(No Model.) 2 Sheets—Sheet 1.

J. W. McKINNON.

BOAT DAVIT OPERATING MECHANISM.

No. 539,008. Patented May 7, 1895.

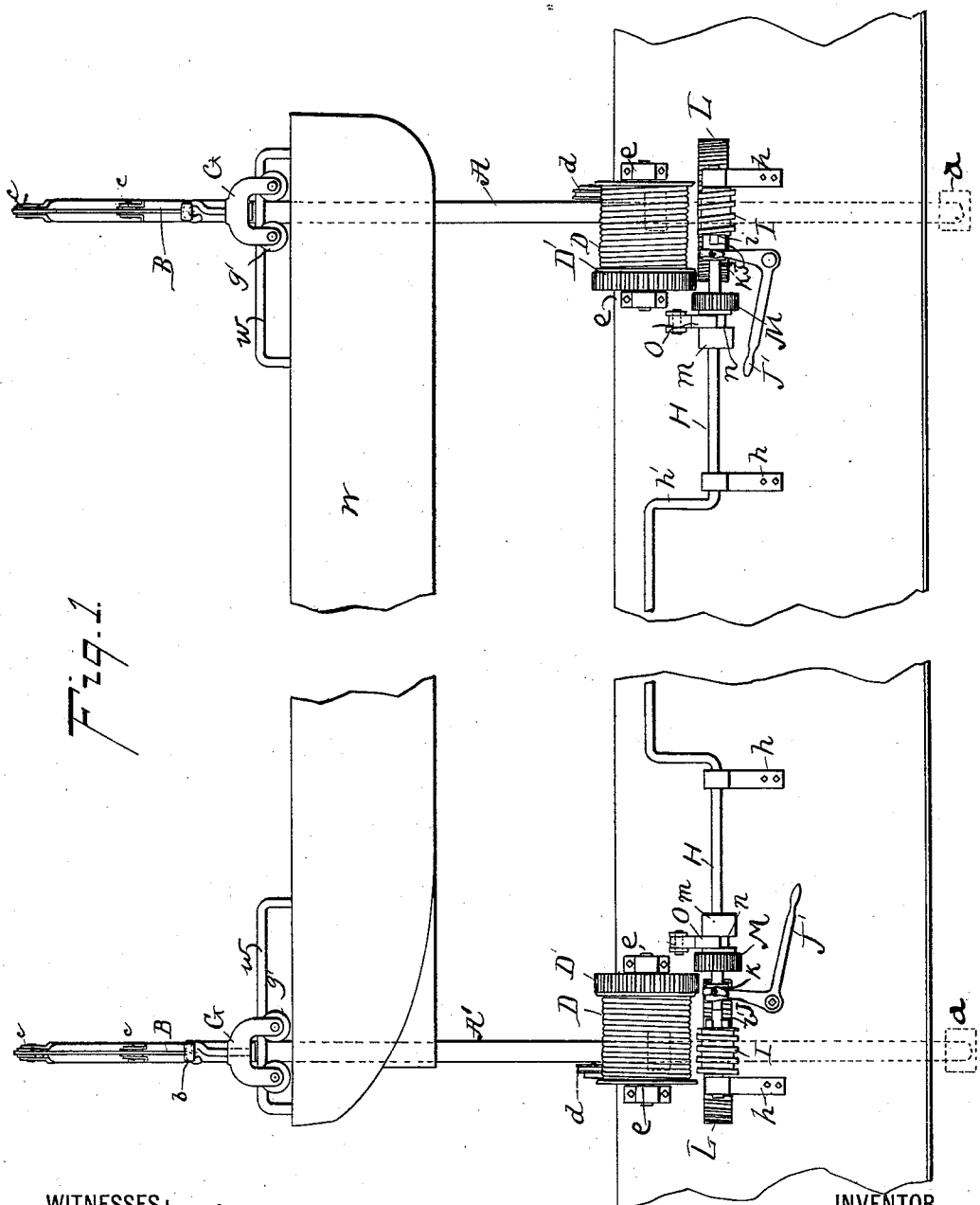

Fig. 1.

