No. 695,067. Patented Mar. 11, 1902.

H. A. MALLON.

HOISTING OR LOWERING APPARATUS FOR BOATS.

(Application filed July 15, 1901.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

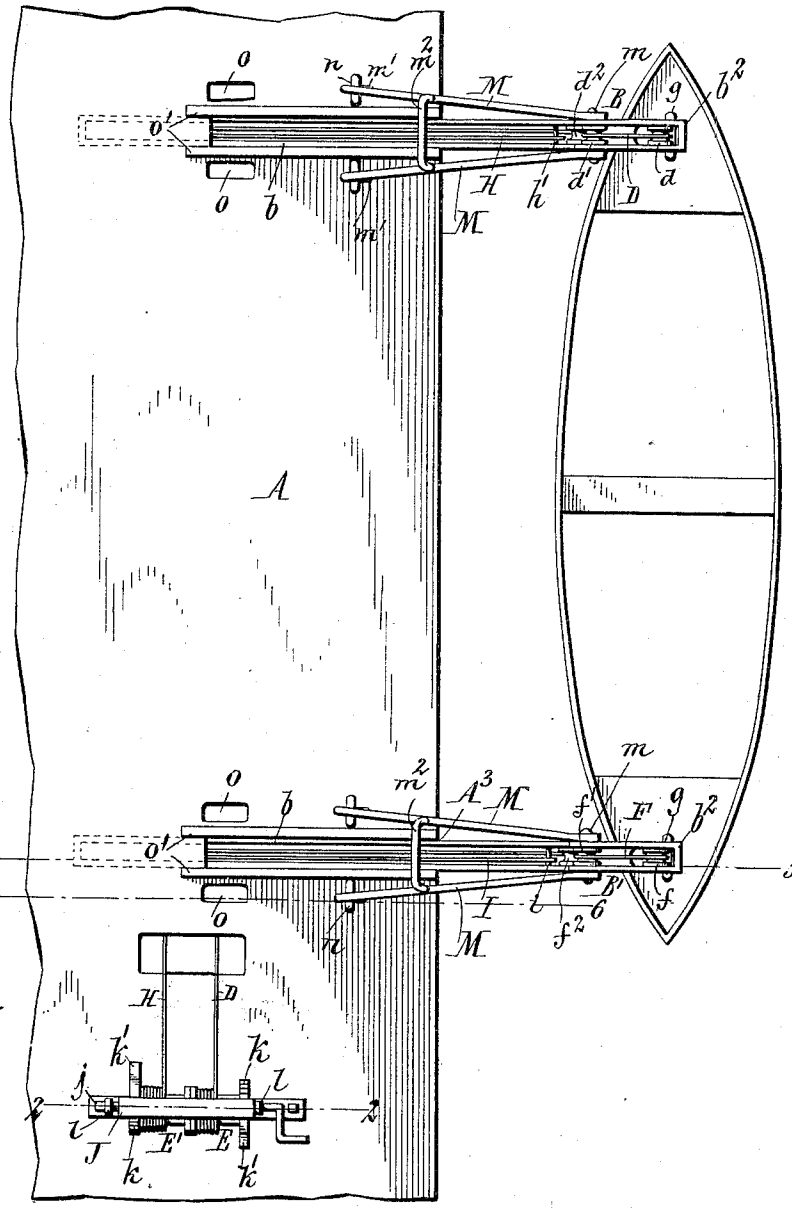


Fig. 4.

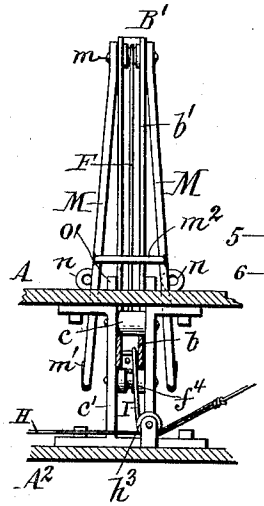


Fig. 3.

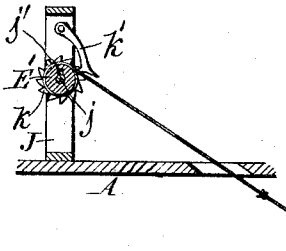
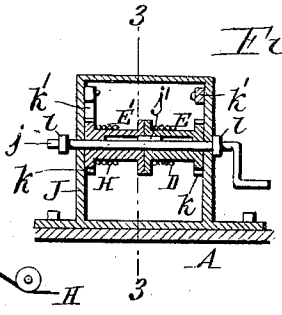


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

Fig. 5.

