

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
5 October 2006 (05.10.2006)

PCT

(10) International Publication Number
WO 2006/105280 A1

(51) International Patent Classification:
B63B 17/00 (2006.01)

(21) International Application Number:
PCT/US2006/011618

(22) International Filing Date: 29 March 2006 (29.03.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10/907,332 29 March 2005 (29.03.2005) US

(71) Applicant and

(72) Inventor: **GIANNASCA, John** [US/US]; P.o. Box 14,
Point Lookout, New York 11569 (US).

(74) Agents: **COLLARD & ROE, P.C.** et al.; 1077 Northern
Blvd, Roslyn, NY 11576 (US).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV,
LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI,
NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG,
SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US,
UZ, VC, VN, YU, ZA, ZM, ZW.

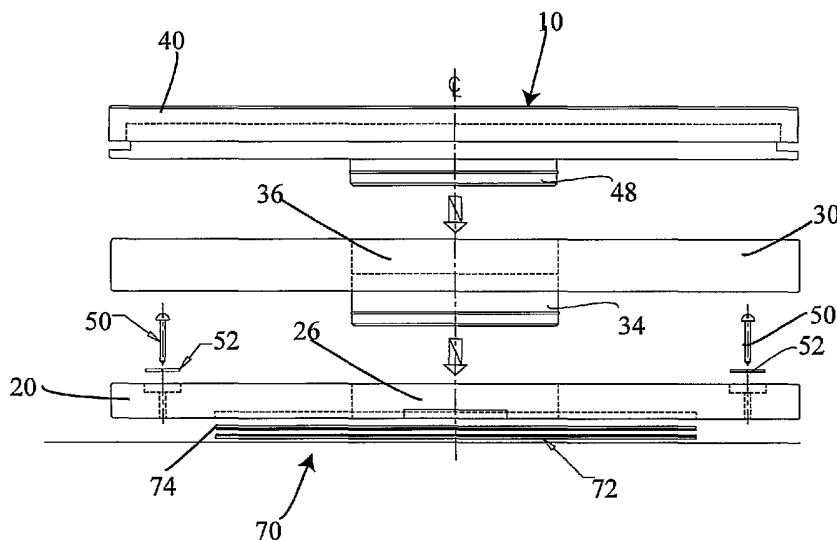
(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT,
RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA,
GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: **STACKABLE BOARD PLATFORM FOR MARINE VESSEL**



(57) Abstract: A system for supporting a user in a shock absorbing manner over a base floor comprising at least one base platform selectively secured the base floor. There is at least one additional platform wherein this platform can be stacked on top of the base platform. This additional platform can comprise the following elements: a flexible elastic shock absorbing element which may be in the form of any shock absorbing material such as rubber; and a substantially rigid housing disposed around the flexible element. This substantially rigid housing may be in the form of any substantially rigid material and may for example be a polyurethane foam or a blow molded plastic. At least a portion of the shock absorbing element can fit inside of this substantially rigid housing in a recessed region. There is also an additional layer of rigid material which is secured to this shock absorbing element in the form of a flexible layer. This additional layer of rigid material may also be in the form of rigid foam. In this case the flexible shock absorbing layer supports the rigid housing above the rigid foam layer.



WO 2006/105280 A1

TITLE OF THE INVENTION

STACKABLE BOARD PLATFORM FOR MARINE VESSEL

BACKGROUND OF THE INVENTION

5 The present invention relates to a stackable support platform wherein this support platform can be used as a shock absorbing platform for users. This type of platform can be used to support a user over a platform that incurs shocks such as a boat deck on a motorboat.

SUMMARY OF THE INVENTION

10 The invention relates to a system for supporting a user in a shock absorbing manner over a base floor comprising at least one base platform selectively secured the base floor. There is at least one additional platform wherein this platform can be stacked on top of the base platform. This additional platform can comprise the following elements: a flexible
15 elastic shock absorbing element which may be in the form of any shock absorbing material such as rubber; and a substantially rigid housing disposed around the flexible element. This substantially rigid housing may be in the form of any substantially rigid material and may for example be a polyurethane foam or a blow molded plastic. At least a portion of the shock absorbing element can fit inside of this substantially rigid housing in a recessed region. There
20 is also an additional layer of rigid material which is secured to this shock absorbing element in the form of a flexible layer. This additional layer of rigid material may also be in the form of rigid foam. In this case the flexible shock absorbing layer supports the rigid housing above the rigid foam layer.

A top surface of the substantially rigid housing may be in the form of a non-skid surface.

This system can also be used to adjust the level at which a person stands on a base floor such as a deck of a boat. Therefore, this system can further comprise at least one intermediate stacking element for stacking on top of the base platform. Additional intermediate stacking platforms can be used to stack this standing platform as high as a user would want.

To secure the base layer to the base floor there can be at least one base bracket that is fastened to the base floor for allowing the base layer having a flange region to fasten to the floor.

For example, the base bracket is in the form of a bracket that has at least one flange, wherein the base platform contains a flange which can mate with a flange region on the metal bracket so that the base platform can be secured to the base.

There can also be a strap for securing the additional platform onto the base platform, wherein this strap is securely wrapped around the additional platform and the base platform.

The additional layer can also include an additional substantially rigid layer which is coupled to the flexible shock absorbing layer opposite the housing. This flexible shock absorbing layer may extend out from the housing a sufficient distance to space a bottom surface of the rigid housing from the oppositely spaced substantially rigid layer.

The base platform can have at least one recessed region, and the additional platform can have at least one plug extending out from the additional platform, wherein the plug and the recessed region form a tongue and groove connection, wherein the extending section of this plug can extend into the recessed region the base platform. The optional plug can also
5 optionally contain a rib extending around the plug. The rib can be in the form of a rigid material or in the form of a rubber gasket.

The base platform can have on one face a recessed region for receiving a hook and loop fastener which can be used to secure the base platform to the base floor. The hook and
10 loop fastener can be in the form of two strips with one strip comprising hooks on one side and an adhesive on an opposite side and another strip comprising loops on one side and an adhesive on another side wherein one of the strips is fastened to the base platform and the other strip is fastened to the base floor, such that the base platform can be selectively secured to the base floor using this fastener. This fastener is recessed inside of the base platform so
15 that this base platform maintains its stable foundation and contacts the base floor with a substantially larger surface area of the bottom surface of the base platform. Otherwise, the strips of the hook and loop fastener would elevate this base platform off of the base floor creating an unstable platform.

20 One of the benefits of this system is that it is designed to be easily securable to a base floor such as a motorboat deck. With the hook and loop fastening system, this device can also be easily removed and stored away so that it does not interfere with a persons movement across a deck.

This system also has the advantage of being stackable with intermediate levels being stacked one on top of the other to elevate the top platform above the base platform to a particular height. This feature is beneficial because if a first user is very tall that user would not need so many intermediate stackable levels. However if another user was not as tall and
5 wanted to have increased visibility above a console and/or steering wheel, that user could simply stack each level, first on the base layer, one on top of the other to the desired height.

Another beneficial feature of this invention is that the flexible shock absorbing layer in the additional layer provides absorbs some of the energy of any dramatic movements from
10 a motorboat such as bouncing up and down in choppy seas while at moderate to high speeds. During these periods of shocks, the rigid outer housing would compress down on top of the oppositely spaced rigid layer such that the intermediate flexible layer would absorb much of the energy of the shock. When these dramatic stresses are removed from this component then the housing would be elevated back up above the bottom rigid layer.

BRIEF DESCRIPTION OF THE DRAWINGS

Other objects and features of the present invention will become apparent from the following detailed description considered in connection with the accompanying drawings. It
20 should be understood, however, that the drawings are designed for the purpose of illustration only and not as a definition of the limits of the invention.

In the drawings, wherein similar reference characters denote similar elements throughout the several views:

FIG. 1 is a top view of a first implementation of the device on a motorboat;

FIG. 2A is a side view of FIG. 1 showing the implementation of this device;

5 FIG. 2B is an alternative embodiment of the design shown in FIG. 2A;

FIG. 3A is a top view of a bottom or base layer or board of the device;

FIG. 3B is a front view of the bottom layer shown in FIG. 3A;

10

FIG. 3C is a side view of the bottom layer shown in FIG. 3A;

FIG. 4A is a top view of a middle board or middle layer;

15

FIG. 4B is a front side view of the middle board shown in FIG. 4A;

FIG. 4C is a side view of the middle board shown in FIG. 4A;

FIG. 5A is a top view of the top board or top layer;

20

FIG. 5B is a front view of the top board shown in FIG. 5A;

FIG. 5C is a side view of the side board rotated 90 degrees;

FIG. 6 is a front side view of a first assembly of the device;

FIG. 7A is a side view of the second assembly of the device;

5 FIG 7B is a front view of the second assembly of the device; and

FIG. 8A is a top view of another embodiment of a top board;

FIG. 8B is a side view of the embodiment shown in FIG. 8A;

10

FIG. 8C is a front view of the embodiment shown in FIG. 8A; and

FIG. 9 is a side cross sectional view of another embodiment of the connecting
elements for the invention;

15

FIG. 10 is a bottom view of another embodiment of a middle board;

FIG. 11A is a side view of a footing for a middle or elevating layer shown in FIG. 10;

20

FIG. 11B is a top view of a footing as shown in FIG. 11A;

FIG. 12A is a side view of another connection element;

FIG. 12B is a top view of the connection element shown in FIG. 12A;

FIG. 13 is another view of another connection element;

FIG. 14A is a first view of a modular connection for boards; and

5 FIG. 14B is a second view of a modular connector for boards.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

Turning now in detail to the drawings, FIG. 1 is a top view of a first implementation of the device 10 on a motorboat 12. In this case, this type of a multi-layer shock absorbing platform may be placed or mounted on any surface such as a boat deck. With the example
10 shown in FIGS. 1 and 2 this multi-layer shock absorbing platform is disposed between a seat 14 and a console unit 16 on motorboat 12.

