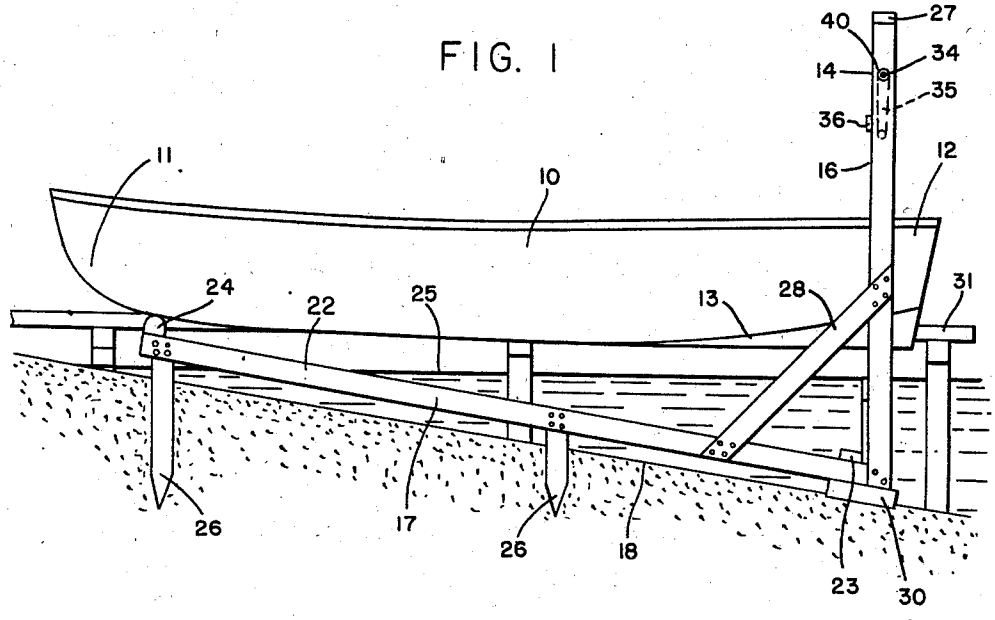
Aug. 26, 1947. P. I. PETERSON 2,426,284

LIFTING AND TURNING APPARATUS

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FIG. 1



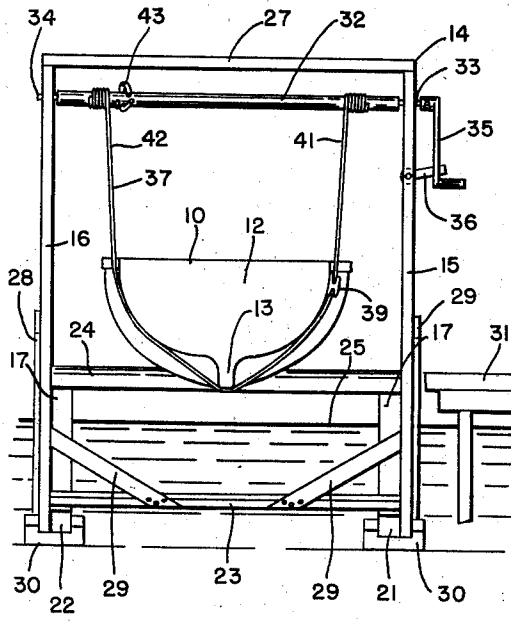


FIG. 2

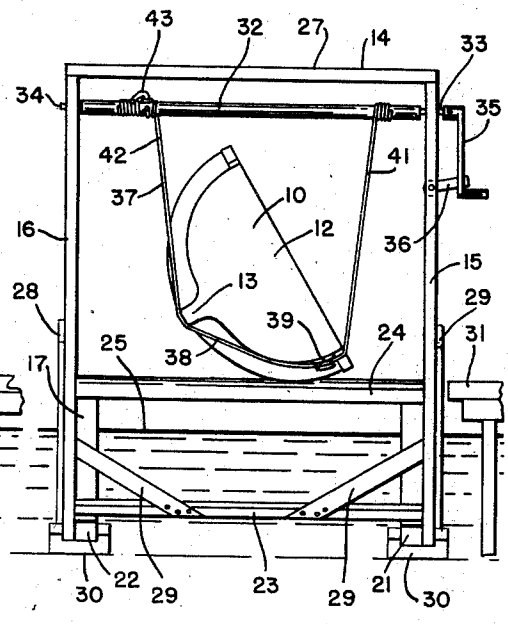


FIG. 3

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LIFTING AND TURNING APPARATUS

