STACKABLE BOARD PLATFORM FOR MARINE VESSEL

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Appl. No.: 12/053,284
Filed: Mar. 21, 2008

Related U.S. Application Data
Continuation-in-part of application No. 10/907,332, filed on Mar. 29, 2005, now Pat. No. 7,367,279.

Publication Classification
Int. Cl. B63B 29/02 (2006.01)

U.S. Cl. ........................................ 114/363

ABSTRACT
There is disclosed a stackable platform for a boat deck which can be placed between a helm of a boat deck and a seat on a boat deck. The platform is for allowing a user to stand on the platform. There is an optional shock absorbing element coupled to the platform as well. There is a base, a platform that can be attached to the base and an optional additional platform such as an intermediate platform.
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CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation in part application and hereby claims priority from U.S. patent application Ser. No. 10/907,332 filed on Dec. 14, 2004, the disclosure of which is hereby incorporated herein by reference in its entirety.

BACKGROUND OF THE INVENTION

Field of the Invention

[0002] The present invention relates to a stackable support platform disposed on a boat deck.

SUMMARY OF THE INVENTION

[0003] The invention relates to a system for supporting a user over a base floor of a boat deck comprising at least one base platform optionally 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.

[0004] A top surface of the substantially rigid housing may be in the form of a non-skid surface.

[0005] 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.

[0006] 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.

[0007] 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.

[0008] 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.

[0009] 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.

[0010] 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 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.

[0011] 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 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 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.

[0012] 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.

[0013] 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 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.

[0014] 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 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

[0015] Other objects and features of the present invention will become apparent from the following detailed description considered in connection with the accompanying drawings. It 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.

[0016] In the drawings, wherein similar reference characters denote similar elements throughout the several views:

[0017] 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;

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;

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;

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;

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;

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;

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;

FIG. 10 is an exploded view of another embodiment;

FIG. 11 is a cross-sectional view of the embodiment shown in FIG. 10; and

FIG. 12 is a side cross-sectional view of another embodiment.

DETAILED DESCRIPTION

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 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 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 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 this view is recessed regions 22, and 24 are shown as recessed only a portion of a distance into board 20. In addition, 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 the edge slotted 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 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 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 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 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.

**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.

**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.

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 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 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 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 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.

[0053] 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.

[0054] FIG. 10 discloses a perspective view of another embodiment. In this view there is a base 200 which has receiving sections 210, 220, 230, and 240 which are formed as indents for receiving extending sections of platform section 300. In this case, base 200 is formed in a boat deck such that surface 201 is sunken into the boat deck.

[0055] Extending sections 310, 330, and 340 extend into receiving sections 210, 230, and 240 to lock platform 300 laterally in place. A flexible shock absorbing top cover 400 is mounted on top of platform section 300 and attached thereto via any known attachment element such as, for example, via a hook and loop fastener, an adhesive element or sewing. For example, hook and loop fastening sections 392, 394, 396 and 398 are used to adhere to an underside of flexible shock absorbing top cover 400.

[0056] Platform 300 can also include electronic components. For example, there are wires 350 and 352 which are used to electrically connect this platform 300 to another source of power such as a boat battery in a known manner. Alternatively, a battery 354 can be stored inside platform 300 and used to power electric components. One optional electric component is a heater disposed in platform 300 in the form of heating wires 360 which are used to heat the platform and top cover 400 to create a heated platform for heating a person's feet when standing on the boat platform.

[0057] In addition, another optional electrical component is a vibration element 380 which when turned on, vibrates to create a soothing sensation to a user's feet. Another optional electrical component is a light 370, which extends around an exterior or peripheral region of platform 300 such that this light then illuminates platform 300 so that a user can see platform 300 on a non-lighted boat deck.

[0058] FIG. 11 is a cross-sectional view of this design showing base 200, platform 300 and top mat 400. In this view, receiving sections 230 and 240 are shown receiving extending sections 330 and 340. Base 200 is shown sunken into a boat deck 500, such that top cover or mat 400 is shown either level or substantially level with the boat deck.

[0059] FIG. 12 shows a side cross-sectional view of another embodiment of a platform device for a boat deck 500 which includes a top platform 510, an optional intermediate height adjusting platform 520, and a base 530. Numerous additional intermediate height adjusting platforms can be incorporated into this embodiment thereby allowing for additional height adjustment of top platform 510. Top platform includes an optional shock absorbing mat 511, which can be made of any suitable shock absorbing material such as rubber or in par-
ticular neoprene. This mat is optional so a non shock absorbing top platform can be utilized as well. Other optional components include battery 512 disposed in top platform 510, light 514 which serves as a guide light and which is electrically connected to battery 512, vibration element 517 which acts as a vibrating component to provide therapeutic vibration to a user, and an optional heater 518. Vibration element 517 and heater are also electrically connected to battery 512. Alternatively, if these electrical components such as light 514, vibration element 517 or heater 518 are included, the device can also be electrically wired to a boat battery instead. If a battery is used the battery can either be a non rechargeable disposable battery or a rechargeable battery with contacts for allowing for the recharging of the battery.

