

Aug. 21, 1923.

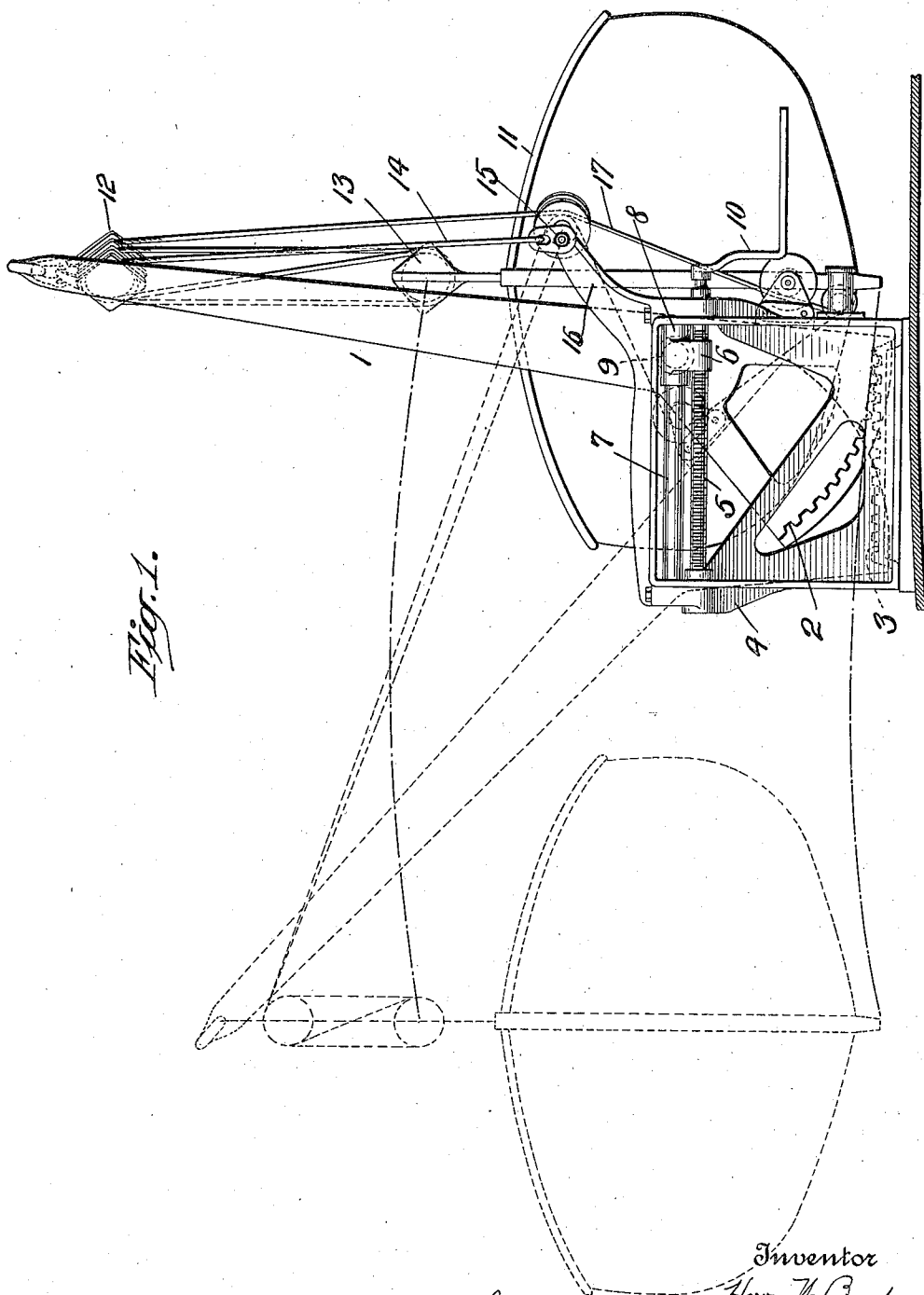
H. W. BROADY

1,465.787

APPARATUS FOR LOWERING AND RAISING SHIPS' BOATS

Filed June 28, 1920

2 Sheets-Sheet 1



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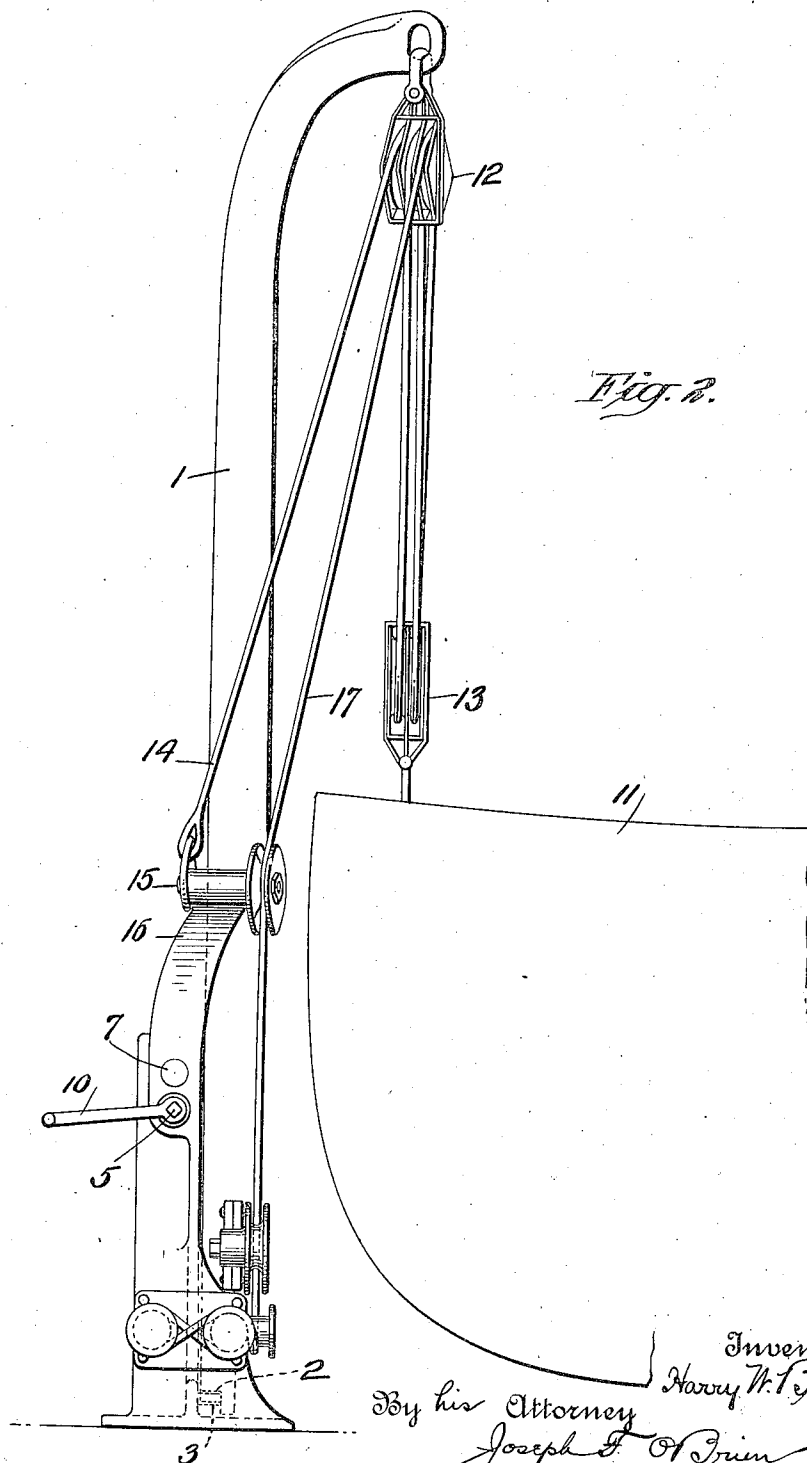


Fig. 2.

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR LOWERING AND RAISING SHIPS' BOATS.

Application filed June 28, 1920. Serial No. 392,184.

To all whom it may concern:

Be it known that I, HARRY W. BROADY, a citizen of the United States, and a resident of Bayside, borough of Queens, county of Queens, and State of New York, have invented certain new and useful Improvements in Apparatus for Lowering and Raising Ships' Boats, of which the following is a specification.

This invention relates to improvements in apparatus for lowering and raising ships' boats.

