J. B. Holmes,

Windlass.

No. 13,612. Patented Sep. 25, 1855.

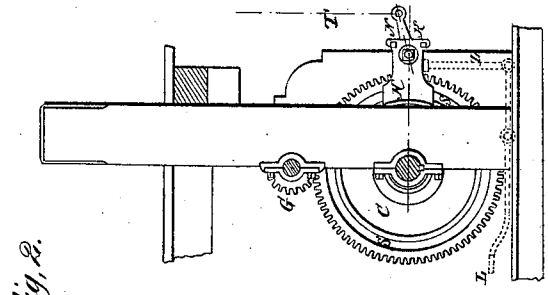

Fig. 2.

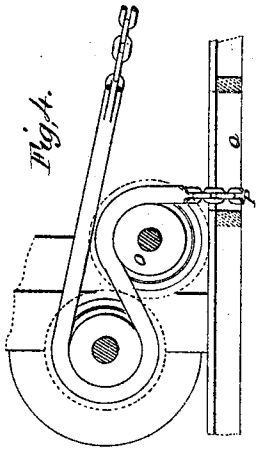

Fig. 4.

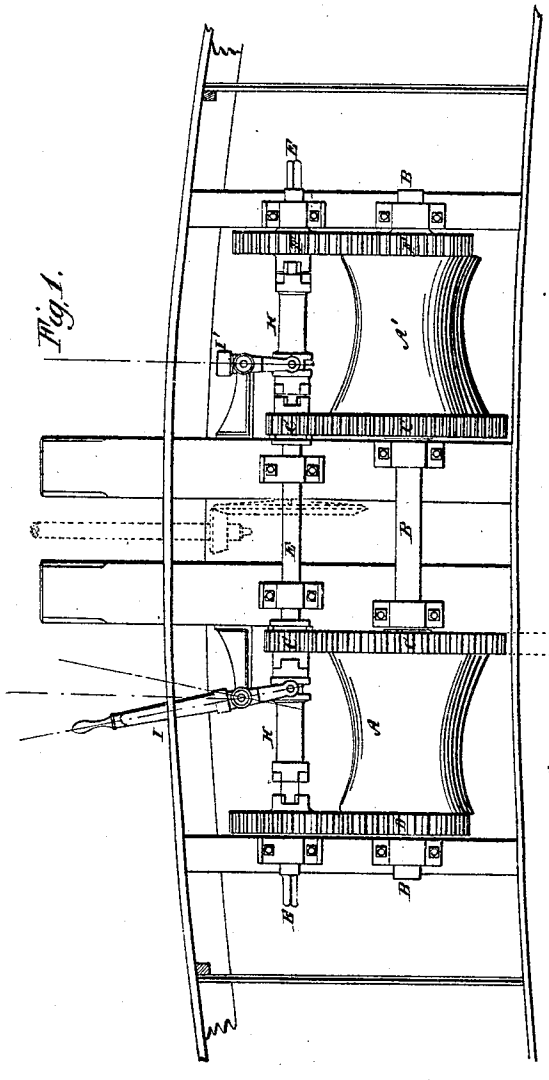

Fig. 1.

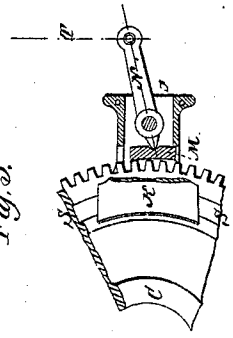

Fig. 3.

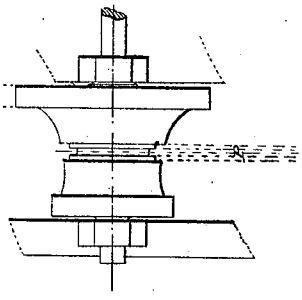

Fig. 5.

UNITED STATES PATENT OFFICE.

