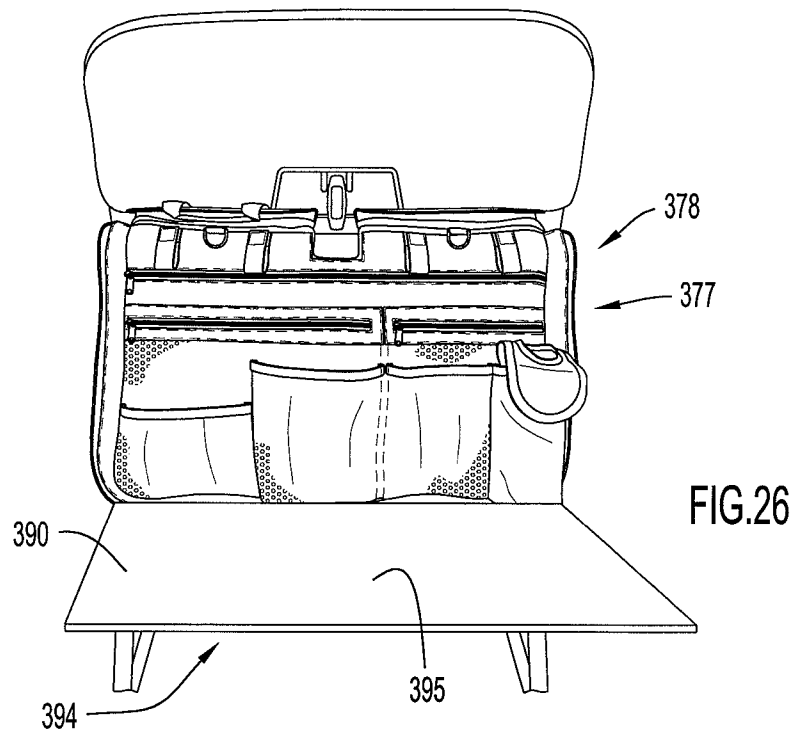


FIG. 26

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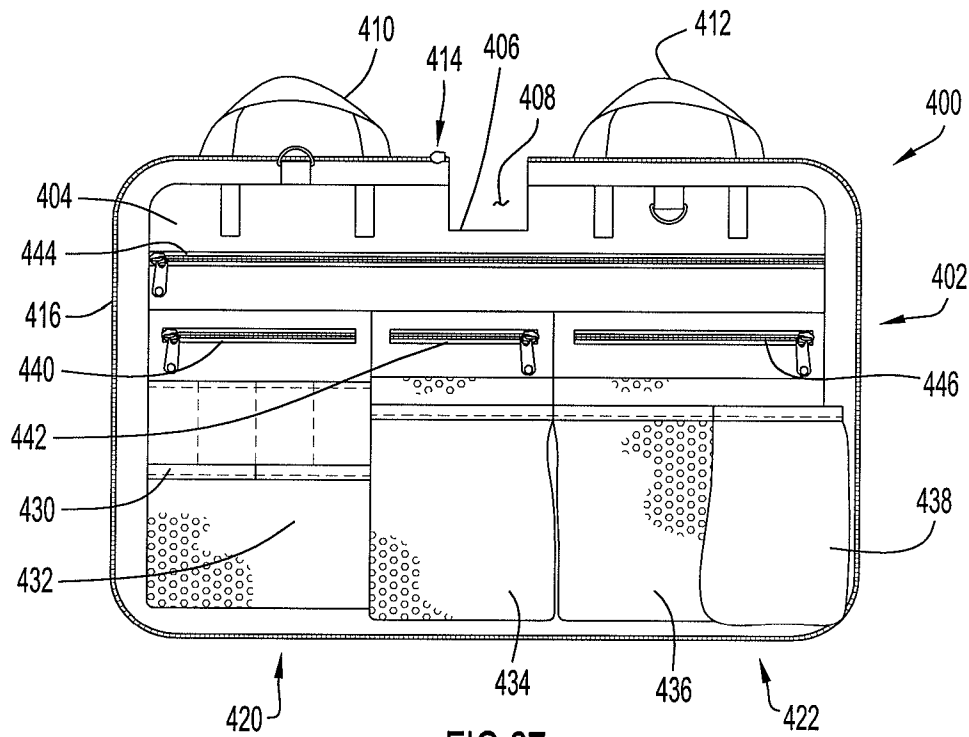


FIG. 27

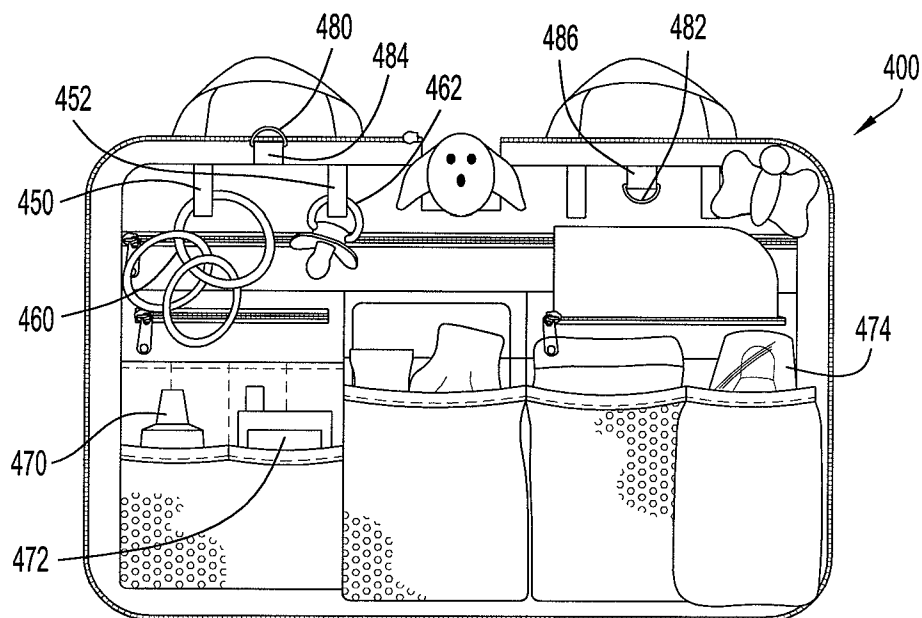


FIG. 28

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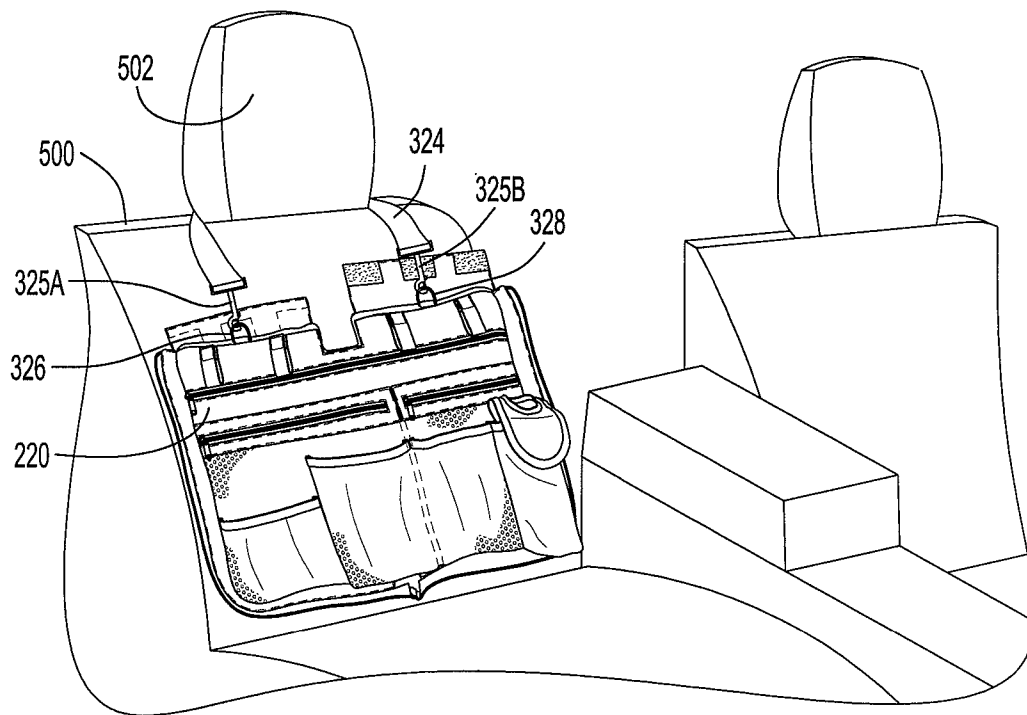


FIG. 29A

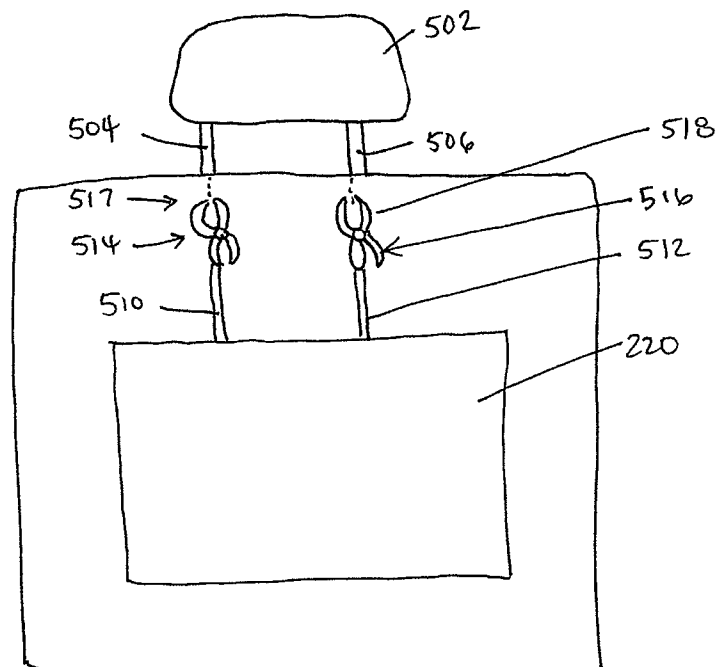


FIG. 29B

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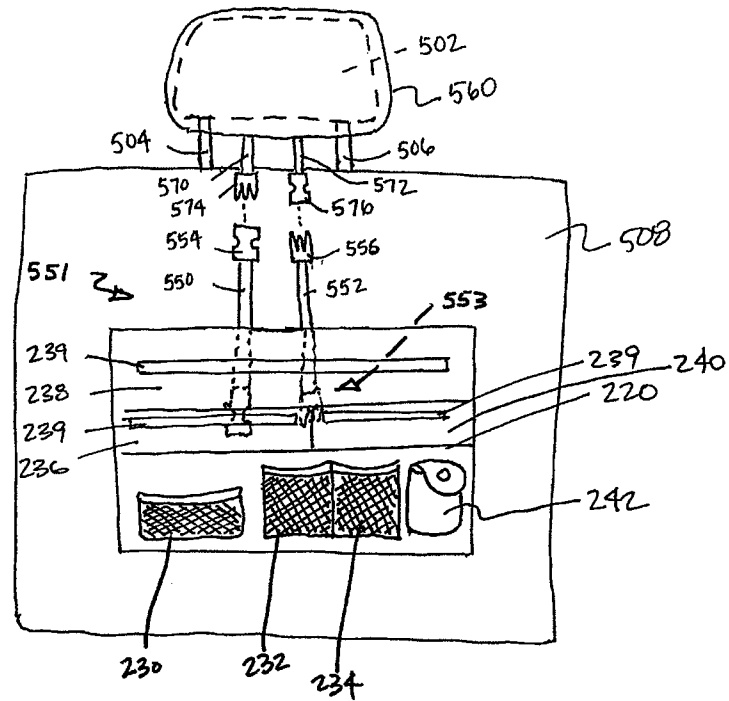


FIG. 29C

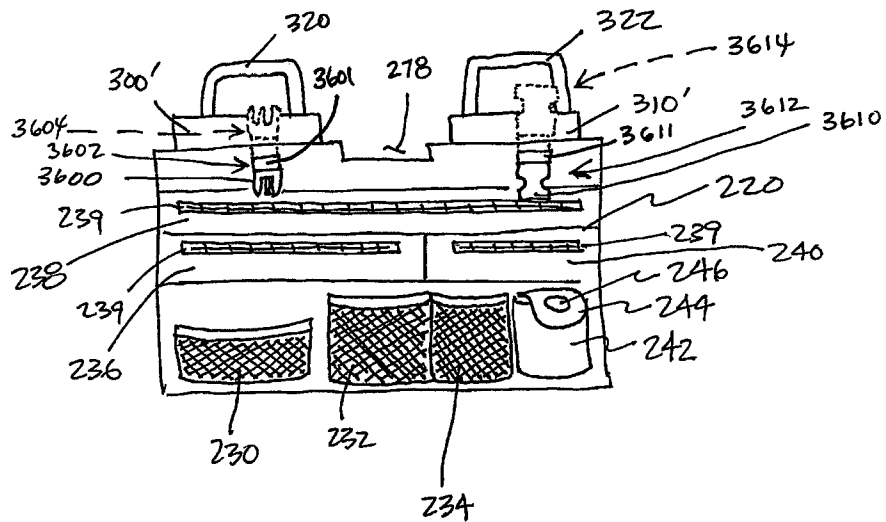


FIG. 29D

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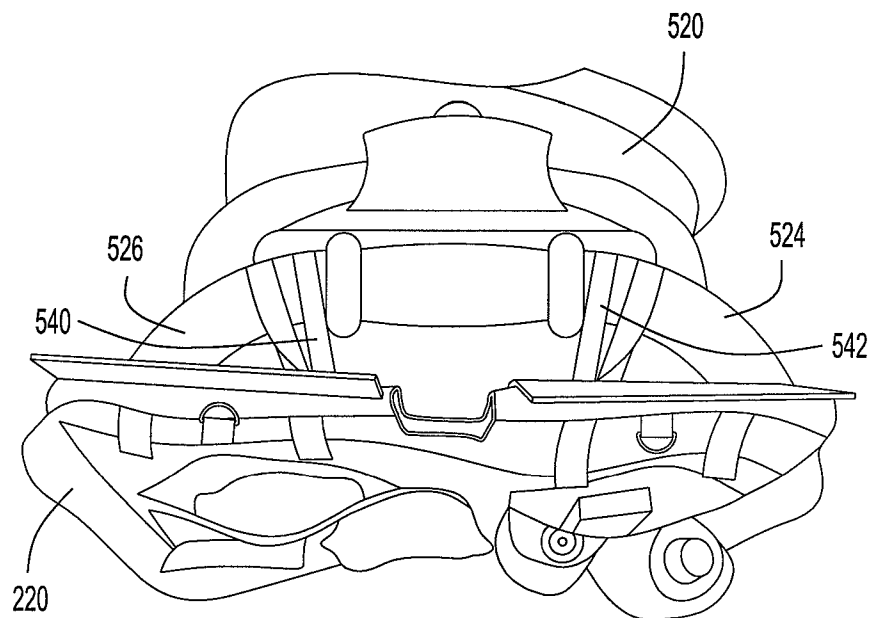
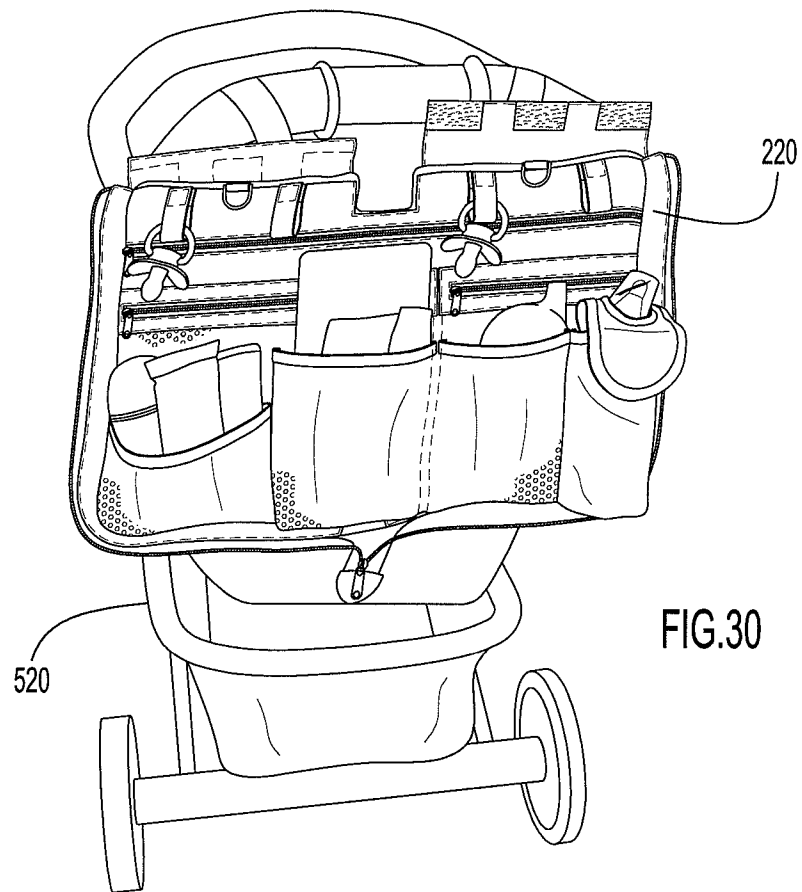


FIG. 31

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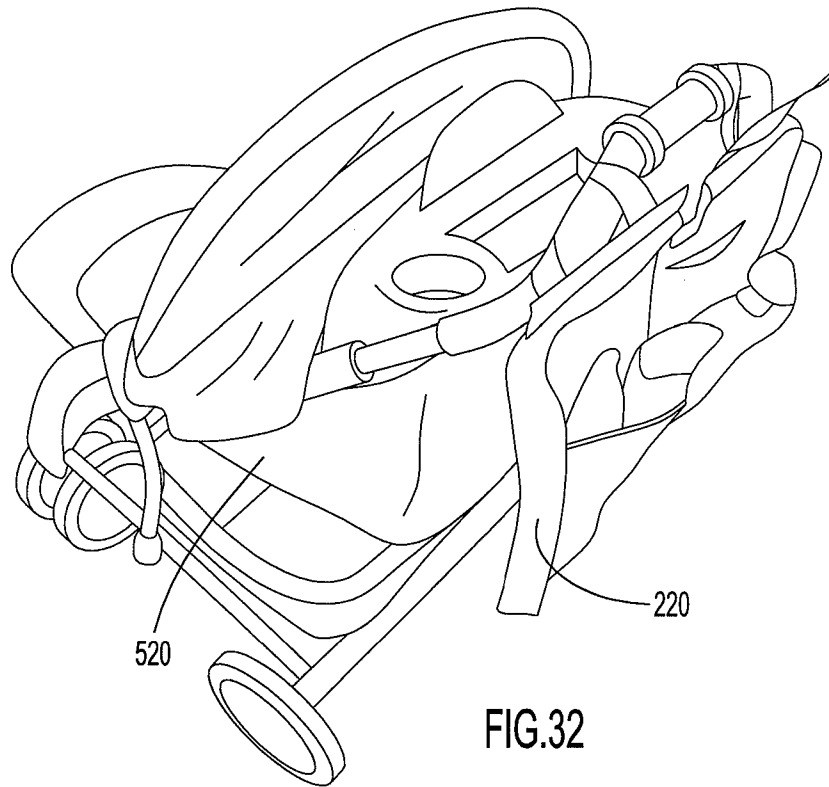


FIG. 32

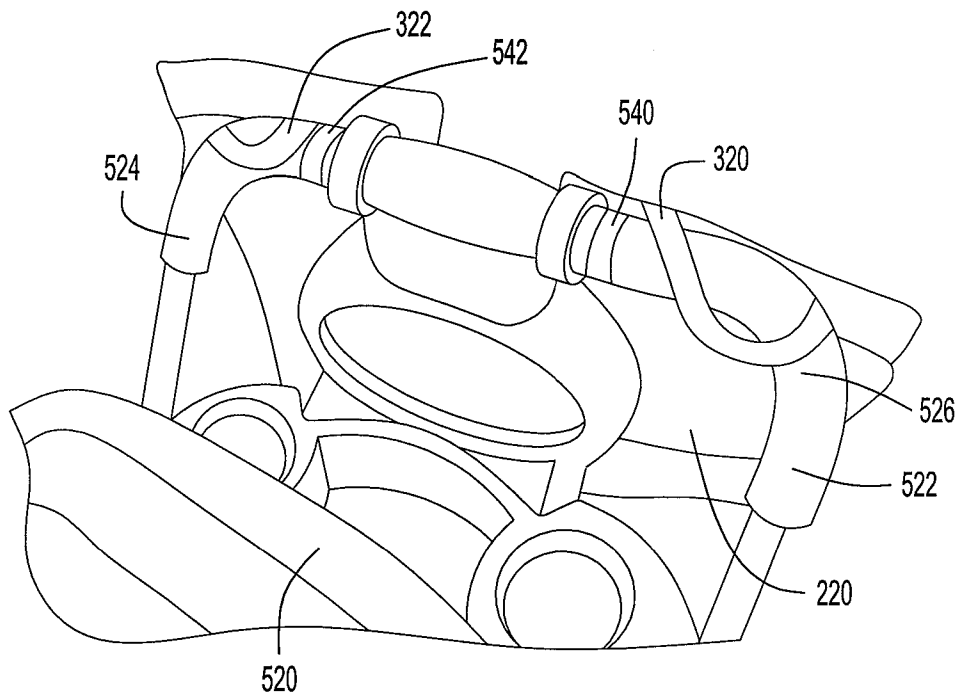


FIG. 33A

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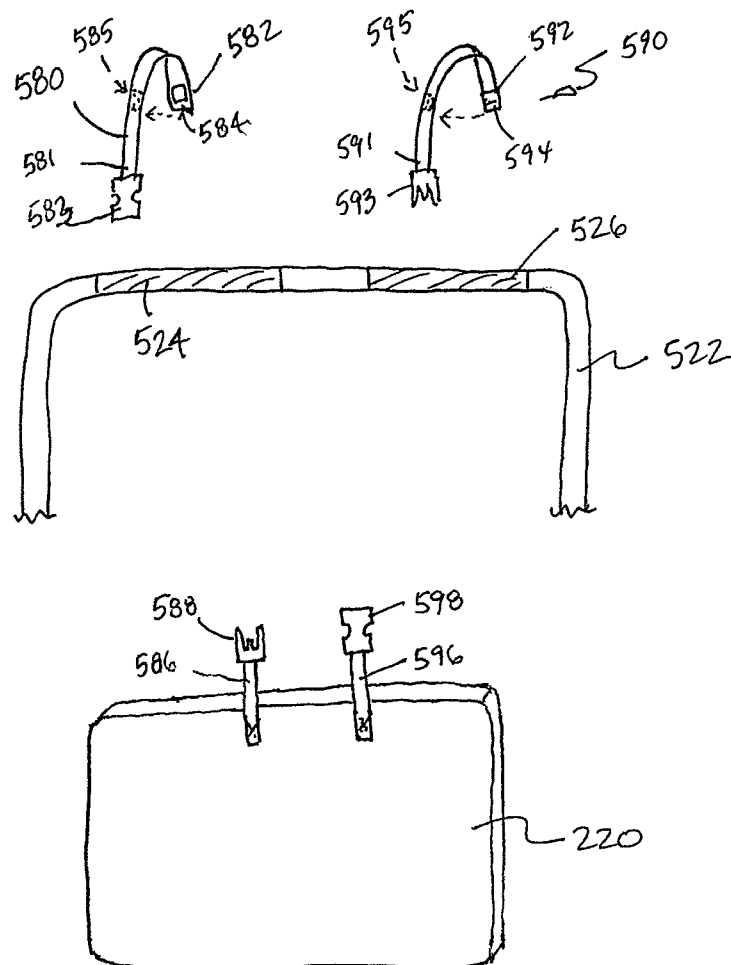


FIG.33B

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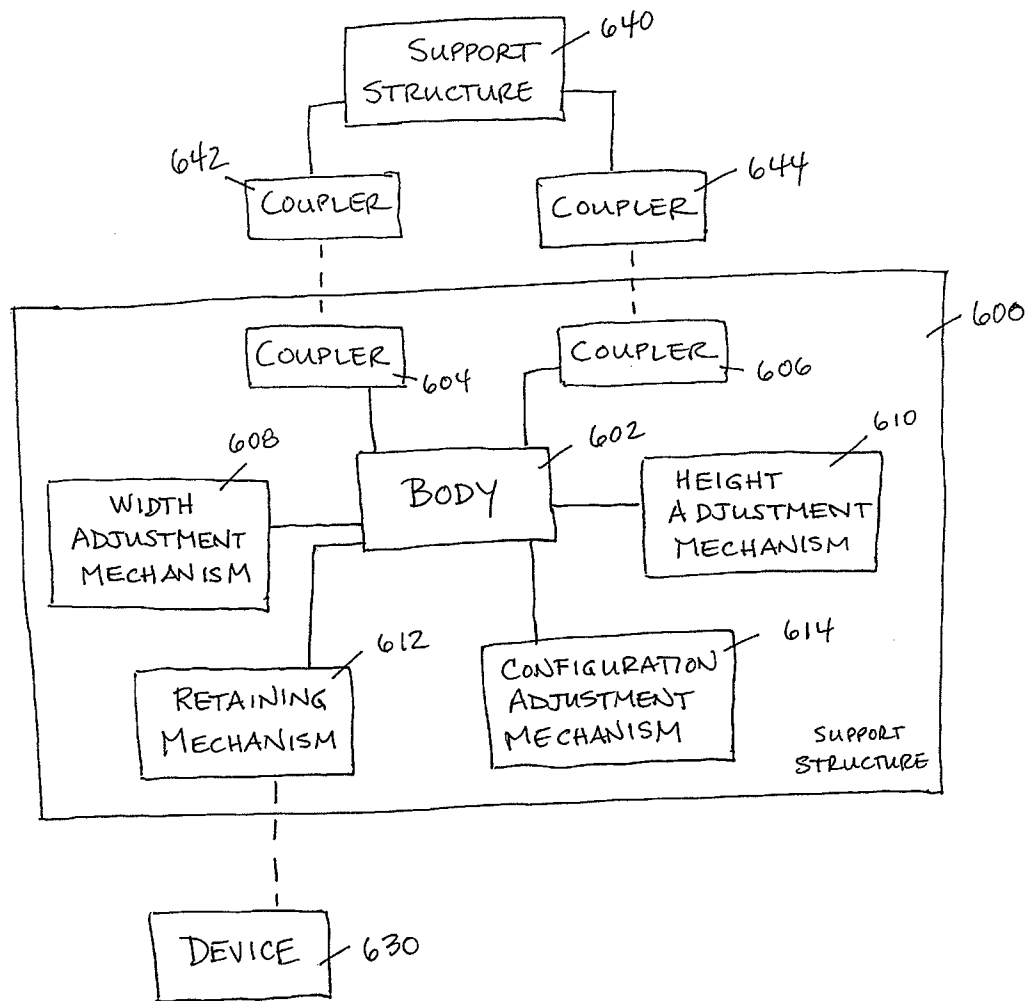


FIG.34

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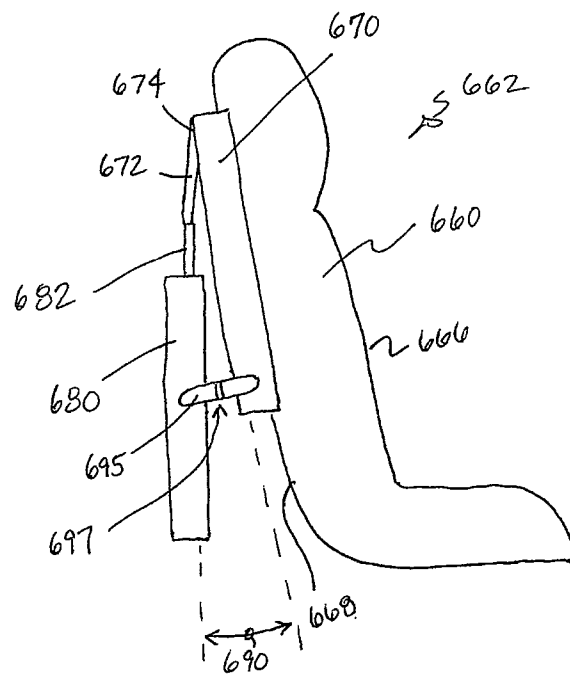