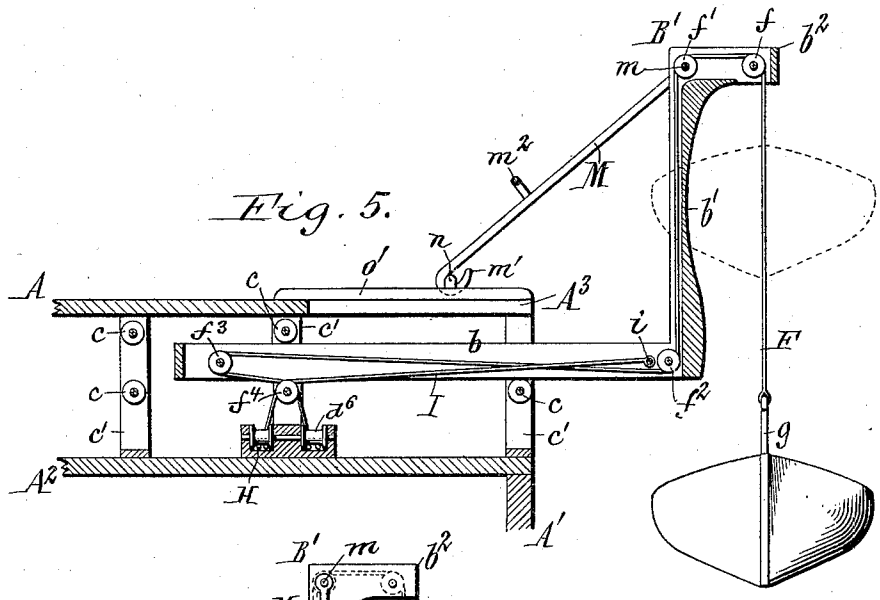


Fig. 6.

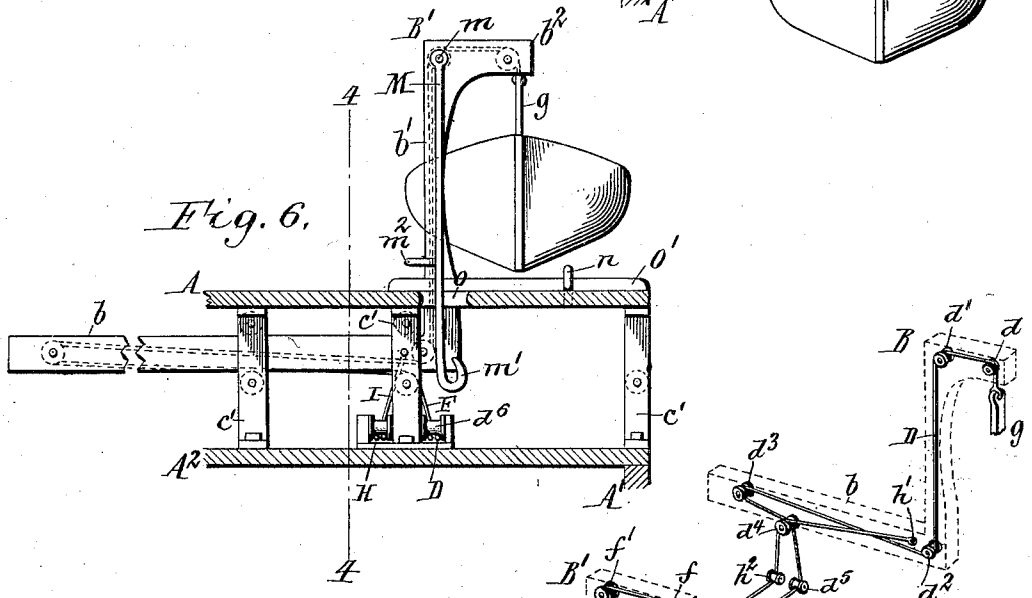
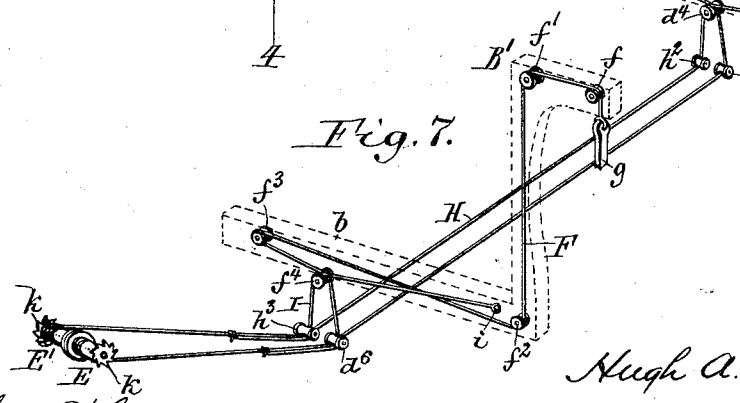


Fig. 7.



