Performance Work Statement (PWS)
for
Port Security Barrier (PSB) Operations Support

1.0 INTRODUCTION

Commander, U.S. Fleet Forces Command (USFF) requires support services for the operation of the Port Security Barrier (PSB) system installed at the Marine Hydraulics International, Inc. (MHI) Facility Pier. There is approximately 1400 feet of PSB barrier located at MHI Norfolk. One 700 foot barrier for the North side of MHI Norfolk contractor facility pier and one 700 foot barrier for the South side of MHI Norfolk contractor facility pier.

2.0 SCOPE

2.1 *Description of Services*

2.1.1 The contractor shall provide all labor, supervision, both administrative and technical to coordinate and assure effective completion of all service support for operation of the Nixon/Seelig/Slaughter patented PSB system at MHI Norfolk, VA. Operations will be conducted on an as needed basis.

2.1.2 The contractor shall be responsible for executing the required openings and closings of the security barrier system to allow authorized transit while maintaining the highest level of security around the high value assets. For the purposes of this service support contract, the payable level of effort will be calculated by "cycles" with One cycle = 1 open and 1 close function. The estimated level of work is 3 cycles per week.

2.1.3 To the best of the contractor's ability, operations will be conducted without interfering with vessel traffic or causing hazards to navigation, while and complying with USCG and Harbor Operations. Contractor will utilize vessel(s) that can safely and expeditiously maneuver the PSBs as required.

During the period of performance, the contractor will ensure the Port Security Barrier (PSB) system is:

- Opened as directed by an authorized Government Representative
- Closed upon entering and exiting all secured areas
- Tended for special evolutions
- Supported for unannounced and emergent events that require immediate opening and closing of the barriers.

2.2 Environmental Conditions

2.2.1 During the course of the year, environmental conditions may become unsafe to open and close the barrier system during heavy weather, hurricanes, tropical storms, nor'easters,

and winter storms. During such conditions the PSB system may require additional tug support to open or make it passable for ships. During extreme conditions the contractor shall exercise its own judgment regarding the safety of the requested evolution. Should the contractor feel the situation poses a credible safety threat it will notify the appropriate government official citing the concern and recommendation for any alternate execution campaigns. Extreme condition situations will be handled on a case by case basis. Safety of the contractor's vessels and crew are paramount.

2.3 *Scheduling*

2.3.1 When feasible, the appropriate government official should provide a movement notice at least 24 hours in advance, or as soon as possible to the contractor.

3.0 MANAGEMENT AND ADMINISTRATION

3.1 *Management*

3.1.1 The Contractor shall manage the total work effort associated with the services required herein to meet performance objectives of this PWS. Such management includes but is not limited to planning, scheduling, cost accounting, report preparation, establishing and maintaining records, and quality control. The contractor shall provide staff with the necessary management expertise to assure successful contract performance.

3.1.2 The contractor shall comply with all required local, state, and federal permits, licenses, and authorizations to perform work under this contract and comply with all the applicable federal, state and local laws and regulations.

3.1.3 The contractor shall conduct inspections of its work crew to ensure that all contracted operations are being conducted safely. These inspections shall ensure the site is safe and free of job-site hazards, proper Personal Protective Equipment (PPE) is being utilized and worn, safe work practices and processes are being followed and ensure workers are familiar with the hazards covered in the respective Activity Hazard Analysis (AHA) for that work activity.

4.0 INSURANCE

4.1 Contractor will maintain the following minimum insurance during contract execution.

a. Comprehensive General Liability: $500,000.00 per occurrence
b. Automobile Liability: Policy shall provide for bodily injury and property damage liability covering the operation of all automobiles used in connection with performance of this contract in the following amounts: $200,000.00 per person and $500,000.00 per occurrence for bodily injury and $20,000 per occurrence for property damage.
c. Workmen's Compensation and Employer's Liability Insurance (or where maritime employment is involved, Longshoremen's and Harbor Worker's Compensation

Insurance): In the minimum of $100,000.00. A certificate of this insurance shall be provided to the contracting officer before commencing work under this contract.

5.0 PERIOD OF PERFORMANCE

Current requirement is for a period of 2.5 months of service. The start of service will commence following the completion of installation of the barriers. Full period of performance details to include start date will be detailed in the final contract.

6.0 ENTERPRISE-WIDE CONTRACTOR MANPOWER REPORTING APPLICATION (ECMRA)

The contractor shall report contractor labor hours (including subcontractor labor hours) required for performance of services provided under this contract for the [NAMED COMPONENT] via a secure data collection site. Contracted services excluded from reporting are based on Product Service Codes (PSCs). The excluded PSCs are:

(1) W, Lease/Rental of Equipment;
(2) X, Lease/Rental of Facilities;
(3) Y, Construction of Structures and Facilities;
(4) S, Utilities ONLY;
(5) V, Freight and Shipping ONLY.

The contractor is required to completely fill in all required data fields using the following web address https://doncmra.nmci.navy.mil.

Reporting inputs will be for the labor executed during the period of performance during each Government fiscal year (FY), which runs October 1 through September 30. While inputs may be reported any time during the FY, all data shall be reported no later than October 31 of each calendar year. Contractors may direct questions to the help desk, linked at https://doncmra.nmci.navy.mil.

7.0 Port Security Barrier (PSB) Specifications

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Nixon et al.

(10) **Patent No.: US 7,401,565 B2**
(45) **Date of Patent: Jul. 22, 2008**

(54) **PORT SECURITY BARRIER**

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(73) Assignee: **United States of America as represented by the Secretary of the Navy**, Washington, DC (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 80 days.

(21) Appl. No.: **11/602,429**

(22) Filed: **Nov. 6, 2006**

(65) **Prior Publication Data**

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(51) **Int. Cl.**
B63G 9/04 (2006.01)

(52) **U.S. Cl.** ..... **114/241**; 114/240 C; 114/240 D; 114/240 E

(58) **Field of Classification Search** ..... 114/241, 114/240 R, 240 E, 240 D, 240 C
See application file for complete search history.

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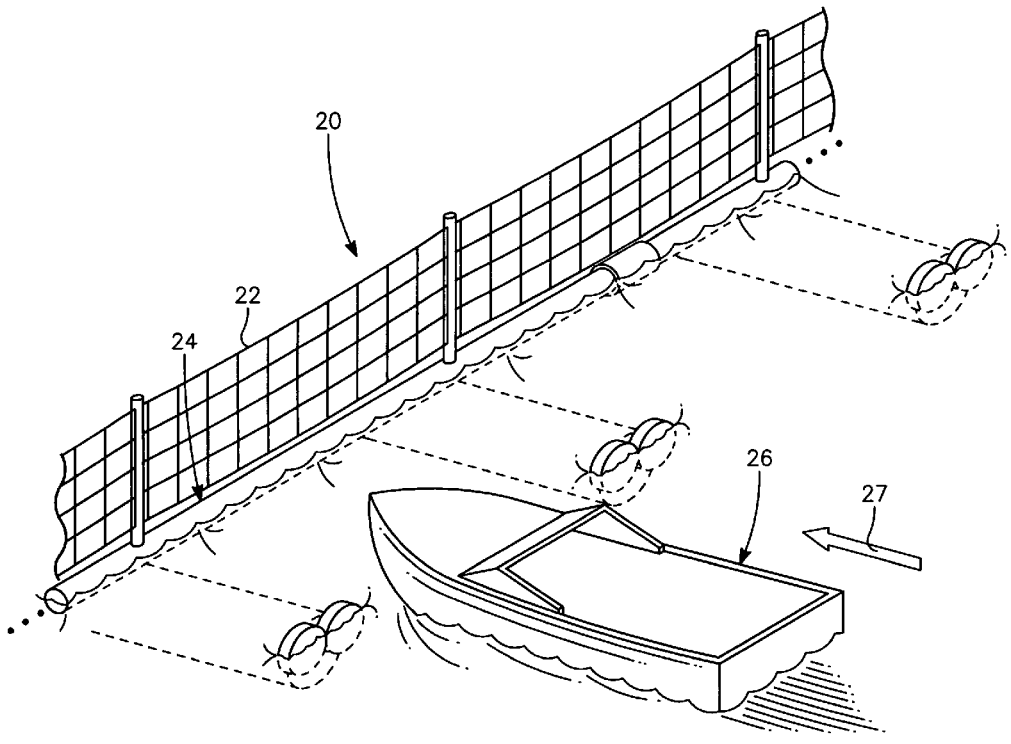
(57) **ABSTRACT**

The port security barrier includes multiple barrier float assemblies connected to one another to form a barrier to stop, delay and discourage attacks by high speed boats of sixty five feet or less in length on high valued waterfront assets such as ports and docking facilities. The port security barrier includes multiple barrier floats coupled to one another by flange connectors. Each barrier float assembly also has a capture nylon net which is used to capture the high speeds and prevent an intrusion into restricted waters.