FIG.35

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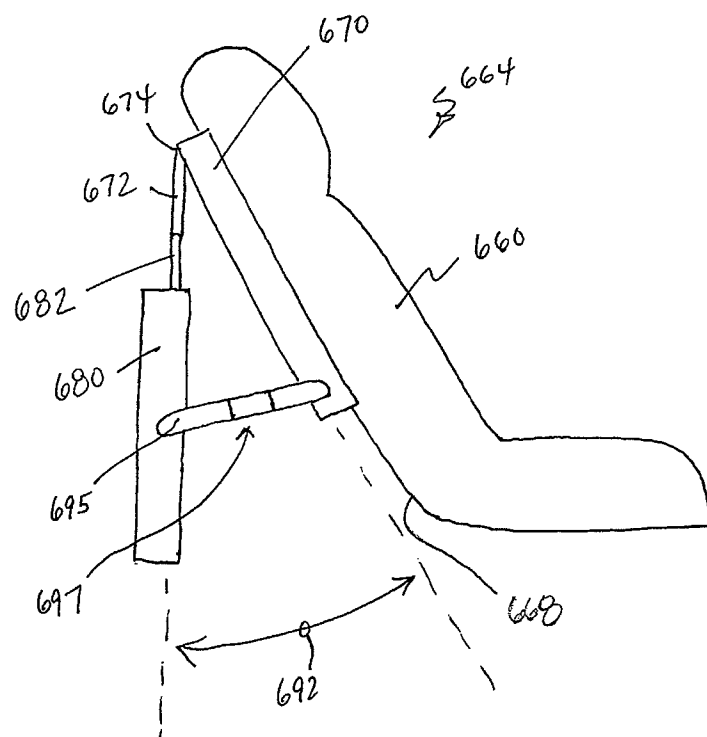


FIG.36

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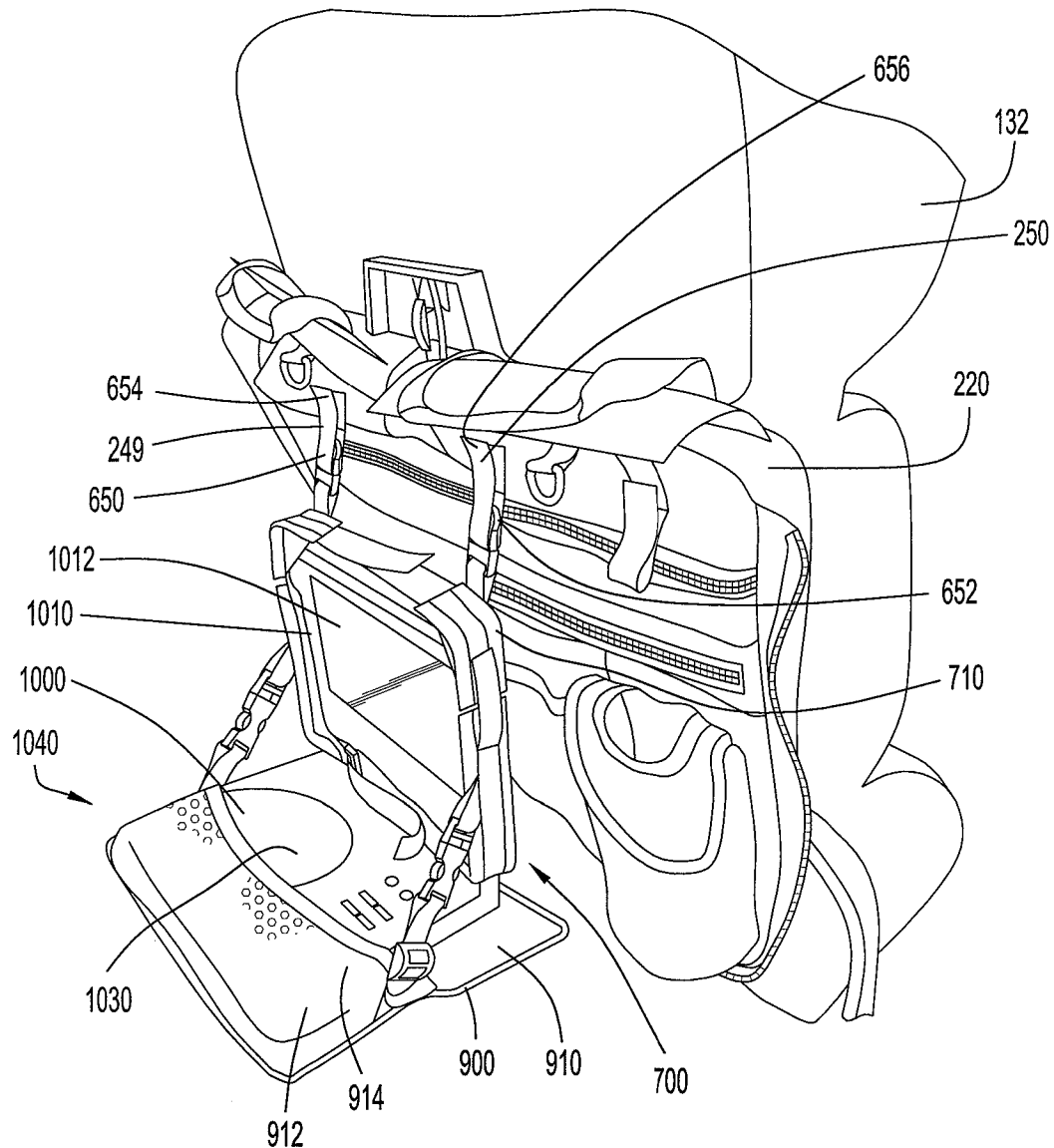


FIG.37

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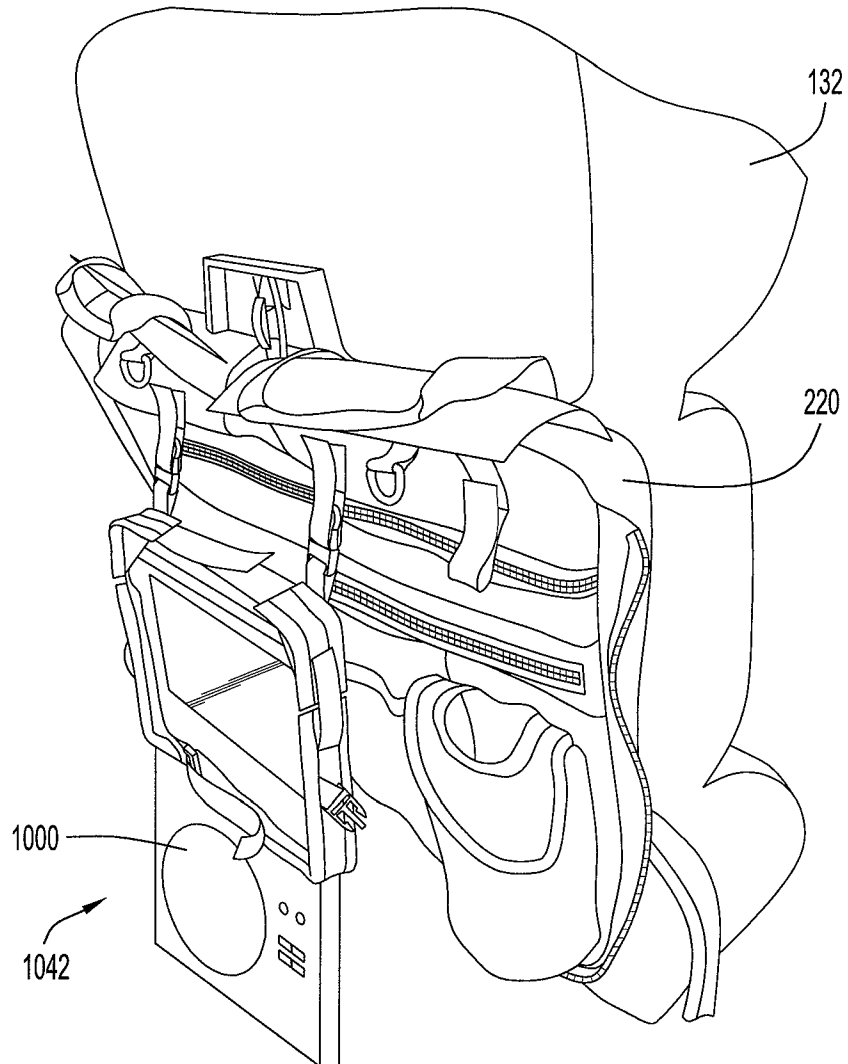
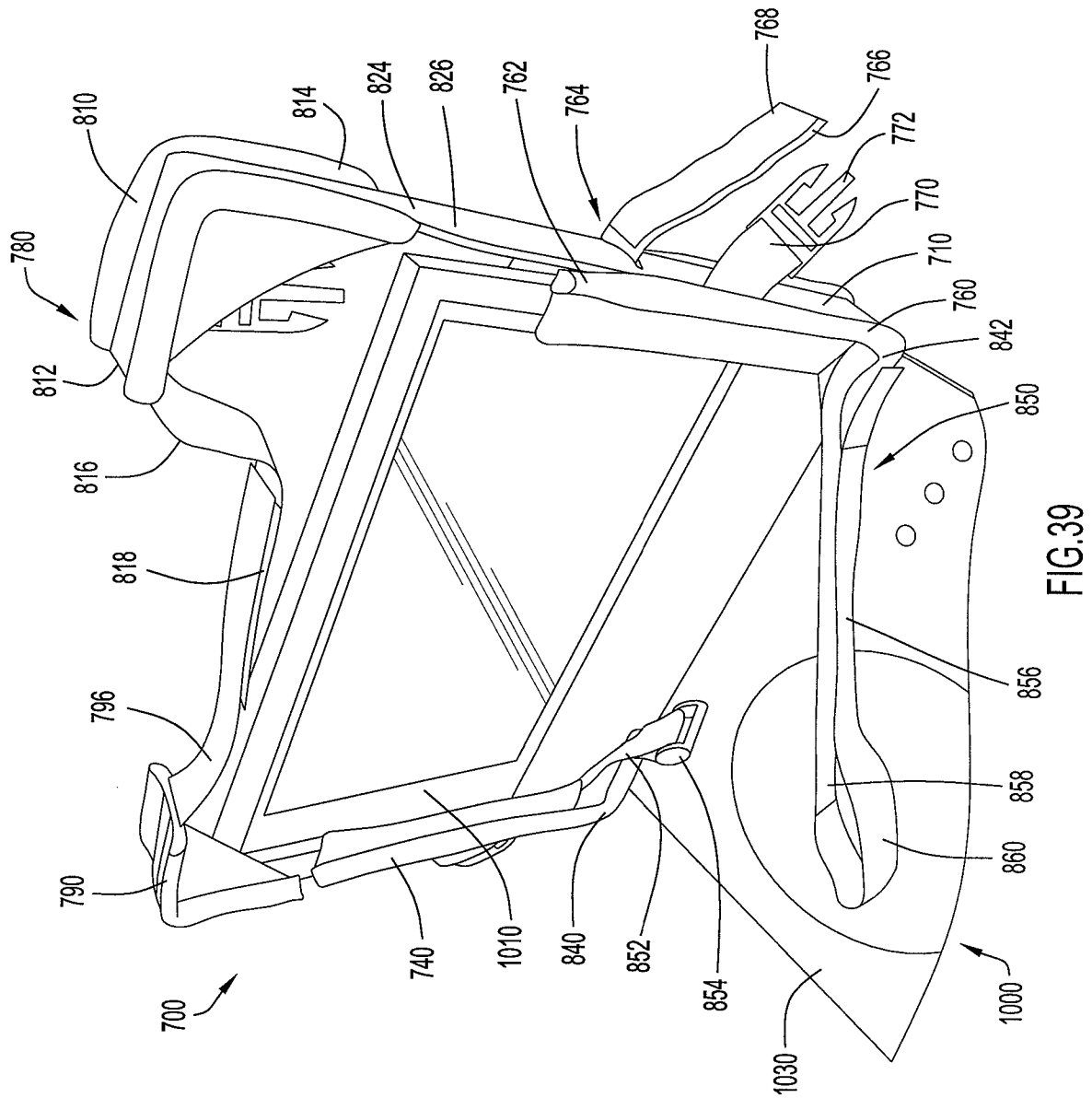


FIG.38

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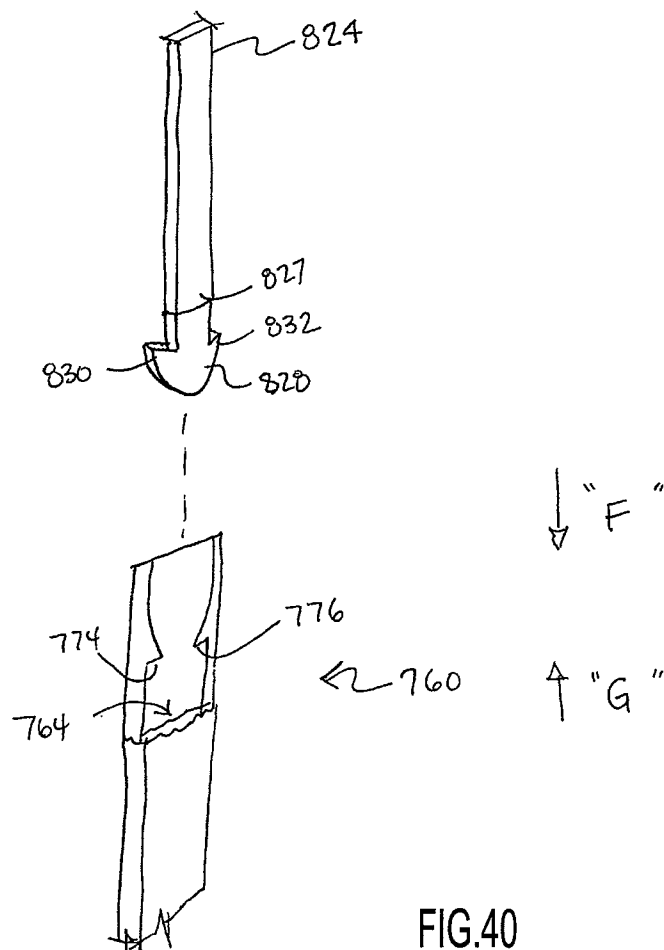


FIG.40

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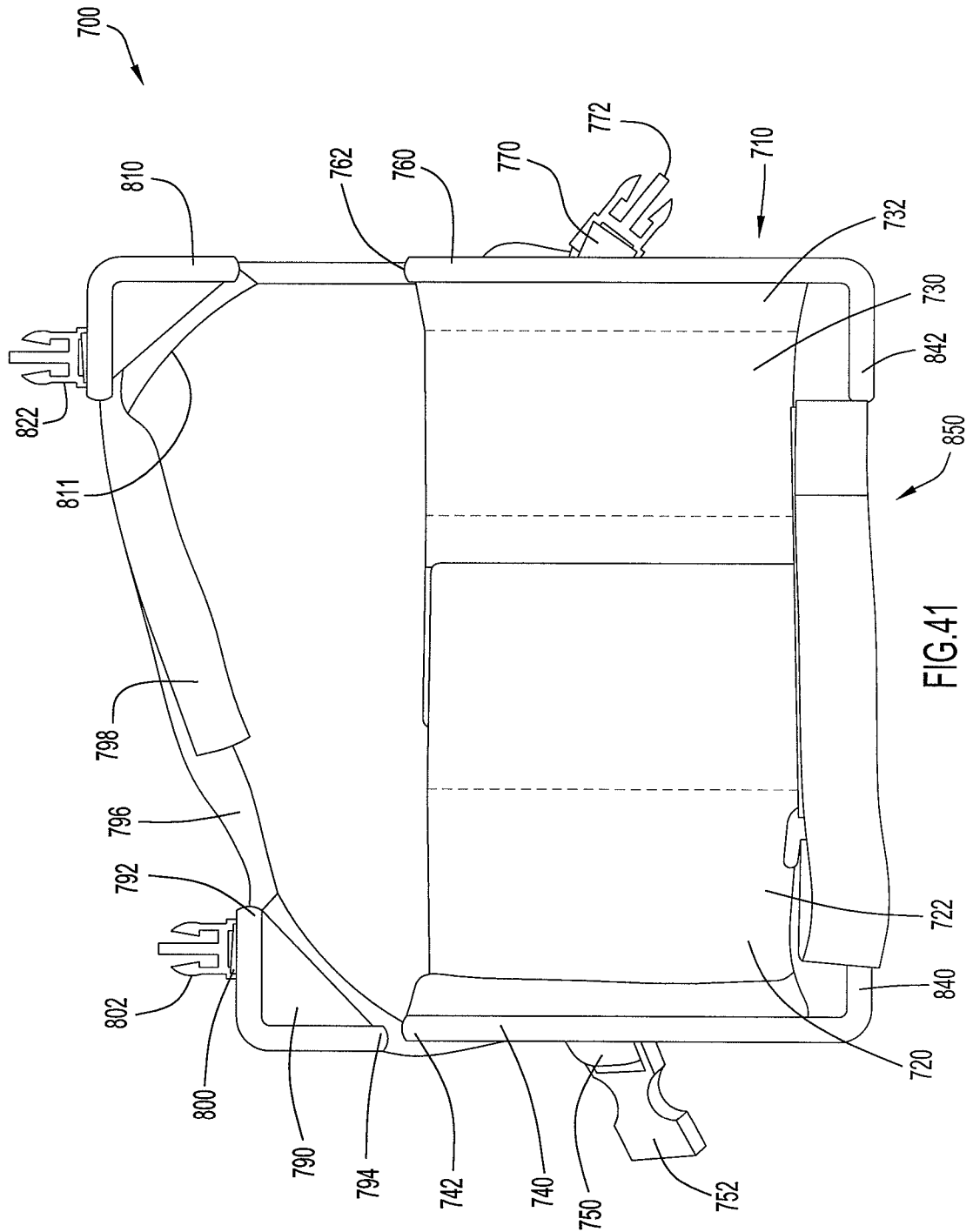
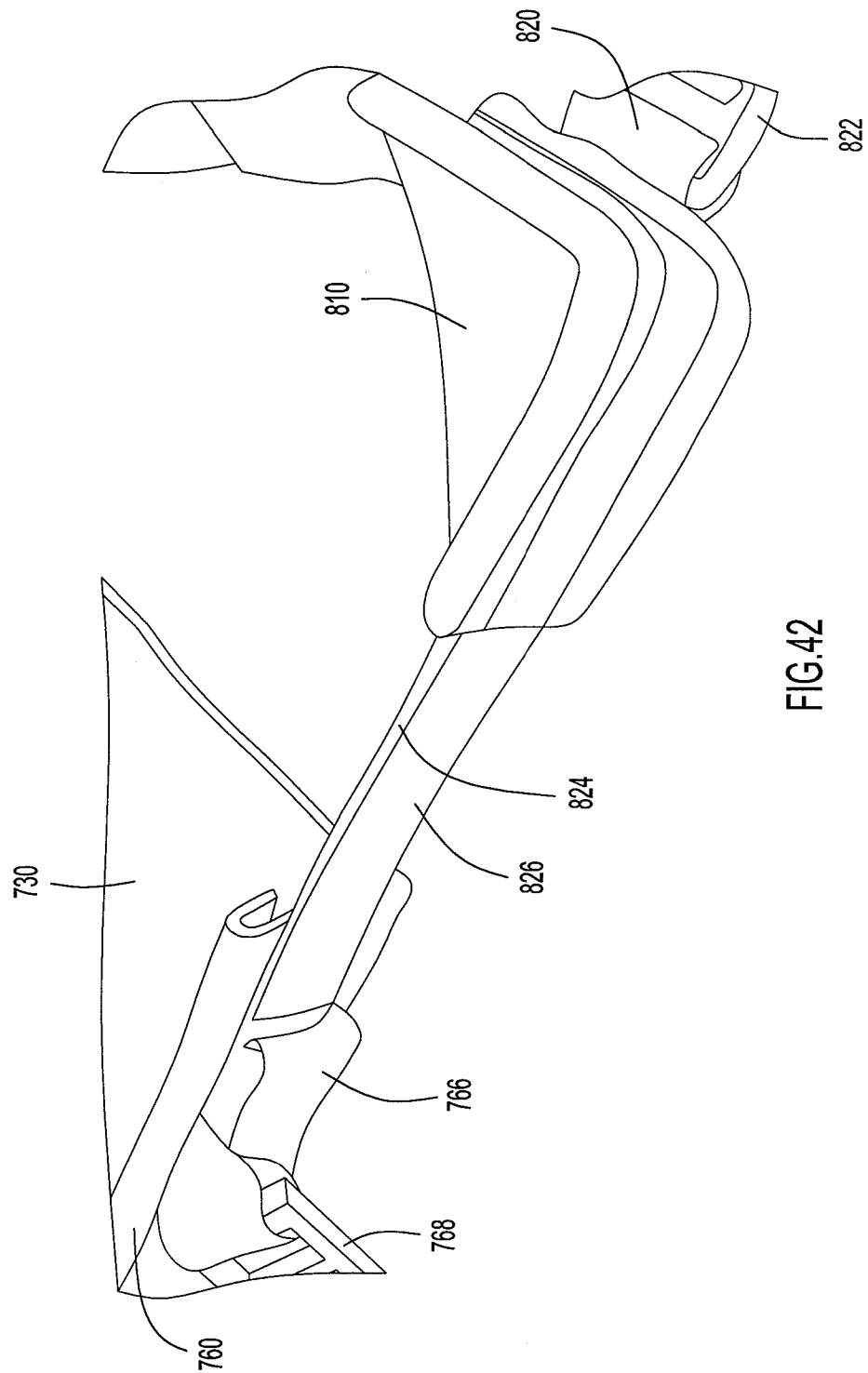


FIG. 41

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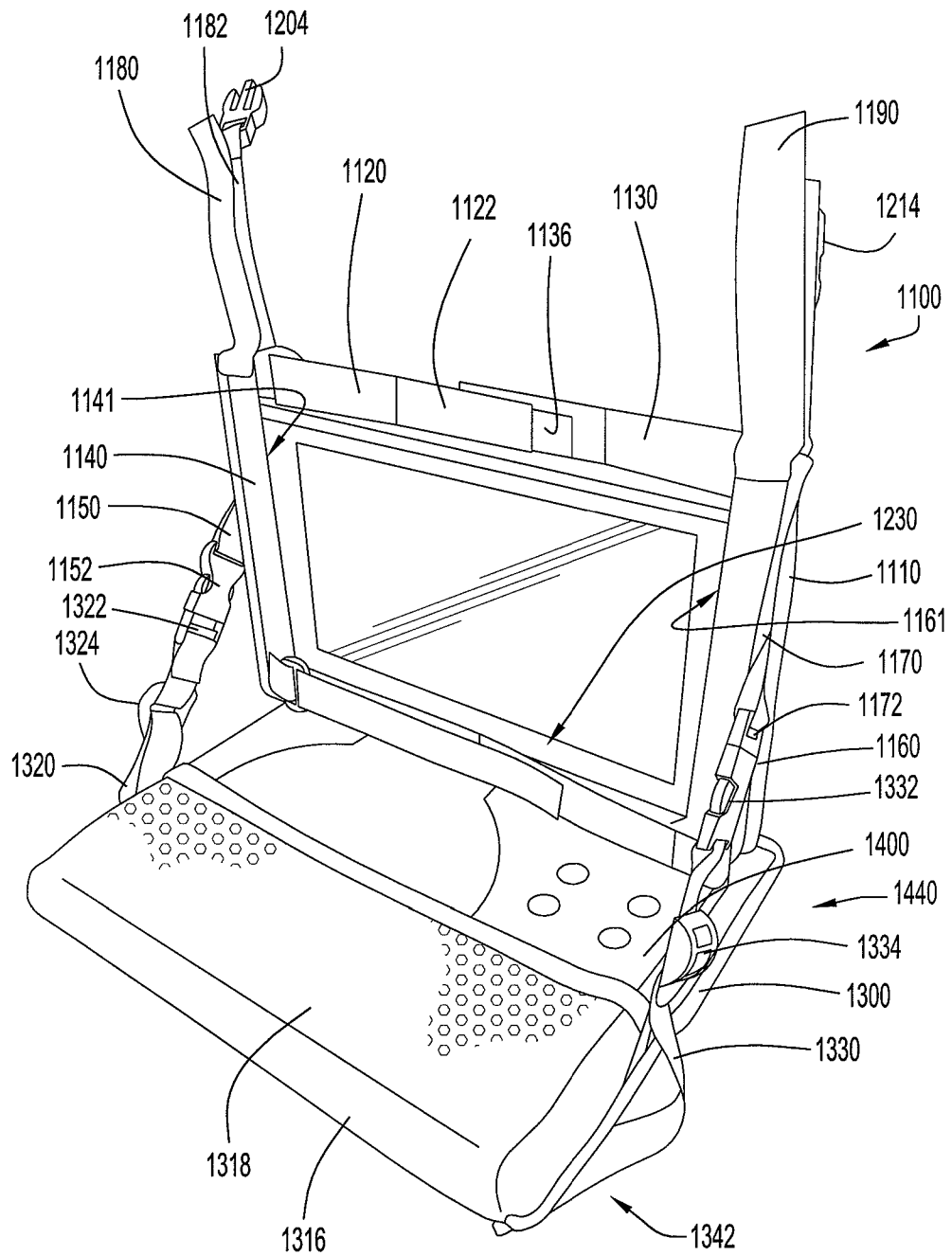


FIG. 43

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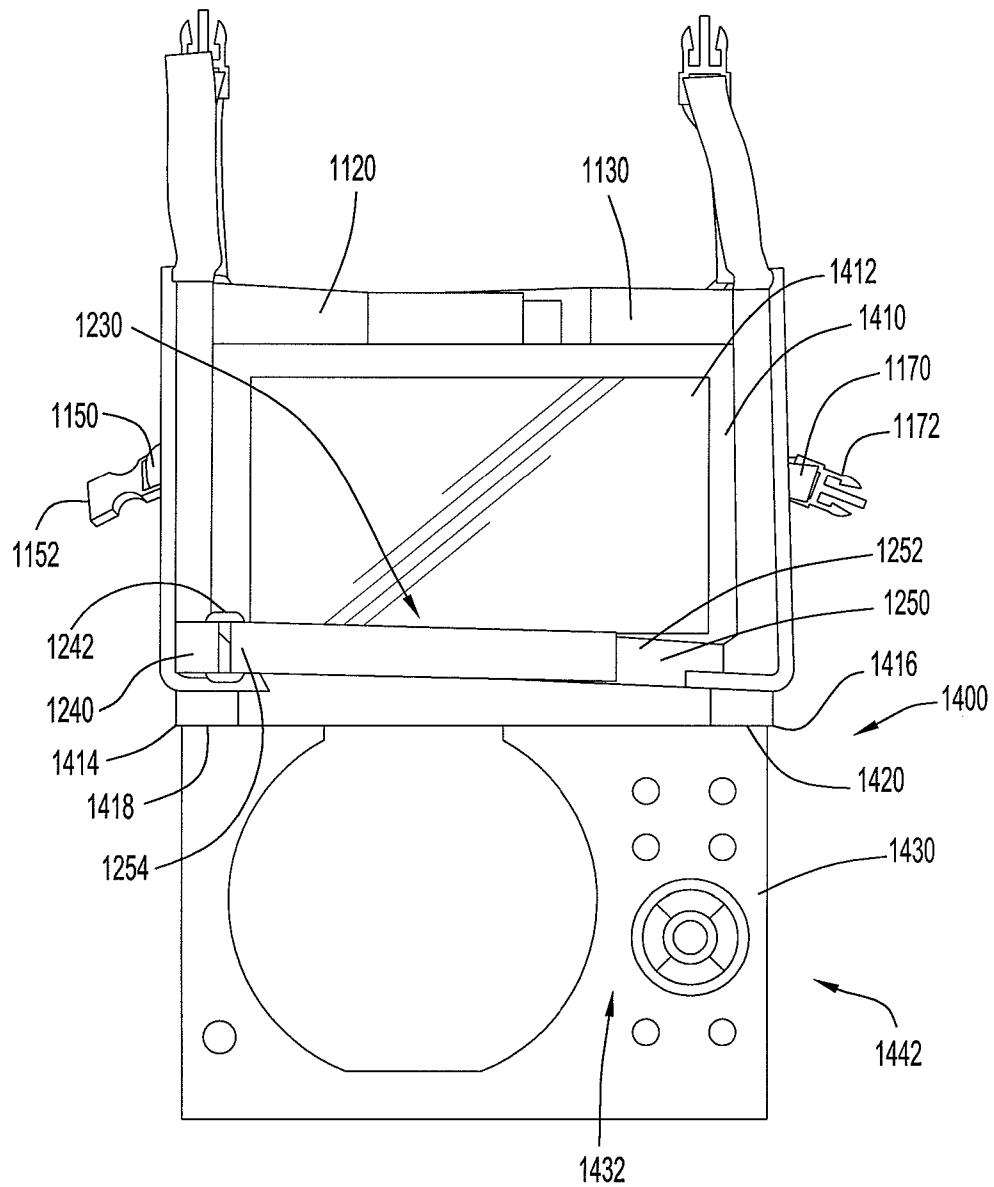


