D. & G. Talcot,

Capstan.

No. 14,986. Patented May 27, 1856.

Fig. 1.

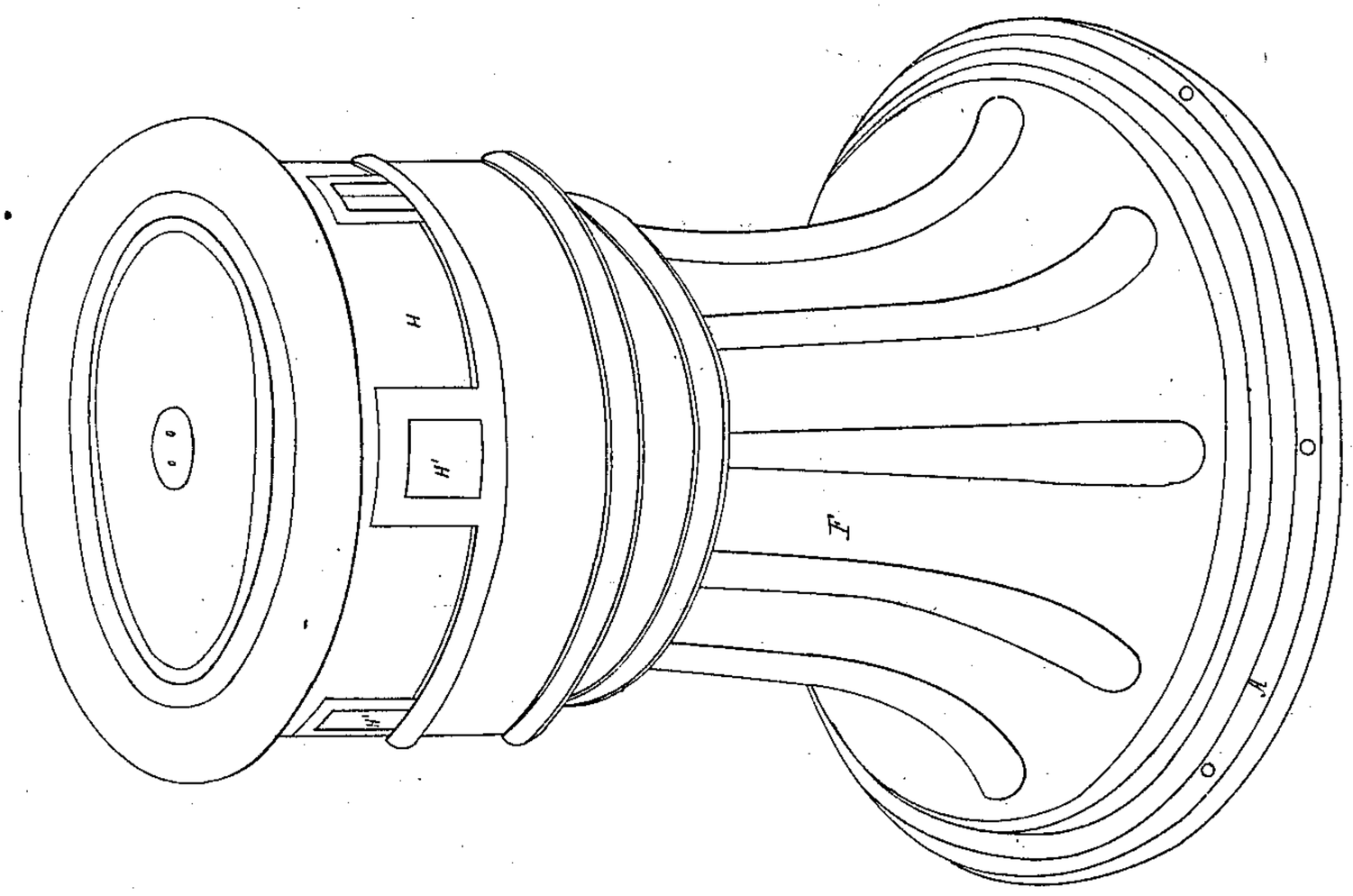


Fig. 3.

