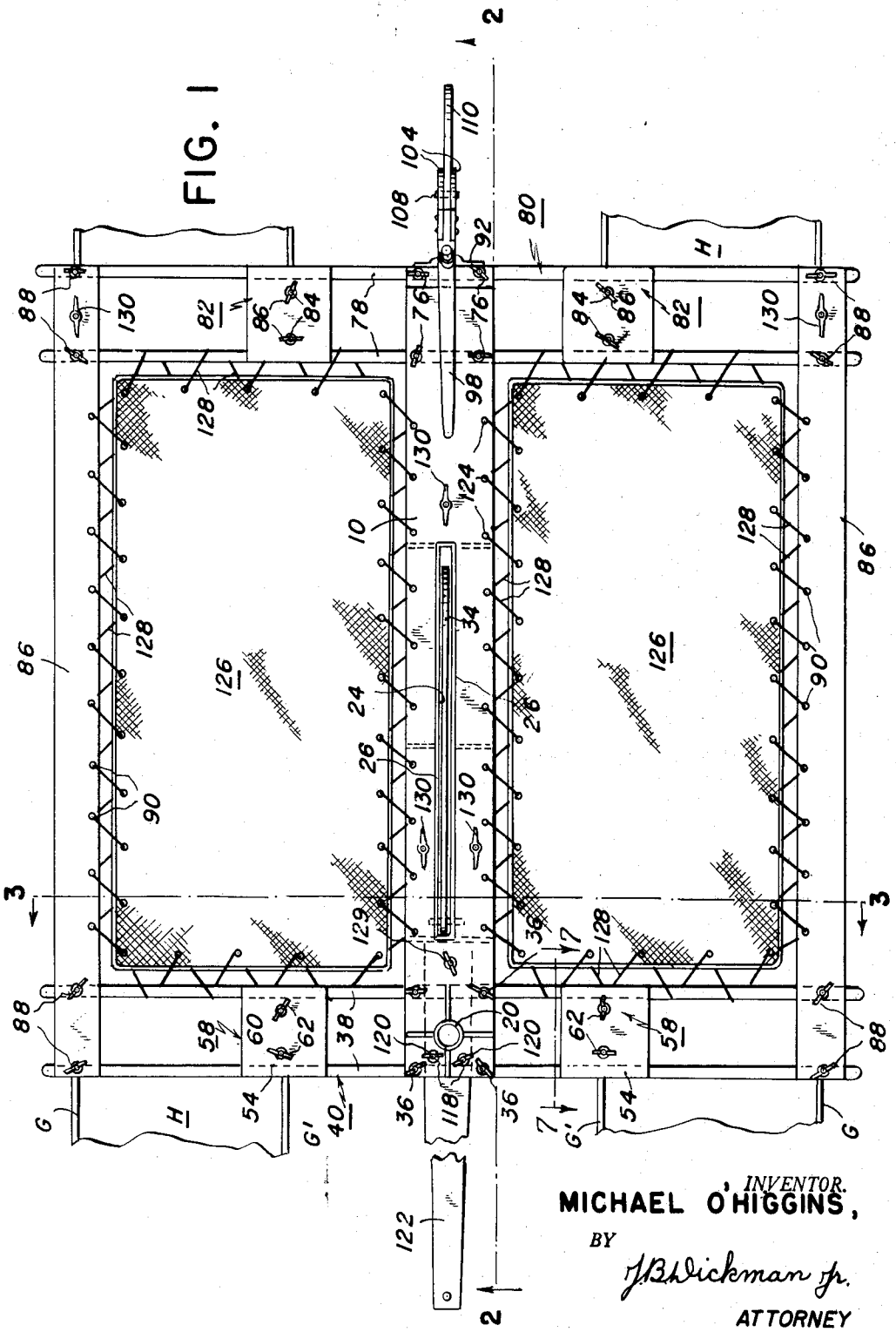
July 5, 1955 M. O'HIGGINS 2,712,293

KNOCK DOWN CATAMARAN UNIT

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