Heitman & Radican,

Windlass.

No. 47,104. Patented Apr. 4, 1865.

Fig. 2.

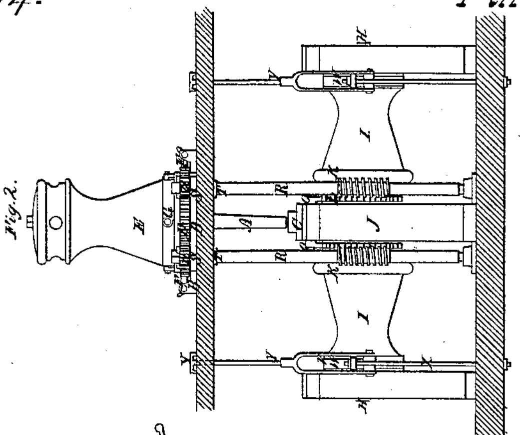


Fig. 4.

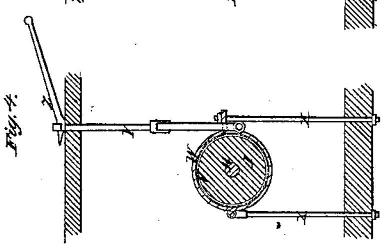


Fig. 3.

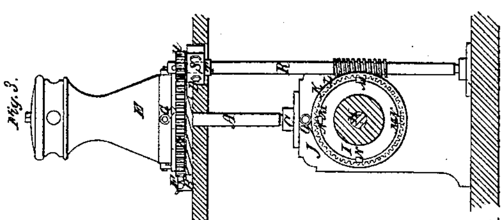


Fig. 1.

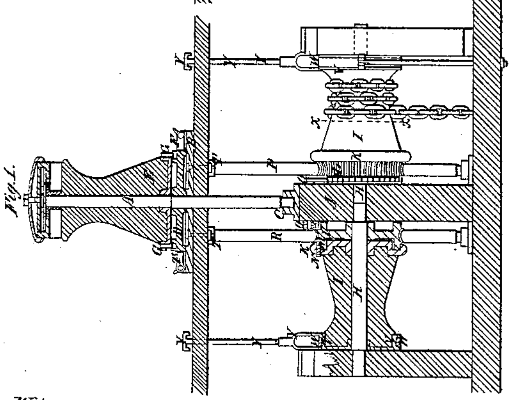
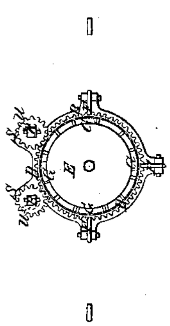


Fig. 5.



Witnesses.
W. J. Pinckney
R. Backlin

Inventors.
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UNITED STATES PATENT OFFICE.

HENRY HEITMAN, OF BROOKLYN, AND JOHN RADICAN, OF NEW YORK, N. Y.

IMPROVED SCREW WINDLASS AND CAPSTAN.

Specification forming part of Letters Patent No. **47,104**, dated April 4, 1865.

To all whom it may concern:

Be it known that we, HENRY HEITMAN, of the city of Brooklyn, in the county of Kings and State of New York, and JOHN RADICAN, of the city, county, and State of New York, have invented certain new and Improved Disconnecting Screw Windlasses and Capstan; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a front sectional elevation of our improvements in windlasses and capstan; Fig. 2, a rear elevation of the same; Fig. 3, a cross section of the same, the plan of section being indicated by the line *x x*, Fig. 1; Fig. 4, a cross-section of one end of our windlass-drum, to exhibit the brake of the windlass; Fig. 5, a top view of the capstan and gearing for operating the windlasses by the capstan.

Similar letters of reference indicate corresponding parts in the several figures.

To enable others skilled in the art to make and use our invention, we will proceed to describe its construction and operation.

A, Figs. 1, 2, 3, and 5, represents the capstan-shaft, which is held and supported in position by the bed-plate B, secured to the upper deck of the vessel, and also by a step, C, fixed upon the top of the commonly-called central post, J, of a double windlass.

D is a large gear-wheel, which is made permanent with the shaft A to rotate close to the top of the bed-plate B.

E is the capstan-barrel, resting upon the gear-wheel D and made to rotate freely on the shaft A, but prevented from raising from the gear-wheel D either by the ordinary nut and screw or, as shown by the drawings, by having plates secured in the top of the capstan-barrel E, projecting into a groove cut in the end of the capstan-shaft A.

