

(No Model.)

2 Sheets—Sheet 1.

H. FLETCHER.
CAPSTAN.

No. 418,786.

Patented Jan. 7, 1890.

Fig 1.

Fig 2.

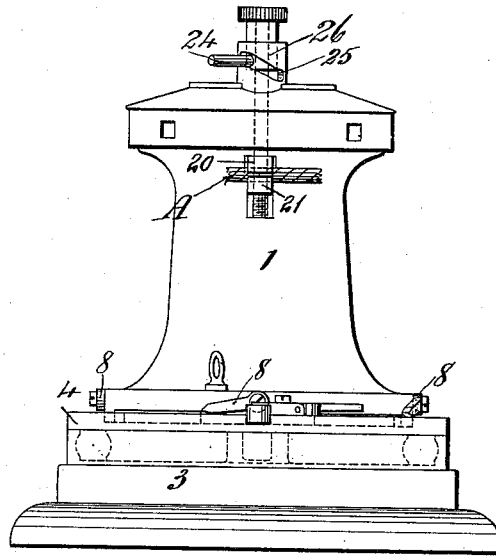
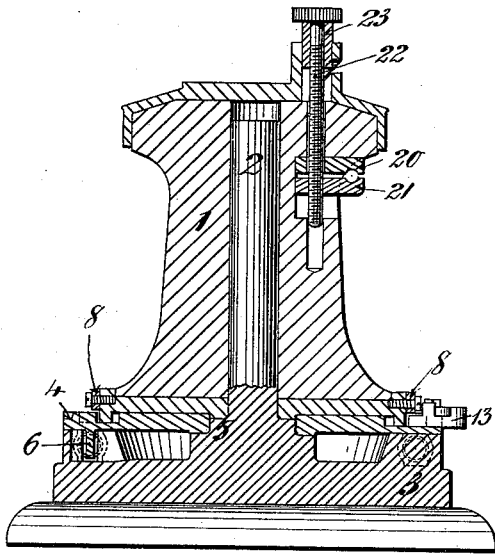
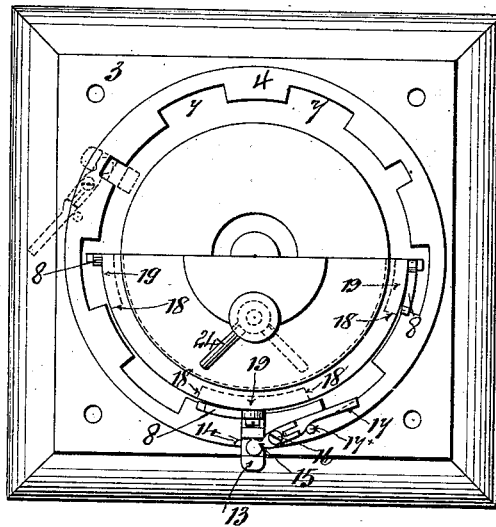
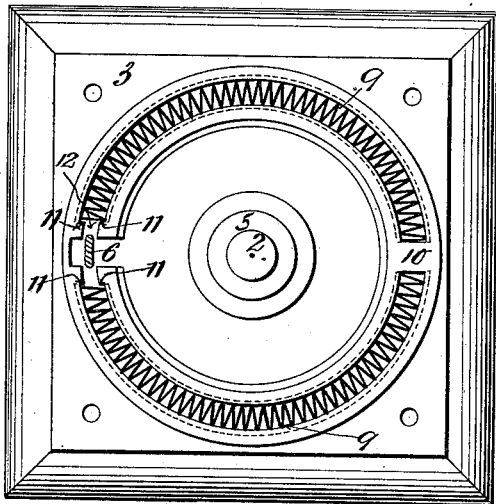


Fig 3.

Fig 4.



Witnesses.

