No. 789,500. PATENTED MAY 9, 1905.

J. T. LIHOU & F. W. IRVINE.

DAVIT.

APPLICATION FILED JUNE 4, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

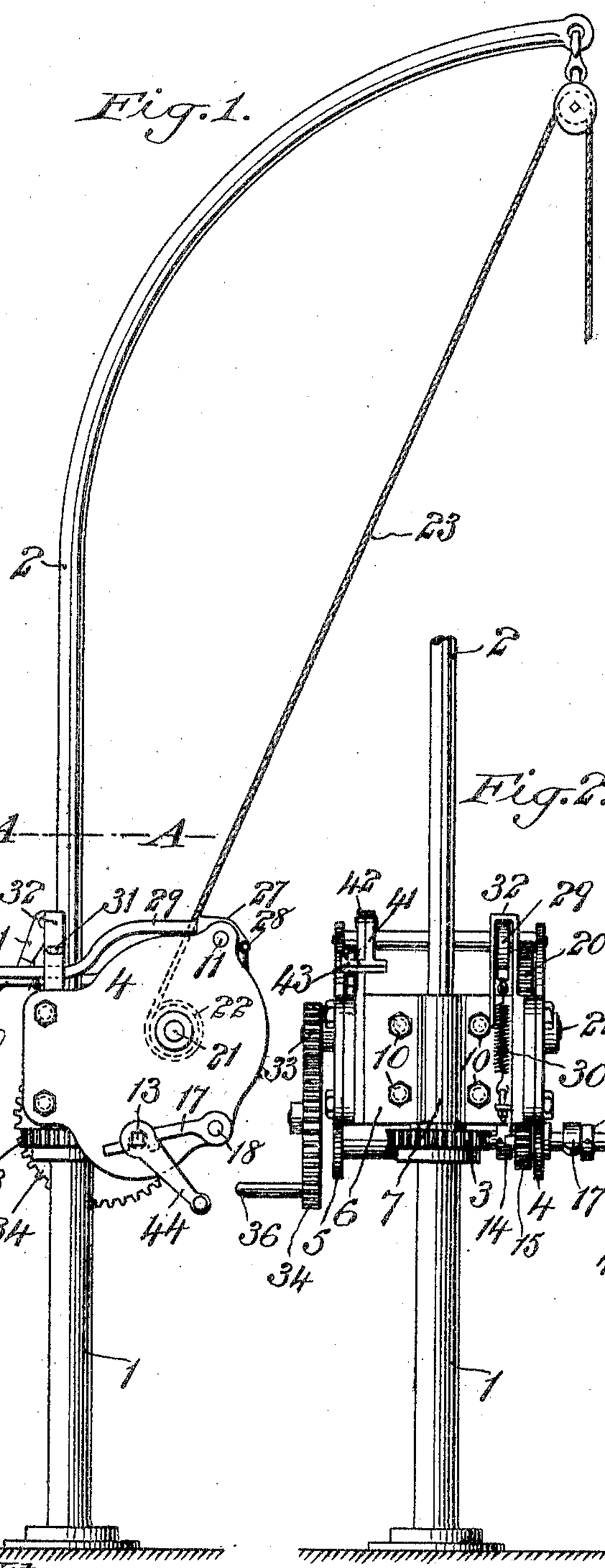

Fig. 3.

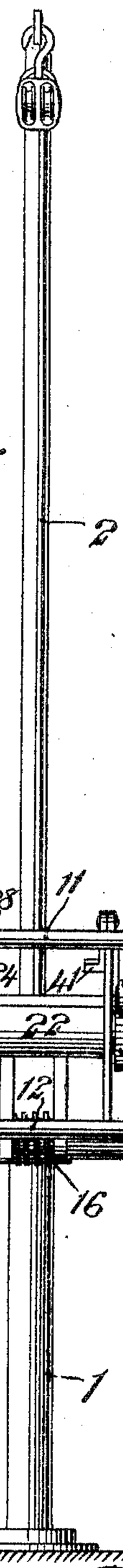

Fig. 2.

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2 SHEETS—SHEET 2.

Fig. 4.

