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(54) **Boat building method, in particular for a leisure boat**

(57) A method of building a boat (1), in particular a leisure boat, the method including the steps of : building the hull (2); positioning the hull (2) on a first support assembly (7); placing a number of below-deck compartments (5) outside the hull (2) and in predetermined positions on a second support assembly (35); setting up on the first and second support assembly (7, 35) respective first and second reference means (21, 50) related to one another and to the position of the hull (2) on the first support assembly (7); setting up a transfer fixture (87) equipped with third reference means (92) related to the first and second reference means (21, 50); removing the finished below-deck compartments (5) from the second support assembly (35) by means of the transfer fixture (87) positioned with its third reference means (92) aligned vertically with the second reference means (50); and inserting the below-deck compartments (5) inside the hull (2) by means of the transfer fixture (87) positioned with its third reference means (92) aligned vertically with the first reference means (21).

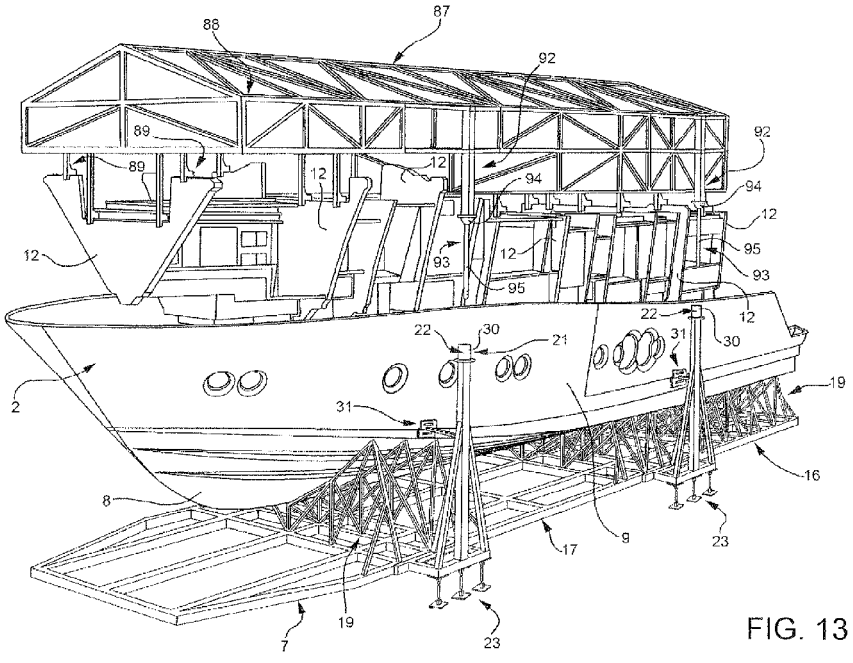

FIG. 13

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Description

[0001] The present invention relates to a boat building method, in particular for building a leisure boat, such as a yacht, to which the following description refers purely by way of a non-limiting example.

[0002] As is known, leisure boats substantially comprise a hull closed at the top by a weather deck; an inner structure housed inside the hull and defining a number of below-deck compartments; and a superstructure extending from the weather deck and projecting above the hull.

[0003] Boats of type briefly described above are normally built by first building the hull, and then the entire inner structure, i.e. the below-deck compartments, directly inside the hull.

[0004] More specifically, accessing the various parts of the hull, builders construct the below-deck flooring; fix the below-deck compartment bulkheads to the flooring and the sides of the hull; install system components, i.e. piping, wiring, fittings and other plumbing and electric system parts; install interior furnishings; and cover the whole with a roof or ceiling.

[0005] All the above work must obviously be done in a specific order to minimize interference between the various crews working inside the hull, and to ensure each job is carried out at the right time.

[0006] Consecutive building stage methods of this sort (i.e. in which one stage must be completed before the next can be started) are invariably time-consuming.

[0007] And, even despite careful planning of the work schedule, interference between crews working in different parts of the hull is inevitable, especially in view of the fact that there is only one access to the inside of the hull.

[0008] Finally, working inside the hull is often hampered by limited access, or even no access at all, to certain parts of it, with the result that certain component parts, especially system parts (such as electric connectors) are installed poorly, and often become disconnected and/or malfunction the first time rough-sea conditions are encountered.

[0009] It is an object of the present invention to provide a boat building method, in particular for building a leisure boat, designed to provide a simple, low-cost solution to the above drawbacks typically associated with known methods.

[0010] According to the present invention, there is provided a boat building method, in particular for building a leisure boat, as claimed in Claim 1.

[0011] A preferred, non-limiting embodiment of the present invention will be described by way of example with reference to the accompanying drawings, in which:

Figure 1 shows a side view in perspective of a leisure boat built using the method according to the present invention;

Figure 2 shows a topside view in perspective of the hull of the Figure 1 boat mounted on a respective support assembly at one stage in the method according to the present invention;

Figure 3 shows a larger-scale side view in perspective of part of the Figure 2 hull mounted on the respective support assembly;

Figure 4 shows a larger-scale side view in perspective of a detail in Figure 3;

Figures 5 to 8 show side views in perspective of the inner structure of the Figure 1 boat at successive building stages on a respective support assembly;

Figure 9 shows a larger-scale section along line IX-IX in Figure 5;

Figure 10 shows a larger-scale, partly sectioned topside view in perspective of a detail in Figure 6;

Figure 11 shows a larger-scale section along line XI-XI in Figure 7;

Figure 12 shows a side view in perspective, with parts removed for clarity, of the Figure 8 inner structure suspended from a transfer fixture, as it is removed from the respective support assembly for insertion inside the hull;

Figure 13 shows a side view in perspective, with parts removed for clarity, of the Figure 8 and 12 inner structure as it is inserted inside the Figure 2 hull by the Figure 12 transfer fixture;

Figures 14-16 show larger-scale side views in perspective of a detail in Figure 12 as the transfer fixture engages the inner structure support assembly;

Figure 17 shows a larger-scale side view in perspective of a detail of the Figure 12 and 13 transfer fixture;

Figure 18 shows a larger-scale section along line XVIII-XVIII in Figure 8.

[0012] Number 1 in Figure 1 indicates as a whole a leisure boat - in the example shown, a yacht - substantially comprising a hull 2 closed at the top by a weather deck 3; an inner structure 4 (Figures 5-8, 12 and 13) housed inside hull 2 and defining a number of below-deck compartments 5; and a superstructure 6 extending from weather deck 3 and projecting above hull 2.

[0013] Boat 1 is advantageously built by constructing inner structure 4 outside hull 2, and transferring and fixing the finished inner structure 4 inside hull 2.

[0014] More specifically, the first operation comprises building and positioning hull 2 (Figure 2) on a respective support assembly 7, so as to install a known propulsion device (not shown) of boat 1 inside hull 2.

[0015] In the example shown, hull 2 is molded, and comprises a bottom portion 8 tapering towards the bow; and two sides 9 extending from opposite lateral edges of bottom portion 8 and joined at the bow.

[0016] Bottom portion 8 of hull 2 has a number of projecting longitudinal reinforcing members 10 extending from stern to bow; and, as shown in Figure 2, a number of projecting reinforcing cross members 11a extending from one side 9 to the other at the stern and intersecting longitudinal members 10.

[0017] Longitudinal members 10 and cross members

11a are preferably formed in one piece with bottom portion 8 of hull 2 when molding the hull.

[0018] Parallel with the construction of hull 2, a predetermined number of - in the example shown, six - bulkheads 12 (Figures 5-8, 12 and 13) are formed for subsequent insertion inside hull 2, crosswise to longitudinal members 10, to divide the inside of hull 2 into a number of separate compartments.

[0019] Bulkheads 12 form an integral part of inner structure 4 and, once boat 1 is assembled, cooperate directly with bottom portion 8 and sides 9 of hull 2. Accordingly, each bulkhead 12 has opposite lateral edges 14 shaped to match the contour of respective sides 9 of hull 2; and a bottom portion 15 matching the contour of bottom portion 8.

[0020] Bottom portions 15 of bulkheads 12 advantageously define further cross members 11b intersecting longitudinal members 10 at separate points along the length of longitudinal members 10.

[0021] More specifically, each cross member 11b is formed in one piece with a respective bulkhead 12 of inner structure 4.

[0022] As described in detail below, bulkheads 12, and therefore cross members 11b, are bonded to hull 2.

[0023] The chases for positioning bulkheads 12 inside hull 2 are indicated T in Figure 2.

[0024] Bottom portion 15 or cross member 11b of each bulkhead 12 has a number of through openings (not shown) complementary in shape with and fitted through with longitudinal members 10.

[0025] With reference to Figure 2, hull 2 is positioned on support assembly 7 as follows.

[0026] Hull 2 is first eased onto and fixed to a base portion 16 of support assembly 7 defined by a sort of horizontal grid 17, which has height-adjustable feet (not shown), and from which supporting beams 19 project at given points.

[0027] Supporting beams 19 support contoured plates 20, which cooperate with the outer surface of bottom portion 8 of hull 2.

