Dec. 3, 1957 J. E. LUNSMAN ET AL 2,815,131

DEVICE FOR LIFTING BOATS

Filed March 20, 1953 2 Sheets-Sheet 1

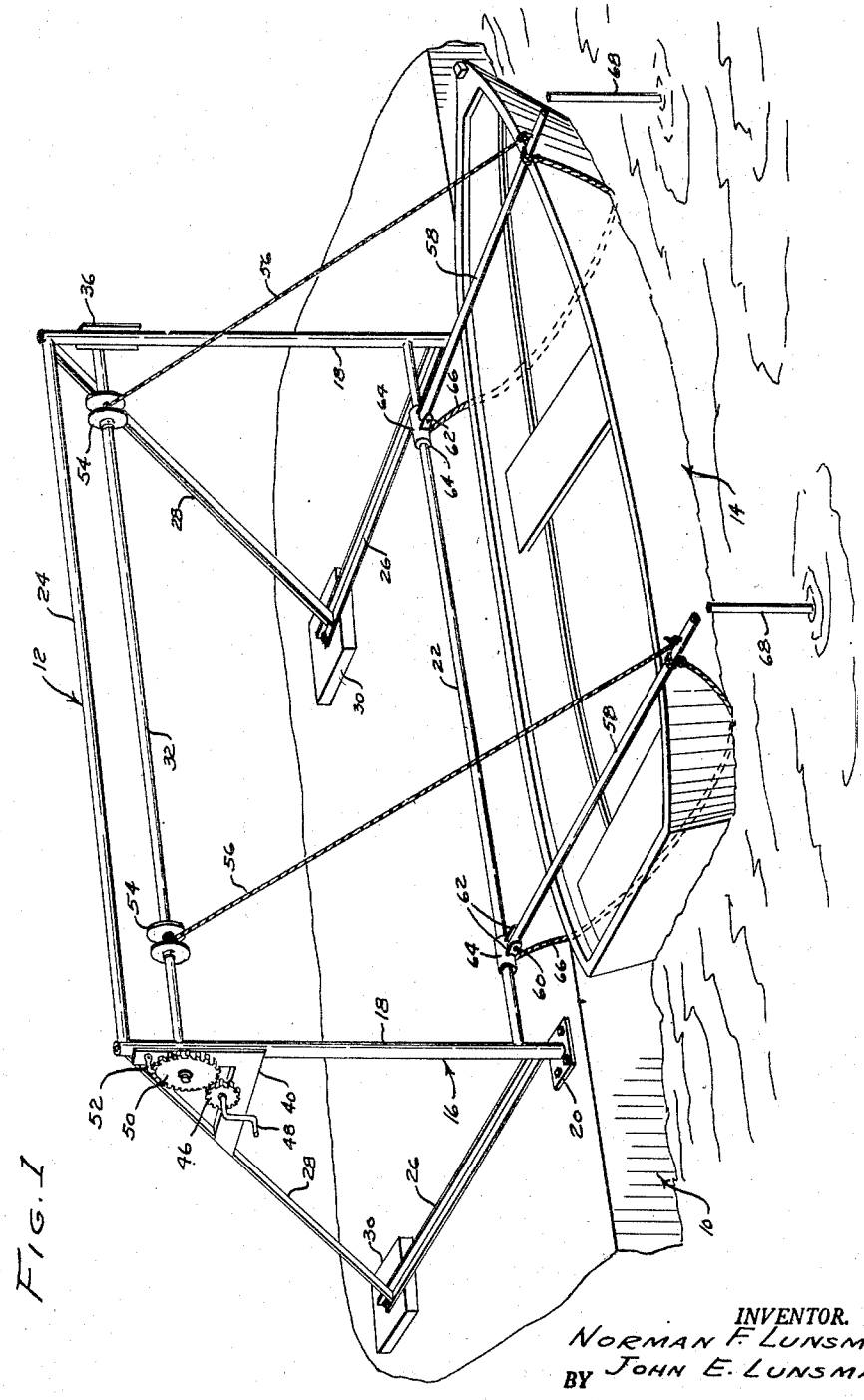


FIG. 1

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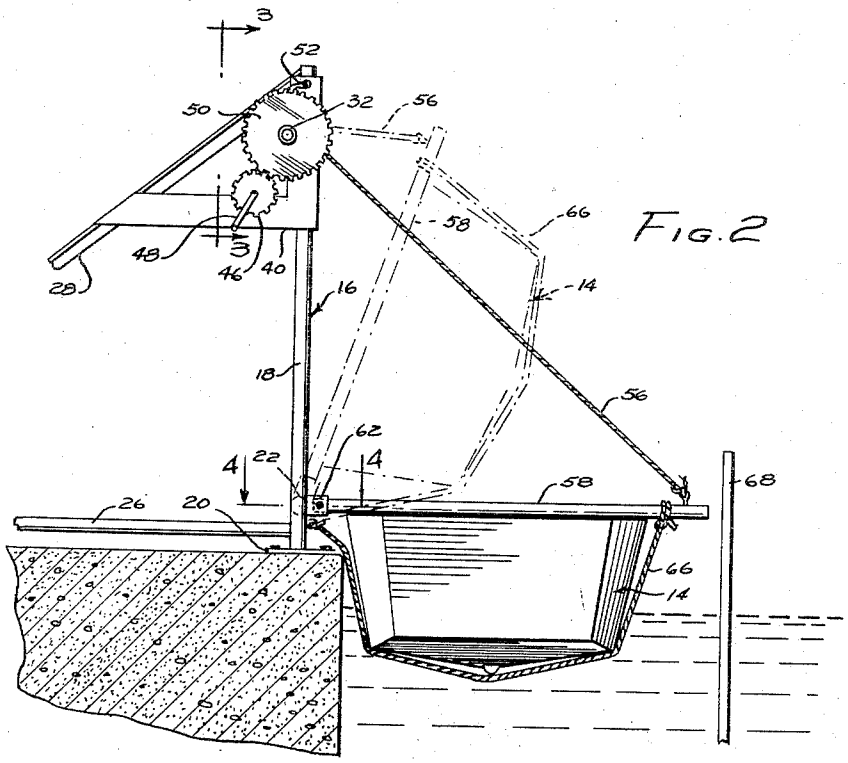


FIG. 2

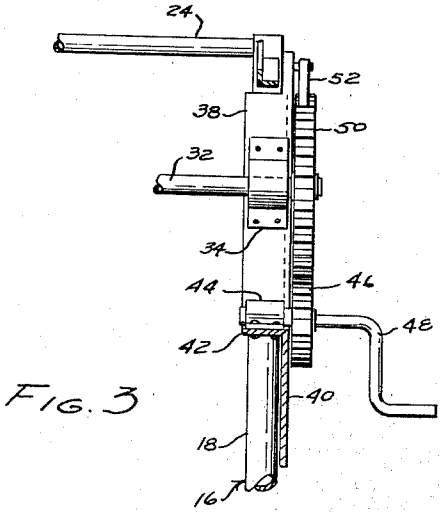


FIG. 3

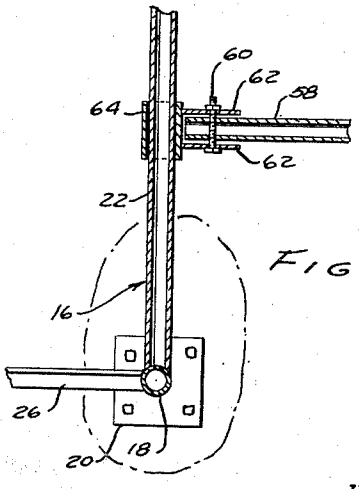


FIG. 4

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DEVICE FOR LIFTING BOATS

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Application March 20, 1953, Serial No. 343,688

1 Claim. (Cl. 214—1)

This invention relates to boat handling devices. The invention, more specifically, has regard to a device for lifting small boats from the water and turning said boats upon their sides.

The desirability of a structure usable as set forth above is well appreciated. However, previous devices conceived for the same purpose have not, to our knowledge, found wide spread commercial favor. We believe this may be due to the fact that many of the prior art devices have been undesirably complex. Others, we believe, do not act with suitable speed and efficiency upon a boat floating in the water, to hoist said boat and tilt the same on its side.

In view of the above, we have devised a boat lift which, summarized briefly, includes a main frame which can be mounted upon a dock, landing, or the like, adjacent a body of water.

Hingedly mounted on said frame, to swing in vertical planes, are boat support arms. These swing downwardly into positions in which they extend transversely of, and overlie, a boat floating in the water. When said arms are in these positions, flexible elements, connected at one end to the main frame and normally connected