FIG. 1



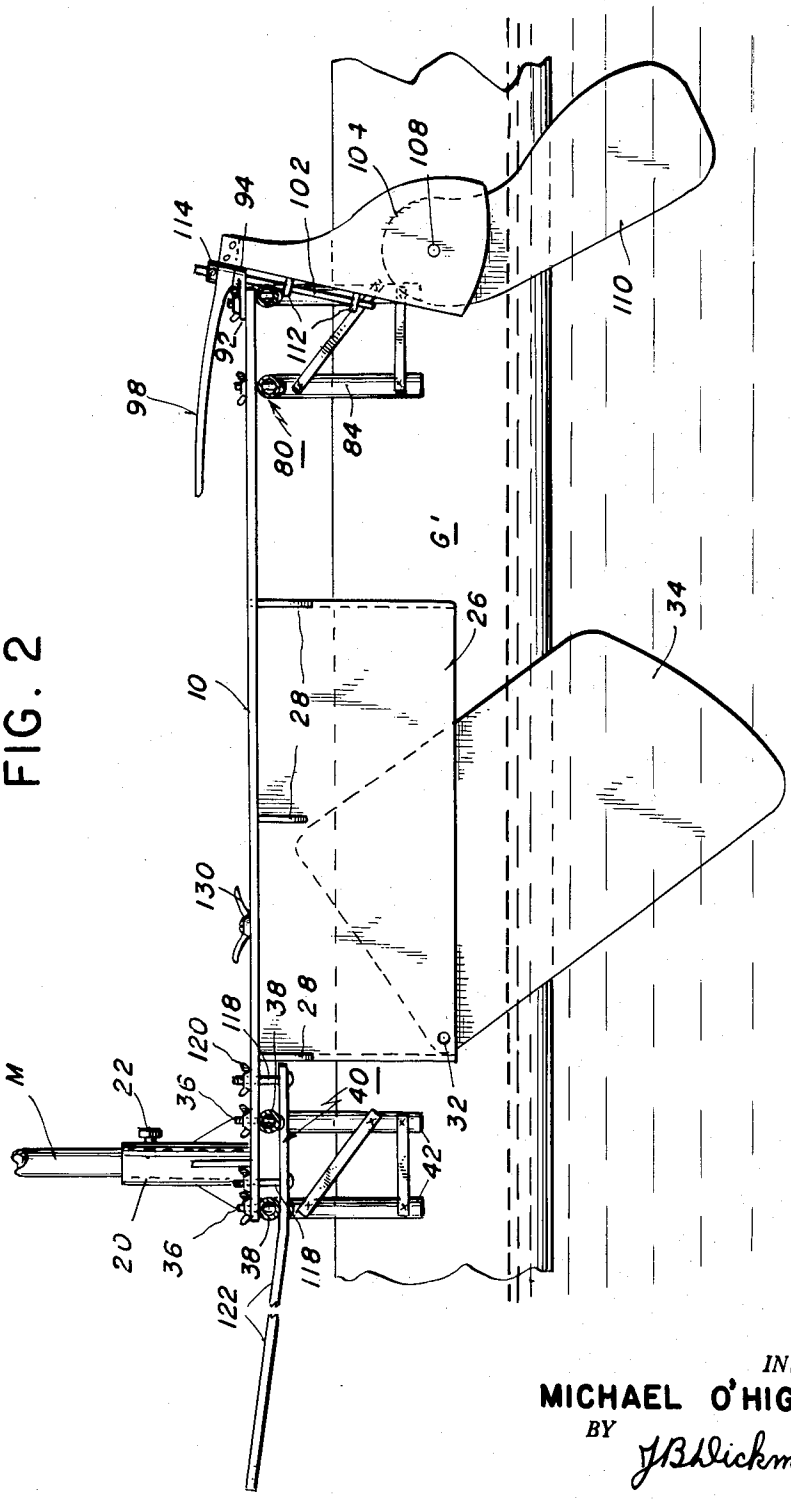
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FIG. 2