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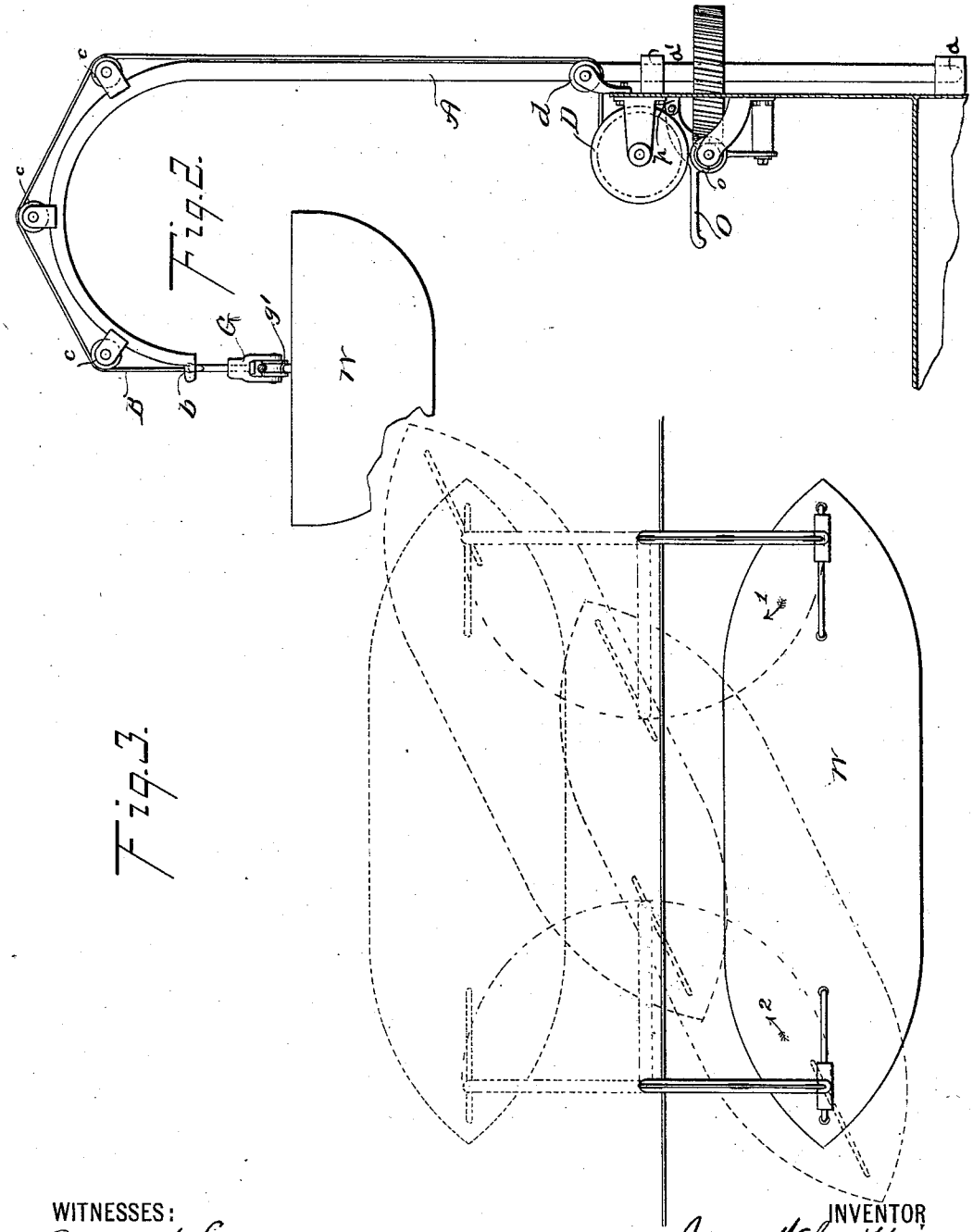

Fig. 2.

Fig. 3.

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UNITED STATES PATENT OFFICE.

JAMES W. McKINNON, OF NEW YORK, N. Y.

BOAT-DAVIT-OPERATING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 539,008, dated May 7, 1895.

Application filed November 17, 1894. Serial No. 529,206. (No model.)

To all whom it may concern:

Be it known that I, JAMES W. McKINNON, a citizen of the United States, and a resident of the city of New York, county of New York, and State of New York, have invented certain new and useful Improvements in Davits and Means for Operating the Same, of which the following is a specification.

My invention relates to improvements in davits and the means for operating the same.

Heretofore the life boats of ships have been swung from davits by tackle operating by hand, and the davits have also been swung in or out board by hand; but this manual operation has always involved perilous delays, resulting in great danger and loss of life. Therefore it is the first object of this invention to furnish such a construction and organization of the davits and connected mechanism that the same can be much more expeditiously operated by hand or by power.

I have also provided such an organization of parts, that when the power is manual, a single man can quickly effect both the raising and lowering of the boats and the swinging of the davits.

In the second place, the invention relates to the special devices by which I accomplish the result sought for.

Referring to the drawings, Figure 1 is a side elevation, partly broken, of the apparatus. The clutch on the right is shown engaged with, that on the left disengaged from, the corresponding worm. Fig. 2 is an end elevation of the same parts as are shown in Fig. 1. Fig. 3 is a plan view on a smaller scale.

