



US 20060124045A1

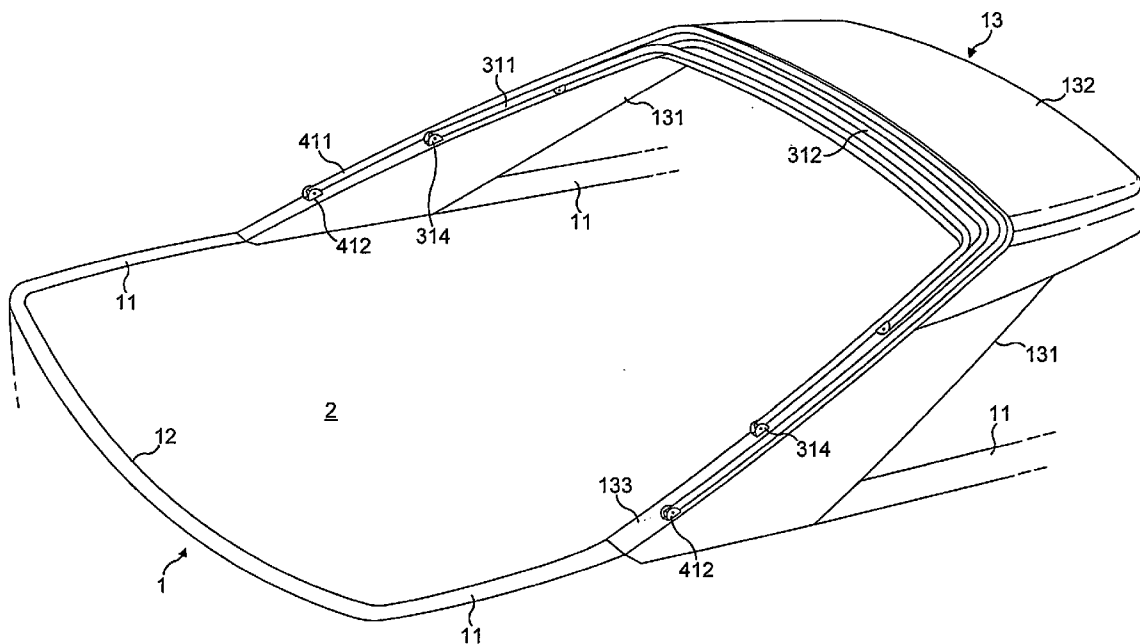
(19) **United States**(12) **Patent Application Publication****Tucker et al.**(10) **Pub. No.: US 2006/0124045 A1**(43) **Pub. Date: Jun. 15, 2006**(54) **BOAT****Publication Classification**(76) Inventors: **Roger Tucker**, Worcestershire (GB);
Gerald Lawson Taylor, Worcestershire
(GB)(51) **Int. Cl.**
B63B 17/02 (2006.01)(52) **U.S. Cl.** **114/361**

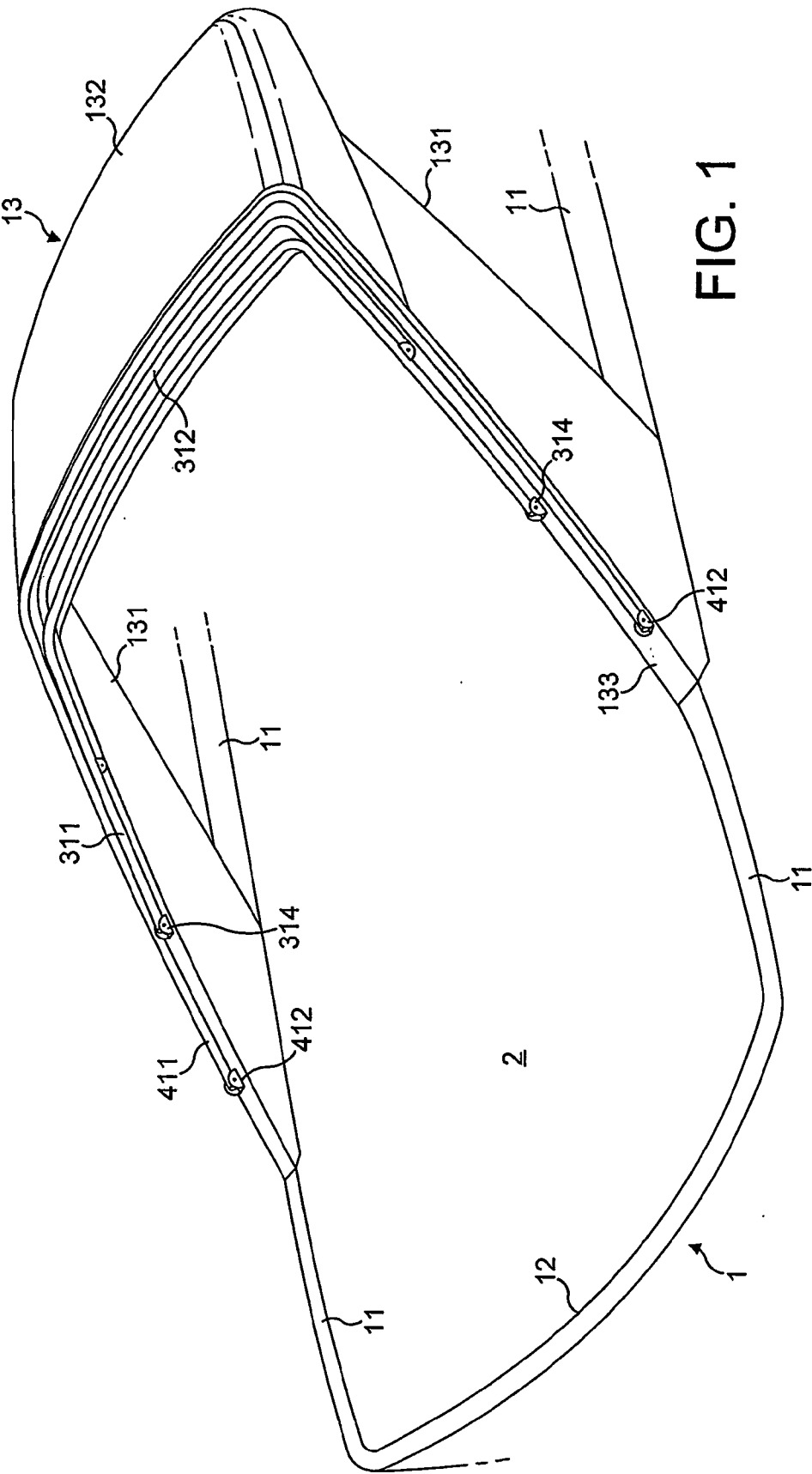
Correspondence Address:

DUANE MORRIS LLP
PO BOX 5203
PRINCETON, NJ 08543-5203 (US)(57) **ABSTRACT**(21) Appl. No.: **10/527,578**(22) PCT Filed: **Sep. 12, 2003**(86) PCT No.: **PCT/GB03/03974**(30) **Foreign Application Priority Data**

Sep. 12, 2002 (GB) 0221200.9

A cockpit (2) at the stern of a boat may be covered in two stages. Firstly, a first canopy system (3) of the bimini type is deployed. Then a second canopy system (4) is deployed and has a frame member (411) which can be pivoted rearwardly over the deployed first canopy system (3) so as to allow the second canopy system to be deployed after the first canopy system. A canopy (42) of the second canopy system covers a portion of the cockpit deck behind the portion covered by the bimini canopy (32).





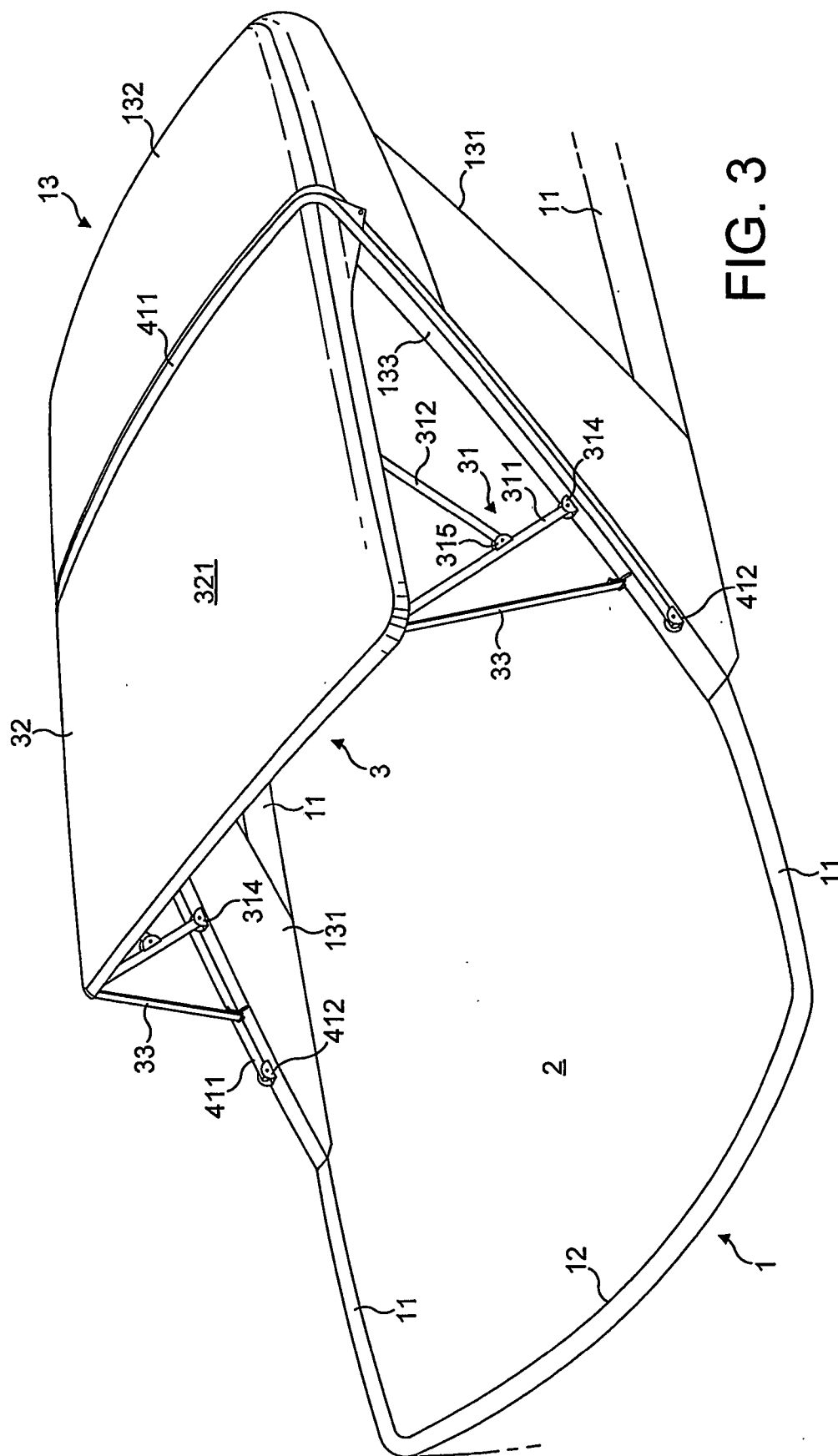


FIG. 3

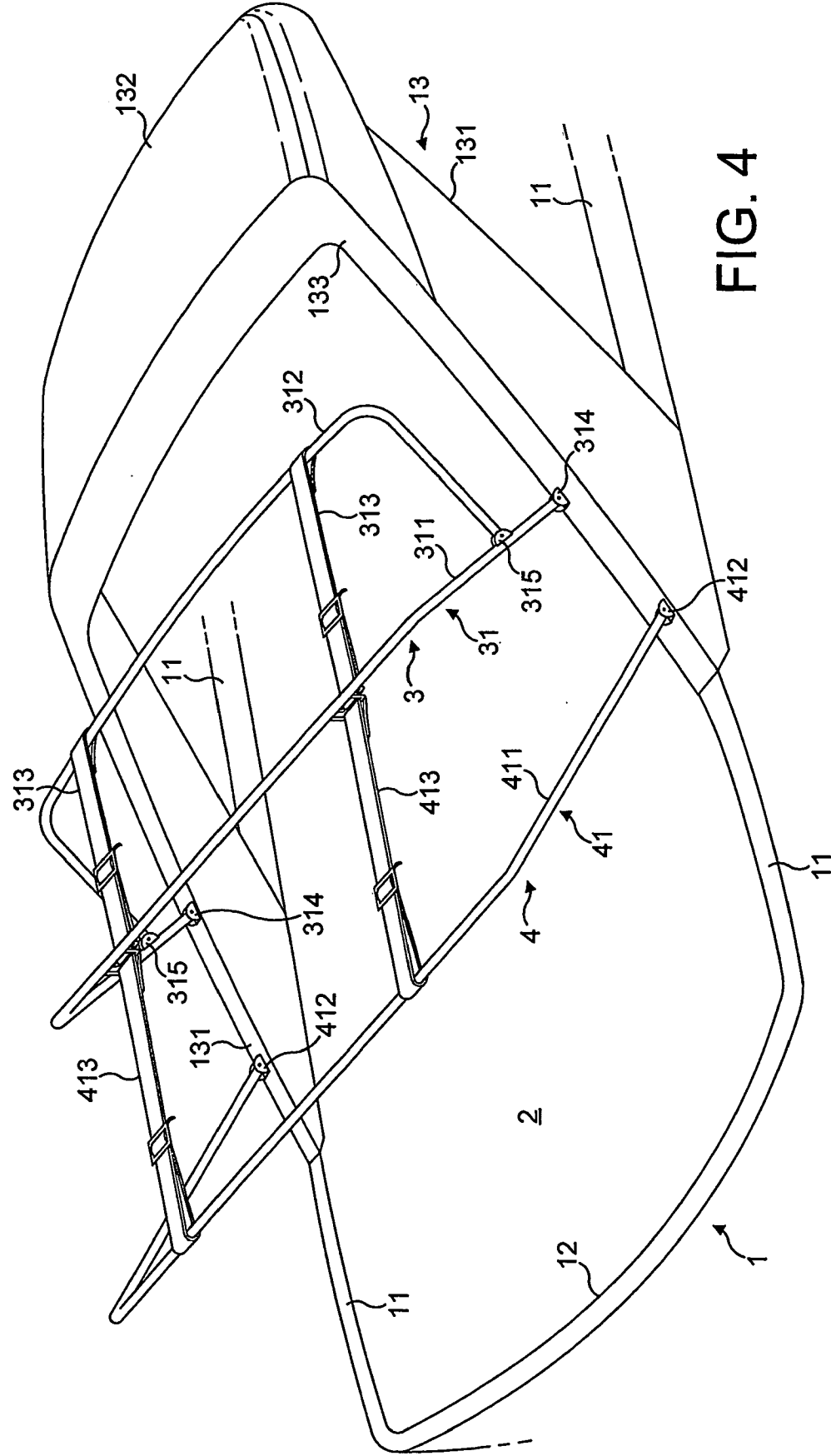
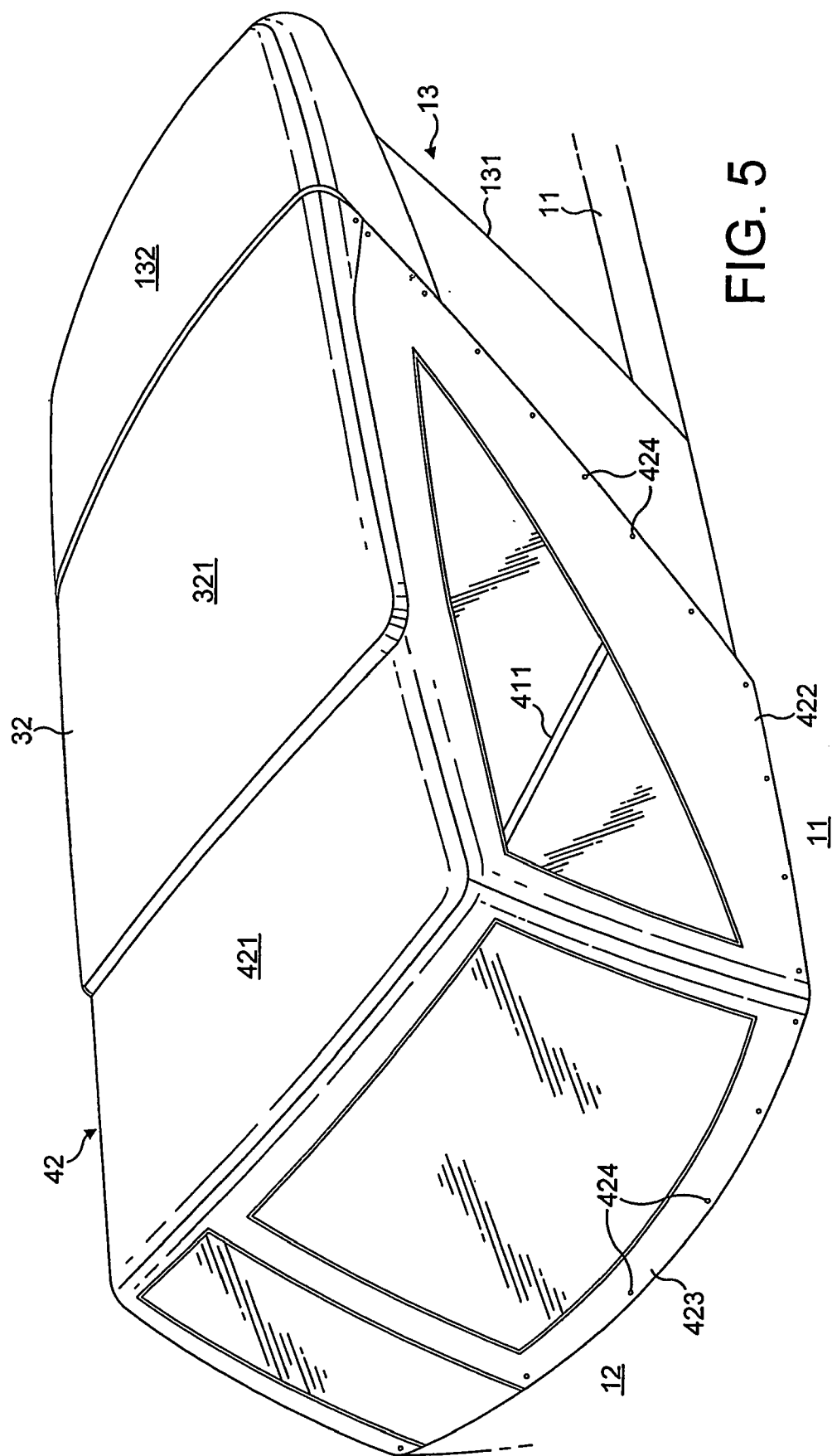


FIG. 4



BOAT

BACKGROUND OF THE INVENTION

[0001] The invention relates generally to a boat, such as a motor cruiser, and to the ability to provide temporary shelter to users of the boat on a deck area of the boat, such as a cockpit at the stem of the boat.