FIG. 2A is a side view of FIG. 1 showing the implementation of this device such that as this device is mounted it can be stacked higher and higher to allow a user to see over a
15 console unit. This device may be made for example in many different layers such as a bottom layer 20, a middle or elevating layer 30 and a top layer 40. These boards or layers 20, 30 and 40 can be stored on a side portion of a boat or as shown in FIG. 2B pulled out from a compartment 15 underneath seat 14. If the boards are pulled out, they can be slid on adjustable tracks 17a, 17b, 17c, each having a respective slider 18a, 18b, 18c allowing a
20 sliding hinge to slide therein, wherein each track is connected to compartment 15 at one end via a hinge and at an opposite end to each board via sliding hinges 19a, 19b, 19c respectively to allow the height of each board to be adjusted.

FIG. 3A is a top view of a bottom or base layer or board 20 of device 10. This bottom

board can be substantially rectangular in shape and can be made from any type of substantially rigid material such as a plastic or polyurethane foam. In this case, the bottom board 20 includes a plurality of recesses and or holes disposed therein. This set of recesses includes a first and a second recess 22 and 24 respectively for receiving a fastening system such as strips relating to a hook and loop fastener. These two recesses 22 and 24 can be substantially rectangularly shaped and are spaced apart from each other in a parallel manner and are disposed adjacent to side edges of board 20. There is also a central cut out 26 which can be substantially rectangularly shaped and which is positioned in a center region of the board. There are also four optional screw holes 28 including holes 28a, 28b, 28c, 28d, disposed in corner regions of board 20.

FIG. 3B is a front view of the bottom layer shown in FIG. 3A, wherein in this view, recessed regions 22, and 24 are shown as recessed only a portion of a distance into board 20. In addition, screw holes 28 include a recessed or sunken region 29a and a drill hole 29b to receive both a screw head and a screw shaft.

FIG. 3C is a side view of the bottom layer shown in FIG. 3A wherein this view is a view of board 20 rotated approximately 90 degrees. This view shows that central hole or cut out 26 extends entirely through board 20. In addition there are also additional recesses 27 which can be used to receive a cleat mounted on a deck so that this board can be easily mounted on a deck.

FIG. 4A is a top view of a middle board or middle layer 30 wherein this middle board is in the form of a substantially rectangular board having an inner plug 34 that is also

substantially rectangular extending down. Inner plug 34 can essentially be formed from a substantially rectangular cut out 36 of board 30, wherein this plug can be cut out and then slid down as shown in FIG. 4B and then reattached in its displaced position. This inner plug 34 can also include a rib 35 extending around the plug, wherein this rib 35 is disposed

5 substantially adjacent to a bottom edge of plug 34. A bottom edge of plug 30 can also be formed as a chamfered edge 38 as shown in FIG. 4C which allows this plug to fit inside of central cut out 26 of bottom board 20.

FIG. 5A is a top view of the top board or top layer 40, this view shows that this top

10 board is substantially rectangular in shape. As shown in FIG. 5B and in FIG. 5C this board is a multi-layer board including a top housing layer 42, a middle soft shock absorbing foam layer 44 and a bottom layer 46 made from a rigid material such as rigid foam. This bottom layer 46 can have a substantially flat surface in contact with the shock absorbing foam layer 44 and wherein the opposite surface can have a plug 48 extending out therefrom. This plug

15 48 can be of any desired shape but is shown here by way of example as a substantially rectangular plug having a rib 47 extending around a circumference of plug 48. This plug can also have a chamfered edge 49 (See FIG. 5C) which allows plug 49 to easily guide into substantially rectangular cut out 34 of middle board 30. Once this plug 48 is being guided into cut out 34, rib 47 forms a secure friction fit so that this plug does not easily pull out from

20 the other board.

FIG. 5B is a front view of the top board shown in FIG. 5A wherein this view also shows a gap 43 between rigid housing 42 and bottom layer 46. This gap is created by the shock absorbing foam layer 44 extending up into housing 42 to create a spacing distance

between the two rigid layers. When this top layer 42 or bottom layer 46 is stressed with a sudden movement or force, some of the energy associated with this movement can be absorbed by middle layer 44, causing the two rigid layers to temporarily compress or move together.

5

FIG. 6 is a front side view of a first assembly of the device 10. In this view, the device is being applied as only two boards with a bottom board 20 mounting on a deck and with top shock absorbing board 40 inserting into bottom board 20. In this case, board 40 has plug 48 which fits inside of bottom board cut out 26 to form a friction fit connection via rib 47. In addition, an additional rib can also be shown wherein this additional rib is for additional frictional support.

10

FIGs. 7a and 7b are side and front views, respectively, of the second assembly of the device, wherein this assembly view shows the assembly of three boards shown in FIGS. 4A-5C wherein bottom board 20 is first mounted on a deck, middle spacer board 30 is placed on top, and then finally top board 40 is mounted on middle spacer board 30. A plurality of screws 50 with washers 52 are used to mount this base or bottom board onto a bottom support surface 60 such as a boat floor.

15

20

This assembly can occur as follows: first the hook and loop fasteners/ fastening system 70 is mounted wherein a first strip 72 is applied to a boat deck via an adhesive. The opposite strip 74 is then applied via an adhesive to the indents 22 and 24 in bottom board 20. Once the strips have been applied, bottom board 20 can be placed onto the bottom surface or

boat deck so that this bottom board can be aligned. Next, for additional optional securing of the device, additional fasteners such as screws 60 can be inserted into countersunk openings 28 and secured via washers 52. In addition, brackets 80 for securing a hold down strap can be guided into recess 27 in bottom board 20. Next, once bottom board 20 is secure, middle
5 board 30 is inserted using plug 34 into opening 26 to secure middle board 30 to bottom board 20. Rib 35 is frictionally guided into opening 26 to secure plug 34 therein. In addition plug 34 can be easily guided into opening 26 via a chamfered edge 38.

Next, top board 40 is inserted into middle board 30. With this insertion plug 48 is
10 inserted into opening 36 such that chamfered edge 49 of plug 48 guides plug into opening 36. In addition, friction rib 47 can be used to secure top board 40 into middle board 30. Once this entire device has been secured down, a strap 90 can be wrapped around all of the boards, to secure these boards together. In addition, this strap can be secured to the base or floor via
15 bracket 80.

In another embodiment FIG. 8A shows a top view of a solid top board made from a single solid section of shock absorbing material 42a. In this case the single section of shock absorbing material can be in the form of a rubber, foam, or other type of forgiving material that can be used to support a user in a shock absorbing manner. This device can also be
20 attached to a bottom board via a plug 48a which is similar to plug 48. This plug 48a can then fit inside of a board cut out 26 such that top board 42a would then be snugly secured to a bottom board 20.

In addition other optional components may be associated with this design, for

example, instead of using a substantially rectangular shaped plug 48a, there can be another type of system which involves a round plug which can then conversely fit into a round hole in the base or bottom board cut out. FIG. 9 shows a connection joint that can be formed from a ball and socket joint between a top board and a bottom board. Essentially the top board would have the collapsible ball joint and the bottom board would have the open socket.

FIG. 9 shows a cross sectional view of a ball and socket joint 90 which includes a shaft 92 which would connect to a top board, a plate 94 which is coupled to the shaft, a second shaft 96 connected to plate 94 and continuous with first shaft 92. There is also a collapsible ball 98 which can connect with shaft 96 and then be pressed in to snap into socket 100. Socket 100 can be coupled to a hole in bottom board 20 and includes a top plate rim 102 which allows it to be pressed into a hole in a bottom board and a flange 106 which allows ball 98 to snap in and to have it frictionally secured into socket 100. In this way, top board 40 can be secured to bottom board 20 in an alternative manner.

FIG. 10 is a bottom view of another embodiment of a middle or top layer or middle board 130. In this case middle board 130 includes rounded connection elements including rounded connection elements 131, 132, 133, and 134. Each rounded connection element has a respective knob or rounded ball or bump-on 131a, 132a, 133a, 134a, and respective holes or receiving rings 131b, 132b, 133b, and 134b, and outer covering rings 131c, 132c, 133c, 134c. A connection element can fit inside of this rounded connection element by receiving the respective balls and having a flange or rounded ring fit inside of the respective receiving ring. The non-skid bump-on is then a removable foot to be used with either the top or middle board.

FIG. 11A is a side view of a footing 140 for a middle or elevating or top layer 130. In this case, footing 140 includes a first section 141, and a second angled section 142. This footing can be attached to a bottom end of middle board 130. For example, in second angled section 142, there is a ring or flange section 142 which can be made of solid material, and a hole section 143 which can be used to receive an associated ball section 131a, 132a, 133a, or 134a. These footings can be placed on the middle or top section so that a bottom board is not necessary.

FIG. 11B is a top view of a footing as shown in FIG. 11A which shows the different sections 141 and 142, with section 141 extending out from broader base section 142.

FIG. 12A is a side view of another connection element, wherein there is shown a connection bracket 150 which can connect to a base or bottom board 20. There can be screw holes 121 in a back end of bottom board 20 for receiving a connection bracket 150.

FIG. 12B is a top view of the connection element shown in FIG. 11A. In this view connection bracket 150 can connect to posts on a vessel such as a motor boat via connection clamps 151 and 152. Hinges 153 and 154 can couple to connection clamps 151 and 152 respectively. With hinges 153 and 154, bottom board 20 can be rotated up against and into posts on the motorboat so that this bottom board 20 is stowed out of the way.

FIG. 13 is another view of another connection element 160. In this view, there is shown a telescoping connection element having rounded clamps 151 and 152 which can clamp onto posts. There are also posts 161 and 163 which can be telescoping into a

telescoping section 162. This connection element 160 can be coupled to connecting posts 154 and 155 which can then connect to a side end of a base or bottom board 20. Connecting posts 155 and 156 can be coupled to hinges 153 and 154 so that the board can be stowed away as described above.