14 Claims, 8 Drawing Sheets



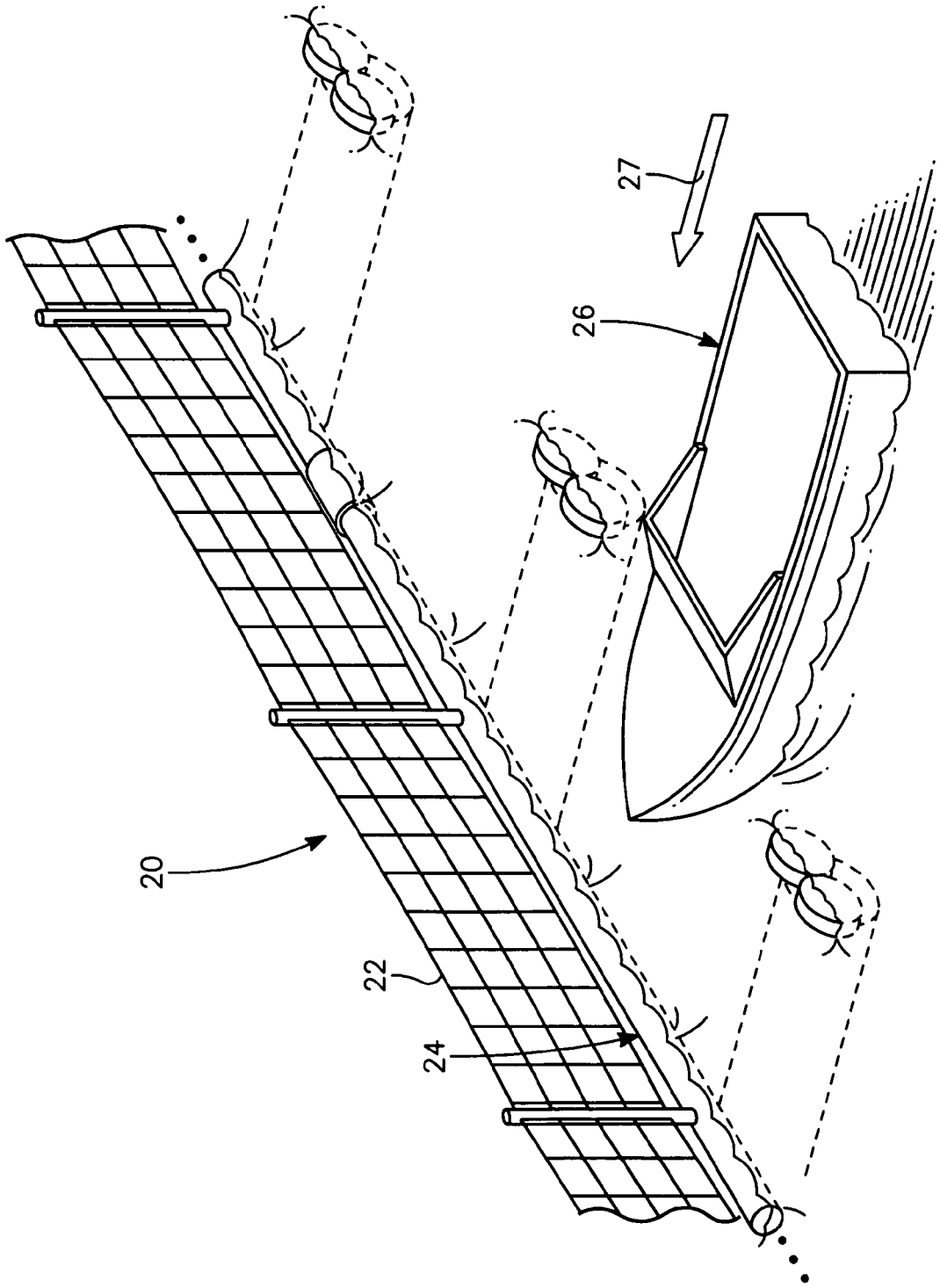


FIG. 1

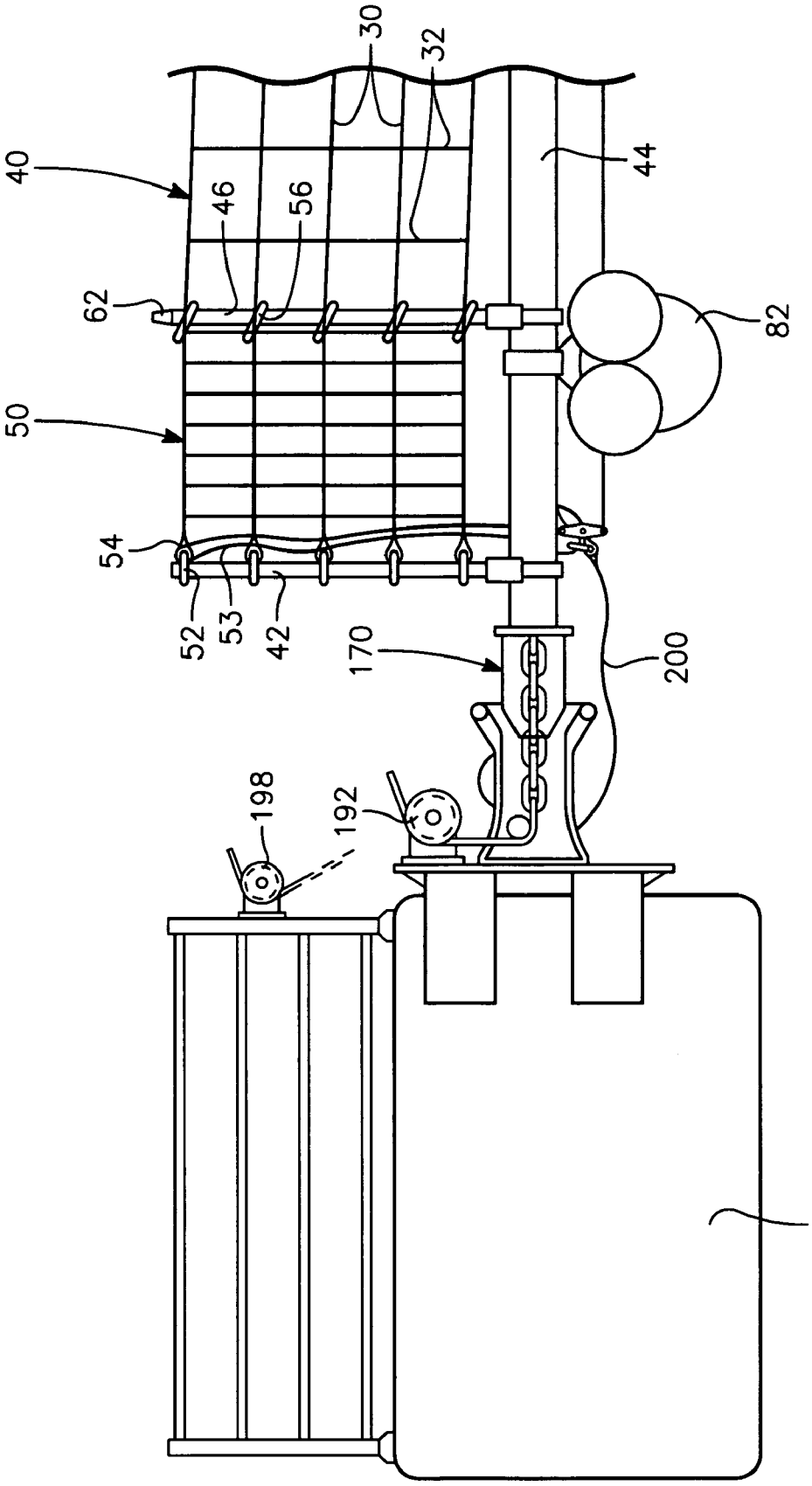


FIG. 2