[0002] A known temporary canopy system which may be deployed for use and then stowed away again when no longer needed is a so-called "bimini" canopy system. It may be used to provide a roof or awning to provide shelter from sun and rain. An existing bimini arrangement used by Sealine International Limited has the bimini positioned at the front of a cockpit so that the bimini awning may be unfurled so as to run backwards from the roof of a cabin at the front of the cockpit area. The deployment mechanism of the bimini comprises an inverted U-shaped main frame member the bottoms of the legs of which are pivoted to the superstructure at the sides of the cockpit behind the cabin. As the main frame member is pivoted backwards from its stowed position in which it leans against the rear of the cabin, it pulls backwards the rear edge of the bimini awning. The front edge of the bimini awning is secured to a rear upper lip of the cabin. When the awning is fully deployed, the main frame member leans backwards rather than leaning forwards (as in its stowed position) and is held in this deployed position by straps which are connected between the rear edge of the bimini awning and the superstructure at the rear of the cockpit. By pulling these straps taut, the bimini awning itself is made taut and stable. A secondary, smaller frame member of inverted U-shape is used to assist in deploying the bimini awning and holding it in shape. The bottoms of the legs of the secondary frame member are pivoted to midportions of the legs of the main frame member on the forwards sides thereof, so that as the main frame member is pivoted rearwardly to be deployed the secondary frame member pivots forwardly relative to the main frame member such that upon full deployment the top bar of the subsidiary frame member supports a midportion of the bimini canvas.

[0003] To stow away the bimini, the mechanism is folded forwards against the rear face of the cabin and the bimini canvas is stowed into a storage bag along the top rear edge of the cabin.

SUMMARY OF THE INVENTION

[0004] An aim of the invention is to improve on the existing bimini arrangement by providing an overall canopy system that is more versatile in offering more user permutations when being used.

[0005] According to a first aspect of the present invention, there is provided a boat comprising:

[0006] a hull having a deck area;

[0007] a superstructure above the deck area;

[0008] a first canopy system mounted on the superstructure and comprising a first frame pivotable rearwardly from a stowed position to a deployed position and a first canopy supportable by the first frame when the first frame is in its deployed position so that the first canopy covers a forward portion of the deck area; and

[0009] a second canopy system mounted on the superstructure and comprising a second frame pivotable rearwardly from a stowed position and arranged to pass externally over the deployed first frame to a deployed position and a second canopy supportable by the second frame when the second frame is in its deployed position so that the second canopy covers a rearward portion of the deck area.

[0010] If it is only desired to cover the forward portion of the deck area, then only the first canopy system needs to be deployed into position. If both the forward and rearward portions of the deck area are to be covered, then both the first and second canopy systems should be deployed and the first and second canopies will in combination provide the desired coverage of the deck area. The second frame of the second canopy system is designed so that when it is deployed over the already-deployed first canopy system it will pass externally rearwardly over the deployed first frame without clashing therewith. This benefit works in reverse, in that, if the rearward portion of the deck area is no longer to be covered by the second canopy, the second frame may be stowed away again by passing back over the first canopy system which is being left in its deployed configuration.

[0011] In our preferred embodiments, the first canopy system is of the bimini type, and the second canopy system is of the tent type with side (and rear) panels in addition to a roof panel. In this way, the overall effect may be that the roof panel of the first canopy system, and the roof panel and the side and rear panels of the second canopy system, act together to close off the deck area from unwanted access from the rear and the sides.

[0012] Preferably, the pivot axis of the second frame is lower than the pivot axis of the first frame, and is preferably also to the rear of the first frame's pivot axis, as this makes it easier to ensure that the second frame can pass over the deployed first frame without clashing with the first frame.

[0013] In our preferred embodiment, the first frame comprises a first arch-like member having first legs at the bottom of which are first pivots, the second frame comprises a second arch-like member having second legs at the bottom of which are second pivots, and the second pivots are outboard of the first pivots. In most practical configurations, the second legs are longer than the first legs.

[0014] Preferably, the first frame further comprises a third arch-like member having third legs pivotably connected at their bases to middle portions of the first legs, the third legs are shorter than the first legs, and the first and third arch-like members are linked by a separation-limiting device so that as the first frame deploys the extent of forward pivoting of the third archlike member relative to the rearwardly-pivoting first arch-like member is limited. Thus the first canopy system can be of the bimini type. The separation-limiting device is usually one or more straps which may be given predetermined lengths corresponding to the desired degree of separation between the first and third arch-like members.

[0015] Additionally, it is preferable that the first and second frames when both deployed are linked by a separation-limiting device so that the deployed position of the second frame is set relative to the deployed position of the first frame. Again, straps may be used. This separation-limiting device may be permanently fitted to the first and second frames, or else it may be fitted between the frames

only when the second frame has been pivoted to approximately the usual deployed position. The separation-limiting device is then fitted in place and serves to define the position of the second frame more precisely. The separation-limiting device (e.g. straps) may be adjustable so that the precise position of the second frame can be adjusted slightly.

[0016] In our preferred embodiment, the first frame nests inside the second frame when both frames are in their stowed positions. This gives a neat visual appearance with the two frames compactly fitted inside one another.

[0017] In our current embodiment, the canopy systems are mounted at the rear of an arch-like portion of the superstructure. An alternative possibility would be for the canopy systems to be mounted at the rear of a cabin forming part of the superstructure.

[0018] The arch-like portion of the superstructure may be a freestanding arch, such as a radar-carrying arch. The arch may be of the type that leans forwards in order to look visually attractive.

