Jan. 12, 1965 B. G. PUGH 3,165,346

LIFTING HARNESS FOR LANDING NET

Filed Nov. 20, 1962

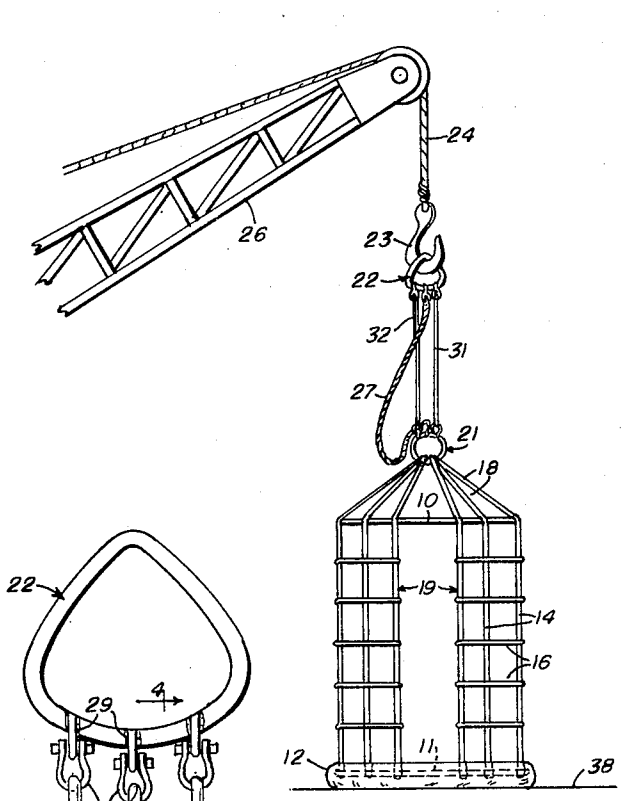


FIG. 2

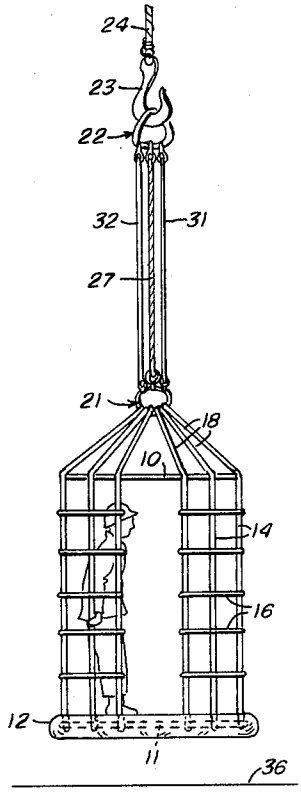


FIG. 3

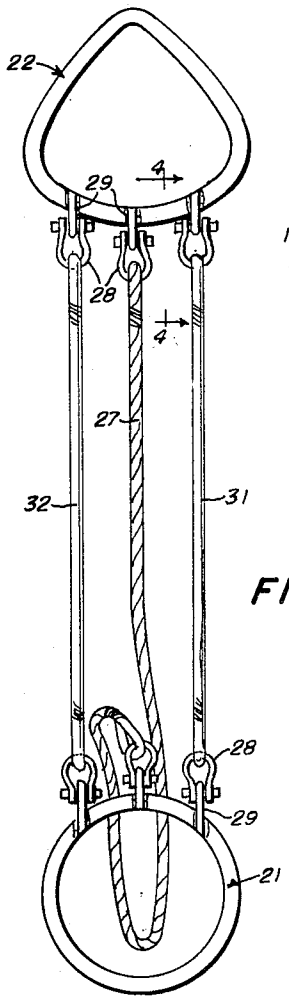


FIG. 1

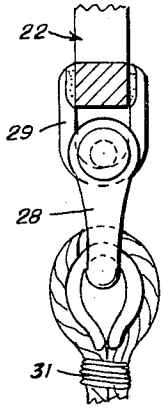


FIG. 4

INVENTOR
BILLY GENE PUGH
BY
ATTORNEY

United States Patent Office 3,165,346 Patented Jan. 12, 1965

3,165,346

LIFTING HARNESS FOR LANDING NET

Billy Gene Pugh, P.O. Box 802, Corpus Christi, Tex.

Filed Nov. 20, 1962, Ser. No. 238,983
2 Claims. (Cl. 294—77)

The present invention relates to a landing net for personnel or cargo and more specifically pertains to a harness rigging attached to or forming a part of the top portion of such a net to facilitate manipulation of the net during landing operations.