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FIG. 5

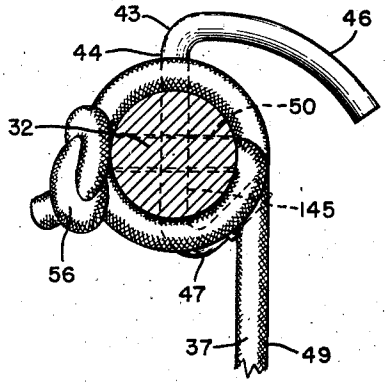


FIG. 4

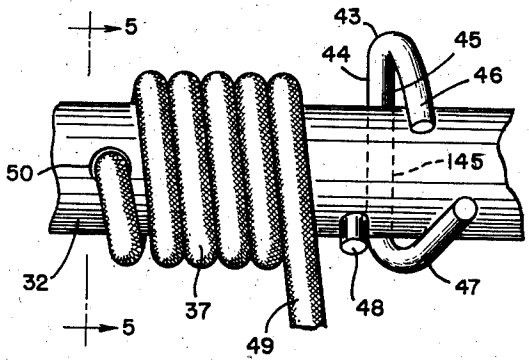


FIG. 7

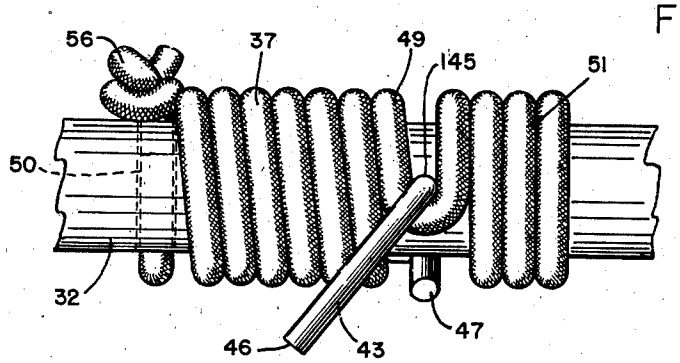
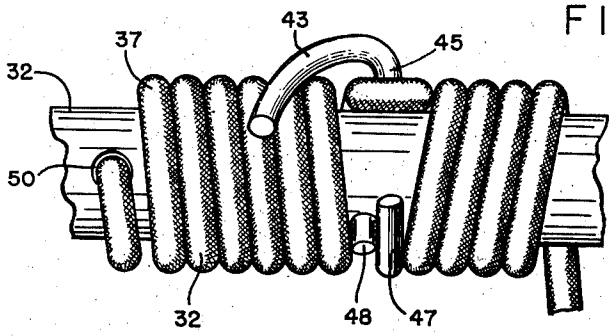


FIG. 6



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2,426,284

UNITED STATES PATENT OFFICE

2,426,284

LIFTING AND TURNING APPARATUS

Peter I. Peterson, Minneapolis, Minn.

Application May 16, 1946, Serial No. 670,186

10 Claim. (Cl. 214—1)

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My invention relates to lifting and turning apparatus and has for an object to provide an apparatus by means of which a bulky object may be readily lifted and turned about.

An object of my invention resides in providing an apparatus by means of which an object such as a boat may be readily lifted and partially or completely turned about or inverted.

Another object of the invention resides in providing a lifting and turning apparatus utilizing a rope adapted to extend about and to be attached to the object to be lifted and in providing winding means for simultaneously winding up both end portions of the rope to lift the object.

A still further object of the invention resides in providing a catch for engagement with one end portion of the rope and serving upon reverse movement of the winding means to cause winding of this portion of the rope whereby the one end portion of the rope is wound and the other unwound to procure turning of the object.

Another object of the invention resides in constructing the catch with a bitt about which one end portion of the rope is wound and in further constructing the catch with a leader adapted to direct the rope about the bitt upon reverse movement of the winding means.

Other objects of the invention reside in the novel combination and arrangement of parts and in the details of construction hereinafter illustrated and/or described.

In the drawings:

Fig. 1 is a side elevational view of my improved lifting and turning apparatus illustrating the same in use in conjunction with a boat.

Fig. 2 is an end elevational view of the structure shown in Fig. 1.

Fig. 3 is a view similar to Fig. 2 showing the boat in partly turned position.

Fig. 4 is a view of a portion of the drum of the invention drawn to a greater scale than Figs. 2 and 3 and showing the parts as arranged in Fig. 2.

Fig. 5 is a cross sectional view taken on line 5—5 of Fig. 4.

Fig. 6 is a view similar to Fig. 4 and showing the parts arranged as illustrated in Fig. 3.

Fig. 7 is a plan view of the portion of the drum shown in Fig. 6.