[0028] Once hull 2 is fixed to base portion 16, reference means 21 are set up at predetermined points to define the precise position of hull 2 on support assembly 7.

[0029] More specifically, locating means 21 comprise a number of - in the example shown, four - locators 22 fitted to the top of respective mounts 23, which are adjustable in position, with respect to base portion 16 of support assembly 7, along an axis X parallel to horizontal grid 17 and crosswise to longitudinal members 10, and along an axis Y perpendicular to axis X and also parallel to horizontal grid 17.

[0030] More specifically, mounts 23 are arranged in pairs facing respective sides 9 of hull 2, and extend outwards of respective opposite sides of horizontal grid 17.

[0031] Each mount 23 comprises a base portion 24 fitted on height-adjustable feet 25 and cooperating with a relative lateral edge of horizontal grid 17; and a top portion 26 projecting upwards from base portion 24 and fitted with a respective locator 22.

[0032] More specifically, top portion 26 of each mount 23 comprises a post 27 extending vertically from base portion 24; and a number of sloping supporting members 28 extending from different points of base portion 24 to the same top portion of post 27.

[0033] Each locator 22 is defined by a sleeve 30 fitted to the top of post 27 of relative mount 23 and having a cylindrical outer surface and a truncated-cone-shaped inner surface.

[0034] Mounts 23 are positioned and fixed with respect to bottom portion 16 of support assembly 7 using register marks R on sides 9 of hull 2 (Figure 4).

[0035] More specifically, for each mount 23, at least one register mark R is made in a predetermined position on relative side 9 of hull 2 when building hull 2.

[0036] Each mount 23 also has an adjusting assembly 31, which cooperates with relative mark R and with a given surface portion of relative side 9 of hull 2 to set mount 23 and relative locator 22 to a given reference position.

[0037] With particular reference to Figures 3 and 4, each adjusting assembly 31 comprises two or more contact plates 32 shaped to match respective surface areas of relative side 9 of hull 2; two or more supports 33 projecting from top portion 26 of relative mount 23 towards hull 2 and fitted on their free ends with respective contact plates 32; and at least one pointer 34 fixed to one of contact plates 32 and which is aligned with relative mark R in a direction parallel to axis X.

[0038] More specifically, each mount 23 is moved into a position close to respective mark R, i.e. in which pointer 34 is roughly aligned vertically with but beneath mark R; and feet 25 are adjusted to bring plates 32 into contact with the surface of relative side 9 of hull 2, and until pointer 34 is centred perfectly with mark R, and contact plates 32 mate perfectly with the respective surface areas of relative side 9 of hull 2.

[0039] This procedure is performed for all of mounts 23, to form a hull 2 position reference system by which to insert the finished inner structure 4.

[0040] With reference to Figures 5-10 and 18, inner structure 4 is built as follows.

[0041] Firstly, the finished bulkheads 12 are set up on a support assembly 35, in predetermined positions corresponding to the intended positions of bulkheads 12 inside hull 2.

[0042] More specifically, support assembly 35 comprises a base portion 36 defined by a sort of horizontal grid 37, which has height-adjustable feet 38 (as shown in the enlarged detail in Figure 5) from which support assemblies 39 project at given points corresponding to the intended positions of bulkheads 12 inside hull 2.

[0043] Each support assembly 39 comprises a truss 40; and a contoured supporting plate 41, which projects vertically from horizontal grid 37, is fixed to truss 40, and is perpendicular to an axis L along which support assembly 35 extends, and which represents the stern-to-bow

axis of boat 1.

[0044] Each supporting plate 41 has a top edge 42 shaped to match the corresponding contour of hull 2, and which therefore defines a cavity 43.

[0045] In other words, along axis L, the top edges 42 of supporting plates 41 reproduce the inner contour of hull 2.

[0046] Bulkheads 12 are positioned with lateral edges 14 and cross members 11b contacting edges 42 of respective supporting plates 41.

[0047] Needless to say, each bulkhead 12 is positioned on the supporting plate 41 corresponding to the intended position of bulkhead 12 inside hull 2.

[0048] More specifically, on support assembly 35, bulkheads 12 are spaced predetermined distances apart and positioned perpendicular to axis L, so the spaces between bulkheads 12 are accessible from above and from opposite sides of axis L. The same obviously also applies to support assemblies 39.

[0049] The distances between bulkheads 12 depend on the intended positions of bulkheads 12 inside hull 2.

[0050] To keep it perfectly upright on support assembly 35, each bulkhead 12 is gripped at various points by respective gripper-type retaining devices 44 fitted to relative support assembly 39, and each opened/closed adjustably in a direction parallel to axis L.

[0051] More specifically, and as shown in the enlarged details in Figure 5, each retaining device 44 comprises a plate 45 which cooperates with the edge of one face of bulkhead 12; and an adjustable pusher 46 which acts on the opposite face of bulkhead 12. More specifically, plate 45 is fixed to one face of supporting plate 41, so as to project towards contoured cavity 43 of supporting plate 41; and pusher 46 comprises a threaded rod, which extends parallel to axis L, is fitted on one end with a plate 47 contacting bulkhead 12, and is screwed at the opposite end inside a corresponding threaded end of an L-shaped supporting arm 48 fixed to the opposite face of supporting plate 41.

[0052] Screwing and unscrewing pusher 46 of each retaining device 44 with respect to relative supporting arm 48 adjusts the tilt of bulkhead 12 with respect to a vertical plane perpendicular to axis L.

[0053] Like support assembly 7, support assembly 35 also has reference means 50 related to reference means 21 and therefore the position of hull 2 on support assembly 7.

[0054] Reference means 50 comprise a number of - in the example shown, four - locators 51 fitted to some - in the example shown, to the top and opposite sides of two - of support assemblies 39.

[0055] Locators 51 are identical to locators 21 and therefore not described in detail.

[0056] With reference to Figure 5, once bulkheads 12 are set up on support assembly 35, the below-deck flooring 52 of inner structure 4 can be laid.

[0057] On the finished boat 1, flooring 52 is located a given distance below weather deck 3.

[0058] Flooring 52 preferably comprises a number of modules 53, 54 (Figures 5 and 6) designed to fix to bulkheads 12.

[0059] Modules 53 are fixed between respective pairs of bulkheads 12, except for the bulkhead 12 intended for the bow end of hull 2; and module 54 is interposed between the bow-end bulkhead 12 and the adjacent bulkhead 12 facing it.

[0060] Each module 53 comprises a preferably aluminium supporting frame 55, which is fixed to a respective pair of facing bulkheads 12; and a floor 56 fixed to supporting frame 55 and defining the floor of below-deck compartments 5.

[0061] As shown in Figures 5, 6 and 9, supporting frame 55 of each module 53 comprises two L-shaped brackets 57, which are fixed, at the desired height, to the bulkheads 12 between which module 53 is inserted; and a grating 58, which is fixed to brackets 57, crosswise to bulkheads 12.

[0062] More specifically (Figure 9), each bracket 57 comprises a flat first portion 59 parallel to relative bulkhead 12 and fixed to it by fastening means 60, such as bolts or adhesive; and a flat second portion 61 projecting perpendicularly from portion 59 and for receiving a lateral portion 62 of grating 58. More specifically, lateral portion 62 of grating 58 rests on portion 61 of bracket 57 with the interposition of a layer 63 of elastically deformable material - in the example shown, rubber - and is fixed to portion 61 by fastening means defined, in the example shown, by rivets 64.

[0063] With particular reference to Figures 6 and 10, floor 56 of each module 53 comprises boarding 56 - in the example shown, of wood - which is fixed to supporting frame 55 with the interposition of a layer 66 of elastically deformable material, preferably rubber; and a finish covering 67, which is fixed to boarding 65 with the interposition of a further layer 68 of elastically deformable material, preferably rubber.

[0064] Layers 63, 66 and 68 of elastically deformable material serve to enhance the comfort of below-deck compartments 5 by insulating them from low-frequency vibration.

[0065] Module 54 comprises a preferably aluminium supporting frame 69 similar to frames 55, and which is secured to and projects from the bulkhead 12 adjacent to the bow-end bulkhead 12; and a preassembled unit 70 fixed to the bow-end bulkhead 12 on one side, and to frame 69 on the other side, with the interposition of a layer (not shown) of elastically deformable material, preferably rubber.

[0066] At this point, between bulkheads 12 - which, once installed inside hull 2, are load-bearing - further, non-load-bearing, bulkheads 71 (Figure 7) are installed at predetermined points to define the boundaries of below-deck compartments 5.

[0067] More specifically, bulkheads 71 are inserted inside respective grooves (not shown) formed on floor 52, and are fixed to floor 52 and bulkheads 12.

[0068] Inner structure 4 is then completed with interior furnishings 72 and a roof 73.

[0069] Construction of inner structure 4 also includes installing known wiring, piping, connectors, etc (not shown) of on-board systems, such as electric, plumbing systems, etc.

[0070] As stated, system component parts and interior furnishings 72 can be installed easily by accessing the spaces between bulkheads 12 from above and from opposite sides.

