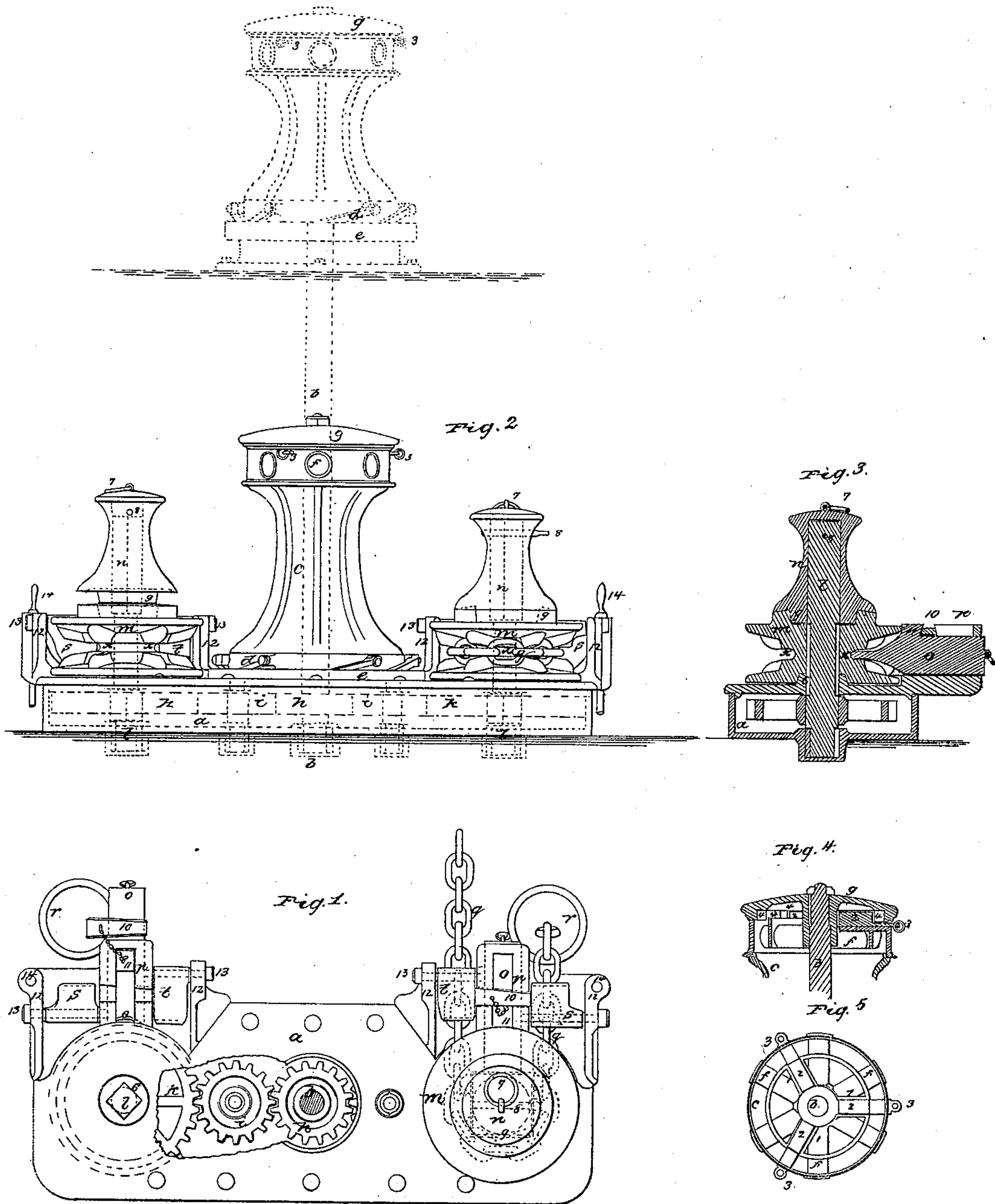


*C. Perley,*

*Capstan.*

*N<sup>o</sup> 17,940.*

*Patented Aug. 4, 1857.*



*Witnesses*  
*Lemuel W. Spruell*  
*Thomas G. Harold*

*Inventor.*  
*Charles Perley*



# UNITED STATES PATENT OFFICE.

CHARLES PERLEY, OF NEW YORK, N. Y.

