

June 9, 1942.

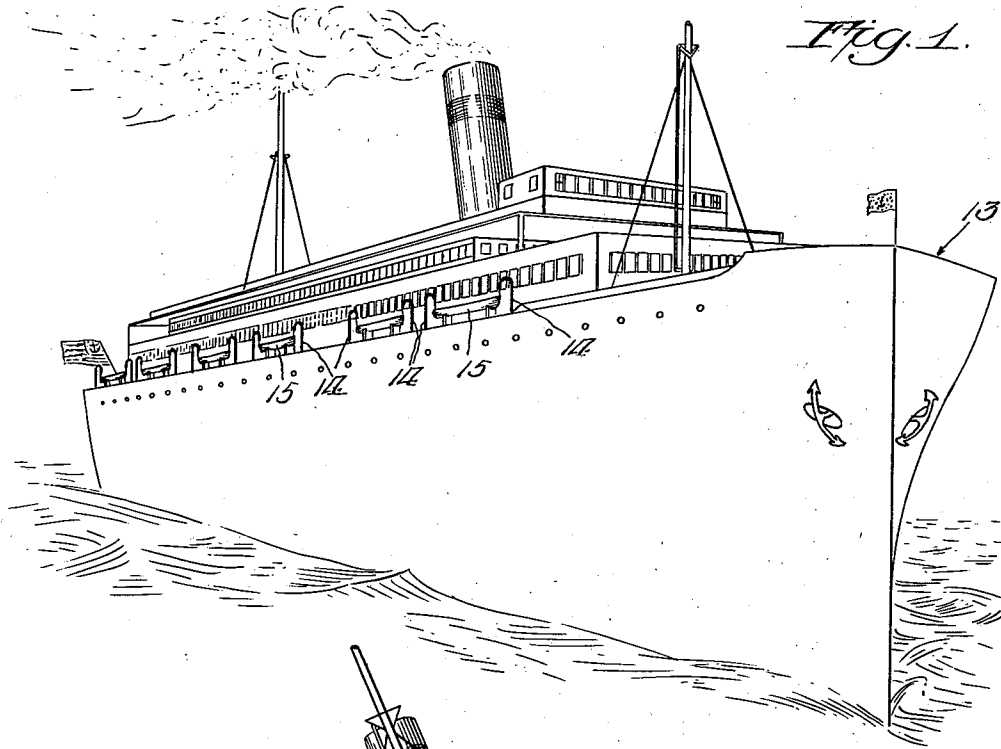
J. L. LARSON

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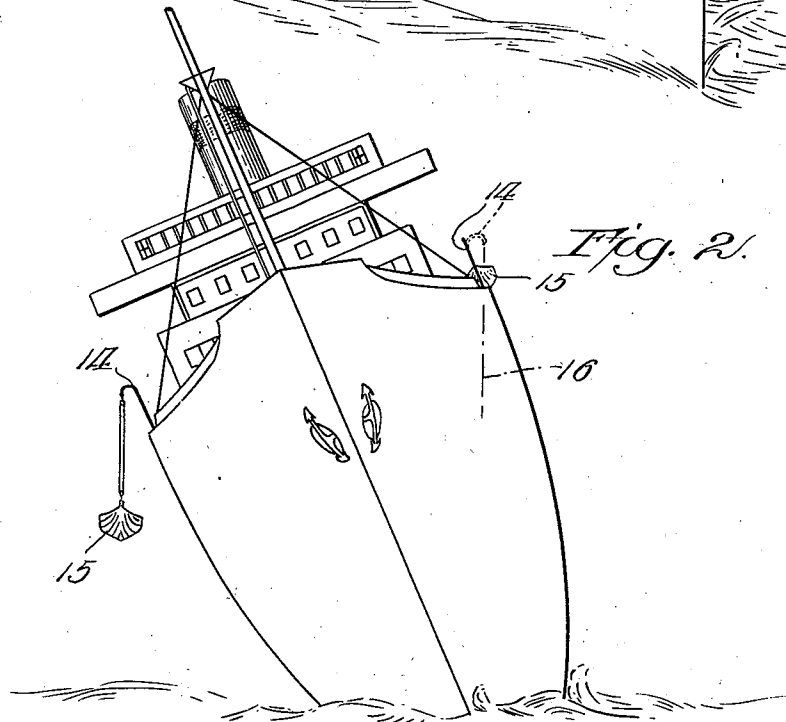
BOAT LAUNCHING DEVICE