[0071] With reference to Figures 7, 8 and 11, roof 73 is similar in design to flooring 52, and comprises a number of modules 74 fixed to top portions of respective pairs of bulkheads 12.

[0072] Each module 74 comprises a preferably aluminium supporting frame 75, which is secured to a respective pair of facing bulkheads 12; and a number of aluminium tiles 76 fixed on top of supporting frame 75, and to which weather deck 3 is subsequently fixed.

[0073] As shown in Figures 7 and 11, supporting frame 75 of each module 74 comprises two L-shaped brackets 77, which are fixed, at the desired height, to the respective bulkheads 12 between which module 74 is inserted; and a grating 78, which is fixed to brackets 77, crosswise to bulkheads 12.

[0074] More specifically (Figure 11), each bracket 77 comprises a flat first portion 79 parallel to relative bulkhead 12 and fixed to it by fastening means 80, such as bolts or adhesive; and a flat second portion 81 projecting perpendicularly from portion 79 and for receiving a lateral portion 82 of grating 78. More specifically, lateral portion 82 of grating 78 rests on portion 81 of bracket 77 with the interposition of a layer 83 of elastically deformable material - in the example shown, rubber - and is fixed to portion 81 by fastening means defined, in the example shown, by rivets 84.

[0075] Tiles 76 are fixed to the spaces in grating 78 of each module 74 by means of respective brackets 85 and antivibration joints 86 (Figure 18).

[0076] The finished inner structure 4 is picked up by a transfer fixture 87 (Figures 12, 13) located over support assemblies 7 and 35 and operated by a known crane (not shown).

[0077] More specifically, transfer fixture 87 comprises a frame structure 88 fitted at the bottom with grippers 89 (Figure 17) for gripping the top edges of bulkheads 12.

[0078] More specifically, and as shown in Figure 17, each gripper 89 comprises a fixed portion 90 fitted to frame structure 88; and a movable jaw 91 hinged to and movable to and from fixed portion 90. In the grip position, the top edge of bulkhead 12 is gripped between jaw 91 and fixed portion 90 of each gripper 89.

[0079] To remove inner structure 4 and finished below-deck compartments 5 off support assembly 35 and insert them correctly inside hull 2, transfer fixture 87 is equipped with reference means 92 (Figures 12-16) corresponding with reference means 21, 50 and the positions of grippers 89.

[0080] In this case, reference means 92 comprise a number of - in the example shown, four - locators 93 fitted in predetermined positions to frame structure 88, and which, in use, are alignable vertically with and engage both locators 51 on support assembly 35 and locators 22 on support assembly 7.

[0081] More specifically, each locator 93 projects from the bottom of frame structure 88 of transfer fixture 87, and comprises a truncated-cone-shaped engaging body 94 complementary in shape to the inner surface of locators 22, 51; and a cylindrical rod 95 projecting vertically downwards from engaging body 94, and which fits inside a respective locator 22, 51 to roughly align transfer fixture 87 with relative support assembly 7, 35 (Figures 14, 15).

[0082] At the pickup stage, once engaging bodies 94 of locators 93 of transfer fixture 87 are inserted inside respective locators 51 on support assembly 35 (Figure 16), grippers 89 can be attached to relative bulkheads 12 of inner structure 4 and below-deck compartments 5.

[0083] At this point (Figure 12), transfer fixture 87 is raised to detach inner structure 4 and below-deck compartments 5 from support assembly 35.

[0084] Next, after adhesive is applied to chases T inside hull 2, inner structure 4 and below-deck compartments 5, still attached to transfer fixture 87, are lowered into hull 2 (Figure 13).

[0085] As they are lowered towards hull 2, rods 95 of locators 93 are inserted inside locators 22 on support assembly 7 to roughly align transfer fixture 87 with support assembly 7; and full insertion of engaging bodies 94 of locators 93 inside respective locators 22 positions bulkheads 12 and below-deck compartments 5 precisely inside hull 2.

[0086] Setting of the adhesive secures bulkheads 12 and the whole of inner structure 4 firmly to hull 2.

[0087] Boat 1 is then completed by installing weather deck 3 and superstructure 6.

[0088] The advantages of the method of building boat 1 according to the present invention will be clear from the above description.

[0089] In particular, the method described and illustrated provides for building boat 1 in parallel, as opposed to consecutive, stages, thus greatly reducing construction time as compared with conventional methods.

[0090] Moreover, building below-deck compartments 5 outside hull 2 allows workers access to the areas both between and outside bulkheads 12, thus not only speeding up the work - particularly installation of system component parts - but also improving workmanship and end product quality.

Claims

1. A method of building a boat (1), in particular a leisure boat, the method comprising the steps of :

   - building the hull (2) of said boat (1);

- positioning said hull (2) on a first support assembly (7); and
- placing a number of below-deck compartments (5) inside said hull (2);

the method being **characterized in that** said step of placing a number of below-deck compartments comprises the steps of :

- building said below-deck compartments (5) outside said hull (2), on a second support assembly (35) and in predetermined positions reproducing the intended positions of the below-deck compartments (5) inside said hull (2);
- placing on said first and second support assembly (7, 35) respective first and second reference means (21, 50) related to one another and to the position of said hull (2) on said first support assembly (7);
- setting up, over said first and second support assembly (7, 35), a transfer fixture (87) equipped with third reference means (92) related to said first and second reference means (21, 50);
- removing the finished said below-deck compartments (5) from said second support assembly (35) by means of said transfer fixture (87) positioned with its third reference means (92) aligned vertically with said second reference means (50); and
- inserting said below-deck compartments (5) inside said hull (2) by means of said transfer fixture (87) positioned with its third reference means (92) aligned vertically with said first reference means (21).

2. A method as claimed in Claim 1, and comprising the further step of applying at least one register mark (R) on each side (9) of said hull (2); said first reference means (21) being positioned on said first support assembly (7) on the basis of said register marks (R).

3. A method as claimed in Claim 2, wherein said register marks (R) are applied when building said hull (2).

4. A method as claimed in any one of the foregoing Claims, wherein said first reference means (21) comprise first locators (22); said second reference means (50) comprise second locators (51) of the same shape as said first locators (22); and said third reference means (92) comprise third locators (93) complementary in shape to said first and second locators (22, 51), and which engage said first and second locators to achieve said vertical alignments when removing and inserting said below-deck compartments (5).

5. A method as claimed in Claim 4, wherein said first, second and third locators (22, 51, 93) have truncated-cone-shaped interacting surfaces.

6. A method as claimed in any one of the foregoing Claims, wherein said step of building said below-deck compartments (5) comprises the steps of :

- forming a number of load-bearing first bulkheads (12) of said below-deck compartments (5), designed to fit crosswise inside said hull (2) to divide the hull (2) into a number of separate compartments;
- placing said first bulkheads (12) on said second support assembly (35), in predetermined positions corresponding to the intended positions of the first bulkheads (12) inside said hull (2); and
- fixing further parts (52, 70, 71, 72, 73) of said below-deck compartments (5) to said first bulkheads (12) positioned on said second support assembly (35).

7. A method as claimed in Claim 6, wherein said first bulkheads (12) are positioned on said second support assembly (35) predetermined distances apart and crosswise to the longitudinal axis (L) of the second support assembly (35), so the spaces between said first bulkheads (12) are accessible from above and from opposite sides of said axis (L); said distances depending on the intended positions of said first bulkheads (12) inside said hull (2).

8. A method as claimed in Claim 6 or 7, wherein said step of fixing further parts comprises the step of fixing the flooring (52) of said below-deck compartments (5) to said first bulkheads (12).

9. A method as claimed in Claim 6 or 7, wherein said step of fixing further parts comprises the step of fixing a number of second bulkheads (71) to said first bulkheads (12) and said flooring (52) to divide said compartments into said below-deck compartments (5).

10. A method as claimed in Claim 9, wherein said second bulkheads (71) are fixed by inserting them inside grooves on said flooring (52).

11. A method as claimed in any one of Claims 6 to 10, wherein said step of fixing further parts comprises the step of installing system component parts of the boat (1).

12. A method as claimed in any one of Claims 6 to 11, wherein said step of fixing further parts comprises the step of installing furnishing (72) and/or a roof (73) of said below-deck compartments (5).

13. A method as claimed in any one of Claims 6 to 12,

wherein said transfer fixture (87) comprises gripping means (89) for releasably gripping respective top edges of said first bulkheads (12).

14. A method as claimed in any one of the foregoing Claims, and comprising the further step, prior to said step of inserting said below-deck compartments (5), of applying adhesive to respective receiving areas (T) for receiving said first bulkheads (12) inside said hull (2); said receiving areas (T) extending on a bottom portion (8) and opposite sides (9) of said hull (2).