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KNOCK DOWN CATAMARAN UNIT

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FIG. 3

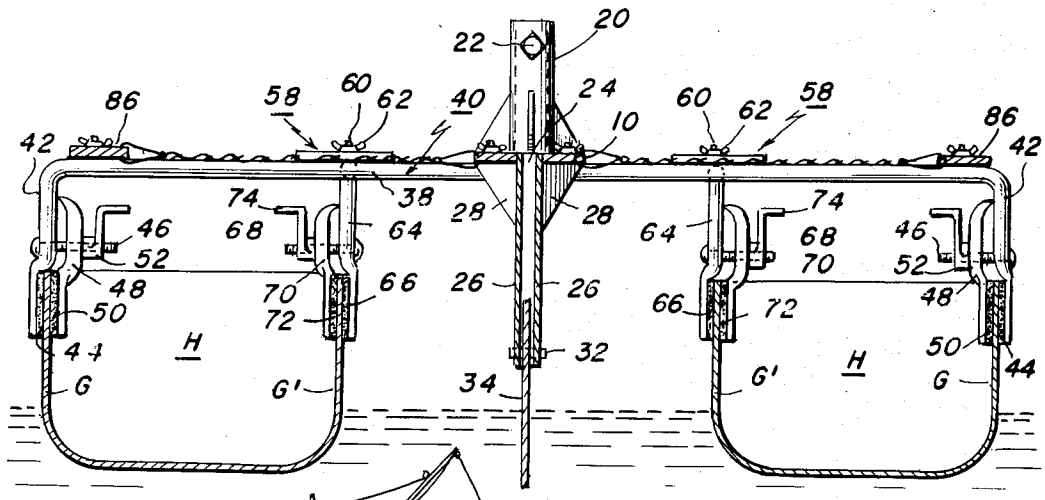
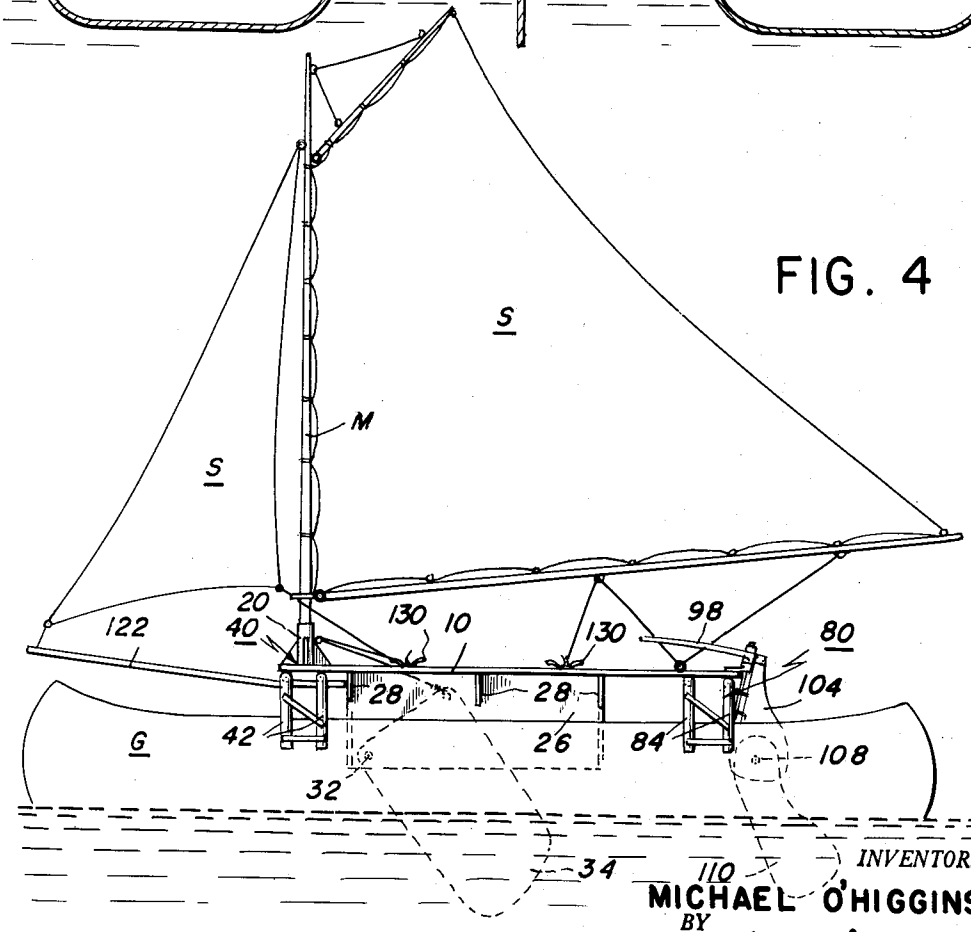