Filed Feb. 2, 1940

3 Sheets-Sheet 1



*Fig. 1.*



*Fig. 2.*

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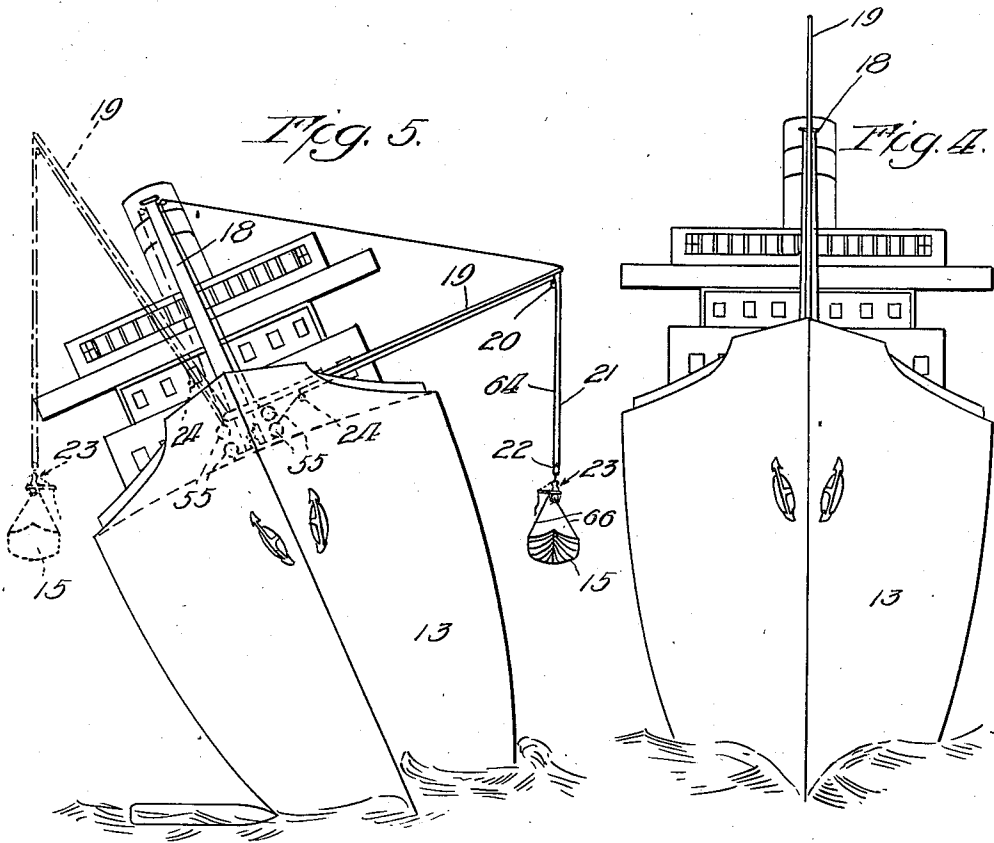
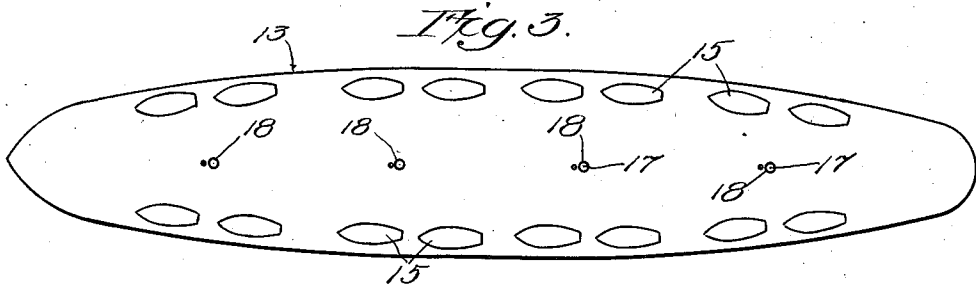
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BOAT LAUNCHING DEVICE