5

FIG. 14A and 14B show that the boards 20, 30, or 40 can be modularly or laterally coupled together. In this case as shown in FIG. 14A a lateral side connection 170 which can be in the form of a snap fit element can be used to couple at least two boards together laterally. As shown in FIG. 14B this lateral connection 170 can be used with boards 20, 30, and 40 to form stairs.

10

Accordingly, while a few embodiments of the present invention have been shown and described, it is to be understood that many changes and modifications may be made thereunto without departing from the spirit and scope of the invention as defined in the appended claims.

15

CLAIMS

WHAT IS CLAIMED IS:

1. A system for supporting a user over a base floor comprising:

a) at least one base platform selectively secured to said base;

b) at least one additional platform wherein said at least one additional platform can be stacked on top of said at least one base platform, wherein said at least one additional platform comprises the following elements:

i) a flexible elastic shock absorbing element;

ii) a substantially rigid housing disposed around said flexible element wherein said substantially rigid housing is stackable on said base platform and wherein said flexible element contains a first inner region extending up to a first height and a second lower region extending up to a lower second height wherein said substantially rigid housing rests on said first inner region in an uncompressed state and can be selectively compressed so as to contact said second lower region when said substantially rigid housing is in a compressed state.

2. The system as in claim 1, further comprising at least one intermediate stacking element for stacking on top of said at least one base platform, wherein said at least one additional platform can be stacked on top of said at least one intermediate stacking element.

3. The system as in claim 1, wherein said flexible elastic shock absorbing element is made from rubber.

4. The system as in claim 1, wherein said substantially rigid housing is made from polyurethane foam.

5. The system as in claim 1, wherein said at least one base platform and said substantially rigid housing can be blow molded.

6. The system as in claim 1, further comprising at least one base bracket for securing said at least one base platform to said base floor.

7. The system as in claim 6, wherein said at least one base bracket is in the form of a bracket that has at least one flange, and wherein said at least one base platform contains a flange which can mate with said metal bracket so that said at least one base platform can be secured to said base.

8. The system as in claim 7, wherein said base platform can be slid onto said at least one base bracket so that said flange on said bracket mates with said flange on said base platform to secure said base platform onto said base floor.

9. The system as in claim 1, further comprising a strap for securing said at least one additional platform onto said base platform, wherein said strap is securely wrapped around said at least one additional platform and said at least one base platform.

10. The system as in claim 1, wherein said at least one base platform has at least one recessed region, and said at least one additional platform has at least one extending section, wherein said at least one extending section extends into said at least one recessed region of said base platform.

5

11. The system as in claim 1, wherein said at least one additional platform further comprises a non-skid surface disposed on a top surface of said at least one additional platform.

10 12. The system as in claim 1, wherein said at least one additional layer further comprises a substantially rigid foam section which is coupled to said flexible element opposite said substantially rigid housing to form a multi-layer component.

15 13. The system as in claim 1, wherein said at least one additional layer further comprises at least one substantially rigid foam plug.

14. The system as in claim 12, wherein said at least one additional layer further comprises at least one substantially rigid foam plug.

20 15. The system as in claim 14, wherein said substantially rigid foam plug further comprises at least one rib extending around said substantially rigid foam plug, said at least one rib is for securing said substantially rigid foam plug inside of a recess in a hole in a top region of said at least one base platform.

16. The system as in claim 1, wherein said at least one base platform further

comprises a recessed region disposed on at least one surface of said base platform.

17. The system as in claim 16, further comprising at least one fastener for fastening said base platform to the base floor in the region of said recessed region.

5

18. The system as in claim 17, wherein said at least one fastener is in the form of a hook and loop fastener, disposed in said recessed region of said base platform.

19. The system as in claim 1, further comprising at least one hinge mounted
10 bracket, having a first hinge coupled to a seat compartment, and a second slidable hinge coupled to said at least one base platform such that said at least one base platform can slide out of said seat compartment and wherein said first hinge and said second slidable hinge can rotate to set a height for said at least one base platform.

15 20. A system for supporting a user over a base floor comprising:

a) at least one base platform selectively secured to said base, and comprising:

i) a top surface having a plurality of recesses with at least one recess for
20 receiving a substantially rigid fastener extending through said platform to reside in said base platform in a sunken manner, and at least one additional recess substantially centrally disposed;

ii) a bottom surface having at least one recess including at least one recess for receiving a strap extending up from the base floor, at least one recess for receiving at least

one fastening plate for allowing said at least one rigid fastener to be secured to the base floor, and at least one recessed region for receiving an additional fastener in the form of a hook and loop fastener in the form of at least two strips with at least one strip being fastened to said bottom surface and at least one strip being fastened to said base floor;

5

b) at least one additional platform wherein said at least one additional platform can be stacked on top of said at least one base platform, wherein said at least one additional platform comprises the following elements:

10

i) a flexible elastic shock absorbing layer;

ii) a substantially rigid housing having a recessed region and disposed around said flexible layer, such that said flexible element is disposed at least partially inside of said substantially rigid housing and is fastened to said substantially rigid housing via an adhesive;

15

iii) a substantially rigid foam layer coupled to said flexible layer opposite to a side that said flexible layer is coupled to said substantially rigid housing; and

20

c) a substantially rigid foam plug, coupled to and extending out from said substantially rigid foam layer, and having a rib extending out from a peripheral region on said foam plug, wherein said substantially rigid foam plug fits inside of said at least one additional recess substantially centrally disposed to secure said at least one additional platform to said at least one base platform.