FIG. 4



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KNOCK DOWN CATAMARAN UNIT

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FIG. 5

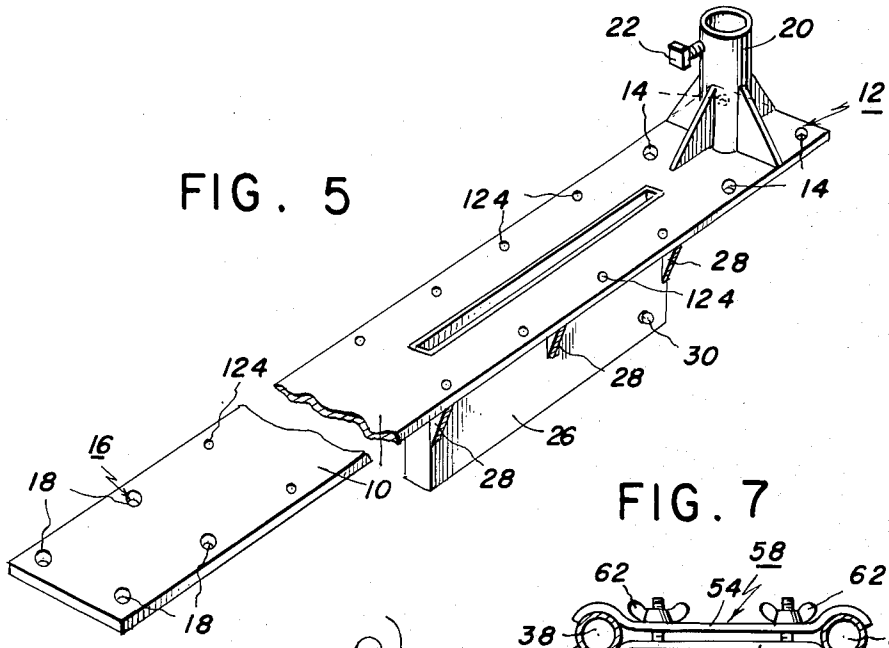


FIG. 7

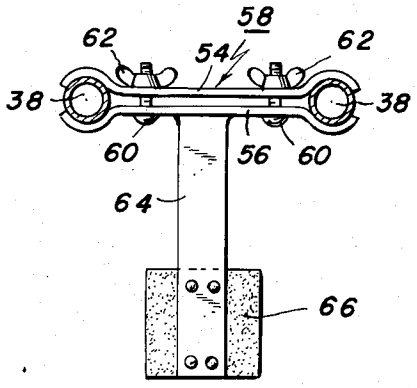
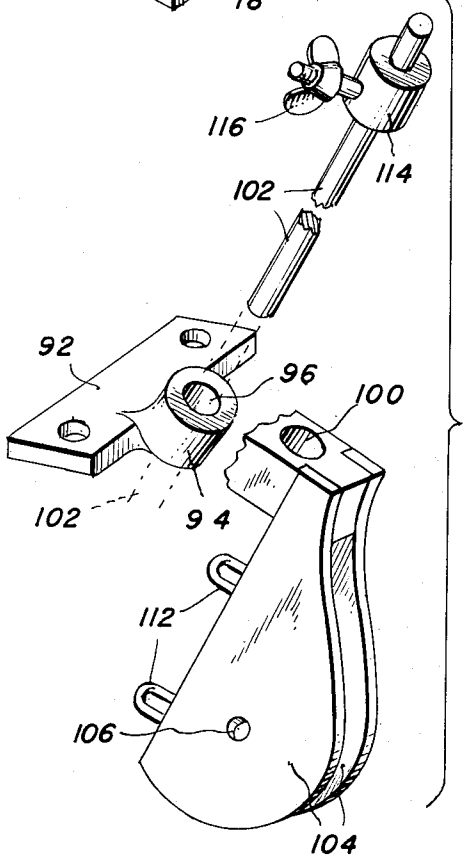