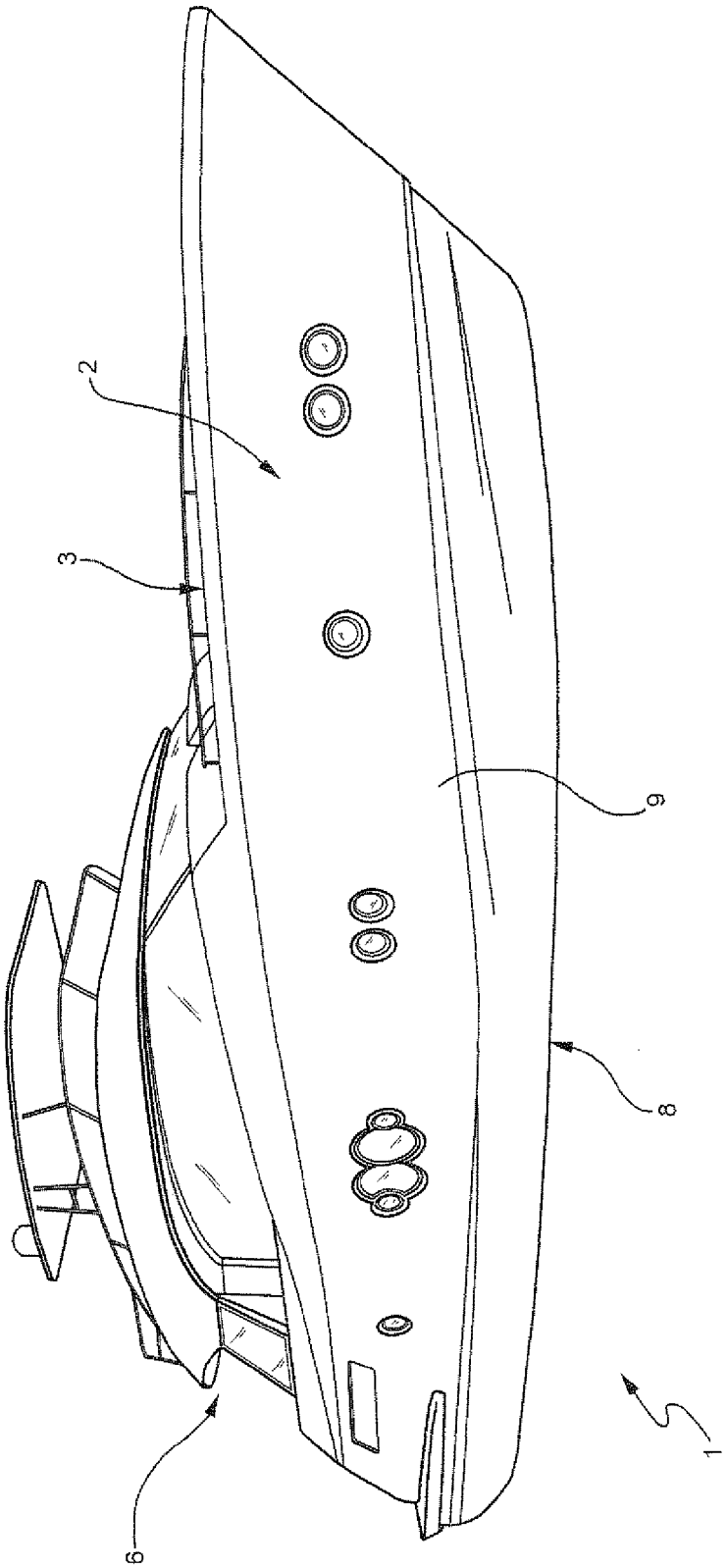

FIG. 1

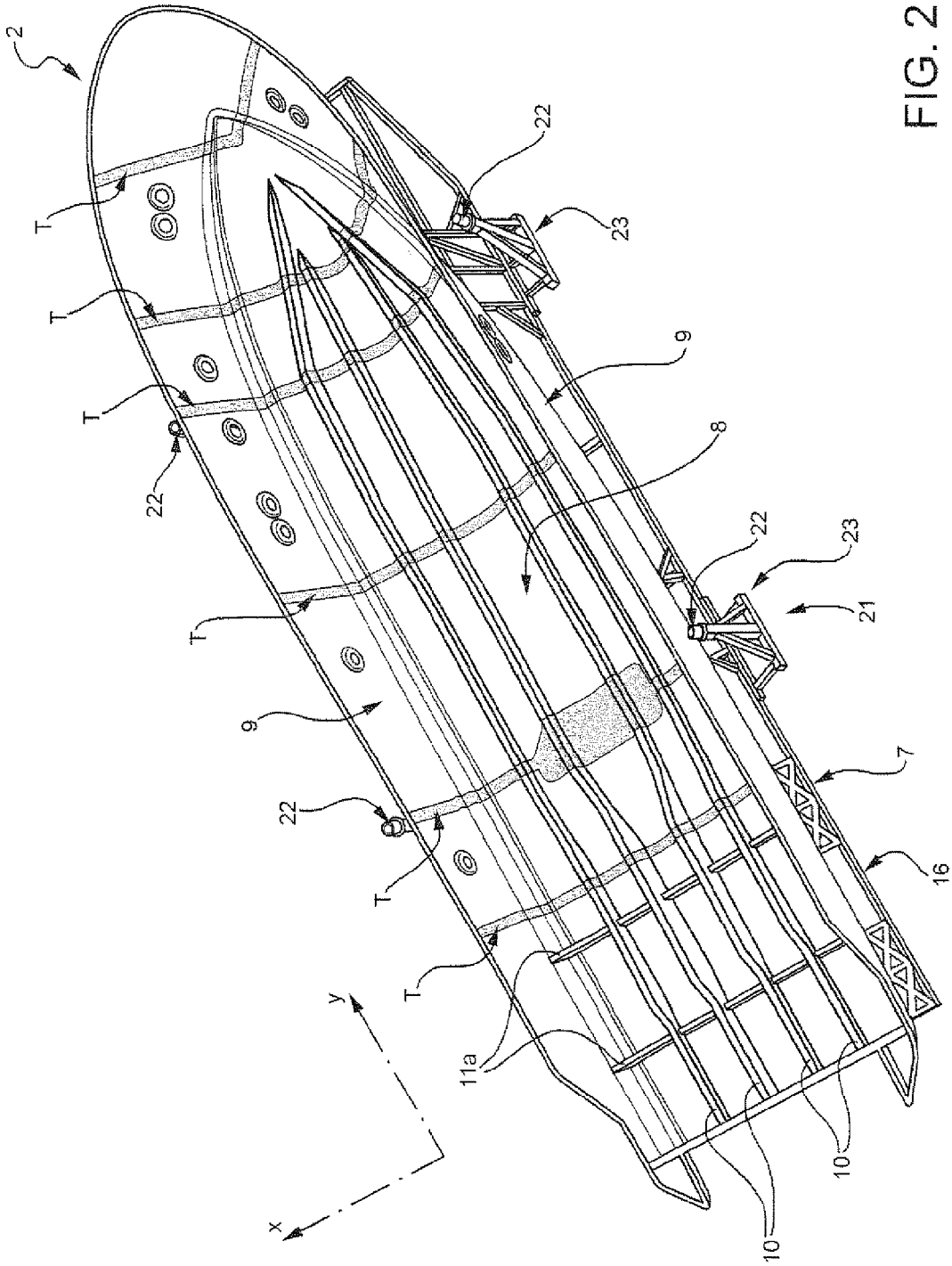

FIG. 2

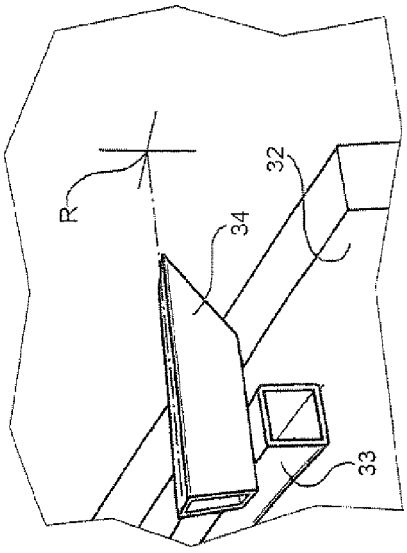
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FIG. 4

