JAMES M. WISE.

Mechanism for Operating Booms.

105286 PATENTED JUL 12 1870

Fig. 1.

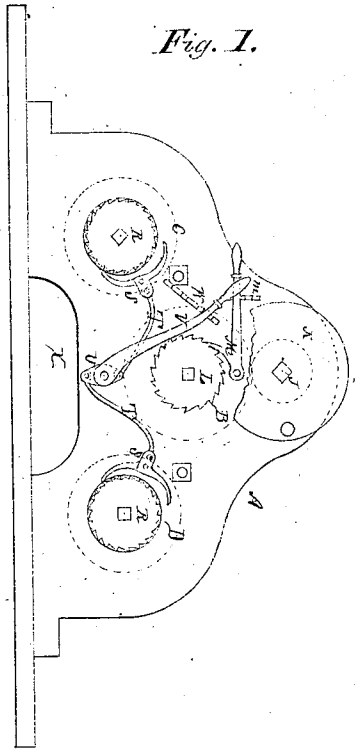


Fig. 2.

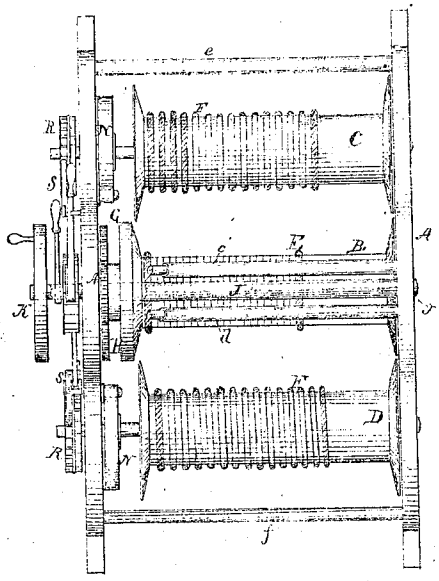
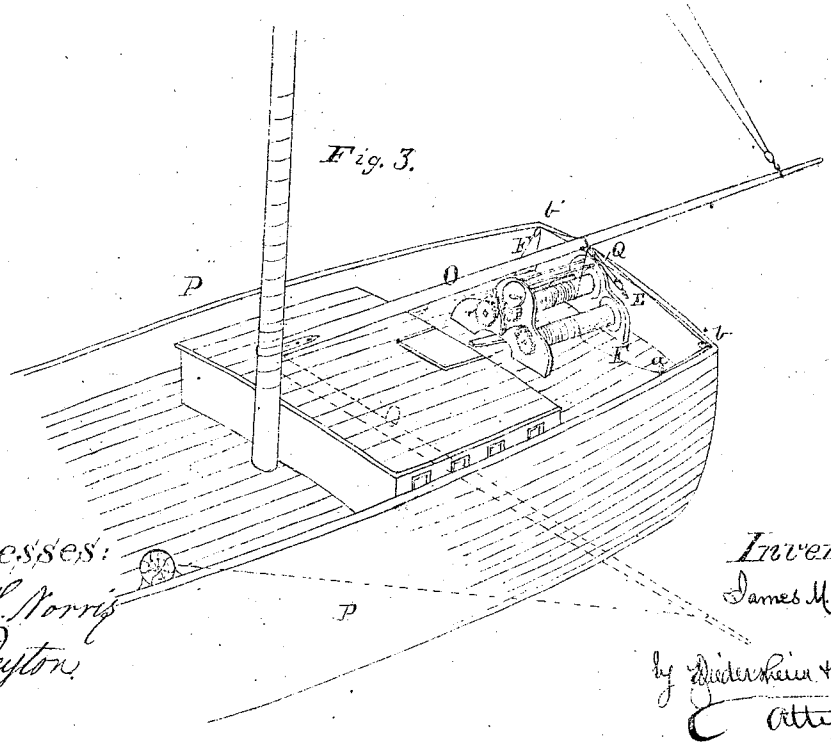


Fig. 3.



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JAMES M. WISE, OF WILMINGTON, NORTH CAROLINA.

Letters Patent No. 105,286, *dated July* 12, 1870.

IMPROVEMENT IN MECHANISM FOR OPERATING BOOMS OF VESSELS.

The Schedule referred to in these Letters Patent and making part of the same

To all whom it may concern:

Be it known that I, JAMES M. WISE, of Wilmington, in the county of New Hanover and State of North Caralina, have invented a new and useful Mechanism for Operating Booms; and I do hereby declare the following to be a clear and exact description of the nature thereof, sufficient to enable others skilled in the art to which my invention appertains to fully understand and use the same, reference being had to the accompanying drawing making part of this specification, in which—

Figure 1 is a side view of the device illustrating my invention.

Figure 2 is a top or plan view thereof.

Figure 3 is a perspective view thereof, showing its application to a vessel.

My invention consists in means for assisting the operation of regulating booms of vessels, and also in the brake mechanism therefor.

In the drawing—

A represents a frame-work, by preference of metal, and supporting the journals of the shafts of three or more drums or rollers, B C D, which, in the present case, extend longitudinally with the vessel. The drum B is for the main sheet E, and the other rollers for the crotch-ropes F F.

