Dec. 3, 1935. J. YOUNG 2,023,258

DAVIT

Filed Nov. 16, 1933 2 Sheets-Sheet 1

Fig. 1.

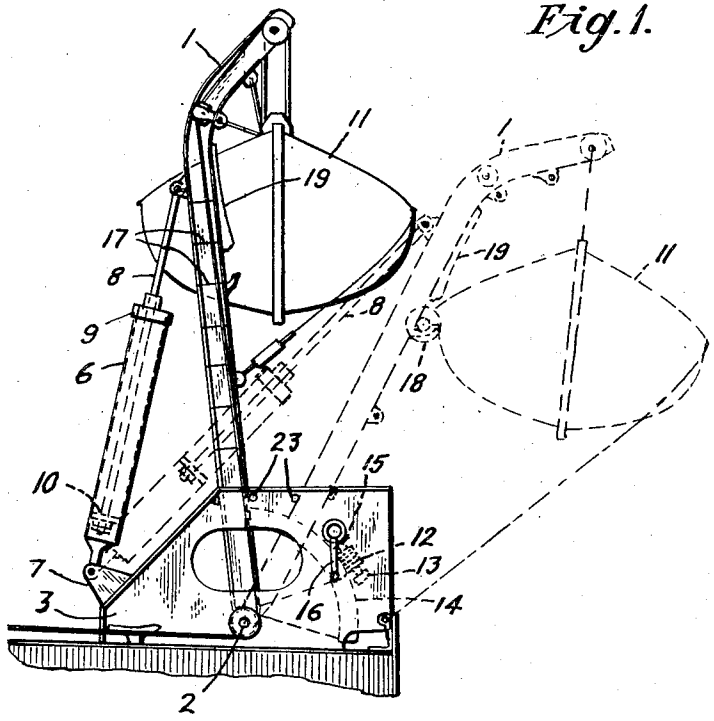
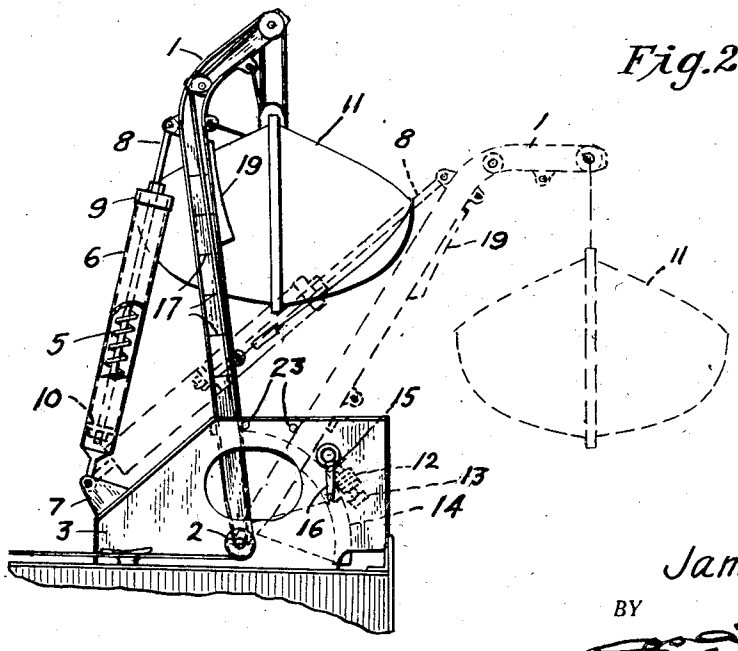


Fig. 2.



INVENTOR.

James Young

BY

ATTORNEY.

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Filed Nov. 16, 1933 2 Sheets-Sheet 2