My lifting and turning apparatus has been illustrated as used for turning a boat though the same can be used in conjunction with any other bulky object which it becomes desirable to lift and turn.

In Figs. 1, 2 and 3, a boat 10 has been shown having a bow 11 and a stern 12. The said boat

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is also provided with a keel 13 which extends throughout the length of the same from the stern 12 to the bow 11. Inasmuch as the boat illustrated does not form any particular feature of the invention, the same has not been shown in detail and the same will not be further described.

The invention proper includes a support 14 on which the lifting and turning apparatus is mounted. This support is attached to a frame 17 which lies along the bottom of the lake. In Fig. 1, the bottom of the lake, with which the invention has been illustrated, is indicated by the reference numeral 18.

The frame 17 comprises two longitudinal frame members 21 and 22 which are connected together at their outer ends by means of a transverse frame member 23. The said longitudinal frame members are further connected together at their inner ends by means of a transverse frame member 24. The frame 17 is so arranged that the frame member 24 projects above the water level 25. This frame member is rounded at the upper portion of the same and forms a rest upon which the bow 11 of the boat may be placed. The frame 17 is held partly submerged under the water in the manner shown in Fig. 1 by means of stakes 26 which are driven into the bottom 18 of the lake and to which the longitudinal frame members 17 may be bolted or otherwise secured.

The support 14 consists of two uprights 15 and 16 which extend upwardly from the transverse frame member 23 of frame 17. These uprights are connected together at their upper ends by means of a cross frame member 27 and the said uprights are rigidly attached to the frame 17 by means of braces 28 and 29. A base 30 is secured to the lower end of each upright 15 and 16. The various parts of the frame 17 and the support 14 may be bolted, nailed or otherwise secured together. The apparatus of my invention is installed adjacent a dock which I have designated by the reference numeral 31 in the drawings. This dock may be of any suitable construction and forming no feature of the invention, will not be described in detail.

The invention proper consists of an elongated drum 32 which extends between the two uprights 15 and 16. This drum has two stub shafts 33 and 34 secured to the ends of the same and which project through the uprights 15 and 16 and are journaled in bearings 40 carried by said uprights. The stub shaft 33 has a crank 35 attached to the end of the same which projects outwardly beyond the upright 15 and by means of which the user stationed on the dock 31 may rotate the

said drum. A latch 36 pivoted to the upright 15 is movable into the path of movement of the crank 35. When positioned as shown in Fig. 2, this latch restrains rotation of the crank 35 and drum 32 and holds the object to be lifted in elevated position as will hereinafter more fully appear.

Operating in conjunction with the drum 32 is a rope 37. This rope has an intermediate portion 38 which is disposed about the stern 12 of the boat 10 and which is secured to the boat at the upper right hand portion of the same as viewed in Figs. 2 and 3 by means of a cleat 39. The end portions 41 and 42 of this rope are secured to the drum 32 at spaced localities substantially disposed apart a distance equal to the width of the stern 12 of the boat 10. This may be accomplished by running the ends of the rope through holes 50 in the drum and knotting the same as indicated at 56. Any other method may however be used for securing the rope ends to the drum. The rope is of suitable length so that when the boat is in the water, the intermediate portion 38 may be slipped under the stern of the boat to properly support the boat.

In lifting the boat, it becomes necessary to move the latch 36 out of engagement with the crank 35 and to then turn said crank. This causes both the end portions 41 and 42 to wind up on the drum 32. In Fig. 2, I have shown the rope 37 as partly wound up and the boat 10 in elevated position. By moving the latch 36 into engagement with the crank 35, the boat remains suspended in the desired position.

For turning the boat over, I employ a catch best shown in Figs. 4 to 7 inclusive which has been indicated in its entirety by the reference numeral 43. This catch has been illustrated as constructed from a rod or stiff wire and includes a portion 44 which extends through a hole 145 formed in the drum 32 and which serves as a pintle for mounting the said catch for swinging movement. A portion 45 of the pintle 44 projects outwardly beyond the drum 32 and forms a bitt about which a portion of the rope 37 may be wound. Issuing outwardly from the bitt 45 is an arm 46 which extends in a circumferential direction about the drum 32 and which forms a leader for leading the rope about the bitt 45. The catch 43 may be swung from the position shown in Figs. 2 and 4 in which the same is clear of the portion 42 of rope 37 and to a position such as shown in Figs. 3, 6 and 7 in which the said leader is in leading position. The leader 46 is held in this position by means of a portion 47 which extends outwardly from the pintle 44 at the end opposite the arm 46 and which forms an ear or lug projecting outwardly therefrom. This ear is adapted to engage a stop 48 issuing outwardly from the drum 32.

