FIG. 1

FIG. 2

FIG. 3

FIG. 4

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BOAT HAULOUT AND.launching DEVICE

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This invention relates to a boat haul-out device, and the principal object of the invention is to provide a device which will enable boats to be hauled out of the water or on shore with relatively little effort, and which will in a like manner enable the boat to be quickly and easily launched.

In this respect it is a particular object of the invention in one aspect to provide a boat haul-out device which may quickly and easily be run out through shallow water to a position where a boat can be brought in and hauled up on the device and the device then run into shore to provide an easy beaching means in situations where presently it is extremely difficult to beach the boat and normally the boat must be anchored at a considerable distance from the shore.

Where the bottom falls away more rapidly it is another aspect of the invention to provide a boat haul-out device which can be quickly and easily set out in the water and readily adjusted to correspond to the water depth encountered.

Another important object is to provide a boat haul-out device which will support a boat out of the water, will protect the boat against a heavy sea, against water soaking, and against rolling and pitching or scraping yet will not place any undesirable strain on the boat members.

In this connection a particularly desirable aspect of the invention is to enable boats provided with outboard motors to be hauled out of the water whereby the boat will be supported in an “out-of-the-water” position, with the motor in an upright or operating raised position clear of any object or heavy sea, and the leakage of gas and oil normally encountered on tilting of the motor will be precluded.

It is also a particular object of the invention in this connection to dispose the boat with the stern or transom raised and the bow lowered to facilitate bailing or pumping of the bilge.

Again an important object is to provide a boat haul-out device as aforesaid of simple, economical, yet sturdy construction which can be easily transported and can be assembled and dis-assembled in a simple convenient manner.

According to the invention the boat haul-out device comprises a longitudinal roller-carrying frame tiltably mounted to tilt about a transverse axis intermediate of its length on a base having stop means to limit tilting of the frame in one direction with the roller-carrying frame disposed on an incline with the lower end adjacent the water level whereby the bow of the boat, which will normally be raised as the boat rides in the water, will ride up on the frame smoothly and easily with relatively little pull to carry the front of the boat past the point of tilting the frame whereby the boat weight will tilt the frame to reverse its incline and the boat will then advance down the reversely tilted frame.

The incline of the frame is arranged so that the frame continues approximately at the angle at which the boat sits in the water so that it can be drawn up smoothly out of the water. It will be understood that with this arrangement the momentum of the boat as it moves towards the frame will assist in carrying the boat up out of the water, requiring relatively little pull to advance it to the frame overbalancing position after which its own weight will be effective to continue the landing or hauling-out operation.

To launch the boat it is only necessary to apply a lifting action on the frame at the bow of the boat, and once this end of the frame is lifted to a point above the other end the weight of the boat will effect its own launching. In this connection another feature of the invention resides in locating the tilt axis of the roller-carrying frame off-centre of the length of the frame towards the frame end which is lowered under weight of the boat with the boat on the frame, whereby the frame forms a substantial counterbalance assisting raising of the latter frame end in the launching operation.

Another important feature resides in forming the base in one embodiment of the invention as a unit having a rotatable arrangement of roller frame-carrying members of different lengths whereby, on a rotative motion, these members can be selected as desired to move into an upright roller frame-supporting position in accordance with the water depth encountered to locate the tilt axis of the roller frame at selected heights above the base.

According to another embodiment of the invention an important feature resides in forming the base as a wheeled frame adapted to be run out into the water where beaching through shallow water is desired.

In this connection it is a feature to form the base as a generally triangular longitudinal frame having an arrangement of a pair of wheels at the base of the triangle and a vertically adjustable wheel at the nose, the frame incorporating stop means to limit tilt movement of the roller carrying frame when the boat is hauled thereon with the bow of the boat housed within the nose of the frame.

Again another feature resides in forming the base as a unit detachable from the roller frame and having a telescoping tubular construction for quick assembly and disassembly.

These and other objects and features will become apparent from the following description taken in conjunction with the accompanying drawings, in which Figure 1 is a side elevational view of a boat haul-out device constructed in accordance with the invention and showing its operation in use.

