Feb. 27, 1968 C. S. LA TOUR 3,370,310

TILTING LIFT FRAME FOR SMALL BOATS

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Fig. 2

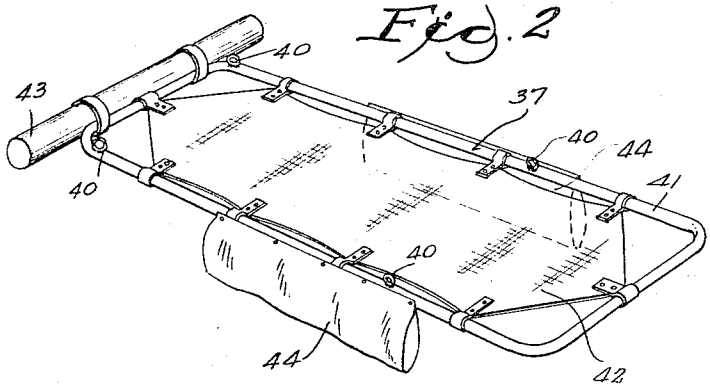


Fig. 1

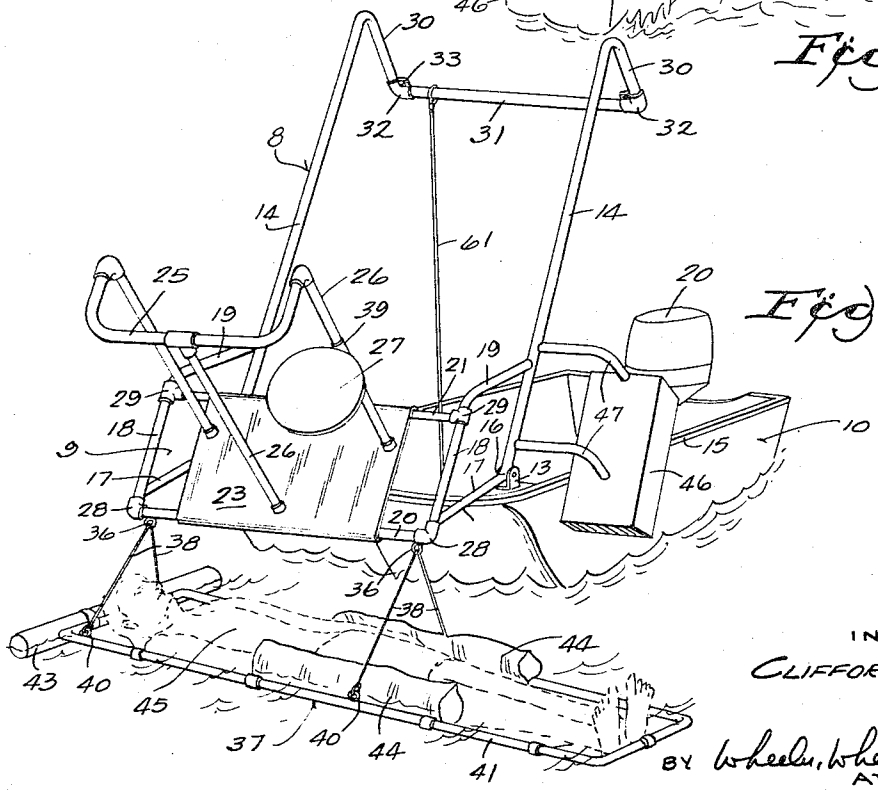


Fig. 3

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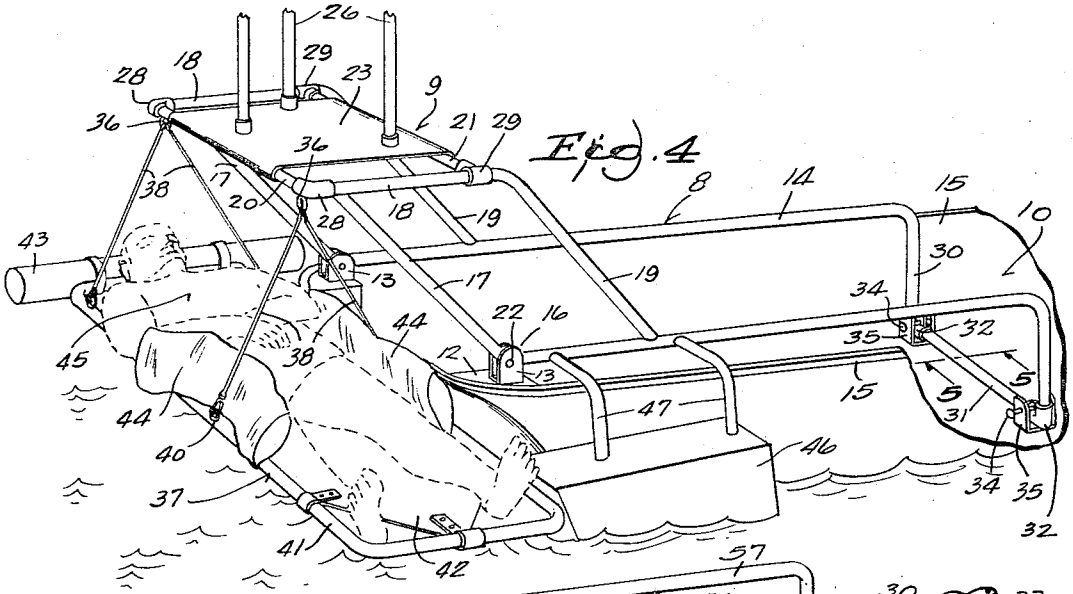


Fig. 4

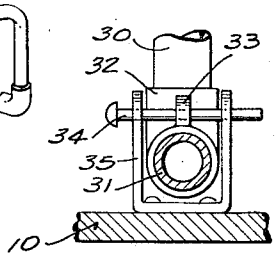


Fig. 5

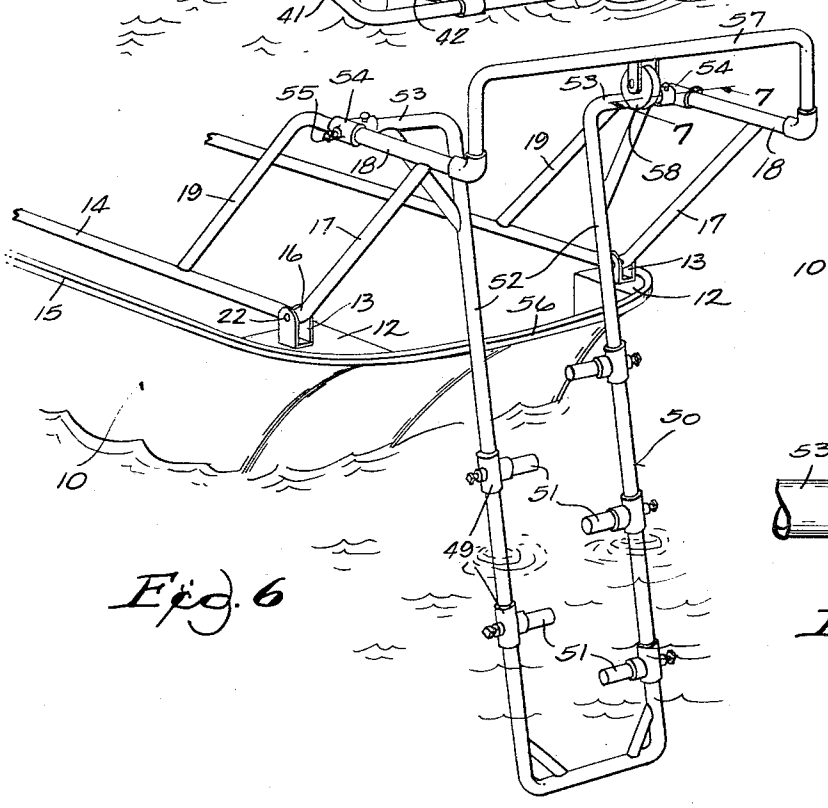


Fig. 6

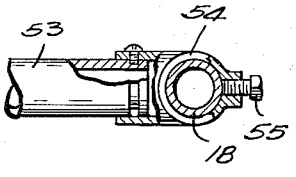


Fig. 7

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3,370,310

TILTING LIFT FRAME FOR SMALL BOATS

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13 Claims. (Cl. 9—14)

ABSTRACT OF THE DISCLOSURE

Disclosed herein is a tilting lift frame for rescue work, which is adapted for pivotal mounting to a boat hull. The frame has lever arms extending longitudinally of the hull which serve as handles to manipulate the suspension frame which overhangs forwardly of the hull. The suspension frame supports a stretcher for an injured person. The frame can be tilted forwardly for connection to the stretcher and then pivoted rearwardly to elevate the stretcher to a position above the water for travel to an aid station.