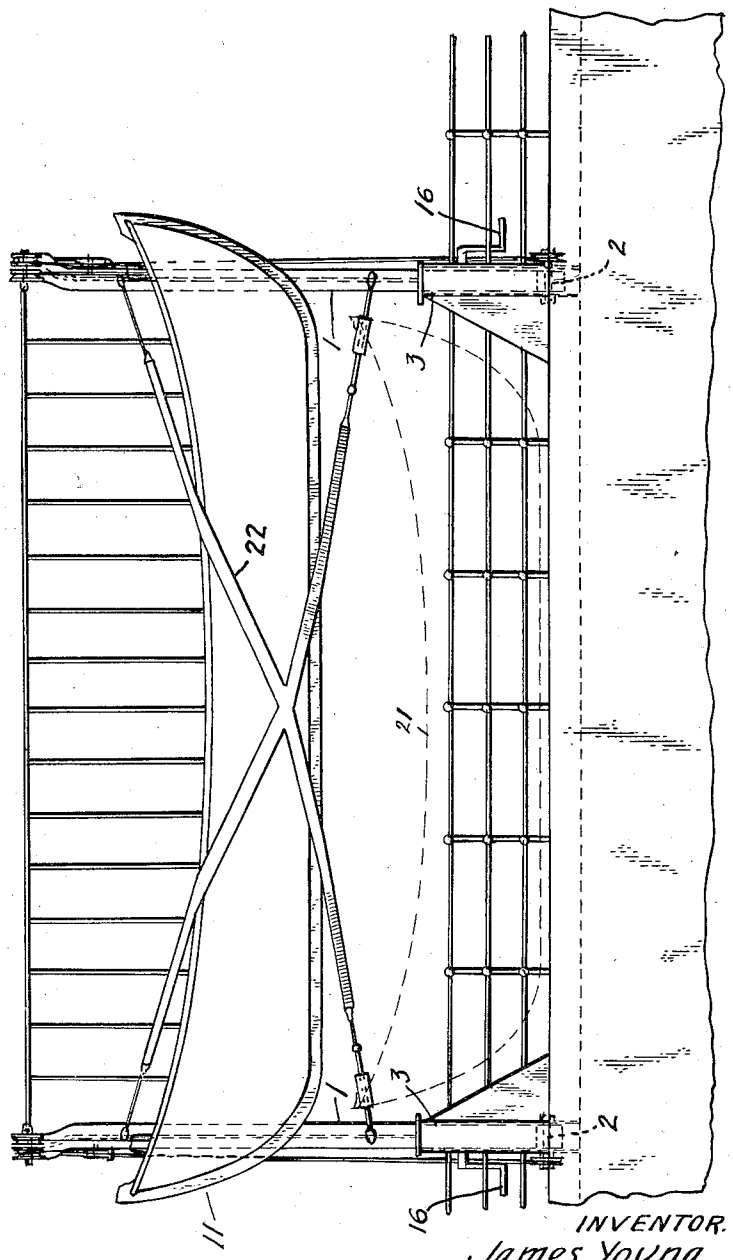


Fig. 3.

INVENTOR.
James Young
BY
ATTORNEY

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DAVIT

James Young, Haddonfield, N. J.

Application November 16, 1933, Serial No. 698,293

5 Claims. (Cl. 9—22)

My invention is an improved davit for launching boats with a minimum of exertion and in a minimum time and providing means for counterbalancing the load throughout the swing of the boat from its inboard position to its outboard position. By my improvements a boat may be swung from an inboard position to an outboard position, ready for lowering, or vice versa, in a few seconds and with a small amount of effort, since the counterbalancing mechanism imparts a gradually increasing resistance to a swing of the davit in one direction and applies a gradually diminishing pull to assist movement in the opposite direction. The retarding or pulling action of the counterbalance increases or decreases with variation in the effective leverage of the load or the change in the component of force tending to turn the davit on its fulcrum.

The moments of force tending to turn the davits vary irregularly with changes in the effective leverage of the load on the davits, but by anchoring a spring counterbalance at a suitable point, so that its effective leverage varies with the movements of the davits, the moments of force of the spring may be so modified as to compensate for variations in the turning action of the load.

In the preferred embodiment of my invention the boat to be launched is supported, through suitable blocks and falls, from fulcrumed davits which oscillate on horizontally disposed axes. The load is counterbalanced by counterbalancing mechanism including springs and preferably anchored on the inboard side of the fulcrums of the davits. The load is transmitted to springs, which are designed for compression, through rods or tie members which are under tension during the movement of the davits to either outboard position or inboard position.

The weight of the boat and its load tends to rock the davits toward the outboard position, but such tendency is counteracted by the resistance of the springs which are so designed and positioned as to afford increasing resistance proportional to the increased leverage through which the load exerts a turning movement on the davits in swinging to the outboard position. Consequently there is a substantially uniform counterbalance of the load by the springs, which permits the operation of the davits with a minimum amount of effort throughout the swing of the boat.

The characteristic features and advantages of my improvements will further appear from the following description and the accompanying drawings in illustration thereof.

In the drawings, Fig. 1 is an end view, taken along the deck of a vessel, of launching apparatus embodying my invention; Fig. 2 is a similar view illustrating the use of shorter davits when the use of a pudding boom is unnecessary; and Fig. 3 is a view, looking inboard from the side of a ship, of the apparatus positioned as shown in full lines in Fig. 2 and showing also in broken lines a second boat stowed between the davits.

As illustrated in the drawings, each davit 1 is preferably of H-section and is fulcrumed on a pivot 2 mounted in a supporting frame 3. The davit and its load is counterbalanced by a counterbalance comprising a compression spring 5. The spring is preferably housed in a casing 6 which is pivotally connected at a point materially higher than the pivot 2 with a bracket 7 on the frame 3. A rod 8, pivoted to the davit, slides through the head 9 of the casing 7 and has a head 10 thereon engaging an end of the spring. The spring is compressed between the head 10 and the head 9 of the casing 7 by the outboard movement of the davit.

The davit, with a given weight of boat 11 and load, is practically balanced throughout its arc of travel from inboard to outboard position, and, with the vessel in an upright position, can be operated by hand with very little effort.

However, to provide for the condition when the vessel is rolling in a seaway, a worm control gear is provided consisting of a worm shaft 12 journalled in bearings 13 in the frame, and engaging the teeth of a quadrant 14 fixed to the davit. The worm shaft is operated through mitre gears 15 and a handle 16.