1/14

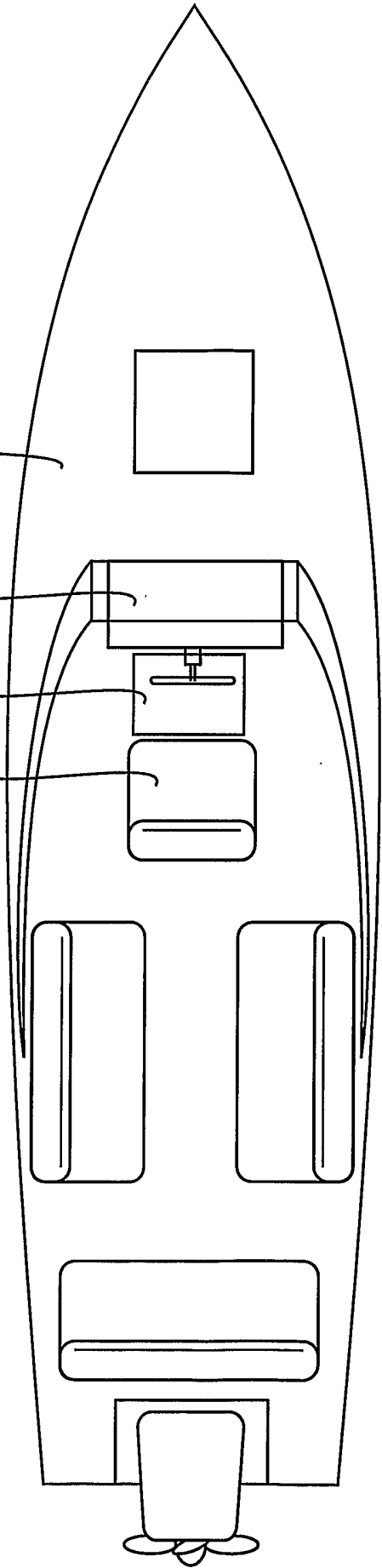
12

16

10

14

FIG. 1



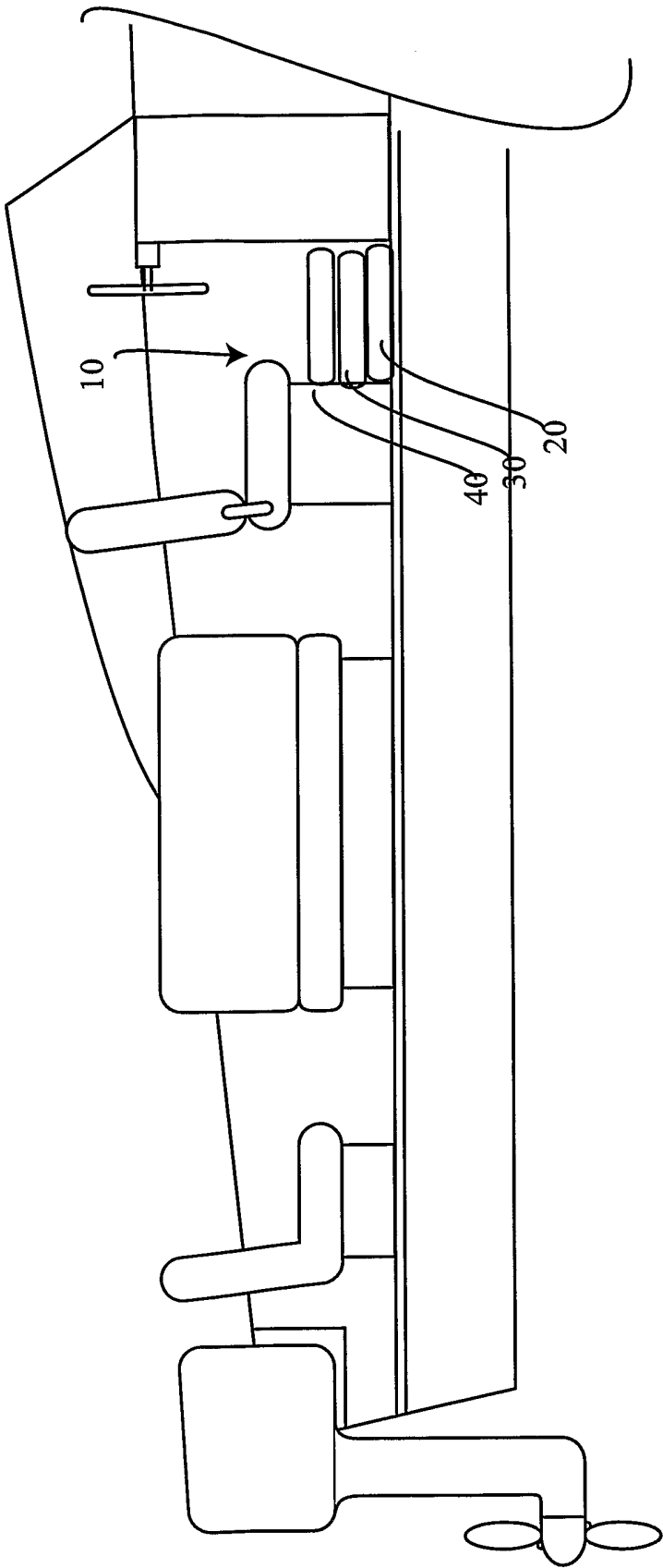


FIG. 2A

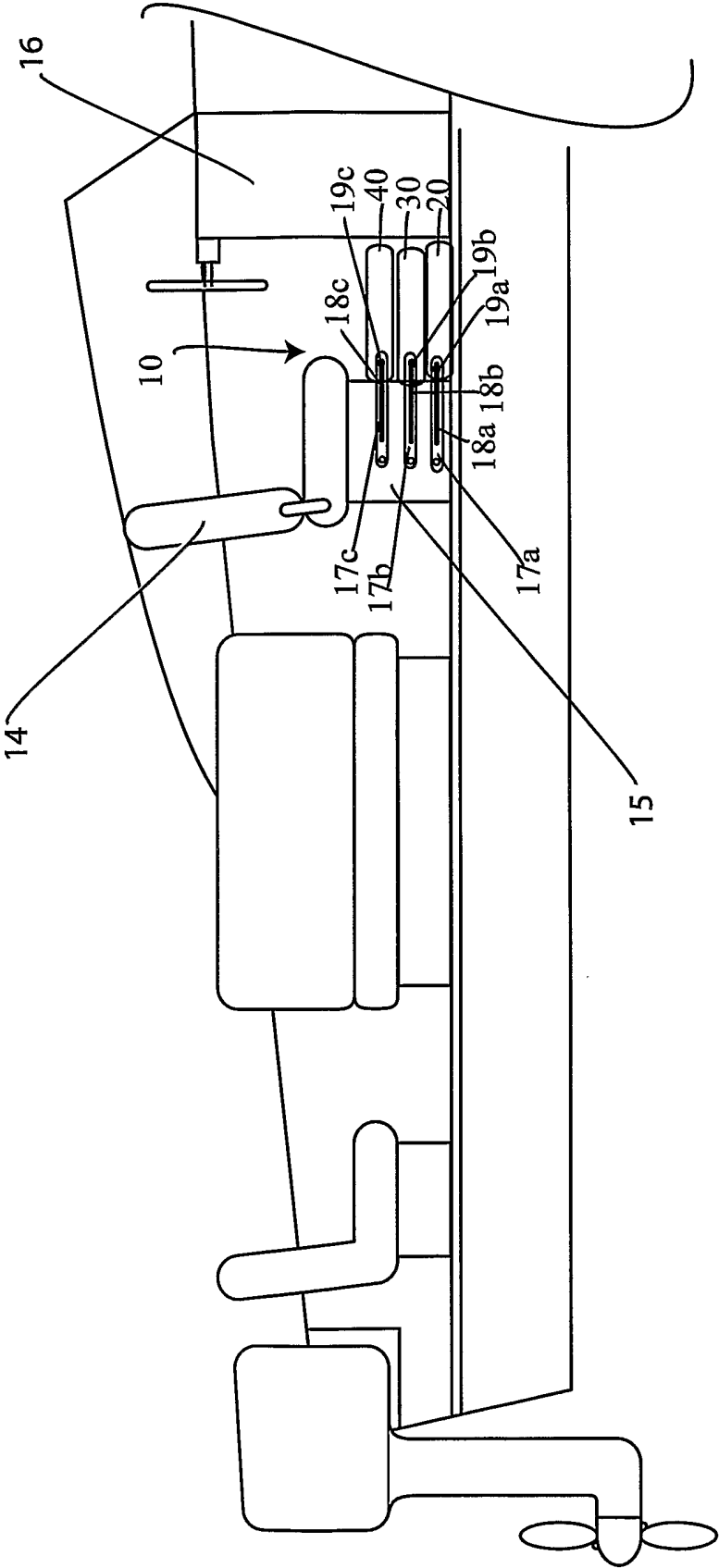
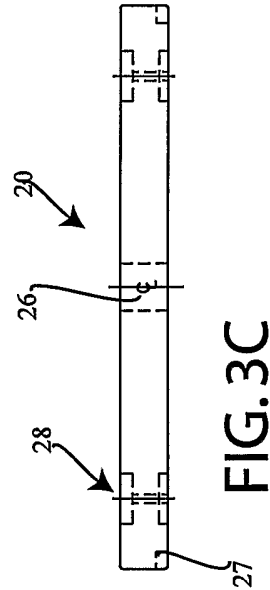
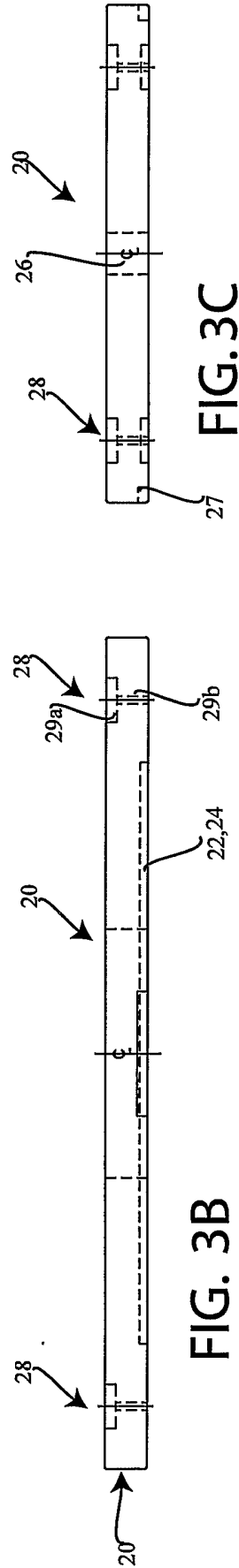
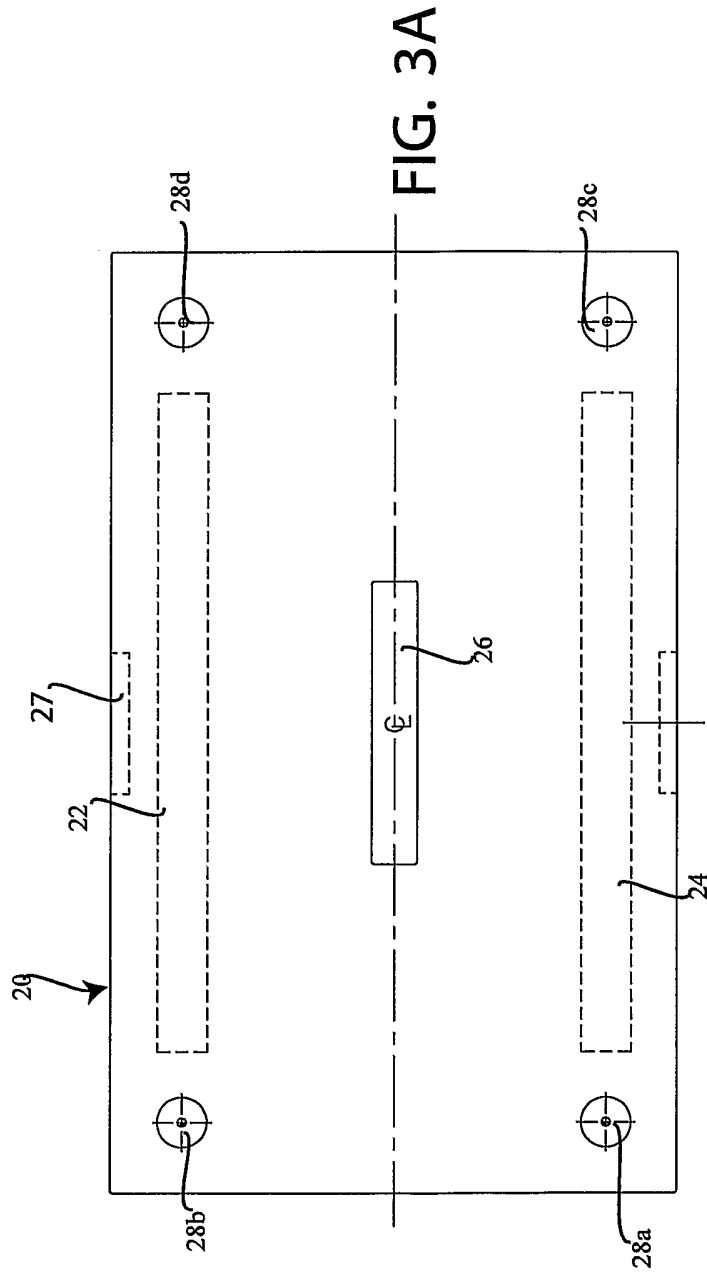


