H. W. BROADY.

APPARATUS FOR HANDLING LIFE BOATS.

APPLICATION FILED APR. 11, 1913.

1,128,656.

Patented Feb. 16, 1915.

4 SHEETS—SHEET 1.

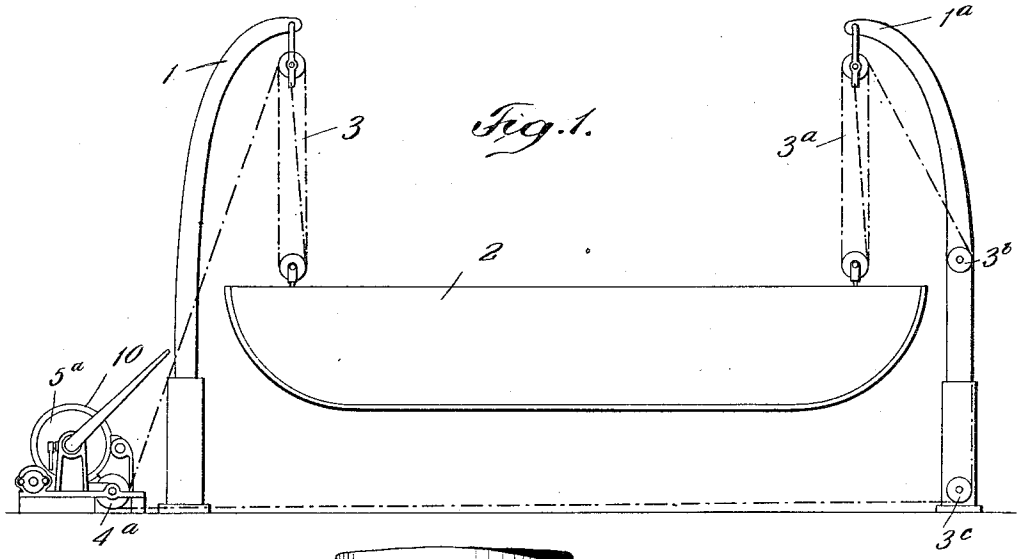


Fig. 1.

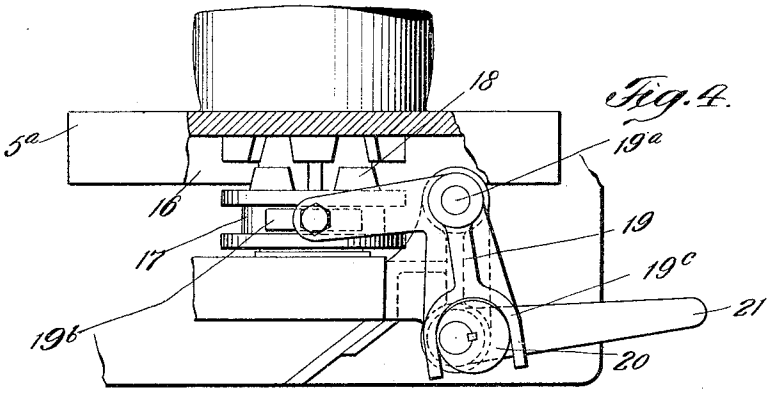


Fig. 4.

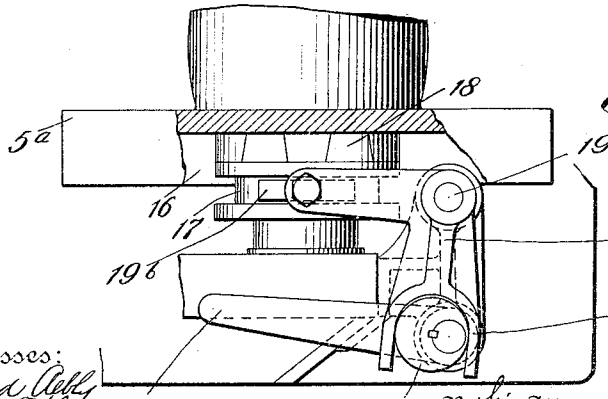


Fig. 5.

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4 SHEETS—SHEET 2.

Fig. 2.

