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ANCHOR CASTING AND WEIGHING APPARATUS

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3 Sheets-Sheet 1

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Fig. 3.

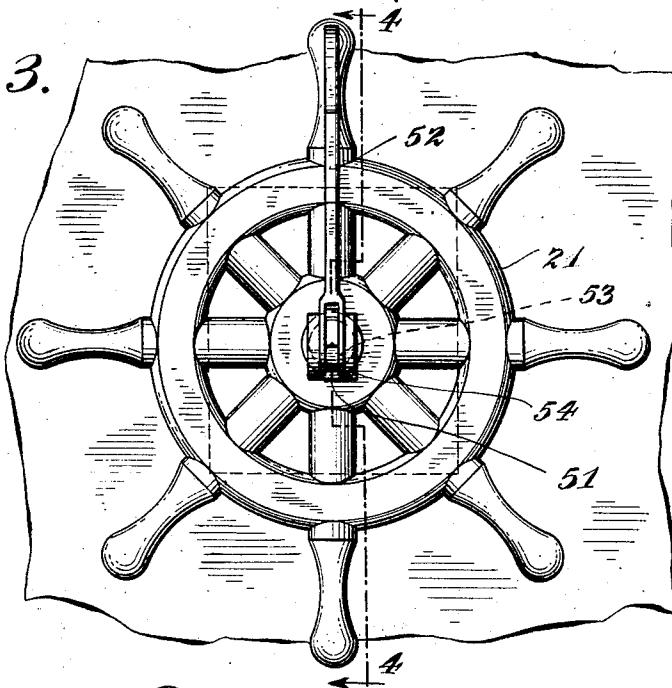
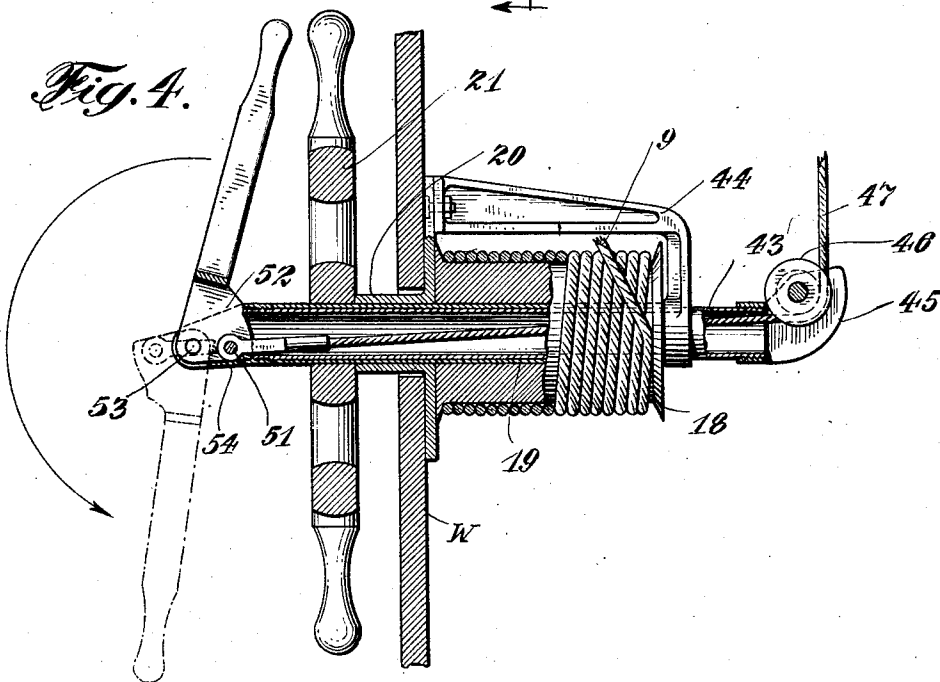


Fig. 4.