The manner of using the invention is as follows: The boat while afloat is first moved between the uprights 15 and 16 and the bow 11 of the boat run up over the rest 24. Inasmuch as the stern of the boat is supported by the water, this is easily accomplished manually. The rope 37 is next unwound sufficiently from the drum 32 to permit of inserting the same beneath and about the stern 12 of the boat. The part of the rope adjacent the cleat 39 is then wrapped around the cleat to secure the same thereto at such locality. The latch 36 is now disengaged from crank 35 and the said crank rotated. This causes the end portions 41 and 42 to simultaneously wind about the drum 33 thereby lifting the stern of the boat out of the water. In Figs. 1 and 2, the boat has been shown as completely lifted out of the water and at substantially an even keel. The winding of the rope continues until the reach 49 of the rope leading from the end portion 42 thereof lies adjacent the stop 48. Catch 43 is then swung over into the position shown in Figs. 6 and 7 in which the arm 46 crosses the said reach. If now the drum 32 is rotated in the opposite direction through crank 35, the reach 49 will slide along the arm or leader 46. This will cause the rope to be directed about the bitt 45 and the same will then occupy the position shown in Fig. 7. Continued turning of the crank 35 in the reverse direction will cause the portion 51 of the rope to continue to wind upon the drum 32. In this case, however, the rope now winds in the opposite direction from which it was formerly wound. As this portion of the rope winds up, the portion 41 unwinds. This causes the stern of the boat to turn as shown in Fig. 3. It will readily be comprehended of course that enough rope be wound on the drum in advance of operating catch 43 to turn the boat the desired amount. During turning of the boat, the bow 11 pivots on the rest 24 and is correspondingly turned. If the boat at the bow approaches too close to the end of the rest 24, the bow of the boat may be readily moved over manually to a position intermediate the end of the rest. Once the catch 43 has been moved into leading position as shown in Fig. 7, the weight on the ends of the rope is balanced, the weight on one side tending to wind up the rope and the weight on the other side tending to unwind it. When the parts are so disposed, the latch 36 is not needed and the boat will remain in any adjusted angular position. In launching the boat, the procedure is exactly the reverse of that just described.

While I have shown but a single lifting and turning device, it can readily be comprehended that two such devices may be used, one at each end of the boat. In such case, appropriate transmission mechanism will be employed for causing both drums to rotate simultaneously. Such mechanism being well known, will not be described or shown in this application.

The advantages of my invention are manifest. The boat can be readily moved from the water and elevated to a position above the surface thereof. With my invention, the boat can be, after elevation, turned so that the same be partly or completely inverted. This permits of readily drying out of the boat during storage or of washing or cleaning the interior of the boat. At the same time, the boat is advantageously supported in any position, permitting painting or repair of the same. With my invention, the boat can be raised out of the water and manipulated by a single operator, thereby permitting of handling large boats by one person. The invention is exceedingly simple in construction and can be produced at a nominal expense.

Changes in the specific form of my invention, as herein described, may be made within the scope of what is claimed without departing from the spirit of my invention.

Having described my invention, what I claim as new and desire to protect by Letters Patent is:

1. In combination, a rope adapted to extend about an object to be lifted and turned, winding means operable upon movement in one direction to simultaneously wind up both end portions of

the rope to lift the object, said winding means causing unwinding of the end portions of the rope upon reverse movement thereof, and a catch movable into engagement with one end portion of the rope and operating to cause winding of said portion of the rope upon reverse movement of said winding means while the other end portion of the rope is being unwound.

2. In combination, a rope adapted to extend about an object to be lifted and turned, winding means operable upon movement in one direction to simultaneously wind up both end portions of the rope to lift the object, said winding means causing unwinding of the end portions of the rope upon reverse movement thereof, and a catch for engagement with one end portion of the rope, said catch including a bitt about which the rope may be wrapped and a leader movable into engagement with the rope to lead the same about the bitt when the winding means is reversed to cause winding of said portion of the rope.

3. In combination, a rope adapted to extend about an object to be lifted and turned, revoluble winding means for simultaneously winding up both end portions of the rope to lift the object, said winding means including a drum about which one end portion of the rope is wound, said winding means upon rotation in one direction causing winding up of said portion of the rope on said drum, and upon reverse movement causing unwinding of said portion of the rope, and a catch carried by said drum and movable into engagement with said portion of the rope and causing winding thereof upon said drum upon reverse movement of the winding means.