[0019] In our preferred embodiment, the arch-like portion of the superstructure has a forwardly-sloping rear surface against which the first and second frames rest when in their stowed positions. When the first and second frames nest inside one another, the result is a visually-pleasing compact stowage arrangement. The beam at the top of the arch-like portion of the superstructure may open up to stow away the first canopy.

[0020] When deployed, the second canopy may simply butt up against the deployed first canopy. However, in our preferred embodiment, the first canopy is detachably securable to the second canopy along the junction therebetween. For example, the two canopies may be zipped together. By joining together the deployed canopies, rain is less likely to pass through between the canopies onto the deck area.

[0021] Preferably, the first canopy is fixed to the first frame. Thus the first canopy will automatically deploy when the first frame is deployed, as occurs in the bimini type of canopy system.

[0022] The second canopy may be stowed separately, e.g. under a seat in the cockpit area, and is simply detachably secured to the deployed second frame.

[0023] In our preferred embodiment, the first canopy comprises a roof portion with zero or small side curtain portions, such that there are gaps between the side edges of the first canopy and the relevant parts of the superstructure positioned below.

[0024] By way of contrast, it is preferred that the second canopy has a roof portion and side curtain portions. Additionally, there may be a rear curtain portion. The rear and side curtain portions assist in protecting the deck area against unauthorised access when, for example, the boat is not being used. Accordingly, it is preferred that in the deployed position of the second frame with the roof portion of the second canopy supported on the second frame the side curtain portions extend down to and are detachably securable to a wall structure at the perimeter of the deck area. In this way, the security of the deck area may be improved by sealing off access to the deck area from the rear and the sides.

[0025] Preferably, the side curtain portions of the second canopy extend forwards underneath the side edges of the first canopy. Thus the side curtain portions of the second canopy help to fill in the side gaps underneath the edges of the roof panel of the first canopy.

[0026] Preferably, the tops of the side curtain portions are detachably securable to the first canopy. This may be achieved, for example, by simply zipping together the first and second canopies along the side edge of the roof panel of the first canopy, along the rear edge of that roof panel and then along the other side edge of that roof panel.

[0027] The side curtain portions may extend forwards at least 50%, 80% or 90% of the distance to the front edge of the first canopy. They may even extend all the way to the front edge of the first canopy.

[0028] According to a second aspect of the present invention, there is provided a method of operation a boat in accordance with the first aspect of the present invention, the method comprising deploying the first frame with the first canopy fixed thereto, deploying the second frame, and fitting the second canopy onto the second frame.

BRIEF DESCRIPTION OF THE DRAWINGS

[0029] A preferred non-limiting embodiment of the present invention will now be described with reference to the accompanying diagrammatic drawings.

[0030] **FIG. 1** is a perspective view of the rear or stern of a boat in accordance with a preferred embodiment of the present invention.

[0031] **FIG. 2** is a view similar to **FIG. 1**, but showing the first frame of the first canopy system deployed.

[0032] **FIG. 3** is a view similar to **FIG. 2**, but showing the first canopy positioned on the deployed first frame.

[0033] **FIG. 4** is a view similar to **FIG. 3**, but showing both the first frame and the second frame deployed, but with the first and second canopies omitted for the sake of clarity.

[0034] **FIG. 5** is a view similar to **FIG. 4**, but showing the first and second canopies fitted to the deployed first and second frames.

DESCRIPTION OF THE PREFERRED EMBODIMENT

[0035] In **FIG. 1**, the first and second canopy systems are in their stowed positions. A superstructure **1** is mounted on the hull (not shown) of a boat. The superstructure **1** includes side walls **11** and a rear wall **12** around the perimeter of a cockpit **2**. The superstructure also includes a forwardly-sloping radar arch **13** which is freestanding. The sides **131** and top **132** of the arch define a forwardly-sloping rear surface **133** on which the first and second canopy systems are mounted.

[0036] The first canopy system is more clearly seen in **FIGS. 2 and 3**. It is of the bimini type. The first canopy system **3** has a frame **31** comprising main and secondary frame members **311, 312** made of stainless steel tubing. Each frame member **311, 312** is of a generally inverted U-shape. The horizontal bars at the tops of the frame members **311, 312** are connected together by canvas straps **313** which set the maximum separation that may occur between the

frame members 311,312. At the bottom of each of the legs of the main frame member 311 is a hinge 314 which enables the main frame member 311 to pivot rearwardly from the position shown in FIG. 1 to the position shown in FIG. 2. At middle portions of the legs of the frame member 311 are further hinges 315 to which are pivotally connected the legs of the secondary frame member 312. Thus, as the bimini-type first canopy system 3 deploys, the main frame member 311 pivots rearwardly about the hinges 314, and the secondary frame member 312 pivots forwards relative to the main frame member 311 about the hinges 315 until its relative forward pivoting is limited by the straps 313.