Filed Feb. 2, 1940

3 Sheets-Sheet 2



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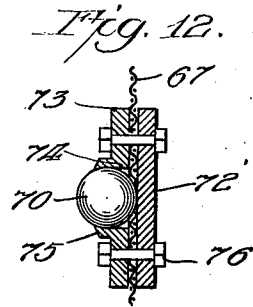
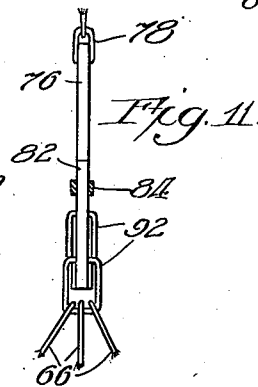
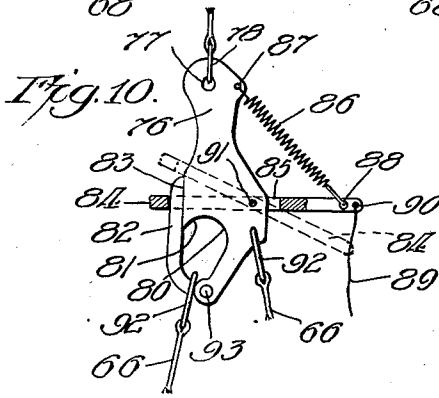
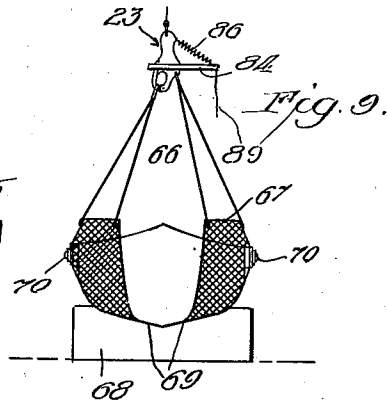
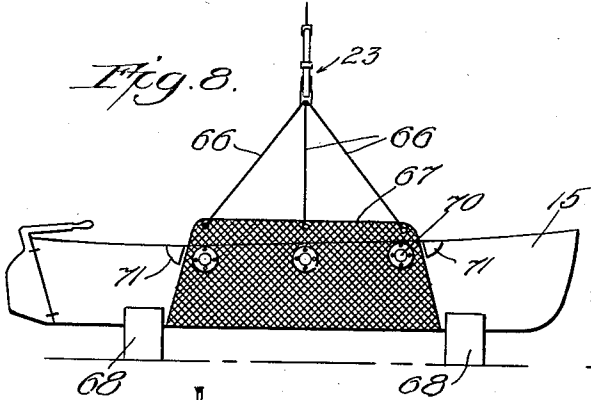
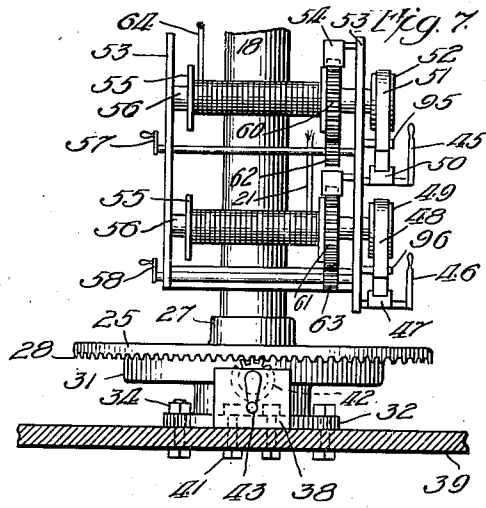
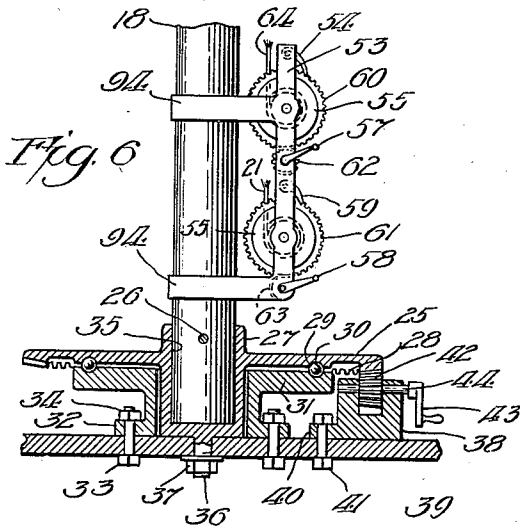
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2,285,590