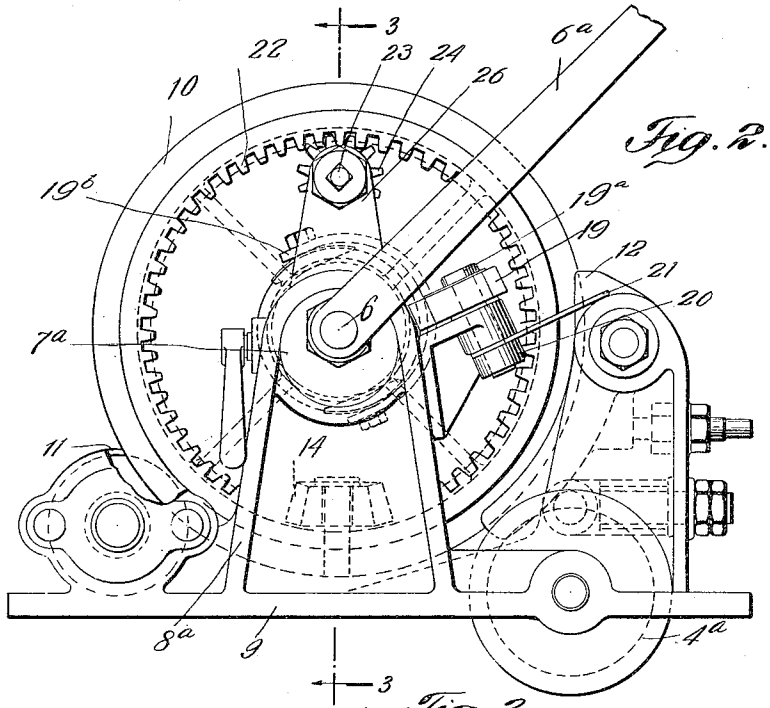
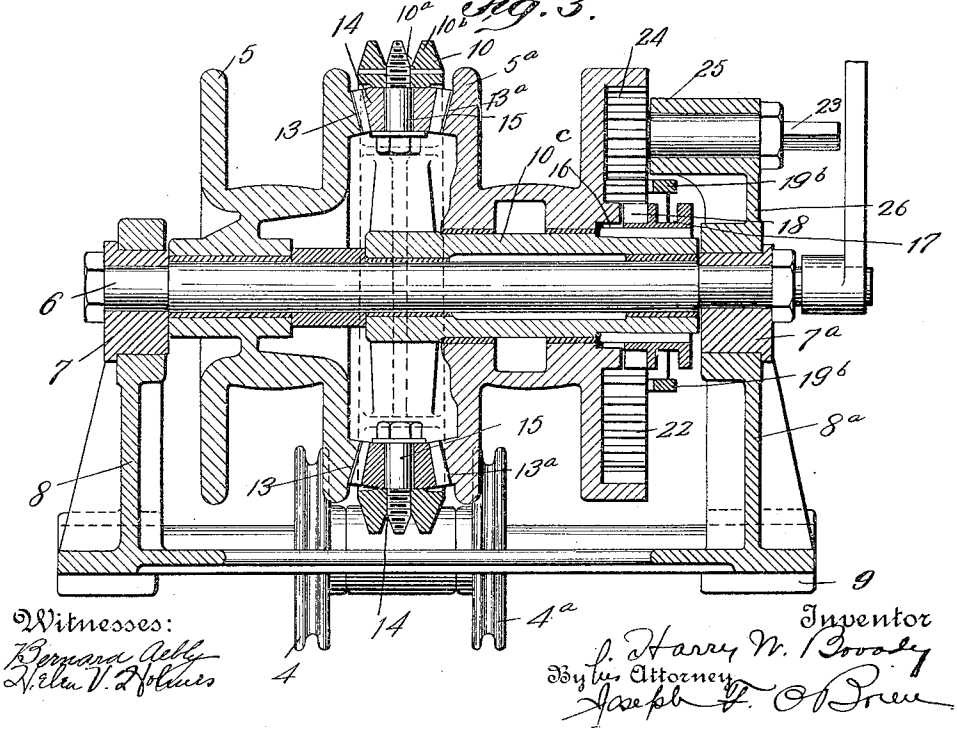


Fig. 3.



