

(No Model.)

E. H. WHITNEY.
BRAKE FOR CAPSTANS.

No. 507,953.

Patented Oct. 31, 1893.

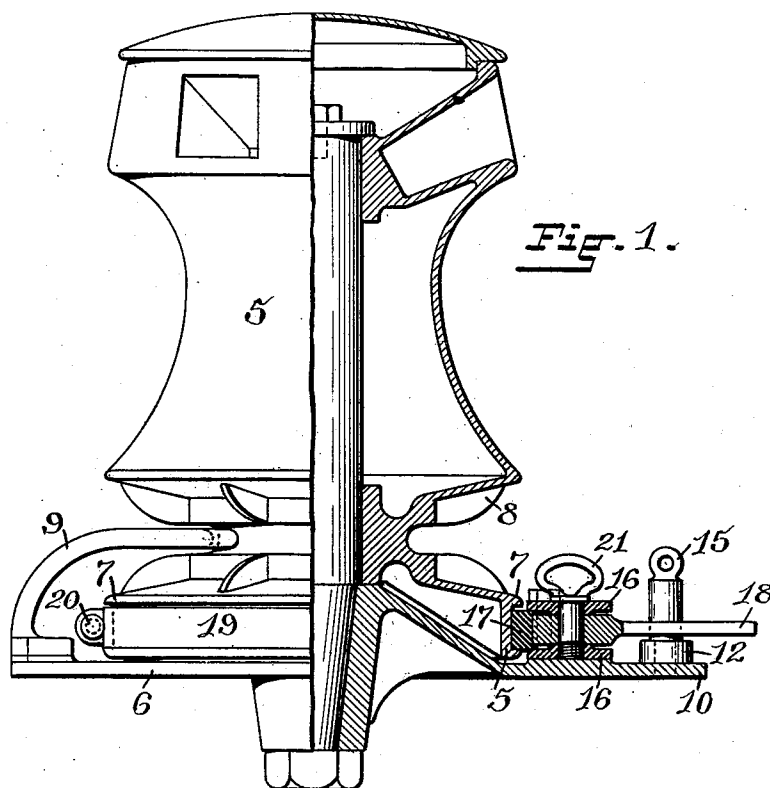


Fig. 1.

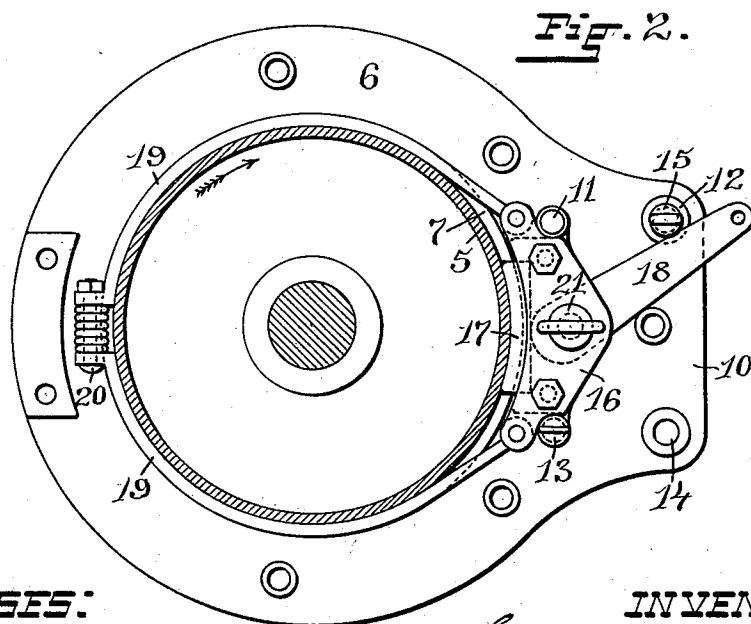


Fig. 2.

WITNESSES:

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BRAKE FOR CAPSTANS.

SPECIFICATION forming part of Letters Patent No. 507,953, dated October 31, 1893.

Application filed July 5, 1893. Serial No. 479,588. (No model.)

To all whom it may concern:

Be it known that I, EDWIN H. WHITNEY, of East Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Brakes for Capstans; and I 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.

This invention particularly relates to improvements in friction-brakes adapted for use on windlasses and capstans.

The object of the invention is to provide a capstan with an automatic friction-brake.

Another object of the invention is to dispense with the ordinary pawls and the annular-ratchet by which the reverse movement of the capstan, or windlass, is prevented.

The invention consists in the peculiar construction of the capstan and the combination therewith of the novel automatic brake.

The invention also consists in the peculiar construction of the block to which the ends of the brake-strap are secured, and the combination therewith of the brake-shoe and operating lever.

The invention also consists in the use of a movable block and the combination therewith of peculiar means for limiting the movement of the same.

The invention also consists in providing the hollow brake-block with a removable operating-lever.

Still further the invention consists in the use of means for automatically operating the lever, together with such other novel features of construction and combination of parts as may hereinafter be more fully disclosed and pointed out in the claims.

Figure 1 represents a vertical elevation, partly in section, of the improved brake attached to a capstan. Fig. 2 represents a cross-sectional view of the capstan showing a plan view of the improved brake.

Similar numbers of reference designate corresponding parts throughout.