This invention relates to a tilting lift frame for small boats.

The tilting lift frame of the present invention has a multitude of uses. Of particular importance is its use in rescue work to recover an injured person from the water and to transport such person to an aid station.

The tilting lift frame of the present invention is characterized by its novel construction and association with a small boat. The tilting frame is elongated along the longitudinal axis of the boat and is pivotally mounted near one end thereof, preferably the bow. The frame has lever arms extending from the pivot axis longitudinally of the boat. The lever arms serve as handles to manipulate an elevated suspension frame which is at the other side of the pivot axis and overhangs the end of the boat. For use in water safety rescue work, a stretcher is adapted to hang from the elevated suspension frame.

In use, the lever arms are manipulated manually to swing the suspension frame toward the water to lower it to a level convenient for attaching a water-immersed patient-bearing stretcher thereto. Thereupon the lever arms are swung downwardly, thus to lift the stretcher-borne patient out of the water and to an elevated clear-of-the-water position overhanging the end of the boat. Thereupon the boat may proceed to an aid station.

The stretcher is desirably provided with floats by which it will support the patient while the stretcher is floated to a position beneath the suspension frame. The patient is subject to minimum handling and aggravation of his injuries in the course of recovering him from the water.

First aid swimmers will manipulate the patient onto the stretcher while he is naturally buoyed up by the water and easy to handle. All subsequent stresses are borne by the stretcher. This is very materially unlike the present crude practice of simply hauling the patient over the side of a small boat, with attendant great danger of aggravating his injuries and also endangering the occupants of the boat by upsetting its trim. In accordance with the present invention, the frame is mounted longitudinally of the boat and tilts in a longitudinal direction. This preserves maximum stability for the boat. The shift of weight of the injured person from the water to the boat is achieved with a minimum disturbance of boat trim.

The apparatus of the present invention has particular utility as a rescue rig for small motor boat races, etc. The rescue rig is typically stationed at a turn in the race course where it will be readily at hand in the event of an accident. The elevated suspension frame can further be

provided with a personnel platform useful as a judge's observation platform, etc.

The suspension frame can also be used as a support for a ladder useful in skin diving operations. The ladder will thus be mounted at the end of the boat so that the shift of weight of the skin diver entering and leaving the water will have minimum effect on the boat trim.

Other objects, features and advantages of the invention will appear from the following disclosure in which:

FIG. 1 is a perspective view of apparatus embodying the present invention.

FIG. 2 is a perspective view of a stretcher adapted for use with the tilting frame of the present invention.

FIG. 3 is a perspective view of apparatus embodying the invention in which the suspension frame is swung toward the water and is shown in the course of attachment to a patient-bearing stretcher.

FIG. 4 is a perspective view showing the stretcher-borne patient lifted to a clear-of-the-water position.

FIG. 5 is a cross section taken along the line 5—5 of FIG. 4.

FIG. 6 is a fragmentary perspective view showing the tilting frame to which a skin diving ladder is attached.

FIG. 7 is a cross section taken along the line 7—7 of FIG. 6.

Although the disclosure hereof is detailed and exact to enable those skilled in the art to practice the invention, the physical embodiments herein disclosed merely exemplify the invention which may be embodied in other specific structure. The scope of the invention is defined in the claims appended hereto.

While the tilting frame **8** of the present invention is not limited to attachment to any particular type of boat, it has been found that the illustrated shovelnose type of boat **10** is well adapted for use with my tilting frame because the bow **11** of the boat is broadbeamed, has substantial buoyancy, and does not project into the range of swinging movement of the suspension frame. Moreover, boat **10** provides advantageously located corner blocks **12** to which pivot brackets **13** may readily be fastened. This type of boat is also preferred when the boat is provided with an outboard motor **20** which preempts the stern transom area of the boat. If a row boat is used, the frame could be turned end for end to overhang the boat stern.

The tilting lift frame **8** desirably consists of tubular pipes suitably bent and having elbow couplings between some parts and welded connections between other parts, all as indicated in the drawing. The resulting framework consists of a suspension frame **9** which overhangs one end of the boat and means for tilting the suspension frame. In the disclosed embodiment, the said means consists of lever means comprising a pair of laterally spaced lever arms **14** which are rigid with the frame **9** and which extend longitudinally of the boat **10** and generally along its gunwales **15** so as to leave the center of the boat relatively unobstructed. Lever arms **14** are bent at **16**, where they are pivotally connected to brackets **13** on pintles **22**, and project upwardly beyond the bend **16** to form forwardly inclined posts **17** of an elevated suspension frame **9**.