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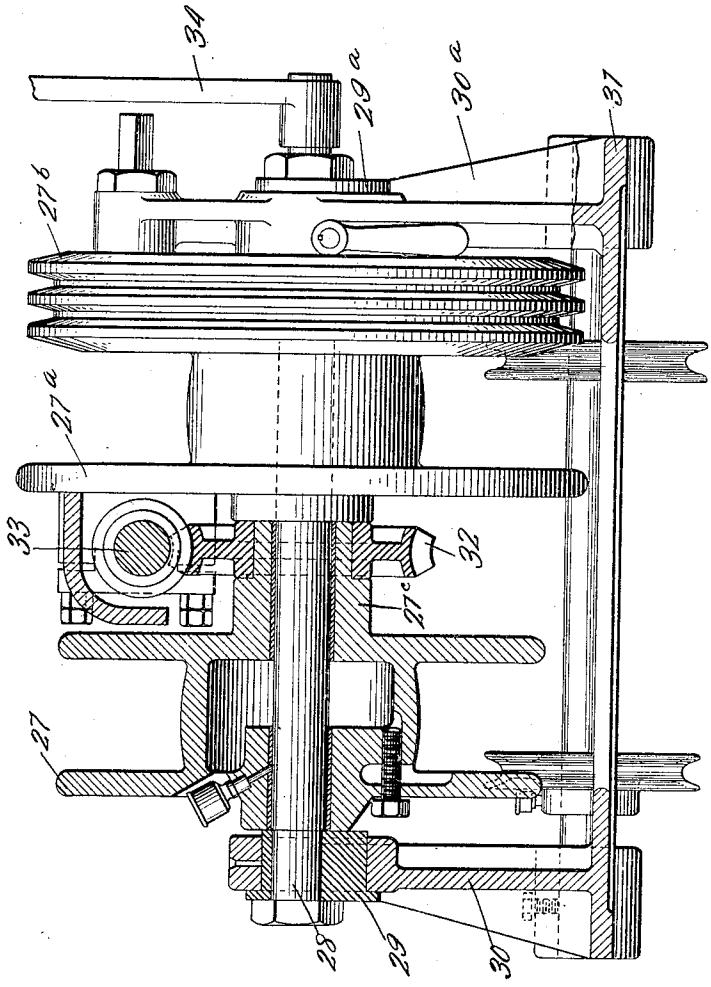
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4 SHEETS—SHEET 3.

Fig. 6.



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4 SHEETS—SHEET 4.

Fig. 7.

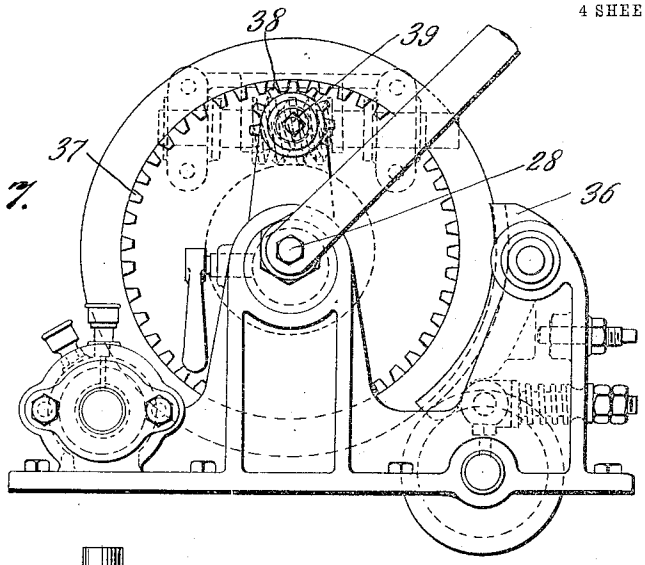
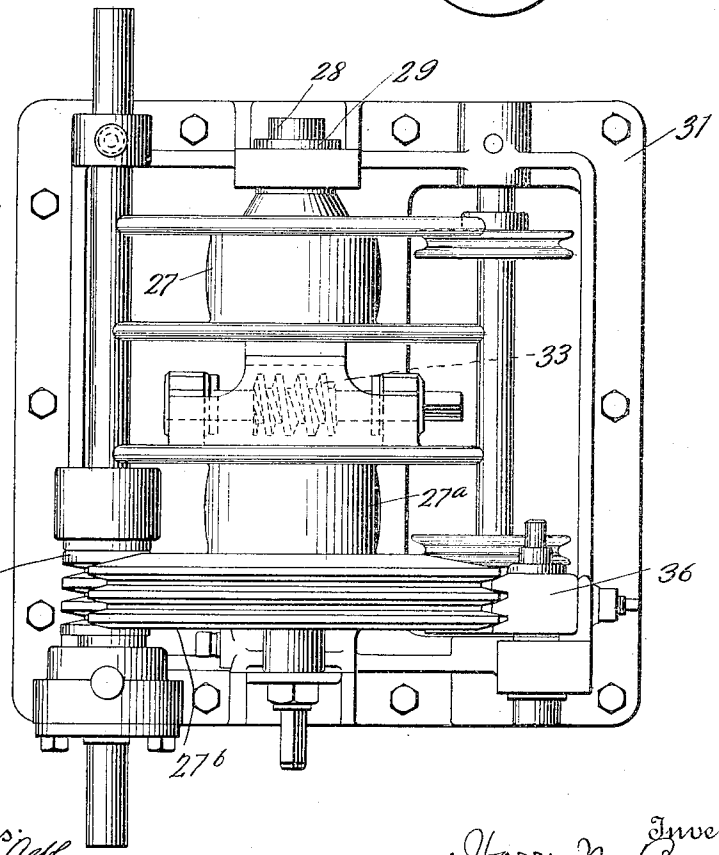