FIG.44

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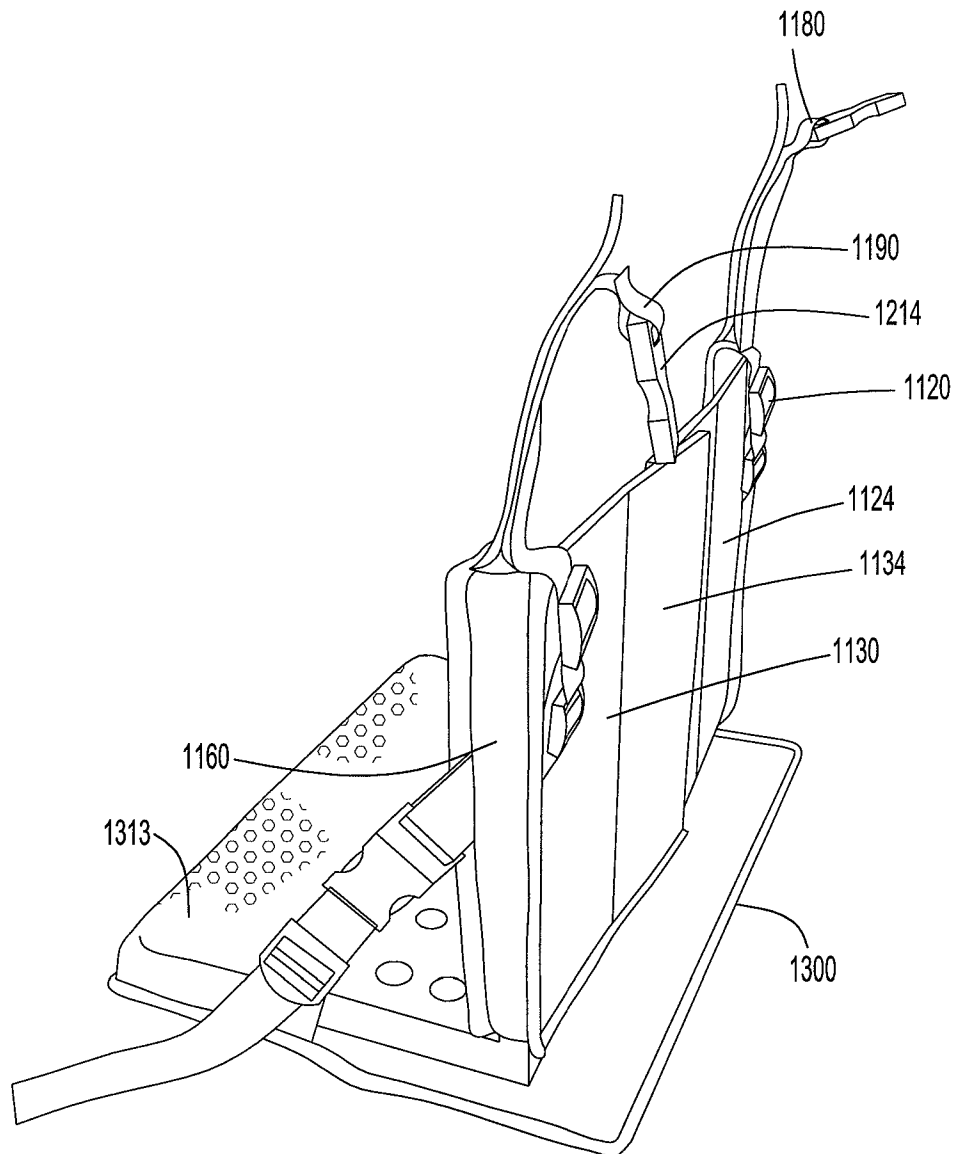
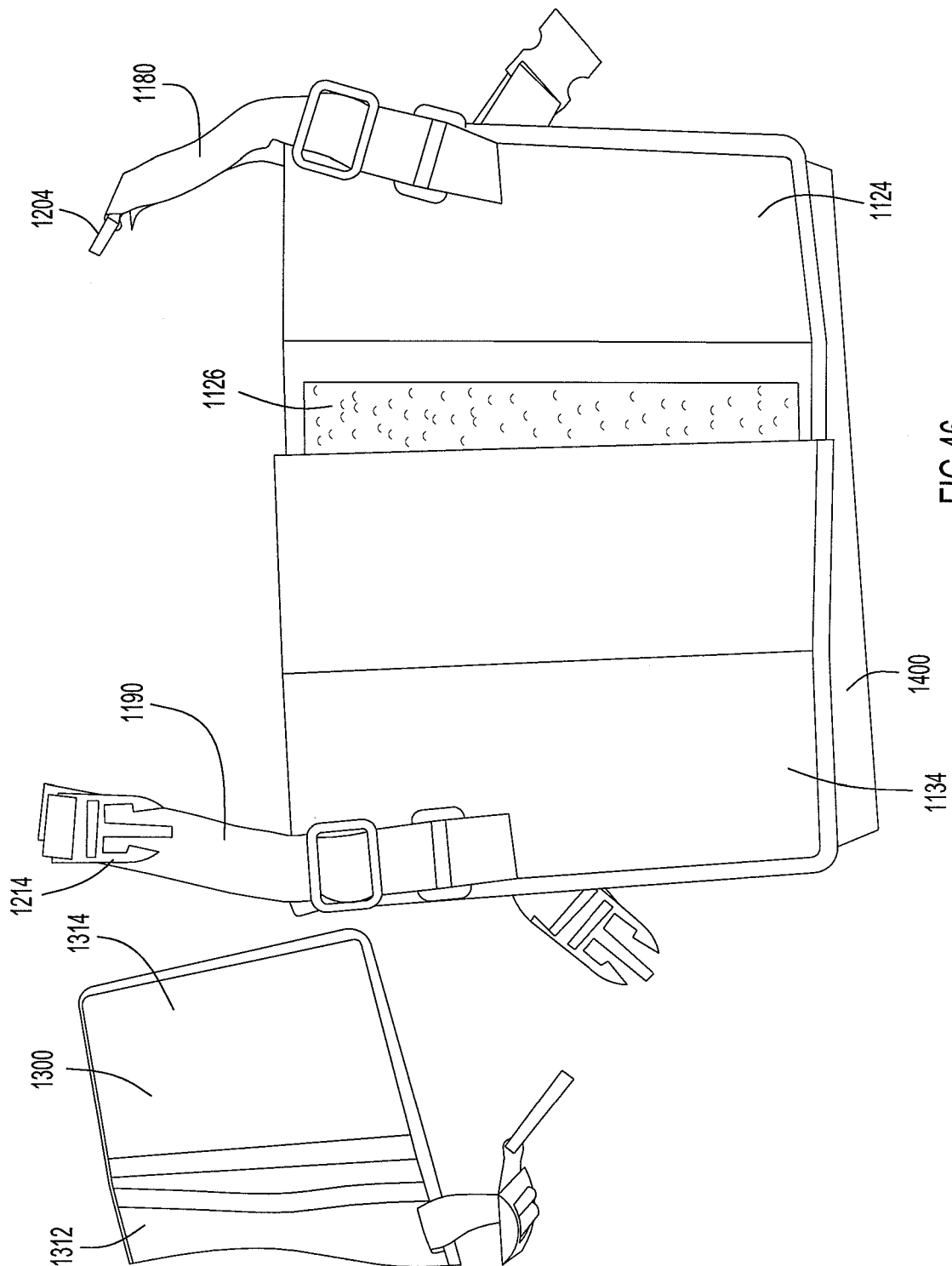


FIG.45

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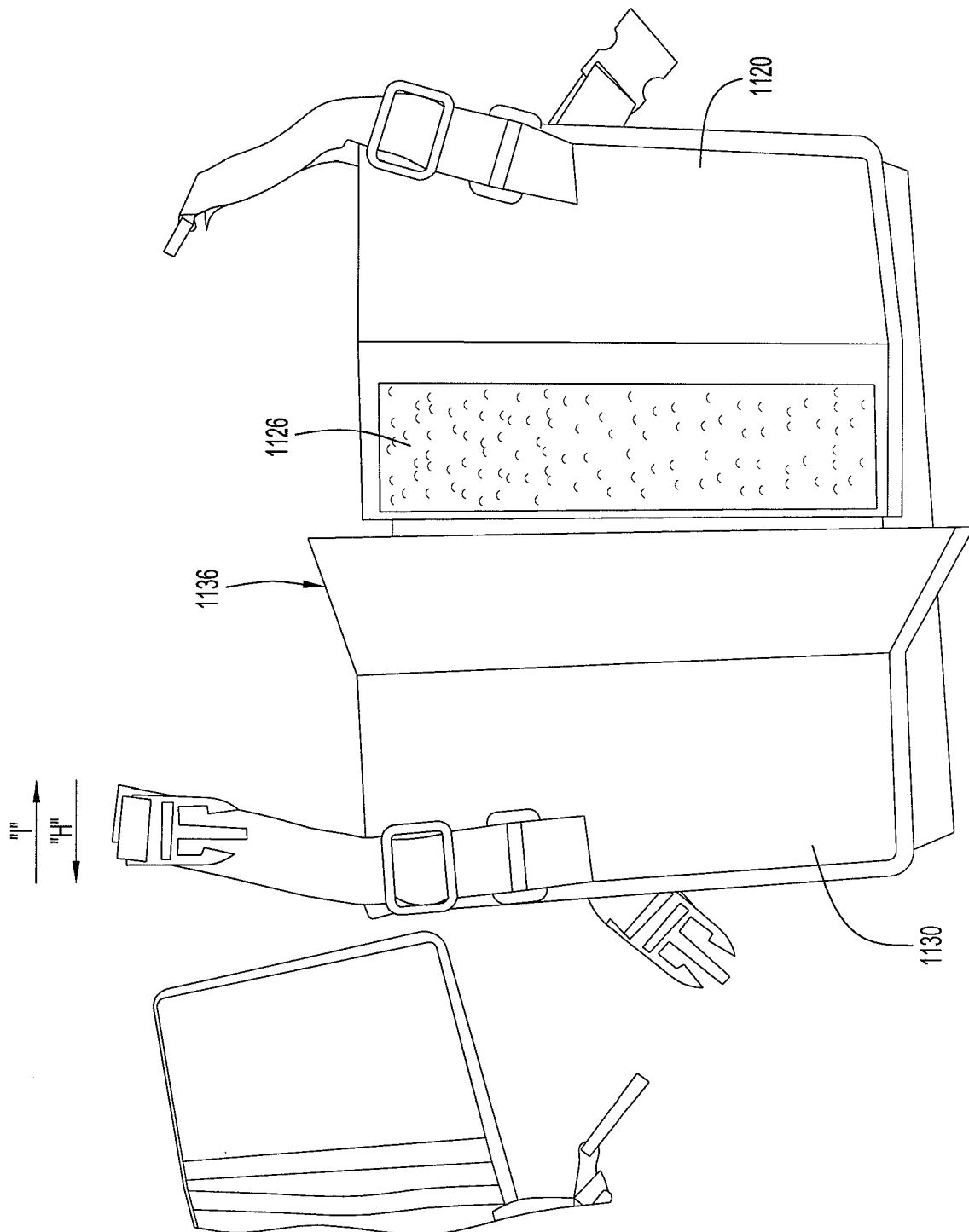
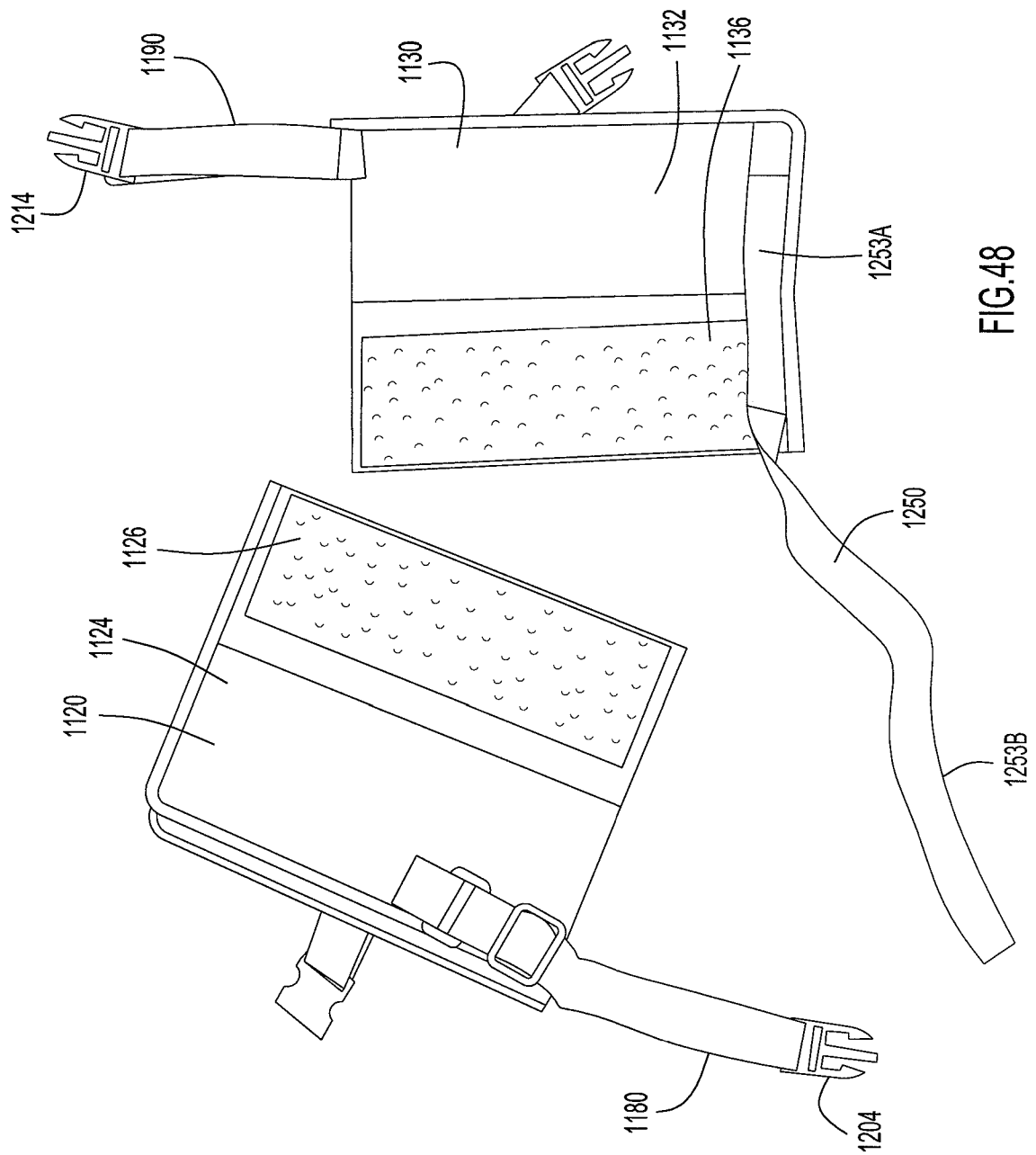


FIG. 47

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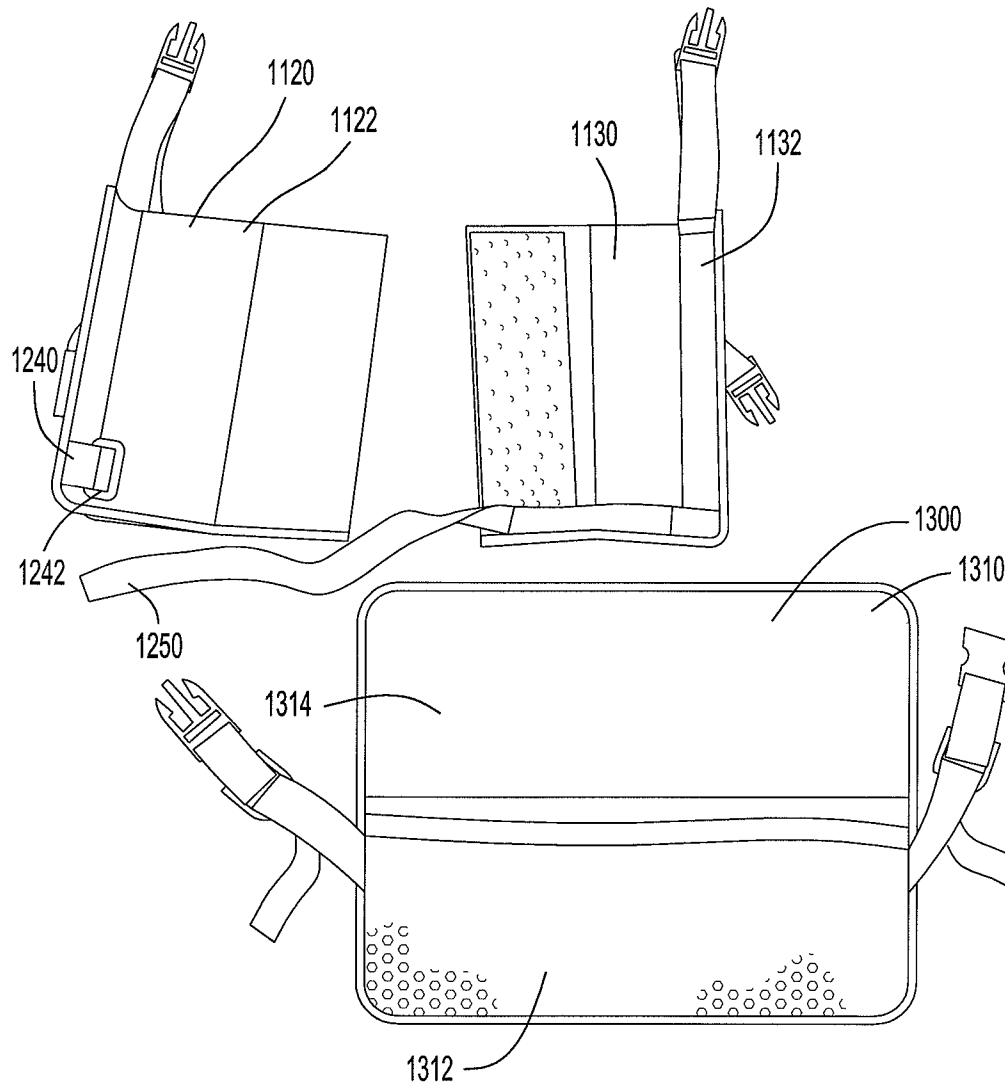


FIG.49

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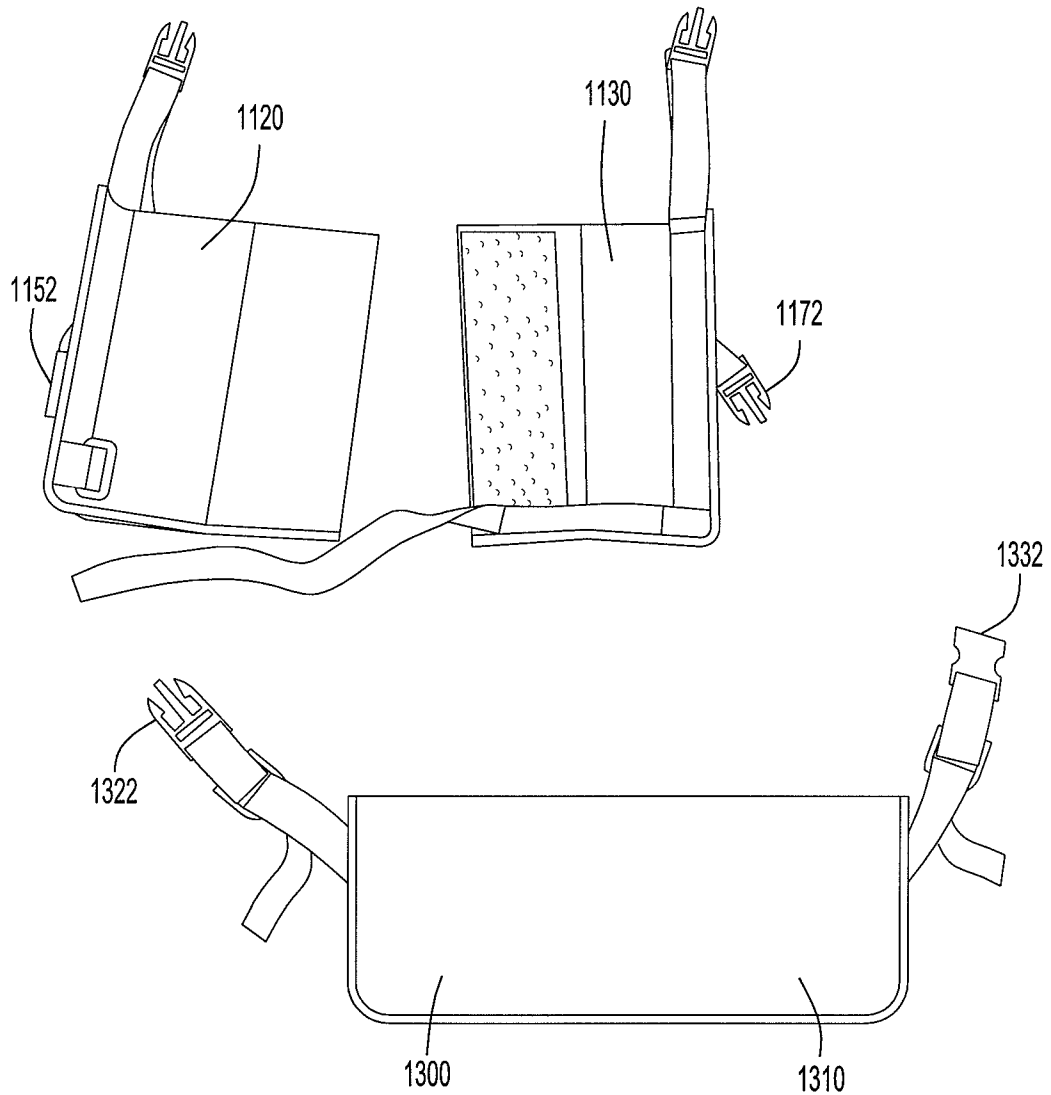


FIG.50

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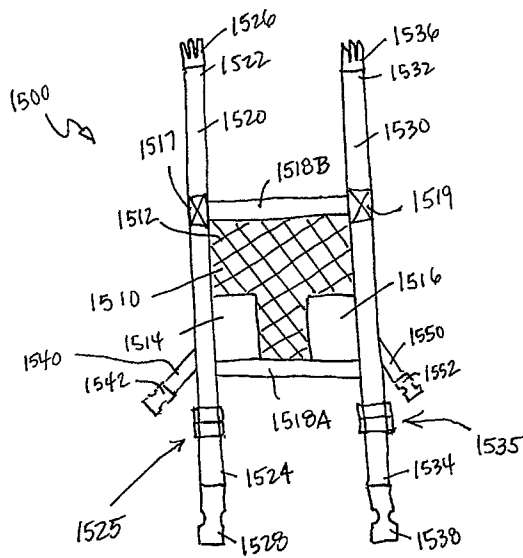


FIG. 51

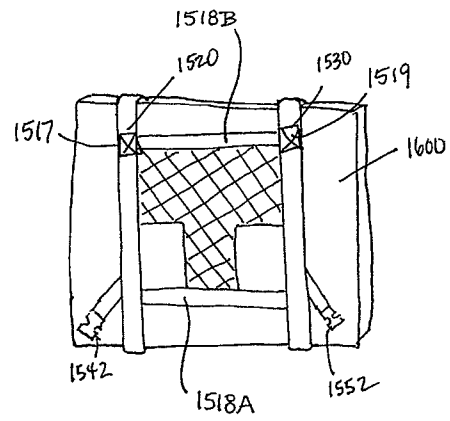
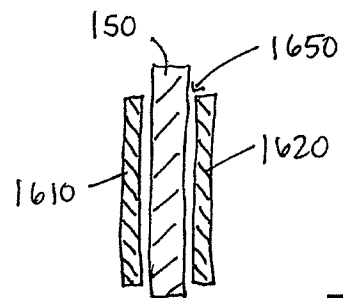
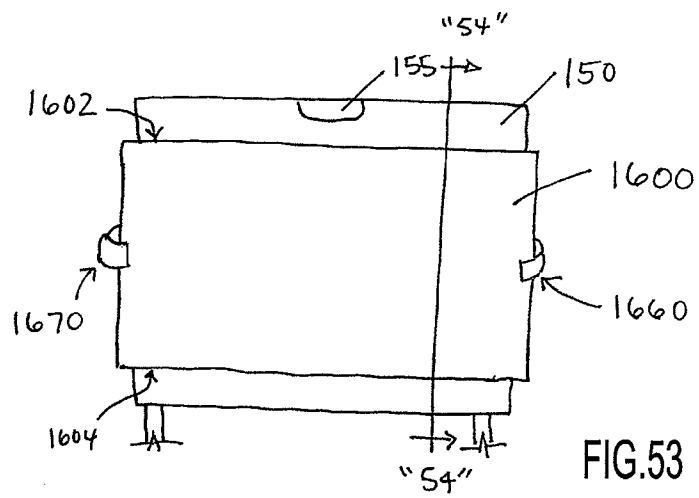
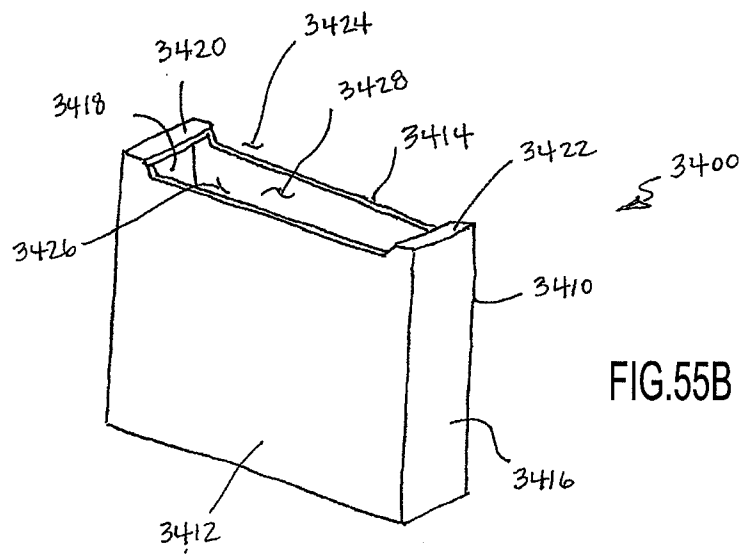
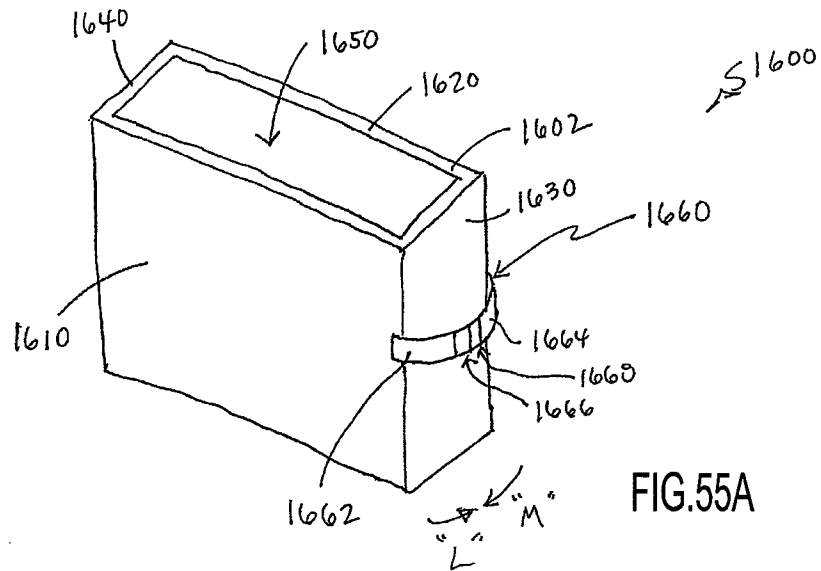


