July 10, 1951 A. SLATER 2,559,832

SHIP HOIST

Filed Aug. 23, 1946 4 Sheets-Sheet 1

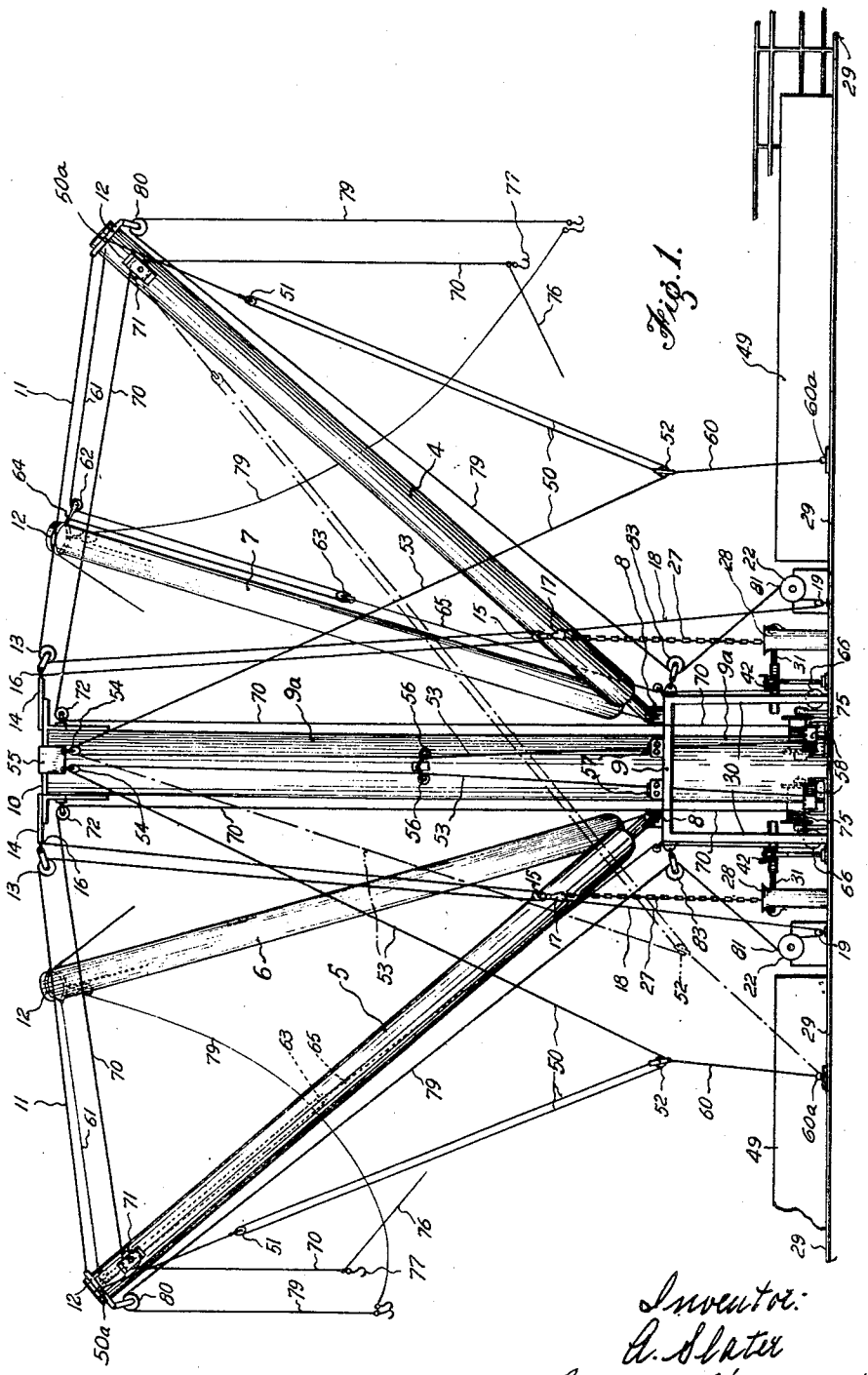

Fig. 1.