4. In combination, a rope adapted to extend about an object to be lifted and turned, revoluble winding means for simultaneously winding up both end portions of the rope to lift the object, said winding means including a drum about which one end portion of the rope is wound, said winding means upon rotation in one direction causing winding up of said portion of the rope on said drum, and upon reverse movement causing unwinding of said portion of the rope, and a catch carried by said drum, said catch including a bitt about which said portion of the rope may be wrapped and a leader movable into engagement with said portion of the rope to lead the same about said bitt upon reverse movement of said winding means.

5. In combination, a rope adapted to extend about an object to be lifted and turned, revoluble winding means for simultaneously winding up both end portions of the rope to lift the object, said winding means including a drum about which one end portion of the rope is wound, said winding means upon rotation in one direction causing winding up of said portion of the rope on said drum, and upon reverse movement causing unwinding of said portion of the rope, and a catch carried by said drum and including a bitt about which said portion of the rope may be wrapped, a pintle pivoted to said drum and a leader carried by said pintle, said leader in one position being adapted to lead said portion of the rope about said bitt to cause winding of said portion of the rope on the drum upon reverse movement of the winding means.

6. In combination, a rope adapted to extend about an object to be lifted and turned, revoluble winding means for simultaneously winding up both end portions of the rope to lift the object, said winding means including a drum about which one end portion of the rope is wound, said winding means upon rotation in one direction causing winding up of said portion of the rope on said drum, and upon reverse movement causing unwinding of said portion of the rope, and a catch carried by said drum and including a bitt about which said portion of the rope may be wrapped, a pintle pivoted to said drum and having a portion projecting outwardly from said drum and serving as a bitt about which said portion of the rope may be wrapped and a leader on said pintle adapted when occupying one position to lead the rope about said bitt when the movement of the winding means is reversed.

7. In combination, a rope adapted to extend about an object to be lifted and turned, revoluble winding means for simultaneously winding up both end portions of the rope to lift the object, said winding means including a drum about which one end portion of the rope is wound, said winding means upon rotation in one direction causing winding up of said portion of the rope on said drum and upon reverse movement causing unwinding of said portion of the rope, and a catch carried by said drum and including a bitt about which said portion of the rope may be wrapped, a pintle pivoted to said drum, the axis of said pintle extending transversely of the axis of said drum and an arm extending outwardly from said pintle and forming a leader for leading the rope about said bitt upon reverse movement of said winding means.

8. In combination, a rope adapted to extend about an object to be lifted and turned, revoluble winging means for simultaneously winding up both end portions of the rope to lift the object, said winding means including a drum about which one end portion of the rope is wound, said winding means upon rotation in one direction causing winding up of said portion of the rope on said drum and upon reverse movement causing unwinding of said portion of the rope, and a catch carried by said drum and including a bitt about which said portion of the rope may be wrapped, a pintle pivoted to said drum, the axis of said pintle extending transversely of the axis of said drum and an arm extending outwardly from said pintle and being disposed in a substantially circumferential direction with reference to said drum and adapted when occupying an angular position with reference to a transverse plane containing the axis of said pintle, to lead the rope about said bitt upon reverse movement of said winding means.

9. In combination, a rope adapted to extend about an object to be lifted and turned, revoluble winding means for simultaneously winding up both end portions of the rope to lift the object, said winding means including a drum about which one end portion of the rope is wound, said winding means upon rotation in one direction causing winding up of said portion of the rope on said drum and upon reverse movement causing unwinding of said portion of the rope thereon, and a catch carried by said drum and including a bitt about which said portion of the rope may be wrapped, a pintle pivoted to said drum, the axis of said pintle extending transversely of the axis of said drum and an arm extending outwardly from said pintle and being disposed in a substantially circumferential direction with reference to said drum and adapted when occupying an angular position with reference to a transverse plane containing the axis of said pintle, to lead the rope about said bitt upon reverse movement of said winding means and a stop on said

drum engageable with a part movable with said arm for limiting the movement of said arm to its leading position.

10. In combination, a rope adapted to extend about an object to be lifted and turned, revoluble winding means for simultaneously winding up both end portions of the rope to lift the object, said winding means including a drum about which one end portion of the rope is wound, said winding means upon rotation in one direction causing winding up of said portion of the rope on said drum and upon reverse movement causing unwinding of said portion of the rope, and a

catch carried by said drum and including a bitt about which said portion of the rope may be wrapped, a pintle pivoted to said drum and extending transversely of the axis of said drum, a leader movable with said pintle and serving when in one position to lead the rope about said bitt upon reverse movement of said winding means, an ear extending outwardly from the other end of said pintle and a stop on said drum adapted to be engaged by said ear to hold the leader in leading position.

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