FIG. 52

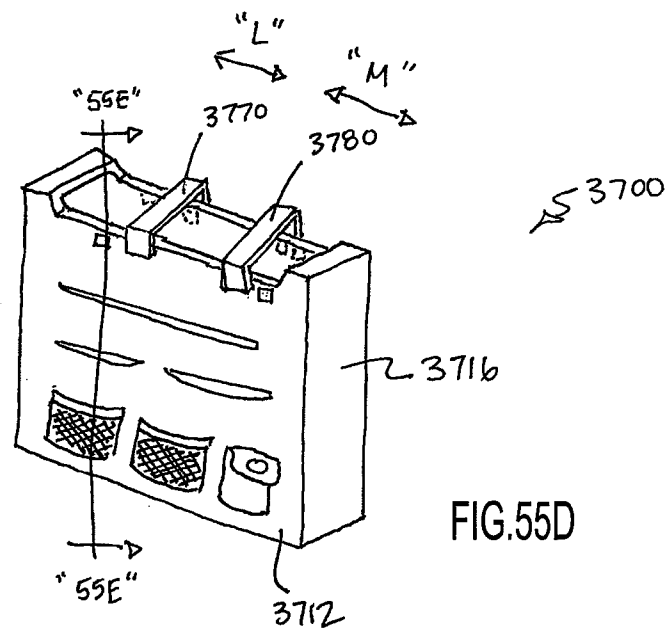
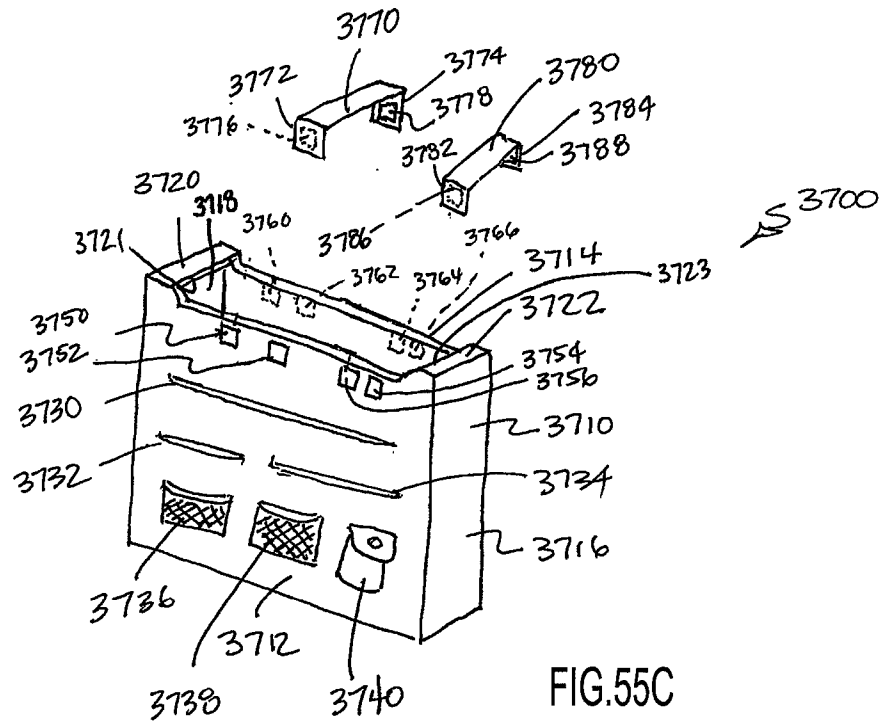
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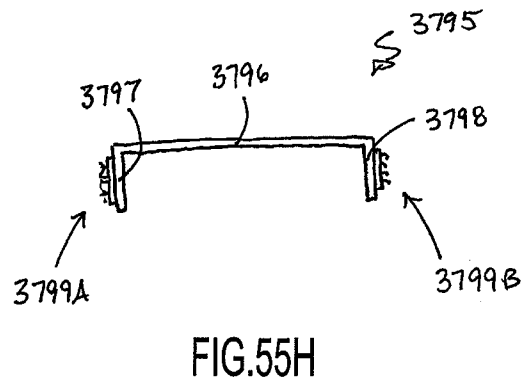
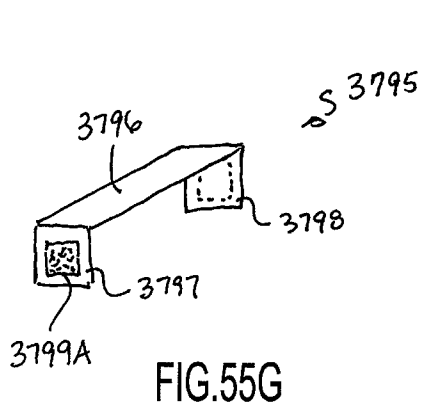
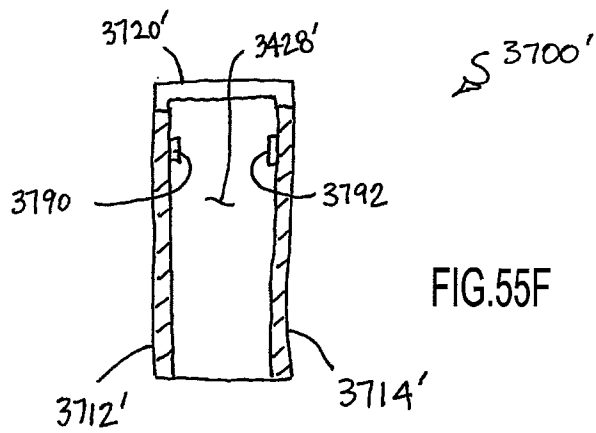
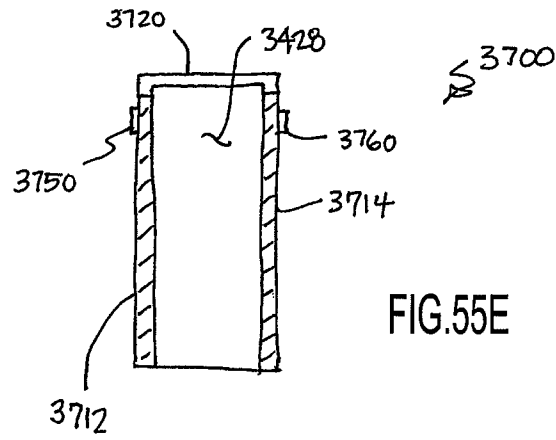
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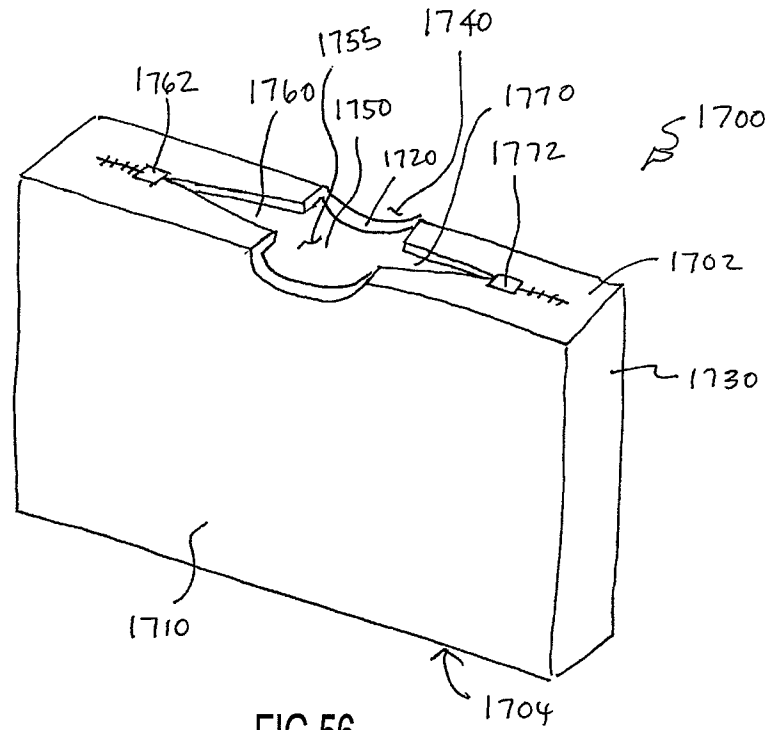


FIG. 56

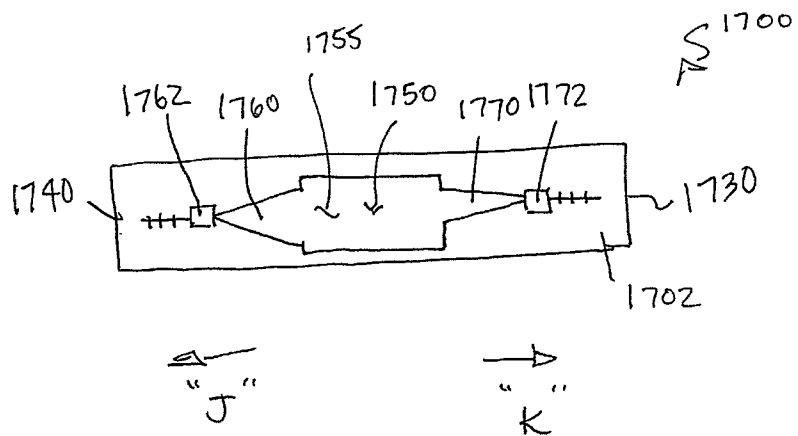
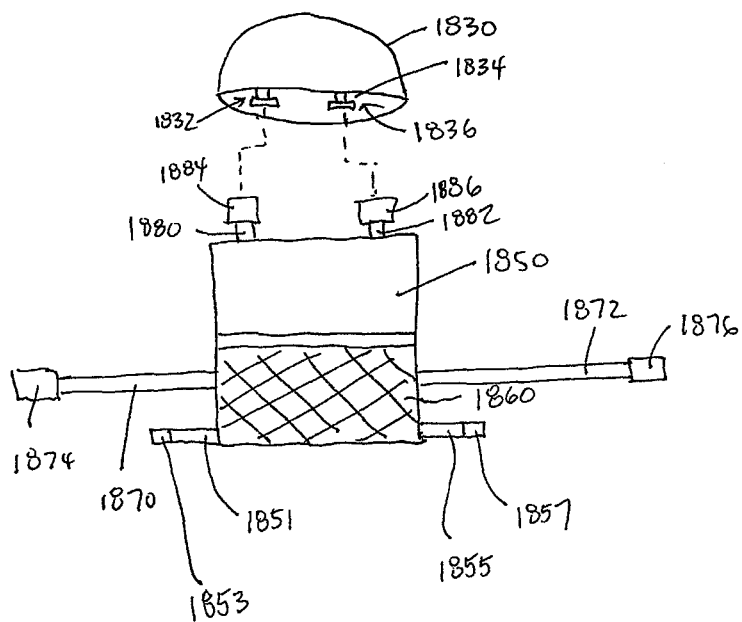
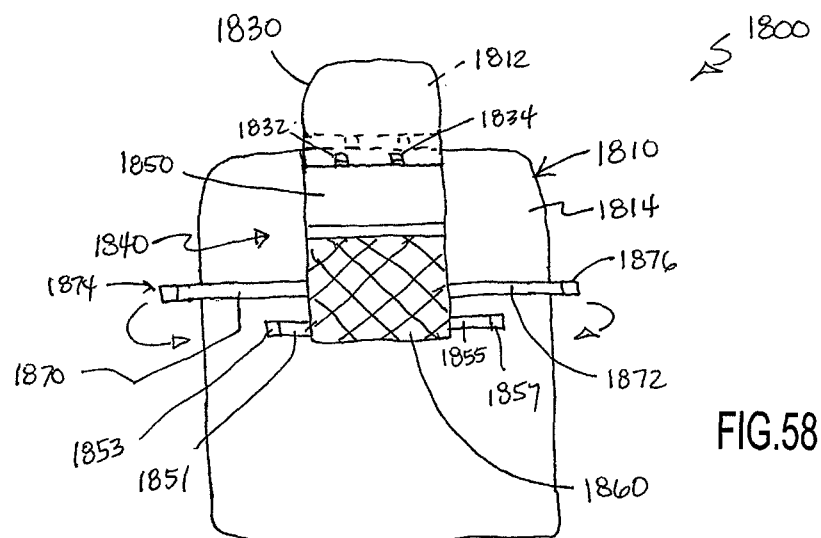


FIG. 57

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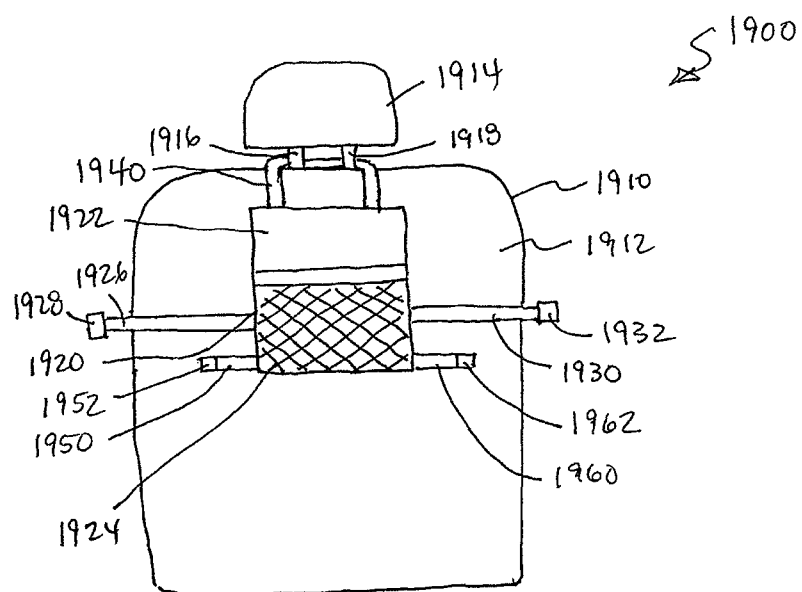


FIG. 60

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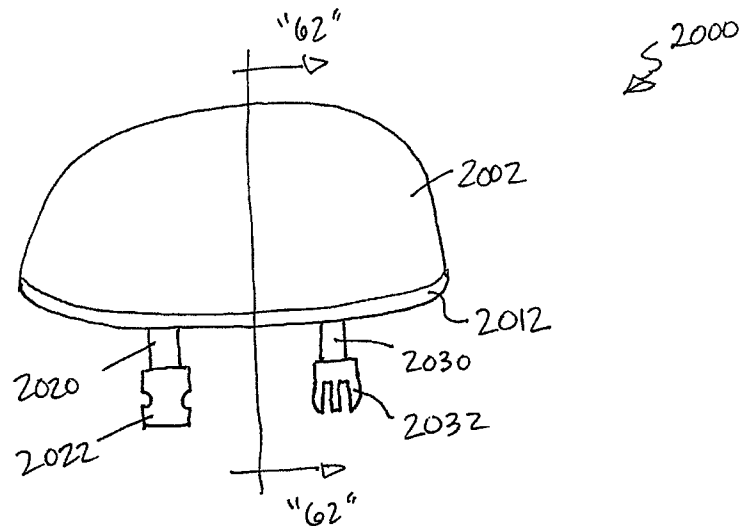


FIG. 61

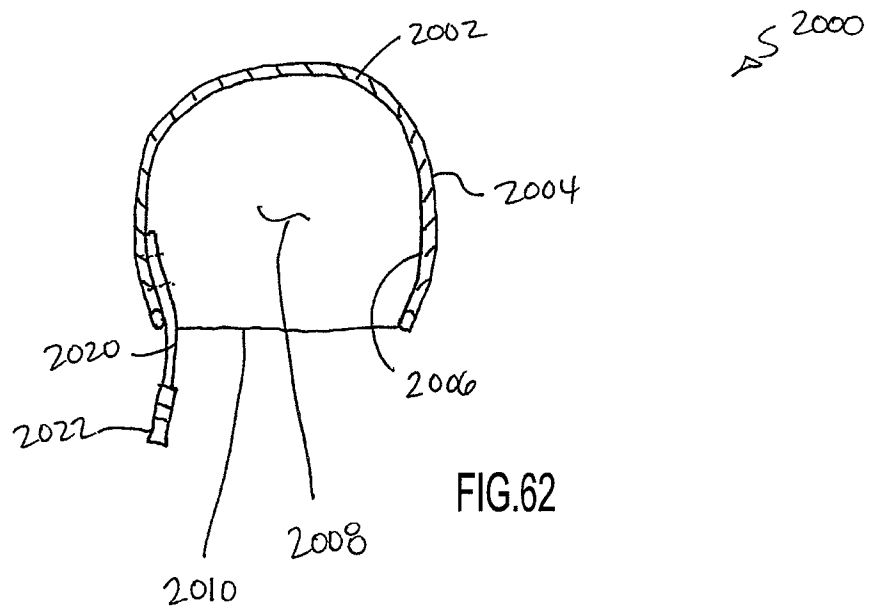


FIG. 62

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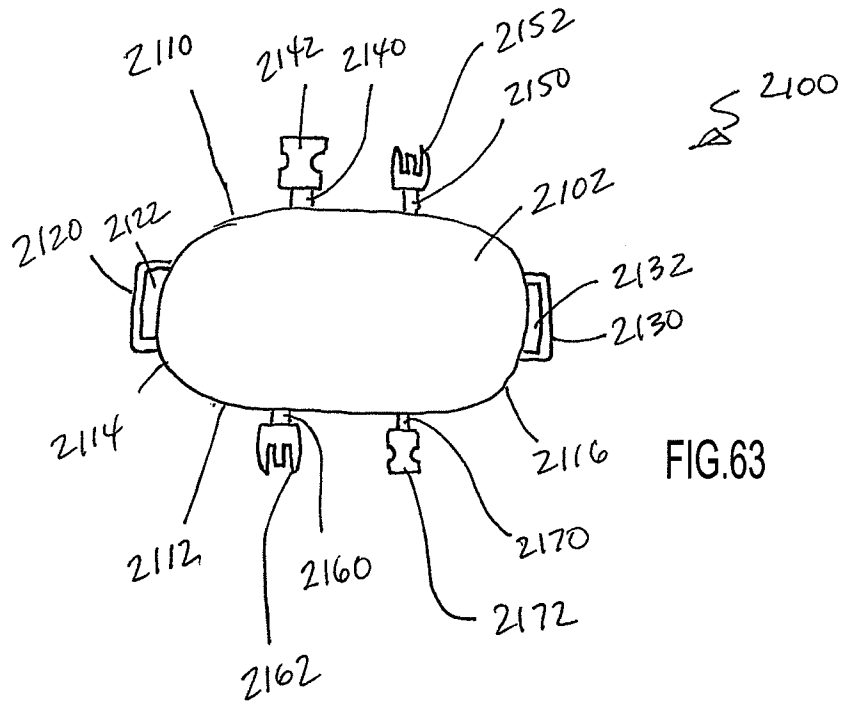


FIG. 63

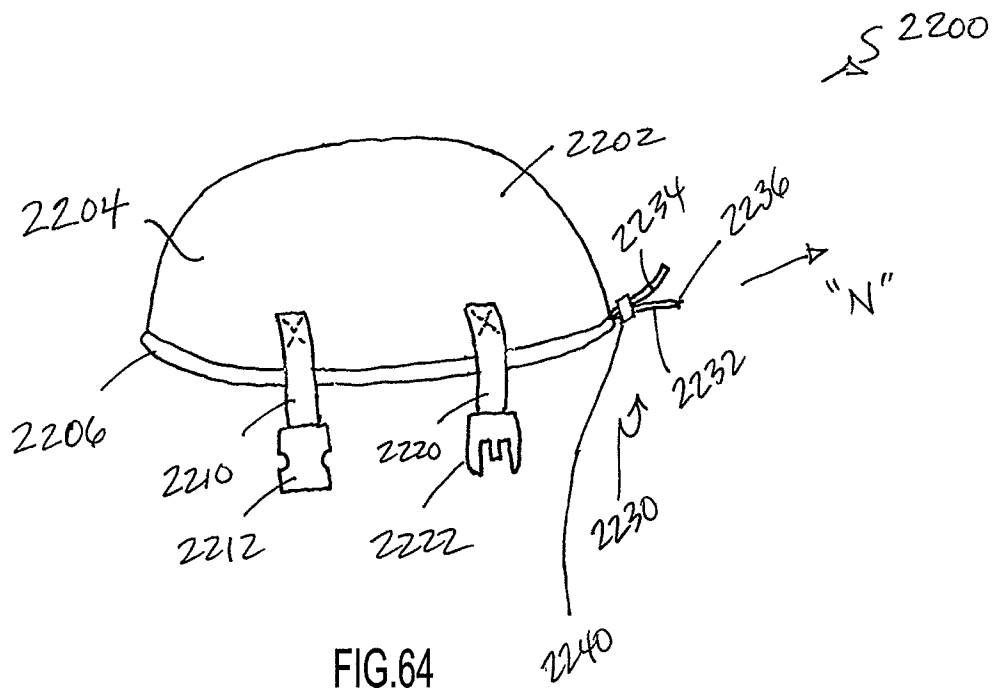


FIG. 64

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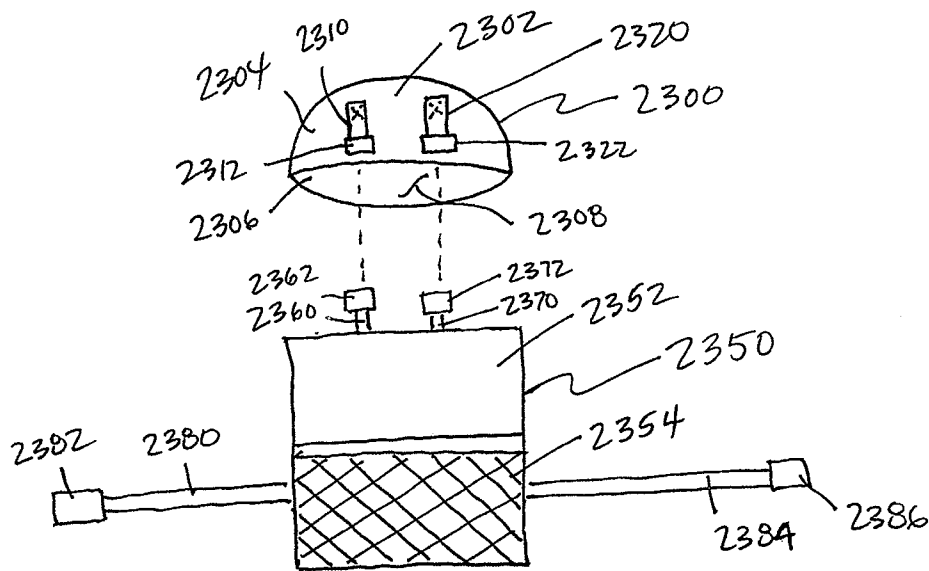
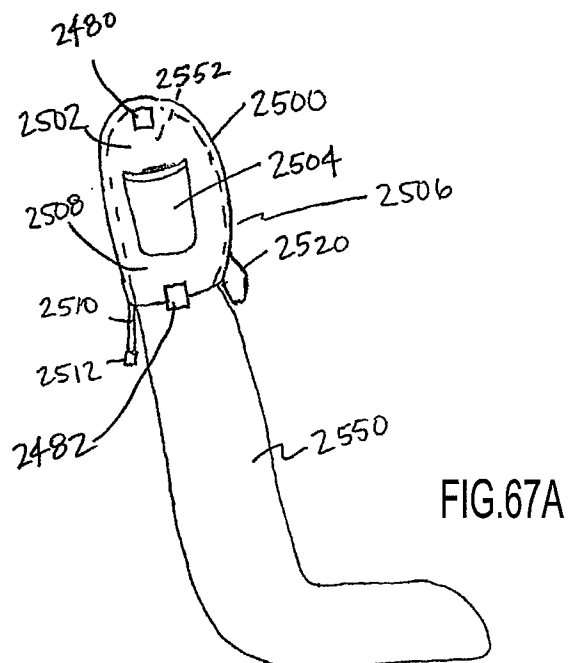
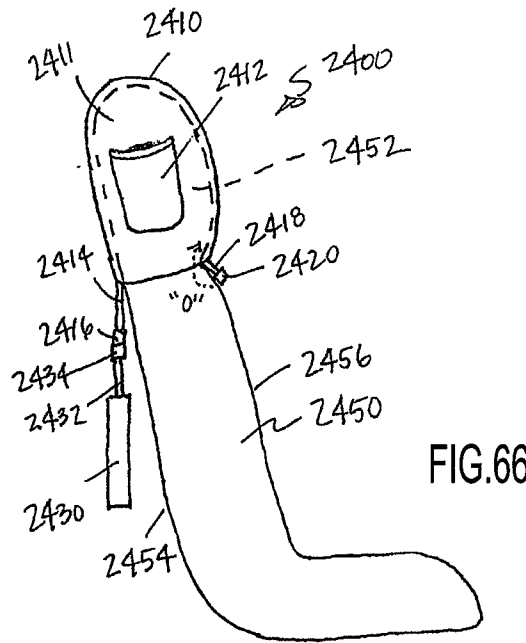
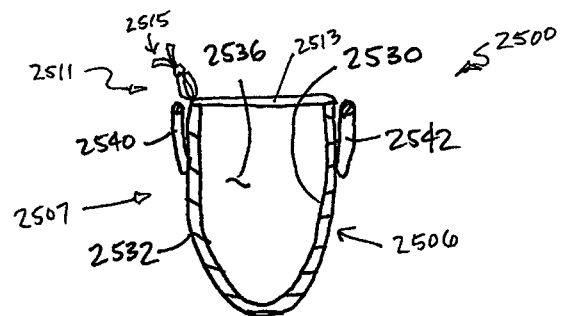
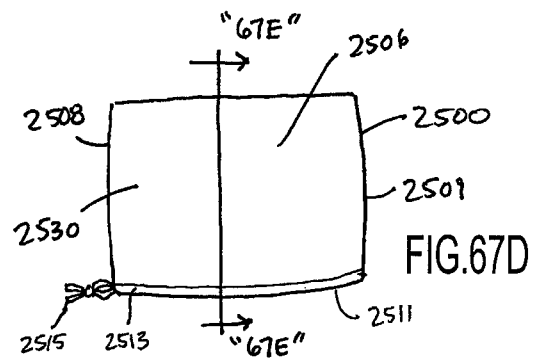
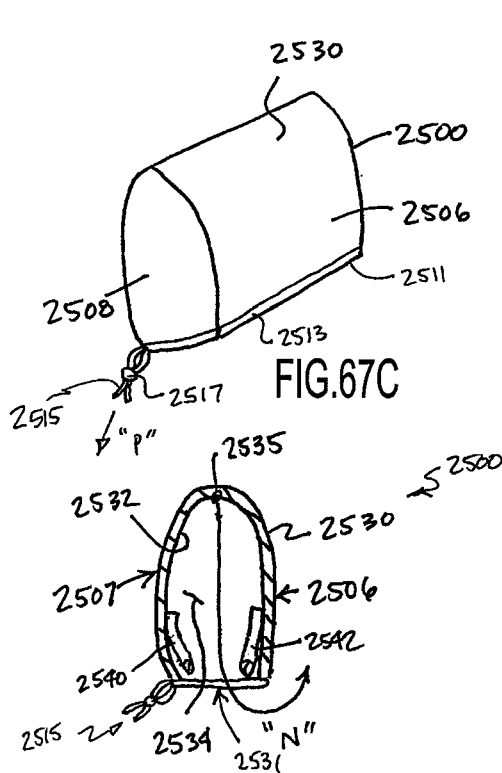
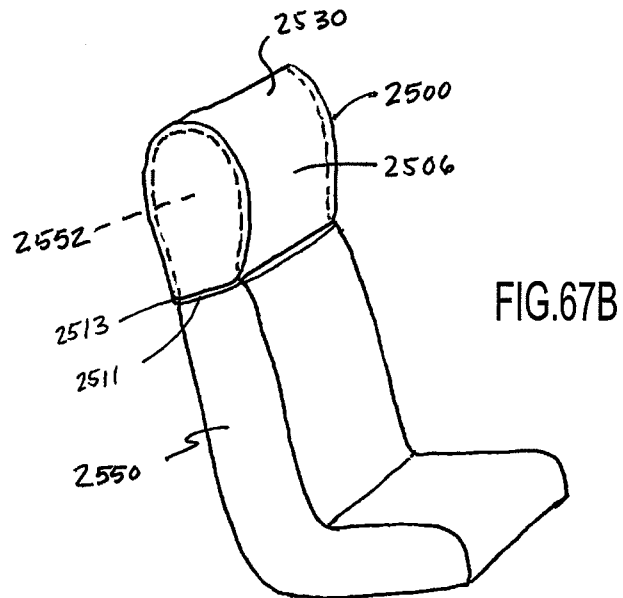