FIG. 2B



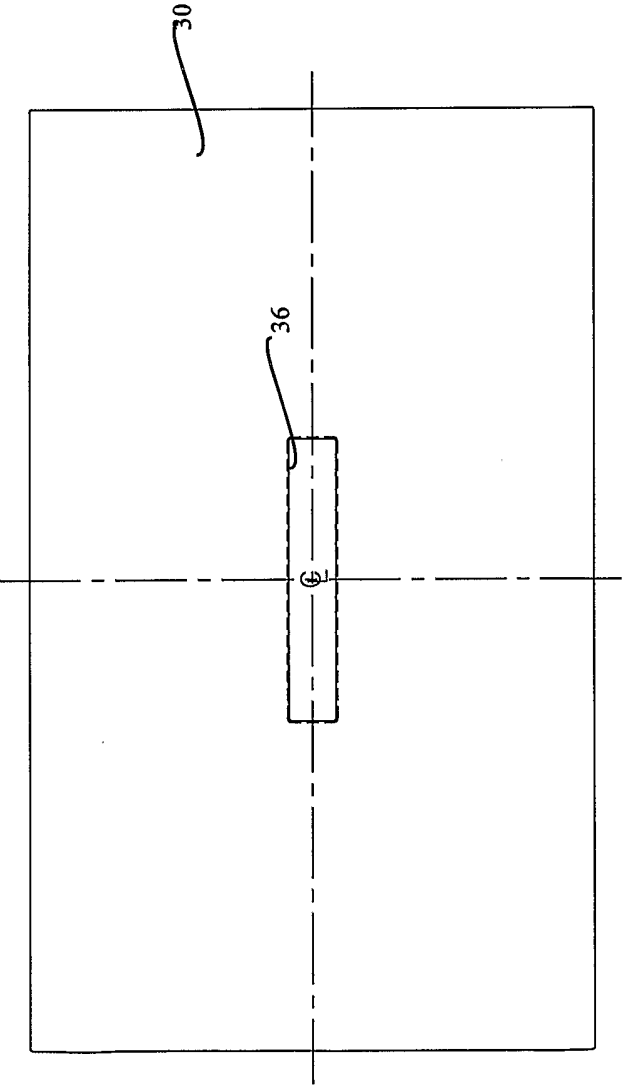


FIG. 4A

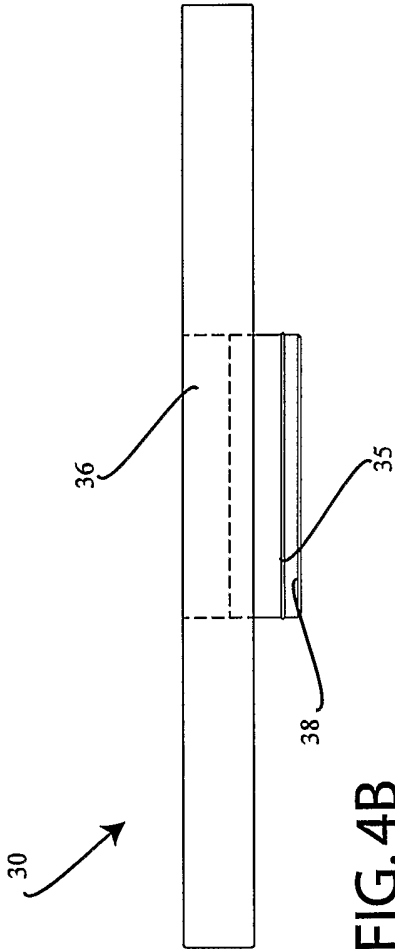


FIG. 4B

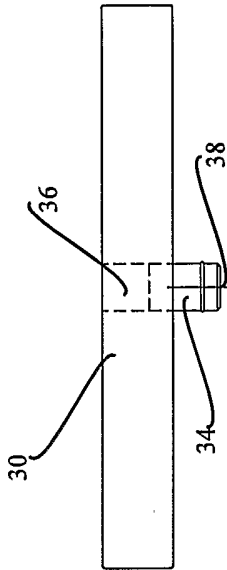


FIG. 4C

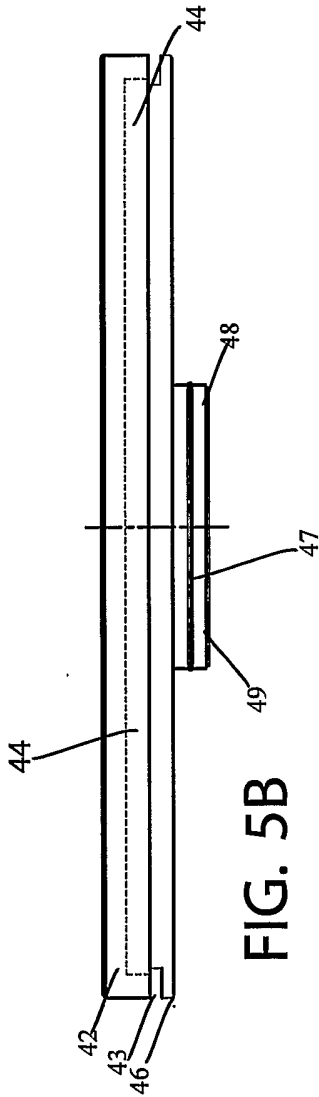
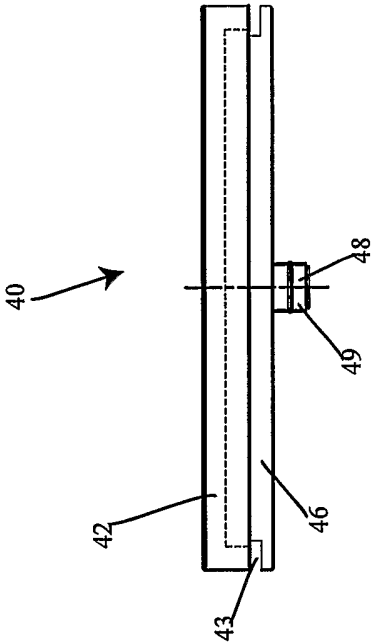
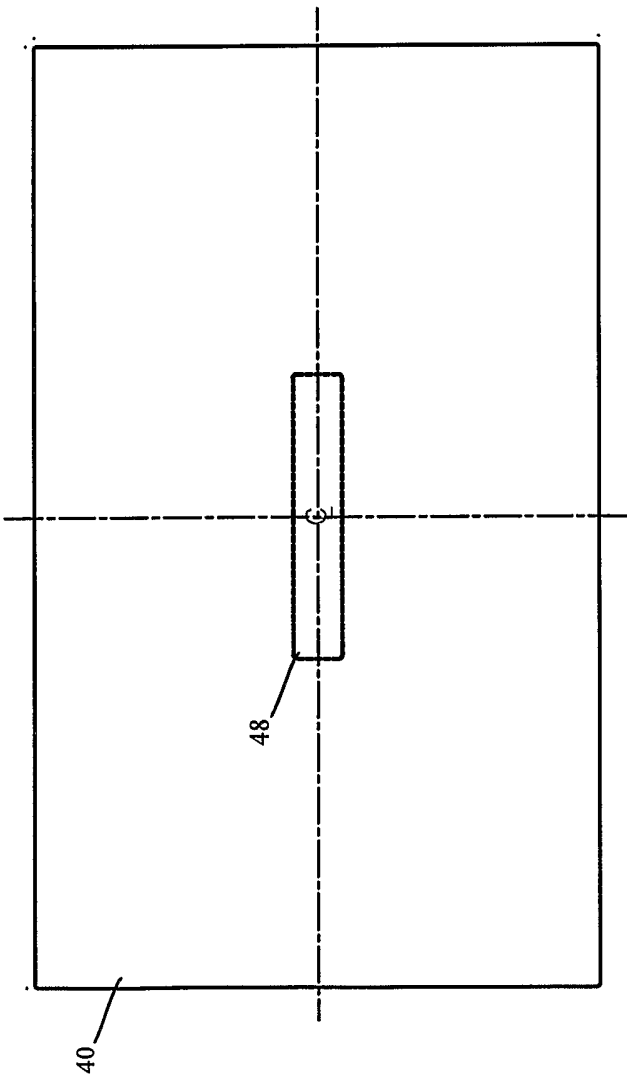