W. H. Beckingham,
Ernest E. Fletcher

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H. Fletcher

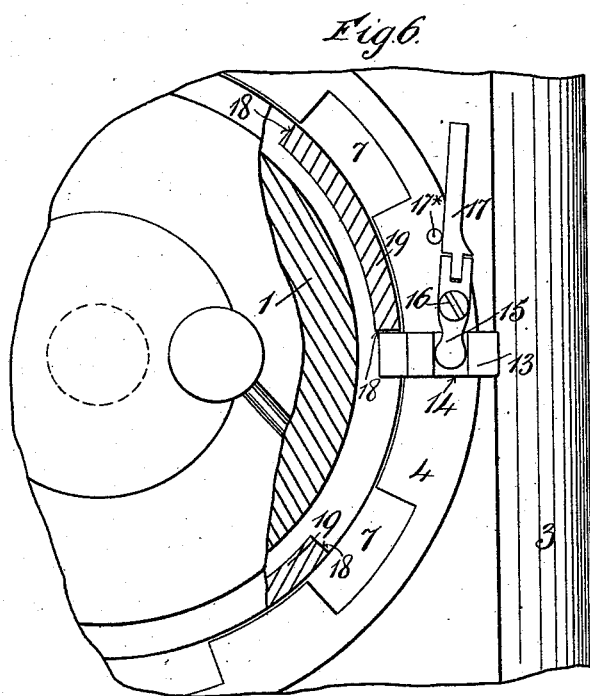
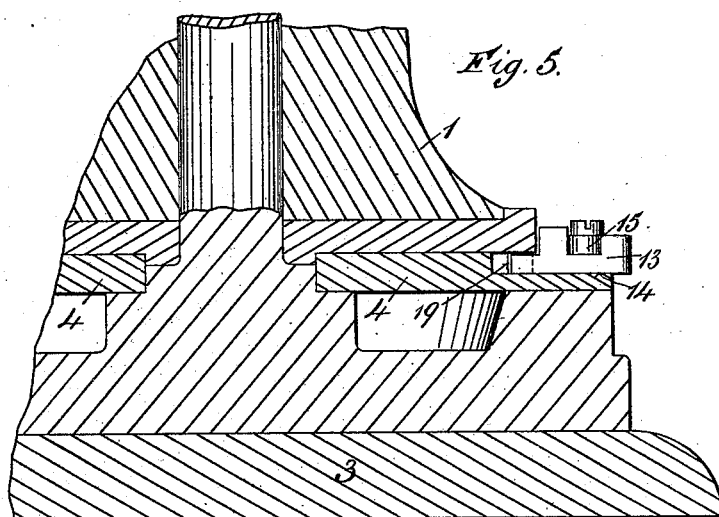
(No Model.)

2 Sheets—Sheet 2.

H. FLETCHER.
CAPSTAN.

No. 418,786.

Patented Jan. 7, 1890.



Witnesses:

D. R. Com
W. J. Woolard

Inventor:

H. Fletcher
by his attorney
James D. Sisson

UNITED STATES PATENT OFFICE.

HORATIO FLETCHER, OF NEWCASTLE-UPON-TYNE, COUNTY OF NORTH-
UMBERLAND, ENGLAND.

CAPSTAN.

SPECIFICATION forming part of Letters Patent No. 418,786, dated January 7, 1890.

Application filed April 30, 1888. Serial No. 272,359. (No model.) Patented in England June 23, 1887, No. 8,946; in France March 27, 1888, No. 189,621; in Belgium March 27, 1888, No. 81,196; in Italy March 31, 1888, XLVI, 47; and in Austria-Hungary July 5, 1888, No. 13,185.

To all whom it may concern:

Be it known that I, HORATIO FLETCHER, a subject of the Queen of Great Britain and Ireland, residing at Sydenham Terrace, Newcastle-upon-Tyne, in the county of Northumberland, Kingdom of Great Britain and Ireland, have invented Improvements in Capstans, (patented in England, dated June 23, 1887, No. 8,946; in France, dated March 27, 1888, No. 189,621; in Belgium, dated March 27, 1888, No. 81,196; in Austria-Hungary, dated July 5, 1888, No. 13,185, and in Italy, dated March 31, 1888, Reg. Att. Vol. XLVI, No. 47,) of which the following is a specification.

This invention relates to improvements in capstans of the kind in which a spring or springs is or are employed for relieving the capstan from sudden strain.

In a capstan according to my invention, instead of the pawls heretofore usually employed dropping into a ratchet-plate fixed down rigidly, the said pawls drop into a ratchet-plate that acts against a spring or springs which press against a fixed abutment rigidly fixed down, so that any sudden strain coming upon a cable on the capstan will be relieved by the yielding of the said plate due to the play of the said spring or springs.

The spring or springs employed may be of spiral or coiled form and be arranged either circularly or spirally, or be arranged to work in a straight line or tangentially, or in any othersuitablemanner, provided it or they serve to relieve sudden strains on the rope or cable; or in lieu of using spiral springs metal springs of other forms or springs of other suitable material—such as india-rubber—suitably arranged to be directly acted upon by the ratchet or equivalent plate, may be employed; or there may be used with or without the said pawls a stop-bar arranged to act against a projection or projections on the ratchet-plate.

Referring to the accompanying sheet of illustrative drawings, Figure 1 is a vertical section, and Fig. 2 an elevation taken at right angles thereto of a capstan according to this invention. Fig. 3 shows in plan or top view the base-plate of the capstan with springs therein, and in section a projection that forms

part of a ratchet-plate and can act against the said springs. Fig. 4 represents in half plans part of the top of the capstan and part of the top of a movable ratchet-plate. Figs. 5 and 6 are detail views drawn to an enlarged scale.