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SHIP HOIST

Filed Aug. 23, 1946 4 Sheets-Sheet 2

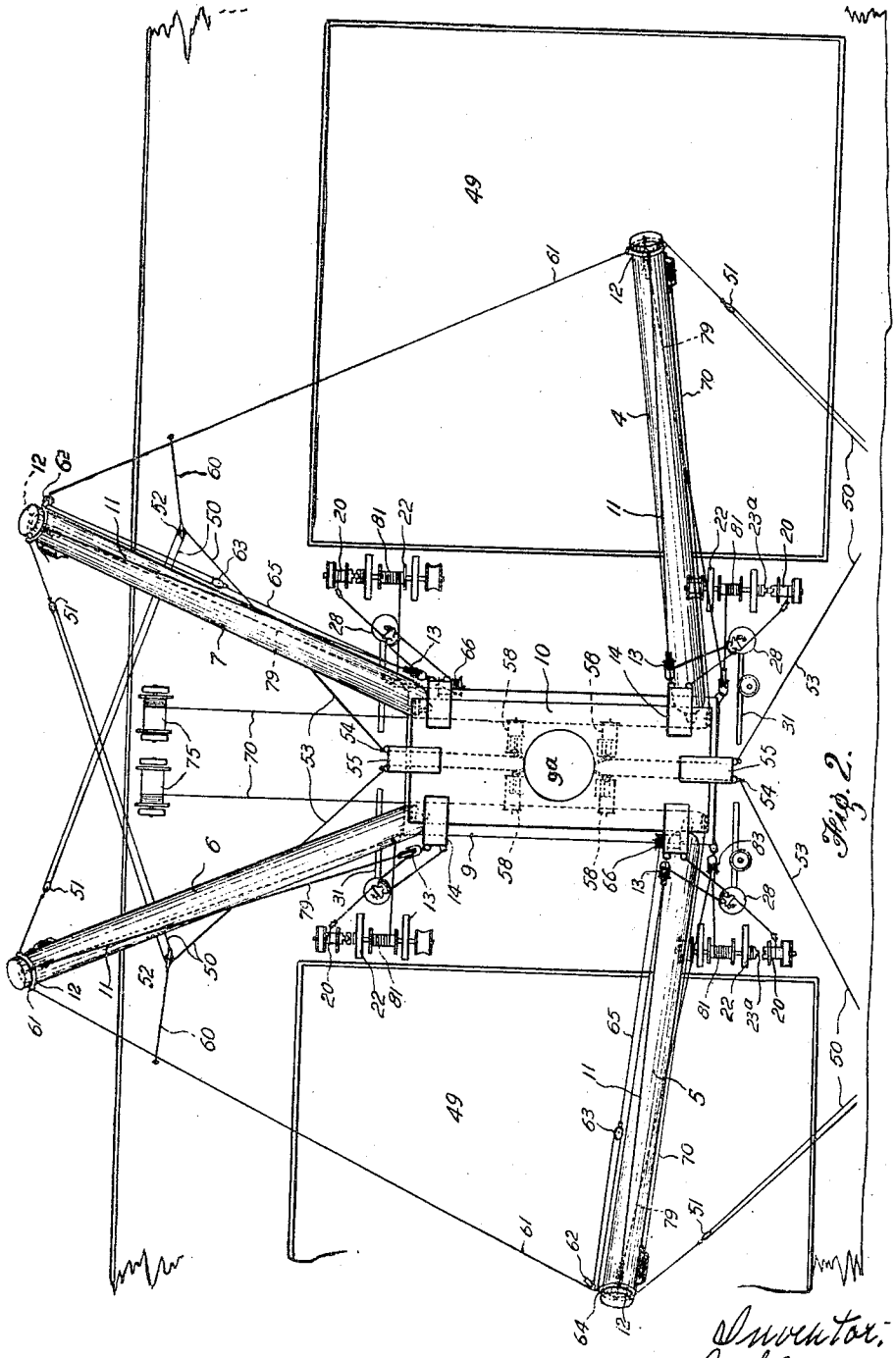

Fig. 2.