The worm gear provides perfect control of the davit under all conditions, and the speed of travel of the davit is reduced by such gear, which will hold the davit locked in any position throughout its travel.

Ladder rungs 17 on the side of each davit provide access to the boat for the crew.

When the boat is in its stowed position inboard, as shown in full lines in Figs. 1 and 2, the deck space between the davits is unobstructed and the keel of the boat is at such a height above the deck as not to interfere with a clear view from the deck outboard. As the boat is lowered from the cleats, it can be stopped at any deck level for taking on the passengers, when necessary.

On naval vessels, it has been the practice to

carry the whale boat stowed in the outboard position when at sea. This can be done by fitting a "pudding boom" 18 between the davits, as shown in Fig. 1.

If the boat is stowed inboard, as shown in Fig. 2, a shorter davit may be used and the cumbersome pudding boom is unnecessary, as stowage chocks 19 are fitted on each davit and the boat is secured against the chocks by suitable gripes 22.

In the case of merchant vessels, while it may be an advantage in some cases to have the boats stowed overhead so as to provide a clear view outboard, it is also practicable to stow a double tier of boats with each pair of davits, the lower boat 21 being shorter than the upper one and stowed in chocks on the deck in such a manner as to permit of its being swung outboard by the davits, without having to be raised from the chocks. This arrangement is shown in dotted lines in Fig. 3.

Where a double tier of boats are stowed, the worm gear can easily take care of the difference in the weight of the boats.

A locking pin 23 may be fitted to lock the davit in its extreme outboard or inboard position.

As illustrated in the drawings, each davit 1, with its supporting frame 3, spring 5, and control gear consisting of a quadrant 14, worm 12, miter gears 15 and crank handle 16, may be made up in the shop as a "single unit", ready for installation on the vessel; the guide frame being welded to the deck and gunwale, in the case of a steel deck.

Having described my invention, I claim:

1. Boat launching apparatus comprising a supporting structure, davits consisting of normally upright levers fulcrumed at fixed points adjacent to a side of the supporting structure and having main portions movable from the inboard side to the outboard side of a vertical plane through the fulcrum points of the levers, and vice versa, mechanisms anchored to said supporting structure and connected with the normally inboard main portions of said levers and biasing said levers toward inboard position, said mechanisms including coiled springs, and means for suspending from said levers a boat forming a load having its center of gravity on the outboard side of said plane when the main portions of the levers are on the inboard side of said plane, and said coiled springs imposing a substantially constant lag on the movements of said levers and their load toward outboard position.

2. Boat launching apparatus comprising a supporting structure, davits consisting of normally upright levers fulcrumed at fixed points adjacent to a side of said supporting structure and movable from inboard position to outboard position, and vice versa, spring-engaging devices pivotally connected with said supporting structure inboard of the fulcrum points of the respective levers, spring-engaging devices complementary to said devices first named and pivotally connected with the respective levers above the centers thereof, a compression spring connected with each pair of complementary spring-engaging devices, and means for suspending from said davits a boat forming a load, said springs imposing a substantially uniform lag on said davits and the load thereon throughout the movements of the levers from the inboardmost to the outboardmost position of said levers.

3. Boat launching apparatus comprising a supporting structure, davits consisting of normally upright levers fulcrumed at fixed points adjacent to a side of said supporting structure and movable from inboard position to outboard position, and vice versa, complementary tube members and rod members connected with the davits and supporting structure, the members connected with the supporting structure being connected therewith at points inboard of and above the fulcrum points of said levers and the members connected with the davits being connected therewith above the center points thereof, a coiled spring in each tube, each of said tubes having one of said rods passing therethrough, heads connected with the respective tubes and rods for engaging said springs, and means for suspending from said davits a boat forming a load counterbalanced by said springs in both the inboard position and outboard position of said davits.

4. Boat launching apparatus comprising a supporting structure including housings, normally upright levers fulcrumed at fixed points adjacent to a side of the supporting structure and within said housings, mechanisms anchored to the supporting structure inboard of said fulcrum points and including compression springs biasing said lever toward inboard position, a toothed quadrant fixed to each lever within the respective housings, a journalled worm within each housing and engaging the teeth of the quadrant therein, and means comprising mitre gears and handles projecting from the respective housings for rotating said worms.

5. A boat launching apparatus comprising a supporting structure, davits consisting of normally upright levers fulcrumed at fixed points adjacent to a side of the supporting structure and having main portions movable from the inboard side to the outboard side of a vertical plane through the fulcrum point of the levers, and vice versa, spring engaging devices pivotally connected with said supporting structure inboard of the fulcrum point of the respective levers, the pivot points of said devices lying at a materially higher level than the fulcrum points of said levers, and means for suspending from said levers a boat forming a load having its center of gravity on the outboard side of said plane, said spring-engaging device imposing a substantially constant lag on the movements of said levers and their load toward outboard position.

JAMES YOUNG.