BOAT LAUNCHING DEVICE

Filed Feb. 2, 1940

3 Sheets-Sheet 3



Inventor:  
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# UNITED STATES PATENT OFFICE

2,285,590

## BOAT LAUNCHING DEVICE

John L. Larson, Chicago, Ill.

Application February 2, 1940, Serial No. 317,003

### 1 Claim. (Cl. 9—23)

My invention relates to structure for use in connection with life saving equipment aboard ship, especially with respect to life-boat launching devices and structure therefore, namely, an improvement of the method of launching life-boats.

The main object of my invention is to provide a practical crane structure for launching life-boats from either side of a ship.

Another object of my invention is to provide an efficient releasable hook structure for releasing the holding member which carries a life-boat.

Another object of my invention is to provide a net supporting means for cradling therein a life-boat in a balanced manner, and which is adapted to be released at one point so as to free it from supporting engagement with a life-boat after the said life-boat has been launched.

Another object of my invention is to provide life-boat holding or cradling means which is provided with roller means in order to enable the same to operate efficiently when conditions make it necessary. The said cradling device thus being permitted to glide along or roll along the side of a ship when the said ship is listed over to an angle which makes such rolling on the side of ship absolutely imperative, in order to effectively launch a life-boat.

Another object of the invention is to provide crane means provided with a movable boom structure so as to permit launching life-boats from a ship from either side of the ship when the said ship is listed over at an angle.

Another object of the invention is to provide horizontally rotating crane mechanism so as to adapt the said crane for launching a series of life-boats on any or both sides of a ship.

Another object of the invention is to provide winch mechanism for controlling the operation of the said crane structure when launching life-boats from any side of a ship.

Another object of my invention is to provide a simple, practical, rigid, quick operating, and efficient structure for the purposes hereintofore mentioned, and for those advantages and purposes herein to follow in the explanation and description of my invention.

Other objects and features may become apparent from the accompanying drawings and descriptions elucidating how my invention is to be used.

Thruout the entire description like symbols will be used to designate like parts and the views represent the following:

Fig. 1 is a perspective view of a ship showing the present standard form of davit structure and method of supporting life-boats.

Fig. 2 shows the ship after it has been struck, or for other reasons may have listed to the angu-

lar position indicated, and shows how only one side of the ship may be used for launching life-boats, at the same time illustrating the inadequacy of the davit structure on the opposite side, showing how the gravitational action renders it impossible to launch and lower life-boats.

Fig. 3 shows a top plan view of the life boats on a ship arranged in accordance with the requirements of my invention, and also shows positioned therein my invention comprising the points at which such cranes would be situated with respect to the life-boat arrangement or layout indicated.

Fig. 4 shows the prow of a ship illustrating one of the crane structures comprising my invention in normal and inoperative position.

Fig. 5 shows the same ship from the prow end listed over on an angle due to having been struck by a torpedo, and shows how my invention may be utilized in launching life-boats from either side, and in contra distinction to the view of Figure 2, shows how the boom arrangement comprising an important part of my invention is utilized to straddle the beam of the ship and satisfactorily launch a life-boat if it should be necessary from the side of the ship listed inwardly.

Fig. 6 shows a fragmentary partially cross-sectional view of the operable structure embodied in the winch control comprising my invention.

Fig. 7 is a side view thereof.