FIG. 65

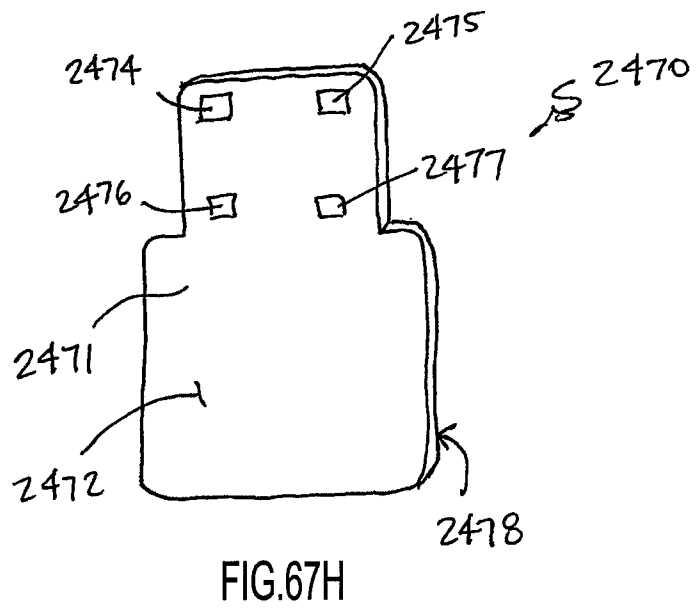
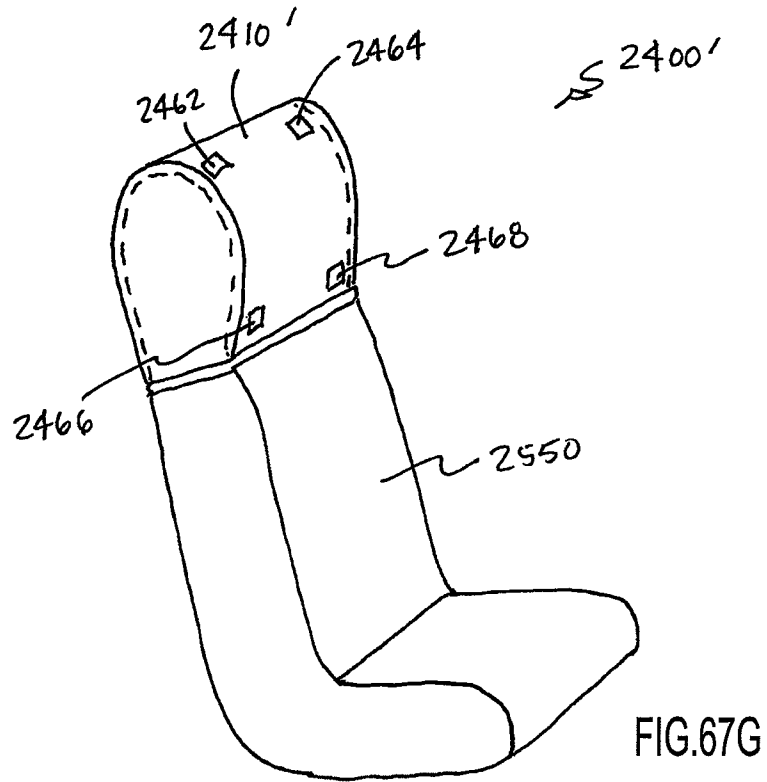
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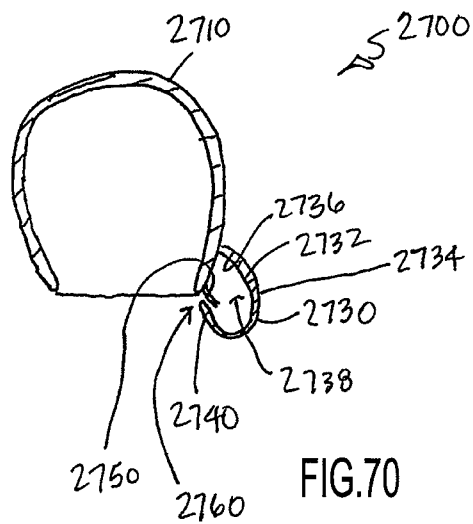
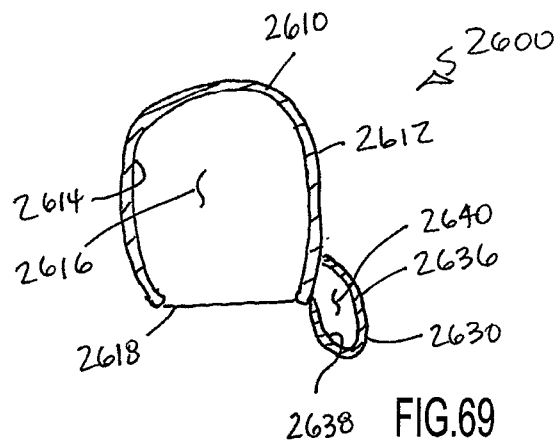
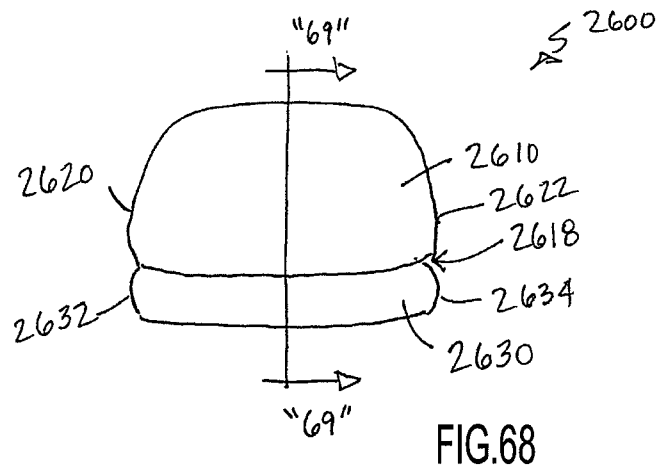
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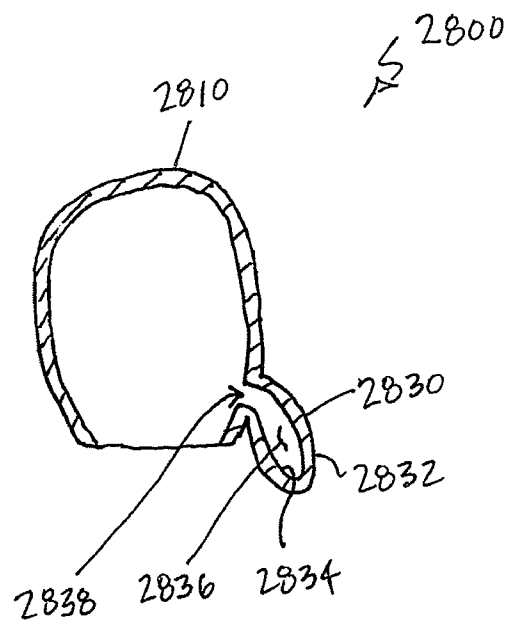


FIG.71

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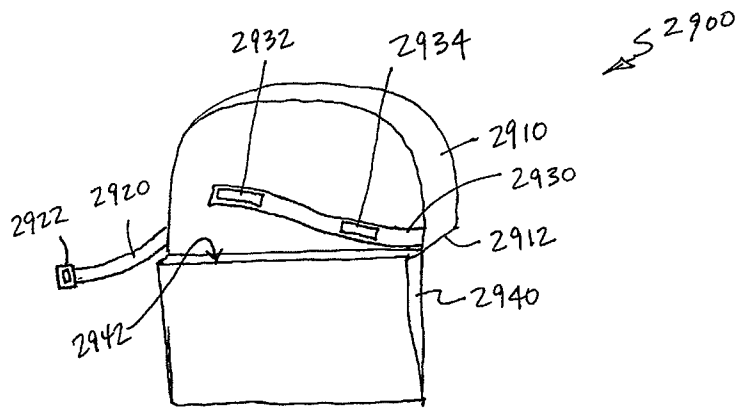


FIG. 72

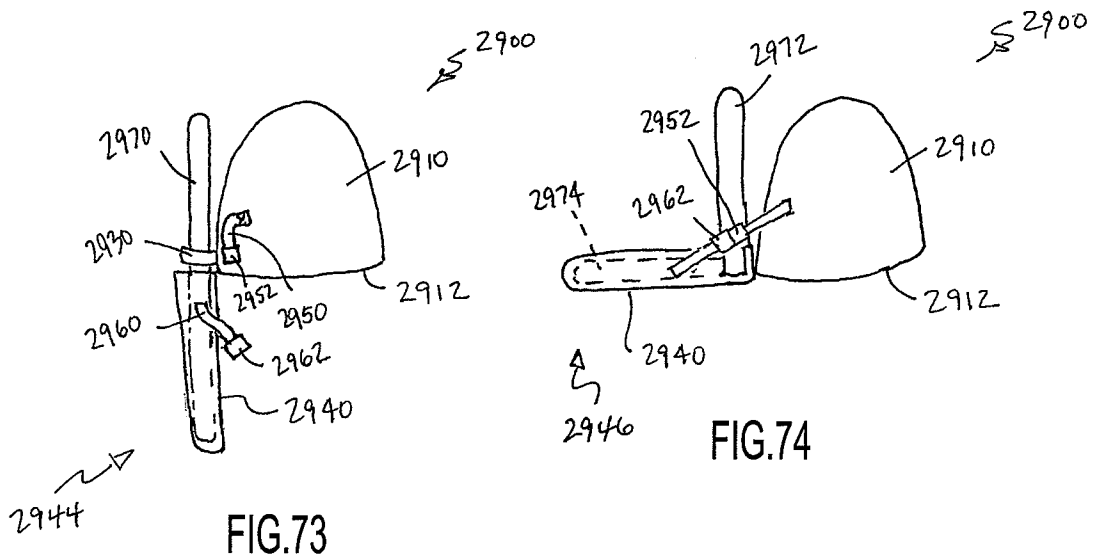


FIG. 73

FIG. 74

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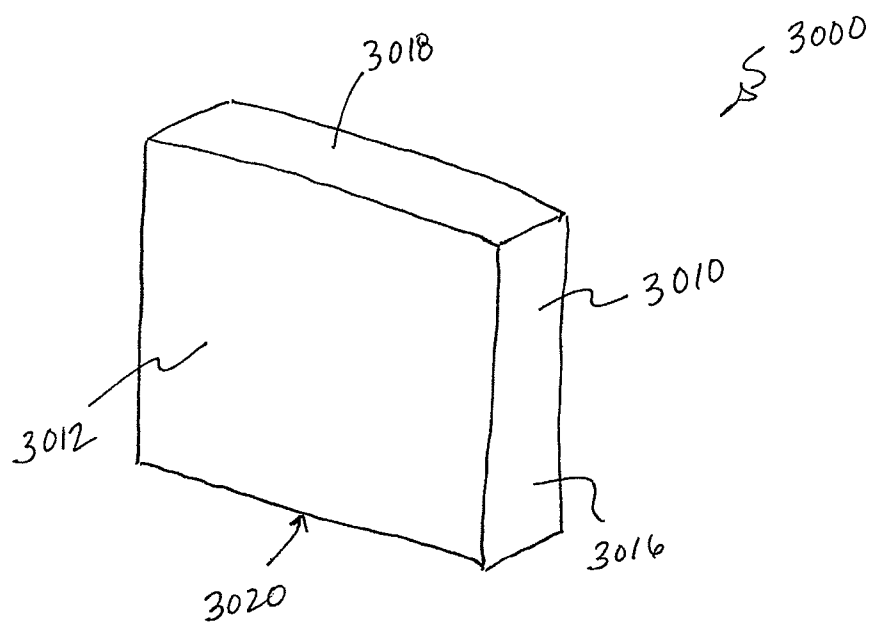


FIG. 75

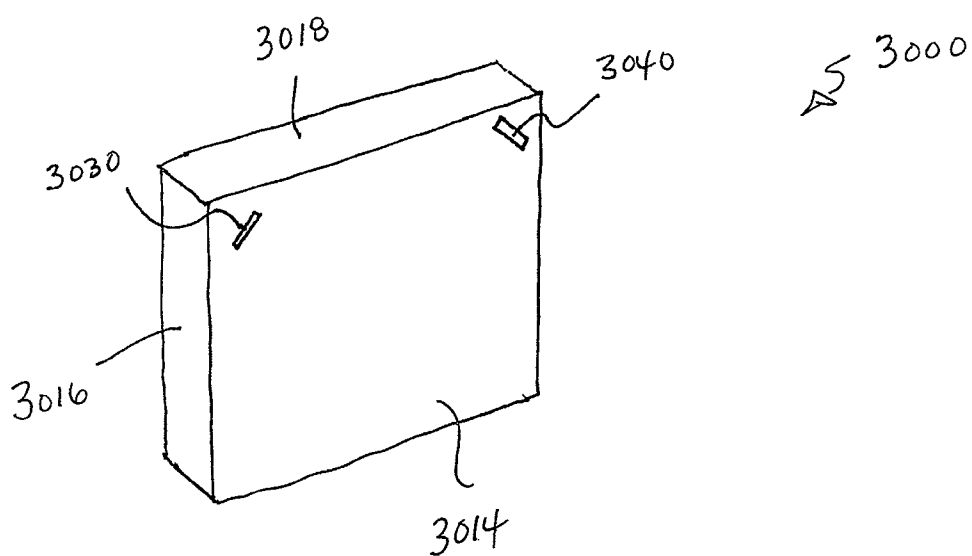
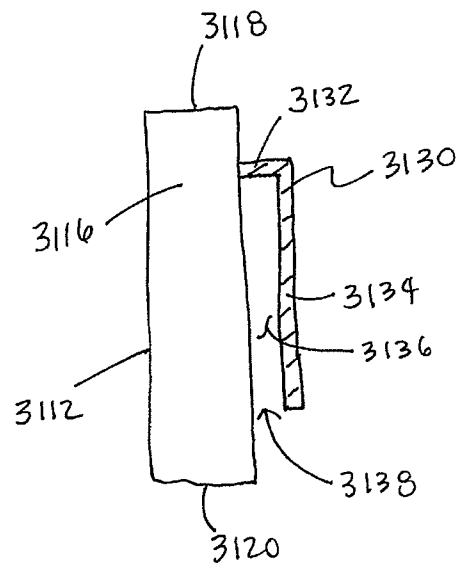
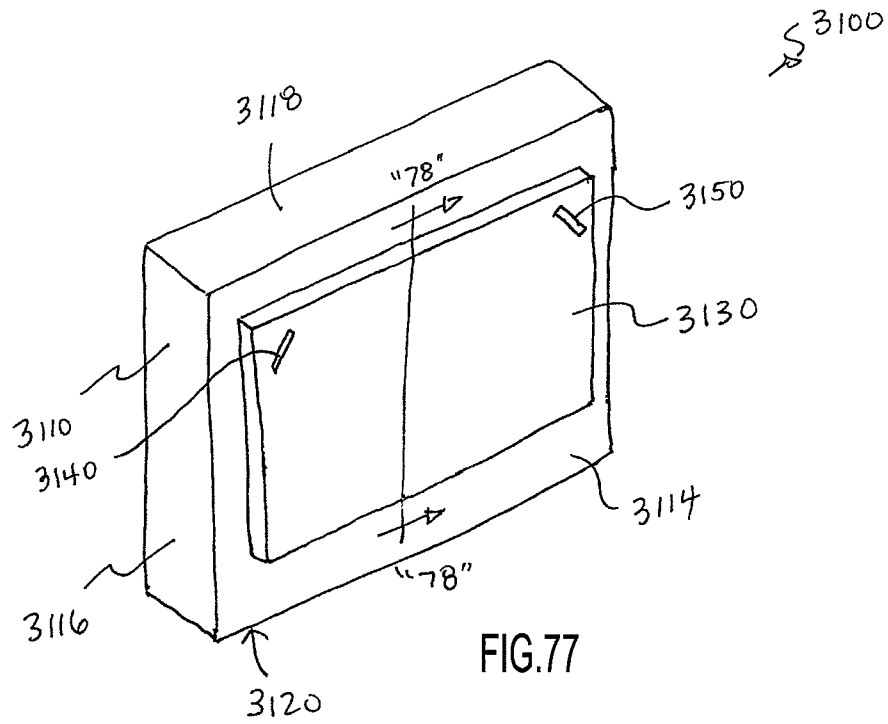


FIG. 76

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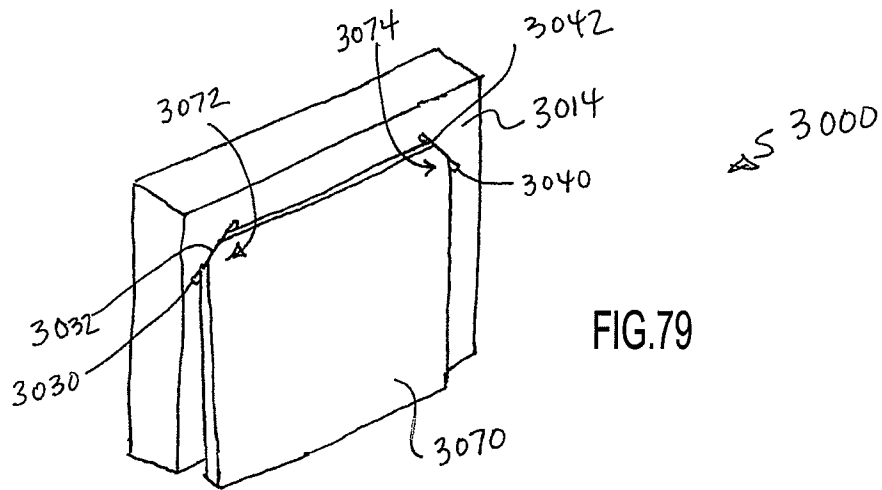


FIG. 79

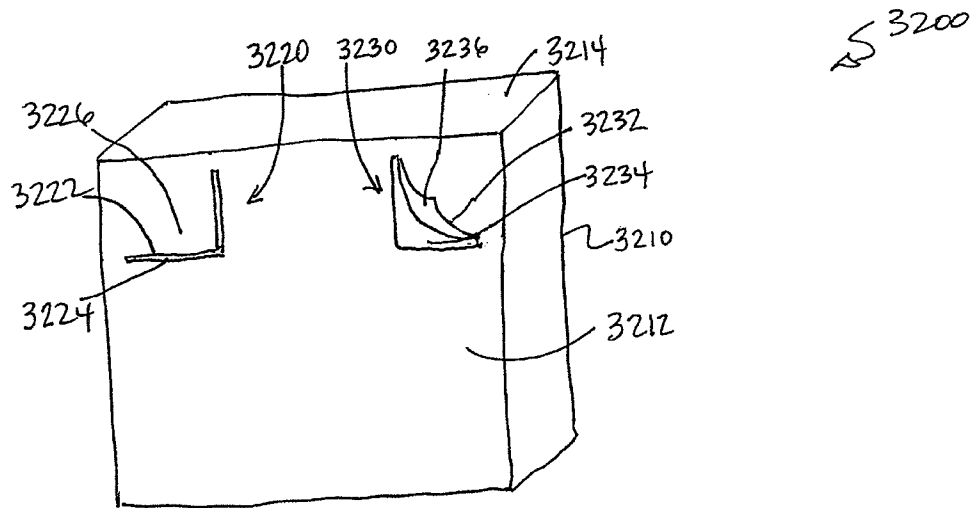


FIG. 80

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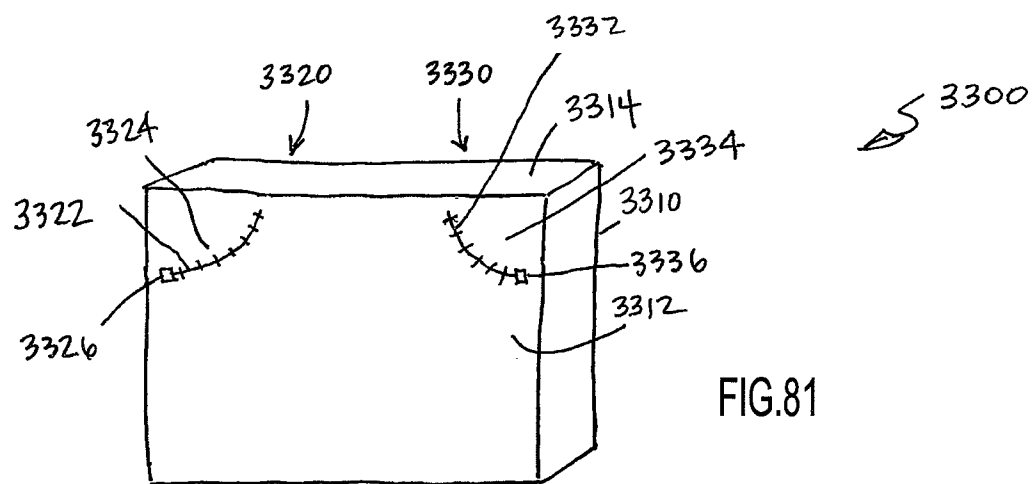
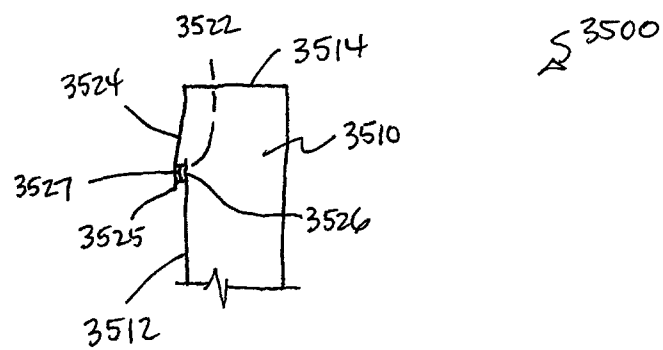
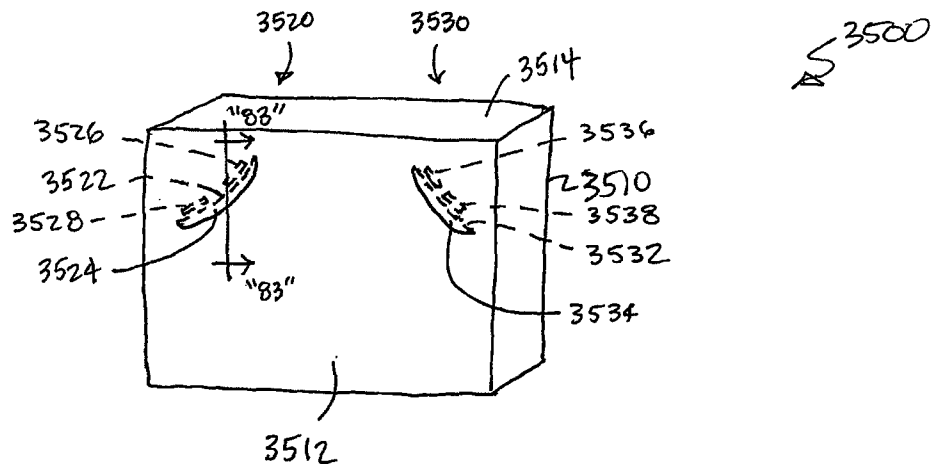


FIG. 81

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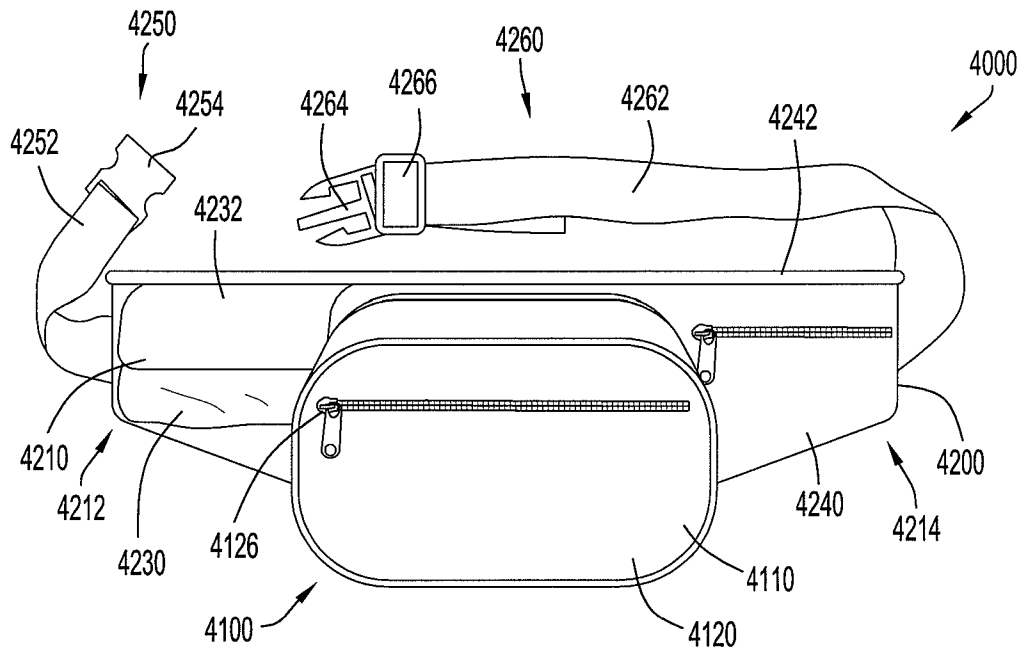


FIG.84

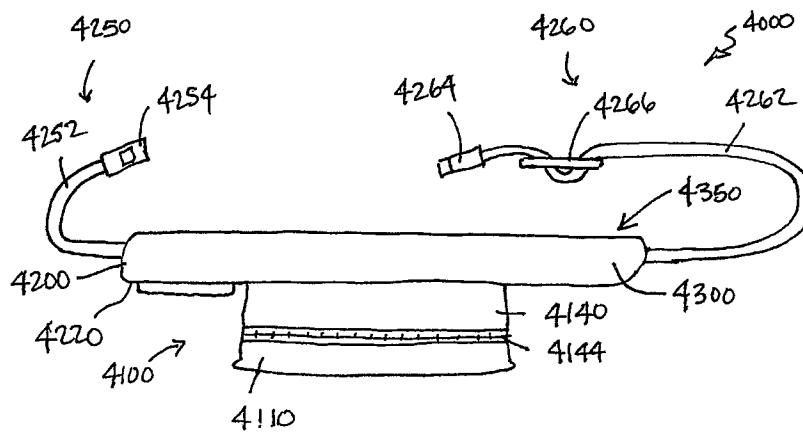


FIG.85

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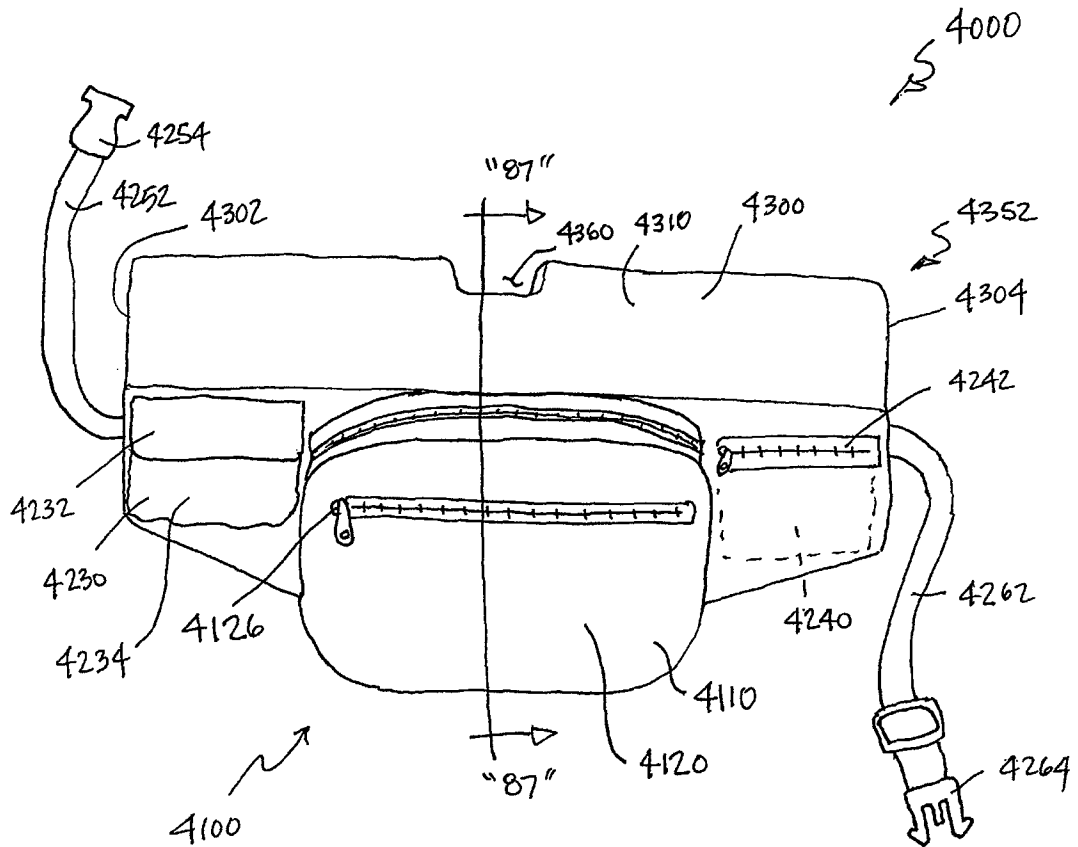


FIG.86

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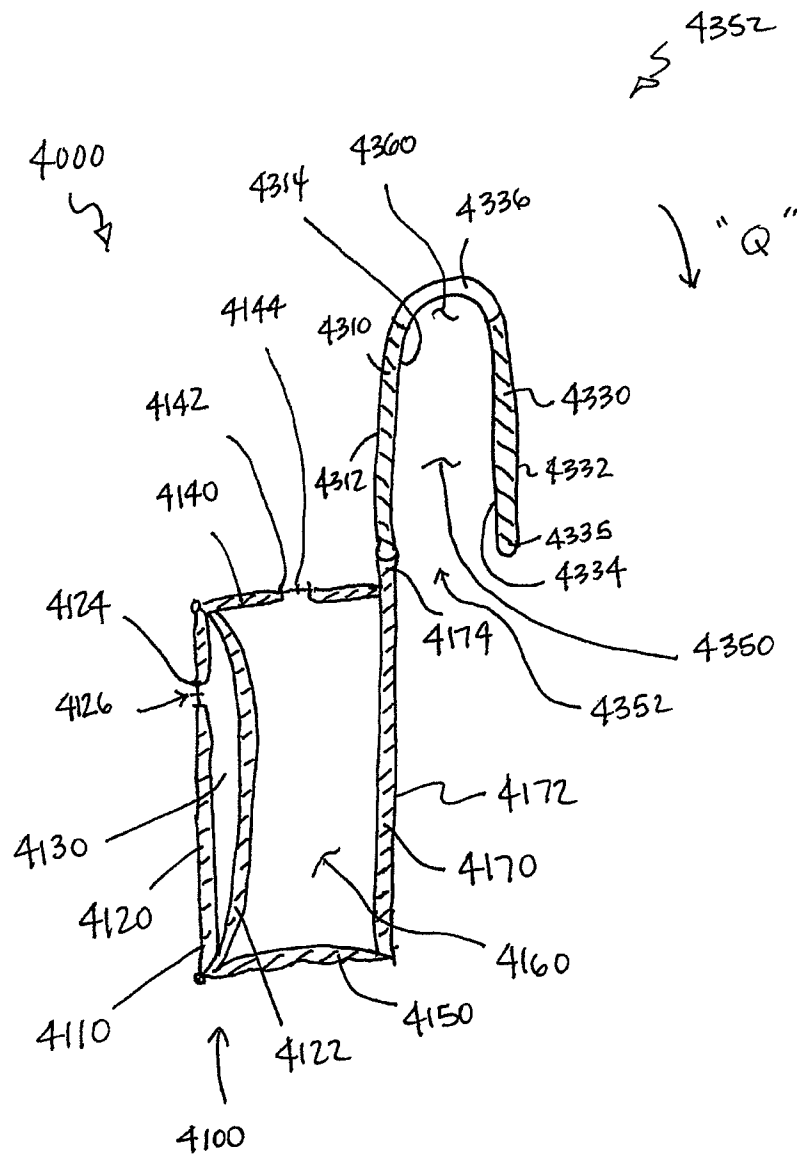