FIG. 6



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KNOCK DOWN CATAMARAN UNIT

Michael O'Higgins, Washington, D. C.

Application June 2, 1954, Serial No. 433,906

6 Claims. (Cl. 114—61)

This invention relates to a knockdown unit for converting a pair of twin hulls into a sailing vessel of the catamaran type and has for its primary object to connect together twin hulls having gunwales to define a catamaran.

Another object is to facilitate the disassembling of the unit and to enable the parts thereof to be reassembled in a knockdown condition so as to occupy but a minimum amount of space during transportation and storage.

A further object is to enable the unit to be rapidly assembled from its knockdown condition and mounted on twin hulls ready for sailing and to accommodate the supports to hulls of varying widths.

The above and other objects may be attained by employing this invention which embodies among its features a beam, longitudinally spaced parallel cross arms detachably connected to the beam and extending perpendicularly thereacross, gunwale clamps carried by the cross arms and extending downwardly therefrom adjacent opposite ends thereof, carriages detachably mounted on the cross arms for movement thereon between the beam and the gunwale clamps, second gunwale clamps carried by the carriages and extending downwardly therefrom in parallel relation to the first mentioned gunwale clamps, a mast socket carried by the beam and extending upwardly therefrom adjacent one end thereof, and a rudder demountably connected to the beam and extending downwardly therefrom adjacent the end thereof remote from the mast socket.

Other features include a centerboard carried by the beam for movement therebeneath in a vertical arcuate path, struts detachably connected to the cross arms and extending therebetween adjacent opposite ends thereof, and a bowsprit detachably carried by the beam and extending longitudinally outwardly therefrom adjacent the mast socket.

In the drawings:

Figure 1 is a top plan view of a unit embodying the features of this invention, showing it assembled and mounted on a pair of twin hulls,

Figure 2 is a longitudinal sectional view taken substantially on the line 2—2 of Figure 1,

Figure 3 is a transverse sectional view taken substantially on the line 3—3 of Figure 1,

Figure 4 is a side view of a catamaran constructed by employing this knockdown unit,

Figure 5 is a perspective view of the beam,

Figure 6 is an exploded perspective view of the rudder mount and,

Figure 7 is an enlarged sectional view taken substantially on the line 7—7 of Figure 1.

Referring to the drawings in detail a beam **10** comprises an elongated rectangular plate having a group **12** of four equally spaced openings **14** extending therethrough adjacent one end thereof and a second group **16** of four equally spaced openings **18** extending therethrough adjacent the opposite end thereof. Carried by the beam **10** and extending upwardly therefrom within the group **12** of openings **14** is a mast socket **20** having a set screw **22** extending thereinto and threadedly engaged therewith. Extending

through the beam **10** adjacent the group **12** of openings **14** is an elongated longitudinally extending slot **24** and welded or otherwise fixed to the underside of the beam **10** adjacent opposite longitudinal side edges of the slot **24** are spaced parallel side plates **26** which define a pocket for receiving a centerboard to be more fully hereinafter described. Suitable angle braces **28** are welded or otherwise rigidly fixed to the beam **10** and side plates **26** to reinforce and stiffen the structure. Extending through the side plates adjacent their lower forward corners are aligning openings **30** for receiving a pivot pin **32** upon which is pivotally supported a centerboard **34** for movement in a vertical arcuate path from an active position as shown in Figure 2 to an inactive position in which it lies wholly within the confines of the plates **26**.