A net structure as disclosed in my Patent 2,827,325 dated March 18, 1958, provides safe means for transferring individuals from a boat to an off shore drilling platform and for transferring personnel from such a rig to a boat and for transferring people from one boat to another and it is an object of the invention to provide a harness rigging in combination with such a net so as to maintain the net in an erect condition during a landing operation when the supporting crane is carried by a boat or when the structure on which the net is to be landed constitutes the deck of a boat.

Another object of the invention is to provide a flexible rigging between the upper end of a landing net and the hoist cable wherein the harness rigging includes an elastic means in which energy is stored while the net and the load thereon is lifted so that when the base portion of the net is supported on the deck of a bobbing boat the energy stored in the elastic means serves to prevent the net from collapsing to thereby avoid the necessity of vigilant manipulation of the hoist cable during such a landing operation.

A more specific object of the invention is to provide a harness forming a part of the support rigging of a landing net which includes an inelastic and flexible element such as a cable or rope having a length which is greater than an elastic means in its undistorted condition so that the elastic means is elongated during the operation of lifting the net and its load by the inelastic element without distorting the elastic means beyond its elastic limit whereby the energy stored in the elastic means is utilized to maintain the net in an upright position during a landing operation when the crane is carried by a bobbing boat.

Another object of the invention is to provide a support harness which comprises elongated flexible elastic means in association with flexible elongated inelastic means having a greater length than the elastic means in the undistorted state of the elastic means including structure to maintain such elastic and inelastic means in assembled relationship.

Other objects and features of the invention will be appreciated and become apparent as the present disclosure proceeds and upon consideration of the accompanying drawing taken in conjunction with the following detailed description wherein an embodiment of the invention is disclosed.

In the drawing:

FIG. 1 is a side elevational view of a lifting harness embodying the invention showing the elastic elements in the undistorted state.

FIG. 2 is a side elevational view on a smaller scale showing the lifting harness in association with a landing net with the elastic means maintaining the net in an upright position.

FIG. 3 is a similar view showing elongation of the elastic elements with the inelastic member supporting the net and its load.

FIG. 4 is an enlarged fragmentary sectional view taken on the line 4—4 of FIG. 1.

The rigging to which the invention pertains has particular utility in combination with a landing net of the type

disclosed in my Patent 2,827,325 which is formed of a substantial rigid upper spreader ring **10** and a base spreader ring **11** which may be encased in suitable padding **12**. Any suitable structure (not shown) may be provided extending throughout the base spreader ring **11** to provide a floor on which individuals or cargo may be carried. The net includes a plurality of longitudinally extending ropes **14** which extend from the upper spreader ring **10** to the base spreader ring **11**. The ropes **14** are circumferentially spaced from each other and connected to the spreader rings. Circumferentially extending ropes **16** are connected to the longitudinally extending ropes **14** at spaced intervals. The ropes **16** are omitted between two adjacent longitudinally extending ropes **14** to provide an opening **19**. Another such opening may be provided in the rope lacings. The lateral dimensions of each opening **19** when the longitudinally extending ropes **14** are taut is such as to prevent free exit of an individual from within the net. When the longitudinally extending ropes **14** are no longer taut the flexible character of the lacings is such that each opening **19** may be enlarged to permit individuals to pass therethrough and so that cargo may be loaded into and removed from the net.

A plurality of ropes **18** are attached to the upper spreader ring **10** or these elements **18** may form continuations of the longitudinally extending ropes **14**. These cables **18** are connected to a ring shaped member **21** which forms a part of the lifting harness. The rigging or harness includes a loop shaped member **22** which is adapted to be accommodated in a hook **23** carried by a hoist cable **24** which extends over a boom **26** of a crane. The rigging includes a flexible inelastic elongated element **27** such as a rope or cable. This inelastic element **27** is adapted to support the net and its load with the desired factor of safety and constitutes the primary means in lifting the net and its cargo. The ends of the rope or cable **27** may be attached to the ring member **21** and the loop member **22** by means of clevises **28** which are secured to lugs **29** carried by the respective members. The lugs **29** may be welded or otherwise secured to the members **21** and **22**.

The elongated flexible element **27** has a fixed length and is inelastic under the loads to which it is subjected in handling and lifting the net and its cargo.

The rigging or harness includes elongated flexible elastic means and in the embodiment shown in the drawing two flexible elastic cords **31** and **32** extend from and are connected to the ring members **21** and **22**. These elastic cords **31** and **32** may be of any suitable type and in the undistorted state are of substantially equal lengths and in the undistorted state are of shorter length than the rope or cable **27**. The elastic elements may be formed of aircraft bongee cord and when they are elongated to the extent as permitted by the inelastic element **27** do not exceed their elastic limits.