FIG. 87

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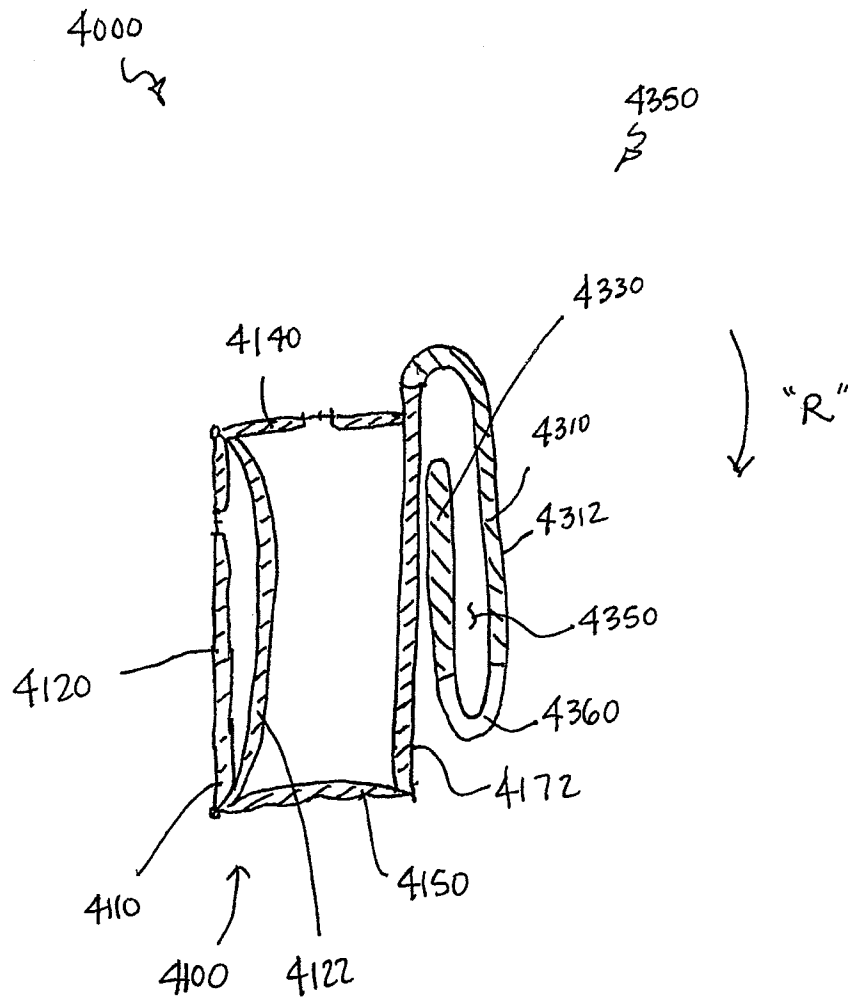


FIG.88

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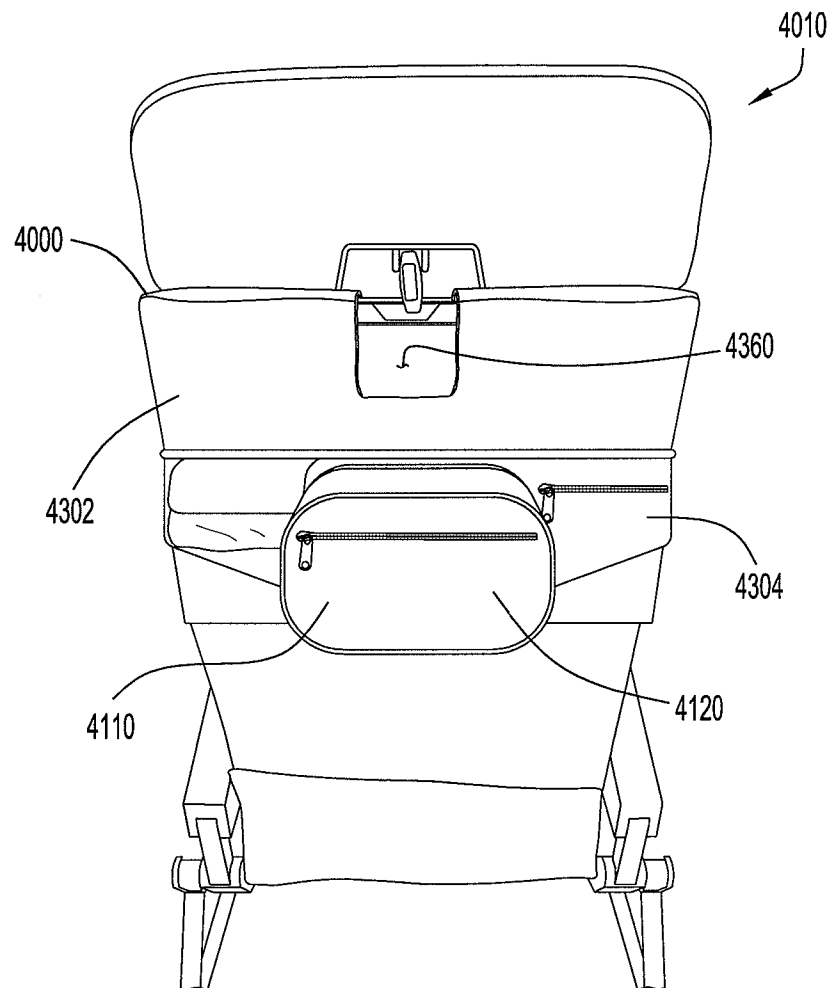


FIG.89

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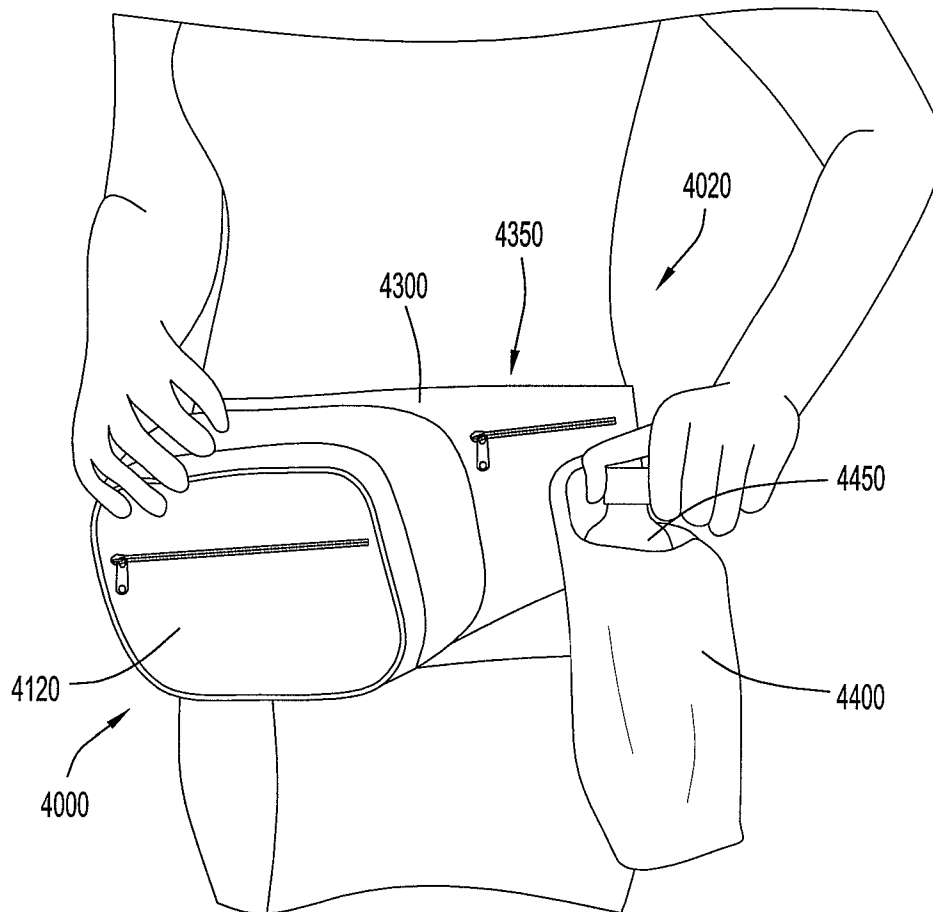


FIG.90

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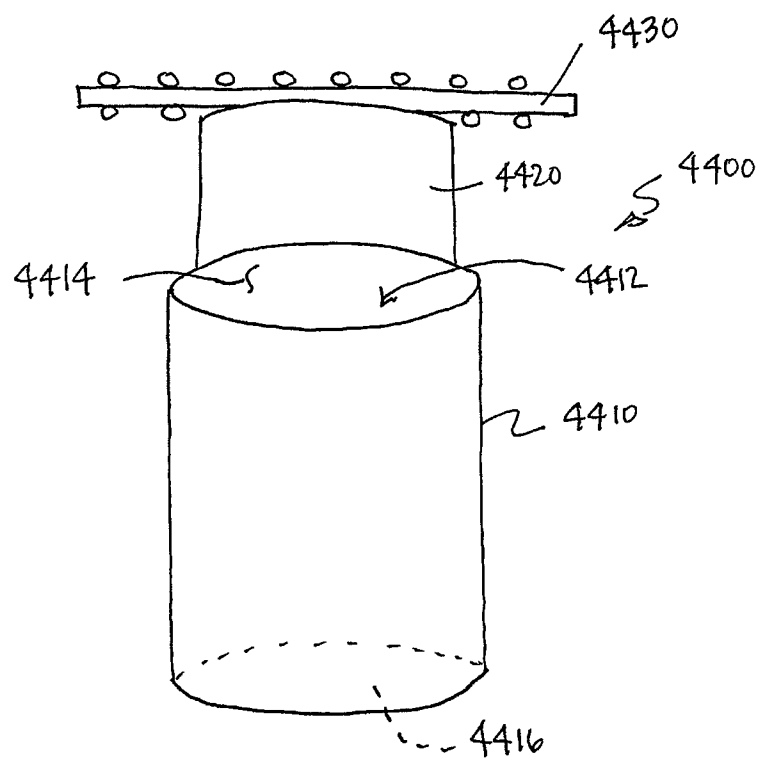


FIG. 91

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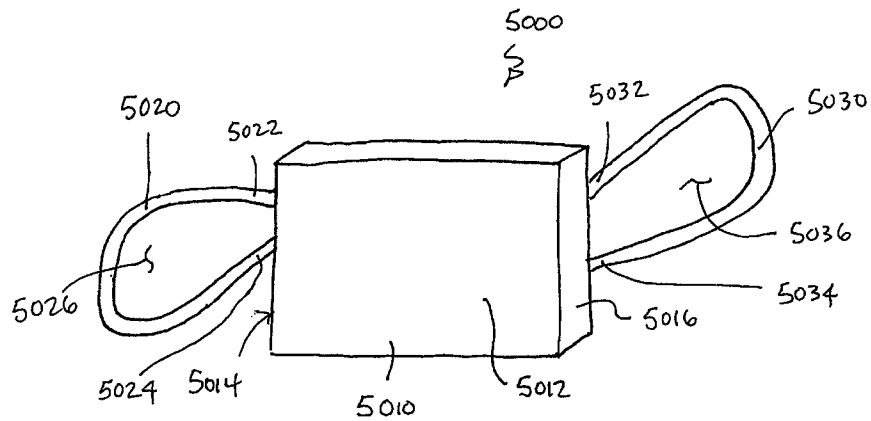


FIG. 92

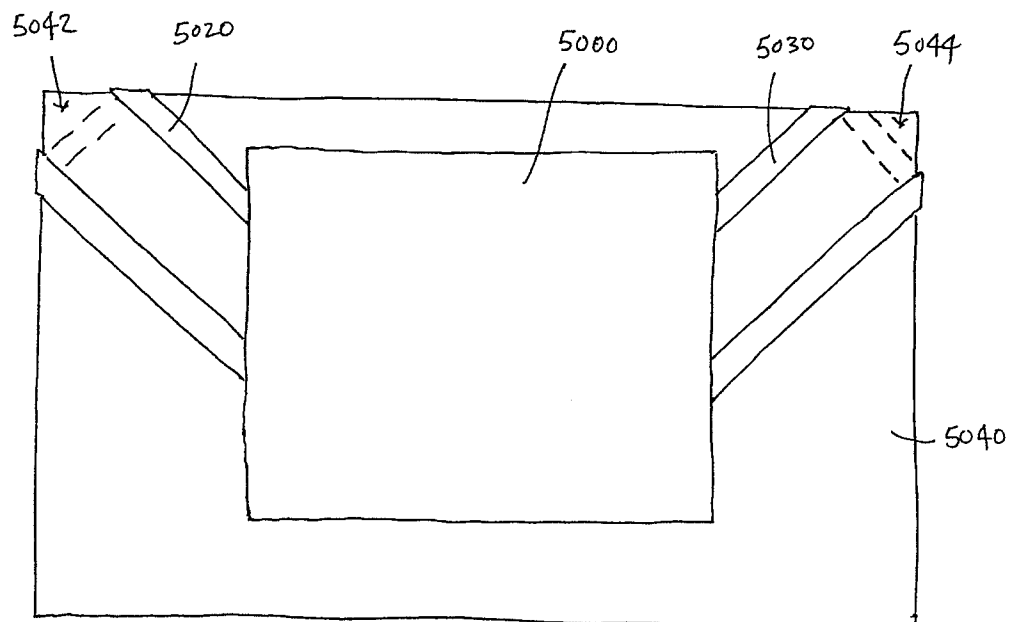


FIG. 93

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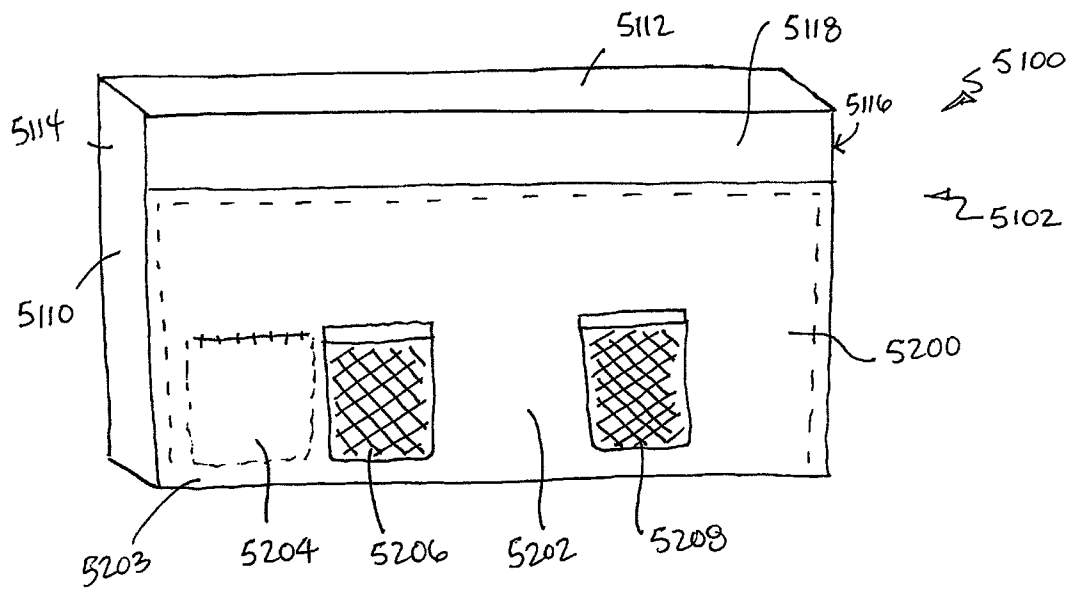


FIG.94

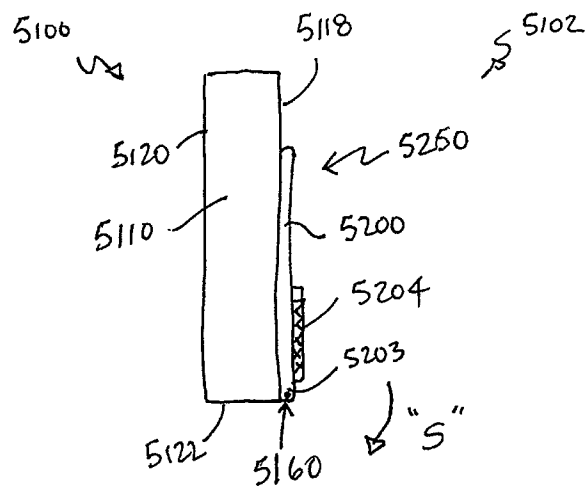


FIG.95

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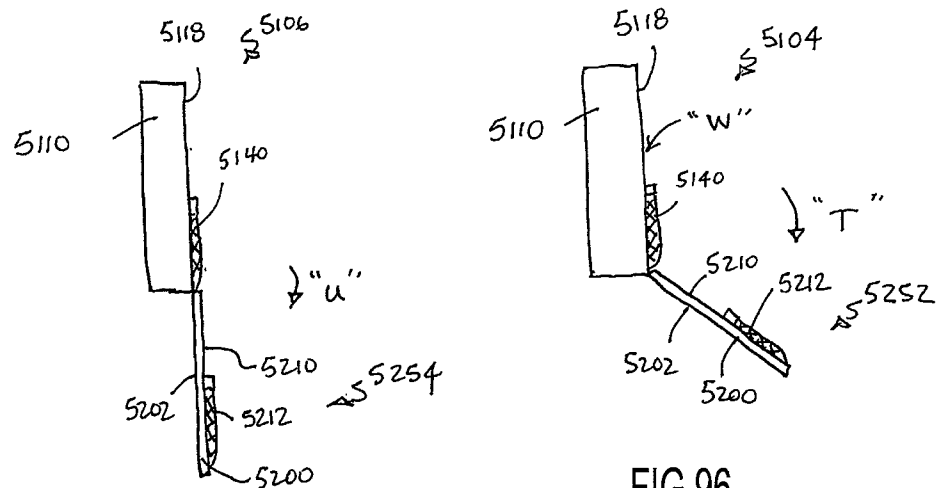
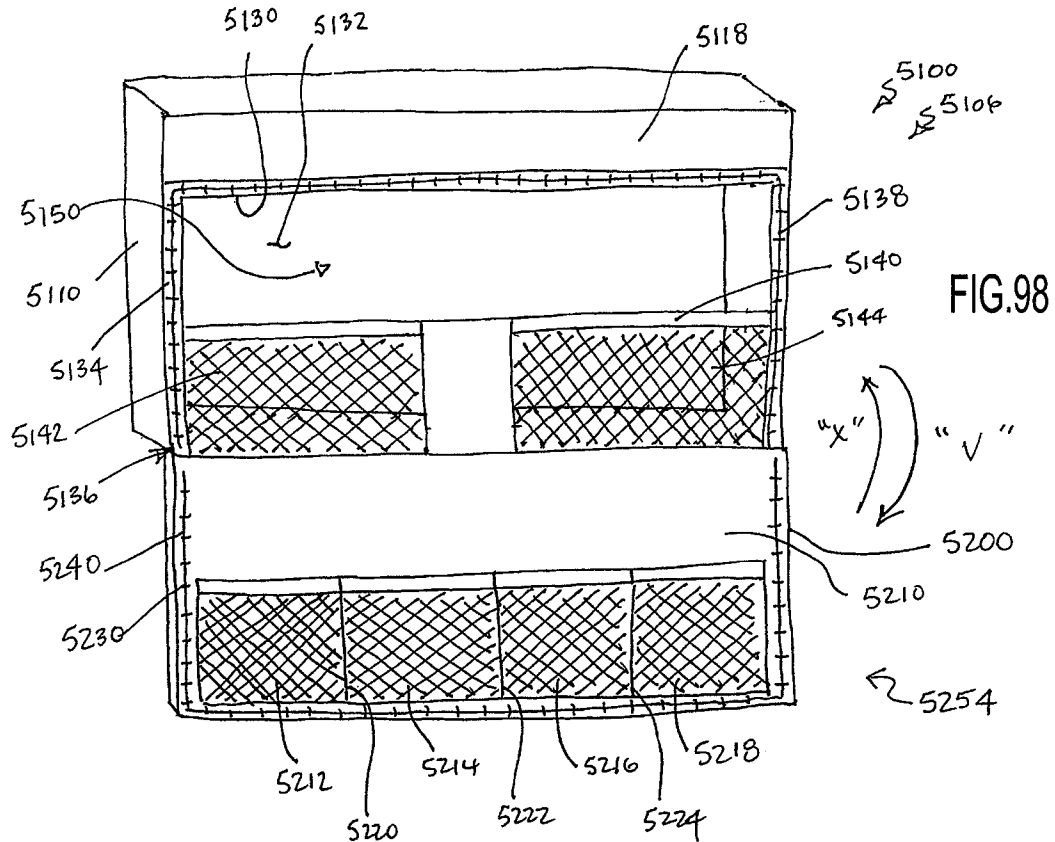


FIG.96

FIG.97

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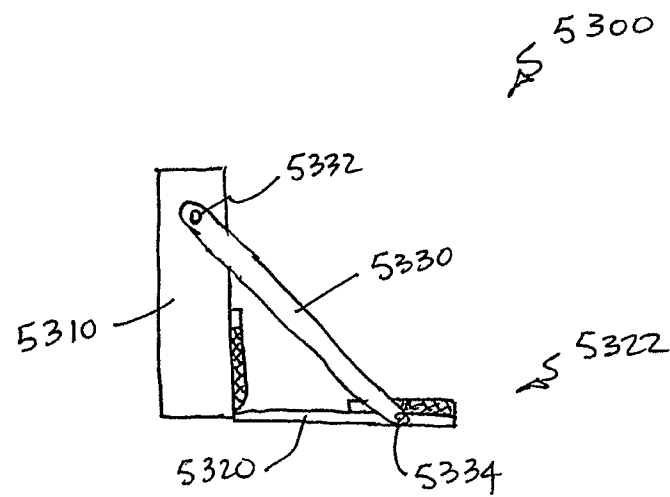
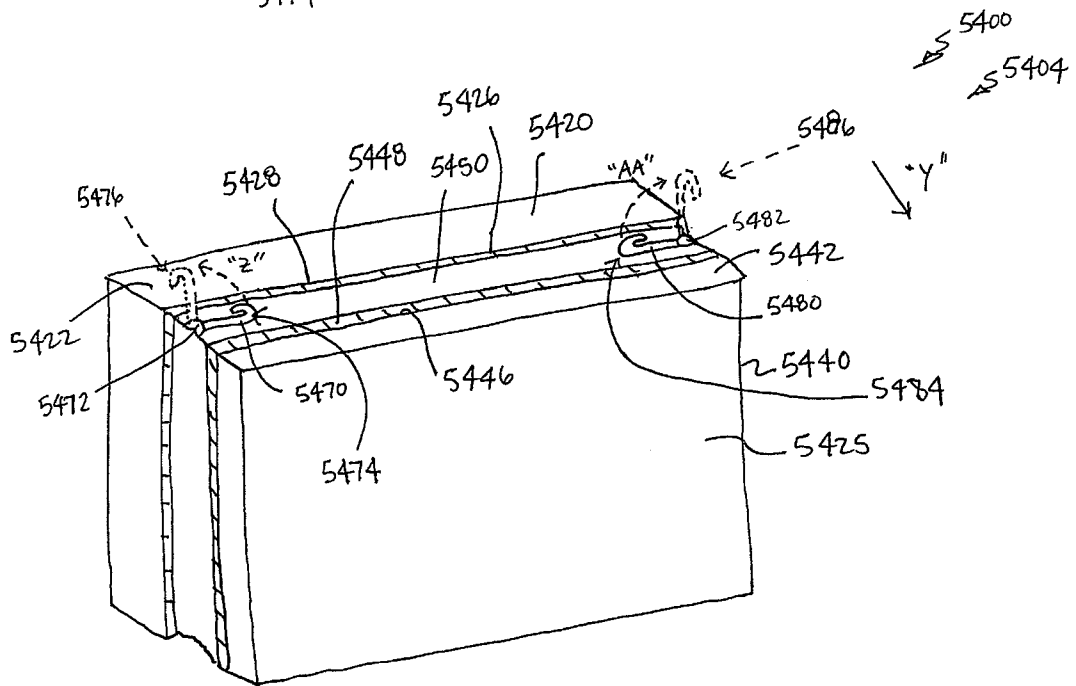
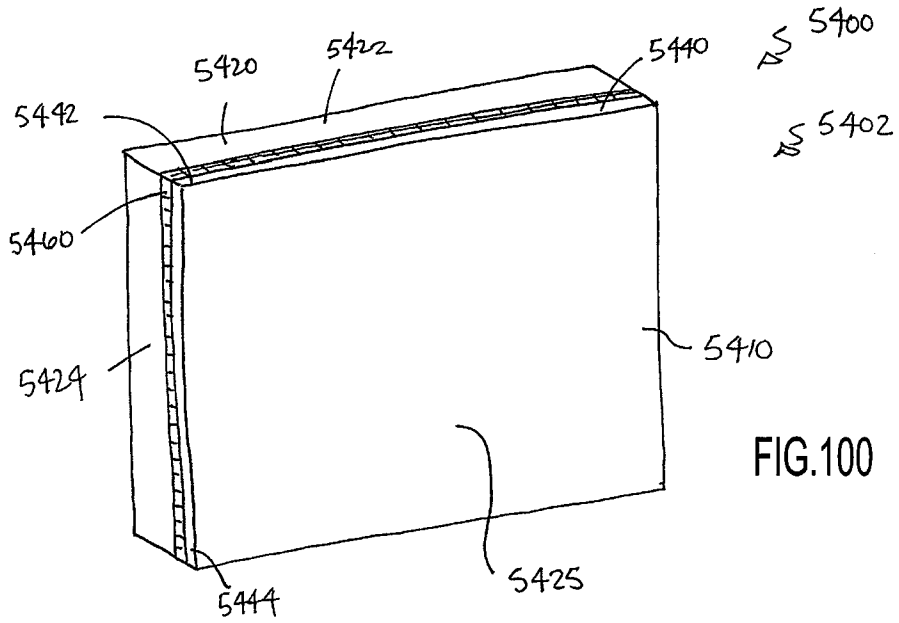


FIG.99

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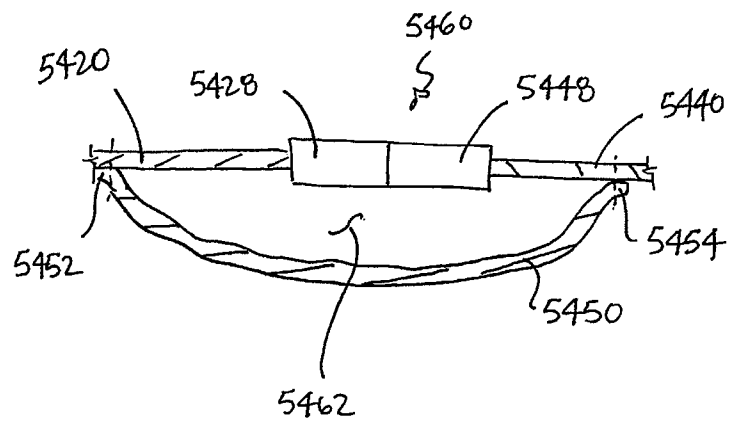