JNO. B. HOLMES, OF NEW YORK, N. Y., ASSIGNOR TO JNO. R. PRATT AND JNO. B. HOLMES.

SHIP'S WINDLASS.

Specification of Letters Patent No. 13,612, dated September 25, 1855.

To all whom it may concern:

Be it known that I, JOHN B. HOLMES, of New York, in the county of New York and State of New York, have invented a new and useful Improvement in Ships' Windlasses; and I do hereby declare that the following is a full and clear and exact description thereof and of the operation of the same, reference being had to the annexed model and drawings, making part of this specification, and to the letters of reference marked thereon.

The nature of my improvement in ships' windlasses consists in the arrangement of a shaft with double gearing and clutch coupling in relation to the drums of the windlass and their gearing, whereby I am enabled to move one or both drums with a quick or with a slow motion, or the one drum may be moved with the quick and the other with the slow motion at the same time.

I will now proceed to describe the various parts and the operation of my improvement with particular reference to the accompanying drawings, of which—

Figure 1, represents an elevation of the windlass arranged within or on the decks of a vessel. Fig. 2, gives an end view and Fig. 3, shows a partial section with the pawling apparatus attached. Fig. 4, and Fig. 5, will be explained hereafter.

A, A′ in Fig. 1, represents the two chain barrels or parts constituting the body of the windlass, they are placed upon the strong, solid and stationary iron bar or axis B within the bits of the vessels and are made to revolve loosely upon B either separately or connected with each other, the stationary bar B is supported by three or more bearers and the body of the windlass is constructed so as to bring the said axis or spindle B close up to the front edge of the bits, affording thereby increased strength and stability so much so as to allow the ship to ride at anchors without additional chain stoppers or pawls.

C′, C′ and D, D are spur wheels of different sizes, firmly secured to the ends of the barrels and forming one piece with the latter. E, E is a horizontal shaft, placed either above, as shown in the drawings, or on the side of the windlass and arranged to turn freely in its bearings, when motion is imparted to it either by cranks attached directly to the squared ends of the shaft, or by levers and bars or by a combined bevel gearing as indicated in the drawings; the latter being proposed and arranged for heavy ships and for the purpose of working the windlass overhead and above deck, if occasion may require it. Upon the shaft E are placed the spur wheels F, F and the pinions G, G, all of them running loosely on the former and independently of each other. The spur wheels F, F are of the same diameter as the wheels D, D at the ends of the barrels A, A′ and they are placed in such a way upon the shaft E, as to gear with the wheels D, D while the pinions G, G upon E are located to gear into the larger wheels C, C of the chain barrels. H, H are sleeves forming small barrels themselves, when light work is to be performed, they are constructed to slide laterally upon shaft E and in the same time are made to revolve constantly with it by the agency of a stationary key or feather inserted within. Their ends terminate in carriers or clutches and the hubs of the wheels F, F and pinions G, G being provided with the same device, are made to match when alternatively brought in contact with one or the other. Thus, by shifting the sleeve H, for instance, toward the pinion G as represented on the left hand side of the windlass in Fig. 1 of the annexed drawing, the pinion is temporarily made one part with shaft E by being in contact with H, and gearing into the large wheel C will carry the barrel A, when motion is put to shaft E, at a rate of speed and with a power, in proportion to the differences of the wheel C and the pinion G, while wheel F upon E gearing into the smaller wheel D of the chain barrel may revolve freely upon its axis, not being at the time in contact with H. Now, by shifting the sleeve in opposite direction, that is toward wheel F, pinion G is set free and F is made to carry the barrel and that, again, at a rate of speed and power proportionate to the diameters of the wheels D, D and F, F. These wheels, as already described, being of the same diameters, the power put to the shaft E will in this case cause the same effect as if applied to the barrel A of the windlass itself, and *in* reverse, by bringing the pinion G into gear, as explained, the effect upon the barrel can be multiplied to three times the value of the motive power or more or less with the same shaft E and in the same direction of motion. While op-

eration is thus going on one side of the windlass and barrel A is acted upon, the right hand part of the windlass or barrel A′ with all its gearing may remain stationary by simply keeping the sleeve and clutches out of gear, as indicated on the right hand side in Fig. 1, showing the clutch lever I′ in a vertical position and consequently the wheels F and G′ out of contact with H.