Figure 2 is a side elevational view showing an arrangement of a series of devices constructed in accordance with the invention arranged to beach a boat.

Figure 3 is an enlarged plan view of the device.

Figure 4 is an enlarged side elevational view.

Figure 5 is a perspective view of the roller-carrying frame and support members.

Figure 6 is a perspective exploded view of the base.

Figure 7 is a fragmentary vertical sectional view showing the means for limiting tilting of the roller-carrying frame.

Figure 8 is a transverse vertical sectional view of the device.

Figure 9 is a side elevational view illustrating an alternative form of the invention.

Figure 10 is a plan view of the device of Figure 9.

Figure 11 is an enlarged side elevation, and

Figure 12 is a fragmentary perspective view illustrating the pivotal support of the roller-carrying frame.

With reference to the drawings, and in particular to Figures 5 and 6, the device comprises a base generally designated as 1 on which is tiltably supported a roller-carrying longitudinal frame generally designated as 2.

The base 1 comprises a pair of end bars 3 having at the ends right-angually extending projections 4 which are adapted to fit into the ends of tubular side bars 5. These
side bars 5 are each provided with a pair of tubular right-angularly extending arms 6 and 7, with the arms 6 being longer than the arms 7. The tubular side bars 5 are adapted to rotate about the projections 4 of the end bars 3 to bring either of the arms 6 or 7 to the upright position, as illustrated in Figure 6.

A cross bar 8 provided with end sleeves 9 is arranged to hold the selected uprights in their upright spaced-apart position by having the sleeves 9 fitting over the uprights as shown in Figure 8.

With the side bars 5 disposed as illustrated in solid line in Figure 6, the one set of arms 7 forms a bottom-engaging brace to steady the base with the arms 6 in upright position.

The roller frame 2 comprises a pair of angle bars 10 between which are journaled a series of rollers 11, with the axes of these rollers being transverse the length of the frame bars. Secured to the underside of the angle bars 10 adjacent to but preferably disposed on one side of the centre of the bars 10, is a shaft 12 presenting at each side of the frame 2 an extension 13 forming a pivot extension.

T-shaped members 14 formed with tubular or sleeve-like heads 15 have the heads sealed on the pivot extensions 13, and the legs of these T-members are adapted to seat down and telescope into the upright arms 6 or 7 as the case may be. Thus the T-shaped members 14 form a means of suitably supporting the roller frame 2 from the base 1.

Reinforcing the frame 2 are cross bars 16, one of which at one end of the frame carries a hook 17. A chain 18 fastened to one of the end bars 3 of the base is adapted to have the links thereof selectively introduced over the hooks 17 to provide an adjustable chain length between the respective end bar 3 and cross bar 16 to limit tilting of the frame 2 in one direction.

In operation, as shown in Figure 1, the device is set out in the water with the base 1 being set on the bottom, and the side bars 5 rotated to select the desired arms 6 or 7 as the uprights to bring the ends of these arms above the water level. The cross bar 8 then has its ends introduced over the selected uprights, and the frame-supporting T members introduced into the uprights.

The frame 2 is then tilted so that its lower end is approximately at the water level. In this position, as limited by the adjusted length of chain 18, the frame 2 will have an incline corresponding generally to the line of the boat sitting in the water wherein normally the bow is light and the stern sits deeper, particularly if the boat is equipped with an outboard motor.

Because the bow of the boat is light it can be readily lifted on to the lower roller and readily pulled up the small incline of the frame with the momentum of the boat assisting it in carrying it past the overbalancing position to tilt the frame in the reverse direction, as illustrated in Figure 1, whereupon the weight of the boat will assist and will carry it forwardly and downwardly.

To launch the boat all that is necessary is to apply a lifting action at the bow of the boat until the adjacent end of the frame 2 is raised above the opposite end and the boat will slide down the frame and into the water. Preferably, the pivot axis of the frame 2 coinciding with the axis of the sleeves 15 of the T-shaped members 14, is arranged slightly towards the right-hand end of the frame 2, as seen in Figures 1 and 2, whereby the weight of the frame will overbalance it to the position shown in Figures 1 and 4. Additionally, the added weight at the left-hand end will act as a counterbalance to assist in the launching operation, with the lifting required to launch the boat being reduced to a relatively small force as assisted by the left-hand end of the frame 2, and the stern portion of the boat resting on this portion of the frame.