FIG.102

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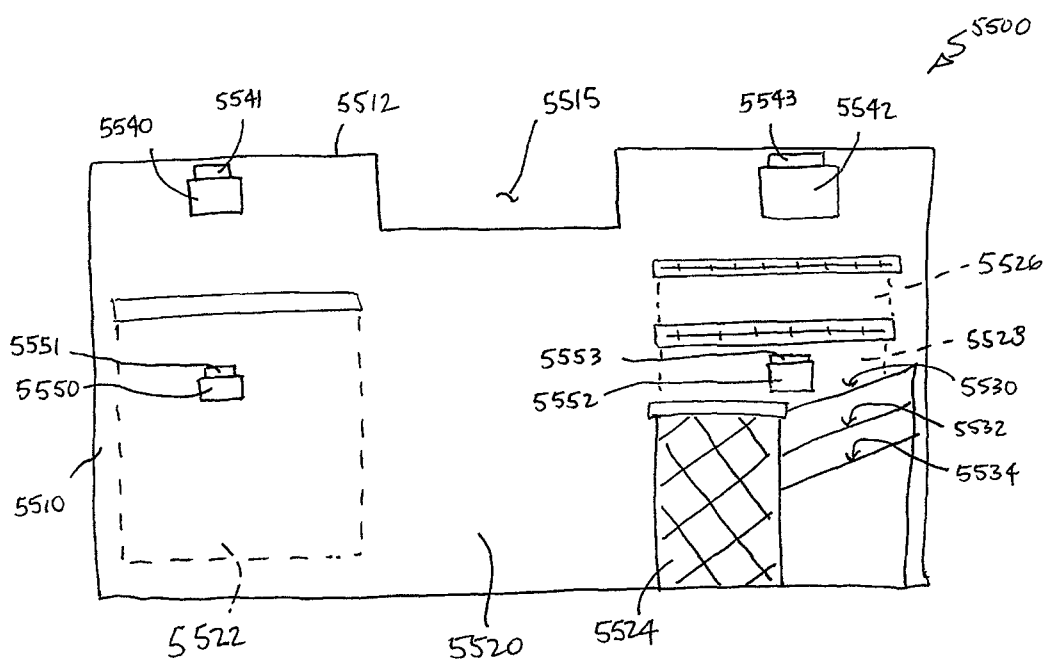
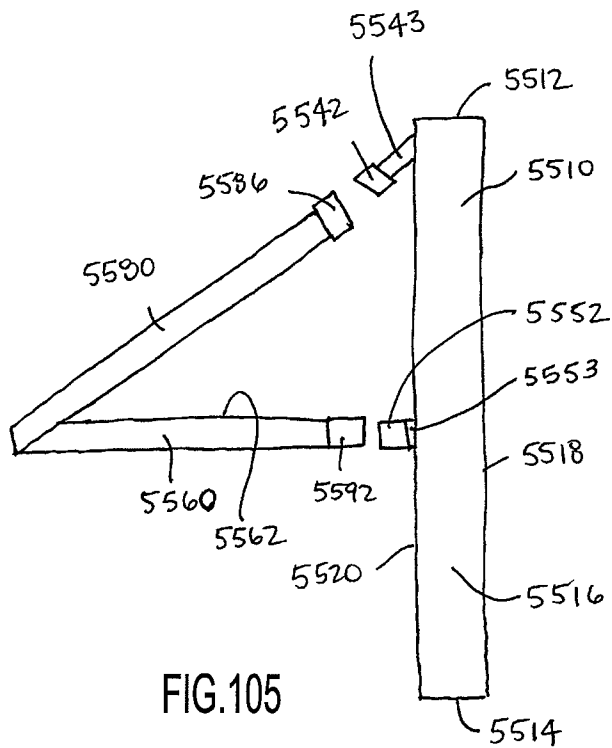
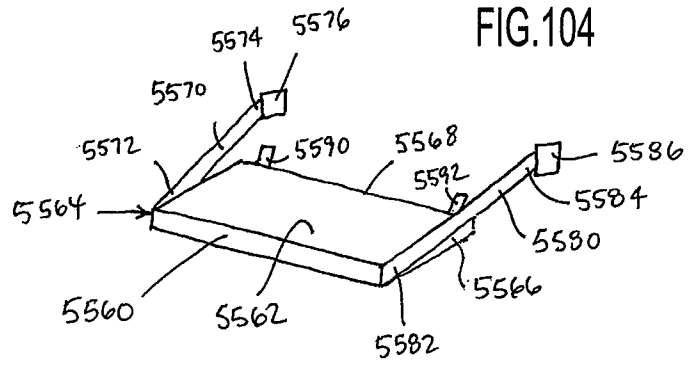


FIG.103

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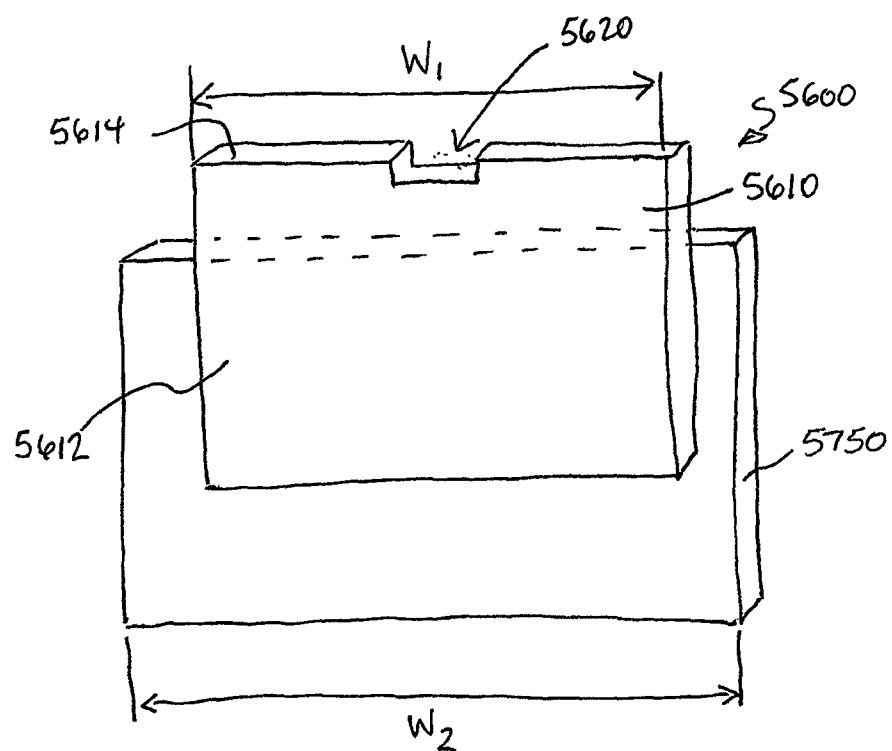


FIG. 106

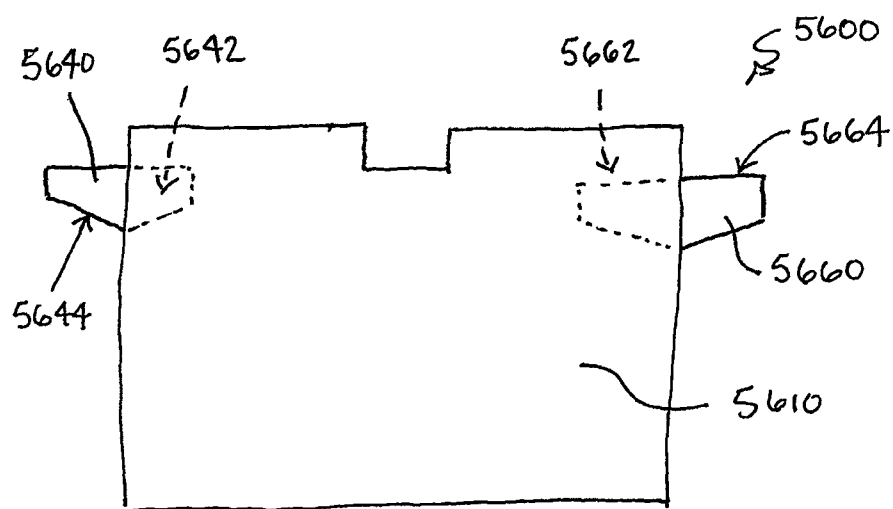


FIG. 107

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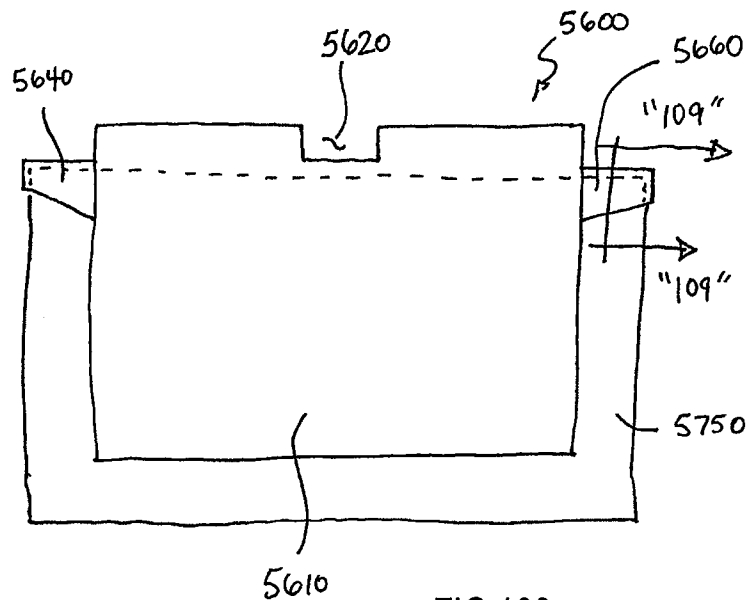


FIG.108

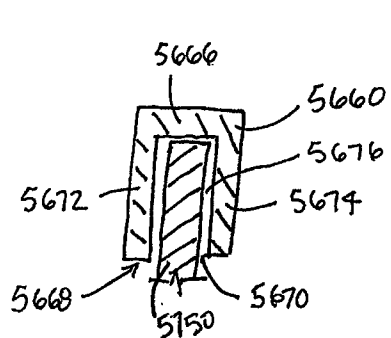


FIG.109

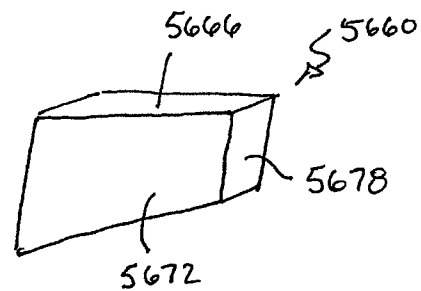


FIG.110

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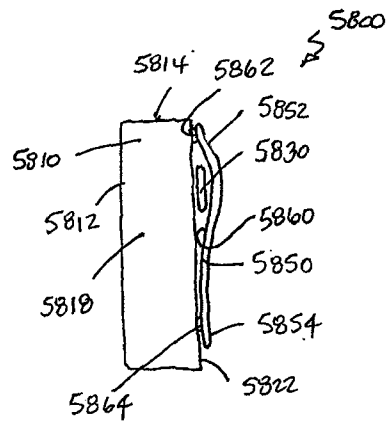


FIG. 117

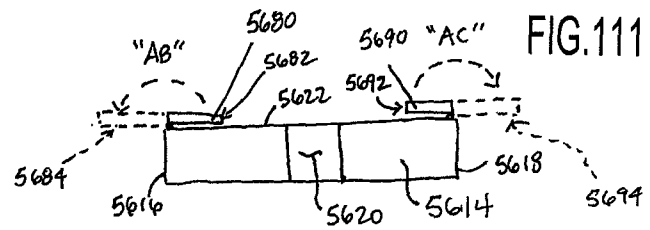


FIG. 111

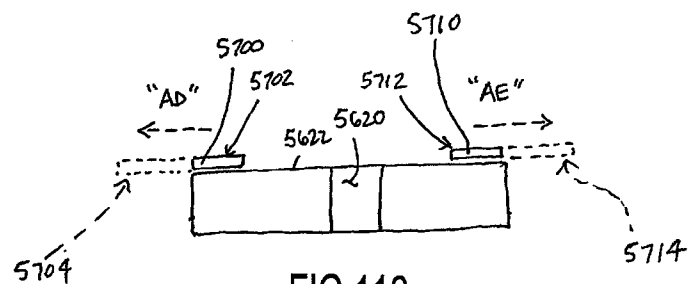


FIG. 112

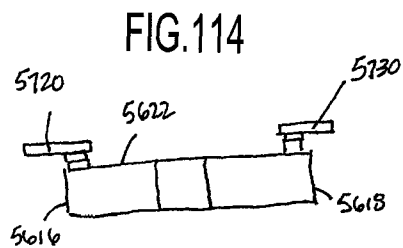


FIG. 114

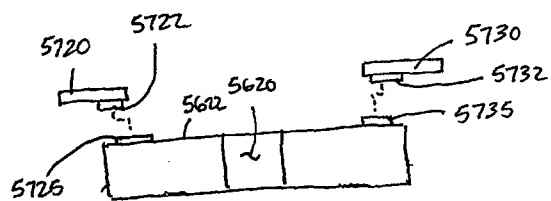


FIG. 113

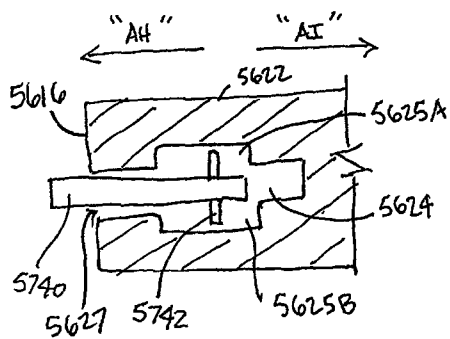


FIG. 116

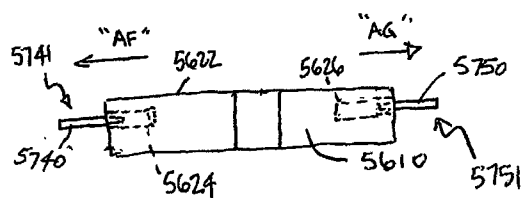


FIG. 115

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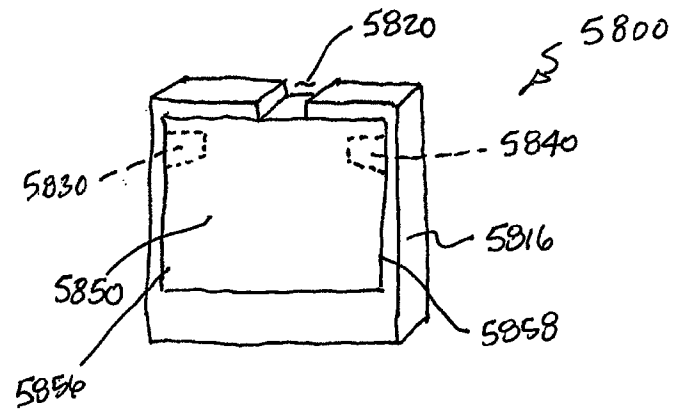


FIG. 118

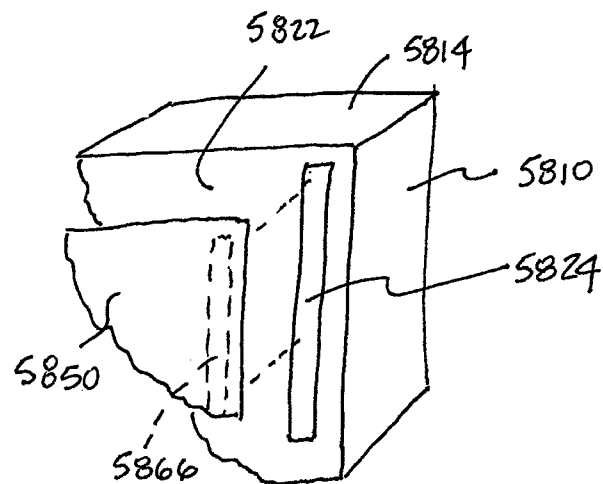


FIG. 119

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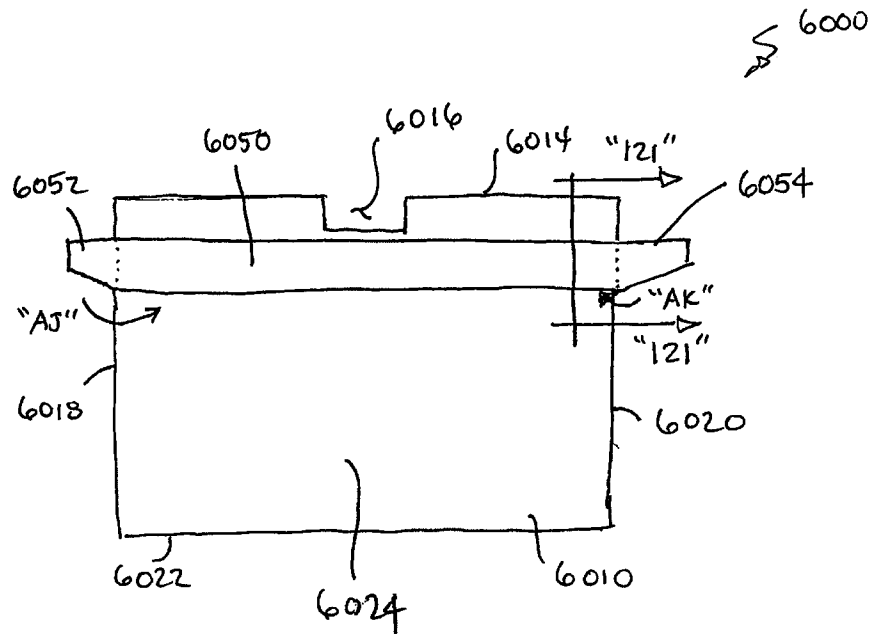


FIG. 120

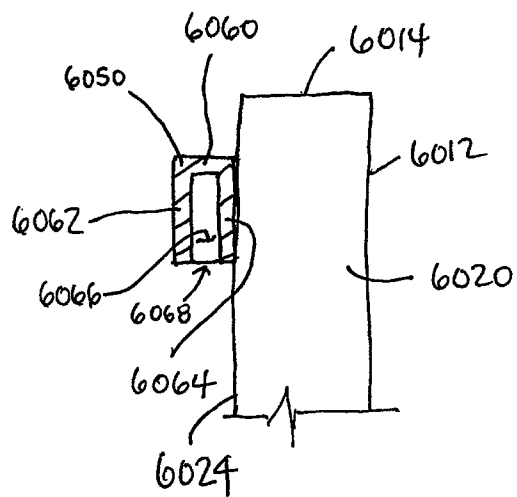


FIG. 121

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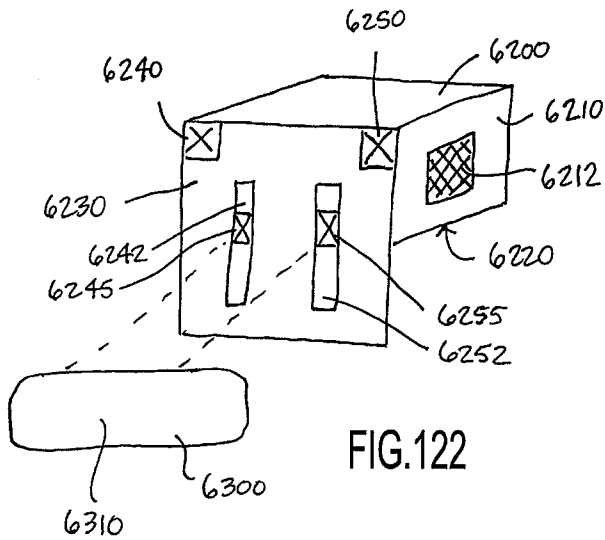


FIG. 122

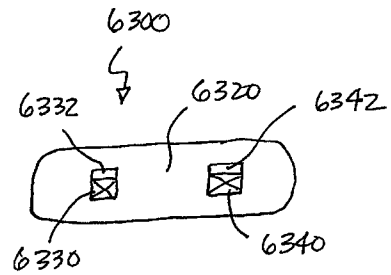


FIG. 123

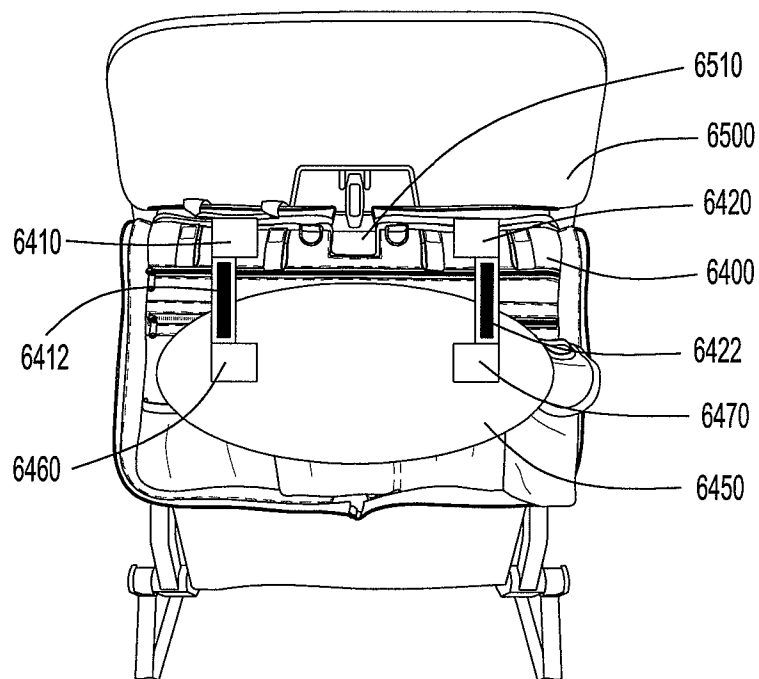


FIG. 124

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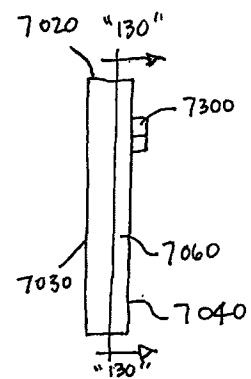
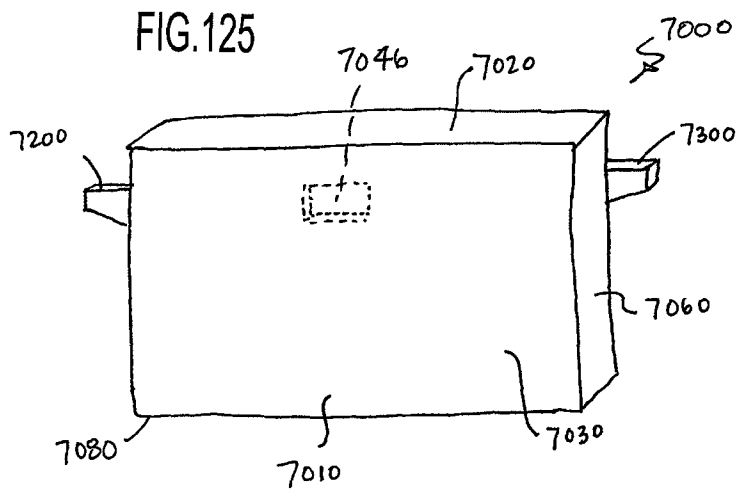


FIG.127

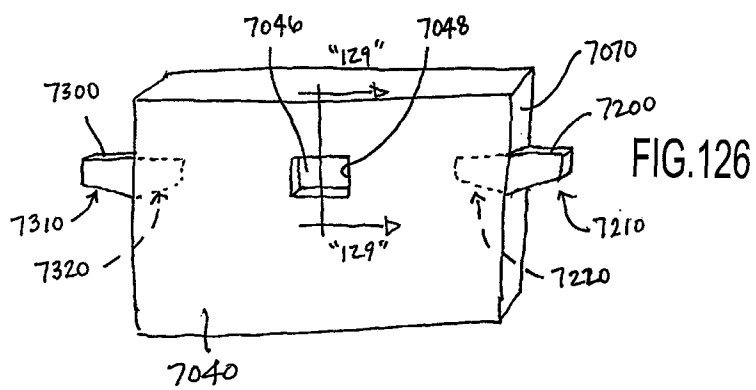


FIG.126

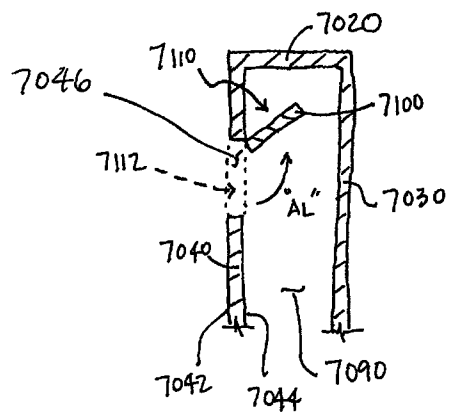


FIG.129

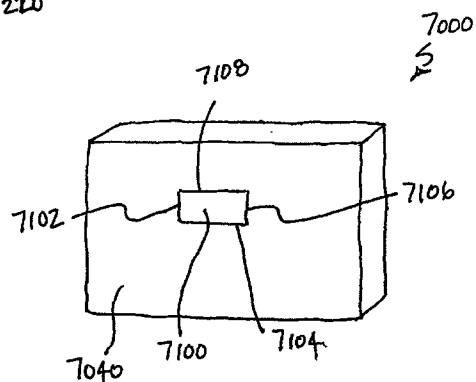


FIG.128

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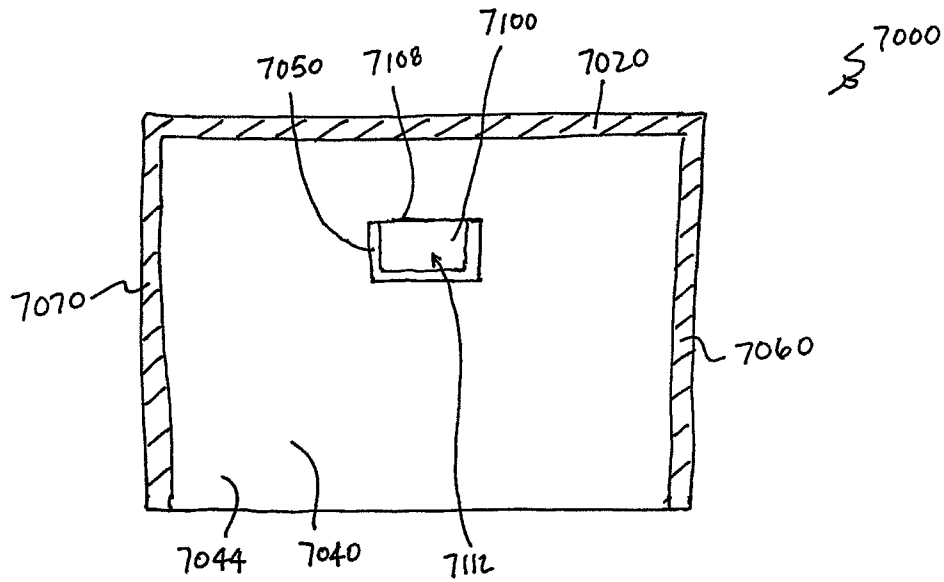


FIG. 130

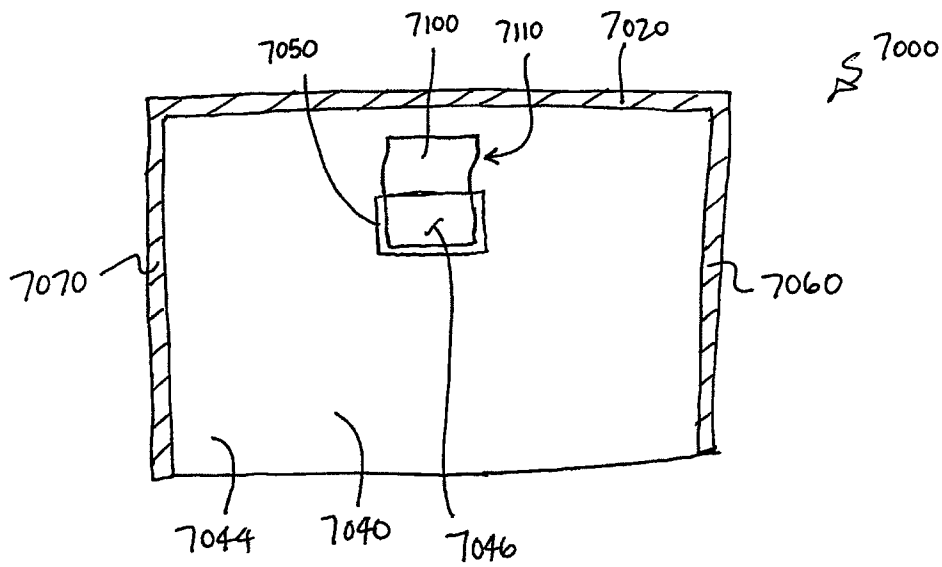


FIG. 131

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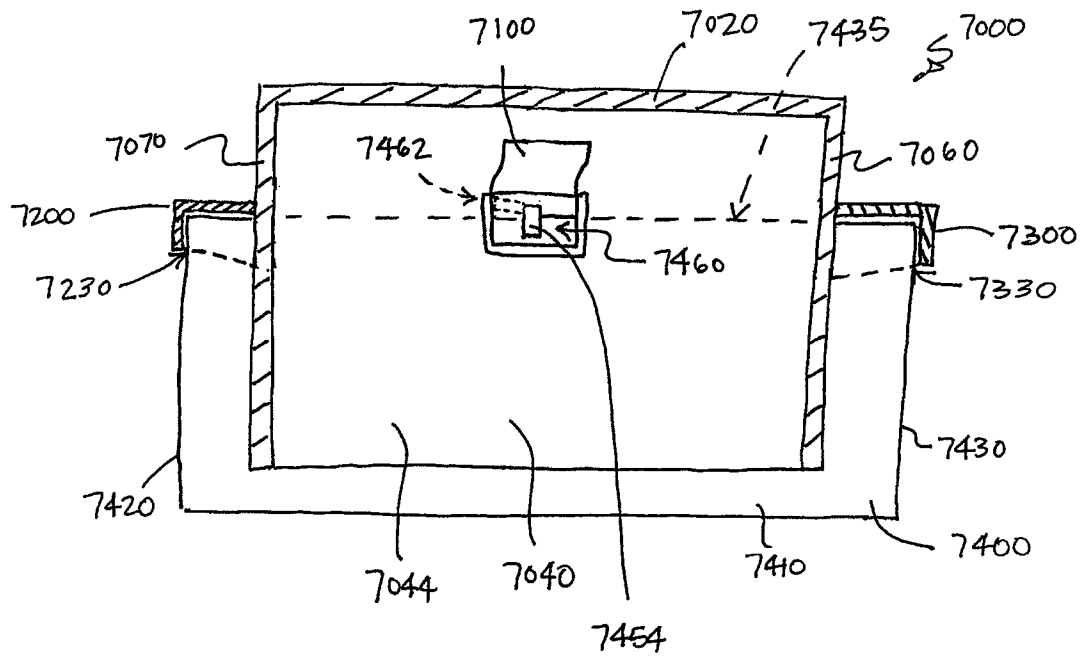