It will be perceived that by the arrangement and construction of the body of the windlass and the rigging of the shaft E, as described, my improved ship's windlass is rendered suitable to the fullest extent, to accomplish all the legitimate objects a windlass is designed for, viz. the raising and lowering anchors, one or both of them at a time, at different velocities and with the exertion of more or less power or the action of one part may be suspended entirely while the other side is in operation, reducing thus the considerable friction and resistance inherent to the working of heavy machinery to one half of the present amount in ordinary windlasses where the entire machinery has to be operated when but one part of the windlass is actually engaged. Fig. 3 shows part of the spur wheels C′, C′, and exhibits the annular recess or grooves S, S provided on the sides of C, C for the attachment of the pawling apparatus K, K as represented sectionally in the same figure. My arrangement for pawling acts upon the principle of an eccentric when inclosed in a box or frame and made to bear or press against the surface of the spur wheel C′ moving in one direction and to disengage or roll off when the wheel is turning the other way acting thus as a pawl in raising or hauling loads. Further, by a combination of levers as hereinafter shown the action of my pawl can be regulated or suspended or increased instantaneously. It therefore, when combined as described serves as a friction brake for lowering.

K, K in Fig. 3, is a box made of two halves and forms a segment with the wheel C and it takes hold of the latter by the projections entering the recesses S, S on its two sides, so wheel C is allowed to pass in either direction and to turn around when the pawl is disengaged.

M is a flat piece of iron placed within K, K and reaching over the surface of two, three or more teeth of the spur wheel; laterally it is kept in its place by the sides of the box K, and the lever N, having its fulcrum behind, but also within the box is located so as to bear with the shorter arm against the top of the piece M and consequently against the wheel itself when either the rod T is operated or the foot levers, L, L are worked in case of lowering for the purpose of producing friction and to act as a brake upon the wheel C. The combination of M and lever N performs the duty of a pawl inasmuch as they act as an eccentric, as already shown, bearing the harder against the wheel C the more powerful the tendency is of the barrel A or A′ to revolve in a certain direction, as it is the case in raising heavy loads.

L, L in Fig. 2, are combined levers for disengaging the action of the lever N upon M and for the purpose already set forth. A rod T may be attached to the longer arm of lever N if occasion should require to work the windlass in the present manner by a grip and hand lever above deck.

In operating my windlass the chain P in Fig. 4, may either be worked around the barrel in the usual way or it may be arranged to pas over around barrel O geared with the main drum A and located so as to deliver the chain at once into the hawser hole Q shown in Fig. 4.

Fig. 5, exhibits the shape of the main and extra chain barrel or chain wheel if combined as represented in Fig. 4.

Having thus fully described the nature and operation of my invention I wish it to be understood that I make no claim to the application of wheels or gearing of any description to "ship's windlass" for the purpose of occassionally increasing their power, as such has been done before and in particular has been described by Hendmarsh and others, nor do I make any claim to the stationary or revolving shafts or spindle or spindles of the chain barrels A, A′ nor do I claim any of the parts constituting my windlass when detached or separated but

What I claim as new in ship's windlasses and what I desire to secure by Letters Patent is—

The arrangement of the shaft E with its gearing wheels F and G and the clutch coupling H in relation to the drums of the windlass and their gearing as herein set forth; whereby the one or both drums may be moved with a quick or with a slow motion; or the one drum may be moved with the quick and the other with the slow motion at the same time.

JOHN B. HOLMES.

Witnesses:
W. K. WINANT,
CHAS. EHMAN.