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SHIP HOIST

Filed Aug. 23, 1946 4 Sheets-Sheet 3

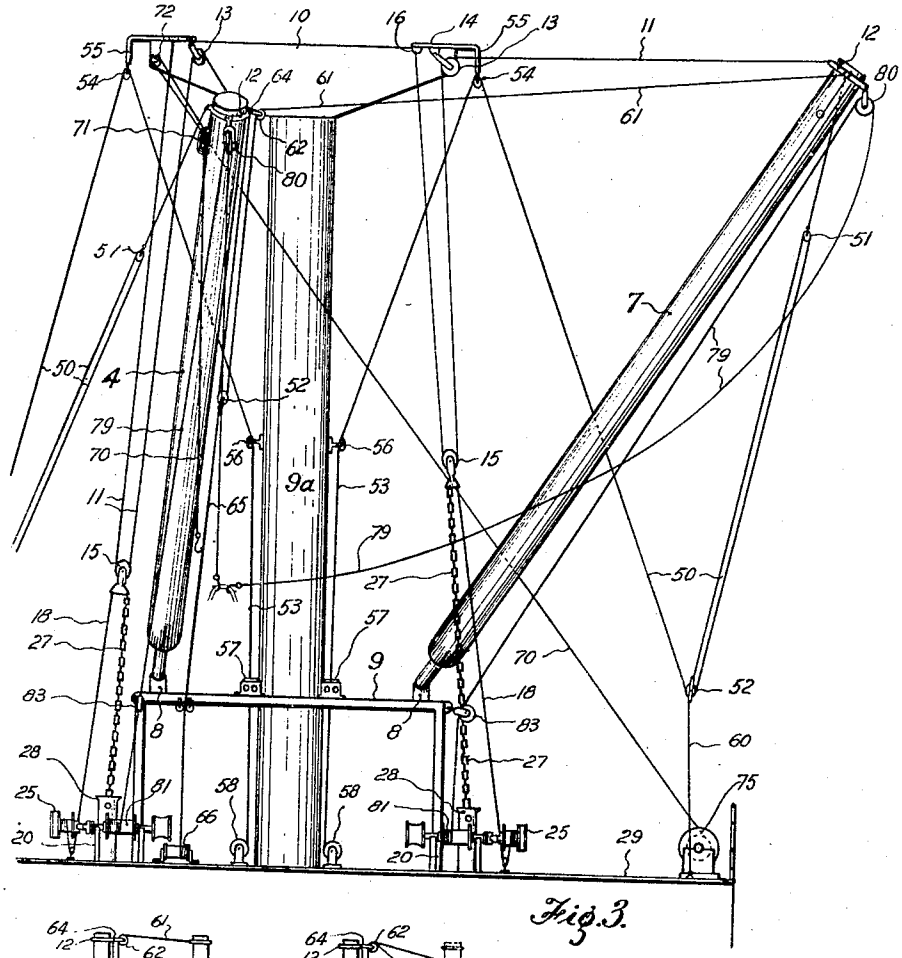

Fig. 3.

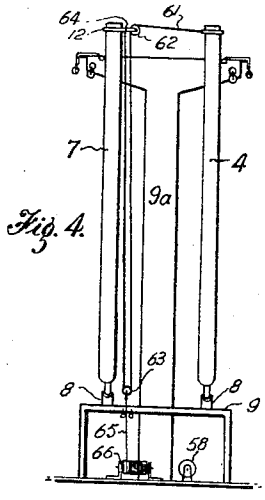

Fig. 4.

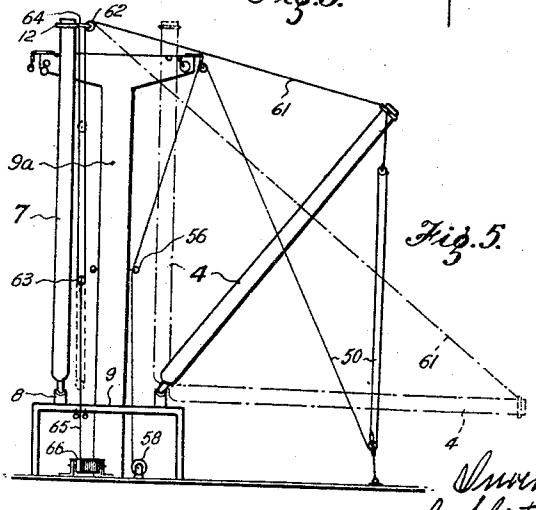

Fig. 5.

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SHIP HOIST

Filed Aug. 23, 1946 4 Sheets-Sheet 4

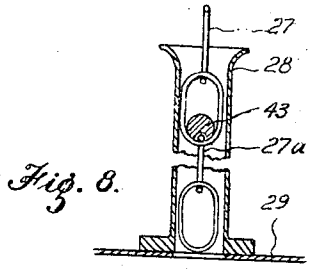


Fig. 8.

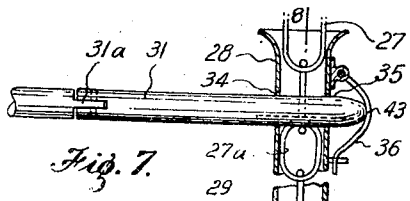
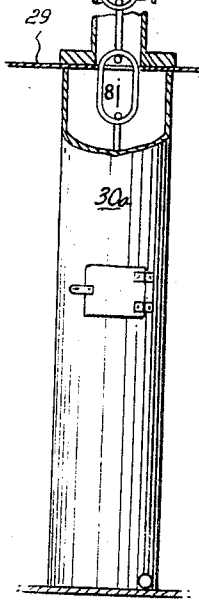


Fig. 7.



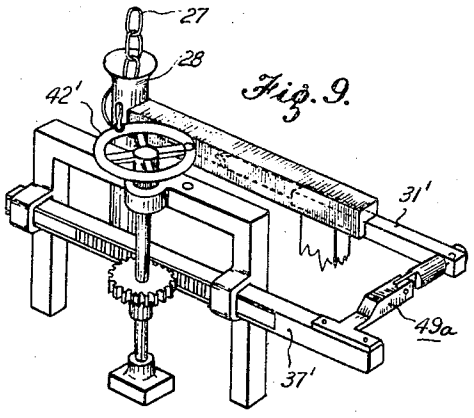


Fig. 9.

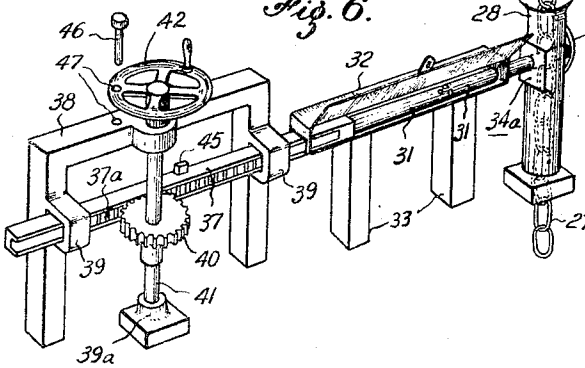


Fig. 6.

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UNITED STATES PATENT OFFICE

2,559,832

SHIP HOIST

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Application August 23, 1946, Serial No. 692,526

17 Claims. (Cl. 212—3)

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This invention relates to ships' gears for the loading and unloading of ships' cargo, and of the type including derrick control gear and hoisting gear.