[0060] Intermediate platform 520 is an optional platform wherein one or more of these platforms can be used to elevate top platform 510 above base 530. Intermediate platform 520 includes recesses 522 and 523 as well as feet 524 and 525 in the form of bumpons wherein these feet are insertable into recesses 532 and 533 in base 530. In addition, feet or bumpons 518 and 516 are insertable into openings 532 or 533 as well, if intermediate platform 520 is not used.

[0061] Base 530 includes an open region 531, and openings or recesses 532 and 533 for receiving feet or bumpons. Base 530 is essentially a mat that can be placed on a boat deck such as boat deck 11 (See FIG. 23). Base 530 has optional channels 539 which are used as drainage channels for draining water out from open region 531. Because base 530 serves as a mat, it can be placed on a boat deck without screws, thereby resting between a helm of a boat and a seat on the boat without any further alteration to the boat deck.

[0062] In addition, base 530 can be of any shape but in this embodiment is shown as having sloped sides 534 and 535 to provide a wider base region, and also to prevent anyone from stubbing a toe on this base 530.

[0063] With this design, as with the above designs, the height adjustability of the device allows a person standing between a helm or console unit of a boat and the seat of the boat to have a selectively height adjustable system which allows users adjustability so that they can achieve greater visibility as well as easier positioning for controlling the helm of the boat.

[0064] 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.

What is claimed is:

1. A system for supporting a user on a boat deck comprising:
   a) at least one base coupled to a recessed region on said boat deck behind a helm of a boat and disposed between a seat and a console unit on a boat;
   b) at least one platform, coupled to said at least one base;
   and
   c) at least one flexible elastic shock absorbing element coupled to said at least one platform;

   wherein said at least one base has at least one recessed region, and said at least one platform has at least one extending section, wherein when said at least one platform is coupled to said at least one base, said at least one extending section extends into said at least one recessed region of said base, and such that said at least one platform is stacked upon said base to support a user on said boat deck to provide a support for a user positioned adjacent to the helm of a boat to allow a user to stand and operate at the helm of a boat.

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, wherein said at least one platform is stackable on top of said at least one intermediate stacking element.

3. The system as in claim 1, wherein said at least one platform is made from a substantially rigid housing that is made from a composite foam material.

4. The system as in claim 2, wherein said at least one intermediate stacking platform has at least one recessed region, and said at least one intermediate stacking 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.

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

6. The system as in claim 1, further comprising at least one heater disposed in said platform.

7. The system as in claim 6, further comprising at least one battery disposed in said platform.

8. The system as in claim 1, further comprising at least one light coupled to said platform.

9. The system as in claim 1, further comprising at least one vibrating element coupled to said platform.

10. The system as in claim 1, further comprising at least one flange coupled to said platform for covering at least one section of said boat deck.

11. A system for supporting a user on a boat deck comprising:

   a) at least one base coupled to said boat deck behind a helm of a boat and disposed between a seat and a console unit on a boat; and
   b) at least one platform, coupled to said at least one base; wherein when said at least one platform is coupled to said at least one base, wherein said at least one platform is stacked upon said base to support a user on said boat deck to provide a support for a user positioned adjacent to the helm of a boat to allow a user to stand and operate at the helm of a boat.

12. The system as in claim 11, further comprising at least one intermediate stacking element for stacking on top of said at least one base, wherein said at least one platform is stackable on top of said at least one intermediate stacking element.

13. The system as in claim 11, wherein said at least one platform is made from a substantially rigid housing that is made from a composite foam material.

14. The system as in claim 12, wherein said at least one intermediate stacking platform has at least one recessed region, and said at least one intermediate stacking 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.

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

16. The system as in claim 11, further comprising at least one heater disposed in said platform.

17. The system as in claim 16, further comprising at least one battery disposed in said platform.

18. The system as in claim 11, further comprising at least one light coupled to said platform.
19. The system as in claim 11, further comprising at least one vibrating element coupled to said platform.

20. A system for supporting a user on a boat deck comprising:
   a) at least one base disposed on the boat deck between a seat and a console unit on a boat, said base having a top receiving surface; and
   b) at least one platform, positioned on said at least one base, said at least one platform having a top surface, positioned above said top receiving surface on said base; wherein said at least one platform provides height adjustability for a user above a boat deck.

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