

(No Model.)

W. F. MURRAY.
CAPSTAN.

No. 498,075.

Patented May 23, 1893.

Fig. 1.

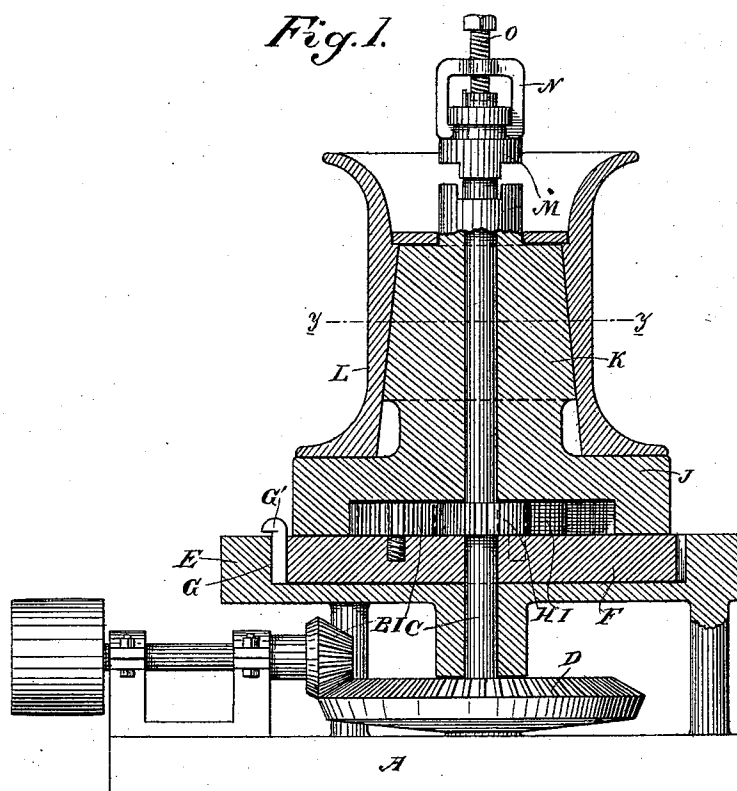
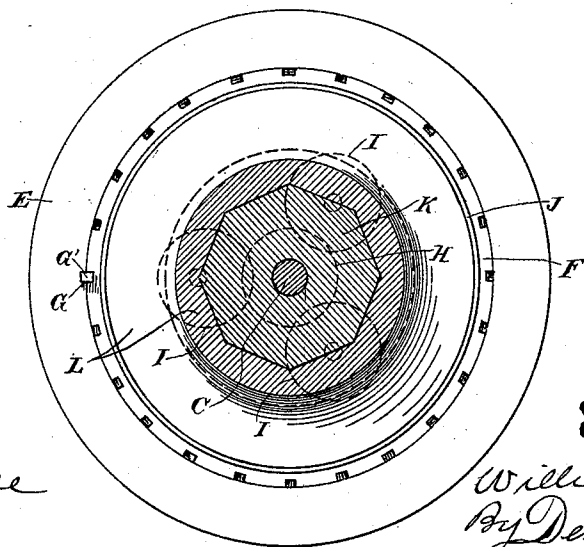


Fig. 2.



Witnesses,
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UNITED STATES PATENT OFFICE.

WILLIAM F. MURRAY, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR OF
ONE-HALF TO SAMUEL MURRAY, OF SAME PLACE.

CAPSTAN.

SPECIFICATION forming part of Letters Patent No. 498,075, dated May 23, 1892.

Application filed October 26, 1892. Serial No. 450,077. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. MURRAY, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Capstans; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a capstan or apparatus for winding ropes for the purpose of hauling logs or other articles, or for doing work upon vessels.

It consists of a winding drum in connection with gearing whereby the speed and power of the drum may be changed to suit the character of work being done.

Referring to the accompanying drawings for a more complete explanation of my invention,—Figure 1 is a vertical cross-section through my device. Fig. 2 is a horizontal cross section of the same on the line $y-y$ of Fig. 1.

The object of my invention is to provide a winding gipsy or capstan with a simple mechanism by which the power may be greatly multiplied, or by which less power may be obtained and a greater rate of speed.

As illustrated in the present case, A is a base having journaled upon it the driving pinion B, and C is a vertical shaft having keyed to it a corresponding bevel-gear D with which the pinion B meshes, and by which the vertical shaft is driven. Surrounding this vertical shaft, and above the base, is a fixed circular table E, the upper surface of which has a sunken chamber within which is fitted to turn loosely a circular disk or idler F, around the periphery of which notches are formed, and a corresponding notch G is made on the inner edge of the chamber in which the disk revolves, so that by placing a key G' in this notch to engage either of the notches on the rim of the disk, the latter may be locked and prevented from revolving. When the key is removed the disk revolves freely.