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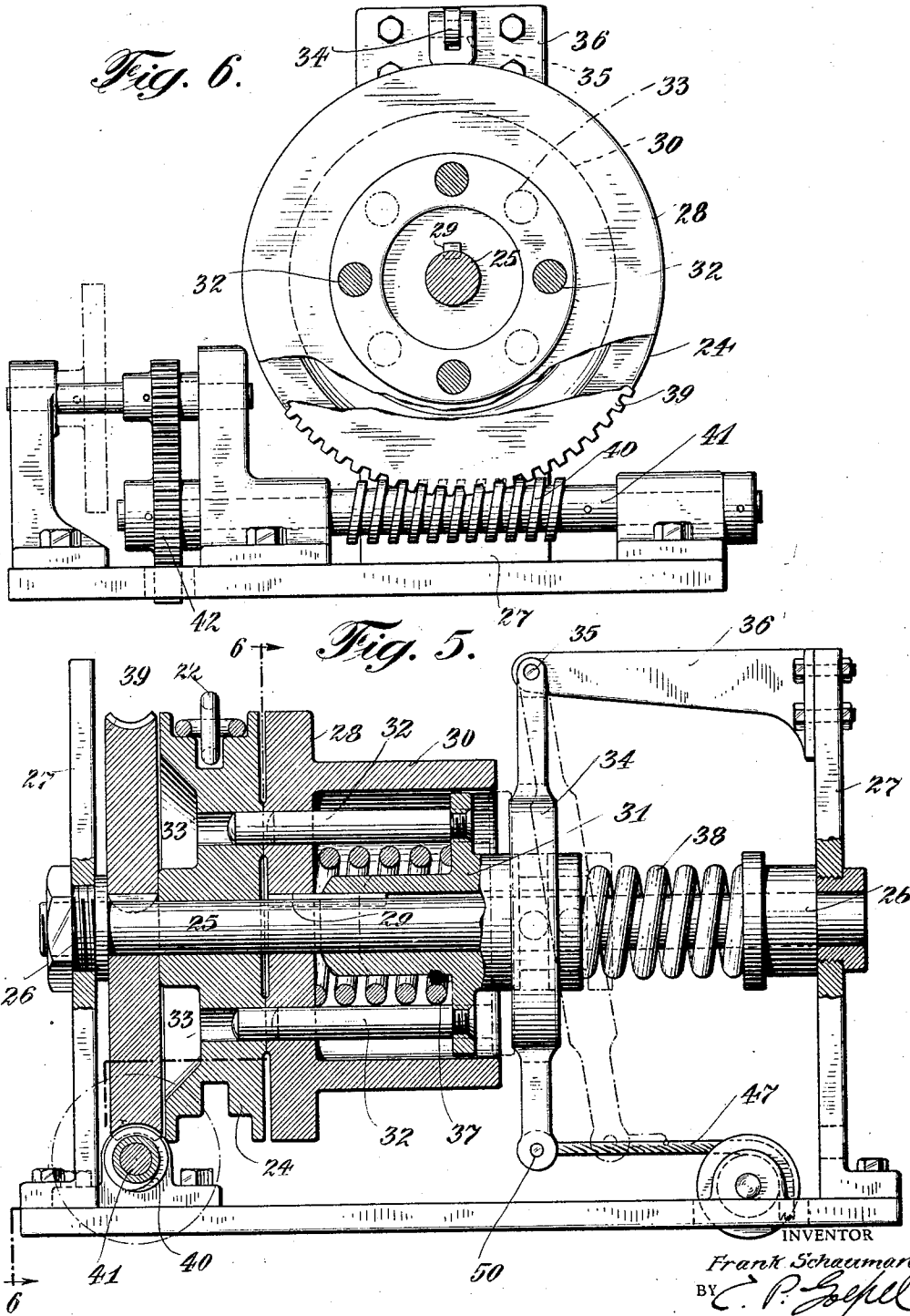
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UNITED STATES PATENT OFFICE

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ANCHOR CASTING AND WEIGHING APPARATUS

Application filed October 7, 1927. Serial No. 224,564.

This invention relates to anchor casting and weighing apparatus, and has for its primary object and purpose to provide an improved windlass construction with which the anchor chain is engaged, together with means for moving a horizontally traveling anchor carriage upon the deck of the vessel in the casting of the anchor.

It is a more particular object of the invention to provide an anchor windlass including a loosely mounted member or wildcat with which the anchor chain is engaged and a motor driven member having clutch means associated therewith to cooperate with the wildcat and connect said parts for unitary rotation when the anchor is weighed and stowed upon the deck of the vessel, together with novel means for actuating said clutch.

It is a further general object of my invention to provide apparatus of the above character which is relatively simple in its construction, reliable and efficient in practical operation and may be manufactured and installed at nominal cost.

With the above and other objects in view, the invention consists in the improved apparatus for casting and weighing ships' anchors and in the form, construction and relative arrangement of the several parts thereof as will be hereinafter more fully described, illustrated in the accompanying drawings and subsequently incorporated in the subjoined claims.