FIG. 6

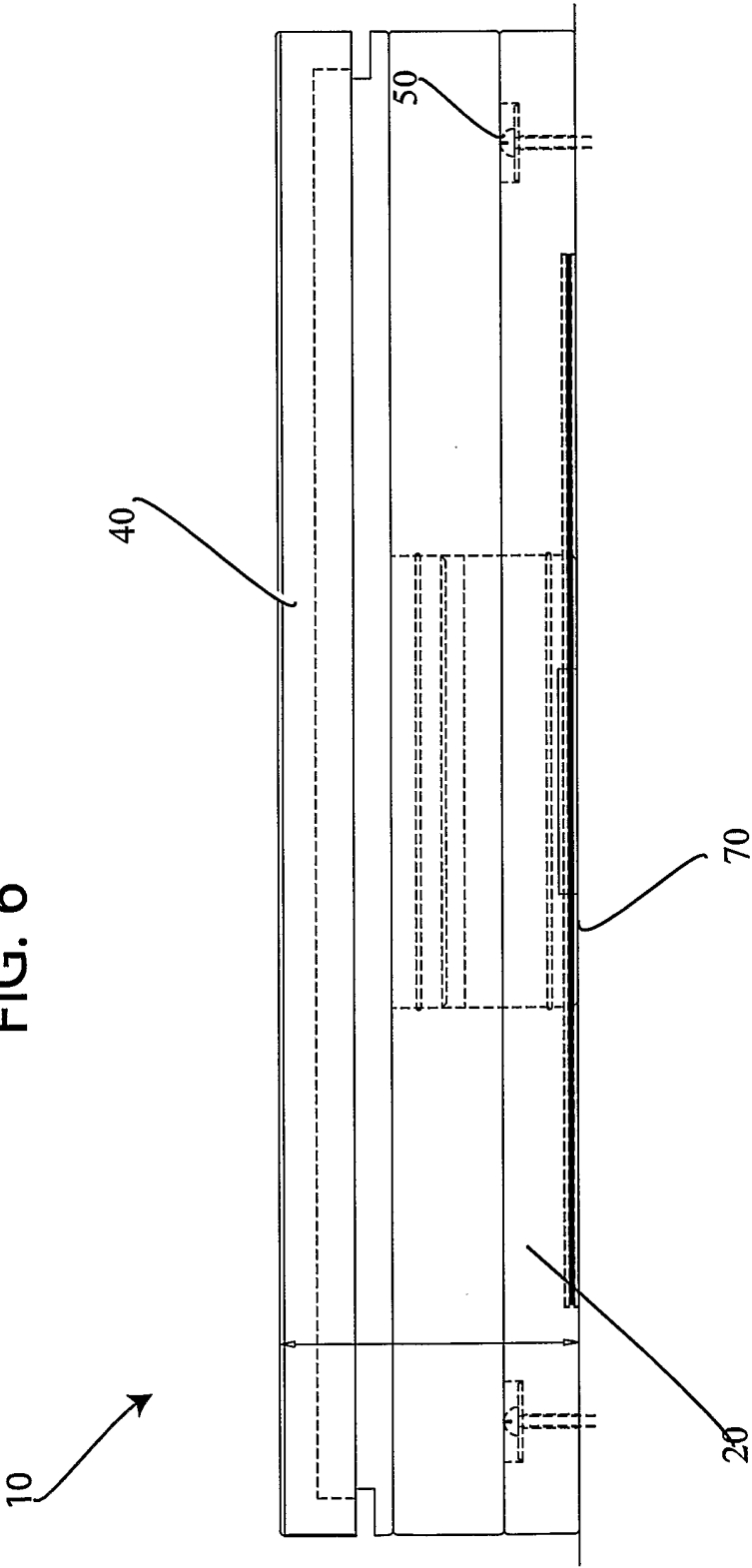


FIG. 7B

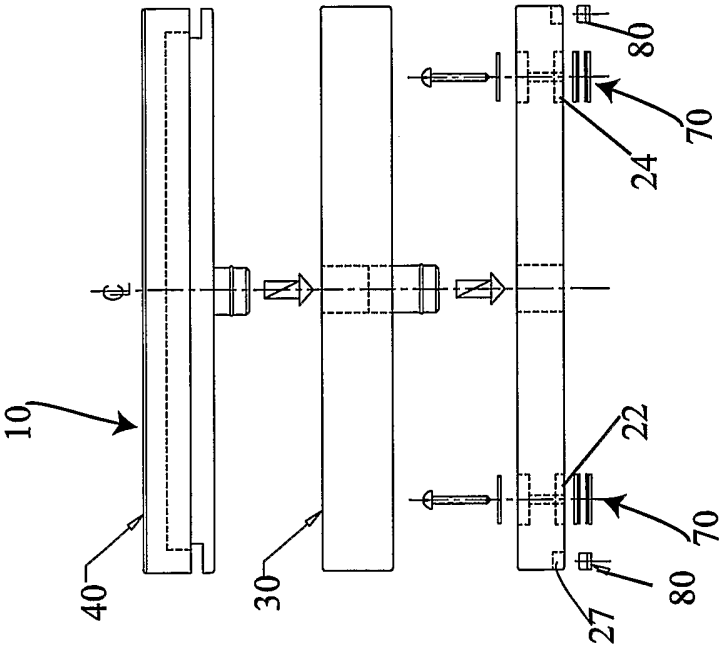


FIG. 7a

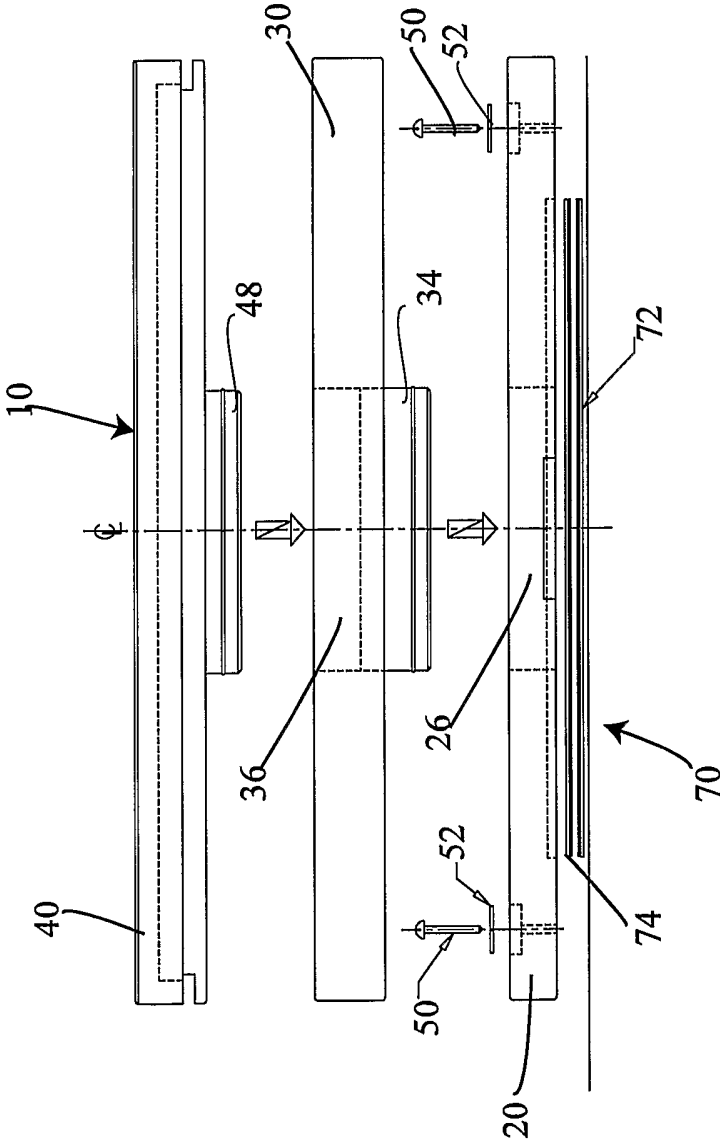


FIG. 8A

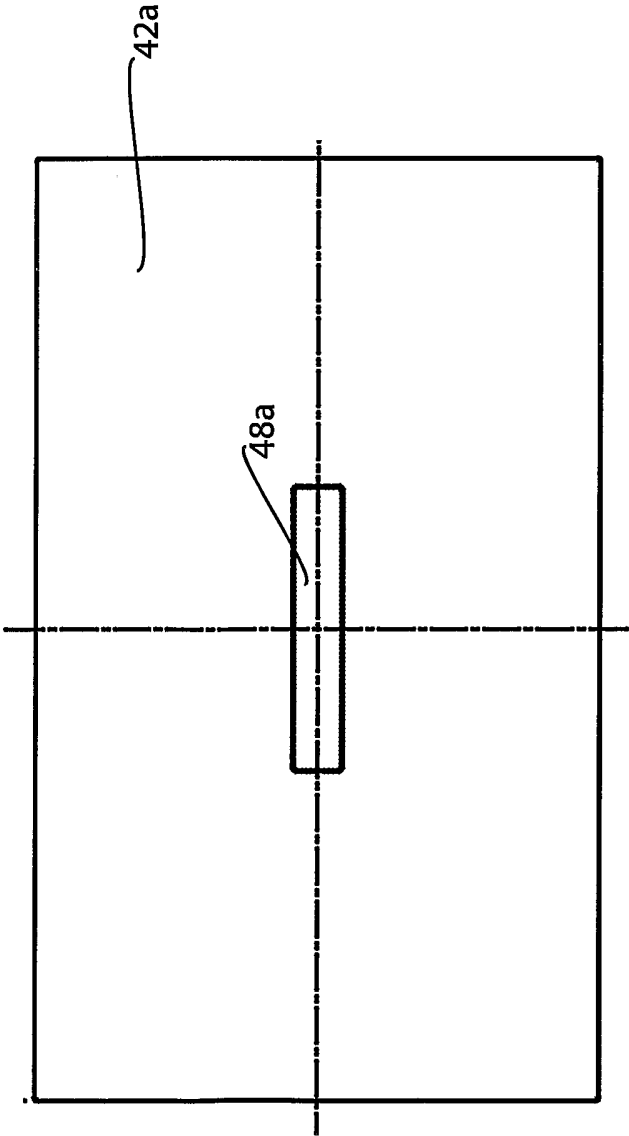


FIG. 8B

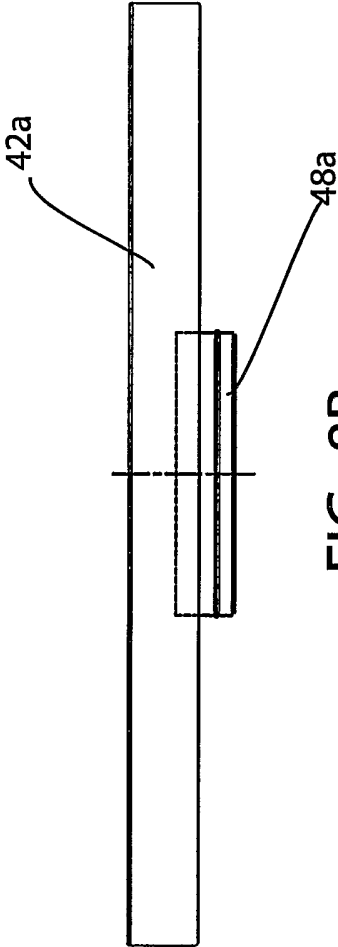


FIG. 8C

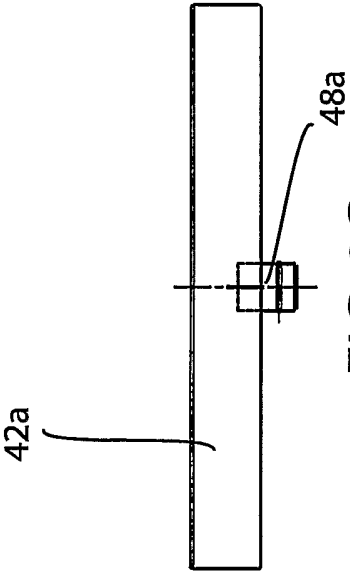