It is a pinion keyed to the vertical shaft just above the disk F and I, I are corresponding pinions turning loosely upon studs which project vertically above the face of the disk F.

J is a cap having a sunken chamber formed

in the interior of its lower surface, with teeth which are adapted to engage with those of the pinions I when the cap is in place and resting upon the disk F. From the upper surface of this cap projects the polygonal shank K and the winding drum L is adapted to fit over this and be locked thereto by reason of the polygonal shape of the shank and the interior of the drum so that the drum can be removed and replaced at any time without disturbing the remainder of the apparatus.

The upper end of the vertical shaft C has a clutch M fitted to slide up and down upon a feather fixed to the shaft. This clutch engages corresponding lugs in the upper end of the extension above the shank K which carries the winding drum. A yoke N has arms at its lower end which engage a groove or channel in the top of the clutch M and a screw O passing through the yoke and having a step in the upper end of the vertical shaft, serves to raise the clutch out of engagement with the shank, or by turning in the opposite direction to allow it to be lowered until it engages the latter. Any other equivalent device may be employed to raise and depress the clutch.

The operation will then be as follows:— When the clutch M is brought into engagement with the shank of the part K, the disk F being free to turn, power is applied to the driving shaft, and through the bevel-gear and pinion the vertical shaft is caused to rotate. By reason of the clutch which connects it directly with the polygonal shank carrying the winding drum, the latter is caused to rotate at the same rate of speed with the vertical shaft with which it is directly united. The pinions I turning freely upon their studs simply travel around with the disk F within the case J, rolling in contact with its interior gear teeth, and acting as idlers. If, however, it is desired to increase the power of the apparatus, the clutch M is disengaged from the shank of K, and by introducing the key into the key-way G on the periphery of the circular table E, so as to engage with one of the corresponding notches in the periphery of the disk F, the disk will be locked so that it cannot turn upon the table. By this means

the three pinions I will be made temporarily stationary, but can rotate upon their studs. Now, when power is applied to rotate the vertical shaft the latter, through its pinion H, 5 imparts a rotary motion to the pinions I and these in turn communicate motion to the case J with the teeth on the interior of which they mesh, and the winding drum is thus rotated at a slower rate of speed with a correspond- 10 ing increase of power. The amount of power and the rate of speed of rotation will depend upon the proportion of the gears and pinions, and these may be varied to suit circumstances.

15 When used for logging purposes the apparatus may preferably be mounted upon a sled so as to be easily hauled from place to place.

Any suitable power may be used in connection with the apparatus, but I prefer to use 20 an engine of suitable construction.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a capstan or winding apparatus, a 25 chambered cap having teeth around its interior, a winding drum mounted upon said cap, a stationary table, a disk turning thereupon, a vertical driving shaft turning freely through the center of the table and disk, a pinion H fixed 30 to the driving shaft above the face of said disk, pinions I turning upon studs which project upon the face of the disk, said pinions engaging the pinion H and the interior teeth of the drum carrying cap, notches formed around 35 the periphery of the disk and a corresponding notch in the table upon which the disk

turns, and a key by which the disk may be locked to the table whereby power is transmitted from the vertical shaft through the intermediate gears to the winding drum, substantially as herein described. 40

2. In a winding apparatus, the drum an internally geared cap to which said drum is fixed the vertical driving shaft passing through and turning freely in said cap, a supporting table 45 having the upper surface chambered, a disk F turning freely in the chamber of said table and having notches in its periphery and a key whereby it may be locked to the table or disengaged therefrom, a pinion H fixed upon 50 the shaft above the surface of the disk, pinions I turning freely upon studs which project from the surface of the disk, said pinions engaging the pinion H and the interior teeth of the cap, a clutch M sliding upon a feather 55 upon the upper end of the driving shaft, and a device whereby it may be caused to engage with and lock the winding drum, so that motion is transmitted from the shaft directly to the drum when the disk F is unlocked from 60 the table, and whereby a slower motion is communicated to the winding drum through the gears H and I when the disk is locked to the table and the clutch disengaged from the drum, substantially as herein described. 65

In witness whereof I have hereunto set my hand.

WILLIAM F. MURRAY.

Witnesses:

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J. A. BAYLESS.