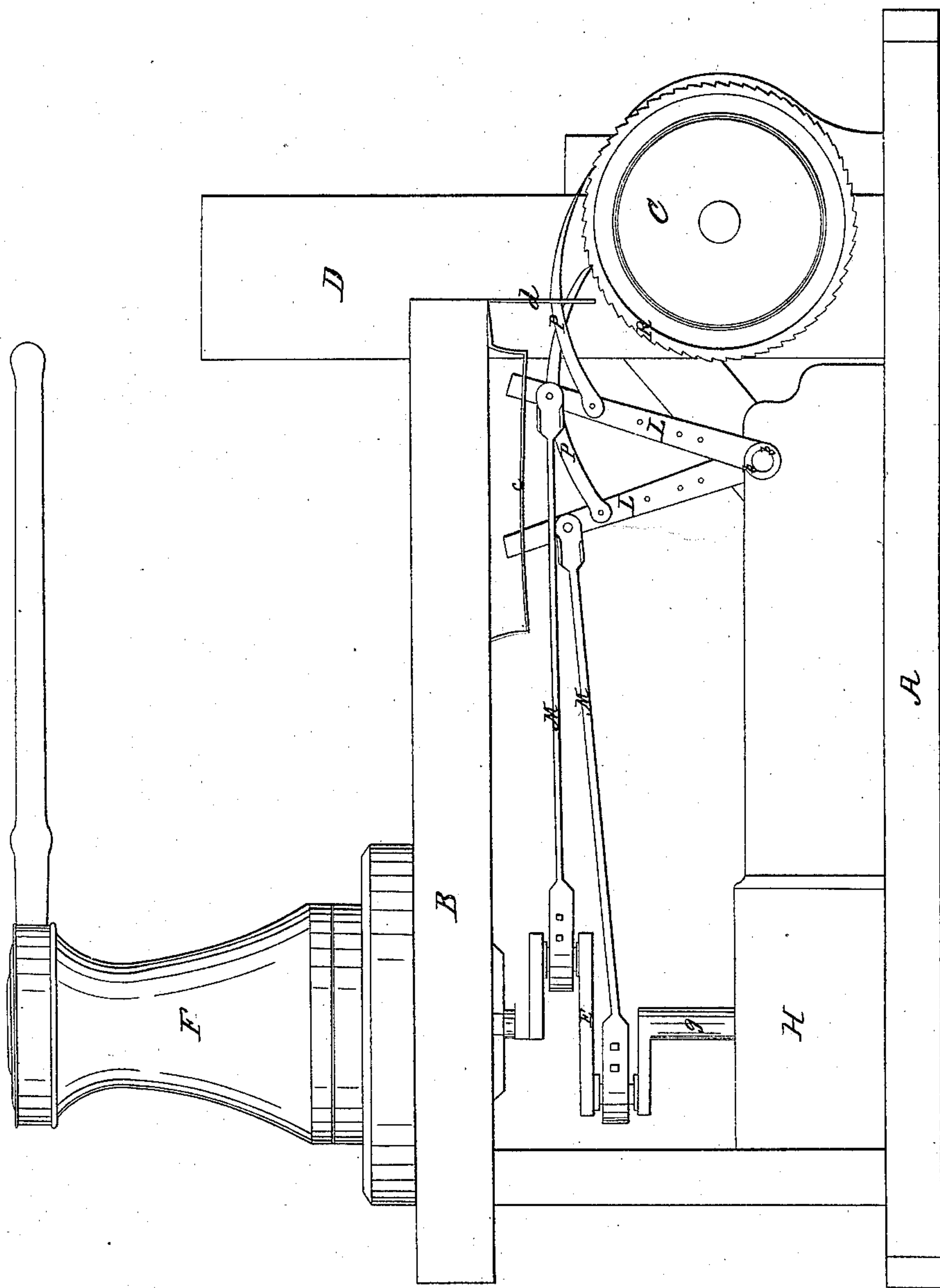


*N. Smith,*

*Windlass.*

*N<sup>o</sup> 16,885.*

*Patented Mar. 24, 1857.*



# UNITED STATES PATENT OFFICE.

NORMAN SMITH, OF STONINGTON, CONNECTICUT.

## IMPROVEMENT IN OPERATING SHIPS' WINDLASSES.

Specification forming part of Letters Patent No. 16,885, dated March 24, 1857.