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UNITED STATES PATENT OFFICE.

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HOISTING OR LOWERING APPARATUS FOR BOATS.

SPECIFICATION forming part of Letters Patent No. 695,067, dated March 11, 1902.

Application filed July 15, 1901. Serial No. 68,332. (No model.)

To all whom it may concern:

Be it known that I, HUGH A. MALLON, a citizen of the United States, and a resident of Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Hoisting or Lowering Apparatus for Boats, &c., of which the following is a specification.

This invention relates to a hoisting apparatus which is especially desirable for raising and lowering life-boats, but which is also useful for raising and lowering the baskets or carriages of fire-escapes and for other purposes.

My invention belongs to the class of hoisting apparatus employing davits or cranes which are capable of sliding athwart the ship's deck or other support, so that the davits or cranes may be projected beyond the side of the ship for allowing the suspended boat to clear the same and retracted after hoisting the boat for bringing it over the deck or other support.

The object of my invention is the provision of a simple and reliable apparatus of this kind which can be conveniently operated.

In the accompanying drawings, consisting of two sheets, Figure 1 is a fragmentary top plan view of a ship's deck, showing my improved hoisting apparatus in connection with the life-boat davits, the latter being projected. Fig. 2 is a vertical longitudinal section of the hoisting and retracting drums in line 2 2, Fig. 1. Fig. 3 is a transverse vertical section thereof in line 3 3, Fig. 2. Fig. 4 is a vertical longitudinal section in line 4 4, Fig. 6, the life-boat being removed. Fig. 5 is a fragmentary transverse section in line 5 5, Fig. 1. Fig. 6 is a similar section in line 6 6, Fig. 1, showing the davits retracted. Fig. 7 is a diagrammatic perspective view showing the course of the hoisting and lowering lines and their guide-pulleys.

Like letters of reference refer to like parts in the several figures.

A represents the main deck of a vessel or a similar support, such as the roof of a building.

A′ represents the side of the vessel, and A^2 a lower or spar deck or floor.

B B′ represent a pair of laterally-sliding davits or cranes mounted on the vessel and each composed of a sliding horizontal boom b and a standard or derrick b', rising from the outer end of the boom and provided at its upper end with an outwardly-projecting arm b^2. These davits are preferably hollow or channeled, as shown, and slide in transverse horizontal ways, preferably formed by anti-friction-rollers c, journaled on the posts c', which support the main deck A, as shown in Figs. 5 and 6. The main deck is provided with transverse slots or recesses A^3, which receive the uprights b' of the davits when the latter are moved inwardly to their retracted position.

D represents a hoisting rope or cable suspended from the davit B and passing upwardly and rearwardly over guide-pulleys d d', journaled at the front and rear ends of the arm of said davit, thence downwardly and rearwardly around a guide-pulley d^2, journaled at the front end of the corresponding boom b, thence forwardly around a guide-pulley d^3, journaled at the rear end of said boom; thence downwardly around a guide-pulley d^4, journaled on one of the posts c' on the front side of the rear boom-pulley and below the plane of the booms b, thence lengthwise of the vessel underneath the boom of the other davit B′ and around transverse guide-pulleys d^5 d^6, journaled on the lower deck A^2, and thence upwardly through the main deck A to one of a pair of hoisting-drums E E′, mounted side by side on the main deck or other suitable place, as shown in Figs. 3 and 7. F is a similar hoisting rope or cable suspended from the other davit B′ and passing around guide-pulleys f f' f^2 f^3, mounted on the arm and the boom of said davit and corresponding in location, respectively, to the guide-pulleys d d' d^2 d^3 of the davit B. From the lower rear guide-pulley f^3 the rope F passes around a guide-pulley f^4, journaled on the adjacent deck-post c' on the front side of the rear boom-pulley f^3, as shown in Figs. 4 to 7, and thence downwardly around the guide-pulley d^6, the end of this rope being fastened to the other hoisting-rope D, as shown in Fig. 7, so that both of these ropes are actuated simultaneously by winding the rope D upon the drum E or unwinding it therefrom.

Each of the hoisting-ropes D F is provided at its free end with a hook or other suitable attachment g, adapted to be detachably engaged with a ring or other suitable attach-

ment on the life-boat. These attachments are wider than the slot of the arms b^2, so that the attachments form stops which compel the davits to slide inwardly with the hoisting-ropes after the life-boat or other object attached to the ropes has been elevated to its limit.