It is generally conceded that the derrick and hoisting gear included in all classes of ships is quite inadequate for the expeditious handling of the cargo, due mainly to the fact that the gear has become more or less obsolete having regard to the modern tendency towards mechanisation to eliminate unnecessary manual labour.

For example, a considerable amount of manual labour is still involved in the handling of the cargo in the hold of the ship and the control of the derricks, necessitating the employment of a considerable number of stevedores, to position the cargo where it can be connected to the hoisting cables. This is due primarily to the practice of effecting controlled movement of the derrick or yard arm which terminates the inward swing in substantially the same position above the hold, whereby cargo not located substantially therebelow requires to be manhandled to bring the same to the hoisting cable. Moreover, to attach to the cargo in slings or the like to the hoisting cable it is again necessary to manually handle the cargo for the slinging or the suspending of the same on the hoisting cable which adds considerably to the time and labour involved.

Incidentally, manual adjustment of the derricks to position the same in the loading and unloading position causes delays during operation.

Obviously the above method of handling the cargo and hoisting gear adds to the time at which a ship is required to remain at the wharf for discharging and loading cargo, with resultant heavy cost to the ship owners in wharfage rates and stevedoring costs.

Now this invention has as its principal object to avoid the abovestated disadvantages by the provision of efficient and conveniently operable derrick control and hoisting gear by the use of which manual labour and handling of cargo is reduced to a minimum, i. e. the handling of the cargo is practically mechanised.

A further object of the invention is to provide derrick control and hoisting gear that may be conveniently set or adjusted to permit the cargo to be loaded and unloaded from either side of the ship.

A further object of the invention is to provide such derrick control and hoisting gear, by the use of which the cargo may be expeditiously unloaded or loaded to substantially reduce the time and number of stevedores normally involved in

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the handling of the same cargo whereby the ship may quickly clear the port.

With the above stated objects in view there is provided according to this invention, an improved derrick for the unloading and loading of cargo comprising power actuated topping gear for each one of a pair of coacting booms to adjust the working inclination of said booms, and mechanical locking means operatively associated with each topping gear to maintain the booms in the adjusted working inclination.

The coactive booms between which the load is swung, i. e. the midship booms operating above the hold and the yard arm booms operating above the wharf are normally maintained fixed in their respective positions at the required working inclination to the horizontal by the topping gear and may be slewed or moved radially to an adjusted position without effecting any variation in the said inclination due to the action of the locking means.

Accordingly the topping gear which imparts a luffing or angular motion to the booms adjusts the predetermined height of the top of the booms above the hold or the wharf and resultantly the position of the hoisting gear relatively to the hold or wharf.

The accompanying drawings depict a practical arrangement of the invention incorporated in the four booms and mast of a ship.

Fig. 1 is a semi-diagrammatic view in side elevation of a ship's mast and control gear for the booms as viewed from the starboard or port side.

Fig. 2 is a similar plan of the apparatus and gear shown in Fig. 1.

Fig. 3 is a similar end elevation (looking aft) of the apparatus.

Figures 4 and 5 are diagrammatic elevations of a pair of booms illustrating the distant or lazy guys and winch control for the latter.

Fig. 6 is a fragmentary perspective view illustrating the topping gear for each boom and associated locking gear.

Fig. 7 is a sectional elevation of locking gear, illustrated in Fig. 6.

Fig. 8 is a section on the line 8—8 of Fig. 7.

Fig. 9 is a perspective of a modified arrangement of the locking gear, illustrated in Figs. 7–8.

Referring to Figs. 1 and 2 the pairs of booms 4, 5, 6 and 7 in the form of jib arms are pivotally mounted for universal movement in their sockets 8 upon the lower table 9 and grouped about the mast 9a, which extends through the table 9 and is fitted with a top table 10 in the conventional manner. The gear controlling the

rear booms 6—7 excepting the main cargo hoist, being omitted in Fig. 1, for the purpose of clearly illustrating the gear on the front pair of booms 4—5.

Referring at the outset to the topping gear for angularly moving each boom through the vertical plane from the horizontal to the substantially vertical, this movement is effected under motive power at the control of an operative to eliminate manual handling.

To that end, said gear in each instance comprises a span wire 11 anchored at one end to the collar 12 upon the upper end of the boom 4—5 in Fig. 1 and extends to a guide pulley 13 upon a projecting plate 14 upon the top table 10 of the mast from which pulley the wire 11 travels to an equalizing pulley 15 and returns parallelly to the anchorage point 16 on the plate 14 to form a bight span.

As viewed in Fig. 6 equalizing pulley 15 is journalled in a shackle 17 to one side of which is attached the down haul cable 18, passing about the idler pulley 19, upon the deck 29 of the ship to a topping drum 20 coaxial with and driven from the shaft of the main hoisting steam winch 22.

Topping drum 20 is carried upon the shaft 23 clutch coupled as at 23a to the shaft of the winch 22 whereby upon the manipulation of the clutch handle 24 said drum may be driven in unison with the main drum of the winch. Upon being declutched the topping drum 20 may be expeditiously stopped and rendered idle by application of the brake 25.