Suspension frame **9** includes side arms **18** to which the upwardly extending pipes **17** are welded near their forward ends. Arms **18** have downturned extensions at **19**, desirably parallel to posts **17**, the ends of which are welded to the lever arms **14**. Frame **9** has a front cross piece **20** connected to arms **18** on elbows **28**, and a rear cross piece **21** connected to arms **18** on T-couplings **29**.

A sheetmetal personnel platform **23** is desirably provided on the suspension frame **9** for the support of a person **24**, as shown in FIG. 1. The platform **23** is desirably

provided with guardrail **25** mounted from the platform **23** on posts **26**, to one of which a seat or tray **27** may be attached on bracket **39** as shown in FIG. 3.

Near their rear ends remote from elevated suspension frame **9** the lever arms **14** are turned downwardly at **30** and are provided with elbows **32** cross connected by transverse pipe **31**. The elbows **32** may be provided with eyes **33** to receive the removable fastener pins **34** by which the lift frame may be secured in its position shown in FIGS. 1 and 4. The boat **10** is provided with U-shaped saddle brackets **35** into which the elbows **32** fit. The brackets **35** are apertured to receive the pins **34** and thus lock the frame in its down position.

The front cross member **20** of the suspension frame **9** is provided with couplings such as the eye bolts **36** from which a stretcher **37** may be suspended by means of the free swinging suspension cables **38**, as shown in FIGS. 3 and 4.

The stretcher may consist of a closed rectangular loop pipe frame **41** having a canvas web or pallet **42**. Frame **41** is desirably provided with floats **43**, **44** by which the stretcher **37** will support an injured person **45** in the water. This is shown in FIG. 3. The stretcher is manipulated by first aid swimmers beneath the injured person **45** who is buoyed up by the water and easily stretched on the stretcher with minimum handling. The stretcher-borne patient is floated to a position forwardly of the boat bow **11**. A person in the boat **10** will release the anchor pins **34** and will manually tilt the frame to its position shown in FIG. 3. The suspension frame **9** is thereby swung toward the water so that the cables **38** can be readily attached to the stretcher frame **37**, on eye bolts **40**, or the like. A limit line **61** is desirably provided to limit the forward swing of the frame.

Thereafter the lever arms **14** of the tilting frame are manually swung to their down position, as shown in FIG. 4, and the anchor pins **34** reengaged. This will lift the stretcher-borne patient gently out of the water and to the bow overhanging position shown in FIG. 4. As is clear from FIGS. 3 and 4, the stretcher and patient will be substantially horizontal throughout the lifting sequence. This is because the suspension cables **38** are free to swing with respect to the frame **9** as it swings on its pintles **22**. Gravity will keep the stretcher horizontal. The boat may then be navigated to a first aid station or the like where the stretcher can be detached from the frame **9** and the patient given appropriate medical attention.

A desirable feature of the tilting frame consists in the floats **46** which are mounted by curved pipe bracket arms **47** on the lever arms **14** in a position to overhang the sides of the boat **10** and to enter the water. The floats **14** are mounted as close as practicable to the boat bow and proximate the pivot brackets **13**. Accordingly, they add buoyancy to the bow of the boat under the added weight of the frame **8**, **9** and any load on the frame **9**, such as a stretcher-borne patient, as shown in FIG. 4.

When the suspension frame **9** is swung down toward the water, as shown in FIG. 3, however, the floats **46** at the opposite side of the pivot brackets **13** are swung upwardly out of the water. Accordingly the bow **11** may be immersed to a greater extent, if desired, without resistance by the floats **46**.

FIG. 6 shows the tilting frame modified to support a skin diving ladder **50**. This ladder consists of a generally rectangular framework **52** having stub steps **51** adjustably attached to the frame on T-brackets **49**. This ladder may easily be negotiated by a skin diver with flipper foot attachments. The side frame members **52** of the ladder **50** are turned outwardly at their top ends at **53** and are provided with slip coupling sleeves **54** adjustable along the suspension frame arms **18**. The sleeves **54** may be clamped in any desired position by the set screws **55**.