Fig. 8 shows a front elevation of the cradling member, a part of my invention utilized for supporting a life-boat during the launching operation.

Fig. 9 is an end view of the view shown in Figure 8.

Fig. 10 is a front view of the releasable hook structure comprising an important part of my invention.

Fig. 11 is an end view of the one shown in Figure 10.

Fig. 12 is an enlarged fragmentary cross-sectional view showing the rolling means embodied in the cradling member comprising part of my invention.

Referring to the views Figure 1 and Figure 2, it can be seen that with the present method of launching life-boats, the system is not sufficient or adequate.

Having had considerable experience as a sea captain on ocean liners and extensive voyages in command of ships, I have found that in cases of emergency when it is necessary to launch life-boats it is a rather difficult task with the present system of davits. Much confusion results, especially because the passengers on a ship,

at the time of such an emergency, are in a state of panic and chaos reigns supreme.

Men operating davits because of confusion and panic are constrained to operate them inefficiently and not as required. The davits indicated on the drawings, Figures 1 and 2, as 14, on the ship generally designated 13, are swung outward as indicated in the view Figure 2, and then are permitted by virtue of control means and proper pulley structures to lower the life-boats 15 until they contact the surface of the water.

It can be seen that the life-boats are supported by two davits, and when it comes to lowering the boat two men are in control and both must lower at the same rate of speed and also start the lowering operation simultaneously, otherwise one being lowered ahead of the other will cause the life-boat to upset angularly and discharge its passengers.

I wish to call particular attention to the right-handed position of the davit 14, and the life-boat 15 when the ship is listed over, the center line 16 showing the gravitational pull of the life-boats demonstrates that it is absolutely impossible to launch the life-boats which may contain fifty or more passengers, because of the fact that the side of the ship seems to interfere with the launching of the life-boats.

It has been my experience that even where the conditions are such that only the life-boats 15 on the one side of the ship may be lowered as indicated in the view Figure 2, namely, on the left hand side, that side of the ship may not be "lee" side, in which event considerable difficulty may be experienced because if it is the weather side the waves and unfavorable conditions tend to force the life-boats back toward the ship and makes launching rather almost impossible and very difficult. Whereas, if the right hand side should be the "lee" side with the present form of davit the boats 15 on the right hand side could not be launched, and with the present system of davit, only one set of life-boats can be utilized, it would make it rather inconvenient to remove the life-boats from the davits on the unlaunchable side, and attach them to the davit on the launching side because there isn't sufficient time to do all such work in an emergency.

With my arrangement, I provide a crane structure which is located to handle approximately four to six life-boats; in the view Figure 3 an arrangement handling four life-boats per crane is indicated. The davit structures are rather expensive and altho my crane structure, perhaps, might be somewhat more expensive to manufacture, yet less of them would be required and they would be more universally applicable to handling the life-boats and launching them in the most efficient manner and the quickest time.

In the view Figure 3, the ship is designated by the numeral 13, the life-boats 15, the position of the crane structure comprising my invention indicated at 17.

Referring to the views Figure 4 and Figure 5, my invention comprises a main support or standard 18, to which is pivotally secured a boom 19, the said boom is positioned to operate in an arcuate manner, and the said boom is preferably made somewhat longer than half the beam of the ship so as to straddle the side of the ship when the ship is listed over at an angle as shown in the view Figure 5.

Of course it goes without saying that my arrangement as indicated by the dotted lines in the view Figure 5 will operate favorably from

the left hand side, and will operate without any difficulty and just as efficiently from the right hand side of that view.

In Figure 5 an important part of my invention is designated by the numeral 23 and which I call an instantly releasable hook, the purposes of which will be later described.

The boom 19 being pivotally secured to the main support member 18, is controlled by winch operation which will be later explained and described, and provides the cable means 21 and 64 and pulleys 23, and 22 to connect the same to the releasable hook generally designated 23. The cable 64 is connected to the winch construction by virtue of an idler pulley indicated 24 in the view Figure 5.