H is a retracting rope or cable for sliding the davit B inwardly to the position shown in Fig. 4, and I is a similar rope for sliding the other davit B′ to the corresponding position. The rope H is fastened at its front end to the front portion of the boom of the davit B, as shown at h'. From this point of attachment the rope runs rearwardly and downwardly over the guide-pulley d^4, thence lengthwise of the vessel around a transverse guide-pulley h^2, thence underneath the boom of the other davit B′ and upwardly around a guide-pulley h^3, and thence through the main deck A to the retracting-drum E′, said rope being wound upon the last-named drum in the opposite direction to that in which the hoisting-rope D is wound upon the drum E, as shown in Fig. 7. The other retracting rope or cable I is fastened at its front end to the front portion of the boom of the other davit B′, as shown at i, and passes rearwardly therefrom around the guide-pulley f^4, and thence downwardly around the guide-pulley h^3, the end of this rope being secured to the adjacent portion of the other retracting-rope H, as shown in Fig. 7, so that both of the retracting-ropes are operated simultaneously by winding the rope H upon the drum E′ or unwinding it therefrom.

The drums E E′ are mounted on a horizontal shaft j, journaled in a stationary frame J and having a hand-crank or other means for turning it. The drums are suitably mounted upon this shaft in such manner that both drums can be coupled or clutched to the shaft for turning them together, or so that one of the drums can be turned alone and the other held against turning or allowed to turn independently of the first-named drum. In the construction shown in the drawings the left-hand or davit-retracting drum E′ is loose on the drum-shaft, and the latter is arranged to slide lengthwise through the drums and provided with a spline j', adapted to interlock with both drums for compelling the same to turn together, as shown in Fig. 2, or to engage only with the right-hand or hoisting drum E, leaving the davit-retracting drum E′ free to pay out its rope. The drums may be provided with ratchet-wheels k, with which engage detent-pawls k', carried by the frame J. The longitudinal movement of the drum-shaft is limited by collars l, mounted thereon and arranged to bear against the standards of the frame J.

M represents links or braces, which stiffen the davits B B′ when in their projected position. Each of these braces preferably consists of a pair of downwardly-diverging legs pivoted at their upper ends to the davit-standard by a transverse pin m. These brace-legs straddle the slot A^3 of the deck A and are provided at their lower ends with hooks or similar attachments m', which are arranged to engage with eyes n, secured to the deck A on opposite sides of said slot when the davit is projected, as shown in Figs. 1 and 5. The legs of each brace M are tied together by a cross-bar m^2.

o o represent openings formed in the deck A in rear of the eyes n and in line with the hooked lower ends of the braces M. These openings receive the lower portions of said braces when the davits are retracted, as shown in Fig. 6, allowing the braces to hang vertically beside the uprights of the davits, in which position they occupy comparatively little room. By this construction and arrangement when the davits are projected the free lower ends of the braces M are withdrawn from the openings o and their hooks slide along the surface of the upper deck A until they encounter the eyes n, when they automatically engage therewith, as shown in Figs. 1 and 5. Upon retracting the davits the hooks of the braces become automatically disengaged from the eyes, and upon arriving opposite the openings o the braces pass through the latter and assume the position shown in Fig. 6. In order to effect this automatic engagement of the hooked braces with the eyes n, the hooks are arranged on the front or under side of the braces in the normal position of the latter.

o' represents raised guard-rails arranged along the edges of the deck-slots A^3 for preventing the legs of the braces M from entering said slots.

When it is desired to lower the life-boat, the latter is first raised clear of its customary rests on the deck, as shown in Fig. 6, by shifting the drum-shaft out of gear with the davit-retracting drum E′ and then turning the shaft in the proper direction to wind the hoisting-ropes D F upon the other drum E. The davits are next slid outwardly for projecting them by continuing to wind the hoisting-ropes upon the drum E and allowing the davit-retracting ropes H I to pay out from the released drum E′. This outward movement of the davits is due to the doubling of the hoisting-ropes around the rear guide-pulleys d^3 f^3 of the davit-booms b and the shortening of these doubled portions or loops caused by winding the ropes upon the hoisting-drum. After the davits have been properly projected the boat is lowered by allowing the hoisting-ropes D F to unwind from the drum E, and the boat is then detached from the hoisting-tackle.