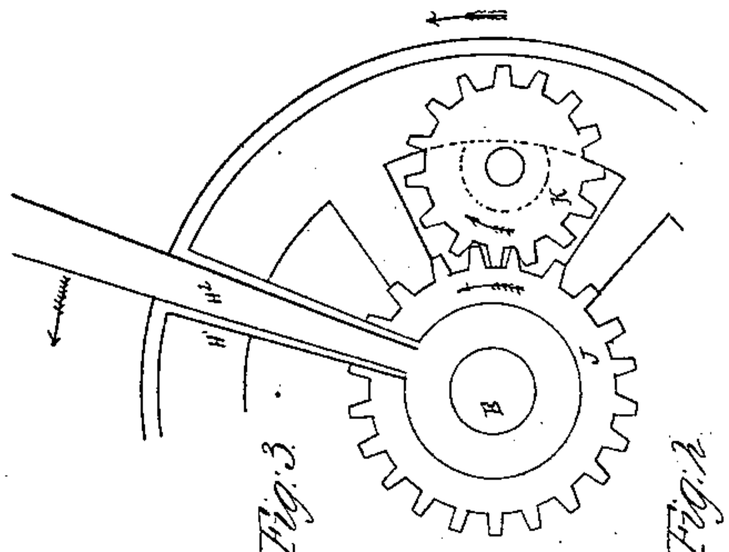
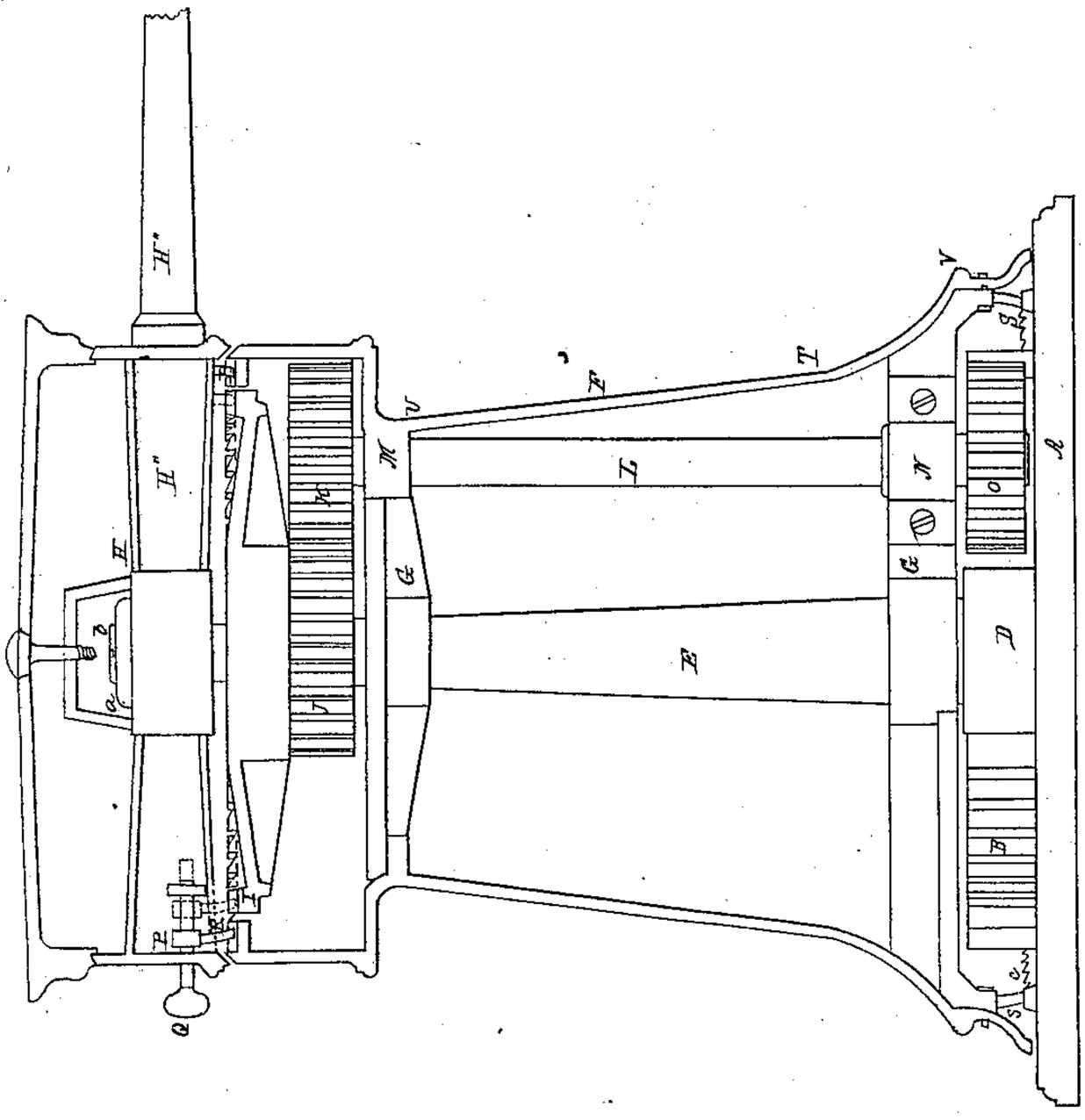


Fig. 2.