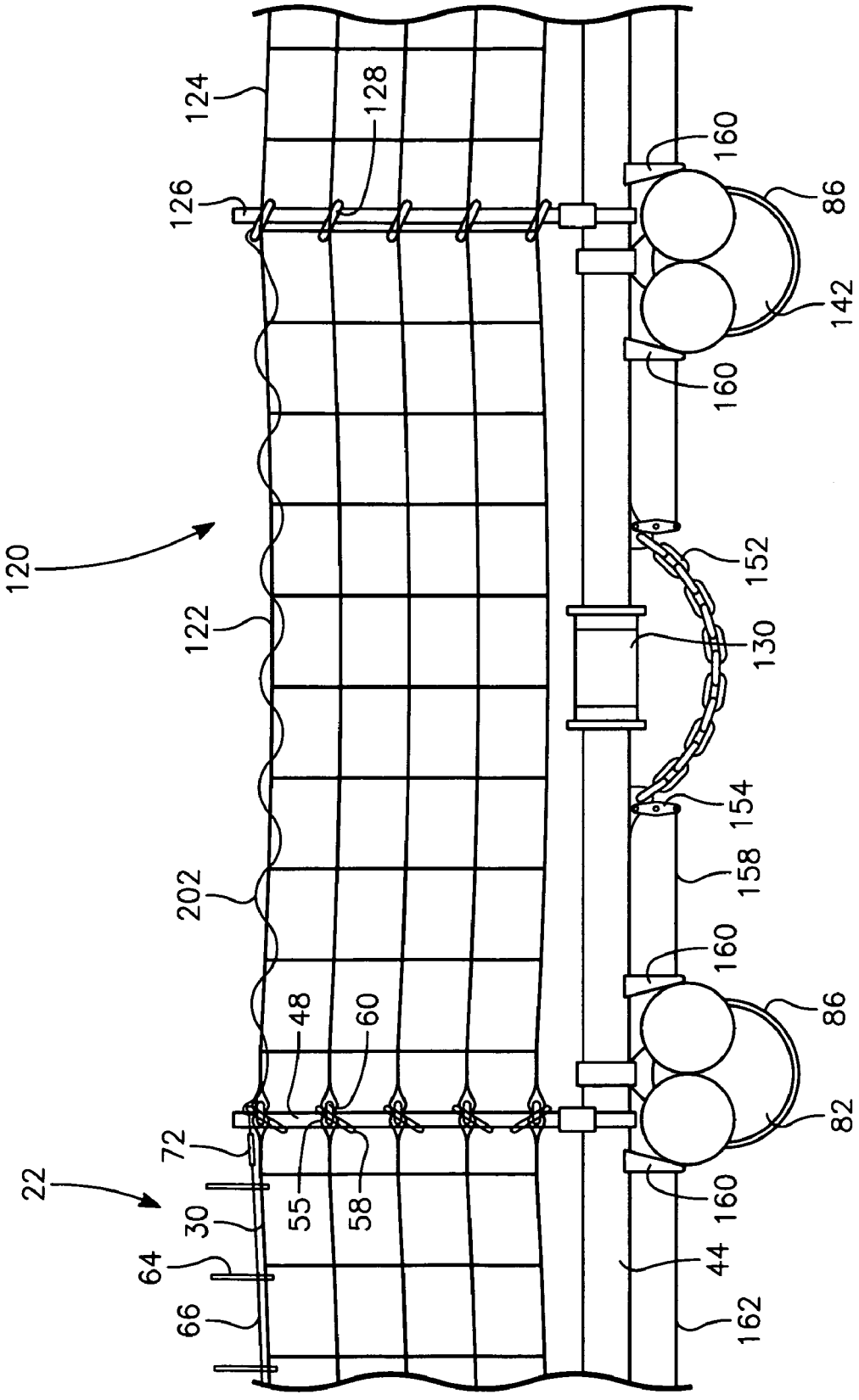
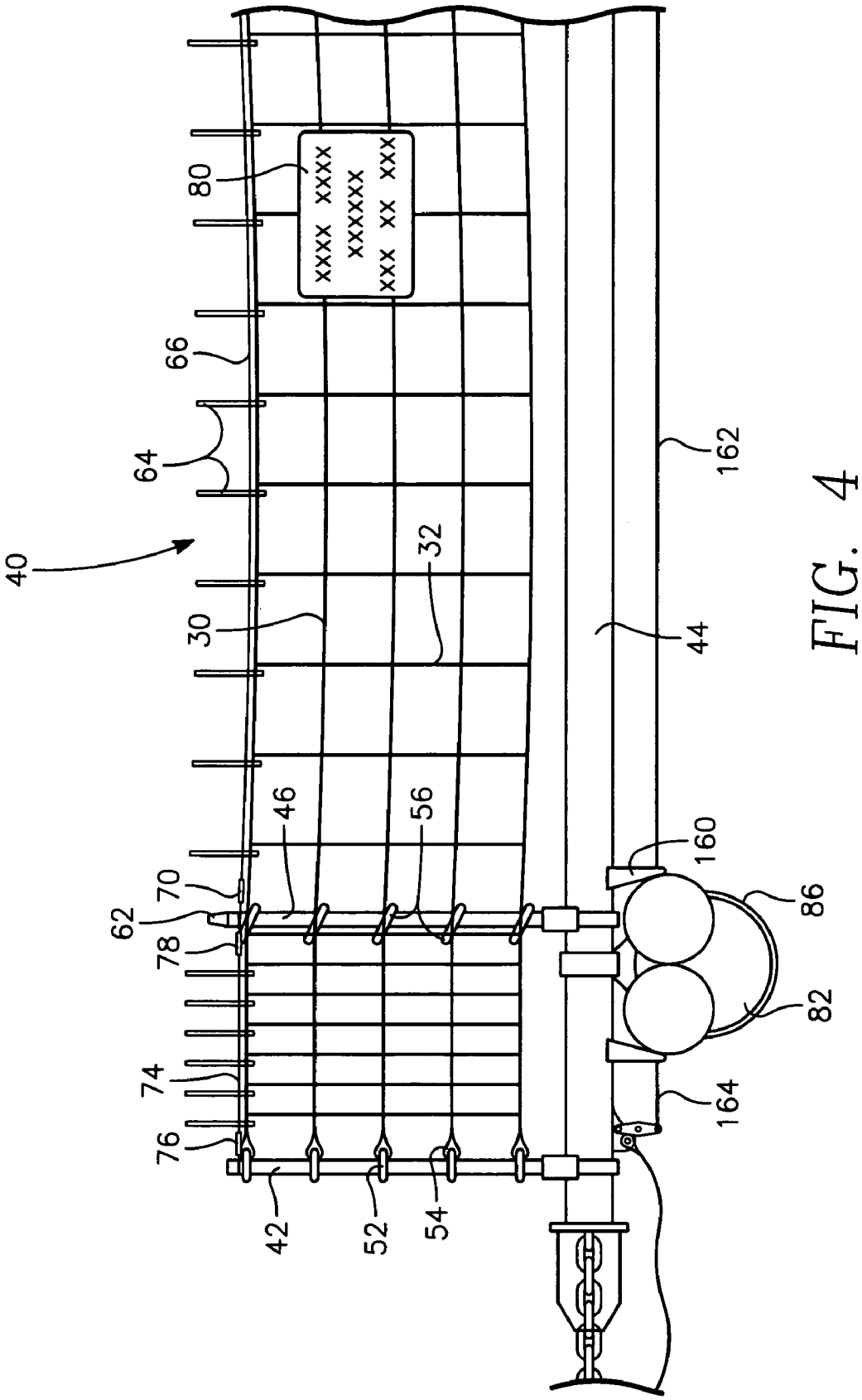

120
22
124
126
128
122
202
72
30
64
66
48
60
55
58
160
86
142
152
130
154
158
44
162
82