FIG. 132

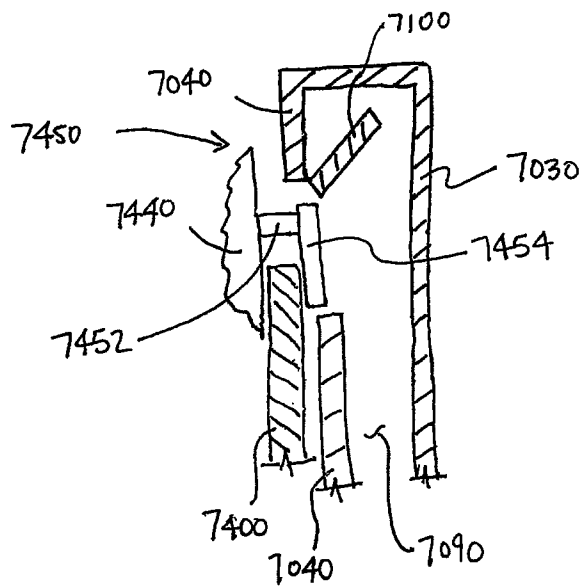


FIG. 133

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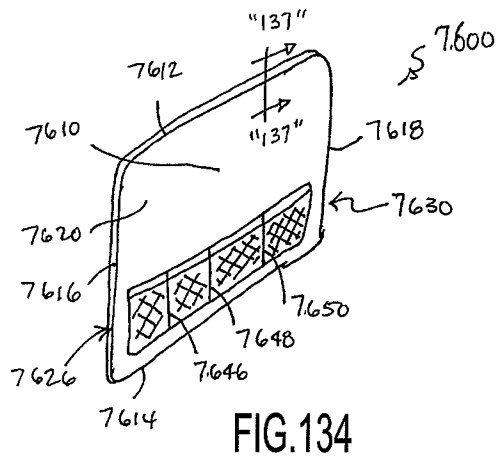


FIG. 134

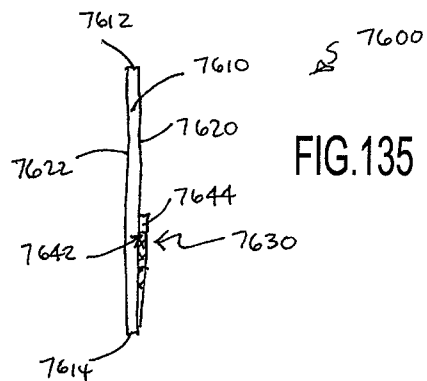


FIG. 135

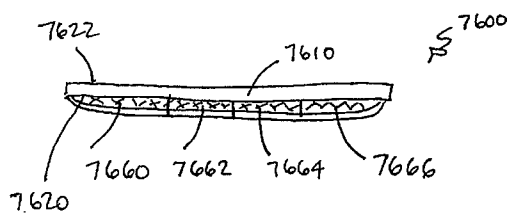


FIG. 136

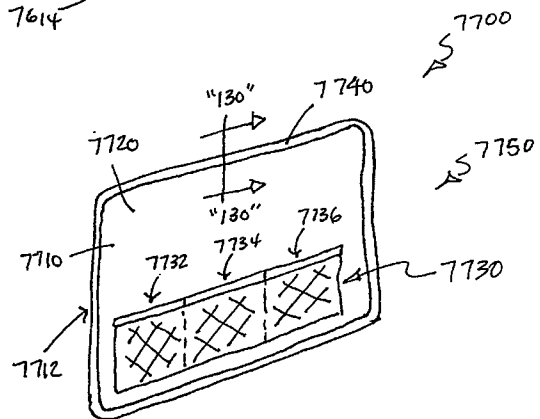


FIG. 138

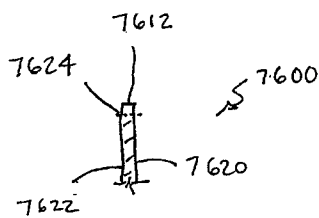


FIG. 137

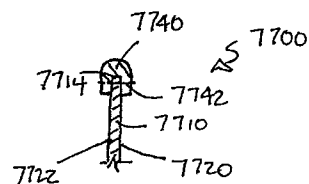


FIG. 139

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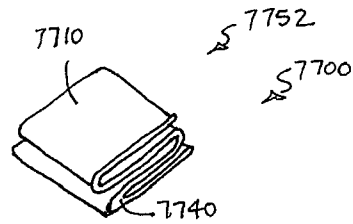


FIG. 140

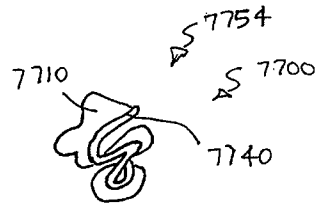


FIG. 141

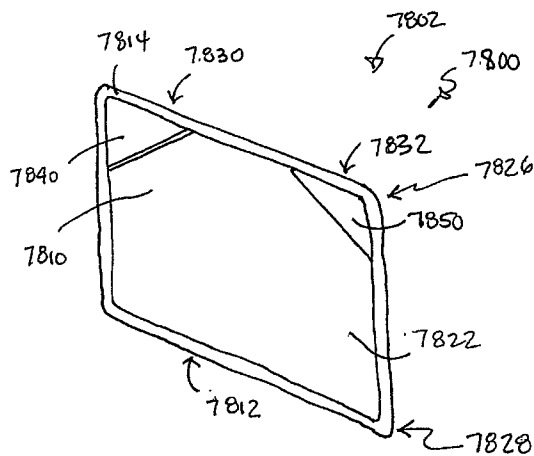


FIG. 142

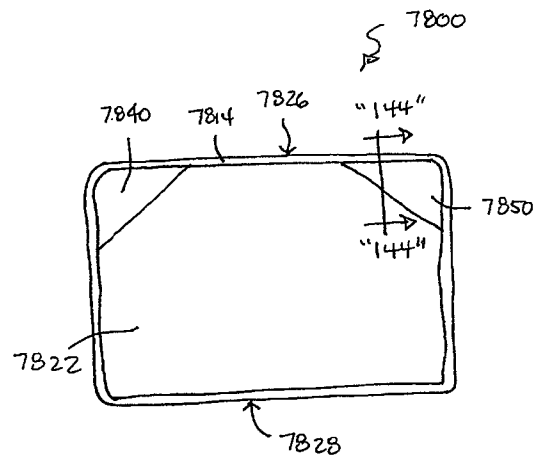


FIG. 143

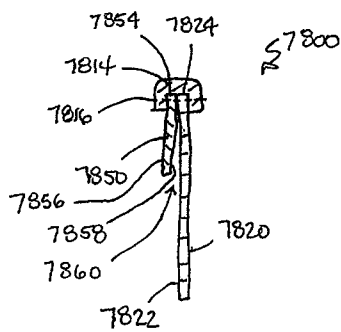


FIG. 144

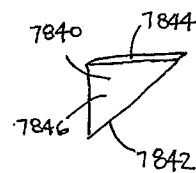


FIG. 145

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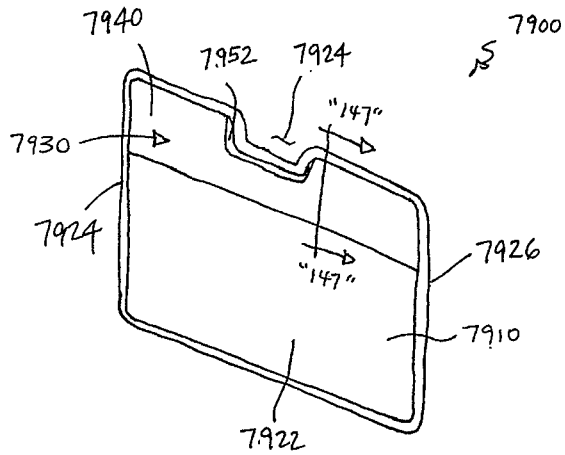


FIG. 146

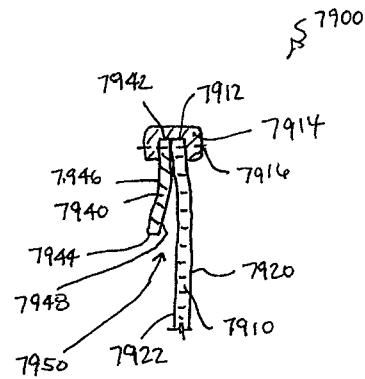


FIG. 147

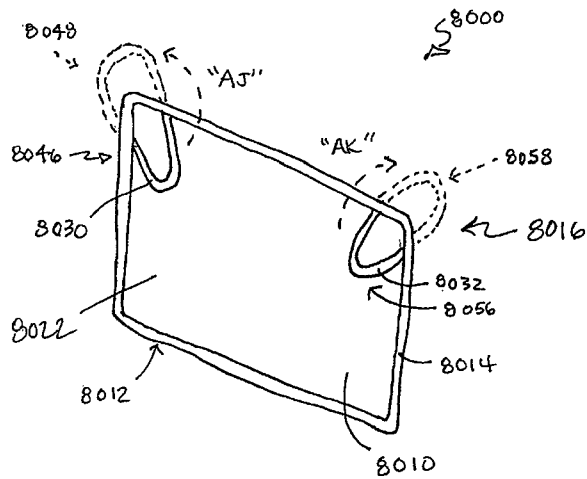


FIG. 148

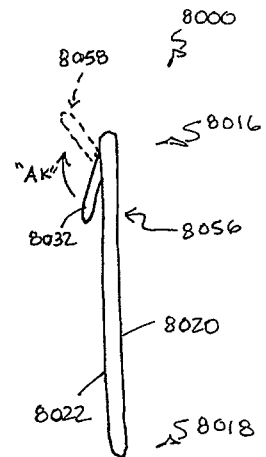


FIG. 149

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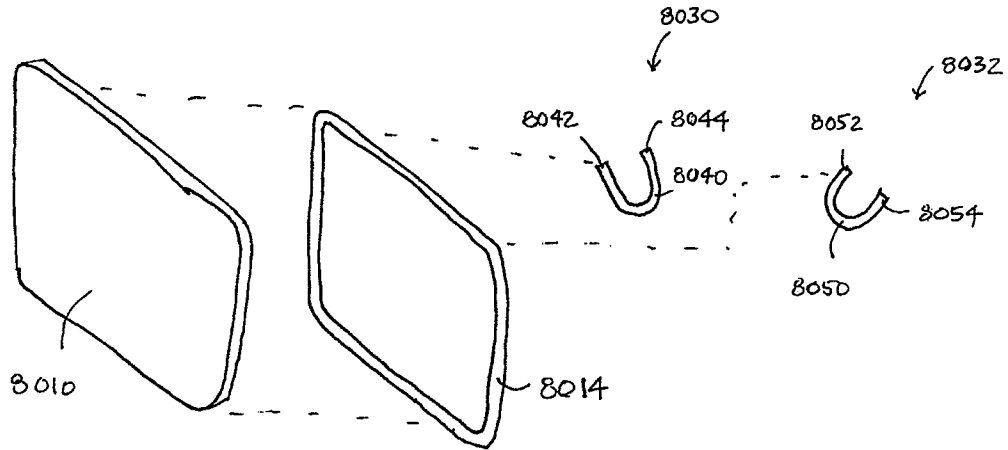


FIG. 150

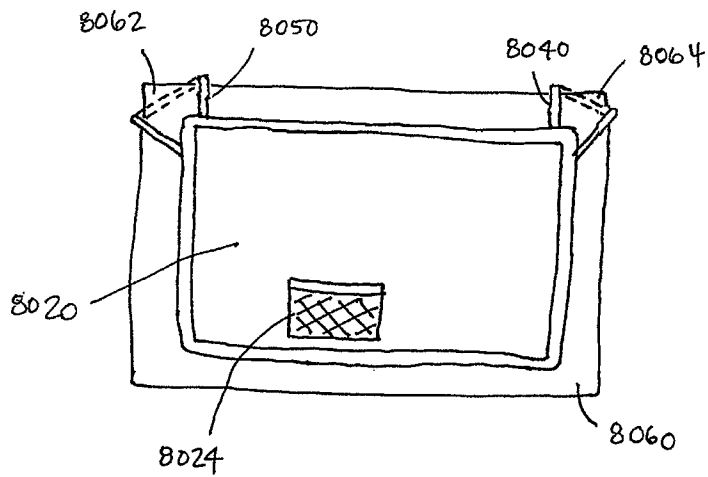


FIG. 151

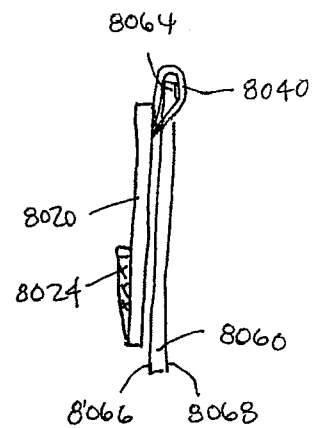


FIG. 152

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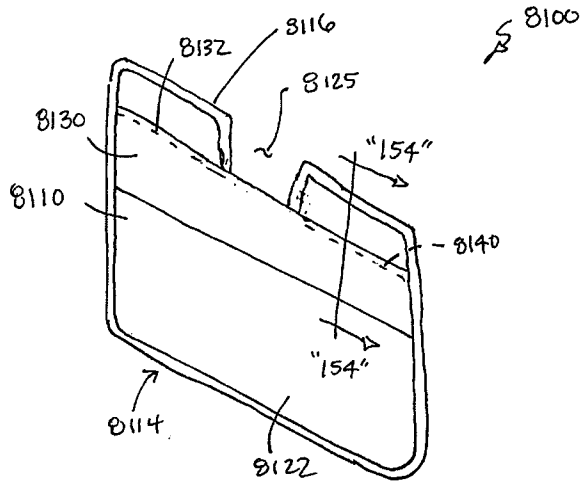


FIG. 153

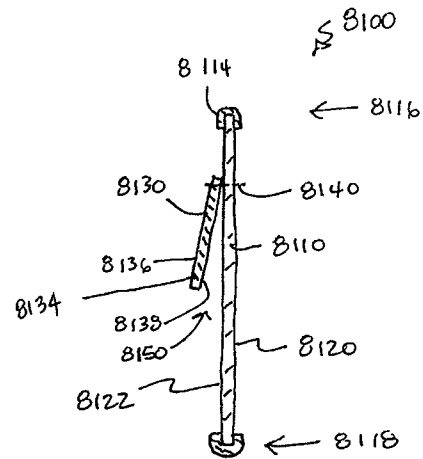


FIG. 154

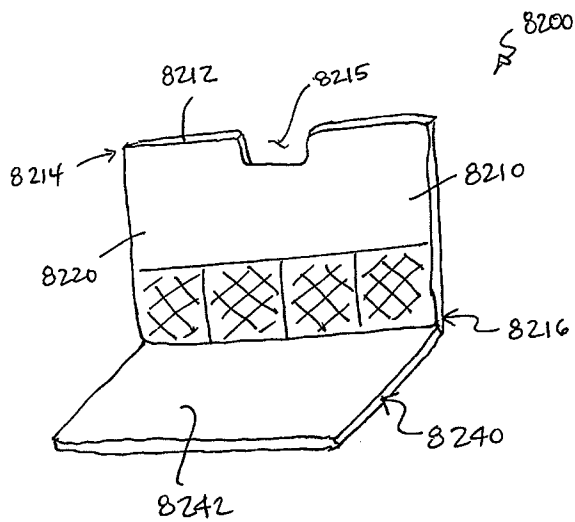


FIG. 155

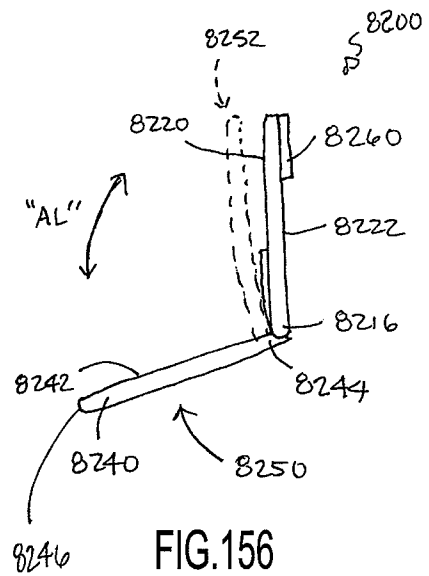
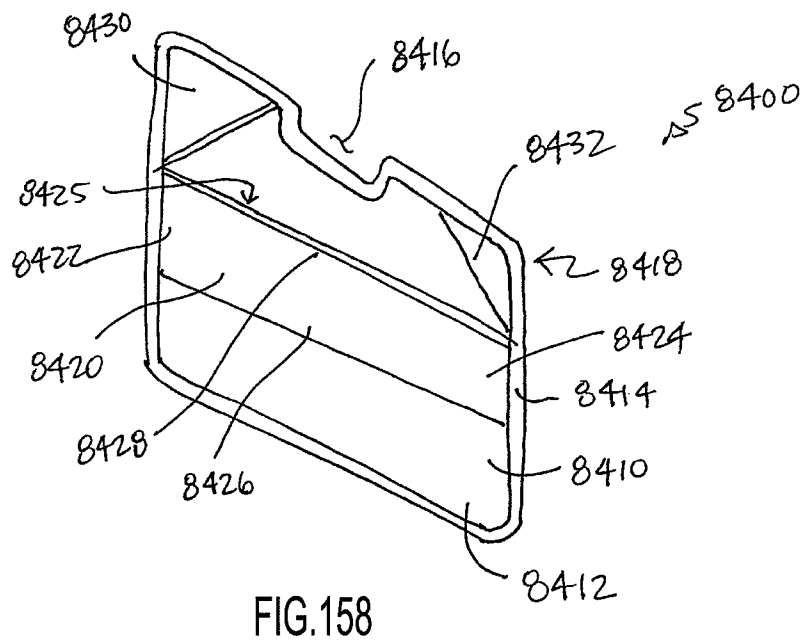
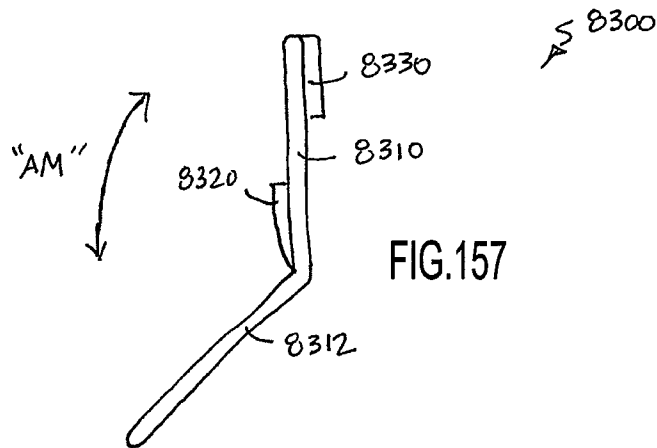
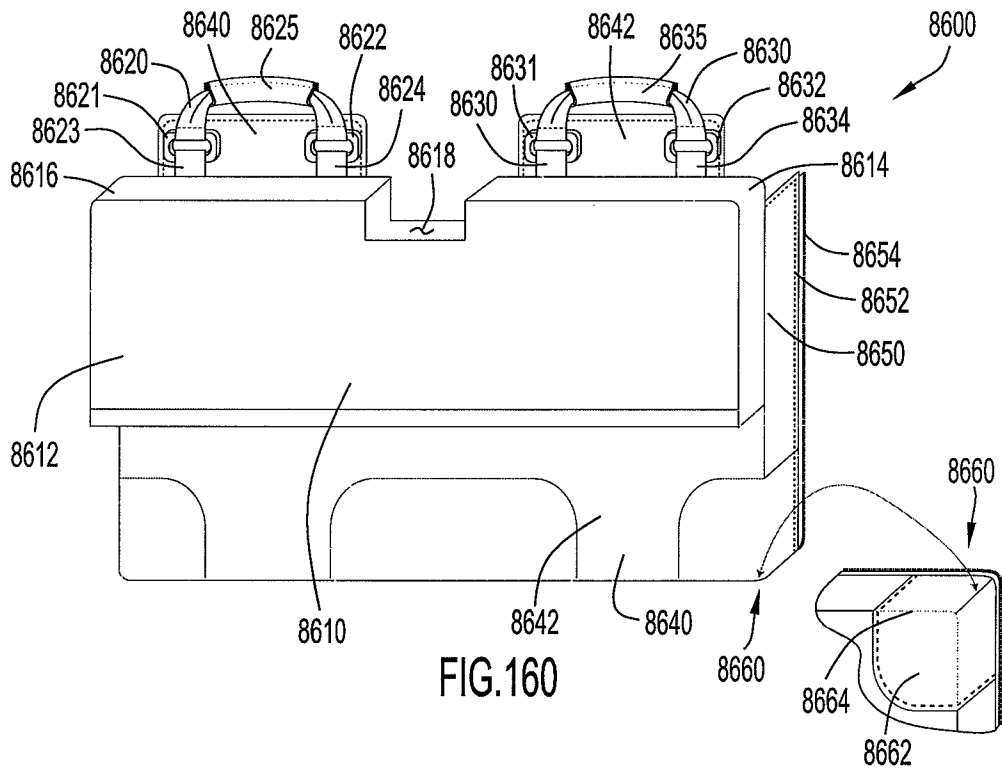
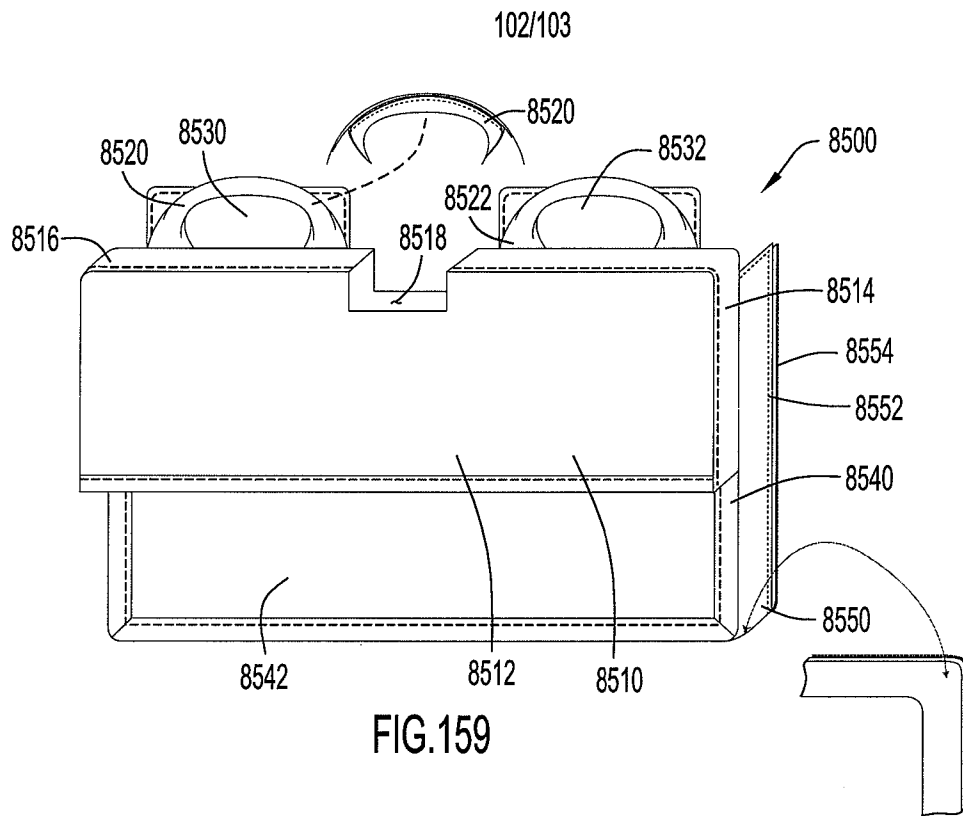


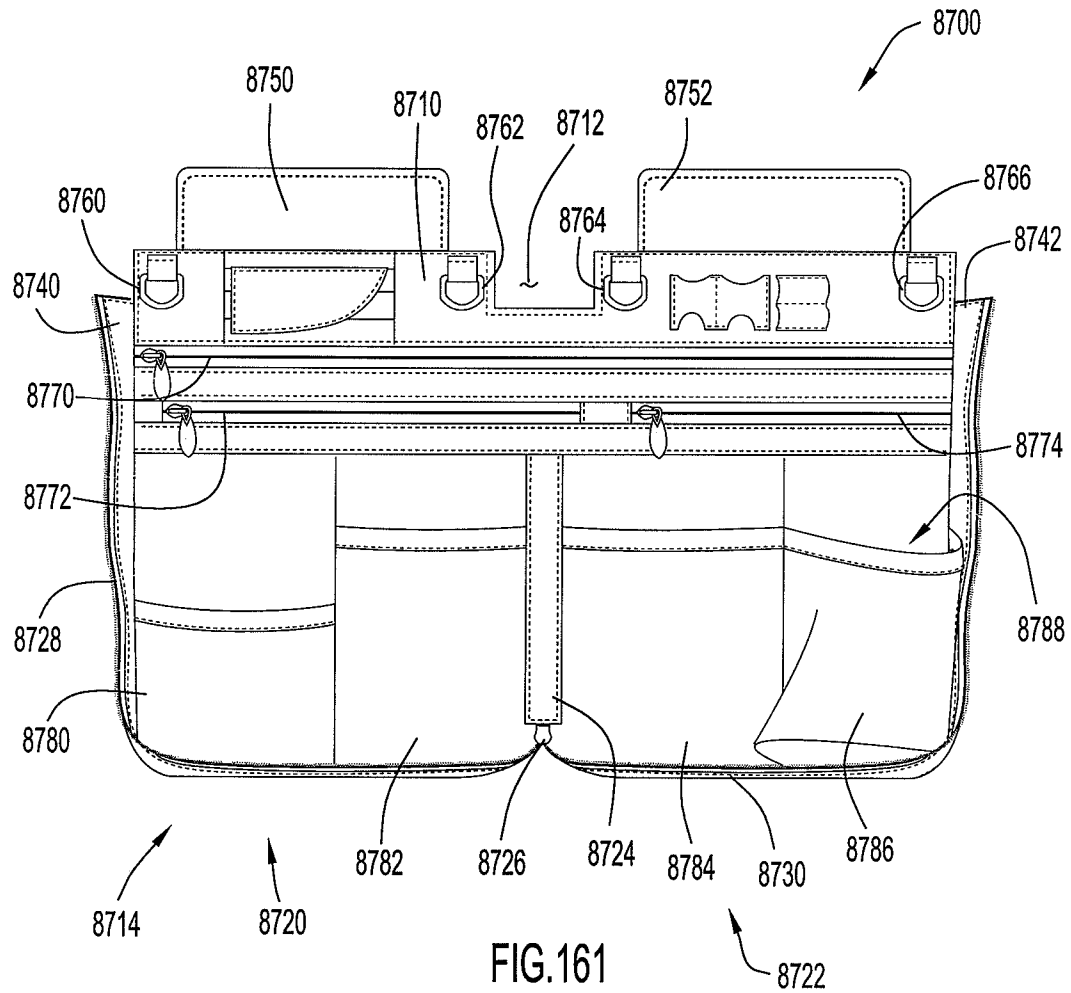
FIG. 156

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2009/030590

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A47B 23/00 (2009.01)

USPC - 108/42

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC(8) - A47B 23/00 (2009.01)

USPC - 108/42

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

MicroPatent, IP.com, Patbase, Google Patent, IEEEEXPLORE, Google Scholar

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,628,439 A (O'HARA) 13 May 1997 (13.05.1997) entire document	1-16, 19-40
----		----
Y		17, 18
Y	US 5,307,968 A (KALMBACH) 03 May 1994 (03.05.1994) entire document	17, 18

☐ Further documents are listed in the continuation of Box C.


* Special categories of cited documents:

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"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

20 February 2009

Date of mailing of the international search report

02 MAR 2009

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