Fig. 8.



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UNITED STATES PATENT OFFICE.

HARRY W. BROADY, OF BAYSIDE, NEW YORK, ASSIGNOR TO WELIN MARINE EQUIPMENT COMPANY, A CORPORATION OF NEW YORK.

APPARATUS FOR HANDLING LIFE-BOATS.

1,128,656. Specification of Letters Patent. Patented Feb. 16, 1915.

Application filed April 11, 1913. Serial No. 760,347.

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 Handling Life-Boats, of which the following is a specification.

This invention relates to improvements in apparatus for handling lifeboats.

By the use of my invention I provide, in in one machine, suitably controlled and driven means for lowering or raising a life-boat with relation to the davits, and means for adjusting the length of the falls at opposite ends of the boat to retain the boat in a true horizontal position during lowering or hoisting. Furthermore, I am enabled by my improved device to adjust the lengths of the running falls in contradistinction to adjusting the standing falls, and by combining in one machine such fall-adjusting means with the hoisting, lowering and controlling means, the necessary apparatus is rendered more compact, thus saving valuable deck space; a less number of sheaves, less rope, and less machinery will be required, thus considerably decreasing the cost of the apparatus; the hoisting, lowering, controlling and adjusting is centralized and may be done by one man. Furthermore, by my improved balancing arrangement of fall-adjusting means, the length of rope which is paid out from one drum is taken up by the other, so that during adjustment, the boat is moved around an axis passing through its transverse center line; the power required to lift one end of the boat is compensated for by the paying out of the falls attached to the opposite end of the boat and substantially no power is required for such adjustment except to overcome the bearing friction.

In the accompanying drawings, in which similar reference characters designate corresponding parts throughout the several views, Figure 1 is a side elevation of a boat suspended from a pair of davits by suitable falls, the running falls at opposite ends of the boat being connected to my improved hoisting, lowering and adjusting device; Fig. 2 is an enlarged side elevation of my preferred form of combined hoisting, lowering and adjusting device; Fig. 3 is a section on line 3—3 of Fig. 2; Fig. 4 is an enlarged detail of the clutch illustrated in Figs. 2 and 3 in uncoupled position; Fig. 5 is an enlarged detail similar to Fig. 4 of the said clutch in coupled position; Fig. 6 is a side elevation of a modified form of device; Fig. 7 is an end elevation of the device illustrated in Fig. 6; Fig. 8 is a plan view of the device illustrated in Figs. 6 and 7.

Referring now to the accompanying drawings, 1—1ª indicate a pair of davits from which is suspended a boat 2 by means of falls 3—3ª, the running part of the fall 3 being led directly down to one of a pair of guiding or leading sheaves 4—4ª and the running part of the fall 3ª is lead over auxiliary guiding sheaves 3ᵇ—3ᶜ to the opposite member of the said pair of guiding or leading sheaves 4—4ª. The ends of such running parts are then connected to a pair of winding drums 5—5ª mounted on a common shaft 6 keyed to and supported in eccentric bearings 7—7ª, the eccentric bearings being in turn mounted in bearing standards 8—8ª on frame 9, which is secured to the deck of the vessel in any suitable position. Suitable means for controlling or rotating and braking said drums 5—5ª is provided and, as shown, an intermediate controlling wheel 10, mounted on shaft 6, is provided with a series of peripheral grooves and projections 10ª—10ᵇ, pyramidal in cross-section, which projections and grooves, upon the shifting of the controlling wheel laterally in one direction, frictionally engage and intermesh with similar peripheral projections and grooves on a driving wheel 11, rotated from any suitable source of power, not shown, and located at one side of said wheel; and upon the shifting of said controlling wheel 10 in the opposite direction, such peripheral grooves and projections 10ª—10ᵇ will intermesh and frictionally engage with similar recesses and projections in a brake shoe 12 located at the other side of said controlling wheel 10, a lever 6ª coöperating with the eccentrics 7—7ª being employed to shift the shaft 6 and with it said intermediate controlling wheel 10 alternately into engagement with the driving wheel and brake shoe as desired. If the drums and controlling wheel are suitably locked or connected together and journaled on the shaft 6 so as always to move in the same direction, a very efficient hoisting and