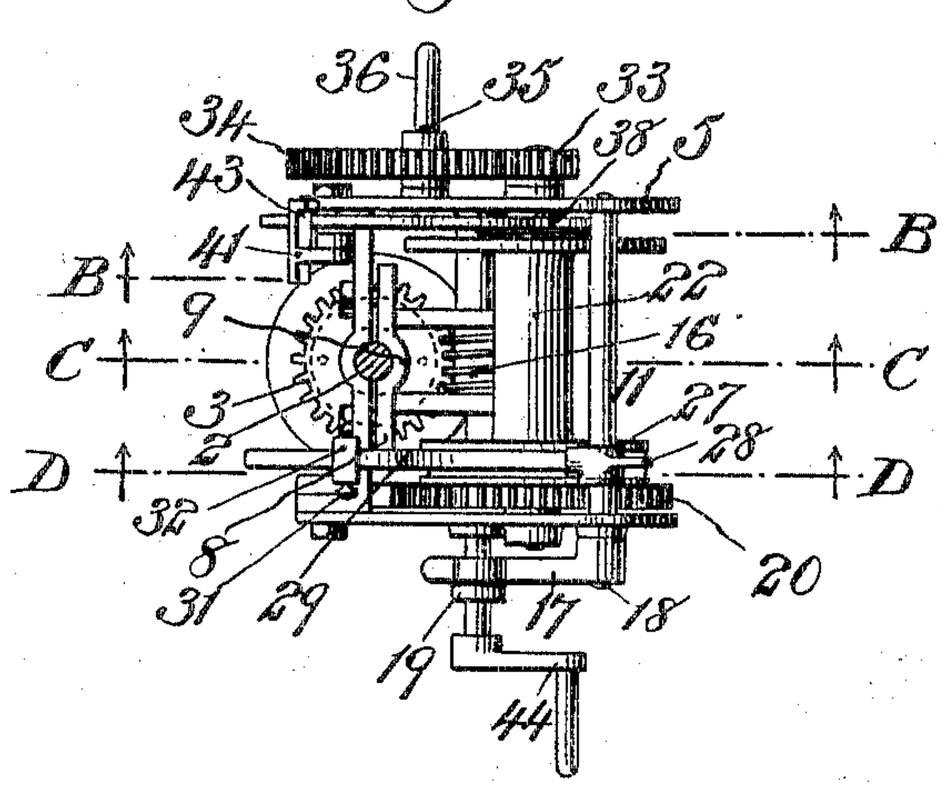


Fig. 5.

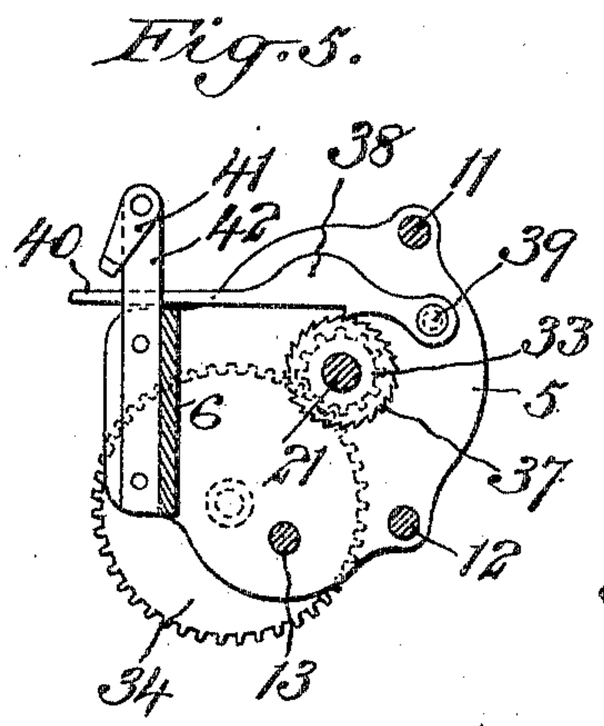


Fig. 7.