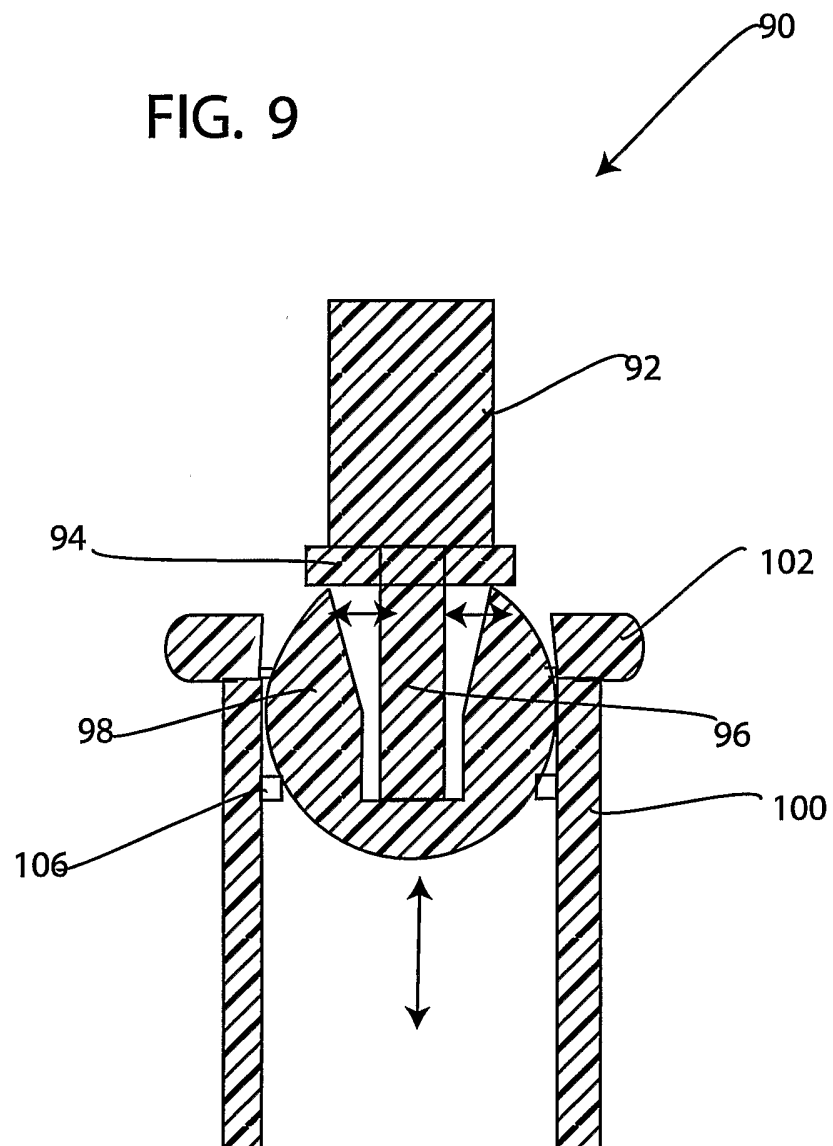


FIG. 9



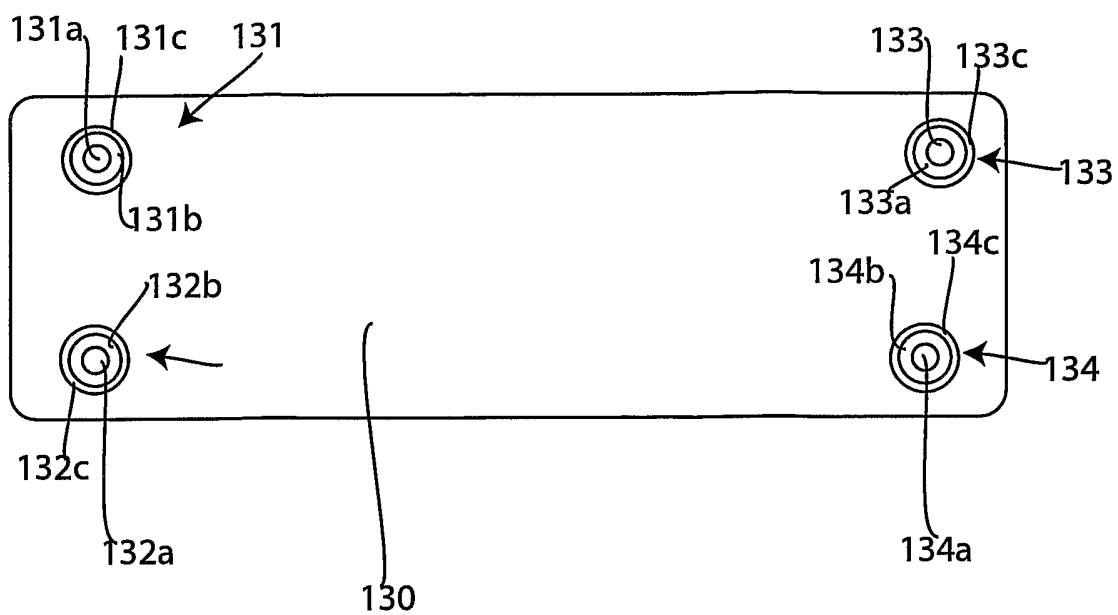


FIG. 10

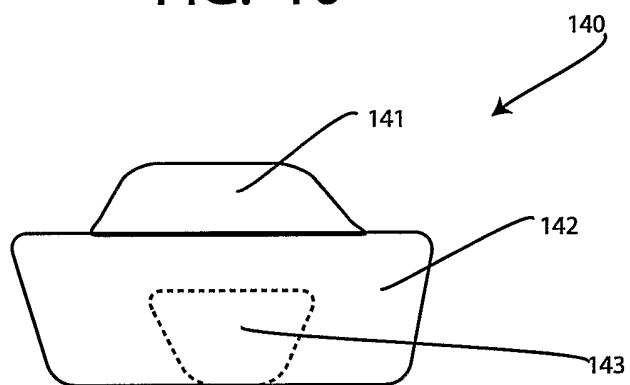


FIG. 11A

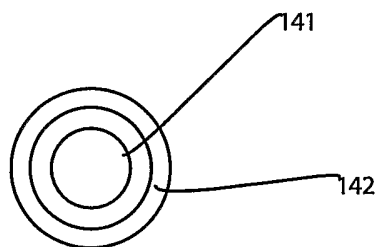


FIG. 11B

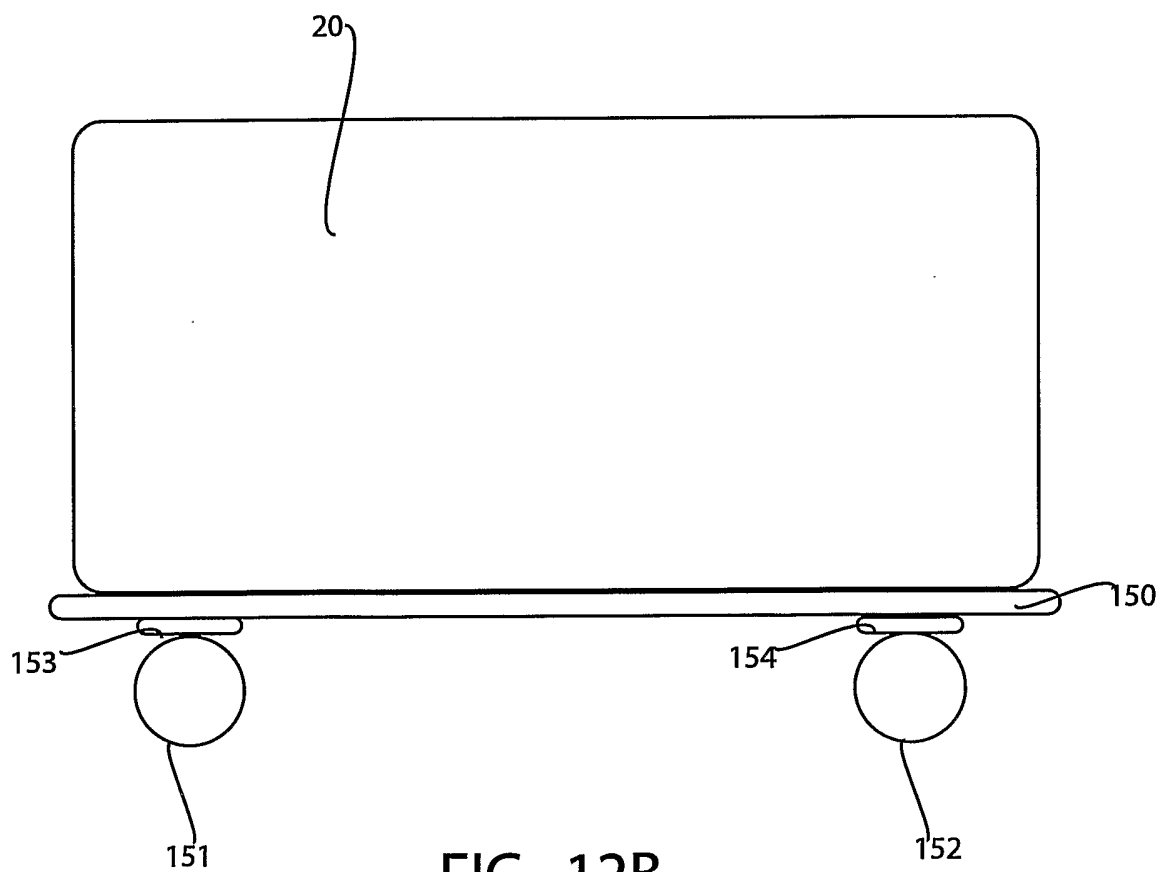
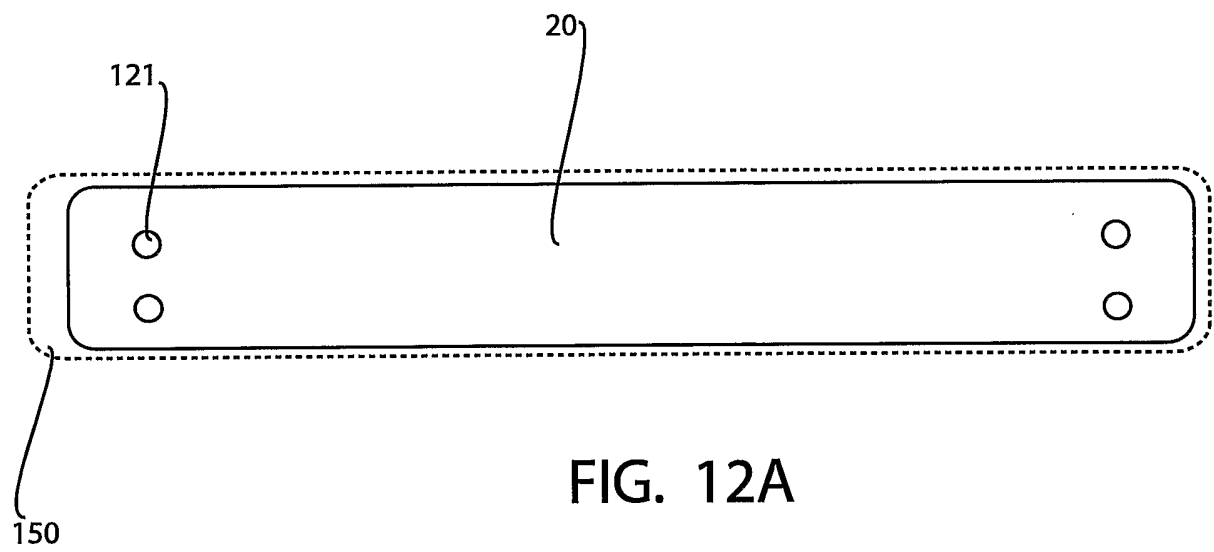