A A′ are davits of the usual shape, *a a* being the foot-blocks, and *a′ a′* the straps by which the davits are movably supported so as to turn on a vertical axis.

B B are the tackles rove through the eyes *b b*, over the davit sheaves *c c*, past the guide sheave *d*, that is carried by a bracket which is fixed to the ship's side, and around the drum D journaled in blocks *e e* which are also fastened to the side of the ship; D′ being a gear on the said drum.

G G are travelers swiveled on the tackles B B, and consisting of yokes *g* and sheaves *g′ g′* which latter travel on the guides *w w* which are secured to the ends of the boat W.

While I prefer to use the travelers G and guides *w* I can of course use the ordinary block and tackle, without departing from the invention.

I intend to operate the davits either by hand or by a suitable power motor, and in either case, I provide for operatively connecting the davits and drum with the motive power in the following manner.

H is a driving shaft turning in bearings *h h* fixed on the side of the ship, to which hand power is applied through the crank *h′*, or which may be driven by any other suitable motor.

I is a worm working loosely on the shaft, but held against lateral movement, *i* being a clutch face, on the end of the worm.

J is a clutch sliding on, and rotating with the shaft H; J′, a hand lever provided with a pivoted yoke K that works between shoulders on the clutch J.

L L′ are gears respectively on the davits A A′, and meshing with the worms I I.

M M are pinions sliding on and revolving with the shaft H, and arranged to mesh with one of the gears D′ D′. The collars *m m* of said pinions are provided with peripheral grooves *n n*, adapted to receive the head *o* of a stop O, (which is pivoted at *p*,) when it is desired to hold the pinions *m m* out of mesh with the gears D′ D′. When it is desired to hold the said pinions in mesh with the said gears, then said pinions are slid laterally until they engage with the gears D′ D′, and then the stops O are dropped behind the collars *m m*.

To operate the davits, any suitable power being applied to drive the shaft H, the clutch J on one side, as the right, is thrown into engagement with its worm I, the other clutch not being engaged at first, with the other worm, and the gears D′ D′ being out of mesh with the pinions M M. Now the davit A rotates a quarter turn as indicated by the arrow 1, Fig. 3, bringing the boat to the position of the lower dotted lines. Then the clutch of the left hand worm is thrown into engagement, and the davit A′ makes a quarter turn as indicated by arrow 2, the davit A still continuing its movement. When davit A′ is at the quarter the boat will be in the diagonal position represented by the upper dotted lines of Fig. 3. Now the clutch is disengaged from

the right hand worm, arresting davit A, while the davit A′ goes on turning, until the boat is out board in the position of the upper parallel lines of Fig. 3. At this point the left hand cluth is disengaged from the worm, and davit A′ arrested. Now the pinions M M are thrown into mesh with the drums D D, the driving shaft H, being momentarily stopped for the purpose, and the boat is lowered away.

While I prefer the arrangement of the worm I and gear L to rotate the davits, I can employ any other suitable means for the purpose, the invention broadly consisting in the combination with a davit and a motive power of suitable means for connecting and disconnecting the power with and from the davit.

Regarding the special construction shown in Fig. 1, it will be observed that the crank h', which is adapted to be operated by hand may also be readily adapted to connect with a power motor, when it is desired to rotate the davits by such motor, rather than by hand.

The arrangement of the worms, the gears on the davits, the pinions on the shaft H, and the gears on the drums is such that one man can operate the mechanism both for swinging the davits and lowering the boat, thus saving much labor and expense.

Now, having described my improvement, I claim as my invention—

1. The combination of rotatable davits, a shaft provided with worm gears meshing with gears on said davits, clutches on said shaft for engaging and disengaging with a clutch on said worms so that the said davits may be each independently rotated, and means for rotating said shaft, substantially as described.

2. The combination of rotatable davits adapted to carry boat tackle, gears on said davits, a shaft carrying worms adapted to mesh with said gears, clutches for said worms on said shaft, whereby each of said davits may be independently operated, a winding drum for the tackle and gearing connecting said winding drum with said shaft, substantially as described.

3. The combination in a device for operating davits, of a main shaft, revoluble davits adapted to be operated from said main shaft, a winding drum for the tackle also adapted to be operated from said main shaft, and means on said main shaft for independently rotating either one or both davits and operating said winding drum, substantially as described.

4. The combination of rotatable davits, tackle carried thereby, travelers carried by said tackle, guides for said travelers on the article to be suspended, and means for independently rotating either of said davits and operating said tackle, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 15th day of November, 1894.

JAMES W. McKINNON.

Witnesses:
BERNARD J. WECKE,
HENRY V. BROWN.