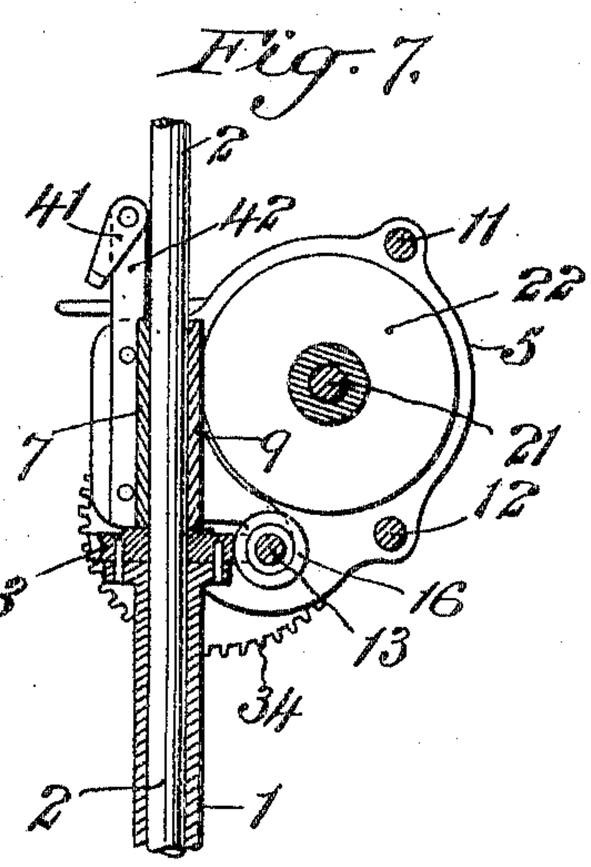


Fig. 8

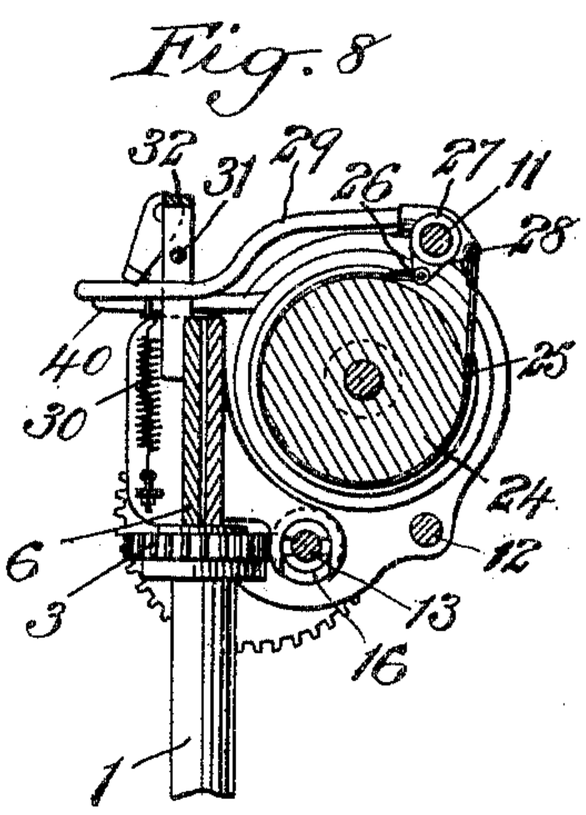


Fig. 6.

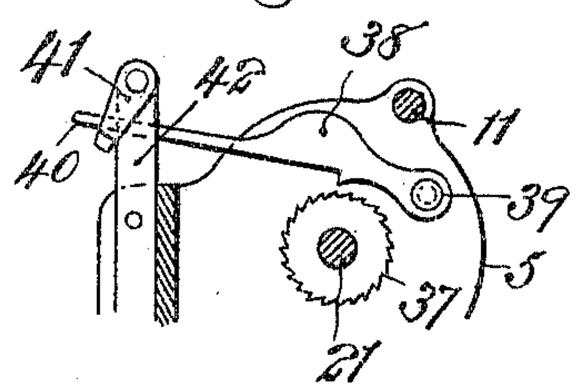


Fig. 10.