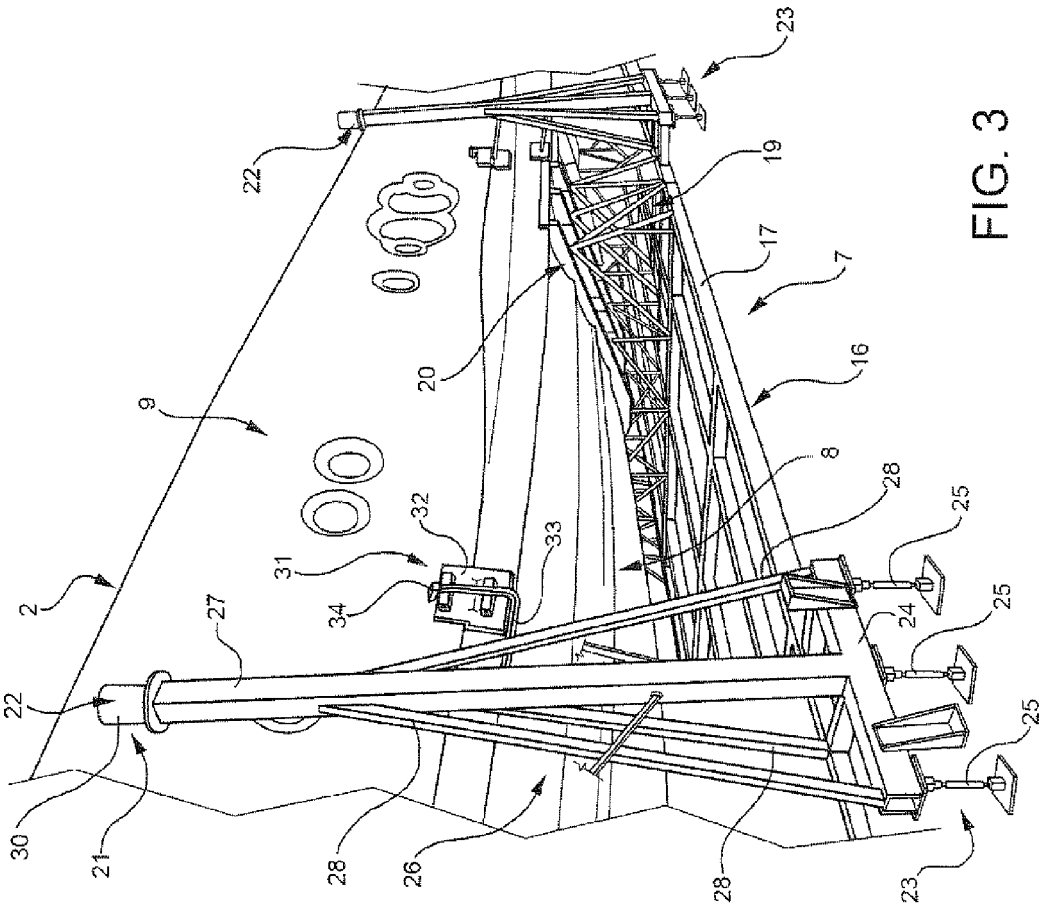
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FIG. 3