[0037] In the stowed position shown in FIG. 1, the frame members 311,312 lie against the sloping rear surface 133. A bimini canopy 32 (visible in FIG. 3) is permanently fixed to the frame 31. When stowed as in FIG. 1, the bimini canopy 32 is stored within the top 132 of the radar arch 13. As the first canopy system 3 is deployed, the bimini canopy 32 is unfurled or pulled out of a bag in the radar arch lid in which it is stored, so that the bimini canopy is automatically deployed as the frame 31 is deployed. The bimini canopy 32 is not shown in FIG. 2 for the sake of clarity.

[0038] The overall deployed configuration of the first canopy system 3 is shown in FIG. 3. The bimini canopy 32 comprises a roof panel 321 and there is only a minimal amount of downwardly-projecting rear or side portions. In this way, gaps are present between the side edges of the roof panel 321 and the sloping rear surface 133 of the radar arch 13.

[0039] The rear edge of the roof panel 321 is fitted to the horizontal bar of the main frame member 311. The front edge of the roof panel 321 is attached to the top 132 of the radar arch 13. When deployed, the bimini canopy is pulled taut by straps 33 which extend down from the rear edge of the roof panel 321 to the radar arch 13. These straps 33 would be released in order to return the first canopy system 3 from its deployed configuration of FIG. 3 to the stowed configuration of FIG. 1.

[0040] Notionally projecting downwards the area of the roof panel 321, it may be seen that the deployed first canopy system covers a corresponding area of the deck of the cockpit 2.

[0041] There is still an area of the cockpit deck behind this covered area which is left exposed, and this rearward area of cockpit deck may be covered by the second canopy system, as will now be described.

[0042] The second canopy system 4 comprises a frame 41 in the form of a single frame member 411 of generally inverted U-shape. The bottoms of the legs of the frame member 411 are pivoted by hinges 412 to the sloping rear surface 133 of the radar arch 13. It may be seen that the hinges 412 are to the rear of and are outboard of the hinges 314. The legs of the frame member 411 are longer than the legs of the main frame member 311, such that when the two canopy systems are stowed (as in FIG. 1) the frame 31 nests neatly inside the frame 41.

[0043] The positioning of the hinges 412 and the extra length of the legs of the frame member 411 also enable the frame member 411 to pivot up and over the deployed frame 31 without clashing with the frame 31, as the frame member

411 moves from its stowed position shown in FIG. 3 to its deployed position shown in FIG. 4.

[0044] The deployed position of the frame member 411 is set by straps 413 which the user fits between the horizontal bar of the frame member 411 and the horizontal bar of the main frame member 311. The length of the straps 413 may be adjusted to set the caused deployed position of the frame member 411 relative to the frame 31.

[0045] Then, a canopy 42 is fitted to the frame 41. The canopy 42 comprises a roof panel 421, two side panels 422 and a rear panel 423 which together form a tent-like structure. The canopy 42 may be stowed, for example, under a seat in the cockpit 2 and is taken out and fitted in position when it is needed for use. The canopy 42 is releasably secured to the bimini canopy 32, e.g. by zipping together along the sides of the roof panel 321 and along the rear edge of the roof panel 321.

[0046] Thus the roof panel 421 extends from the horizontal bar of the frame member 411 to the horizontal bar of the main frame member 311. The lower edges of the side panels 422 and rear panel 423 are attached to the side walls 11 and rear wall 12 of the superstructure 1 by a plurality of stud fixings 424, only some of which are labelled for reasons of clarity.

[0047] The side panels 422 extend forwards under the side edges of the roof panel 321 in order to fill in the side gaps under the roof panel 321. Transparent windows may be provided in the side and rear panels 422,423.

[0048] By considering a notional downward projection of the canopy 42 in FIG. 5, it may be appreciated that the canopy 42 covers an area of the cockpit deck to the rear of the area covered by the bimini canopy 32.

[0049] These two deck areas of the cockpit that are covered effectively comprise all of the cockpit deck to the rear of the radar arch 13. The volume above the two areas of the cockpit deck is effectively enclosed by a combination of the bimini canopy 32 and the canopy 42. This can provide added security against intruders when the boat is not being used.

[0050] In sunny weather, or when only a small amount of rain is expected, only the first canopy system 3 needs to be deployed. When more rain is expected, the second canopy system 4 may be deployed in addition to the first canopy system 3.

[0051] It is possible to deploy the second canopy system 4 when the first canopy system 3 is already deployed because the path of movement of the frame 41 is outside the envelope of space occupied by the deployed first canopy system 3. In this way, the frame 41 does not clash with the deployed frame 31 as the frame 41 pivots rearwardly from the position shown in FIG. 3 to the position shown in FIG. 4.

[0052] The deployment processes may be reversed in order to stow away again the second canopy system 4, and then to stow away again the first canopy system 3.

[0053] The two deck areas of the cockpit which are covered by the canopies are contiguous, because in this embodiment the canopies 32,42 are secured together by being zipped together, so that there is no gap between the

deck areas which are covered. In our illustrated embodiment, the two areas of the cockpit deck that are covered are at the rear of the cockpit. In alternative embodiments, the covered areas could comprise substantially all of the cockpit deck area rather than just the rear part.