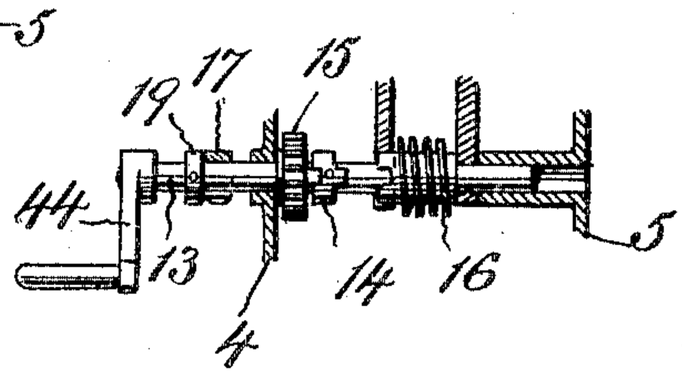
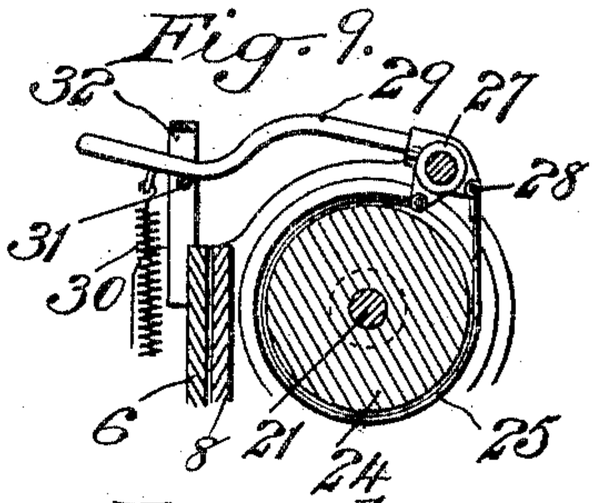


Fig. 9.



Witnesses:
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Henry Thieme

Inventors:-
James T. Lihou and
Frank W. Irvine
by attorneys
Brownell & Brownell

No. 789,500. Patented May 9, 1905.

UNITED STATES PATENT OFFICE.

JAMES T. LIHOU, OF FLUSHING, AND FRANK W. IRVINE, OF NEW YORK, N. Y.

DAVIT.

SPECIFICATION forming part of Letters Patent No. 789,500, dated May 9, 1905.

Application filed June 4, 1904. Serial No. 211,078.

To all whom it may concern:

Be it known that we, JAMES T. LIHOU, a resident of Flushing, in the county of Queens, and FRANK W. IRVINE, a resident of the borough of Brooklyn, in the city of New York, State of New York, citizens of the United States, have invented a new and useful Davit, of which the following is a specification.

Our invention relates to davits, and more particularly to davits used on large craft, where the life-boats, launches, and tenders are heavy, requiring a very considerable purchase to handle them.

Our object is to provide for the rapid taking up of slack line and the subsequent lifting of the boat from the water by a reducing-gear and at the same time providing means for quick lowering away and for swinging the davits to carry the suspended boat inboard or outboard at pleasure.

It is to be understood that there are two of these davits of similar construction for handling each boat, one only being shown in connection with our present application.

In the accompanying drawings, Figure 1 is a view of the davit in side elevation. Fig. 2 is a back view of the same, the overhanging arm being broken away. Fig. 3 is a front view of the same. Fig. 4 is a horizontal section in the plane of the line A A of Fig. 1. Fig. 5 is a vertical section from front to rear in the plane of the line B B of Fig. 4, showing the retaining-pawl in engagement with the ratchet-wheel. Fig. 6 is a partial view of the same, showing the retaining-pawl lifted out of engagement with the ratchet-wheel. Fig. 7 is a vertical section from front to rear in the plane of the line C C of Fig. 4. Fig. 8 is a vertical section from front to rear in the plane of the line D D of Fig. 4, showing the band-brake in gripping contact. Fig. 9 is a partial view of the same, showing the band-brake held out of gripping contact; and Fig. 10 is a view in detail of the operating-shaft with the parts carried thereby.