## COMPOUND CAPSTAN FOR SHIPS.

Specification forming part of Letters Patent No. 17,940, dated August 4, 1857; Reissued October 7, 1862, No. 1,345.

*To all whom it may concern:*

Be it known that I, CHARLES PERLEY, of the city, county, and State of New York, have invented, made, and applied to use  
5 certain new and useful Improvements in Means for Working Chain Cables, which I denominate the Compound Capstan Windlass; and I do hereby declare that the following is a full, clear, and exact description  
10 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 plan of my apparatus with  
15 the capstan and one heaver removed to show the gearing and other parts, the base being shown as partly broken open for the same purpose. Fig. 2, is an elevation of the apparatus with one heaver operating on a  
20 chain, while the other is disconnected. Fig. 3, is a cross section through one of the heavers. Fig. 4, is a plan, and Fig. 5, is a vertical section of the capstan head, showing the manner of connecting and disconnecting the  
25 same from its shaft.

Similar marks of reference denote the same parts.

In hoisting windlasses for vessels it is very important that a sufficient variety of hoisting  
30 machinery be combined under the immediate control of one set of men, without the necessity of their having to leave one apparatus and go to another, that is to say, the main capstan, the windlass and a power  
35 capstan should be worked either separately or connectedly from one handspike head. Others have before sought to attain this object; my invention therefore, although possessing the before mentioned requisites,  
40 does not consist in combining a capstan, windlass and power winches together, but in all other apparatus with which I am acquainted, if the weight or strain of the chain be on the windlass when riding at  
45 anchor or at other times, the power capstans or other parts have to be revolved with all the friction due to said strain or weight.

My invention consists in constructing and fitting a windlass in such a manner that the  
50 shaft is constantly relieved of the weight or strain of the cable, and has simply to rotate the said windlass when connected to said shaft; and in combination with said windlass, thus relieved from strain on the  
55 shaft, I make use of a peculiarly constructed power capstan that can be used simulta-

neously with or separate from the said windlass, and also becomes a coupling for rotating said windlass.

In the drawing *a*, is the base of the capstan formed as an elongated hollow box,  
60 which is secured to the desired place by suitable bolts, and carries the other parts of the apparatus.

*b*, is a vertical shaft in the center of said  
65 box, receiving on its upper end the capstan *c*. This capstan *c*, may be immediately above the base *a*, or be located on the fore-castle or hurricane deck, the shaft *b*, being extended vertically for this purpose. 70

The capstan barrel *c*, is to be fitted so as to revolve on, but independent of, the shaft *b*, by means of handspikes in the sockets *f*, and the barrel is to be sustained on balls or  
75 otherwise to support its weight, and relieve friction.

*d*, *d*, are the pawls and *e*, is the pawl bed as usual.

*g* is the capstan head, keyed into the end of the shaft *b*, see Fig. 5, and the head *g*  
80 and barrel *c* are to be connected together when it is required to rotate the shaft *b*, by means of sliding blocks 2, 2, set in the slides 1, 1, in the top of the barrel *c*, and said blocks 2 are provided with tongues  
85 passing through mortises around the handspike head terminating with rings 3, 3; and around the inside of the head *g* notches 4, 4, are provided so that the barrel and head are connected permanently by sliding  
90 the block 2, 2, outward into the notches 4, 4, which notches being near the largest part of the head, act with the best leverage in rotating the shaft *b*.

Near the lower end of the shaft *b*, is a  
95 gear wheel *h*, taking two intermediate gears *i*, *i*, to the wheels *k*, *k*, all within the base *a*, and the wheels *k*, *k*, are on the short vertical shafts *l*, *l*. Both of these shafts *l*, *l*, are to be used where two heavers are fitted  
100 to my apparatus, but where only a single heaver is used one shaft and its gears may be dispensed with; and as both heavers are alike, and operate similarly, I shall only describe the construction and operation of one. 105

The shaft *l*, is set in a step 5, and is formed square to receive the wheel *k* and other parts.

6, is a bearing for said shaft *l*, in the cover of the base *a*, and said bearing is formed  
110 as a square opening (although it might be round if the wheel *k*, were keyed onto a



round part inserted through the bearing 6,) and the square shaft *l*, is turned round at this part, and also for the length of the heaver *m*, which is formed with a square hole and is dropped over the square upper part of the shaft, but said shaft can rotate in the heaver without turning the same because of the shaft being round as before mentioned.