FIG. 3


40
80
xxxx xxxx
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xxx xx xxx
66
64
32
30
46
56
62
70
78
74
76
42
52
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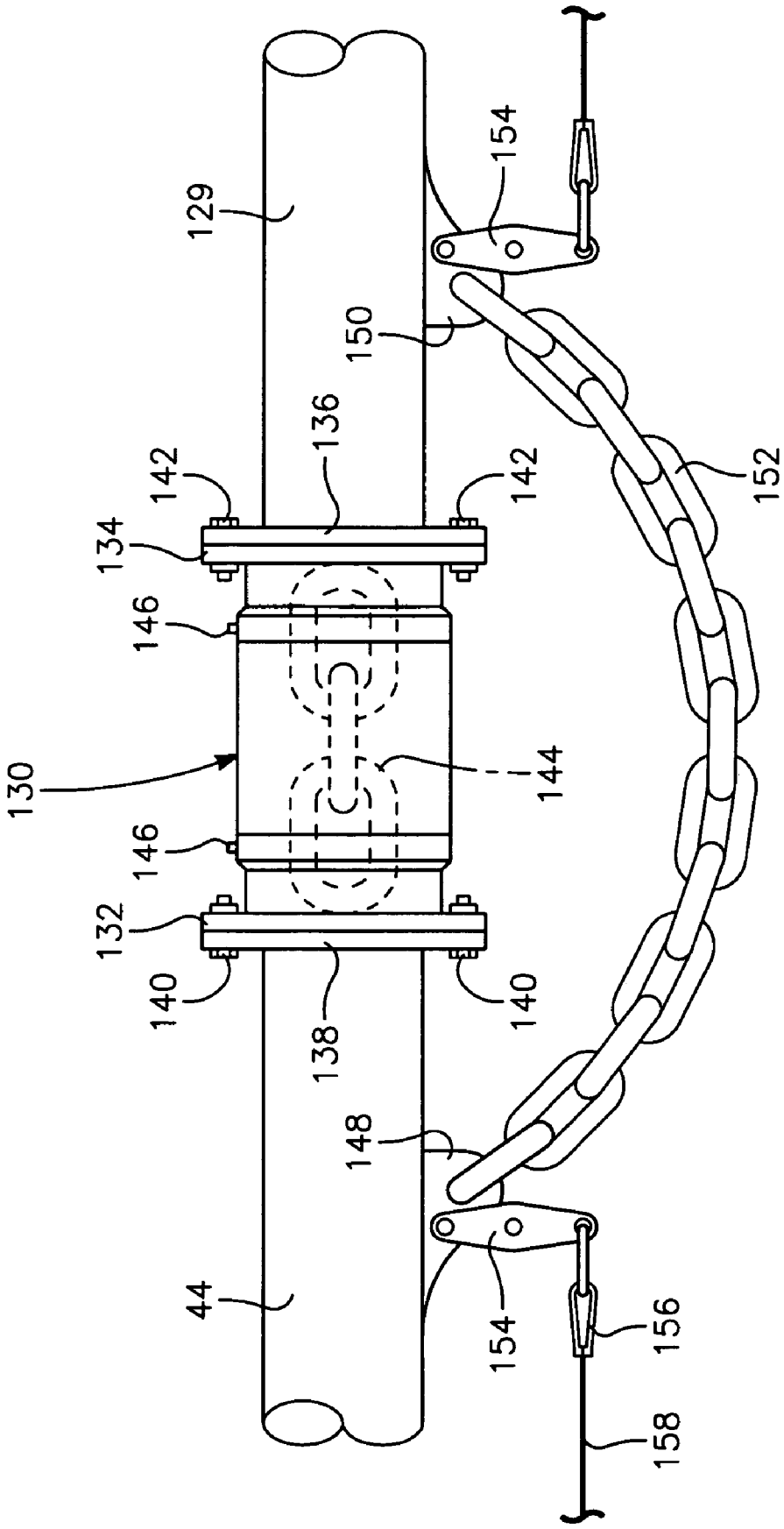
162
44
160
86
82
164

FIG. 4


129
154
150
136
142
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152
134
146
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144
146
132
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138
148
44
154
156
158

FIG. 5

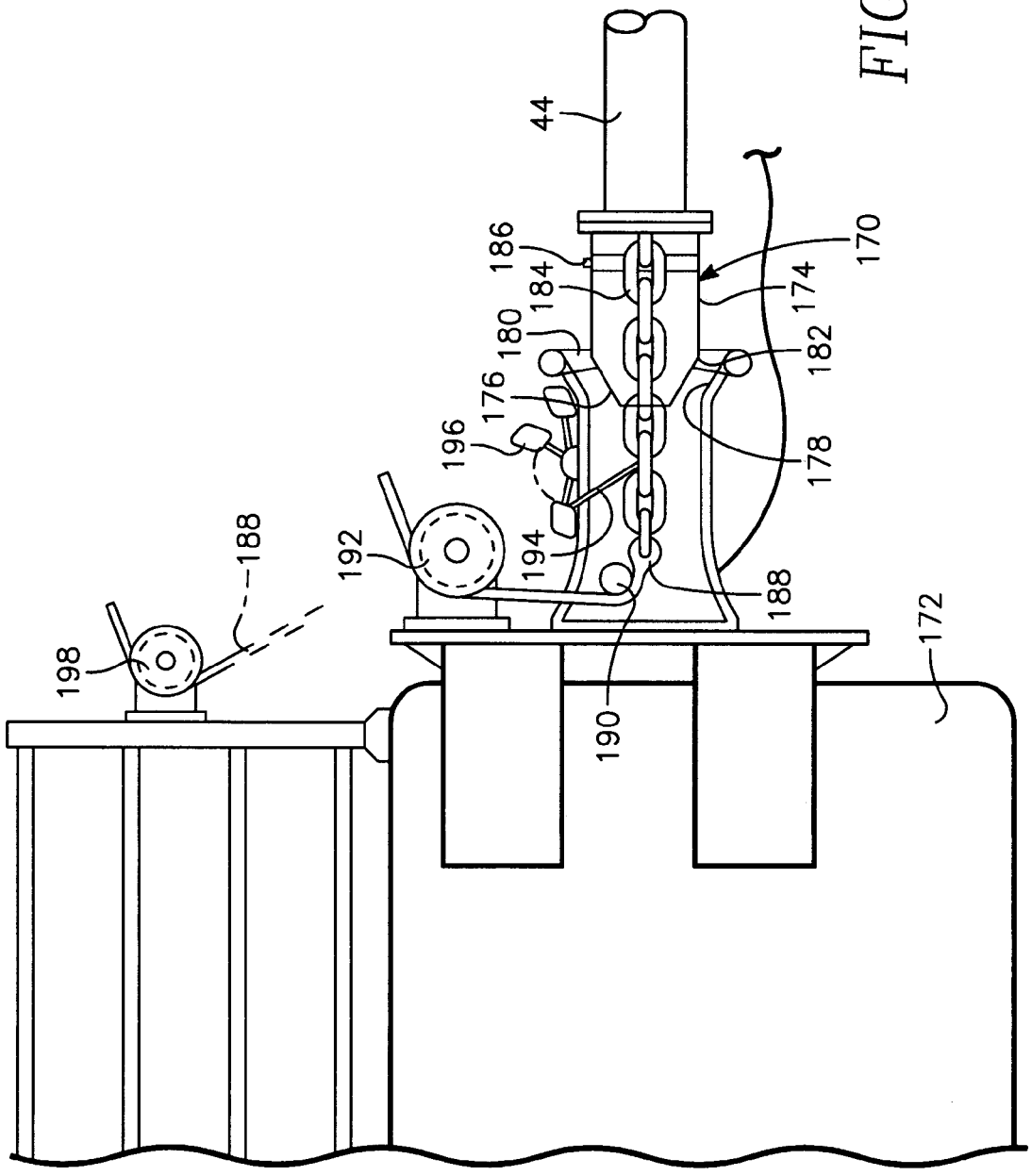
44
186
184
180
176
196
194
192
188
198
190
172
170
174
182
178
188