at their other ends to upstanding posts mounted in the water, can be detached from said upstanding posts and secured to the boat support arms, thus to extend under the boat. Manually operated means on the main frame, which means may include reduction gearing, is then utilized to swing the arms and the supported boat upwardly, while tilting the boat on its side.

Among important objects of the invention are the following:

To devise an improved boat lift and turning device that can be manufactured at a minimum of cost and which will be of simple design;

To speed up and make easier the task of engaging the boat for lifting;

To devise a structure for the purpose set forth above which will be adapted to act upon boats of various sizes and types; and

To facilitate the lifting of boats to positions in which they can be readily repaired, cleaned, or maintained.

Other objects will appear from the following description, the claims appended thereto, and from the annexed drawings, in which like reference characters designate like parts throughout the several views, and wherein:

Figure 1 is a perspective view of a boat lifting and turning device formed in accordance with the present invention, as it appears when ready to lift a boat out of the water;

Figure 2 is an end elevational view, portions being broken away, the dotted lines showing the boat position after the boat has been lifted;

Figure 3 is an enlarged, detail sectional view taken on line 3—3 of Figure 2, showing the means for swinging the boat support arms upwardly and downwardly; and

Figure 4 is an enlarged, detail sectional view on line

4—4 of Figure 2, showing the connections of the boat support arms to the main frame.