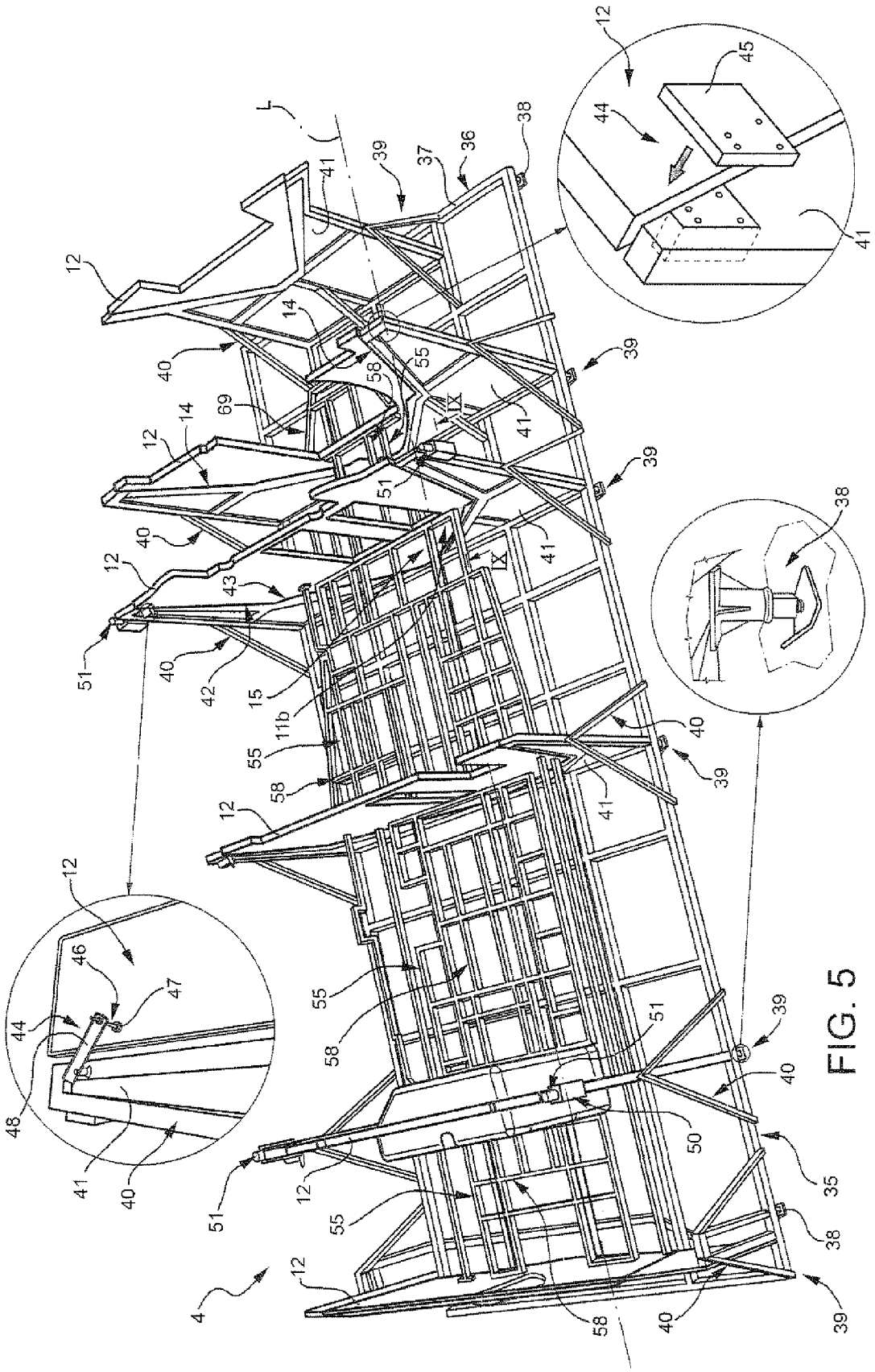

FIG. 5

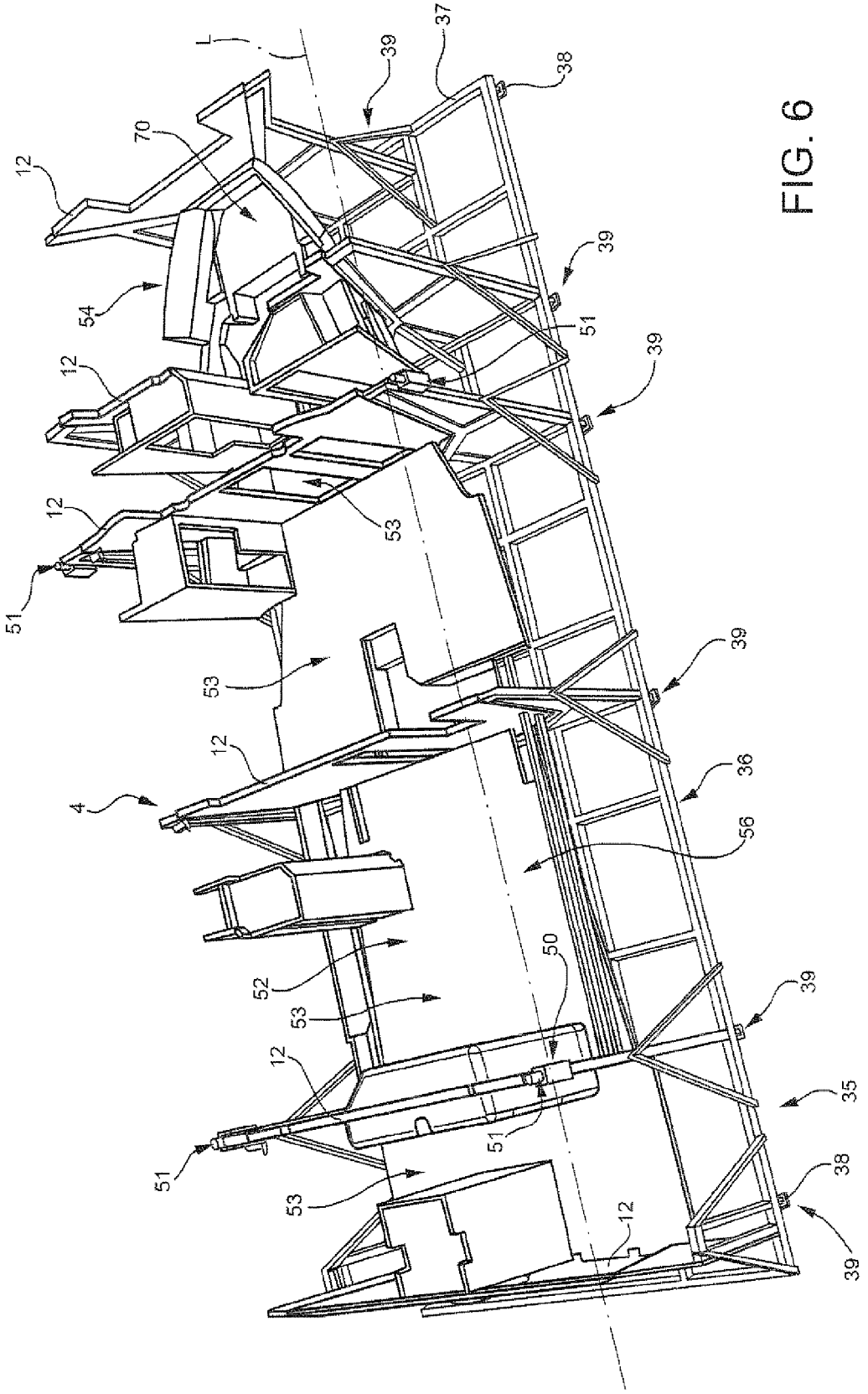

FIG. 6

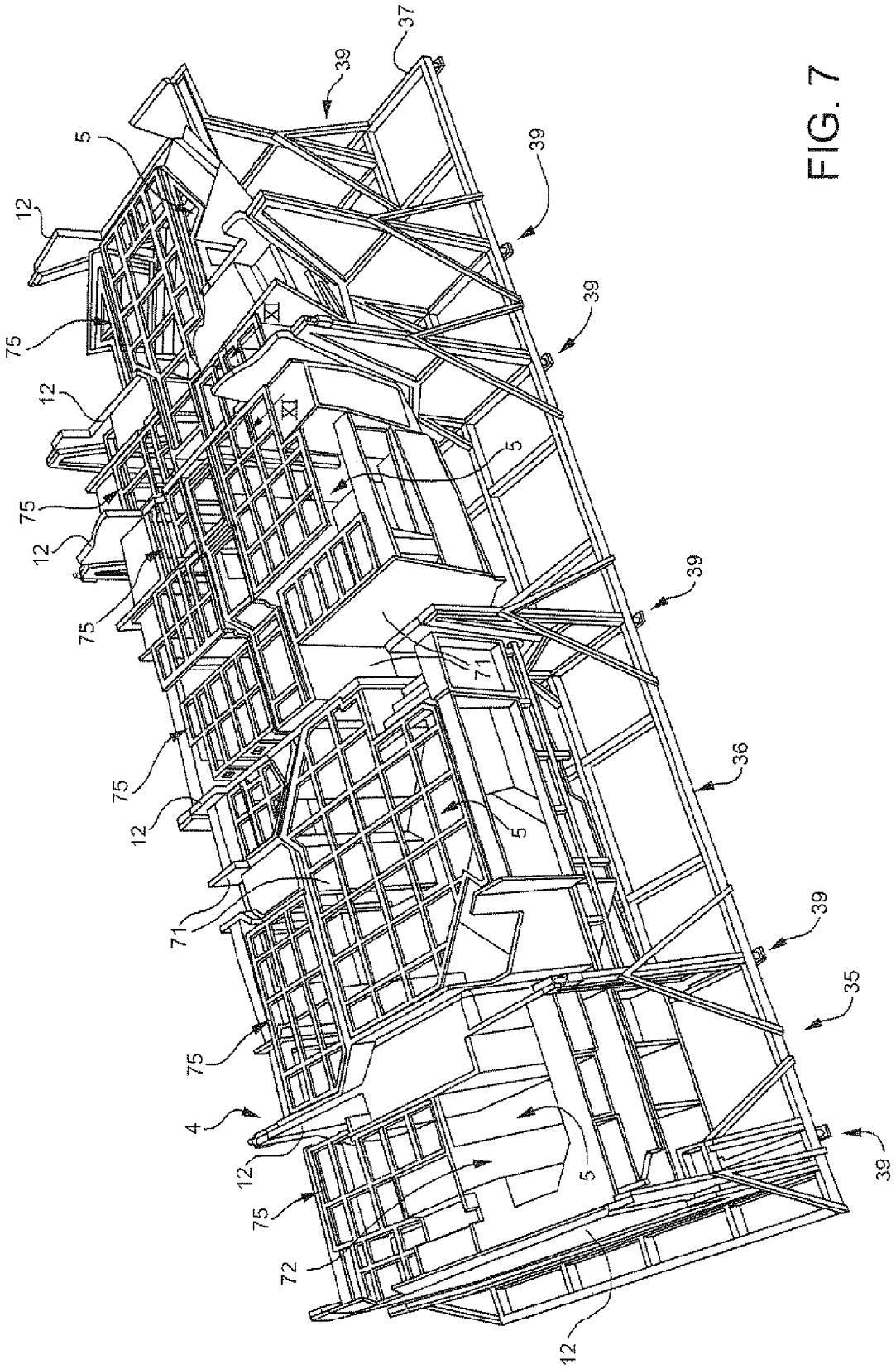

FIG. 7

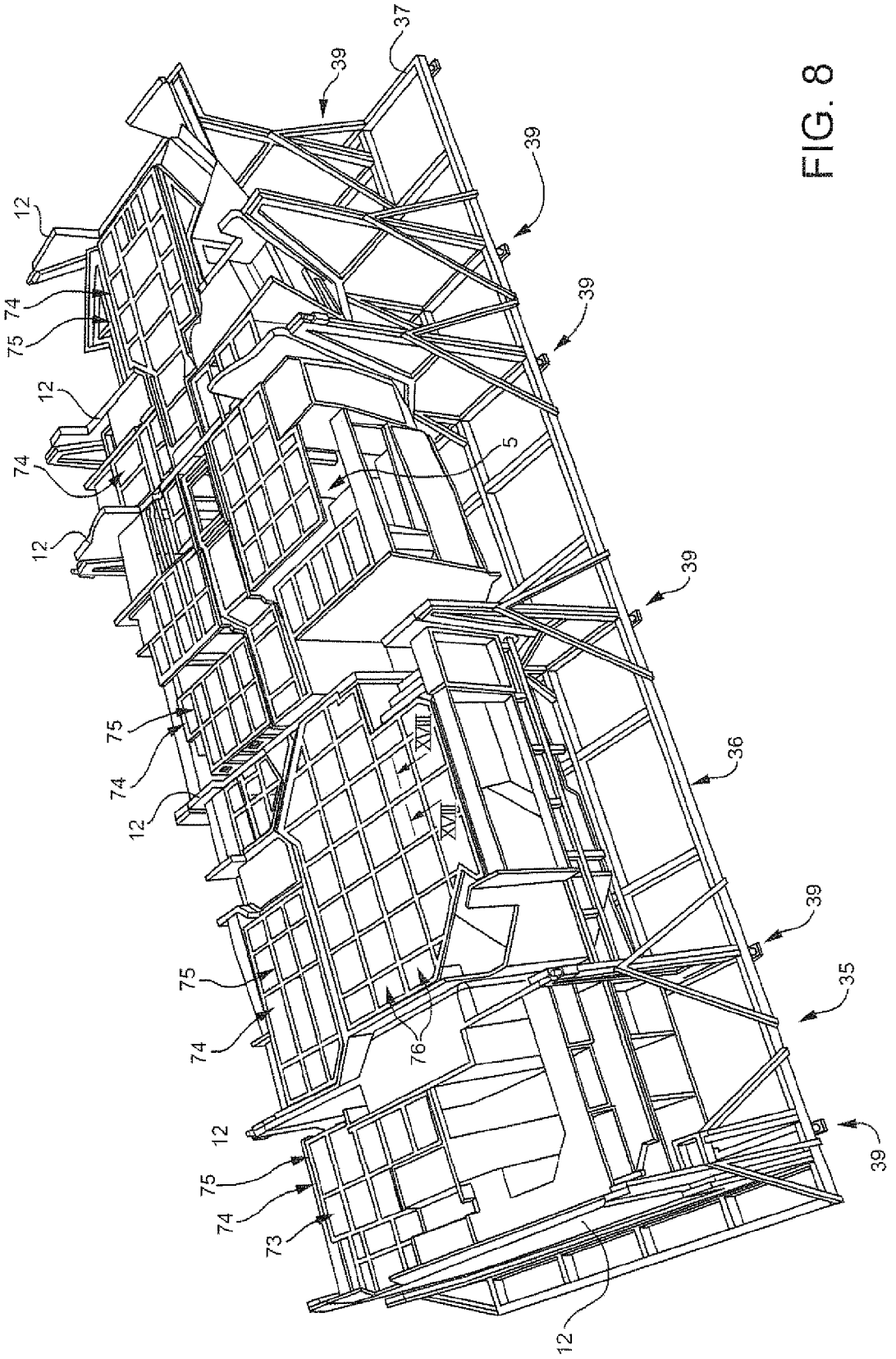
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FIG. 8