FIG. 6

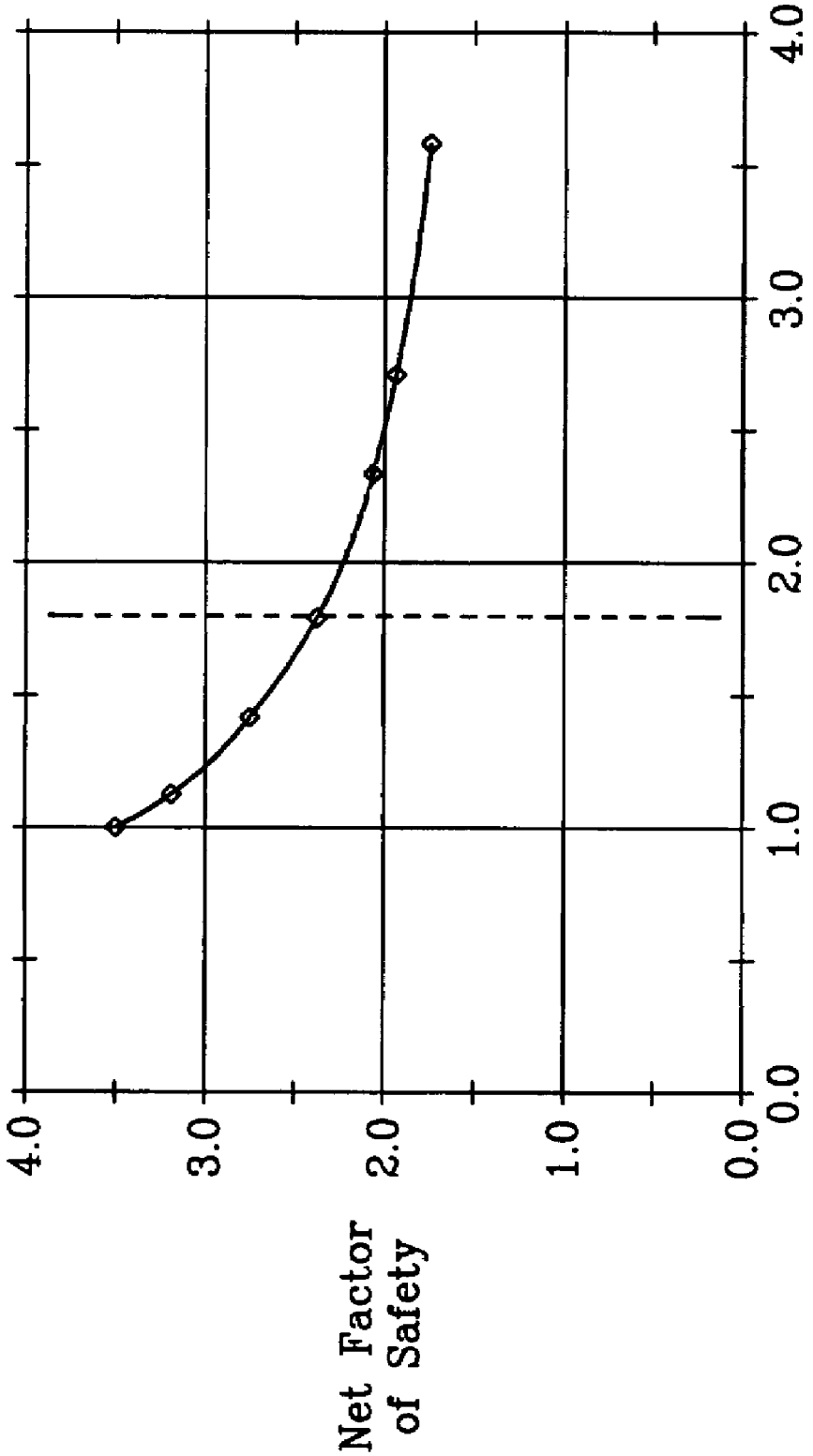
Net Factor of Safety
4.0
3.0
2.0
1.0
0.0
0.0
1.0
2.0
3.0
4.0
Boat Initial Kinetic Energy (million ft lbf)

FIG. 7

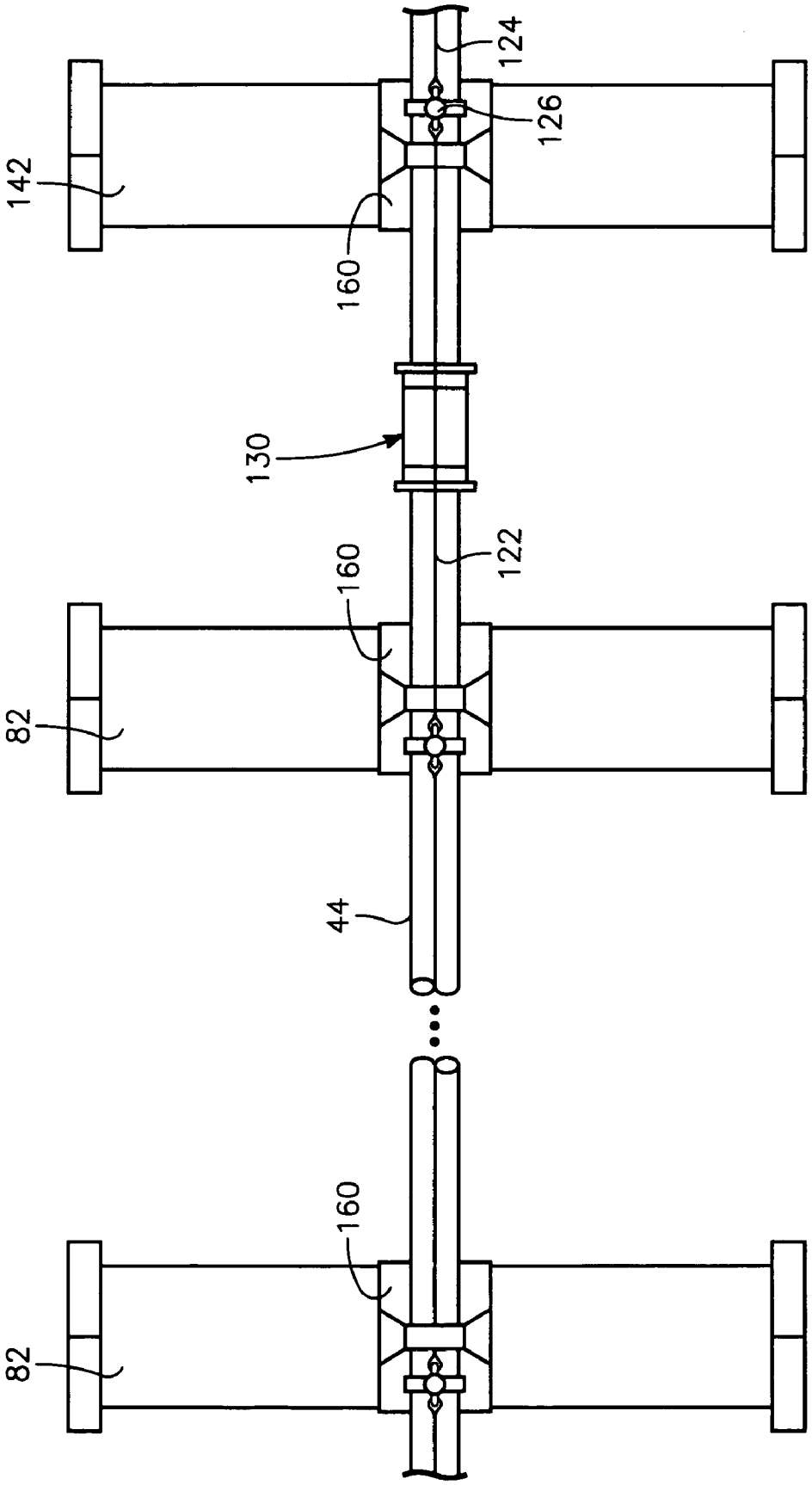

FIG. 8

PORT SECURITY BARRIER

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates generally to a security barrier for use at a port or the entrance to an inland waterway which receives ships laden with cargo or military watercraft. More specifically, the present invention relates to a port security barrier which is economical, easy to transport and assemble and provides sufficient strength to stop, delay and discourage attacks by boats of 65 feet or less in length on high valued waterfront assets.

2. Description of the Prior Art

There is currently a need within the Department of the Navy to provide protection for military watercraft which are moored at ports or inland waterways. In particular, there is a need to provide protection for military watercraft against explosive laden boats while the watercraft are moored at a port or an inland waterway.

There is also need to keep initial cost as low as possible and also meet military security requirements by (1) making the barrier as light as practical; (2) using low-cost standard materials where ever practical; (3) making the system as simple as possible; and (4) making the barrier easy to assemble and deploy.

Maintenance cost of the port security barrier are also a consideration. Low maintenance cost are generally achieved by using composite materials and keeping the port security barrier simple and minimizing the number parts required to keep the barrier operational.

Further operational cost need to be kept at low levels. Low operational cost can be achieved by the port security barrier light weight and keeping wind, current and wave loading on the barrier as low as practical so that operators can easily open and close barrier gates.

SUMMARY OF THE INVENTION

The present invention overcomes some of the difficulties of the past including those mentioned above in that it comprises a relatively simple in design, light weight and easy to relocate port security barrier which is designed to protect watercraft and ocean going vessels from attack by explosive laden boats which are generally 65 feet or less in length and travel at speeds of 50 knots or greater.