The other side of the shackle 17 has connected thereto a depending locking chain 27 which passes into a bell mouthed guide tube 28 mounted on the deck 29 adjacent to the staunchions 30 of the lower table 9.

The guide tube 28 is vertically disposed above a chain housing 30a mounted below the deck and in which the locking chain 27 coils as the boom is angularly raised or topped and pays out as the boom is similarly lowered towards the horizontal.

The locking gear co-operating with the chain 27 is illustrated in Figs. 6 to 8 and comprises a horizontal pin 31 slidable in the channeled guide 32 mounted upon the standards 33 upon the deck 29, to enter an aperture 34 in a flat surface 34a upon the guide tube 28, a diametrically opposite aperture 35 being covered by the hinged flap 36.

Pin 31 is attached to an aligning rack member 37 carried in and axially movable relatively to the vertical frame 38 mounted upon the deck 29.

Guide brackets 39 disposed in alignment with the channeled guide 32 constrain the rack member 37 to move in an axial path and similarly move the pin 31.

The rack member 37 is channeled with the teeth 37a flush with the surface thereof to pass freely through the guide brackets 39.

Disposed in constant mesh with the teeth 37a is a pinion 40 carried upon a spindle 41 journalled in the frame 38 and footstep bearing 39a. A control hand wheel 42 is fitted to the upper end of the spindle 41, the turning of the wheel in one complete revolution being adapted to either advance the pin 31 into the locking position illustrated in Fig. 7 or withdraw the same from the guide tube 28.

The outer end of the pin 31 is substantially hemispherical and upon the underside is formed with a groove 43 of semi-circular cross section, whereby upon the pin being advanced into the tube 28 the groove 43 readily engages with and seats upon the particular hanging link 27a of the locking chain 27 and extending through the diametrically opposite aperture in the guide tube 28 bridges the latter to thereby restrain movement of and lock said chain 27. By restraining and locking the chain 27 against movement, the boom 4 is retained fixed in the required position angularly to the horizontal, i. e. its top is disposed at the required height above the level of the hold of the ship.

A stop 45 upon the rack member 37 limits the retractive movement of the latter, and the detachable pin 46 insertable through the aligning apertures 47 in the central handle 42 and frame 38 retains the rack and pin 31 against movement in the operative locking position of the latter.

To ensure self-centering or adjustment of the pin 31 in the apertures 34—35 of the guide tube 28 to engage the link of the chain 27, the pin 31 is divided as at 31a and the sections pivotally connected whereby the outer section may readily feed through said apertures.

In the operation of the topping gear described to raise the boom 4, Fig. 1 from the horizontal to the topped position at an angle of approximately 45° to the horizontal, the operative, with the locking pin 31 retracted and disengaged from the locking chain 27, disengages the brake 25 and by adjustment of clutch handle 24 clutch couples the topping drum 20 to the winch 22.

Rotation of the topping drum 20 exerts a downwardly directed pull upon the cable 18 which is transmitted through the equalizing pulley 15 to the span wire 11 which pulls upon the top of the boom and angularly raises the latter to the position illustrated.

As the boom 4 is raised the locking chain 27 feeds through the guide tube 28 into the chain housing 30a as the equalizer pulley 15 is lowered, and upon the boom being moved to the required angular adjustment illustrated, the winchman declutches the topping drum 20, applies the brake 25 and then operates the control wheel 42 to engage the locking pin 31 with and retain the locking chain 27 in the locked position as illustrated in Fig. 6.

The boom 4 is then locked in the required inclination to the horizontal without obviating the swinging or slewing movement to determine the exact position of the boom in the loading or unloading position relatively to the hold 49 of the ship or the wharf as hereinafter described.

As illustrated in Fig. 9 the apparatus for locking the chain 27 may be suitably modified to fit within a relatively narrow area in smaller ships.

To that end the locking pin 31' is supported in parallel disposition and attached to the rack member 37' by the cross member 49a so as to move in unison with the latter upon the turning of the control wheel 42'.

Referring now to Fig. 2 it will be observed that each boom 4, 5, 6 and 7 is provided with the topping gear and associated locking mechanism, the winches 22 being disposed in transverse and longitudinal alignment, on the deck about the lower table 9.

Accordingly, the winchman controlling one pair of booms 4—7 and 5—6 may stand between a transversely aligning pair of winches to conveniently operate either one of the topping gears and locking gear associated with a particular pair of booms.

With the boom e. g. 4, Fig. 1 locked at the required inclination to the horizontal, it may be swung or slewed to positively locate the top of the

boom above the required location in the hold, or the wharf for loading or unloading purposes.

To that end each boom 4—5, 6—7 as viewed in Fig. 1 has anchored to the collar 12 thereon, one end 50*a* of a substantially V-shaped guy wire, indicated generally at 50, the upper section of the guy wire being connected to the upper one of a pair of double sheave equalizing blocks 51—52 coupled by running lengths of the guy wire, forming one side of the V-formation.