To protect the bow of the boat from damage as it approaches the roller frame 2, the frame is provided with suitable bumpers 18, preferably of rubber, arranged at each side thereof.

Where it is desired to bring the boat further up out of the water, a number of the haul-out devices may be arranged in series as illustrated in Figure 2, the one being adapted to deposit the boat on the other. However where the boat is to be moved an appreciable distance the alternative form of the invention shown in Figures 9 to 12 is preferred.

In the alternative form the support base comprises a wheeled frame 19 generally of triangular formation, the sides of which are formed by a pair of longitudinal, preferably tubular, members 20 joined at their forward end and the base of which is formed by an axle 21 welded to the frame and extending to each side thereof to carry the wheels 22.

Secured to the axle 21 are tubular uprights 23 adapted to receive the T members 14 of the tilting frame assembly, which is identical with the frame assembly illustrated in Figures 1 to 8 with like parts being designated by like numerals.

The T members 14 may be clamped in adjusted positions in the uprights 23 by means of suitable clamp screws 23.

At the apex 24 of the frame 19 is a sleeve 24' in which is received a post 25 carrying a wheel 26 at its lower end. The post 25 is adjustable in the sleeve 24' by means of pins 32 introduced through suitable openings 33 in the post to adjust the height of the apex 24 of the frame 19. A suitable hitch ring 28 is provided by means of which the wheeled frame 19 may be rolled along the bottom.

Intermediate their length the members 20 carry brackets 29 which are adapted to form stops to limit tilting movement of the frame 2 in the anti-clockwise direction. These stops are provided so that on tilting the frame 2 the bow of the boat will nestle within the side members 20 just short of the apex 23 and above the ground or bottom surface, whereby the frame 19 can be hauled without the boat scraping.

As before a chain 30 connected between one of the members 20 and a hook 31 carried by the frame 2 limits tilting movement in the clockwise direction to bring the right-hand end roller to the water level in a position to receive a boat thereon, the right-hand end of the frame in this case being longer than the left-hand end to overbalance the frame to this stop position as limited by the chain 30.

To provide additional adjustment in the height of the tilt axis of the frame 2 above the base, as formed by the wheeled frame 19, it will be appreciated that T members 14 of different lengths may be employed.

The boat haul-out device shown in Figures 9 to 12 is particularly adapted for use where the water remains shallow for a substantial distance out from the shore line. With this form of the device the wheeled frame 19 can be run out into the water until a point is reached where there is sufficient draft to allow the boat to be beached to be brought in to this point.

The boat is then run up on the tilt frame 2 to overbalance the tilt frame and bring the right-hand end, as seen in Figure 9, against the stop brackets 29, with the bow of the boat nested within the side members 20. The frame, including the boat, may then be hauled ashore and up on the beach.

The procedure will be reversed to launch the boat, and as before a simple lifting action on the bow of the boat sufficient to raise the bow above the stern is all that is required as thereafte the weight of the boat propels it down the roller frame and into the water.

It will be understood that variations in detail of construction may be made without departing from the scope of the appended claims.
It is to be particularly noted that the instant device makes useful application of the buoyant effect of the water to assist in boat handling.

In particular, movement of the boat up the frame is facilitated in that the water buoyed up the stern, relieving the handling of this portion of the boat weight.

What we claim is our invention:

1. In a boat haul-out device, a base presenting a pair of spaced tubular uprights, a longitudinal roller-carrying frame having transverse pivot means, and a pair of T-shaped members having the heads thereof sleeved on said pivot means and having leg portions adapted to telescope into said uprights to removably and suitably support said frame from said base to tilt on said pivot means in both directions through a plane parallel to said base, and means to limit tilting of said frame in one direction of tilt.