It has been usual heretofore in employing davits of the quadrant type or of a type having a segment at its lower end less in extent than a quadrant, to dispose the entire toothed segment on the outboard side of a line passing through the longitudinal axis of the davit arm and to suspend a boat in a plane substantially parallel to the said axis of the davit arm; and this has made it necessary in the case of the manipulation of heavy boats to support such boat on tilting chocks, such as shown and described in my former Patent #1,118,527; and one of the objects of this invention is so to dispose the toothed segment of a davit of quadrant or less extent in such relationship to the axial line of the arm as to cause the davit to be moved to different degrees of inclination on opposite sides of the vertical or perpendicular and also so to suspend the boat to be manipulated that the first movement of the davit arm toward the vertical or perpendicular to the deck will cause a raising of the boat as well as a swinging out thereof and will thus obviate the necessity of tilting chocks and like devices while still retaining the economical and compact construction of davits such as the quadrant type or of less extent than a quadrant.

Another object of my invention is to provide, in combination with a davit, and preferably in combination with a davit of the differentially inclined quadrant type above referred to, an arrangement of falls in which the outboard movement of the davit will cause a pull or drawing of the opposite ends of the ropes by which the boat is suspended from the davits over the pulleys carried by the davit; and to this end, instead of attaching one end of a boat suspending rope to one of the pulleys carried by the davit, I preferably provide the upper block of the tackle with an additional or extra pulley and pass

that end of the rope which was usually connected to the block over this extra pulley and then lead the same inboard where it is fastened or anchored in any suitable manner, the opposite end of the rope being also led inboard and fastened in any suitable manner during the movement of the davit from inboard to outboard position. One end of such rope is preferably permanently anchored inboard in any suitable fixed position and the other end is preferably detachably fastened in the usual manner so as to permit the lowering of the boat thereby.

With these and other objects in view, the invention comprises the combination of members and arrangement of parts so combined as to co-act and cooperate with each other in the performance of the functions and the accomplishment of the results herein contemplated, and comprises in one of its adaptations the species or preferred form illustrated in the accompanying drawings, in which:

Fig. 1 is a side elevation of a davit at one end of a boat embodying my improvements in the davit and in the arrangement of the falls; and

Fig. 2 is an elevation from the inboard end of the davit and falls shown in Fig. 1.

Referring now to these drawings, 1 indicates the davit having its lower end 2 in the form of a toothed segment or a segment of less extent than a quadrant.

As illustrated in Fig. 1 the toothed segment 2, the teeth of which are adapted to mesh with those of a rack 3, extends outboard of the longitudinal axis of the arm 1 for the major portion of its length and extends inboard of the said axis of the arm a lesser distance, so that the said arm in its movements inboard and outboard on the rack 3 may be inclined in opposite directions from the vertical but such incline will be a much less and different degree of inboard inclination than the outboard inclination thereof.

4 indicates a frame which is rigidly secured to the deck of the vessel and 5 illustrates a screw supported in said frame to have rotary movement only. A nut 6 is threaded on the screw 5 and is guided on a rod 7 by means of a sleeve 8, said rod also being supported in the frame 4 and the davit 1 being pivotally connected to the nut and sleeve 8 as indicated at 9, the center

of the pivot being the center from which the arc of the toothed segment 2 is struck. The inboard position of the davit is shown in full lines on the drawing where it will be seen that it inclines inboard from the vertical and the end tooth of the segment is engaged with the end tooth of the rack, while the nut and sleeve are at the inboard limit thereof.

It will be seen that by rotating the screw 5 by means of a handle or crank 10 or in any other suitable manner the davit will be swung first to a vertical position and then to the opposite side of the vertical position into the inclined outboard position shown in dotted lines. A boat 11 is, as shown in full lines in said Fig. 1, suspended from the davit and the vertical center line of such boat will, in a davit of the type hereinabove described, be arranged inboard of the davit and at an angle to the inwardly inclined davit arm 1. Upon rotating the screw 5 therefore the boat will follow the upwardly moving arc toward the vertical and consequently will be lifted slightly and will thereafter be moved outwardly and downwardly. This slight lift, however, may, in combination with the compensation of the falls by which the boat is suspended from the davits, be utilized to cause the said boat to be lifted a sufficient distance to dispense with the necessity of tilting chocks such as heretofore employed and described in my former Patent #1,118,527.