UNITED STATES PATENT OFFICE.

DANIEL TALLCOT AND GEORGE TALLCOT, OF OSWEGO, NEW YORK.

SHIP'S CAPSTAN.

Specification of Letters Patent No. 14,986, dated May 27, 1856.

To all whom it may concern:

Be it known that we, DANIEL TALLCOT and GEORGE TALLCOT, of the city and county of Oswego and State of New York, have invented certain new and useful Improvements in Capstans; and we do hereby declare that the same are described and represented in the following specification and drawings.

To enable others skilled in the art to make and use our improvements we will proceed to describe their construction use and operation referring to the drawings in which the same letters indicate like parts in each of the figures.

Figure 1, is a perspective view of the capstan, Fig. 2, is a sectional elevation showing the construction of the interior with the gearing ratchets, pawls etc. Fig. 3, is a vertical section representing part of the gearing, to show that the pressure of the journals of the geared shaft, upon the boxes, is in the same direction that the shaft and boxes move.

We are aware that numerous geared capstans have been devised, some of them adapted to vessels with two or more decks, some of them having the gearing in the top of the capstan, others at the bottom, partially, or entirely below the deck of the vessel: and most, or all of them requiring a hole to be made through the deck to apply them, thereby rendering the deck more liable to leak, and subjecting the cargo to damage from such leakage: in carrying lime and some other articles subjecting the vessel to the danger of being set on fire greatly to the risk of the lives of the seamen and passengers; in addition to this, most of the geared capstans now in use, are very complicated, and costly, liable to get out of order, or become useless when most needed requiring expensive repairs, and so much time to complete them as to delay the vessel when she might be employed to profit; and further, the barrels have been mostly made tapering, and nearly straight on the surface, so that the rope or chain being wound upon them will not fleet readily, and uniformly, but with sudden jerks and starts, often transferring the strain on the capstan, from the bottom to the top, so suddenly as to make it dangerous to operate them, and very liable to break or injure the capstan, or tear it from the deck of the vessel by the sudden surge and recoil.

The design and object of our invention and improvements in capstans is to remedy these defects, and obviate the disadvantages enumerated, and others not named, by making a simpler, cheaper, and more serviceable, as well as more durable capstan, and therefore a far better one than has been made heretofore: a capstan adapted to single decked vessels, so constructed as to be entirely above the deck of the vessel, and that can be applied to the vessel without cutting into, or through the deck.

The nature of our invention and improvements in capstans consists in arranging a gear wheel under the head of the capstan to turn loose upon the spindle either with or without the head, and drive a gear turning a shaft in the barrel of the capstan extending to the bottom, and arranged parallel to the spindle, and turning in boxes fastened to the arms which support the barrel, and carrying a gear at its lower end working into a stationary internal annular gear in, or on the base of the capstan, so as to communicate a slow and powerful motion to the barrel of the capstan, which turns on the spindle far slower than the head of the capstan which also turns on the spindle.

In the accompanying drawings A, is a circular base of cast metal, provided with a hub D, in which the spindle E, is firmly fastened by riveting, or otherwise. This base is also provided with an internal annular gear B, and a circular vertical ratchet C, in which the pawls S, S, which hold the capstan, catch as it is turned.

F, is the barrel of the capstan made in the form represented, and provided with two series of arms G, G, terminating in the hubs G′, G′, which are fitted so as to turn freely on the spindle E.