The ladder **50** is adapted to be supported by the rubrail **56** of the bow **11** of the boat **10**, thus to support the ladder at various angles of incline, depending upon the

adjusted position of the slip couplings **54**. In this embodiment the elevated suspension frame desirably further comprises a somewhat elevated cross arm **57** provided with hoist apparatus such as pulley **58** by which heavy skin diving equipment may be handled.

I claim:

1. A tilting lift frame for attachment to a small boat and comprising:

a suspension frame elevated above the gunwales and overhanging one end of the boat,

pivot means on which the suspension frame is fastened to the boat near said end and on which the suspension frame may be tilted to swing it toward and away from the water,

and a lever arm rigid with said suspension frame and extending longitudinally of the boat from said end toward its other end and by which the suspension frame is manually tilted toward and away from the water.

2. A tilting lift frame for attachment to a small boat and comprising an elevated suspension frame overhanging one end of the boat, pivot means on which the suspension frame is fastened to the boat near said end and on which the suspension frame may be tilted to swing it toward and away from the water, lever means extending longitudinally of the boat from said suspension frame beyond said pivot means and toward the other end of the boat for manually tilting the suspension frame about said pivot means, a stretcher and means for hanging the stretcher from the suspension frame and by which the stretcher will be substantially horizontal in all positions as it is lifted to an elevated clear of the water position when the suspension frame is swung away from the water.

3. The lift frame of claim **1** in combination with a personnel platform on the suspension frame.

4. A tilting frame for attachment to a small boat and comprising an elevated suspension frame overhanging one end of the boat, pivot means on which the suspension frame is fastened to the boat near said end and on which the suspension frame may be tilted to swing it toward and away from the water, and means for tilting the suspension frame about said pivot means and comprising a lever extending along the side of the boat, in combination with a float attached to the lever adjacent the pivot means and overhanging the side of the boat, said float being adapted to enter the water when the suspension frame is swung upwardly away from the water and to swing clear of the water when the suspension frame is swung downwardly toward the water.

5. The lift frame of claim **1** in which the lever arm is disposed at one side of the boat and extends generally along a gunwale thereof, in combination with another like lever arm at the other side of the boat and extending generally along the other gunwale thereof, said lever arms being laterally spaced one from the other to leave the centre of the boat relatively unobstructed.

6. The tilting lift frame of claim **1** in further combination with a ladder suspended from the suspension frame.

7. The device of claim **6** in which the ladder has a portion intermediate its length to bear against the end of the boat and establish the slope of the ladder.

8. The device of claim **6** in combination with hoist apparatus on the suspension frame over the ladder.

9. The device of claim **6** in which the ladder has an adjustable connection to the suspension frame.

10. Apparatus of the character described comprising:

a small boat,

a lift frame comprising:

a lever extending longitudinally of the boat,

an elevated suspension frame overhanging one end of the boat,

pivot means intermediate the ends of the frame and on which the lift frame is fastened to the boat near said one end and on which the frame may be manual-

ly tilted to swing the suspension frame toward and away from the water,

a stretcher,

means for hanging the stretcher from the suspension frame to be substantially horizontal in all positions and by which the stretcher is selectively disposed in a water immersed position when the suspension frame is swung toward the water and in a water clear position when the suspension frame is swung away from the water.

11. Apparatus of the character described comprising a small boat, a lift frame comprising a lever extending longitudinally of the boat, an elevated suspension frame overhanging one end of the boat, pivot means on which the lift frame is fastened to the boat near said one end and on which the frame may be tilted to swing the suspension frame toward and away from the water, a stretcher, means for hanging the stretcher from the suspension frame and by which the stretcher is selectively disposed in a water immersed position when the suspension frame is swung toward the water and in a water clear position when the suspension frame is swung away from the water, said lift frame being provided with a float which overhangs the side of the boat and is adapted to enter the water when the suspension frame is swung away from the water and to swing away from the water when the suspension frame is swung toward the water.

12. The apparatus of claim **10** in combination with a personnel platform on the suspension frame and above the level at which the stretcher is hung therefrom.

13. The apparatus of claim **10** in which the stretcher has floats to support an injured person in the water.

References Cited

UNITED STATES PATENTS

600,355	3/1898	Burton	9—14
2,398,274	4/1946	Albert	9—30 X
2,519,376	8/1950	Jennings	9—11
2,916,009	12/1959	Baird	115—41
2,940,413	6/1960	Sanders	9—39 X

FOREIGN PATENTS

116,839	3/1959	U.S.S.R.

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