*To all whom it may concern:*

Be it known that I, NORMAN SMITH, of Stonington, New London county, and State of Connecticut, have invented a new and useful Improvement in a Windlass-Purchase for Raising Anchors on Shipboard; and I do hereby declare that the following is a clear and exact description of the construction and operation of the said windlass-purchase as invented by me, reference being had to the accompanying drawing, making part of this specification.

My improvement consists in applying pawls to work in a ratchet on the windlass, these pawls being connected to levers which are moved by cranks connected to the axis of the capstan from below or from the step or journal on which it revolves.

A, in the figure, represents the upper deck; B, the top-gallant forecastle; C, the windlass, such as is commonly used; D, one of the windlass-bits.

E is a double-acting crank connected to the extremity of the axis of the capstan F. This crank has a steadying-journal, *g*, corresponding with the axis of the capstan, acting in a box or step in the supporting-timber H. This crank is connected to the axis of the capstan, which is made square at the end to fit in a corresponding eye in the central axis of the crank, and this is secured in its place on this axis of the capstan by a pin or bolt, *a*, in such manner that by removing this pin the crank may be disengaged therefrom by dropping downward the journal *g*, pressing down into the step.

L L are two levers connected by a bolt, *b*, as a fulcrum, to the supporting-beam H. On these levers are attached the pawls P P, which act in the ratchets R R. These ratchets being on the same axis, one only can be shown in this drawing. These levers L are connected with the crank by the arms or sweeps M M, and by turning the capstan in the usual manner in either direction the levers and pawls are operated and the windlass is moved in the direction of the arrows, the two pawls acting alternately thereon, and the cable passing once or twice round the windlass may be drawn in and received by the attendant on the upper deck, while the power of operating the windlass is exerted at the capstan on the top-gallant forecastle.

The pawls may be connected to the levers nearer the fulcrum *b*, if preferred, by which a slower motion would be communicated to the windlass; but it would act with greater force.

*c* is a metallic plate with slots to receive and guide the ends of the levers, so that they may reciprocate in planes perpendicular to the axis of the windlass.

*d* is a guide for the pawls.

The position of these levers may be reversed by placing the fulcrum above; or the fulcrum may be in the center, while the crank is attached at one end and the pawls at the other; or an eccentric or cam may be used instead of the crank to give motion to the levers. The levers may also be placed in a horizontal position, if preferred, by applying corresponding connections thereto from the crank and pawls. The crank instead of being twofold or double may be three or four fold with a corresponding number of levers and pawls, in which case the action of the windlass would be more nearly uniform than with a single or even a twofold crank.

This windlass may also be fitted with the usual appliances to act by handspikes or levers, and when the crank is disengaged from the capstan it may be operated by hand-purchase, and the capstan may be used separately for the several purposes to which it is adapted.

Some of the advantages resulting from this mode of operating the windlass by this purchase are that the operators can exert greater force in walking around with the capstan than with handspikes in the windlass, especially since the use of the handspikes requires great dexterity, when several are at work thereat, in order to enter them in the sockets in season and withdraw them in proper time, and in this mode of operating by the crank or eccentric purchase and ratchet the power may be so adapted by varying the eccentricity or by varying the lever-purchase as to overcome great resistance, and this purchase may be varied to suit the condition of the disposable force to be detailed for that service.

I am aware that the windlass for raising anchors has been operated by gearing with proper connections from a capstan; but several objections may be urged against that method which do not exist in this case. First, the purchase and power in that case are always



the same, not susceptible of change, as in this case, by changing the positions of the pawls on the levers, and the capstan must necessarily stand vertically over the center of the windlass unless an extra shaft for connection and an extra set of gears are used; and, moreover, there is greater expenditure of power in operating by gearing than by the ratchet, as here applied.

I do not claim the use of a ratchet to operate a windlass; but

What I claim as my invention, and for which I solicit Letters Patent, is—

Operating the windlass for raising anchors and for other purposes on shipboard by means of a crank or eccentric on the axis of a capstan, F, or other upright shaft through the medium of pawls P, attached to levers L and working in ratchets R on the windlass-beam, substantially as described.

NORMAN SMITH.

Witnesses:

N. SCHOLFIELD,  
ASHBEL WOODWARD.