The lower sheave block 52 has an extension 53 of the wire, forming the other side of the V-formation, leading upwardly to and passing around an idler pulley 54 mounted upon a separate plate 55 on the top table 10, from which pulley the wire extension 53 extends downwardly through guide roller 56 on the mast 9*a* to the guide 57 which directs said wire 53 below and under lower table 9 to a separate winch 58 mounted upon the deck. All four winches 58 are grouped together in alignment below the lower table 9 as viewed in Fig. 2.

In this position the guy winches 58 (there is one for each boom) are clear of the topping drums 20 and winches 22. Connecting the shackle of the lower sheave block 52 is a downwardly inclined extension or cable 60 extending to an adjusting deck anchorage 60*a*.

As illustrated in Fig. 2 the V-shaped guy wire 50 for each boom projects outwardly from and is inclined downwardly relative to the booms, with the anchorage cables 60 disposed in effect substantially midway between the ends of the outer booms and the idler pulleys 54.

Accordingly with the anchorage point 60*a* constant, upon the winch 58 being energized, the pull exerted by the guy wire 53 is transmitted through the equalizing pulleys 51—52 to the outer end of the boom, causing the latter to travel angularly about or slew relatively to its socket 8 without effecting any variation in its previously adjusted inclination to the horizontal.

This slewing movement is effected under the control of the distant or lazy guy gear which couples a pair of twin yard arm and midship booms 4—7 or 5—6 and will now be described with reference to booms 4—7 in Figs. 1 and 2. A span wire 61 is attached at the outer end to the collar 12 of the boom 4 and passed about a pulley block 62 carried upon the upper end of the boom 7 and thence to an equalizing pulley 63 from which the wire is returned parallelly to the anchorage point 64 on the boom 7 adjacent to the pulley block 62.

Attached to the equalizing pulley 63 is a downwardly directed purchase cable 65 running parallel to the boom 7 and leading to the winch 66 disposed upon the deck 29 below the lower table 9 at one corner thereof.

As viewed in Fig. 2 there is a winch 66 disposed at the other diagonal corner of the lower table 9, the booms 5—6 being coupled by the lazy guy wire 61 as hereinbefore described and as illustrated in Figs. 1 and 2.

In Fig. 4 the booms 4—7 are illustrated in the fully topped position, and Fig. 5 shows the boom 4 in an operative position and a horizontal position respectively in response to the operation of the lazy guy and other control gear previously described.

The length of the guy span wire 61 in conjunction with the extensible cable 65 from the winch 66, relative to the length of the booms is such that a full range of angular and slewing movement may be imparted to either boom as indicated by the positions of the boom 7 in Fig. 5.

The winch 66 is used to raise the boom 7 from the lowered position and to lower or swing the boom, the brake on the winch is released to permit the weight of the boom to cause the paying off of the cable from the drum of the winch.

With one boom of the coupled pairs fixed, the other boom can be slewed to the required position by the use of the winch 66.

As previously stated the deck anchorages 60*a* of the slewing gear are adjustable and set preliminary to loading or unloading and may be varied to impart a required slewing motion to a boom to adjust the loading or unloading position of the latter relatively to the hold on the wharf. To achieve such an adjusted position of one of the coupled booms, either the lazy guy or the slewing gear is slackened off and one of the control winches of these gears energized to haul the freed boom in a slewing motion to the required position whereby manual adjustment and hauling is eliminated.

To facilitate the manoeuvering and handling of the cargo within the hold, particularly heavy and cumbersome cargo, such as steel or long timbers, there is provided a preliminary lift gear for each boom operating over the hold, for the purpose of initially moving, separating and raising the load in the hold to a position at which it can be attached to and raised by the main hoist associated with booms.

Accordingly the manhandling usually necessary to move the cargo to the main hoist is eliminated with attendant reduction in labour and safety of the men operating in the confines of the hold 49.

The lift gear comprises a hoisting cable 70 depending from a pulley block 71 near the top of the boom and extending spanwise to an idler guide pulley 72 upon the mast 9*a*, from which pulley the cable extends downwardly for connection to an electric winch 75 located rearwardly of the lower table 9, as illustrated in Fig. 2. Although the lift gear is only applied to the booms 4—5 operating over the hold (i. e. the midship booms), as illustrated in Fig. 2, the other booms 6—7 (i. e. the yard arm booms) have mounted thereon the pulley blocks 71 and a further pair of guide pulleys 72 are disposed in spaced relation thereon, to permit the lift gear to be removed from the former booms 4—5 and applied to the latter booms 6—7 when the ship is to be loaded from the opposite side.

A messenger cable 76 shown in the attached position, is fitted to the cable 70 adjacent the book 77 of the latter to permit the lift cable 70 to be slipped when the load has been hauled to and taken up by the main cargo hoist 79 included with each boom for elevating from the hold.

Within the hold the lift cable 70 can be drawn to the selected area therein and attached to the load and upon the winch 75 being energized, the load is moved up to and attached to the main hoist 79, thereby eliminating the manhandling of the cargo within the hold 49.

The main hoist 79 comprises a cable depending from a sheave block 80 upon the collar 12 of the boom and projecting substantially parallelly with the boom to the guide pulley 83 on the lower table 9 from which said cable leads to the drum 81 of the main steam winch 22.