[0054] It will be appreciated that the above description is non-limiting and refers to the currently-preferred form of the invention. Many modifications may be made within the scope of the invention. Although features believed to be of particular significance are identified in the appended claims, the applicant claims protection for any novel feature or idea described herein and/or illustrated in the drawings, whether or not emphasis has been placed thereon.

1. A boat comprising:

a hull having a deck area;

a superstructure above the deck area;

a first canopy system mounted on the superstructure and comprising a first frame pivotable rearwardly from a stowed position to a deployed position and a first canopy supportable by the first frame when the first frame is in its deployed position so that the first canopy covers a forward portion of the deck area; and

a second canopy system mounted on the superstructure and comprising a second frame pivotable rearwardly from a stowed position and arranged to pass externally over the deployed first frame to a deployed position and a second canopy supportable by the second frame when the second frame is in its deployed position so that the second canopy covers a rearward portion of the deck area.

2. A boat according to claim 1, wherein the pivot axis of the second frame is lower than the pivot axis of the first frame.

3. A boat according to claim 1, wherein the pivot axis of the second frame is rearward of the pivot axis of the first frame.

4. A boat according to claim 1, wherein the first frame comprises a first arch-like member having first legs at the bottom of which are first pivots, the second frame comprises a second arch-like member having second legs at the bottom of which are second pivots, and the second pivots are outboard of the first pivots.

5. A boat according to claim 4, wherein the second legs are longer than the first legs.

6. A boat according to claim 4, wherein the first frame further comprises a third arch-like member having third legs pivotably connected at their bases to middle portions of the first legs, the third legs are shorter than the first legs, and the first and third arch-like members are linked by a separation-limiting device so that as the first frame deploys the extent of forward pivoting of the third arch-like member relative to the rearwardly-pivoting first arch-like member is limited.

7. A boat according to claim 1, wherein the first and second frames when both deployed are linked by a separation-limiting device so that the deployed position of the second frame is set relative to the deployed position of the first frame.

8. A boat according to claim 1, wherein the first frame nests inside the second frame when both frames are in their stowed positions.

9. A boat according to claim 1, wherein the canopy systems are mounted at the rear of an arch-like portion of the superstructure.

10. A boat according to claim 9, wherein the arch-like portion of the superstructure is a freestanding arch.

11. A boat according to claim 1, wherein the superstructure has a forwardly-sloping rear surface against which the first and second frames rest when in their stowed positions.

12. A boat according to claim 1, wherein the first canopy is detachably securable to the second canopy along the junction therebetween.

13. A boat according to claim 1, wherein the first canopy is fixed to the first frame.

14. A boat according to claim 1, wherein the second canopy is detachably securable to the second frame in the deployed position of the second frame.

15. A boat according to claim 1, wherein the second canopy has a roof portion and side curtain portions.

16. A boat according to claim 15, wherein in the deployed position of the second frame with the roof portion of the second canopy supported on the second frame the side curtain portions extend down to and are detachably securable to a wall structure at the perimeter of the deck area.

17. A boat according to claim 15, wherein the side curtain portions of the second canopy extend forwards underneath the side edges of the first canopy.

18. A boat according to claim 17, wherein the tops of the side curtain portions are detachably securable to the first canopy.

19. A boat according to claim 17, wherein the side curtain portions extend forwards at least 50%, 80% or 90% of the distance to the front edge of the first canopy.

20. A method of operating a boat including a hull having a deck area; a superstructure above the deck area; a first canopy system mounted on the superstructure and comprising a first frame pivotable rearwardly from a stowed position to a deployed position and a first canopy supportable by the first frame when the first frame is in its deployed position so that the first canopy covers a forward portion of the deck area; and a second canopy system mounted on the superstructure and comprising a second frame pivotable rearwardly from a stowed position and arranged to pass externally over the deployed first frame to a deployed position and a second canopy supportable by the second frame when the second frame is in its deployed position so that the second canopy covers a rearward portion of the deck area, the method comprising deploying the first frame with the first canopy fixed thereto, deploying the second frame, and fitting the second canopy onto the second frame.

21. (canceled)

22. (canceled)

23. A boat according to claim 2, wherein the pivot axis of the second frame is rearward of the pivot axis of the first frame.

24. A boat according to claim 5, wherein the first frame further comprises a third arch-like member having third legs pivotably connected at their bases to middle portions of the first legs, the third legs are shorter than the first legs, and the first and third arch-like members are linked by a separation-limiting device so that as the first frame deploys the extent of forward pivoting of the third arch-like member relative to the rearwardly-pivoting first arch-like member is limited.

25. A boat according to claim 16, wherein the side curtain portions of the second canopy extend forwards underneath the side edges of the first canopy.

26. A boat according to claim 25, wherein the side curtain portions extend forwards at least 50%, 80% or 90% of the distance to the front edge of the first canopy.

27. A boat according to claim 18, wherein the side curtain portions extend forwards at least 50%, 80% or 90% of the distance to the front edge of the first canopy.

* * * * *