Detachably secured to the beam **10** as by bolts **36** which extend through the openings **14** in the group of openings **12** are the spaced parallel rails **38** of the forward cross arm designated generally **40** which extends transversely across the beam **10** in perpendicular relation thereto. Carried by the rails **38** and extending downwardly therefrom adjacent opposite ends are legs **42** and carried by said legs **42** and extending therebetween adjacent the lower ends therof are clamp pads **44** which are adapted to engage the outermost gunwales G of a pair of spaced parallel twin hulls H when the unit is in use. Carried by the legs **42** at opposite ends one of the rails **38** of the cross arm **40** are screw threaded studs **46** upn which are mounted for sliding movement clamp jaws **48** carrying clamp pads **50** which cooperate with the adjacent clamp pads **44** in engaging the outer gunwales G of a pair of twin hulls H and clamping the cross arm **40** thereto. Handled nuts **52** are threadedly engaged with the studs **46** for advancing the pads **50** toward the pads **44**.

Mounted for sliding movement on the rails **38** between the beam **10** and the legs **42** are upper and lower clamping plates **54** and **56** which define carriages **58** and are clampingly engaged in selected positions on the cross arm **40** by bolts **60** and wing nuts **62**. Carried by the lower plate **54** of each carriage **58** is an arm **64** which extends downwardly from its respective carriage and carries at its lower end a clamp pad **66** which is adapted to engage the inner gunwale G^1 of an adjacent hull H. Carried by and extending laterally from the arms **64** are threaded studs **68** upon which clamp jaws **70** are mounted to move. The clamp jaws **70** carry adjacent their lower ends clamp pads **72** which oppose the clamp pads **66** and cooperate therewith in clamping the gunwales G^1 to the arms **64**. Handled nuts **74** are threadedly engaged with the studs **68** for advancing the clamp pads **72** toward the clamp pads **66**.

Extending through the openings **18** of the group of openings **16** are bolts **76** which extend through spaced openings in spaced parallel rails **78** which define a cross arm designated generally **80** which extends perpendicularly across the beam **10** in spaced parallel relation to the cross arm **40**. Carriages **82** constructed identically to the carriages **58** are adjustably secured to the rails **78** by bolts **84** and wing nuts **86** and carried by the carriages **82** and extending downwardly therefrom in parallel relation to the arms **64** are arms which carry at their lower ends clamps identical in construction with the clamps previously described which engage the gunwale G^1 in spaced relation to the clamps carried by the arms **64**. Carried by the rails **78** and extending downwardly therefrom adjacent opposite ends thereof are legs **84** which carry clamps, which conform in all respects to the clamps previously described, for clampingly engaging the gunwales G in spaced relation to the cross arm **40**.

Struts **86** are detachably connected as by thumb screws **88** to the rails **38** and **78** and extend parallel to the beam **10** between the cross arms **40** and **80** adjacent opposite

ends thereof, and extending through each strut **86** adjacent the edge thereof adjacent the beam **10** is a longitudinal row of longitudinally spaced openings **90**.

Secured by the bolts **76** adjacent the end of the beam **10** remote from the mast socket **20** is a rudder supporting bracket **92** carrying a rearwardly extending collar **94** having a downwardly and forwardly inclined opening **96** extending therethrough. A tiller **98** is provided adjacent one end with an opening **100** which is adapted to register with the opening **96** and receive a pivot shaft **102** by means of which the tiller **98** is rotatably connected to the collar **94**. Carried by the tiller **98** and extending downwardly therefrom adjacent the pivot shaft are spaced parallel side plates **104** having aligned openings **106** extending therethrough for receiving a pivot pin **108** by means of which a rudder **110** is pivotally supported for arcuate movement between said side plates **104**. Eyes **112** are carried by the side plates **104** and align axially with the opening **100** in the tiller **98** for cooperation therewith in holding the rudder **110** and side plates **104** in proper position on the pivot shaft **102**. A stop collar **114** is mounted on the pivot shaft **102** for adjustment longitudinally thereon and is held in a selected position thereon by a thumb screw **116**.