In operation each pair of booms 4—7 and 5—6 are adjusted by the topping gear, slewing gear and lazy guys to assume the required position above the hold 49 and wharf respectively, i. e. the midship booms 4—5 are disposed at the re-

quired height and position above the hold, and yard arm booms 6—7 are similarly disposed over the wharf.

As above described the load is initially carried by the lift cable 70 to the main hoist cable 79 of boom 4, which then takes over the load, to which latter is also connected the main hoist cable 79 of the coactive boom 7 as illustrated in Fig. 1.

The main hoist cable 70 of the boom 7 is initially slackened off but the slack is reduced as the cargo is raised by the main cable 79 of the boom 4 until a predetermined height and clearance is reached, at which the cargo then swings between the booms and the weight is gradually taken over by said cable on the boom 7 from which the load is lowered to the wharf.

Accordingly it will be understood that as the booms 4—7 remain fixed in the adjusted position the cargo may be expeditiously unloaded without the requirement of continuously adjusting the booms and if such adjustment is required it is simply effected under the motive power of the winches and labour in the handling of the cargo within the hold is reduced to a minimum by the lift gear which initially lifts and carries the cargo to the midship booms 4—5 operating over the hold.

I claim:

1. A derrick construction for loading and unloading ship's cargo comprising a mast, a pair of coactive booms associated with the mast, cargo hoisting gear included with each boom, a power actuated distant or lazy guy gear connecting the pair of booms, power actuating slewing gear connecting each boom for swinging the latter to an operative position, said power actuatable gears cooperative to normally maintain the booms in relatively fixed loading or unloading positions, power actuated topping gear operatively connecting each boom to adjust the working inclination of said boom, and mechanical locking means coactive with the topping gear to maintain the adjusted working inclination of each boom.

2. A derrick construction for loading and unloading ship's cargo comprising a mast, a pair of coactive booms associated with the mast, cargo hoisting gear included with each boom, a power actuated distant or lazy guy gear connecting the pair of booms, power actuatable slewing gear connecting each boom for swinging the latter to an operative position, said power actuatable gear cooperative to normally maintain the booms in relatively fixed loading or unloading positions, power actuated topping gear operatively connecting each boom to adjust the working inclination of said boom, mechanical locking means coactive with the topping gear to maintain the adjusted working inclination of the boom, and preliminary lifting gear incorporated with each boom to initially raise and deliver the cargo within the hold of the ship to be raised by the booms.

3. A derrick construction for loading and unloading ship's cargo, comprising a mast, a pair of coactive booms associated with the mast, cargo hoisting gear included with each boom, power actuated topping gear operatively connecting each boom to adjust the working inclination of said booms, said topping gear comprising a cable anchored to the outer end of the boom and extending through a bight span in the cable to an anchorage point on the mast, a pair of flexible extensions connecting the bight span, a winch connecting one of said flexible connections, and mechanical locking means engageable with the other flexible extension to maintain the boom in the adjusted working inclination.

4. A derrick construction for loading and unloading ship's cargo, comprising a mast, a pair of coactive booms associated with the mast, cargo hoisting gear included with each boom, power actuated topping gear operatively connecting each boom to adjust the working inclination of said booms, said topping gear comprising a pulley on the mast, an equalizing pulley at a lower level upon the mast, a cable extending in a span from the upper pulley to an anchorage point upon the end of the boom, and downwardly to and returned about the equalizing pulley to an anchorage point on the mast adjacent the upper pulley, a down haul cable attached to the equalizing pulley, a winch or winding drum connecting the down haul cable, a chain attached to the equalizing pulley, and mechanical locking means engageable with the chain to maintain the boom in the adjusted working inclination.

5. A derrick construction for loading and unloading ship's cargo, comprising a mast, a pair of coactive booms, associated with the mast, cargo hoisting gear included with each boom, power actuated topping gear operatively connecting each boom to adjust the working inclination of said topping gear comprising a cable anchored to the outer end of the boom and extending through a bight span in the cable to an anchorage point on the mast, a pair of flexible extensions connecting the bight span, a down haul cable attached to the bight span, a winch or winding drum connecting the down haul cable, a chain attached to the bight span, a tubular chain guide through which the chain is passed, said guide having aligning apertures, a pin mounted for axial movement perpendicularly to said guide tube in alignment with the apertures, and manually operable means for moving said pin to project through the apertures to bridge a link in said chain within the tubular chain guide.

6. A derrick construction for loading and unloading ship's cargo, comprising a mast, a pair of coactive booms associated with the mast, cargo hoisting gear included with each boom, power actuated topping gear operatively connecting each boom to adjust the working inclination of said booms, said topping gear comprising a pulley on the mast, an equalizing pulley at a lower level upon the mast, a cable extending in a span from the upper pulley to an anchorage point upon the end of the boom, and downwardly to and returned about the equalizing pulley to an anchorage point on the mast adjacent the upper pulley, a down haul cable attached to the equalizing pulley, a winch or winding drum connecting the down haul cable, a chain attached to the equalizing pulley, a tubular chain guide through which the chain is passed, said guide having aligning apertures, a pin mounted for axial movement perpendicularly to said guide tube in alignment with the apertures, and manually operable means for moving said pin to project through the apertures to bridge a link in said chain within the tubular chain guide.