F F F are pawls pivoted to the bed-plate B, but are made so that when thrown in operation will lock the gear-wheel D by falling between the cogs of the same. The lower end of the capstan-barrel E is provided with the usual reversible pawls G G G G, which are made to work against stops formed in a rim on the upper side of the gear-wheel D. Thus it is clearly seen when the capstan is wanted to be used independent from the windlasses the pawls F F F are thrown readily in operation, and thus lock the gear-wheel D, which then serves the same as the ordinary bed-plate of other capstans.

H H are two separate shafts, upon which the windlass-drums I I rotate. The inner ends of these shafts H H have one common bearing in the central post, J, the outer ends being supported in bearings in the outer posts. To the inner ends of the windlass-drums I I are secured metallic disks or hollow flanges, K K, and between the same and the central post are placed worm-gears, L L, which latter are well secured to the shafts H H. Each worm-gear L is made with a projecting rim to enter a short distance into the opposite hollow flanges K, and having both corresponding key-seats, M M, cut into and allow keys N N to be inserted therein, and thus the worm-gears L L are coupled to the drums I I, or when the keys N N are withdrawn the drums I I are liberated from the worm-gears L L. On the periphery of the inner ends of the worm-gears L L, close to the central post, J, are formed ratchet-shaped cogs which work with pawls O O, pivoted to the side of the central post, J, and thus prevent a back motion in case of breakage in weighing heavy anchors.

R R are upright shafts, provided with screw-threads or worms of proper pitch to work in the worm-gears L L. The lower ends of these shafts R R rest in steps secured to the lower deck of the vessel, and near to their upper end they work in proper bearings, S S, formed on the bed-plate B. A shoulder, T, is formed on each shaft R, close under the bearings S, to prevent the shaft R from raising.

U U are small gear-wheels fitted to the upper ends of the shafts R R in a manner that they may be easily removed or disengaged, and are of proper pitch and dimension to work in the large gear-wheel D to accomplish the desired speed and power to suit the anchor to be raised by it.

V V represent grooved rims secured to the outer ends of the drums I I.

W W are metal bands nearly surrounding the grooves of the rims V V and having the upper ends attached firmly to the lower deck

by long bolts X X, the lower and opposite ends of the bands W W being hinged to fork-shaped rods Y Y, extending through the upper deck, and the ends of saids rods Y Y are provided with flat heads a little above the upper deck, in order, that the points of hand-levers Z Z (shown in Fig. 5) can be inserted between the upper deck and the heads of the rods Y Y, and thus by pressing the levers Z Z downward to the same deck the rods Y Y and the ends of the bands W are raised; thus the rims V V are powerfully clamped, and a brake is had to the drums I I which is very useful in casting heavy anchors.

In order to weigh one or both anchors, the pawls F F F are thrown out of gear and the pawls G G G G are thrown in gear, and motion is applied to the capstan in the usual way, whereby the large gear-wheel D, the small gear wheels U U, the worm and worm-gears L L, and the windlass-drums I I are propelled with considerable power, and at the same time with a continuous motion.

When only one windlass is to be operated, then the corresponding gear-wheel, U, is removed from its shaft and the whole power is applied to the one windlass only; or, if one or both anchors are to be cast, then the corresponding key or keys N N are withdrawn and the hand-levers Z Z applied to brake the unwinding motion of the drum or drums I I.

When the capstan is to be used independent of the windlasses, then pawls F F F are readily thrown in operation.

What we claim, and desire to secure by Letters Patent, is—

1. The gear-wheels V V, applied in combination with the gear-wheel D, worm-wheels L L, capstan E, and windlasses I I, substantially in the manner as herein set forth, so that the capstan can be readily connected or disconnected from the windlasses, and a more or less powerful force can be exerted, according to the work to be accomplished.

2. The combination of the capstan-barrel E, pawls G G G, and toothed wheel D with pawls F F, and with stationary locks in the bed-plate B, substantially as described, so that by a simple change of the pawls F and G the capstan-barrel can be used independent of or in connection with the parts to which motion is imparted by the gear-wheel D.

HENRY HEITMAN.
JOHN RADICAN.

In presence of—
W. S. PINCKNEY,
R. BACKLER.