In the drawings, wherein I have disclosed one simple and practical embodiment of the invention and in which similar reference characters designate corresponding parts throughout the several views,—

Figure 1 is a plan view illustrating one practical embodiment of my present improvements;

Fig. 2 is a fragmentary vertical section through the bow of the vessel;

Fig. 3 is a detail elevation on an enlarged scale, showing certain of the operating parts;

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 3;

Fig. 5 is a longitudinal sectional view of the windlass, and

Fig. 6 is a sectional view taken substantially on the line 6—6 of Fig. 5.

Referring in detail to the drawings, 5 designates a suitable track or guideway secured upon the deck of the vessel in which a horizontally traveling carriage 6 is arranged, said carriage having an anchor davit 7 pivotally mounted thereon and supporting the anchor indicated at 8, together with said davit in a substantially horizontal position on the deck of the vessel. No claim is made herein to this traveling carriage or the anchor davit 7 and operating means therefor, as such subject matter is fully described and claimed in a co-pending application filed of even date herewith, Serial No. 224,563.

For the purposes of this application, it will suffice to state that one end of a cable or other flexible element indicated at 9 is suitably attached to the anchor carriage 6 adjacent its inner end as clearly shown in Fig. 2 of the drawings, said cable extending forwardly from its attached end and around the guide sheave 10 then rearwardly therefrom and around the vertically spaced guide sheaves 11 and 12 and thence rearwardly from the latter sheave below the deck of the vessel. In suitably spaced relation from the sheave 12 said cable extends around a horizontally positioned guide wheel 13 on the lower end of a vertical shaft 14 journaled in a suitable bearing support 15 mounted in the deck of the vessel and having a hand wheel 16 fixed upon its upper end.

From the guide wheel 13, the cable extends transversely over a suitable guide 17 and is wound upon the drum 18 fixed upon a hollow shaft 19 journaled in a suitable bearing 20 mounted on the wall W. A hand wheel indicated at 21 is fixed to the tubular shaft 19, said shaft at its opposite ends projecting beyond the drum 18 and the wheel 21 for a purpose which will be hereinafter explained.

To the shaft of the anchor 8 the usual chain 22 is attached at one of its ends, and as shown in Fig. 2 of the drawings, this chain extends into a housing 23 secured upon the deck of the vessel, and is engaged with the wildcat 24 from which it extends downwardly below the deck of the vessel to the chain locker.

The wildcat 24 is loosely mounted upon a shaft 25 which is journaled at its opposite ends in suitable bearings 26 provided upon the spaced standards 27 within the housing 23. A member 28 is also keyed upon the shaft 25 as at 29 at one side of the wildcat 24 and is provided with a hollow extension 30 on one side thereof. Within this extension 30, the clutch head 31 is also keyed for sliding movement on the shaft 25 and carries a plurality of longitudinally extending pins 32 loosely projecting through suitably formed openings in member 28 and adapted for engagement within registering openings 33 formed in the wildcat 24. The outer end of the clutch head 31 is provided with a peripheral groove to receive suitable pins or studs on the yoke member 34 which is pivoted at its upper end as at 35 upon an arm 36 horizontally projecting from the upper end of one of the standards 27. Oppositely acting coil springs 37 and 38 respectively, yieldingly hold the clutch head 31 and pins 32 in the normal position shown in full lines in Fig. 5 of the drawings.

At the opposite side of the wildcat 24, a worm gear 39 is keyed or otherwise fixed upon the shaft 25, and meshes with the worm 40 on a shaft 41 mounted in suitable spaced bearings and connected at one of its ends by means of the gearing shown at 42 to a suitable operating motor.

Within the hollow shaft 19, a second hollow or tubular shaft 43 is arranged and suitably supported beyond the drum 18 in a bracket arm 44. Upon this end of the shaft 43 one end of a sheave casing 45 is threaded, said casing carrying the guide sheaves 46 for the rope or cable 47 which extends from said sheave around suitably mounted additional guide sheaves 48 and 49 and has one of its ends attached as at 50 to the lower end of the clutch yoke 34. From the sheave 46, the cable extends through the hollow shaft 43 and has its other end pivotally connected as at 51 with the end of a lever 52 which is pivotally supported as at 53 in a suitably formed head 54 which is threaded on the end of the shaft 43. Said end of the lever and the head 54 are bifurcated and the spaced parts connected by means of separate pivots. It will be noted that the pivotal connection between said lever and the cable at 51 is laterally spaced from the lever pivots 53 so that in the movement of said lever from the position shown in full lines in Fig. 4 of the drawings to the dotted line position, the cable will be pulled through the hollow shaft 43, thereby also exerting a pull upon the lower end of clutch member 34 against the action of the spring 38 and withdrawing the clutch pins 32 from the openings 33 in the wildcat, thus allowing the latter to rotate freely on the shaft 25 in the gravity descent of the anchor.