FIG. 12B

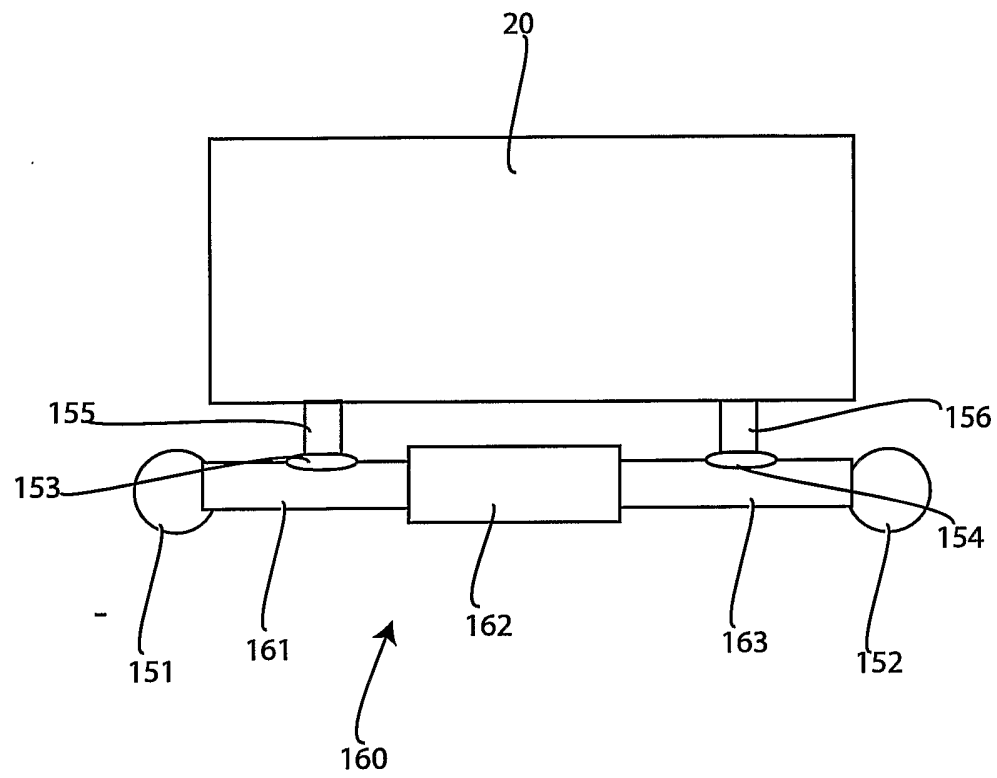


FIG. 13

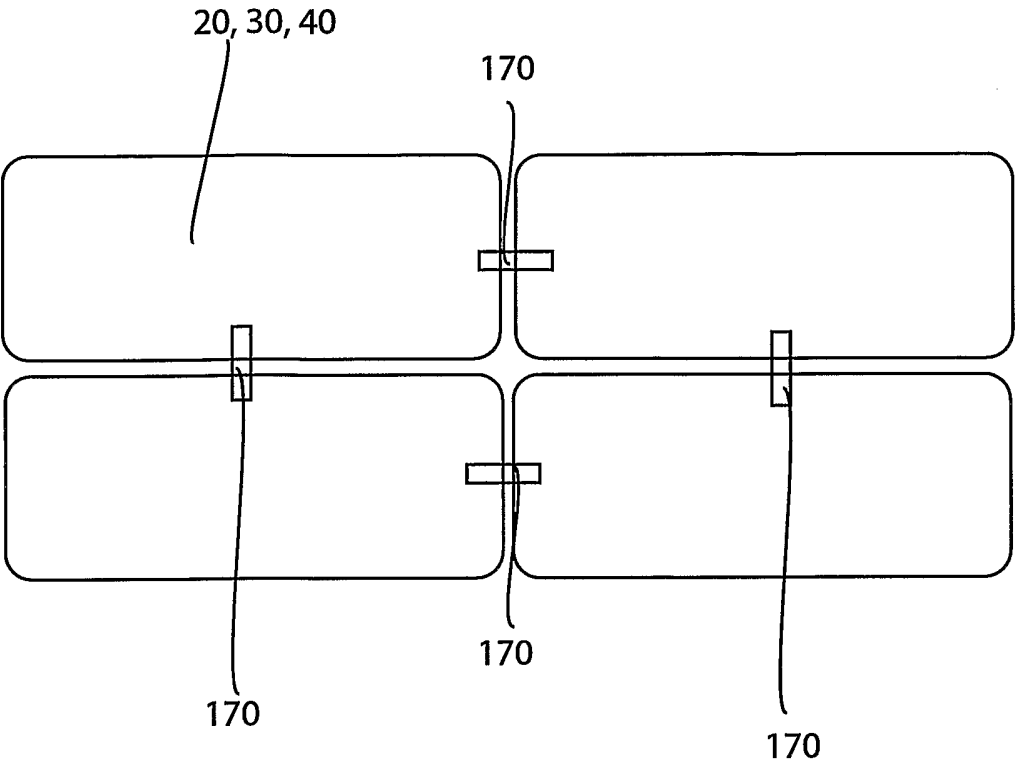
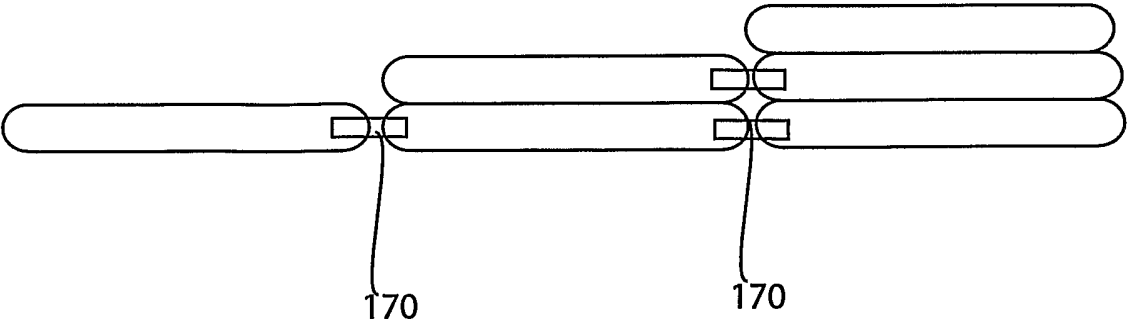


FIG. 14A

FIG. 14B



INTERNATIONAL SEARCH REPORT

International application No.

PCT/US06/11618

A. CLASSIFICATION OF SUBJECT MATTER

IPC: **B63B 17/00**(2006.01)

USPC: 114/343,363,364

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)

U.S. : 114/343,363,364; 297/217.1,423.2,423.21

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)
Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US Re. 16,323 A (WEBER) 13 April 1926 (13.04.1926), figure 3.	1,3-8,11,16,17
Y	US 2,978,243 A (GABRIELSON) 04 April 1961 (04.04.1961), flange 4, holding member 5.	6-8,17



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"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

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"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

31 May 2006 (31.05.2006)

Date of mailing of the international search report

27 JUN 2006

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Facsimile No. (571) 273-3201

Authorized officer

Sherman D. Basinger

Telephone No. 571-272-3600

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US06/11618

Continuation of B. FIELDS SEARCHED Item 3:

EAST

search terms: standing, platform, stack\$5, shock absorb\$5