The port security barrier includes multiple barrier float assemblies connected to one another to form the barrier. Each barrier float assembly is approximately 40 feet in length and includes two pontoons which are located near each end of the assembly. The barrier float assembly also has a main longitudinal net support beam which includes a pair of net fence post located near each end of the longitudinal net support beam. The fence post provide support for a horizontal line or wire to which is attached a nylon barrier net, which functions as a capture net. The nylon barrier net operates as the capture mechanism for the port security barrier preventing a high speed boat from entering a restricted port area.

A pair of identical saddle and belly band assemblies secure each of the pontoons to the main longitudinal net support beam. A flanged sleeve connector is used to secure adjacent barrier float assemblies to each other.

One end of the barrier float assembly is designed to accommodate a latching mechanism that is used to couple the barrier float assembly to a mooring buoy. The latching mechanism allows the barrier float assembly to be swung open and then closed acting as a gate for vessel traffic which passes through the assembly into and out of a port facility.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a view of the port security barrier which is used to stop explosive laden watercraft from entering a restricted area such as a port;

FIG. **2** is an overall view of the port security barrier of FIG. **1** when connected to a buoy;

FIG. **3** is a view illustrating the connection of one barrier float assembly to an adjacent barrier float assembly within the port security barrier of FIG. **1**;

FIG. **4** is a detailed view illustrating one of the barrier float assembly for the port security barrier of FIG. **1**;

FIG. **5** is a detailed view of the flange sleeve connector and safety chain of FIG. **3**;

FIG. **6** is a detailed view of a latch connector assembly and the latch connector receiver of FIG. **2**;

FIG. **7** is a plot which illustrates the design kinetic energy for the port security barrier as a function of the net factor of safety; and

FIG. **8** is a top view of the port security barrier which is used to stop explosive laden watercraft from entering a restricted area such as a port.

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT

Referring to FIGS. **1-4**, the port security barrier **20** is a moored nylon barrier net **22** and pontoon structure **24** that provides waterfront security to stop, delay or discourage attack by boats **26** of 65 feet less on high value waterfront assets. The nylon net **22**, it attachments and connection to its moorings provide the main boat stopping capability for boats traveling in the direction indicated by arrow **27**. The supporting pontoon structure **24** holds the nylon net **22** in position and also serves to dissipate a portion of the kinetic energy from the attacking boat **26**.

The port security barrier **20** is designed to protect ocean going vessels and watercraft and stop approximately 99.9% of United States commercial boats with a minimum working stopping capacity of approximately 1.8 million foot-pounds of kinetic energy. The barrier **20** also has a factor of safety to increase net replacement time, thus, the net boat stopping capacity is approximately 3.6 million foot-pounds.

The nylon net **22** has five horizontal members **30** of ¾ inch diameter nylon with a spacing of 15 inches and 21 vertical members/nylon ropes **32** of ⅝-inch diameter nylon with a spacing of 24 inches. The nylon net **22** generally has a length of 42 feet which is the approximate length of each barrier float assembly.

Net **22** in another embodiment comprises a mesh in which there is 13¾" spacing between horizontal ropes **30** and 18" spacing between vertical ropes **32**. The height of net **22** is five feet. In this embodiment the horizontal ropes **30** are ¾" 12-strand braided nylon, with a minimum breaking strength of 17,900-LBS. The vertical ropes are ⅝" or ¾" 12-plait nylon, with a minimum breaking strength of 13.900-LBS. Each rope **30** and **32** of nylon net **22** is pre-shrunk or stabilized against water shrinkage.

The capture net's horizontal members/ropes **30** and vertical members/ropes **32** that are integrally connected to one another such that tensile loads introduced into the capture net are distributed throughout the horizontal members **30** and the vertical members **32** of the capture net **22**.

Barrier float assembly **40** has a netting support structure consisting of a netting termination post **42** located near one end of the main longitudinal net support beam **44**, a fence post **46** located on net support beam **44** approximately 66-⅝" from termination post **42**, and a fence post **48** located near the other end of net support beam **44**.

The excess netting portion **50** located at the left end of net **22** is secured to netting termination post **42** by five anchor shackles **52** attached to termination post **42**. Each of the five horizontal ropes **30** has an eye loop **54** at the left end of the rope **30**. The eye loop **54** at the left end of each of the five horizontal ropes **30** of net **22** secures the left end of the rope **30** to one of the anchor shackles **52** attached to termination post **42**.

There is a lanyard **53** in proximity to each termination post **42**. Lanyard **53** has a minimum breaking strength of 90,000 pounds.

At this time it should be noted that the barrier float assemblies which are at the end of a chain of barrier float assemblies, such as barrier float assembly **40** are the only assemblies which include a netting termination post.

Wire ties **56** are used to secure the five horizontal ropes **30** of net **22** to fence post **46**. In a like manner, wire ties **58** are used to secure the eye loop **55** at the right end of each horizontal rope **30** to the fence post **48**. Five anchor shackles **60** are attached to fence post **48** which are also used to secure the five horizontal ropes **30** of net **22** to fence post **48**. The eye loops **54** and **55** are 9-inch inside length at each end of the rope **30** with a 4-3-2 plated rope splice.

Nylon net **122** is the section of the barrier net **124** positioned between adjacent barrier float assemblies **40** and **120** The five anchor shackles **60** secure the left end of nylon net **122** to net post **48**. The right end of nylon net **122** is secured to fence post **126** by five wire ties **128**.

At this time it should be noted that a portion of the nylon capture net at one of each of the barrier float assemblies overlaps the adjacent barrier float assembly and is attached to one of the fence post of the adjacent barrier float assembly. For example, nylon net **122** is the portion of nylon capture net **124** for barrier float assembly **120** which is attached the right fence post **48** of barrier float assembly **40**,

At this time it should also be noted that the vertical and horizontal ropes used to assemble the barrier net **22** are coated with a marine grade finish (various colors) at the time of manufacture to minimize nylon shrinkage caused by exposure to water. A polyurethane water base coating (maximum allowable dilution rate =2 parts water to 1 part polyurethane) is applied as a final UV protection to each rope **30** and **32** of nylon net **22**.

Positioned a top fence post **46** is an aid to navigation light **62** which is set to various flash patterns. The flashing navigation lights are installed on every other barrier float.

A horizontal galvanized or stainless steel wire rope **66** is supported above the upper horizontal rope **30** of nylon net **22**. Steel wire rope **66** is secured at one end to fence post **46** by a turnbuckle and sleeve compression assembly **70**. Steel wire rope **66** is secured at the opposite end to fence post **48** by a sleeve compression assembly **72**. The turnbuckle of turnbuckle and sleeve compression assembly **70** allows a user to adjust steel wire rope **66** such that rope **66** drops no more than six inches between fence post **66** and **68** with nylon net **22** installed.

Between fence post of the port security barrier **20**, the upper horizontal net rope **30** is secured to the wire rope **66** with wire ties **64** spaced approximately 18-inches apart. The tail end of the wire ties **64** also serve as a bird deterrent.

Similarly, a horizontal galvanized or stainless steel wire rope **74** is supported above the upper horizontal rope **30** within the excess netting portion **50** of nylon net **22**. Steel wire rope **74** is secured at one end to netting termination post **42** by a turnbuckle and sleeve compression assembly **76**. Steel wire rope **74** is secured at the opposite end to fence post **46** by a sleeve compression assembly **78**.

A warning sign **80** which warns an intruder that access to the area beyond barrier **20** is restricted is affixed to the nylon net **22**. Warning sign **80** is an etched metal sign inscribed in 3-inch high letters and is hung on nylon net **22** from the threat side of the netting clear of the net support structure. One warning sign is hung on every second barrier float.

Located near each end of the main longitudinal net support beam **44** of barrier float assembly **40**, are two 14-foot long 24-inch OD pontoons **82** and **84**. Pontoons **82** and **84** are either foam filled or have an interior which hollow, i.e. not filled with foam. The pontoons **82** and **84** of barrier float assembly **40** are generally perpendicular to the main net support beam **44** of barrier float assembly and are spaced approximately 26 feet apart center line to center line.

The main longitudinal beam **44** used in the preferred embodiment is a 12×8×¼ inch structural steel beam, which is chemical and corrosion resistant. A pair of identical saddle and belly band assemblies **86** secure each of the foam filled pontoons **82** and **84** to the main longitudinal net support beam **44**.