2. A device for handling boats comprising a bottom engaging support base, a tilt frame, means pivotally supporting said frame from said base to tilt in both directions through a plane parallel to said base, said frame carrying rollers journaled parallel to the axis of tilt, and means to limit tilt in one direction about said axis, said base comprising a pair of end bars each having a pair of end projections extending at right angles to said bars, and a pair of tubular side members into the ends of which said projections extend, each of said side members having intermediate its length at least two tubular projections of different length extending at right angles to said side members and in angular relation to each other, and said side members being rotatable on said first-mentioned projections to selectively bring a pair of said latter tubular projections into an upright position, and means for locking said pair of tubular projections in upright relation, and said means pivotally supporting said tilt frame from said base comprising support means adapted to telescope into said upright tubular projections.

3. A device as claimed in claim 2 in which said longitudinal roller-carrying frame is provided intermediate its length with laterally projecting pivot means, and said means telescoping into said upright tubular projections comprises a pair of T-members having sleeve-like heads sleeved on said projecting pivot means, and leg portions telescoping into said tubular uprights.

4. A device as claimed in claim 2 in which each of said side members has two tubular projections disposed so that said side member and projections are mutually perpendicular.

5. A boat haul-out device comprising a base having spaced rotatable side members each carrying lateral tubular projections of different lengths to be selectively moved to an upright position on rotating said side member, means for locking corresponding tubular projections in upright relation, a longitudinal roller-carrying frame, and means pivotally supporting said longitudinal frame to tilt about a transverse axis in both directions through a plane parallel to said base and telescoping into said upright tubular projections.

6. A device for handling boats comprising a bottom engaging support base, a tilt frame pivotally supported from said base to tilt in both directions through a plane parallel to said base, said frame carrying rollers journaled parallel to the axis of tilt and means to limit tilt in one direction about an axis, said base comprising an elongated wheeled frame having a pair of longitudinal side frame members spaced apart at the rearward end of the frame and converging to a nose at the forward end of the frame, and said tilt frame being pivotally supported adjacent the rear of said wheeled frame on an axis extending transversely of said side members, said tilt frame being narrower than the separation of said side members at the forward end of said wheeled frame whereby said tilt frame is adapted to swing between a position inclining downwardly and rearwardly of said wheeled frame, and a position inclining downwardly towards the front of said wheeled frame with the forward end of said tilt frame received between said side members, and the nose of said wheeled frame as formed by said converging side members being adapted to form a stop for forward movement of a boat received on said tilt frame.

7. A boat haul-out as claimed in claim 6 in which said means to limit tilt comprises an adjustable means to limit downward tilt of said tilt frame rearwardly of said wheeled frame, and stop means are provided limiting downward tilt of said tilt frame towards the front of said wheeled frame.

8. A boat haul-out as claimed in claim 6 in which said wheeled frame is supported at the nose for vertical nose adjustment.

9. A boat haul-out device comprising a base adapted to be set out in the water, a longitudinal boat supporting frame pivotally supported intermediate its length from said base to tilt on an axis extending transversely of its length, said base and frame being adapted to be disposed with the frame extending outwardly from the water-shore, and means acting on said frame to adjustably limit tilting of said frame in a direction to lower the end thereof outwardly of the shore so that the outer end of said frame is maintained fixed against downward movement substantially at the water-level, said means allowing free tilting movement of said frame to raise the outer frame end.

10. A boat haul-out device comprising a base, a longitudinal frame pivotally supported intermediate of its length from said base to tilt on an axis extending transversely of its length, transversely extending rollers mounted on said frame, said base and frame being adapted to be set out in the water with the frame extending outwardly from the shore and having its tilt axis disposed adjacent to and above the water-level, and adjustable means acting on the end of said frame adapted to be disposed inwardly of the shore to limit downward tilting movement of the end of the frame adapted to be disposed outwardly of the shore, whereby the outer frame end is adapted to be anchored against downward movement under the weight of a boat substantially at water-level, said adjustable means providing free movement of said frame in a direction to raise the outer frame end.

11. A device as claimed in claim 10 in which said adjustable means comprises a link chain fixed to said base end and the inner end of said frame by means selectively engaging the links thereof.

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