lowering control is produced, and one that is peculiarly adaptable for use in my combined adjusting and hoisting and lowering apparatus. According to my invention, however, drums 5 and 5ª not only have the function of hoisting and lowering drums but also have the additional function of adjusting the length of the falls connected to opposite ends of the boat.

In order to produce the best form of fall adjusting device the length of falls paid out at one side of the boat should be taken up at the other side so that the boat will move around an axis passing through its transverse center line and the power necessary to hoist the low side of the boat will be compensated for and balanced by the downward movement of the high end of the boat, and in the preferred embodiment of my invention illustrated in Figs. 1 to 5, the intermediate controlling wheel 10 is loose on the shaft 6 and has a laterally extended hub 10ᶜ, the drum 5 is loose on the shaft 6 at one side of such wheel 10 and the drum 5ª is loose on said laterally extended hub 10ᶜ at the other side of the intermediate controlling wheel 10, suitable bearing bushings being interposed if desired between the shaft 6 and cast iron portions of the wheel 10, hub 10ᶜ and drum 5, and also between the drum 5ª and the periphery of the hub 10ᶜ.

Each of the drums 5—5ª is provided with opposing racks 13—13ª and pinions 14 intermeshing with the opposing racks 13—13ª are carried by the wheel 10, and as shown, are journaled on pins 15 mounted contiguous to the periphery thereof. The drums 5 and 5ª are thus geared together, and, assuming that the part carrying the pinions is stationary or retained in stationary position, if one of such drums be rotated, both will move in opposite directions, and if one of such drums be locked to the intermediate pinion carrier, or if one or more of the pinions be locked against rotation, then the drums and pinion carrier will be compelled to rotate together in the same direction for the purpose of enabling the device to be used interchangeably as means for hoisting or lowering and for adjusting. In the preferred embodiment of my invention I provide a clutch for locking the drum 5ª to the intermediate pinion carrier or controlling wheel 10, comprising an integral counterpart clutch-box 16 on the hub of the drum 5ª, having the usual projections and interdental spaces, which co-acts with a slidable hub or clutch ring 17 having a counterpart box 18 with the usual projections and interdental spaces corresponding with those of the counterpart box 16 on the drum 5ª. As shown, the clutch ring 17 is keyed to the hub 10ᶜ and is shifted into engaging and disengaging positions by means of a rectangular link 19 pivoted intermediate its ends as at 19ª, connected at one end to a shoe 19ᵇ bearing on said ring 17 and having its other end forked as at 19ᶜ and embracing a pivoted eccentric 20 moved by a lever 21. Obviously when the eccentric is moved around its pivot in opposite directions, the forked link will be rocked to move the clutch box into engaging and disengaging positions respectively, and may be locked in such positions. Assuming now that the clutch ring 17 is in engaging position, the drums will be locked together and the apparatus may be employed to hoist or lower the boat and such hoisting and lowering may be controlled by alternate engagement of the controlling wheel with the friction drive and brake shoe. If, however, it is desired to employ the device to adjust the lengths of the falls, the controlling wheel 10 is braked, the clutch ring 17 is moved into disengaged position and one of the drums rotated in one direction or the other, according to which end of the boat it is desired to raise or lower. My preferred means for so rotating the drums comprises an internal rack 22 on the side of the drum 5ª opposite to that having pinion rack 23 and this rack 22 is engaged by gear 24 on shaft 25 in bearings 25 on an extension 26 of the standard 8ª.

The operation of the device described will be apparent from the above description and it will be seen that by the said apparatus I am not only enabled to simultaneously lengthen and shorten the running falls at opposite ends of the boat, but I procure the balancing arrangement above referred to whereby substantially no power is required for such adjustment except to overcome the bearing friction.