Capstans, as heretofore constructed, have been vertically-journaled above a base furnished with an annular-ratchet in which pawls, pivoted to the lower portion of the cap-

stan-barrel, travel, these pawls engaging with the steps of the ratchet, when an undue strain is brought on the cable, during the winding in, and the movement of the capstan-barrel is reversed. The constant and noisy clanking of the pawls as they ride over the steps of the ratchet is an objectionable feature. Again where two cables are operated on one capstan, it is preferable to reverse the rotation of the capstan when changing from one cable to the other. With the ordinary pawls and ratchet this is not feasible. Still further it is important that the cables be paid out from the capstan, and, in this case, the pawls become obstructive and must be turned upward out of engagement with the ratchet. It is then necessary to restrain the rotation of the capstan by the use of the capstan-bars, requiring as many men as if the cable was being wound in.

In carrying my invention into practice I journal the capstan-barrel 5 in the usual manner above a base 6. In lieu of the usual pawls I provide the lower portion of the barrel with an annular-recess 7 in which a friction-brake-strap rests, and I dispense with the annular-ratchet in the base 6. The capstan-barrel is preferably furnished with a wild-cat 8, and the base may have an inwardly-curving arm 9 by which the chain-cable, when being wound in by the wild-cat, is prevented from being turned completely around the wild-cat. The base 6 has an extension-plate 10 and is securely bolted to the deck. In the extension-plate are formed sockets 11, 12, 13 and 14, which are adapted to receive stop-pins similar to that marked 15, the sockets 11 and 13 being located near the capstan-barrel, while those marked 12 and 14 are located near the outer edge of the extension-plate.

The hollow brake-block 16 is generally formed of top and bottom plates secured together by bolts, but may be cast in one piece having a central slot in which the brake-shoe 17 and the operating-lever 18 are free to work. To the ends of the brake-block are secured the ends of two metallic friction-straps 19—19 which, passing around the recessed portion of the capstan-barrel, are connected by the take-up bolt 20.

The shoe 17 has a concave-surface adapted to bear closely against the surface of the de-

pressed-portion 7 and the lever 18 has a rounded-end bearing on the back of the shoe; this lever is secured in the brake-block by the screw-bolt 21, passing through perforations in the plates of the brake-block and in the lever, being secured in the lower plate so as to be readily removable. The distance from the perforation in the lever to the rounded bearing-end of the same is slightly greater than the distance from said perforation to the back of the shoe 17 when the shoe is pressed forward. It will be apparent, therefore, that the movement of the lever toward the center will throw the shoe forward against the surface of the recessed-portion 7 and a strain will be exerted by the shoe and the friction-straps on this recessed portion.

In the drawings the brake is shown in position when the capstan is operated in the direction indicated by the arrow in Fig. 2, pins being set in the sockets 12 and 13, the pin in the socket 13 preventing the brake-block from being carried around by the frictional contact with the brake-straps, while, should the movement of the capstan be reversed by any undue strain on the cable, the lever 18 bearing against the pin 15 will be prevented from moving, while the brake-block will move slightly in that direction. The rounded end of the lever will thus be brought to bear against the shoe 17. This will be forced against the recessed-portion of the capstan-barrel and the straps 19 will be brought into frictional contact with the recess until sufficient friction has been created to prevent the rotation of the barrel.

When the capstan is to be operated in a direction opposite to that indicated by the arrow in Fig. 2 the pin 21 is withdrawn and the lever 18 is shifted to the other side, the pin 21 being then replaced. The pins similar to 15 are then placed in the sockets 11 and 14 and the brake operates automatically as before. In lowering or paying out the cable a pin is inserted in the sockets 11 or 13 as the case may be, the lever 18 then being operated by hand, or, an extension-handle may be secured to the lever, if desired, so that the lever may be more conveniently operated.

The noiseless operation of the brake is a most important feature of this improved device, especially when used on racing yachts where it is often necessary to raise the anchor without the knowledge of the competing sailors—the ready reversal of the capstan to operate different cables being also of the utmost importance.

Having thus described my invention, I

claim as new and desire to secure by Letters Patent—

1. In a capstan, the combination with a rotating portion thereof having an annular-recess, of a movable brake-block, friction-straps secured to the ends of the block, a shoe movable in a recess of the block, and a lever, bearing against the shoe and removably pivoted to the block.

2. In a capstan, or windlass, the combination, with a rotatable part thereof, a friction-strap partially surrounding the same, a shifting-block to which the ends of the strap are secured, a lever removably pivoted within the block, and a shoe movable within the block adapted to be operated by the lever, of means for automatically limiting the movement of the lever and thereby creating a strain on the friction strap.

3. In a capstan, the combination with a rotatable portion thereof, a brake-strap partially surrounding said portion, a hollow brake-block secured between the ends of the strap and adapted to be shifted by the rotation of the capstan, a device for creating a strain on the brake-strap, and adjustable means for limiting the shifting of the brake-block.

4. In a capstan, the combination with a rotatable part thereof, a brake-strap partially surrounding the same, a brake-block secured between the ends of the strap, a brake-shoe, and a lever bearing against the same carried by the block, and devices for preventing the shifting of the block.

5. In a capstan, the combination with the barrel, a brake-strap partially surrounding a portion thereof, and the brake-block secured between the ends of the strap, of a brake-shoe carried by the block, and the lever 18 removably pivoted in the block adapted to bear against the shoe.

6. In a capstan, the combination with the base 6 having the extension 10 furnished with sockets 11, 12, 13 and 14, pins similar to 15 to fit said sockets, and a capstan-barrel journaled at right angles with the base, of the straps 19 partially surrounding a portion of the barrel, the brake-block secured between said straps, the shoe 17 movable in the block, and the lever 18 pivoted on the removable-pin 21 bearing against the shoe, as and for the purpose described.

In witness whereof I have hereunto set my hand.

EDWIN H. WHITNEY.

Witnesses:

HENRY J. MILLER,
M. F. BLIGH.