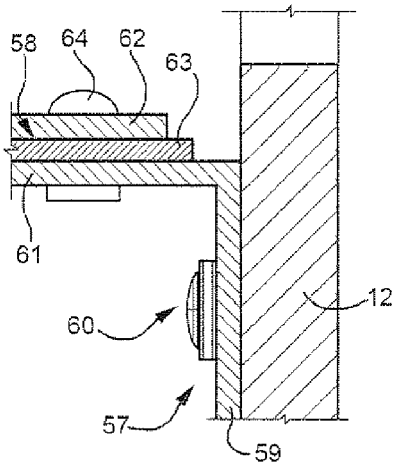

FIG. 9

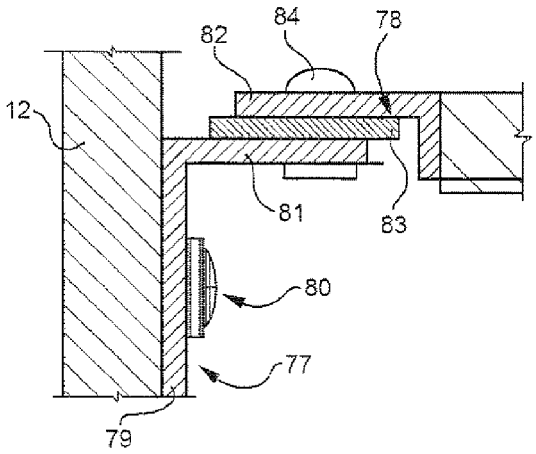

FIG. 11

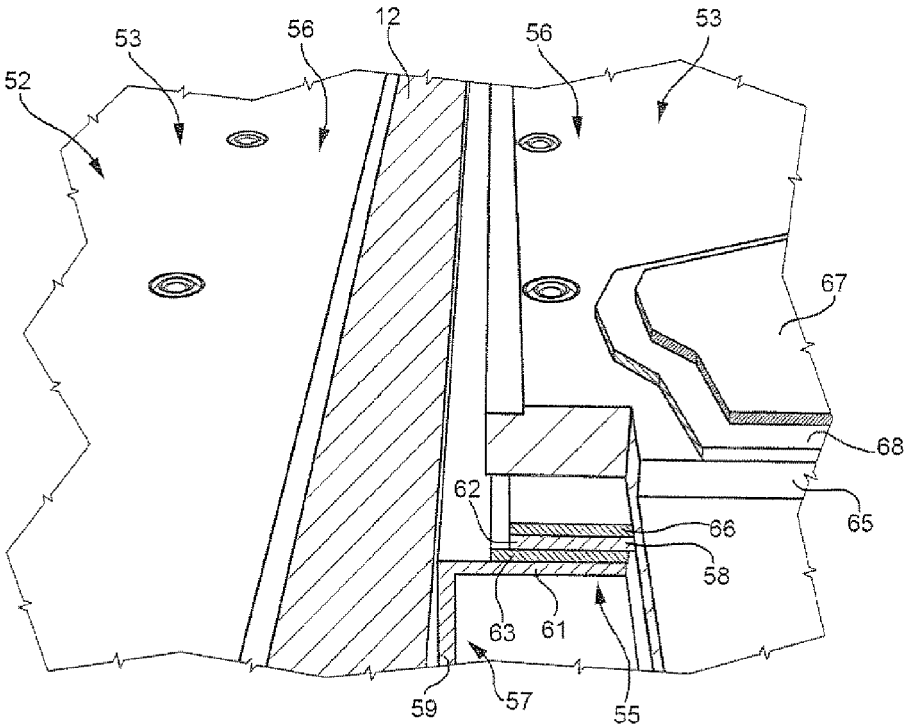

FIG. 10

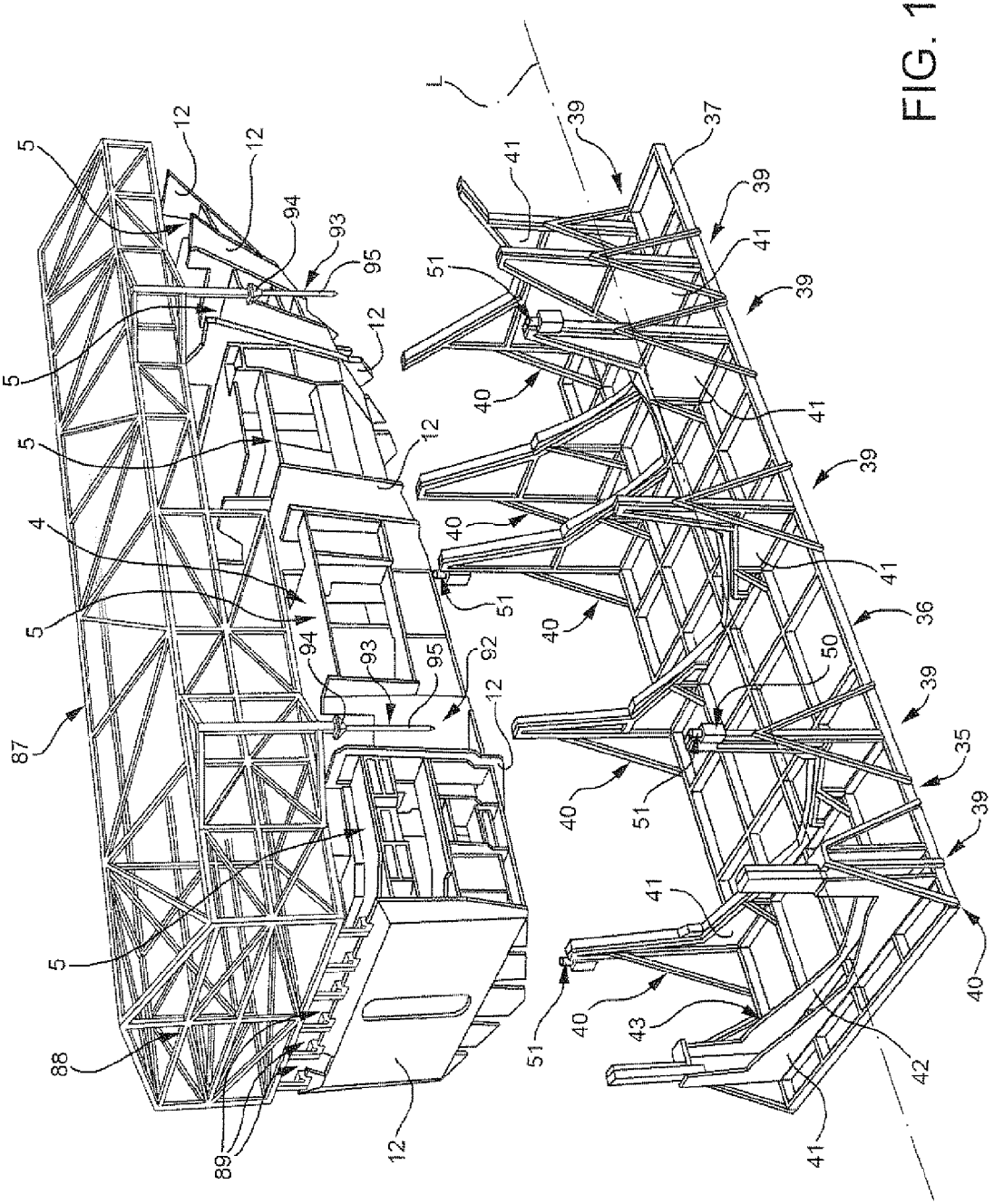

FIG. 12

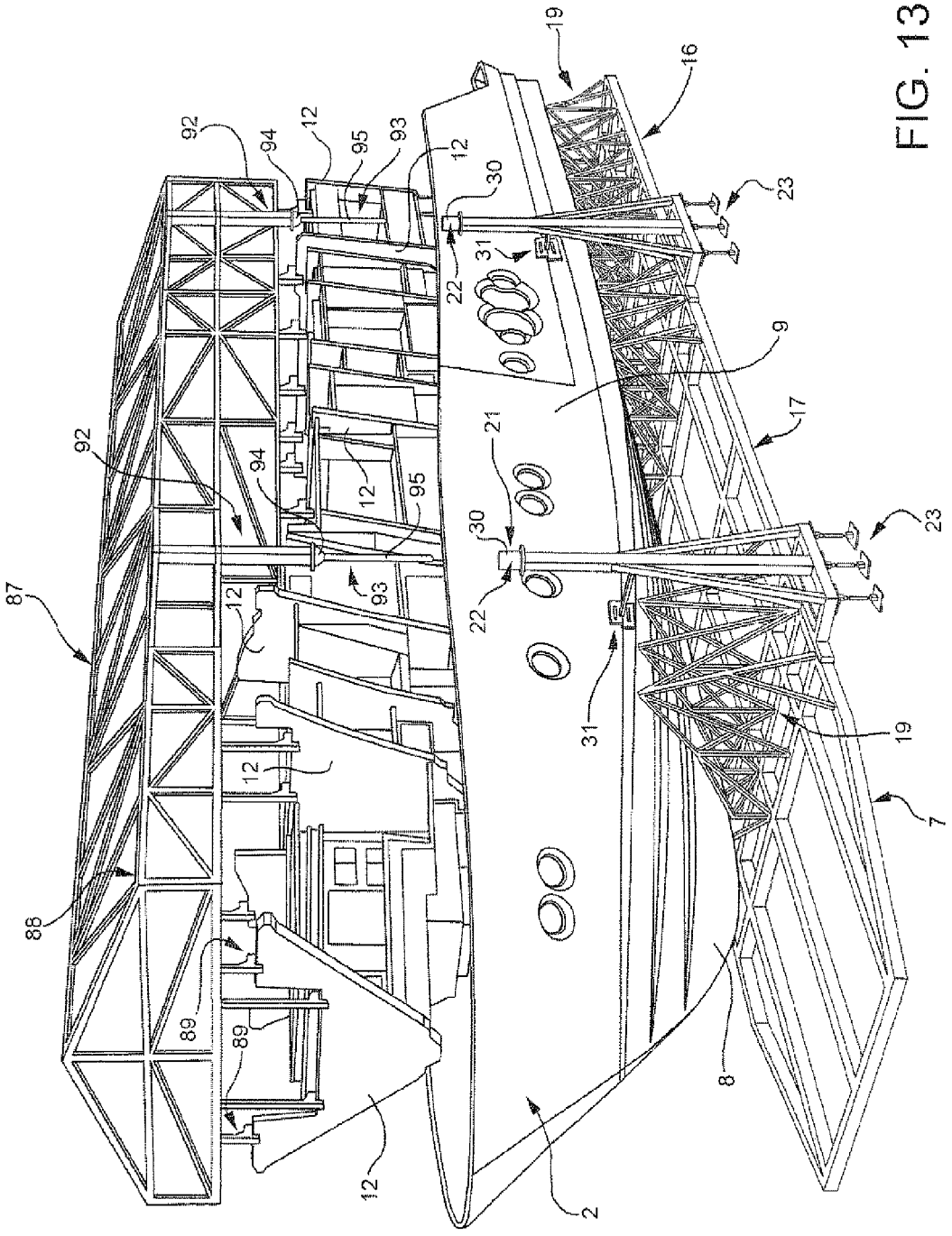
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FIG. 13

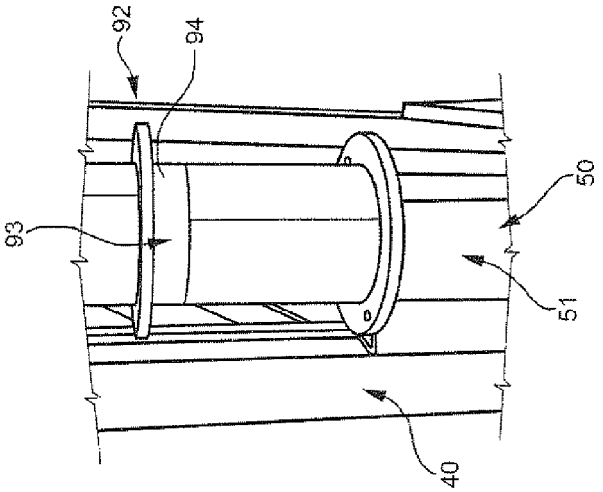

FIG. 16

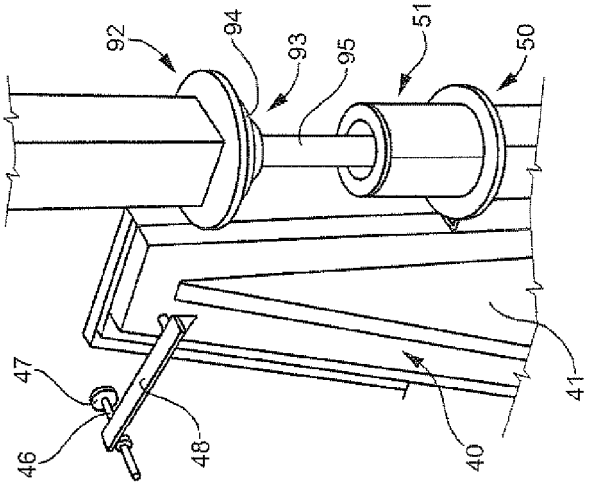

FIG. 15

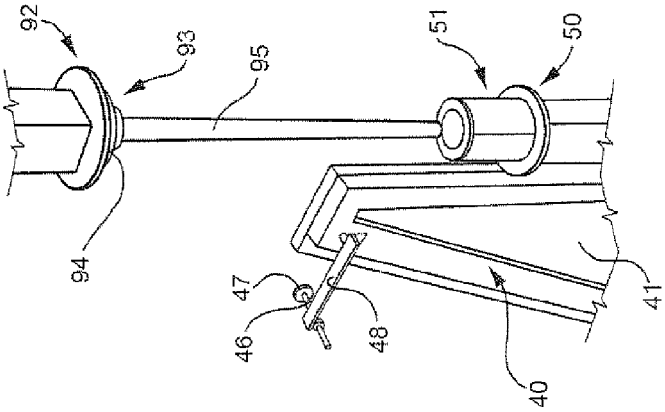

FIG. 14

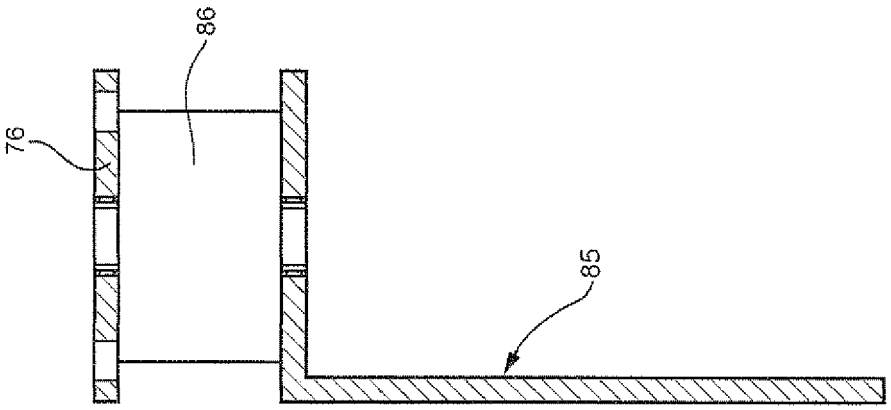

FIG. 18

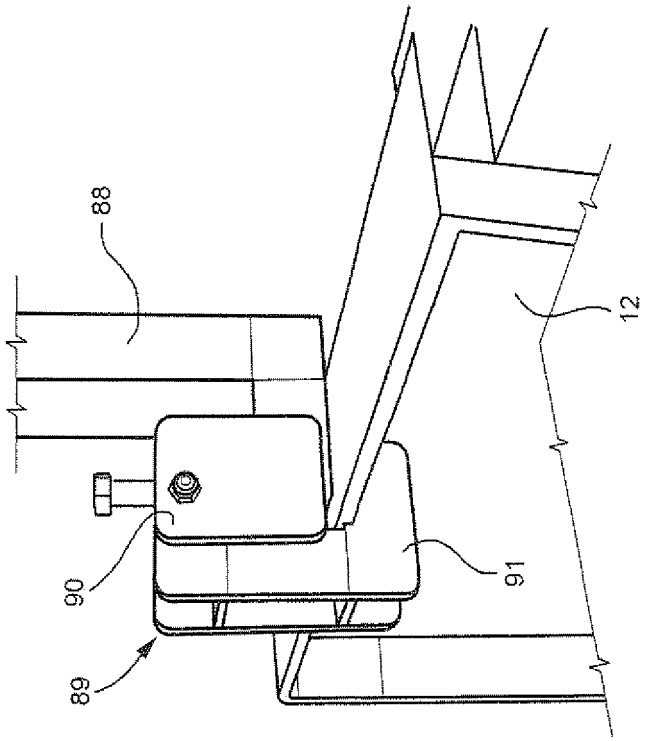

FIG. 17

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EUROPEAN SEARCH REPORT

Application Number
EP 12 17 8921

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	FR 2 771 994 A1 (DUFOUR AND SPARKS SA [FR]) 11 June 1999 (1999-06-11) * page 4, line 23 - page 10, line 6; figures 1-6 *	1,11-14	INV. B63B29/02
A	DE 30 01 710 A1 (HD YACHTBAU HERIBERT DUELLMANN [DE]) 23 July 1981 (1981-07-23) * page 6, lines 1-3; figures 1-5 *	1	
A	GB 613 413 A (CLAY PATRICK BEDFORD) 29 November 1948 (1948-11-29) * page 1, line 84 - page 2, line 66; figures 1-6 *	1	
			TECHNICAL FIELDS SEARCHED (IPC)
			B63B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	24 October 2012	Brumer, Alexandre

CATEGORY OF CITED DOCUMENTS

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24-10-2012

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FR 2771994 A1	11-06-1999	NONE	
DE 3001710 A1	23-07-1981	NONE	
GB 613413 A	29-11-1948	NONE	

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82