Detachably connected by bolts **118** and wing nuts **120** to the beam **10** adjacent the mast socket **20** is a bowsprit **122** which extends longitudinally from the beam, and extending through the beam **10** adjacent opposite longitudinal sides thereof are rows of longitudinally spaced openings **124**.

Flexible canvas decks **126** are secured to the cross arms **40** and **80** and to opposite sides of the beam **10** by lacings **128** which lacings extend around certain of the rails **38** and **78** and through the openings **124** in the beam **10** and the openings **90** in the struts **86**. The beam **10** and struts **86** are provided at suitable locations with cleats **130** by which the ropes of the rigging may be made fast.

In use the unit is assembled by connecting the cross arms **40** and **80** to the beam **10** as previously described and connecting the rudder supporting bracket **92** in place as set forth. The struts **86** are then connected to the cross arms **40** and **80** to define a structure which is substantially square in plan. The clamps carried by the legs **42** and **84** are then engaged with the outermost gunwales G of a pair of spaced parallel twin hulls H after which the carriages **58** and **82** are moved along their respective cross arms to permit engagement of the clamps carried thereby with the gunwales G^1 of the hulls H. The carriages are then clamped in place by their respective clamping nuts **62** and **86** and the bowsprit **122** is connected to the beam **10** by the bolts **118** and wing nuts **120**. The tiller **98** is then mounted on the collar **94** with the openings **96** and **100** in registration after which the shaft **102** is passed through the aligned openings and the eyes **112** to pivotally support the rudder assembly in place. After thus assembling the unit a mast M may be inserted in the mast socket and suitable sails S may be mounted on the mast M.

Owing to the fact that the cross arms **40** and **80** are substantially equal in length to the beam **10** and that the struts **86** are also equal in length to the beam **10** it will be obvious that when the device is knocked down for transportation or storage it will occupy but a minimum of space.

What is claimed is:

1. A knockdown unit for converting a pair of twin hulls having gunwales into a sailing vessel of the catamaran type comprising a beam, longitudinally spaced parallel cross arms detachably connected to the beam and extending perpendicularly thereacross, a mast socket carried by the beam and extending upwardly therefrom adjacent one end thereof, a rudder detachably connected to the beam and extending downwardly therefrom adjacent the end thereof remote from the mast socket, gunwale engaging clamps carried by the cross arms and extending downwardly therefrom adjacent opposite ends thereof, and extending through each strut **86** adjacent the edge thereof adjacent the beam **10** is a longitudinal row of longitudinally spaced openings **90**.

tending downwardly therefrom adjacent opposite ends thereof, carriages detachably and adjustably carried by the cross arms between the beam and the gunwale engaging clamps, and second gunwale engaging clamps carried by the carriages and extending downwardly therefrom for cooperation with the first mentioned gunwale engaging clamps in holding twin hulls in spaced parallel relation beneath the cross arms and on opposite sides of the beam.

2. A knockdown unit for converting a pair of twin hulls having gunwales into a sailing vessel of the catamaran type comprising a beam, longitudinally spaced parallel cross arms detachably connected to the beam and extending perpendicularly thereacross, a mast socket carried by the beam and extending upwardly therefrom adjacent one end thereof, a rudder detachably connected to the beam and extending downwardly therefrom adjacent the end thereof remote from the mast socket, gunwale engaging clamps carried by the cross arms and extending downwardly therefrom adjacent opposite ends thereof, carriages detachably and adjustably carried by the cross arms between the beam and the gunwale engaging clamps, and second gunwale engaging clamps carried by the carriages and extending downwardly therefrom for cooperation with the first mentioned gunwale engaging clamps in holding twin hulls in spaced parallel relation beneath the cross arms and on opposite sides of the beam, and struts detachably connected to the cross arms and extending therebetween adjacent opposite ends thereof.