Referring to the detailed structural views Figure 6 and Figure 7, I show the winch mechanism utilized for operating the boom structure as well as the cable structure for lowering life-boats, once the boom has been positioned so as to launch life-boats efficiently.

Referring to the views Figure 6 and Figure 7, the mast or main support member as shown at 18 is secured to a flanged casting 25, which is provided with bevel gear teeth and is provided with a recess 35 to receive the mast 18 which is further secured to the hub 27 by virtue of a large pin 26 which is strong enough to prevent rotation of the mast 18 with respect to the cast member 25, securing the two members 27 and 18 rigidly.

The member 25 is further provided with a ball-bearing track or raceway 29, and is adapted to house the ball-bearings designated 30 which are also located within a track in the flange casting 31 in order that the gear 25 may rotate freely whenever the handle 43 is operated so as to position the entire crane structure at a proper angle to be anchored to a life-boat for launching the said life-boat from its original position on the ship.

In view of the fact that four of the life-boats in this particular instance are operated by each crane structure, I provide gearing mechanism to either rotate the crane to an angle of about 275 degrees or the crane structure may operate within the full 360 degrees, of course, which ever is found the most desirable and the most preferable method may be utilized.

The casting 31 is secured to the boat deck of the ship 39 by means of bolts 33 and nuts 34 secured to the lower flange 32. The hub of the gear casting 25 is provided with an extension 36 which may be secured to the deck 39 by nut 37 or any other suitable method may be utilized which will conform with ship building requirements and which will afford rigidity to the entire structural arrangement as applied to lift efficiently the tonnage or weight necessary.

It is a matter of engineering design to proportion the parts to be made strong and sufficiently durable for the purposes needed.

The gear 28 meshes with a gear 42 which is mounted on a shaft 44 secured to the handle 43, the gear and shaft being mounted in a suitable bearing in the bearing block 38 which is provided with a flange portion 40 in order to secure it rigidly to the deck of the ship by bolts and nuts 41.

In order to allocate the crane structure to the position wherein the boom will be in alignment with the approximate center of the life-boats which are positioned as indicated in the view Figure 3, the crank 42 is rotated thus enabling

one to position in alignment and close proximity the engaging portion of the hook 23 to engage the net 67 which is provided for cradling the life-boats before and while launching the same.

The cable 64 and the cable 21 are provided in order to permit paying out cable or taking in or winding up cable whenever it is desired to position the boom to a certain angular position to straddle the beam of the ship so as to afford a favorable position of the boom top portion, thus permitting the operator to launch life-boats to the surface of the water clear of the side of the ship whenever conditions permit such launching.

The winch structure and gear structure also enables the operator by a second winch arrangement to control the operations of the cable once the boom has been positioned so as to lower the life-boats to the surface of the water.

The means or structure for controlling or paying out or reeling in of the cables 64 and 21 is represented and clearly indicated in the view Figure 7.

The dual winch structure is comprised of a frame work 53 which is provided with two circularly bent portions 94 in order to secure the same rigidly and firmly to the mast 18. The structure 53 is provided with suitable bearings to receive the winch pulleys 55 and the shaft upon which they are secured 56. Both winches are geared to be operated thru the handles 57 and 58 either by hand power, or they may be motorized and driven either by a belt drive, chain drive, or other suitable means of power transmission.

In the form shown, the structure for hand method operation is illustrated. The handle members 57 and 58 are secured to shafts which are mounted in the member 53 and are connected or secured to the pinions 62 and 63 respectively. The pinions 62 and 63 in turn mesh with the gears 60 and 61 secured to the shafts 56 of the two winch members. The gears 60 and 61 are held in checking or locked engagement by the pawls 54 and 59 which are pivoted in the frame work 53 and are manually operable for release, or holding engagement.

The extension on the right hand side of the shaft 56 has mounted thereon the pulleys 52 and 49 which act as brake drums, being engaged by the belt structure 51 and 48 respectively, one end of the belt structure being secured to the member 95 which is a pin or other clamping structure secured to the frame work 53 the other winch braking structure belt 48 being secured to the pin 96.