In operation and when the crane and its hoisting cable **24** is supported by a boat which tends to rise and fall with swells or the like upward movement of the cable **24** causes the elastic means as represented by the cords **31** and **32** to be elongated and the longitudinally extending ropes **14** are tensioned. The stretching of the cords **31** and **32** continues until the slack in the rope or cable **27** is eliminated. The net and the load is then supported by the inelastic member **27**. This condition of the elements is shown in FIG. 3 and energy is stored in the cords **31** and **32** and their elastic limit is not exceeded when the cable or rope **27** becomes taut to serve as the primary load carrying member. During elongation of the elastic elements **31** and **32** there is a tendency for the net and its cargo to be lifted so that the load of the assembly is not lifted with violent movement as it rises from the surfaces **36**.

In lowering the net towards a fixed platform such as

a drilling rig platform or a dock a condition as depicted in FIG. 2 is attained when the base of the net rests on the fixed surface **38**. Then the load is no longer supported by the inelastic element **27**. The energy stored in the elastic means **31** and **32** continues to hold the net in an upright position with the longitudinally extending ropes **14** in a substantially taut condition. The energy stored in the elastic cords maintain the net in an erect condition in the event that the boat carrying the crane should lower as a consequence of a swell and the elastic elements **31** and **32** continue to maintain the net in an upright condition without the necessity of manipulating the hoist cable **24**. This same desirable result is attained when the crane and its hoisting cable **24** are supported on a fixed base and the landing surface forms a deck of a bobbing boat. In one embodiment the energy stored in the elastic cords **31** and **32** under the condition shown in FIG. 3 amounts to about one hundred and eighty pounds which is sufficient to maintain the ropes **14** of the net in upright positions.

While the invention has been shown and described in connection with particular structure for the net and one type of rigging or harness employing ropes it will be appreciated that various types of elastic and flexible inelastic elements may be employed together with other types of net structures. Such modifications and others may be made without departing from the spirit and scope of the invention as set forth in the appended claims.

What I claim and desire to secure by Letters Patent is:

1. A landing net and lifting harness assembly comprising in combination, a landing net including a base spreader ring and an upper spreader ring with longitudinally extending circumferentially spaced ropes connecting the upper spreader ring with the base spreader ring and circumferentially extending ropes connected to said longitudinally extending ropes providing a flexible netting with said circumferentially extending ropes omitted between two longitudinally extending ropes to provide an opening of limited lateral dimensions in the netting when the longitudinal ropes are taut, a ring shaped member, means connecting said ring shaped member to said upper spreader ring, an inextensible flexible element connected to said ring shaped member, a flexible elastic element connected to said ring shaped member, a loop shaped member connected to the free end of said inelastic element and connected to the free end of said elastic element, said elastic element in the unelongated state being of less length than said inelastic element, lifting means engaging said loop member for raising the netting and a load therein during which the elastic element elongates to a length equal to that of the inelastic element, and the energy stored in said elastic element during said elongation being sufficient to maintain said longitudinal extending ropes substantially taut when the base spreader ring supports the landing net with the lifting means lowered to a position where slack develops in the inelastic element.

2. A landing net and lifting harness rigging assembly comprising in combination, a landing net including longitudinally extending flexible lacings and transversely extending flexible lacings providing a netting having an opening between two longitudinally extending lacings of limited lateral extent when the longitudinally extending lacings are substantially taut, an inextensible flexible element connected to an upper portion of said net, a flexible elastic element connected to the upper portion of said netting, said elastic element in the unelongated condition being of less length than said inelastic element, a liftable member connected to the free end of said inelastic element and to the free end of said elastic element, lifting means engaging said liftable member for raising the liftable member and the netting and a load therein during which the elastic element is elongated to a length equal to that of the inelastic element, and the energy stored in said elastic element during said elongation being sufficient to maintain said longitudinally extending lacings upright when the bottom of the netting is supported with the liftable member lowered to a position where the inelastic element is no longer taut.

References Cited by the Examiner

UNITED STATES PATENTS

2,462,234	2/49	Supina	244—151
2,474,124	6/49	Schultz	244—151
2,827,325	3/58	Pugh	294—77

FOREIGN PATENTS

914,471	6/46	France.

SAMUEL F. COLEMAN, *Primary Examiner.*

RAPHAEL M. LUPO, *Examiner.*