1 is a capstan-barrel mounted to rotate about a pillar or shaft 2, carried by a base-plate 3.

4 is a ratchet or intermediate plate located between the capstan-barrel and the base-plate. It is loosely mounted upon the part 5 of the base-plate, and is provided with a downwardly-extending projection 6, Figs. 1 and 3, and with notches 7 7, into which pawls 8 8, pivoted to the capstan-barrel, successively fall when the barrel is rotated.

9 9 are spiral springs arranged within a curved groove or way in the base-plate 3. They each bear at one end against an abutment 10, and at the other end normally rest against fixed shoulders 11, between which is a curved groove or way 12, within which the projection 6 can move. With this arrangement it will be readily seen that should a strain be suddenly put upon a cable wound or secured to the capstan-barrel this barrel, with the ratchet-plate 4, will be partly rotated in one direction or the other and backwardly with reference to the direction of winding, and will thereby cause the projection 6 to act against one or other of the springs 9, which will be thereby compressed, and thus will relieve such strain.

In some cases the pawls may be dispensed with, and in lieu thereof one or more stop-bars or sliding bolts, of which one is shown at 13, may be employed for holding the capstan-barrel in position when required, or both the pawls and the stop-bars may be employed.

Each bar or bolt 13, Figs. 4, 5, and 6, may be arranged to slide horizontally in a radial recess or guide 14, formed in the plate 4, and it is reciprocated by the short arm of a lever 15, that is pivoted to the said plate at 16 and is operated by a hand-lever 17. This hand-lever is hinged or jointed to the lever 15. The under side of the capstan-barrel is formed with a series of projections 19, the end 18 of each of which serves as a shoulder or abutment

to take against one side of one or other of the bars or bolts 13 and prevent rotary movement of the capstan when the inner end of such bar or bolt has been moved into the recess between two projections 19. 17* is a pin or stop for holding the hand-lever 17 and bar or bolt 13 either in the locked or unlocked position. In Fig. 4 the hand-lever and bolt are shown in the positions they occupy when the capstan is unlocked. In Figs. 5 and 6 these parts are shown in the positions they occupy when they lock the capstan or only permit it to turn through a small angle. The hand-lever 17 must be raised to clear the pin or stop 17*.

In the drawings I have shown combined with the capstan-barrel a gripper adapted to hold or release a cable A. This combination, however, does not separately form part of the present invention, but forms the subject of my Letters Patent of the United States, No. 401,727, bearing date of April 16, 1889.

20 and 21 are the two jaws of the gripping device. The jaw 20 is fixed, while the jaw 21 is adapted to be moved nearer to or farther from the jaw 20 by means of a screw-threaded bolt 22, as shown.

23 is a tube or sleeve encircling the upper part of the screw-threaded bolt 22 and provided with a pin or projection 24, arranged to slide in an inclined slot or cam-groove 25, formed in a tubular extension 26 on the top of the capstan-barrel. By raising or lowering the tube or sleeve 23 by means of the pin or projection 24 the jaw 21 may be rapidly moved toward or from the fixed jaw 20, the final closing movement to grip a rope or cable being effected by turning the bolt 22. The jaw 21 may, however, be operated solely by rotating the bolt 22, if desired.

What I claim is—

1. In a capstan, the combination of a barrel adapted to be rotated, a spring or springs carried by a stationary holder, a stop-plate arranged between said barrel and spring or

45 springs and arranged to be capable of only partial rotary movement, and means, substantially as herein described, for locking said barrel to said plate, so that said barrel is free to rotate in one direction, but is prevented from rotating in the other direction, said 50 spring or springs being arranged to act upon said plate and permit it and said barrel to partly turn or yield, substantially as herein described, for the purpose specified.

2. In a capstan, the combination of a barrel 1, adapted to be rotated, springs 9, located 55 within the stationary base-plate, a stop-plate 4, arranged between said barrel and springs and adapted to be engaged with said barrel and capable of limited rotary movement, and 60 said plate provided with a projection 6, said springs 9 being arranged to bear at one end against a fixed abutment 10 and at their other ends adapted to be acted upon by said projection 6, substantially as herein described, 65 for the purposes specified.

3. In a capstan, the combination of a barrel 1, arranged to rotate about a vertical pillar 2, a movable stop-plate 4, provided with 70 notches or recesses 7 and with a projection 6, pawls 8, pivoted to said barrel and adapted to enter said notches or recesses, and springs 9, located within a stationary base-plate 3 and arranged to bear at one end against a fixed 75 abutment 10 and at their other ends adapted to be acted upon by said projection 6, said stop-plate 4 being arranged between said barrel 1 and springs 9, substantially as herein described, for the purposes specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HORATIO FLETCHER.

Witnesses:

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