10 *n* is a small capstan barrel formed with a square hole fitting the said shaft *l*, and rotated with the same, (or a slot and key might be used instead of the square shaft).

9 is a square formed on the lower end of the barrel *n*, taking a similar square in the heaver.

7 is a ring by which the barrel *n* can be lifted sufficiently to clear the square coupling 9 and disconnect the heaver, in which case the pin 8, is inserted through a second hole in the shaft *l*, or over the upper end of the same to sustain said head, and when in this position the said barrel *n*, can be rotated independently of the heaver to form a power capstan, or act as a bit receiving a rope or chain; or when lowered so as to couple (at 9) with the heaver *m*, and the pin 8 inserted through a hole in the shaft *l*, so as to hold said coupling together, the said barrel *n*, rotates said heaver *m*, in either direction, according to which way the capstan is turned, and either draws in or gives out the chain as next set forth.

The heaver *m*, is of a size and shape to receive correctly the chain with a given sized link, and said heaver can be lifted off and another substituted, adapted to a different chain, should the same be required, or where double heavers are used one side may be fitted for one chain, and the other for a lighter or heavier cable: in all cases the heaver is to be formed with a deep groove at *x*, which takes one side of the horizontal chain, and is to be turned off, or otherwise trued at the bottom of said groove, so as to receive the thin curved projecting end of the bearing block *o*. This block *o* is set in slides *p*, and provided with a block 11, (or its equivalent a slot) against which the wedge 10 acts, to set the block up against the heaver at *x*, to sustain the same, and relieve the shaft *l*, and other parts from strain by the chain; so that the vessel can ride at anchor with perfect safety by this heaver; and to avoid any risk of slipping, the chain *q*, may be seized together forward of the heaver and bearing block. When the heaver has to be removed the block *o*, is slid back as seen on one side in Fig. 1.

60 The chain cable may be led into the locker pipe as at *r*, or be brought around any suitable friction roller, and carried farther aft before entering the locker pipe.

In order to afford additional security in working the chain I form troughs for said chain to move in on each side of the slide *p*. By flanges 12, 12, and in said troughs I hang pawls *s*, and *t*, set and moving on pins 13, so as to prevent the chain slipping back as the same is drawn in. These pawls are to be thrown over when the chain is running out; and said chain can be run out by simply lifting the capstan coupling (*n*) without taking the chain out of the heaver.

14, 14, are belaying pins which may be inserted if desired.

The combined operation of the parts, as well as their separate functions, will be fully apparent from the foregoing; and it will be seen that the capstan can be used in the ordinary manner. The small barrels (*w*) can be used as power capstans or bits. That one or both heavers can be used simultaneously with or separately from the other parts. That the chain can be taken in or given out on either side. That all strain is removed from the shafts (*l*.) so that the vessel can ride at anchor with the chain around the heavers, and still the windlass is effective for other uses. The various other advantages of my apparatus will be apparent to nautical men and need not here be specified.

I do not claim a capstan, windlass and winch combined; neither do I claim a horizontal heaver in itself, but—

What I claim as my invention and desire to secure by Letters Patent, is—

1. The combination of the adjustable bearing block *o*, with the heaver or windlass *m*, so constructed as to receive the strain and weight of chain cable and relieve the shaft *l*, therefrom, leaving said shaft *l*, when disconnected from said heaver or windlass free to rotate and be used for other purposes without loss of power by the friction of said heaver or windlass, even when the vessel is riding at anchor by said heaver substantially as and for the purposes specified.

2. I also claim the power capstan *n*, and its coupling 9, fitted to slide endwise of the shaft *l*, combined with the heaver or windlass *m*, and bearing block *o*, whereby the said power capstan *n*, connects the shaft *l*, and heaver *m*, or is itself free for use as a power capstan or bit when connected to or disconnected from said heaver or windlass *m*, substantially as and for the purposes specified.

In witness whereof I have hereunto set my signature this ninth day of February 1857.

CHARLES PERLEY.

Witnesses:

LEMUEL W. SERRELL,  
THOMAS G. HAROLD.