The brake controls 45 and 46 are pivoted in the frame work and are provided with clamping blocks 50 and 47 secured to the opposite ends of the belt 48 and 51. Thus by rotating the handle members or controls 45 and 46 toward the observer a tightening of the belt is effected which in turn provides braking action to the drums.

The winch reel 55 in either case may be operated by turning the crank handles 57 or 58 depending on what is needed to be done. The upper winch structure is provided in order to pay out enough cable to position the boom 19 in a suitable relation angularly with the mast 18, so that the upper-most tip portion of the boom 19 will effectively clear and straddle the beam of the ship so as to permit launching in the most efficient manner.

The lower winch is used for the purpose of paying out sufficient cable and thus lowering the life-boat once it has been secured in a man-

ner to be hereinafter explained preparatory to launching purposes.

The mast is thus positioned in the proper angular relation to the boom, the mast and boom together are positioned with respect to the proper allocation of the respective life-boats 15 by means of the bevel gear mechanism 42 and 28 operated by the handle member 43, which as heretofore mentioned is utilized for setting the crane structure within any one of four respective angles, inasmuch as in this particular case each crane handles four boats two on each side, and as heretofore explained may be made to operate within the complete circle of 360 degrees, or an arc of 275 degrees would cover points in all directions sufficient to handle four life-boats.

The cable arrangement thru the proper pulleys indicated in the view of Figure 5 is connected to the link 78 which in turn supports the general structure 23 in the views Figures 9, 10, and 11. The hook 23 is made up of a main body portion 76 provided with a hole 77 to which is secured swivelably the loop 78 which in turn is attached to the cable.

The body of the hook is shaped approximately as indicated, and is provided with a lower arm 79 terminating in a bearing secured to receive the bearing pin or stud 93 upon which is pivotably secured the hasp or closing portion 82 holding one of the links 92 attached to the cables 66 secured to the net structure 67.

The other end of the net 67 is also attached to a series of three or more cables 66 which are connected to a similar link 92 and positioned as indicated in the drawings Figure 10 slightly to the right and below the pivot 91 of the member 84. The reason for this arrangement will be hereinafter described.

Particular attention is directed to the cut-out portion 80 and the angularly toothed portion 81, as well as the locking of the faces 83. The purpose of this arrangement is to fool-proof the operation of the hook for when a boat is launched, and the waves have a tendency to throw the releasable ring 92 within the area 80, the portion 81 protects the releasable portion of the hook namely the member 84 from releasing the hasp member 82, because the link 92 cannot strike the member 84 due to the shape of the recess 81.

The member 84 is pivoted at a point 91 and is provided with a slotted portion 85 to fit the member 76 and straddle it, provided also with a portion which holds in locking engagement the hasp 82. The extension 84 on the left hand side is held normally in a locked or downward position to hold the hasp 82 in locked position, it being held normally locked under spring tension 86 which is secured to the member 76 at a point 87 and at a point 88 to the right handed portion of the member 84.

At the extreme right hand portion of the member 84, at the point 90, a releasing rope or cable 89 is attached so that the member 84 may be moved to the dotted position indicated in that view, thus disengaging the hasp and permitting the ring 92 supported on this hasp to be freed from engaging with the hook 76 thus the net 67 will be supported by the one point of support, the ring 92 shown in permanent engagement with the hook 76.

The cable 89 is pulled when the boat has been launched and safely resting on the water, the hook thus releasing the net to be carried back to

the ship by the crane so that it may be placed under another life-boat 15 as indicated in the views Figure 8 and Figure 9, and once more releasably secured by the releasable hook 23 for freeing the same as soon as it has been safely launched.

The life-boats preferably for the purposes and most efficient operation of my arrangement, are mounted in cradles 68 having V shaped support recesses 69 and the net 67 is made so as to conveniently fit within the increment of space between the supports 68.

The life-boat is provided with locating cleats 71 so that the net will be rigidly secured to the life-boats and the life-boats properly located therein and prevent slipping out if there should be more weight on one end of the life-boat 15 than at the opposite end, thus to prevent the boat from being accidentally released from the cradle netting 67.