A toothed wheel, G, is formed with or connected to the drum B, and meshes with a similar but smaller wheel, H, secured to a shaft, J, which is likewise mounted on the frame-work A. This shaft extends beyond its bearings, and has connected to it a crank or crank-wheels and handles K.

The end of the shaft of the drum B carries a ratchet-wheel, L, against the teeth of which operates a pawl, M, having a suitable handle or lever, which will rest in the notches of a resting plate, *m*, on the frame A. The ratchet-wheel and pawl could be substituted by a pulley and brake, the purpose of which will be hereinafter explained.

N are coiled springs, which are adapted to wind up and unwind with the rotations of the drums D C, which carry the crotch-ropes, and for this purpose I secure the ends of each spring, respectively, to the frame-work A and the shafts of said drums.

The main sheet E is connected to the boom O of a vessel, P, and runs through ordinary blocks Q, and the crotch-ropes are connected to the boom, and run through blocks *a b*, located, by preference, in the corners of the stern of the vessel.

R R represent double ratchet-wheels, each of which consists of two ratchet-wheels placed side by side, but having their teeth to extend in reverse order. These double ratchets are secured to the shafts of the crotch-rope drums C D, and rotate therewith.

S S are double pawls, which are pivoted to the frame-work A, and are so constructed that their heads will ride over the double ratchet-wheels, that is to say, each double pawl has one head to engage with the outer ratchet of the double ratchet, and the other head to engage with the inner ratchet thereof.

Connecting-rods T are pivoted at or about the middle of the double pawls, extend toward each other, and are jointed to the ends of a swinging lever, U, which is hinged to the frame-work A.

An operating lever, V, is attached to lever U, and its handle occupies a position within convenient distance from the crank-wheel K.

A folding plate, W, is connected to the frame-work, and is arranged in relation to the lever W, in order to hold the latter in three or more positions, and for this purpose three notches are formed in said plate.

In manipulating the lever it is dropped into the middle notch; the ends of both pawls are free from contact with the double ratchets. If it is dropped into the lower notch, the upper heads of the pawls engage with the outer ratchets of the double ratchets; thus drums C D are held firmly, and thus the crotch-ropes cannot unwind. If it dropped into the upper notch, the lower heads of the pawls engage with the inner ratchet, and the crotch-ropes cannot be wound up.

Rollers *c d e f* should be properly located to allow the free movement of the sheet and crotch-ropes, and prevent chafing and rubbing.

The device thus described is placed in the stern of the vessel, and an opening, X, allows the projection through and the management of the tiller.

The operation is as follows:

The boom O is midship, as shown in fig. 3. Suppose it be desired to run before the wind. In this case the boom will occupy a position as exhibited by the dotted lines. To accomplish this result, the steersman or helmsman raises the pawl M, thereby freeing the drum B, and, at the same time, throws the lever V into the middle notch of the plate W.

As the wind catches the sail it swings out, carries the boom and draws the main sheet and crotch-ropes with it. As soon as it has run out to the full extent, the pawl M is dropped and the lever V thrown into the lower notch of plate W. This tends to lock the three drums, and prevents any further playing out of the sheet and ropes. It will be perceived that the springs N have been coiled on the shafts of drums D C owing to the rotation of said shaft caused by the draft on the crotch-ropes and their consequent unwinding.

Suppose it be desired to bring in the boom or crotch it for reefing; in this case the lever U is thrown into the middle notch of the plate, and crank-wheel K rotated, so as to wind up the main sheet, and thereby draw in said sheet, and consequently the boom O.

This operation is assisted by the reaction of the springs N, which uncoil themselves, impart corresponding motions to the drums C D, and haul in and wind up the crotch-ropes, no manual labor being required therefor, excepting the manipulations of the pawl and lever as aforesaid.

As soon as the sheet and ropes are hauled in fully, or to their desired extent, the pawl M engages with the ratchet L and holds the main sheet, the helmsman meanwhile raises the lever U, throws it into the top notch of the plate W, and thus locks the drums C D, so as to prevent the unwinding of the crotch-ropes, whereby running out of said ropes and boom cannot result. Thus the boom may be respectively operated, the mode being secure, economical, powerful, and easily managed, and one especially important for "housing" in case of storm at sea, which is always attended with great danger to seamen.

I design covering the operating parts with suitable boxing or canvas, but do not limit myself thereto.

In some cases I may run a rope from the end of the boom when dead ahead to the side of the boat, as shown, to prevent swinging of boom.

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

1. The double ratchet-wheels R R, double pawls S S, connecting-rods T T, swinging lever U, single-armed lever V, and notched plate W, combined and operating substantially as described.

2. The drums B C D, springs N N, and crank-wheel K, combined and operating for hauling in the boom, substantially as described.

3. The drums B C D, springs N N, crank-wheel K, double ratchet-wheels R, double pawls S, and lever V, combined and operating substantially as described.

To the above I have signed my name this 25th day of March, 1870.

JAMES M. WISE.

Witnesses:

JOHN A. WIEDERSHEIM,

JAMES L. NORRIS.