C. Perley,

Capstan.

No. 15,933. Patented Oct. 21, 1856.

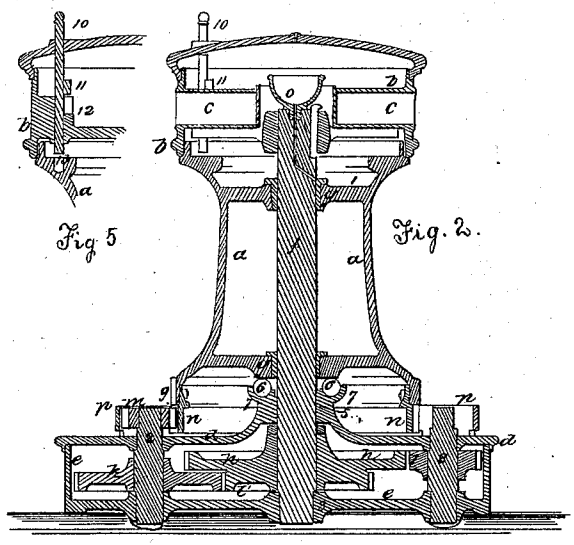


Fig. 5

Fig. 2.

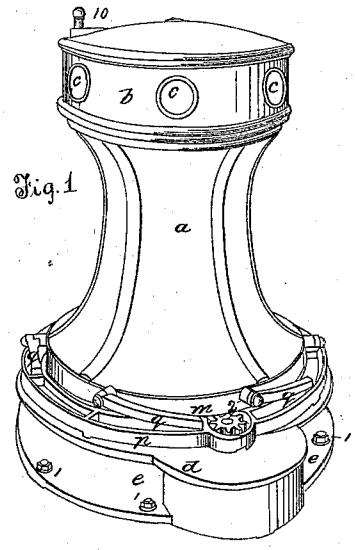


Fig. 1

Fig. 4.

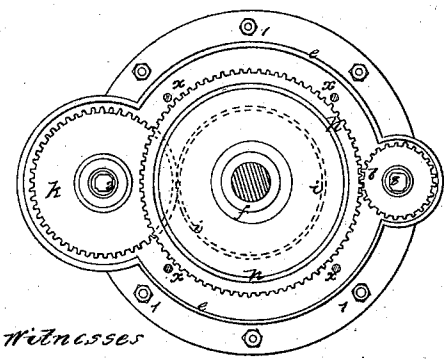
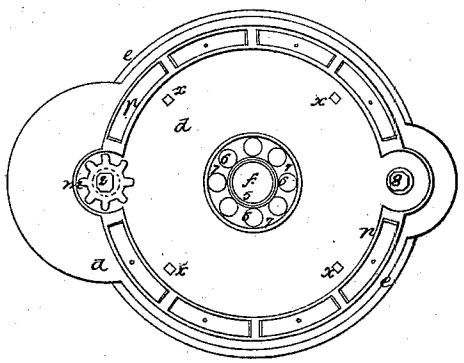


Fig. 3.



Witnesses

Samuel W. Sewall

Thomas G. Hazard

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UNITED STATES PATENT OFFICE.

CHARLES PERLEY, OF NEW YORK, N. Y.

SHIP'S CAPSTAN.

Specification of Letters Patent No. 15,933, dated October 21, 1856.

To all whom it may concern:

Be it known that I, CHARLES PERLEY, of the city, county, and State of New York, have invented and made certain new and useful Improvements in Capstans for Vessels and other Purposes; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing, making part of this specification, wherein—

Figure 1, is a perspective view of my capstan complete. Fig. 2, is a vertical section through the center of the capstan. Fig. 3, is a plan with the capstan barrel removed, and Fig. 4, is a plan, at and below the top plate of the base.

Similar marks of reference denote the same parts.

In capstans for use on vessels and for other purposes it is very essential that the barrel be so fitted as to turn with a fast or slow motion, thereby varying the power according to the work to be performed. For this purpose various contrivances have been made; some in which the capstan bars can be rotated in either direction, and when moving in one direction the barrel will turn in the same direction at a corresponding speed, and when the capstan bars are propelled in the opposite direction, the capstan barrel continues to revolve in the first direction, but at a slower speed, and increased power. Windlasses have also been made with variable gearing slipped into gear with the barrel thereby varying the relative speed of the motive power and said barrel. But in none of these particulars does my invention consist.

The great point to be attained in all capstans is to fit them in such a simple and strong manner that none of the parts can become damaged in case of rusting, and that the barrel can be rotated with a quick or slow motion in either direction, and that in all cases the barrel shall travel in the same direction as the handspike head; and also that the pawls and gearing should be so made that any ordinary seaman can understand the whole construction at a glance, and know what has to be done to secure the ends he seeks in making use of the capstan. All these points have been accomplished in my capstan, by simply providing a vertical spindle, around which the barrel moves, and to the end of which spindle the handspike head is firmly attached, so that when a pin is passed through the handspike head into the barrel the two rotate together; but when said pin is withdrawn, and a movable pinion slipped into place, the capstan head rotating the spindle and a gear wheel or wheels near its lower end in the base of the capstan, communicates a motion, proportioned in speed to the size of the gears, to one or two or more short vertical shafts, the upper ends of which are adapted to receive the movable pinion, before mentioned, which acts on an exterior wheel around the lower edge of the capstan barrel, and rotates the same at a speed and power proportioned to the gearing, but in the same direction as the handspike head, thereby enabling me to fit a capstan with two three or more variations in the power according to where the movable pinion is applied.