The pedestal, which is assumed to be held fast to the deck, is denoted by 1 and consists of a hollow tube in which the overhanging arm 2 is supported with such a fit as will enable it to rotate within the pedestal. At the top of the pedestal 1 a worm-wheel 3 is fixed to be engaged by a worm on the operating-shaft to be hereinafter referred to. On the overhanging arm 2 in proximity to the top of the pedestal 1 there is clamped a supporting-frame for the several operative parts, the said supporting-frame consisting of side plates 4 and 5, connected at the back by an end plate 6, which is provided centrally with a half-bearing 7 to partially embrace the arm 2, the said plate 6 having a coacting plate 8, with a half-bearing 9 at its center to partially embrace the arm 2 and the said plate 8 being drawn into clamping position toward the plate 6 by means of bolts 10. The side plates are further held firmly at the proper distances apart by means of spacing and binding rods or bars 11 and 12 near their front ends.

In the side frames the operating-shaft 13 is journaled and is permitted a longitudinal sliding movement transversely of the frame to throw a clutch 14, fixed to the shaft, into and out of engagement with the driving-pinion 15, loosely mounted on the shaft. The operating-shaft 13 also has loosely mounted thereon a worm 16, which may be locked to the shaft by the same clutch 14 which locks the pinion 15 to the shaft, and the said worm 16 is in gear with the worm-wheel 3, fixed to the top of the pedestal 1 and hereinbefore referred to.

The operating-shaft 13 is locked to the worm by pushing it inwardly until its clutch 14 engages the hub of the worm 16 and is released from the worm and locked to the driving-pinion 15 by drawing it outwardly until the clutch engages the said driving-pinion 15. The shaft 13 is held in each of these two positions—viz., its inward and outward position—by means of a swinging arm 17, pivoted at 18 to the side frame 4 and with its free end free to drop into position on either side of a collar 19, fixed on the shaft. The position of the arm 17 with respect to the collar 19 to hold the shaft in its outer adjustment with the clutch 14 in gear with the driving-pinion 15 is clearly shown in Fig. 10, and it will be plainly seen from that figure how by lifting the arm 17 and pushing the shaft inwardly

and permitting the arm 17 to drop on the opposite side of the collar 19 the shaft may be held temporarily in its inward adjustment.

The driving-pinion 15 intermeshes with a gear-wheel 20, fixed on the shaft 21, which carries the winding-drum 22, to which one end of the hoisting-rope 23 is secured, as clearly shown in Fig. 1.

There is fixed to rotate with the drum 22 a plain-faced disk 24, which is the brake-wheel and around which a band-brake 25 is located, one end of the said band-brake being attached at 26 to a projection on a rocking hub 27, mounted on the tie or spacing bar 11, and the other end of said brake being attached at 28 to another projection on the said rocking hub 27, so that when the hub is rocked in one direction the two ends of the brake-band will be drawn in a direction to force the brake-band into contact with the brake-wheel, and when the hub is rocked in the opposite direction the ends of the brake-band will be drawn in a direction to release the brake-band from the brake-wheel. The hub is operated by means of a rearwardly-extending arm 29, which is actuated, by means of a spring 30, in a direction to throw the brake into engagement with the brake-wheel, but which may be held against the tension of the spring 30 in position to release the brake-band from the brake-wheel by inserting a cross-pin 31 in holes in a standard 32 beneath the lever 29, as clearly indicated in Fig. 9.

The winding-drum shaft has fixed thereon on its side opposite the spur-wheel 20 and located on the outer side of the side plate 5 a pinion 33 in gear with a spur-wheel 34 on a short shaft 35, projecting from the plate 5. The wheel 34 has attached to it near its periphery a handle 36 for rotating it. The winding-drum shaft has also fixed thereto at its end opposite the wheel 20 and located on the inner side of the side plate 5 a ratchet-wheel 37, engaged by a pawl 38, pivoted at 39 to the side plate 5 and provided with a rearwardly-extending operating-handle 40, by which the pawl may be lifted out of engagement with the ratchet-wheel when so desired.

Provision is made for holding the pawl temporarily out of engagement with the ratchet-wheel by mounting the swinging catch 41 on a standard 42 and providing it with a lip 43, (see Fig. 2,) on which the handle 40 may rest when the pawl is lifted from the ratchet-wheel, as shown in Fig. 6.

The operating-shaft 13 is provided at its outer end with the crank 44 for operating it.