In the preferred arrangement of the falls both ends 12 and 13 are connected inboard and suitably fastened so that the movement of the davit arm outboard will cause a pull or drawing of such opposite ends of the rope or ropes by which the boat is suspended from the davits over the pulleys carried by the davit and instead of attaching one end of the boat-suspending rope to one of the pulleys carried by the davit as was heretofore usually done, I preferably provide an upper block of the tackle with an additional or extra pulley and pass that end of the rope which was so usually connected as aforesaid over this extra pulley and then lead the same inboard where it is fastened or anchored in any suitable manner, the opposite end of the rope being also led inboard and fastened during the movement of the davit from inboard to outboard position.

As illustrated in Figs. 1 and 2 the upper block 12 is provided with three pulleys while the lower block 13 is provided with two pulleys and one end of the boat-suspending rope 14 is fastened permanently at 15 on a bracket 16 integral with the frame 4 and the rope 14 is then led over the extra pulley in the top block 12 and around the other pulleys in the lower and upper blocks respectively a plurality of times, the end 17 of said rope being also brought inboard and

detachably fastened in any suitable manner so as to enable the boat to be lowered when it is swung to its outboard position by a paying out of this end of the rope. It will be seen that when the falls or ropes are arranged in the manner hereinabove described the boat will be automatically raised toward the end of the davit arm as the davit moves from its inboard to its outboard position and vice versa so that the boat, when such an arrangement of falls is used in combination with a davit of the type hereinabove described, will be caused to traverse an arc which will move slightly above the horizontal and then slightly below the same, and in an arrangement of this type the boat will be lifted from the chock and raised sufficiently to dispense with tilting chocks or other similar devices which were heretofore employed.

Having described my invention I claim:—

1. In apparatus for raising and lowering boats, the combination with a davit movable to swing in a vertical plane from inboard to outboard position, of pulleys carried by the davit and a boat suspending rope arranged to cause a pulling or drawing of the opposite ends of said rope over the pulleys carried by the davit as the said davit is moved from inboard to outboard positions.

2. In apparatus for raising and lowering boats, the combination with a davit movable to swing in a vertical plane from inboard to outboard position, an upper and a lower block carried by the davit one of which has a greater number of pulleys than the other and a boat-suspending rope arranged to cause a pulling or drawing of the opposite ends of said rope over the pulleys in said blocks carried by the davit as the said davit is moved from inboard to outboard positions.

3. An apparatus for raising and lowering boats, in combination, a davit arm having a toothed segment at its lower end extending to opposite sides of a plane passing through the points of suspension of the boat and pivoting of the davit, a rack on which said segment may roll, means for moving the davit arm to opposite sides of the vertical and means for suspending a boat from said davit arm comprising pulleys carried by the davit arm and a boat suspending rope arranged to cause a pulling or drawing of the opposite ends of said rope over the pulleys carried by the davit as the said davit is moved from its position on one side of the vertical to the opposite side thereof.

4. An apparatus for raising and lowering boats, in combination, a davit arm having a toothed segment at its lower end extending to opposite sides of a plane passing through the points of suspension of the

boats and pivoting of the davit, a rack on which said segment may roll, means for moving the davit arm to opposite sides of the vertical and means for suspending a
5 boat from said davit arm comprising an upper and a lower block carried by the davit, one of which has a greater number of pulleys than the other and a boat-sus-
10 pending rope arranged to cause a pulling or drawing of the opposite ends of said rope over the pulleys in said blocks carried by the davit as the said davit is moved from its inboard position on one side of the ver-
15 tical to its outboard position on the opposite side thereof.

5. In apparatus for raising and lowering boats, in combination, a davit arm, a movable pivot about which the davit may turn, a toothed segment on the lower end of the
20 davit arm of quadrant or lesser extent, and having the said segment extending for a major portion of its length outboard of a plane passing through the points of sus-
pension of the boat and pivoting of the

davit and a minor portion of substantial ex- 25
tent extending inboard of said plane, a rack on which said segment may roll and means for moving the davit arm outboard from the vertical position thereof and means for
30 suspending a boat from the top of said davit comprising an upper and a lower block carried by the davit, one of which has a greater number of pulleys than the other and a boat-suspending rope arranged to
35 cause a pulling or drawing of the opposite ends of said rope over the pulleys in said blocks carried by the davit as the said davit is moved from its inboard position on one side of the vertical to its outboard position
40 on the opposite side thereof.

In witness whereof, I have signed my name to the foregoing specification in the presence of two subscribing witnesses.

HARRY W. BROADY.

Witnesses:

CHARLES J. GALE,
HELEN V. WHIDDEN.