It should be noted that other types of beams could be used as the main longitudinal support beam. For example, a 12.75-inch OD HDPE (high density polyethylene) beam could be used as the main longitudinal beam for port security barrier **20**. This type of beam is extremely chemical and corrosion resistant and would provide more than adequate protection from the corrosive effects of seawater.

Similarly barrier float assembly **120** has a main net support beam **140** and a pair of foam filled pontoons **142** and also a nylon net **124** which operates as a capture net to deter high speed watercraft from entering a restricted area such as a military ship docking facility.

The overall length of each of each barrier float assembly **40** and **120** is approximately 40 feet.

Referring to FIG. **5**, there is shown a flanged sleeve connector **130** which connects the longitudinal net support beam **44** for barrier float assembly **40** to the longitudinal net support beam **129** for barrier float assembly **120**. There is located at the ends of connector **130** a pair of flanges **132** and **134**. Flange **132** of connector **130** aligns with flange **138** of support beam **44** and eight bolts and nuts **140** are used to affix flange **132** to flange **138**. In the same manner, flange **134** of connector **130** aligns with flange **136** of support beam **129** and eight bolts and nuts **142** are used to affix flange **132** to flange **138**. Centrally located within each flange sleeve connector **130** is a section of chain **144** which is held in position within connector **130** by a pair of pins **146** inserted into connector **130**, such that the structural loads are carried from support beam **44** through flanges **138** and **132**, next through chain **144** and then through **134** and **136** to support beam **129**. The chain **144** is encased within a urethane compound in connector **130** in order to allow the connector **130** to transfer loads in compression as well as limit wear and bending.

Attached to longitudinal net support beam **44** is a tow bracket **148** which is positioned inward from flange **138** of support beam **44**. Attached to longitudinal net support beam **129** is a tow bracket **150** which is positioned inward from flange **136** of support beam **129**. The tow brackets **148** and **150** are used to secure a safety chain **152** to each of longitu-

dinal net support beams **44** and **129** when the support beams **44** and **129** are connected as shown in FIG. **5**.

The safety chain assemblies **152** are 11 chain links long plus two end links or two detachable links suitable for assembly to shackles **149** at each end of chain **152**. The shackles **149** are secured to tow brackets **148** and **152**.

Each tow bracket **148** and **150** also has a kayak wire support bracket **154**. Attached to kayak wire support bracket **154** is a turnbuckle **156** for one end of a kayak guard wire **158**. The other end of kayak guard wire **158** is secured to a kayak wire support bracket **160** attached to support beam **44** adjacent pontoon **82**. Kayak guard wires **158**, **162** and **164** run the length of support beam **44** to prevent kayak and canoes from passing underneath the port security barrier into restricted waters.

Referring to FIGS. **2** and **6**, there is shown a latch connector assembly **170** which secures the main longitudinal net support beam **44** for barrier float assembly **40** to a buoy **172**. Attached to the longitudinal net support beam **44** which is connected to buoy **172** is a latch connector spear element **174**. Latch connector spear **174** has at one end an angled surface **176** which is angled inward in the manner shown in FIG. **6**. Mounted on buoy **172** is a latch connector receiver **178** which has an alignment member **180**. The alignment member **180** has an inner surface **182** which is angled so as to receive and mate with the angled surface **176** of connector spear **174** and secure the support beam **44** to latch connector receiver **178**.

A tension element **184** is centrally located in the latch connector spear **174**. A pin **186** is used to secure one end of tension element **184**. The opposite end of tension element **184** is connected to a lanyard **188**. Lanyard **188** engages a pair of sheaves **190** and **192** mounted on buoy **72** has its opposite connected to a tug boat (not illustrated). When it is desired to close the latch connector assembly **170**, the tug boat pulls the lanyard **188** around the sheaves **190** and **192** in a clockwise direction, which pulls the tension element **184** and connector spear **174** into the interior of latch connector receiver **178**.

The latch connector receiver **178** has a locking element **194** in its interior which engages either tension element **184** or another component of the connector spear **174** in the manner illustrated in FIG. **6**, to prevent rearward movement of the tension element **184**, thereby securing the connector spear **174** and thus the main longitudinal net support beam **44** to buoy **172**. The locking element **194** has a release handle **196** which allows a user disengage the locking element **194** from the tension element **184** and release the latch connector spear **174** from the latch connector receiver **178**. This, in turn, results in the barrier float assembly **40** being released from buoy **172**.

A hand winch **198** mounted on buoy **172** can also be used to secure barrier float assembly **40** to buoy **172**. One end of lanyard **188** is rotatably connected to the hand winch **198** while the other end of lanyard **188** is connected to tension element **184**. By rotating the winch **198** in a counter-clockwise direction the user draws the latch connector spear **174** into the latch connector receiver **178** securing the main longitudinal net support beam **44** of barrier float assembly **40** to buoy **172**.

Other connectors could be used to secure the main longitudinal net support beam **44** for barrier float assembly **40** to a buoy **172**. For example, the connector could be a high strength flexible wire rope or a nylon rope have similar characteristics.

A safety line **200** (FIG. **2**) is strung between the main longitudinal net support beam **44** for barrier float assembly **40** and the buoy **172**. The safety line **200** is 1-⅛" diameter lanyard which has an overall length of approximately ten feet. Safety line **200** also functions as a tow line.

There is also a ½-inch diameter support rope **202** (FIG. **3**) strung between fence post **48** and fence post **126** along the upper edge of nylon net **122**. This support rope **202** provides support for the nylon barrier net between adjacent barrier float assemblies **40** and **120**.

Referring to FIGS. **1** and **7**, there is shown a plot in FIG. **7** which illustrates the design kinetic energy for the port security barrier **20** as a function of the net factor of safety. The design kinetic energy for port security barrier **20** is 1.8 million foot pounds, which corresponds to a 50-knot initial boat speed for a 16,700 pound boat. The nylon barrier net **22** is loaded very quickly and reaches peak tension at approximately 1.4 seconds after the boat **26** reaches the port security barrier **20**. The port security barrier **20** stops the attacking boat **26** in approximately three boat lengths. The plot of FIG. **7** shows that the net **22** provides the required stopping capacity with a factor of safety of 2.3 for the barrier designed kinetic energy of 1.8 million foot pounds. The net factor of safety is 1.8 for a boat with an initial kinetic energy of 3.6 million foot pounds.

From the foregoing, it is readily apparent that the present invention comprises a new, unique, and exceedingly useful low cost port security barrier for preventing attack watercraft from entering a restricted port area, which constitutes a considerable improvement over the known prior art. Many modifications and variations of the present invention are possible in light of the above teachings. It is to be understood that within the scope of the appended claims the invention may be practiced otherwise than as specifically described.

What is claimed is:

1. A port security barrier for protecting a port facility from a waterborne craft laden with explosives, said port security barrier comprising:

(a) a plurality of barrier float assemblies connected to one another to form a chain of connected barrier float assemblies to protect said port facility;

(b) each of said barrier float assemblies including:

(i) a longitudinal net support beam;

(ii) a generally rectangular shaped synthetic fiber capture net extending vertically upward from said longitudinal net support beam, said synthetic fiber capture net having a standard length which is approximately the length of said longitudinal net support beam, and a height which is sufficient to prevent said waterborne craft from penetrating said port facility wherein said synthetic fiber capture net has a plurality of equally spaced apart horizontal members and a plurality of equally spaced vertical members;

(iii) a netting support structure extending vertically upward from said longitudinal net support beam, said netting support structure including a pair of fence post affixed to said longitudinal net support beam wherein said pair of fence post are positioned inward a preselected distance from each end of said longitudinal net support beam and have said synthetic fiber capture net attached thereto; and

(iv) a pair of pontoons attached to said longitudinal net support beam and orientated perpendicular to said longitudinal net support beam, said pair of pontoons for each of said barrier float assemblies keeping said port security barrier afloat in a marine environment; and

(c) a plurality of flange sleeve connectors, wherein one of said plurality of flange sleeve connectors is attached to each end of the longitudinal net support beams for adjacent barrier float assemblies to connect said adjacent float barriers assemblies to each other;

(d) a netting termination post extending vertically upward from the longitudinal net support beam for said barrier float assemblies positioned at each end of said chain of connected barrier float assemblies, said netting termination post being secured to an end portion of the synthetic fiber capture net of said barrier float assemblies positioned at each end of said chain of connected barrier float assemblies; and