H, is the head of the capstan made of cast metal, and provided with a series of sockets or holes H′, H′, for the levers, or hand spikes H², with which it is to be turned

on the upper end of the spindle E, to which it is fitted and secured from rising by the collar *a*, and screw *b*, as shown in the drawing. This head is provided with two or more pawls P, P, fitted to vibrate on pins, like Q, and arranged to catch into the vertical ratchet R on the upper end of the barrel F, as shown in the drawing: and connect the head H, with the barrel, so as to operate the capstan for any light service for which it may be wanted, and when speed is of more importance than power. But in order to operate the capstan with great power, we make a vertical ratchet wheel I, with teeth arranged to turn just within the ratchet R, and fasten to it the gear J, and fit both of them to turn freely on the spindle E, so that when the pin Q, is pushed into the position represented by dotted lines in Fig. 2, the pawl P, will catch into the ratchet I, and release ratchet R, so that by turning the top H, it will carry the gear J, which turns the gear K, and shaft L, which shaft is fitted to turn in boxes M, and N, on the arms G, G, as shown in the drawing, and has the gear O, fastened to its lower end, arranged to work into the stationary internal annular gear B, so as to turn the barrel F, far slower, but with great power; and whenever it is desirable to increase the speed of the capstan, or barrel F, it is only necessary to draw out the pins Q, Q, to transfer the pawls P, P, from the ratchet I, to the ratchet R, so as to lock the head H, to the barrel F, and release it from the ratchet I, so that the barrel F, will turn with the head H, as heretofore described.

By this construction and arrangement of gearing which we have invented, some great and important advantages are gained (to wit.) When the barrel F is operated by the gearing the pressure of the upper journal of the shaft L, against the box M, fastened on the barrel F, is in the same direction, in which the barrel is moving, as shown by the drawing Fig. 3, representing the gears J and K, the arrows on the several parts indicate the direction in which they move. Besides the pressure of the lower journal of the shaft L against the bore N is also in the same direction in which the shaft moves the box and barrel, when the capstan is operated by the gearing: so that all the power applied to turn the capstan is applied and expended to the very best advantage to operate it, making it far superior to any other capstan. The pawls S, S, vibrate on studs arranged near the lower end of the barrel F, inside, or under the edge of the barrel, as shown in the drawing: so the pawls and ratchet being covered, are far less likely to be obstructed by ice, so as to render them useless until the ice is removed. With our improvements constructed as above described, with the ratchets I, and R, and pawls P, P, the capstan may be worked either geared or single, by turning the head half way, and then fleeting back, if freight or any thing else obstructs the passage of the levers entirely around the capstan.

We make the barrel F of the capstan slightly tapering, or conical from T, to U, and straight, or, nearly straight on the outside; and from T, to V, we enlarge it, or turn it out in the arc of a circle, or nearly in the arc of a circle, so as to make the rope, or chain fleet evenly and uniformly, while the strain on the capstan will be constantly near its base, where it is most capable of supporting it without injury to any of its parts. By this construction we obviate and overcome one of the great defects in capstans heretofore constructed which are made to taper from the bottom nearly or quite to the top, with, or without slight curve so that the rope or chain winds down to the bottom, so as to come against the bottom flange and begin to ride when it fleets suddenly with a violent surge and recoil, transferring the strain from the bottom to near the top of the capstan where it is the least able to support the strain with the surge and recoil to which it is subjected added to it, so that the capstan, or the rope, or chain is liable to be broken: which not unfrequently happens under such circumstances, besides it has been known to tear the capstan from the deck of the vessel, to the imminent peril of the life and limbs of the seamen working it.

Capstans constructed with our improvements, are far better and cheaper than the geared capstans heretofore made: for the following reasons (viz): They are more simple in their construction, and therefore less liable to get out of order, and consequently it costs less to keep them in repair: besides they are far more durable, and cost thirty per cent. less; and will perform the service required in less time, and with less labor and as the gearing is all within the barrel of the capstan, there is no strain upon the spindle except the lateral strain of drawing the hawser: and this strain with our improved form of barrel, is kept constantly uniform, and near the base or bottom or bottom of the capstan. Besides no part of it is required to be put into, or through the deck of the vessel, therefore the planking and frame are not injured in applying it, and the danger of leakage, and consequent damage to the cargo avoided. Besides the pawls and ratchet at the bottom of the capstan are covered by the lower edge of the barrel, so as to render them less liable to be obstructed by ice so as to render them useless until the ice is removed.

We believe we have described and repre-

sented the construction and operation of our improvements in capstans, so as to enable any person skilled in the art, to make and use them: And we will now specify what we desire to secure by Letters Patent (to wit).

We claim—

The gears J, and K, arranged at the top of the capstan in combination with the shaft L, and gears O, and B, arranged at the bottom of the capstan for communicating a slow and powerful motion to the barrel F, substantially as described.

DANIEL TALLCOT.
GEO. TALLCOT.

Witnesses as to Daniel Tallcot:
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S. PITKIN.
Witnesses as to Geo. Tallcot:
WM. W. UNDERHILL,
JAS. E. UNDERHILL.