In raising the life-boat the same is first hoisted to its highest position. The davits are then retracted by shifting the drum-shaft j into gear with the retracting-drum E′ and turning the shaft in the reverse direction for winding the retracting-ropes upon the corresponding drum and unwinding the hoisting-ropes from the hoisting-drum. The hoisting-

ropes are thus paid out in the same measure as the retracting-ropes are wound up, allowing the loops to lengthen around the rear guide-pulleys $d^3 f^3$ of the davit-booms as the davits are retracted and at the same time retaining the life-boat in its elevated position. After retracting the davits the boat is lowered upon its rests on the deck by uncoupling the shaft *j* from the retracting-drum and allowing the hoisting-ropes to unwind from the corresponding drum.

I claim as my invention—

1. The combination with a deck or support having guides, of a boom sliding in said guides and provided at its front and rear ends with guide-pulleys, a guide-pulley mounted on said support in front of the rear guide-pulley of the boom, and an operating rope or cable doubled around the rear guide-pulley of the boom and running also around said front guide-pulley and the pulley carried by said support, substantially as set forth.

2. The combination with a deck or support having guides, of a boom sliding in said guides and provided at its front and rear ends with guide-pulleys, a guide-pulley mounted on said support in front of the rear guide-pulley of the boom, a hoisting and projecting rope doubled around the rear guide-pulley of the boom and running also around said front guide-pulley and the pulley carried by said support, and a retracting rope or cable attached to the front portion of said boom and extending toward the rear end thereof, substantially as set forth.

3. The combination with a deck or support having guides, of a pair of booms sliding in said guides and each provided at its front and rear ends with guide-pulleys, stationary guide-pulleys mounted on said support adjacent to said booms and in front of their rear guide-pulleys, a pair of hoisting and retracting drums, hoisting ropes or cables passing rearwardly around the front and rear guide-pulleys of said booms, and thence forwardly around said stationary guide-pulleys to said hoisting-drum, and retracting ropes or cables attached to the front portions of said booms and passing rearwardly around said stationary guide-pulleys and thence to said retracting-drum, substantially as set forth.

4. The combination with a deck or support having guides, of a pair of booms sliding in said guides and each provided at its front and rear ends with guide-pulleys, stationary guide-pulleys mounted on said support adjacent to said booms and in front of their rear guide-pulleys, a pair of hoisting and retracting drums, means for coupling and uncoupling one of said drums from the drum-shaft, hoisting ropes or cables passing rearwardly around the front and rear guide-pulleys of said booms and thence forwardly around said stationary guide-pulleys to said hoisting-drum, and retracting ropes or cables attached to the front portions of said booms and passing rearwardly around said stationary guide-pulleys and thence to said retracting-drum, substantially as set forth.

5. The combination with upper and lower decks or floors and guides arranged between the same, of a boom sliding in said guides and provided at its outer end with a davit or standard which extends above the upper deck or floor, hoisting-tackle carried by said davit, and a brace extending from said upper deck or floor to the top of said davit, substantially as set forth.

6. The combination with a deck or support having a transverse slot, of a sliding boom arranged below said deck in line with its slot and carrying a davit or standard adapted to enter said slot, and hoisting-tackle carried by said davit, substantially as set forth.

7. The combination with a deck or support, of a sliding boom carrying a davit or standard, a brace pivoted at its upper end to said davit or standard and provided at its lower end with an attachment, and a companion attachment secured to said deck or support in the path of said brace attachment, substantially as set forth.

8. The combination with a deck or support, of a sliding boom carrying a davit or standard, a brace pivoted at its upper end to said davit or standard and provided at its lower end with a hook arranged to slide upon said deck or support, and an eye secured to said deck or support and arranged to receive said hook when the boom and the davit are projected, substantially as set forth.

9. The combination with a deck or support having an opening and an attachment secured thereto in front of said opening, of a sliding boom arranged below said deck or support and carrying a davit or standard, and a brace pivoted at its upper end to said davit and provided at its lower end with an attachment arranged to engage with said deck attachment when the davit is projected and to enter the opening of the deck when the davit is retracted, substantially as set forth.

10. The combination with a deck or support having a transverse slot, guard-rails arranged along the edges of said slot and openings arranged on opposite sides of said slot, of a sliding boom arranged below said deck in line with said slot and carrying a davit or standard which is adapted to enter said slot, eyes arranged on the deck in front of said deck-openings and in line therewith, and a brace pivoted at its upper end to said davit and composed of a pair of legs, arranged to straddle said guard-rails and provided at their lower ends with hooks which are arranged to automatically engage with said eyes when the davit is projected and to enter said deck-openings when the davit is retracted, substantially as set forth.

Witness my hand this 9th day of July, 1901.

HUGH A. MALLON.

Witnesses:

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THEO. L. POPP.