The operation is as follows: To swing the davit to carry the boat outboard, the arm 17 is lifted and the shaft 13 slid inwardly until the clutch 14 engages the hub of the worm 16. The shaft 13 is then rotated by means of its crank 44, and the engagement of the worm with the worm-wheel 3 at the top of the pedestal will force the overhanging arm 2 to rotate in the pedestal until it has reached the proper position for lowering the boat away. This position having been reached, the band-brake is permitted to be drawn into engagement with the brake-wheel under the influence of its actuating-spring 30, and the pawl 38 is then lifted out of engagement with the ratchet-wheel 37. By manipulating the lever which controls the band-brake the operator permits the boat to be lowered away under its own weight at such speed as may be desired, the pinion 15 working idly in the meantime on the shaft 13. When it is desired to lift a boat from the water, the movable block on the hoisting-tackle may be carried off and attached to the boat while the boat is kept at any safe distance from the side of the vessel, and when made fast the slack may be taken up rapidly by operating the gear-wheel 34 by means of its handle 36, as this is a multiplying-gear and causes the winding-drum to rotate several times for each revolution of the wheel 34. As soon as the slack has been taken up, the retaining-pawl 38 having been in the meantime allowed to drop into engagement with the ratchet-wheel 37, the operating-shaft 13 is drawn outwardly, bringing the clutch 14 into engagement with the pinion 15, and then by rotating the shaft 13 by means of its crank 44 the winding-drum is slowly rotated, but with a great purchase, because of the reducing-gear 15 and 20, and the boat is hoisted from the water until it has reached a height sufficient to be swung inboard. Prior to raising the boat the brake-band has been released from the brake-wheel by locking the arm 29 in the elevated position shown in Fig. 9. When the boat has been elevated, it is then swung inboard by again lifting the arm 17, pushing the operating-shaft 13 inwardly to cause the clutch 14 to engage the clutch 18 and causing the shaft 13 to rotate in the opposite direction from that used to swing the boat outwardly.

The device as a whole is eminently practicable and reasonably simple and fulfils all demands required of it.

What we claim is—

1. A davit comprising a suitable pedestal, an overhanging arm mounted in said pedestal, a gear-frame carried by said arm, an operating-shaft mounted in said frame, a winding-drum mounted in said frame, gear connecting the winding-drum with the operating-shaft, gear connecting the pedestal with the operating-shaft and means for locking the operating-shaft to the one or the other of these gears at pleasure.

2. A davit comprising a suitable pedestal, an overhanging arm mounted in the pedestal, a gear-frame carried by the overhanging arm, an operating-shaft mounted in the gear-frame, a winding-drum mounted in the gear-frame, gear connecting the winding-drum with the operating-shaft, a brake for controlling the

rotary movement of the winding-drum and means for locking the operating-shaft to and releasing it from the gear which connects it with the winding-drum.

3. A davit comprising a suitable pedestal, an overhanging arm mounted in the pedestal, a gear-frame carried by the overhanging arm, an operating-shaft mounted in the frame, a winding-drum mounted in the frame, a ratchet-wheel carried by the winding-drum, a retaining-pawl in position to engage the ratchet-wheel, means for holding the retaining-pawl temporarily out of engagement with the ratchet-wheel, gear connecting the winding-drum with the operating-shaft, a brake for controlling the rotary movement of the winding-drum and means for holding the brake temporarily out of gripping engagement with the winding-drum.

4. A davit comprising a suitable pedestal, an overhanging arm mounted in the pedestal, a gear-frame carried by the arm, a worm-wheel carried by the pedestal, an operating-shaft mounted in the gear-frame, a winding-drum mounted in the gear-frame, a worm mounted on the shaft in engagement with the worm-wheel on the pedestal, a pinion mounted on the shaft in engagement with the gear on the winding-drum and a clutch on the shaft, the said shaft being permitted a longitudinally-sliding movement in its bearings to throw the clutch into engagement with the worm-hub or with the pinion-hub, at pleasure.

In testimony that we claim the foregoing as our invention we have signed our names, in presence of two witnesses, this 1st day of June, 1904.

JAMES T. LIHOU.
FRANK W. IRVINE.

Witnesses:
FREDK. HAYNES,
C. S. SUNDGREN.