(e) a latching connector assembly located at one end of the longitudinal net support beam of said barrier float assembly positioned at each end of said chain of connected barrier float assemblies, wherein said latching connecter assembly is adapted for coupling to and uncoupling from a latching connector receiver mounted on a mooring buoy allowing for said barrier float assembly positioned at one end of said chain of connected barrier float assemblies to be connected to said mooring buoy and disconnected from said mooring buoy, wherein said latching connector assembly for each of said barrier float assemblies located at each end of said chain of connected barrier float assemblies comprises:

(i) a latching connector spear having one end attached to the longitudinal net support beam for each of said barrier float assemblies located at each end of said chain of connected barrier float assemblies, said latching connector spear having an angled surface which is angled inward at the other end;

(ii) a tension element centrally located within the interior of said latching connector spear and a pin to secure one end of said tension element in a fixed position within said latching connector spear, wherein said tension element extends outward from said latching connector spear; and

(iii) a lanyard having one end connected to said tension element and an opposite end connected to a towing device, said lanyard passing through the interior of said latching connector receiver to said towing device, said towing device when connected to said device pulling said tension element and said latching connector spear into the interior of said latching connector receiver, wherein said latching connector receiver has an alignment member which has an inner surface angled to receive the angled surface of said latching connector spear and a locking element which engages said tension element preventing rearward movement of said tension element from said latching connector assembly.

2. The port security barrier of claim **1** wherein said synthetic fiber capture net has a boat stopping capability of at least 1.8 million foot-pounds of kinetic energy and a safety factor of 2.0.

3. The port security barrier of claim **1** wherein a portion of the synthetic fiber capture net at one of each of said barrier float assemblies overlaps an adjacent barrier float assembly and is attached to one of the fence post of said adjacent barrier float assembly.

4. The port security barrier of claim **1** wherein said synthetic fiber capture net comprises a mesh having a spacing ranging from eight to twenty four inches between the horizontal members of said synthetic fiber capture net and eight to twenty four inches between the vertical members of said synthetic fiber capture net.

5. The port security barrier of claim **1** wherein each of the horizontal members of said synthetic fiber capture net comprises a horizontal synthetic fiber rope of ¾-inch diameter with a minimum breaking strength of 17,900-LBS, and each of the vertical members of said synthetic fiber capture net comprises a vertical synthetic fiber rope of ⅝-inch diameter with a minimum breaking strength of 13,900-LBS, wherein said horizontal synthetic fiber rope and said vertical synthetic fiber rope each comprise a nylon fiber rope.

6. The port security barrier of claim **1** further comprising a plurality of safety chains wherein one of said plurality of safety chains is attached to each end of the longitudinal net support beams for said adjacent barrier float assemblies to connect said adjacent float barriers assemblies to each other.

7. The port security barrier of claim **1** wherein each of said barrier float assemblies includes a kayak guard wire positioned on an underside of the longitudinal net support beam for each of said barrier float assemblies.

8. The port security barrier of claim **1** wherein said longitudinal net support beam for each of said barrier float assemblies comprises a 12 by 8-inch structural steel tube.

9. The port security barrier of claim **1** further comprising a flashing navigation light mounted on top of one fence post of said pair of fence post of every other of said barrier float assembly, wherein said flashing navigation light is an aid to navigation and is set to flash at various time intervals and flash patterns.

10. The port security barrier of claim **1** further comprising a plurality of wire ties spaced approximately 18-inches apart, wherein said wire ties secure an upper horizontal net rope of said synthetic fiber capture net to a wire rope attached to the fence post of said longitudinal net support beam, said wire ties operating as a bird deterrent.

11. A port security barrier for protecting a port facility from a waterborne craft laden with explosives, said port security barrier comprising:

(a) a plurality of barrier float assemblies connected to one another to form a chain of connected barrier float assemblies to protect said port facility;

(b) each of said barrier float assemblies including:

(i) a longitudinal net support beam, said longitudinal net support beam for each of said barrier float assemblies comprising a beam which is chemical and corrosion resistant;

(ii) a generally rectangular shaped nylon capture net extending vertically upward from said longitudinal net support beam, said nylon capture net having a standard length which is approximately the length of said longitudinal net support beam, and a height which is sufficient to prevent said waterborne craft from penetrating said port facility wherein said nylon capture net has at least five equally spaced apart horizontal members and a plurality of equally spaced vertical members, wherein said nylon capture net has a boat stopping capability of at least 1.8 million foot-pounds of kinetic energy and a safety factor of 2.0;

(iii) a netting support structure extending vertically upward from said longitudinal net support beam, said netting support structure including a pair of fence post affixed to said longitudinal net support beam wherein said pair of fence post are positioned inward a preselected distance from each end of said longitudinal net support beam and have said nylon capture net attached thereto, wherein a portion of the nylon capture net at one of each of said barrier float assemblies overlaps an adjacent barrier float assembly and is attached to one of the fence post of said adjacent barrier float assembly; and

(iv) a pair of pontoons attached to said longitudinal net support beam and orientated perpendicular to said longitudinal net support beam, said pair of pontoons

for each of said barrier float assemblies keeping said port security barrier afloat in a seawater environment; and

(c) a plurality of flange sleeve connectors, wherein one of said plurality of flange sleeve connectors is attached to each end of the longitudinal net support beams for adjacent barrier float assemblies to connect said adjacent float barriers assemblies to each other;

(d) a netting termination post extending vertically upward from the longitudinal net support beam for said barrier float assemblies positioned at each end of said chain of connected barrier float assemblies, said netting termination post being secured to an end portion of the nylon capture net of said barrier float assemblies positioned at each end of said chain of connected barrier float assemblies; and

(e) a latching connector assembly located at one end of the longitudinal net support beam of said barrier float assembly positioned at each end of said chain of connected barrier float assemblies, wherein said latching connecter assembly is adapted for coupling to and uncoupling from a latching connector receiver mounted on a mooring buoy allowing for said barrier float assembly positioned at one end of said chain of connected barrier float assemblies to be connected to said mooring buoy and disconnected from said mooring buoy, wherein said latching connector assembly for each of said barrier float assemblies located at each end of said chain of connected barrier float assemblies comprises:

(i) a latching connector spear having one end attached to the longitudinal net support beam for each of said barrier float assemblies located at each end of said chain of connected barrier float assemblies, said latching connector spear having an angled surface which is angled inward at the other end;

(ii) a tension element centrally located within the interior of said latching connector spear and a pin to secure one end of said tension element in a fixed position within said latching connector spear, wherein said tension element extends outward from said latching connector spear; and

(iii) a lanyard having one end connected to said tension element and an opposite end connected to a towing device, said lanyard passing through the interior of said latching connector receiver to said towing device, said towing device when connected to said device pulling said tension element and said latching connector spear into the interior of said latching connector receiver, wherein said latching connector receiver has an alignment member which has an inner surface angled to receive the angled surface of said latching connector spear and a locking element which engages said tension element preventing rearward movement of said tension element from said latching connector assembly; and

(f) a flashing navigation light mounted on top of one fence post of said pair of fence post of every other of said barrier float assemblies, wherein said flashing navigation light is an aid to navigation and is set to flash at various time intervals and flash patterns; and

(g) a plurality of safety chains wherein one of said plurality of safety chains is attached to each end of the longitudinal net support beams for said adjacent barrier float assemblies to connect said adjacent float barriers assemblies to each other.

12. The port security barrier of claim **11** wherein said nylon capture net comprises a mesh having a spacing of 13-¾ inches between the horizontal members of said nylon capture net and 18 inches between the vertical members of said nylon capture net, each of the horizontal members of said nylon capture net comprising a horizontal rope of ¾-inch diameter, 12-strand braided nylon which is orange in color with a minimum breaking strength of 17,900-LBS, and each of the vertical members of said nylon capture net comprising a vertical rope of ⅝" or ¾" 12-plait nylon, orange in color, with a minimum breaking strength of 13,900-LBS.

13. The port security barrier of claim **11** wherein each of said barrier float assemblies includes a kayak guard wire positioned on an underside of the longitudinal net support beam for each of said barrier float assemblies.

14. The port security barrier of claim **11** further comprising a plurality of wire ties spaced approximately 18-inches apart, wherein said wire ties secure an upper horizontal net rope of said synthetic fiber capture net to a wire rope attached to the fence post of said longitudinal net support beam, said wire ties operating as a bird deterrent.

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