In the drawing *a*, is the capstan barrel *b*, the head with the handspike holes *c*, *c*.

d, is the top plate of the base *e*, which is secured to the deck or other place by bolts 1, 1, and within this base the gearing before mentioned is placed.

f is the main shaft stepped at the bottom in the journal 3, and passing through a journal 5, on the plate *d*. This journal 5, rises within the capstan barrel so as to support the shaft *f*, more securely, and the plate *d*, fitting around the hollow base *e*, and being secured thereto by bolts *x*, *x*, serves as a water tight box to protect the gearing as well as sustaining the main shaft *f*. Around the journal box 5 is a semi circular groove 7, in which a suitable number of balls 6, 6, are placed, which form a rolling support for the capstan barrel by taking the underside of the journal *g*.

g^1 is the upper journal box of the capstan barrel *a*, and *a'*, is an oil cup on the end of the shaft *f*, which supplying oil to the journals g^1 *g*, runs down the shaft *f*, and oils the journals 5, and should fill the groove 7, thereby oiling the balls 6, and the outer edge of said groove 7 being higher than the inner edge, the oil will gradually work over and keep the journal 5, supplied, and the journal 3, (as well as those in the base *e*, hereinafter mentioned) may be kept oiled by a hole through the gear wheels (*h*, *i*,) passing the overflow oil down the shaft (*f*).

The head *b*, being permanently keyed onto the shaft *f*, the two revolve together and when no increase of power is required I

make use of a drop bolt 10, (see section Fig. 5,) passing through a boss 12, on the inside of the head *b*, into a hole 13, in the upper end of the barrel *a*, so that said barrel *a*, and head *b*, revolve together at a uniform speed in corresponding directions, and in that case, (as well as with the increased purchase hereafter mentioned) the pawls *q*, can be thrown over either way to take the pawl bed *p*, and act in either direction as the barrel *a*, is revolved. If now the resistance increases on the capstan be required to act with greater power the pin 10, is lifted, and by a key 11 on its side lifting out of a notch in the boss 12 and the bolt being slightly turned, sustains said pin in its elevated position, the revolution of the capstan head *b*, is then communicated through the shaft *f*, to gear wheels *h* and *i* and from them to wheels *k* and *l*, on short shafts 2 and 8, the upper ends of which pass through the top plate *d*, of the base, and terminate as a square or other polygonal figure or fitted with a feather or key seat, to receive a movable pinion *m*, acting on a gear wheel *n*, attached to the lower end of the barrel *a*. The base of the barrel *a* is to be provided with notches (*g*) at one or more places around its circumference, so as to allow the movable pinion *m* to be dropped onto either shaft 2 or 8; and it will be evident that the relative speeds of the head *b* and barrel *a*, and the consequent proportion of power, can be regulated to any desired extent, the drawings however show such gearing that when the pinion *m*, is on the shaft 2, the head *b*, will revolve six times to one revolution of the barrel, *a;* and when said pinion *m*, is placed on the shaft 8, the head *b*, will revolve twice to one turn of the barrel *a*.

When the pinion *m*, is removed and the head *b*, and barrel *a*, are rotating together the gearing *h*, *i*, *k*, *l*, and shafts 2 and 8, will turn with very little friction; and from the peculiar arrangement of the gearing the barrel *a*, always turns in the same direction as the head *b*, and at the same or a slower speed, no matter which way the head *b*, be rotated; this is a very great advantage and prevents the men becoming confused as is sometimes the case in emergencies; and provides for hoisting or slacking up with the same or increased power as required.

It will be evident that one two or more of the short shafts (2 and 8) might be made use of, and the gearing in the base *e*, be so proportioned as to give the required changes in the power of the capstan.

I do not claim a capstan with the barrel fitted to rotate with, or be independent of the handspike head, as this has before been done, neither do I claim varying the power of the capstan by means of gearing, in itself, as worm pinions, gears and a variety of means have been heretofore in use, but I am not aware that a wheel around the base of the capstan has ever before been actuated by a movable pinion receiving its motion from the handspike head, center shaft and gearing in the base, thereby the power to revolve the capstan is applied to the best advantage and with the largest possible leverage against the rope or chain around the barrel of the capstan.

I claim—

1. Retaining said pinion *m*, in place by the overhanging base of the capstan barrel, except at the notches 9, at which point said pinion *m*, can be removed as specified.

2. I claim constructing the oil receptacle and groove 6 that contains the sustaining balls higher at the outside than the inside, to cause said balls in their motion to lubricate the journal 5 substantially as specified.

In witness whereof I have hereunto set my signature this nineteenth day of June, 1856.

CHARLES PERLEY.

Witnesses:
LEMUEL W. SERRELL,
THOMAS G. HAROLD.