7. A derrick construction for loading and unloading ship's cargo, comprising a mast, a pair of coactive booms associated with the mast, cargo hoisting gear included with each boom, power actuated topping gear operatively connecting each boom to adjust the working inclination of said booms, said topping gear comprising a cable anchored to the outer end of the boom and extending through a bight span in the cable to an anchorage point on the mast, a pair of flexible extensions connecting the bight span, a down haul cable attached to the bight span, a winch

or winding drum connecting the down haul cable, a chain attached to the bight span, a tubular chain guide through which the chain is passed, said guide having aligning apertures, a pin mounted for axial movement perpendicularly to said guide tube in alignment with the apertures, a toothed rack member operatively connecting said pin, a pinion in mesh with the rack member, and manually operable means for rotating the pinion so as to move the rack member and advance the pin through the aligning apertures to bridge a link of the chain within the tubular chain guide.

8. A derrick construction for loading and unloading ship's cargo, comprising a mast, a pair of coactive booms associated with the mast, cargo hoisting gear included with said boom, power actuated topping gear operatively connecting each boom to adjust the working inclination of said booms, said topping gear comprising a pulley on the mast, an equalizing pulley at a lower level upon the mast, a cable extending in a span from the upper pulley to an anchorage point upon the end of the boom, and downwardly to and returned about the equalizing pulley to an anchorage point on the mast adjacent the upper pulley, a down haul cable attached to the equalizing pulley, a winch or winding drum connecting the down haul cable, a chain attached to the equalizing pulley, a tubular chain guide through which the chain is passed, said guide having aligning apertures, a pin mounted for axial movement perpendicularly to said guide tube in alignment with the apertures, a toothed rack attached to and disposed in alignment with the pin, a support in which the toothed rack is slidably mounted, a spindle journalled in the support, a pinion carried upon the spindle to mesh with the rack, and manually operable means for rotating the spindle so as to move the rack member and advance the pin through the aligning apertures to bridge a link of the chain within the tubular chain guide.

9. A derrick construction for loading and unloading ships according to claim 7, and wherein the toothed rack member is parallelly disposed to the pin, a slide forming the guide for the pin, and a transverse member attached to one end of said rack member and one end of the pin.

10. A derrick construction for loading and unloading ships according to claim 7, wherein the tubular chain guide comprises a bell mouthed tube mounted upon the deck of the ship, and a chain housing below said chain guide.

11. A derrick construction for loading and unloading ship's cargo and according to claim 1, wherein the power actuated distant or lazy guy comprises a cable anchored at one end to the outer end of one of the booms and extending through a bight span to an anchorage point adjacent the outer end of the other boom, a down haul cable connected to the bight span of the cable, and a winch attached to the other end of the down haul cable.

12. A derrick construction for loading and unloading ship's cargo and according to claim 1, wherein the power actuated distant or lazy guy comprises a cable anchored to the outer end of one of the booms, a pulley upon the outer end of the other boom, an inner or lower equalizing pulley, said cable extending to and passing about said pulley and equalizing pulley to return to an

anchorage point on the boom adjacent to the first mentioned pulley, a down haul cable attached to the equalizing pulley, and a winch attached to the end of the other end of the down haul cable.

13. A derrick construction for loading and unloading ship's cargo and according to claim 1 and wherein the power actuated slewing gear comprises a winch, a guy wire having one end attached to the winch, a ring upon the mast through which a cable is passed and extended in a substantially V-shaped extensible span to connect the top of a boom, and a cable connected to said span and to an anchorage upon the deck of the ship.

14. A derrick construction for loading and unloading ship's cargo and according to claim 2, and wherein the preliminary lifting gear comprises a winch, a hoisting cable leading off the winch, a pulley upon the mast to which the hoisting cable is guided, a pulley upon the boom to which the cable extends to extend downwardly in parallelism with the cargo hoisting cable associated with said boom.

15. A derrick construction for loading and unloading ship's cargo and according to claim 2 wherein the preliminary lifting gear comprises a winch, a hoisting cable leading off the winch, a pulley upon the mast to which the hoisting cable is guided, a pulley upon the boom to which the cable extends to extend downwardly in parallelism with the cargo hoisting cable associated with said boom, and a messenger cable connectable to the hoisting cable.

16. A derrick construction for loading and unloading ship's cargo, comprising a mast, a pair of coactive booms associated with the mast, cargo hoisting gear included with each boom, power actuated topping gear operatively connecting each boom to adjust the working inclination of said boom, a depending chain connecting the topping gear, a tubular chain guide through which the chain is passed, said guide having aligning apertures, a pin mounted for axial movement perpendicularly to said guide tube in alignment with the apertures, and manually operable means for moving said pin to project through the apertures to bridge a link in said chain within the tubular chain guide.

17. In a derrick construction for loading and unloading ships and according to claim 4, a winch included with the cargo hoisting gear, a winding drum on said winch connected to the down haul cable, and clutch mechanism controlling the operation of the separate winding drum.

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