It will be understood that the anchor chain is thus first released so that the anchor davit

and the carriage 6 may be moved outwardly on the deck of the vessel and the davit 7 during this movement of the carriage disposed in a projected or extended position beyond the carriage and the bow of the vessel so that the anchor is suspended from the outer end of the davit. This movement of the carriage and the anchor horizontally on the deck of the vessel is of course, effected by rotating the hand wheel 21 in the proper direction to wind the cable 9 on the drum 18. The wheel 21 may be freely operated without disturbing the position of the lever 52 so that the chain 22 will be freely paid out during the gravity descent of the anchor. In weighing the anchor and stowing the same upon the deck of the vessel, the lever 53 is first returned to the position shown in full lines in Fig. 4 of the drawings so that the clutch head 31 is released and projected by the spring 38 to engage the pins 32 in the openings 33 of the wildcat 24, thus locking the parts 24 and 28 together for unitary rotation with the shaft 25. Upon then starting the operating motor, said shaft and the wildcat 24 are positively rotated by the worm gearing, thereby exerting a positive pull upon the anchor chain to lift or raise the anchor, the operation of the windlass being continued until the anchor and its davit are again disposed with the sliding carriage upon the deck of the vessel in the position shown in Fig. 2 of the drawings. During this inward movement of the sliding carriage, the cable 9 unwinds freely from the drum 18 as it is drawn around the guide sheaves 10, 11, 12 and 13. The unwinding of the cable from the drum may be controlled by means of the hand wheel 16.

From the foregoing description considered in connection with the accompanying drawings, it will be seen that I have devised a relatively simple and positively operating apparatus for the casting or weighing of ships' anchors. I have illustrated in the accompanying drawings, one manner in which the several parts of the apparatus might be assembled and installed upon the vessel, but it will be apparent that this is merely suggestive and various other arrangements might be resorted to. Also, while I have shown one form of the clutch means for the anchor windlass and operating gearing therefor, as to these and the other mechanical parts of my present disclosure, it is obvious that numerous alternative constructions might be employed. Accordingly, it is to be understood that in the further practical development of the invention, I reserve the privilege of resorting to all such legitimate changes in the form, construction and relative arrangement of the various elements as may be fairly embodied within the spirit and scope of the invention as claimed.

I claim:
1. In combination with a horizontally trav-

eling carriage and anchor supported thereon, a drum and manually operable means for rotating the same, a flexible connection between said drum and the carriage to move the latter in one direction upon rotation of the drum and position the anchor for casting, an anchor chain connected with the anchor, a windlass including a wildcat engaged with the anchor chain, a rotatable power operated member, and a manually controllable clutch device for connecting the wildcat with said member for unitary rotation to lift or weigh the anchor and for moving the carriage in the opposite direction.

2. In combination with a horizontally traveling carriage and anchor supported thereon, manually operable means for moving said carriage in one direction to position the anchor for casting, an anchor chain connected with the anchor, a windlass having a loosely mounted part engaged with the anchor chain and permitting free movement thereof in such movement of the anchor carriage, said windlass also including a motor operated member, and a releasable clutch device connecting said loosely mounted part with said member for unitary rotation to lift or weigh the anchor and move the anchor carriage in the opposite direction, and manually operable means for moving the clutch device to its released position.

3. An anchor windlass comprising a rotatably supported shaft and a member fixed thereon, a worm gear secured on said shaft, a motor driven worm engaged with said worm gear, a wildcat loosely mounted on the shaft for engagement with the anchor chain and provided with a plurality of openings therein, a clutch head keyed on said shaft for sliding movement, a plurality of pins carried by said clutch head and movable through said member, spring means yieldingly holding said clutch head in a normal position with said pins engaged in the openings in the wildcat to connect the same with said member for unitary rotation to lift or weigh the anchor, and manually operable means for shifting the clutch head to disengage the pins therefrom said openings and permit of the free relative rotation of the wildcat in the casting of the anchor.

In testimony that I claim the foregoing as my invention, I have signed my name hereto.

FRANK SCHAUMAN.