3. A knockdown unit for converting a pair of twin hulls having gunwales into a sailing vessel of the catamaran type comprising a beam, longitudinally spaced parallel cross arms detachably connected to the beam and extending perpendicularly thereacross, a mast socket carried by the beam and extending upwardly therefrom adjacent one end thereof, a rudder detachably connected to the beam and extending downwardly therefrom adjacent the end thereof remote from the mast socket, gunwale engaging clamps carried by the cross arms and extending downwardly therefrom adjacent opposite ends thereof, carriages detachably and adjustably carried by the cross arms between the beam and the gunwale engaging clamps, and second gunwale engaging clamps carried by the carriages and extending downwardly therefrom for cooperation with the first mentioned gunwale engaging clamps in holding twin hulls in spaced parallel relation beneath the cross arms and on opposite sides of the beam, and a bowsprit detachably connected to the cross arm adjacent the mast socket and extending outwardly therefrom in substantial alignment with the beam.

4. A knockdown unit for converting a pair of twin hulls having gunwales into a sailing vessel of the catamaran type comprising a beam, longitudinally spaced parallel cross arms detachably connected to the beam and extending perpendicularly thereacross, a mast socket carried by the beam and extending upwardly therefrom adjacent one end thereof, a rudder detachably connected to the beam and extending downwardly therefrom adjacent the end thereof remote from the mast socket, gunwale engaging clamps carried by the cross arms and extending downwardly therefrom adjacent opposite ends thereof, carriages detachably and adjustably carried by the cross arms between the beam and the gunwale engaging clamps, and second gunwale engaging clamps carried by the carriages and extending downwardly therefrom for cooperation with the first mentioned gunwale engaging clamps in holding twin hulls in spaced parallel relation beneath the cross arms and on opposite sides of the beam, said beam having an elongated longitudinal slot extending therethrough adjacent the mast socket, spaced parallel plates carried by the beam and extending downwardly therefrom adjacent opposite sides of the slot to define a centerboard receiving pocket, and a centerboard pivotally mounted on the plates for movement between the plates from an active position in which

the rear end of the centerboard extends below the centerboard pocket to an inactive position in which the centerboard lies wholly within said pocket.

5. A knockdown unit for converting a pair of twin hulls having gunwales into a sailing vessel of the catamaran type comprising a beam, longitudinally spaced parallel cross arms detachably connected to the beam and extending perpendicularly thereacross, a mast socket carried by the beam and extending upwardly therefrom adjacent one end thereof, a rudder detachably connected to the beam and extending downwardly therefrom adjacent the end thereof remote from the mast socket, gunwale engaging clamps carried by the cross arms and extending downwardly therefrom adjacent opposite ends thereof, carriages detachably and adjustably carried by the cross arms between the beam and the gunwale engaging clamps, and second gunwale engaging clamps carried by the carriages and extending downwardly therefrom for cooperation with the first mentioned gunwale engaging clamps in holding twin hulls in spaced parallel relation beneath the cross arms and on opposite sides of the beam, and struts detachably connected to the cross arms and extending therebetween adjacent opposite ends thereof, and the cross arms and the struts being of a length substantially equal to the length of the beam so that when the unit is disassembled and prepared for transportation or storage the ends of the beam, the cross arms and the struts will be substantially conterminous.

6. A knockdown unit for converting a pair of twin hulls having gunwales into a sailing vessel of the catamaran type comprising a beam, longitudinally spaced

parallel cross arms detachably connected to the beam and extending perpendicularly thereacross, a mast socket carried by the beam and extending upwardly therefrom adjacent one end thereof, a rudder detachably connected to the beam and extending downwardly therefrom adjacent the end thereof remote from the mast socket, gunwale engaging clamps carried by the cross arms and extending downwardly therefrom adjacent opposite ends thereof, carriages detachably and adjustably carried by the cross arms between the beam and the gunwale engaging clamps, and second gunwale engaging clamps carried by the carriages and extending downwardly therefrom for cooperation with the first mentioned gunwale engaging clamps in holding twin hulls in spaced parallel relation beneath the cross arms and on opposite sides of the beam, and struts detachably connected to the cross arms and extending therebetween adjacent opposite ends thereof to define a rectangular frame on each side of the beam, and a canvas deck demountably supported by each frame and extending across a hull above the top thereof.

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