In some instances where the angle of list of a ship may be so great that the boom is not long enough to straddle the extreme point of the side of the ship, it may be necessary to have the boat launching arrangement so made that it will be able to move downwardly along side of the ship without any interference, hence for this purpose the ball-bearing units 70 are provided.

A large cross-section is shown in Figure 12 whereas Figure 8 depicts the arrangement showing one or more of these units may be used as shown on each side in Figure 8 and Figure 9, three being indicated on each side in order to furnish a rolling feature when the side of the life-boat comes in contact with the side of the ship. The rollers will facilitate travel on the side of the ship and the life-boat will bear against the side of the ship and be pulled down by gravitation until it reaches the surface of the water.

The construction Figure 12 brings out carefully the details of construction, the netting 67 is shown as being clamped at certain portions by the flanges 72 and 73, the flanges being held together by screws and bolts 76. The flange 73 is provided with an extension or hub 74 which terminates at a point 75 past the geometric center of the ball-bearing 70 in order that the ball may be free to rotate within the hub recess 74 and yet will not be released therefrom because of the geometrical structural arrangement heretofore explained.

The free end of the ball-bearing 75 is disposed so as to operate against the side of a ship whenever conditions make it necessary.

In operation the use of my device is roughly as follows:

When an emergency arises and the boat is listed over, life-boats from either side of the vessel or ship may be utilized simply and readily by virtue of my crane structure. My crane structure is first operated thru the crank mechanism 43 and the gearing 42 and 28 in order to position it in a proper angular relation so as to line up with the particular life-boat that is ready to be launched and which has been filled with passengers.

The life-boat is filled with passengers, then the free end of the netting 67 is passed under the life-boat in between the supports 68 as indicated in Figure 8, and the free end with the ring 92 is secured to the releasable hook member 76 by

passing the same over the hasp member 82 and then snapping the arrangement 84 to lock the hook into position.

After this has been done, the life-boat 15 is lifted off the supports 68, the boom is then swung out to the proper angular relation so as to straddle and clear the side of the ship or half of the beam of the ship, and by utilizing the winch arrangement 57 heretofore described thru operation of the handle 57 and the brake control 45. After the boom 19 has been brought to the proper position for launching, then the cable 21 is paid out from the lower winch by operating the control handle member 53 and the brake control member 45 so that the speed of lowering is suitably governed.

The check pawls 59 and 54 are utilized for locking in fixed engagement the boom position once it has been determined and any one boom position will serve to launch the two boats on that side. The position of the boom will have to be changed for launching the two boats on the side where the boat lists inwardly. The greatest feature of the boom is providing a span arrangement for the side of the ship that lists inwardly.

All cranes can be manned and controlled simultaneously thus further giving maximum efficiency thru my method of launching life-boats in such cases as emergencies where time is of the essence and every minute counts.

When the boat is launched and resting safely on the surface of the water, the man in charge of the life-boat pulls the release rope or cable thus releasing the hasp 82 from engagement and thru permitting the free end of the releasable portion of the net 92 to be released from engagement from the hook, and to be pulled out from underneath the life-boat.

The netting being used preferably to minimize water resistance, since the water will not offer resistance to its being brought back to the top of the ship for use with launching another life-boat. This operation is repeated until all the life-boats have been launched and all the passengers have been delivered to safety in life-boats.

Altho I have herein indicated a preferred form of my invention, it is understood that I reserve the right to any and all modifications within the scope and spirit of my invention. I realize that the same is susceptible of many improvements, alterations, and modifications, and I reserve the right thereto; my invention to be limited only by the appended claim.

Having thus revealed my invention what I claim as new and desire to secure by Letters Patent is:

In an apparatus of the character described, life-boat cradling support means comprising, flexible wire mesh means, cable means secured to each of two opposite ends of said flexible wire mesh means, the said cable means having secured thereto hook attaching means adapted to attach one cable means permanently to a hook and attach the other cable means releasably to the said hook, the said flexible wire mesh means provided with ball bearing means secured in close proximity to the ends to which the said cable means is attached.

JOHN L. LARSON.