The reference numeral **10** has been applied generally to a dock, landing, wharf, or the like. The reference numeral **12** has been applied generally to the lifting device constituting the present invention, and at **14** we have designated a conventional boat to be lifted.

The lifting device **12** includes a stationary, open main frame generally designated **16** having, at opposite ends thereof, tubular, vertical posts **18**. Posts **18** are welded or otherwise rigidly connected, at their lower ends, to feet **20**, which can be bolted to the landing **10**.

Rigid at its opposite ends with, and extending between, the lower end portions of posts **18** is a lower longitudinal brace bar **22**. An upper longitudinal brace bar **24** is rigid at its opposite ends with the upper ends of posts **18**, and extends in parallelism with the horizontal bar **22**.

Transverse brace members **26** are fixedly connected at one end to the lower ends of the respective posts **18**. Inclined braces **28** are fixedly connected at one end to the other ends of the transverse braces **26**. The inclined braces **28** are rigid, at their other ends, with the upper ends of the posts **18**.

Base blocks **30** underlie the rear ends of the brace members **26**, **28**, and provide means to which said rear ends can be bolted or otherwise fixedly attached.

From the description so far provided, it is seen that we utilize a stationary main frame having a vertically disposed front portion formed as an open, rectangular framework and comprised of posts **18**, and bars **22**, **24**.

We believe that although the main frame **12** has been illustrated as being anchored to the landing, it might, quite possibly, be rollably mounted, for movement to selected locations. In these instances, the main frame could be chocked up at a particular location at which a boat is to be lifted from or returned to the water. Of course, if the main frame were rollably mounted, it would be necessary that weight be applied in the area of the rear ends of transverse braces **26**, to counterbalance the boat **14**.

An elongated, horizontally disposed shaft **32** is journaled at its opposite ends in bearings **34**, a short distance below the upper longitudinal brace bar **24**. One bearing **34** is mounted upon a bearing support plate **36** of right angled cross section, fixedly secured to the upper end portion of one post **18**. The other bearing **34** (Figure 3) is mounted upon the vertically disposed, inwardly turned flange **38** of the vertical leg of an angular gear support plate **40**. Gear support plate **40** has its vertical leg secured fixedly to the other post **18**, the horizontal leg of said plate **40** extending to and being rigidly connected to the adjacent inclined brace **28**.

Referring to Figure 3, the horizontal leg of plate **40** has an inturned longitudinal flange **42** on which is mounted a bearing **44** for the shaft of a small drive gear **46**, said shaft having a crank **48** rigid therewith. In mesh with the gear **46** is a larger, driven gear **50**, secured to one end of the shaft **32**. A pawl **52** is pivotally mounted upon the upper end of plate **40**, and gravitates, normally, to a position in which it will prevent rotation of the gear **50** in one direction.

Fixedly attached to shaft **32**, adjacent opposite ends thereof, are drums **54**, and wound upon said drums are lifting cables **56** secured to the outer ends of boat support arms **58**. Arms **58**, at their inner ends, have transverse openings through which extend hinge bolts **60**, said hinge bolts passing through the forwardly projected ears **62** of hinge sleeves **64** rotatably mounted upon the lower longitudinal brace bar **22**.

Secured at one end to the respective sleeves **64** are flexible elements **66**. Elements **66** normally are connected, at their other ends, to standards **68** mounted in

spaced relation to the landing **10**, in the water. The length of elements **66** is such as to permit a boat to be floated thereover, when said elements **66** are connected to standards **68**.

In use of the device, a boat **14** would be first floated into position over the respective elements **66**. Elements **66** are then detached from standards **68**, and are attached to the outer ends of the boat support arms **58**, after arms **58** have been lowered to the positions shown in Figure 1.

The boat, and the associated parts of the boat lift, will now appear as shown in full lines in Figures 1 and 2. The crank **48** is then rotated, in a direction that will cause the arms **58** to be swung upwardly to the dotted line positions shown in Figure 2. The boat is thus lifted from the water, and tilted transversely to facilitate cleaning, maintenance and the repair thereof.

The pawl **52**, of course, prevents rotation, normally, of the gear **50** in a direction that would tend to unwind the cables **56** while the boat is in its lifted position.

It is believed apparent that the invention is not necessarily confined to the specific use or uses thereof described above, since it may be utilized for any purpose to which it may be suited. Nor is the invention to be necessarily limited to the specific construction illustrated and described, since such construction is only intended to be illustrative of the principles of operation and the means presently devised to carry out said principles, it being considered that the invention comprehends any minor change in construction that may be permitted within the scope of the appended claim.

What is claimed is:

A boat lift comprising a main frame; a plurality of rigid arms connected at one end thereto for vertical swinging movement about a common horizontal axis; U-shaped, flexible slings depending from and connected at their opposite ends to the respective arms, to support a boat thereagainst during swinging movement of the arms; and standards stationarily mounted in vertical positions, said standards corresponding in number to the several arms and being disposed outwardly from and in closely spaced relation to the arc described by the other ends of the arms during swinging movement of the arms, said slings being detachably connected at least at one end thereof to the arms for selective connection of the slings to the standards and arms respectively.

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