In Figs. 6, 7 and 8 I have illustrated a modified form of my invention in which rope drums 27—27ª are mounted on a shaft 28 keyed to eccentric bearing blocks 29—29ª, mounted in standards 30—30ª of a frame 31 secured to the deck of the vessel in any suitable position. As illustrated, the drum 27ª has integrally cast therewith, a controlling or driving and braking portion 27ᵇ and the drum 27 is provided with a laterally extended hub 27ᶜ on which hub is keyed a worm wheel 32 which meshes with a worm 33 mounted in suitable bearings on the opposing drum 27ª. The drums and controlling wheel are shiftable in opposite directions by means of a lever 34 into alternate engagement with a driving wheel 35 or brake shoe 36, suitably mounted on opposite sides of such drums. The shifting of the drums to drive and brake the same is substantially similar to that above described. When, however, it is desired to adjust the length of the falls the controlling wheel is thrown into engagement with the brake shoe and the worm shaft turned in opposite di-

rections according to whether it is desired to raise or lower the end of the boat secured to the movable drum 27. Means, such as rack 37 and pinion 38 mounted on shaft 39, is preferably provided to take up slack.

Having described my invention, I claim:

1. Apparatus for handling lifeboats embodying therein a pair of davits, falls connected to each end of the lifeboat and to the davits, a pair of drums mounted on the vessel, one of such drums having the running part of the falls connected to one end of the lifeboat wound thereon, and the other having the running part of the falls connected to the other end of the lifeboat wound thereon, common means for driving and braking said drums, and interchangeable means connected to the running falls for hoisting and lowering the boat or for adjusting the lengths of the falls at opposite ends of the boat.

2. Apparatus for handling lifeboats embodying therein a pair of davits, falls connected to each end of the lifeboat and to the davits, and each having a standing and running part, a pair of drums mounted on the vessel and connected to the running parts of such falls, common means for driving and braking said drums, interchangeable means for locking said drums to rotate together to hoist and lower the boat or for permitting the same to move relatively to each other to adjust the length of such falls.

3. Apparatus for handling lifeboats embodying therein a pair of davits, falls connected to opposite ends of a lifeboat and to said davits, each of said falls having a standing and a running part, a pair of drums mounted on the vessel and connected to said running parts; common means for driving and braking said drums, means for gearing said drums together to rotate in opposite directions, and shiftable means for locking the gear to compel rotation in the same direction.

4. Apparatus for handling lifeboats embodying therein a pair of davits, falls connected to each end of the lifeboat and to said davits, each fall having a standing and a running part, a pair of drums mounted on the vessel and connected to the running parts of such falls, common means for driving and braking said drums, and means for interchangeably locking said drums to rotate together to hoist and lower the boat, or for compelling the same to move in opposite directions to adjust the length of such falls.

5. Apparatus for handling lifeboats embodying therein a pair of davits, falls connected to opposite ends of the lifeboat and to said davits, each of said falls having a standing and a running part, a pair of drums mounted on the vessel and connected to said running parts, a controlling wheel in association with said drums, means for engaging said controlling wheel to alternately rotate or brake the same, means for connecting said drums to the controlling wheel, coupling means for locking and unlocking such drums with the controlling wheel to compel simultaneous rotation of the drums in the same direction or to permit such drums to move relatively to each other.

6. Apparatus for handling lifeboats embodying therein a pair of davits, falls connected to opposite ends of the lifeboat and to said davits, each of said falls having a standing and a running part, a pair of drums mounted on the vessel and connected to said running parts and having opposing racks an intermediate controlling wheel carrying a pinion meshing with such opposing racks; means for driving or braking said controlling wheel and means for coupling or uncoupling one of such drums to said controlling wheel.

7. Apparatus for handling lifeboats embodying therein a pair of davits, falls connected to opposite ends of the lifeboat and to said davits, each of said falls having a standing and a running part, a pair of drums mounted on the vessel and connected to said running parts and having opposing racks an intermediate controlling wheel carrying a pinion meshing with such opposing racks; means for driving or braking said controlling wheel, a clutch device for coupling or uncoupling one of such drums to said controlling wheel, a lever for moving said clutch to extreme positions and means for automatically locking said lever in its extreme positions.

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

HARRY W. BROADY.

Witnesses:
FREDERICK P. RANDOLPH,
HELEN V. HOLMES.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."