N. Robbins, Jr.,

Windlass.

No. 66,634. Patented July 9, 1867.

Fig: 2.

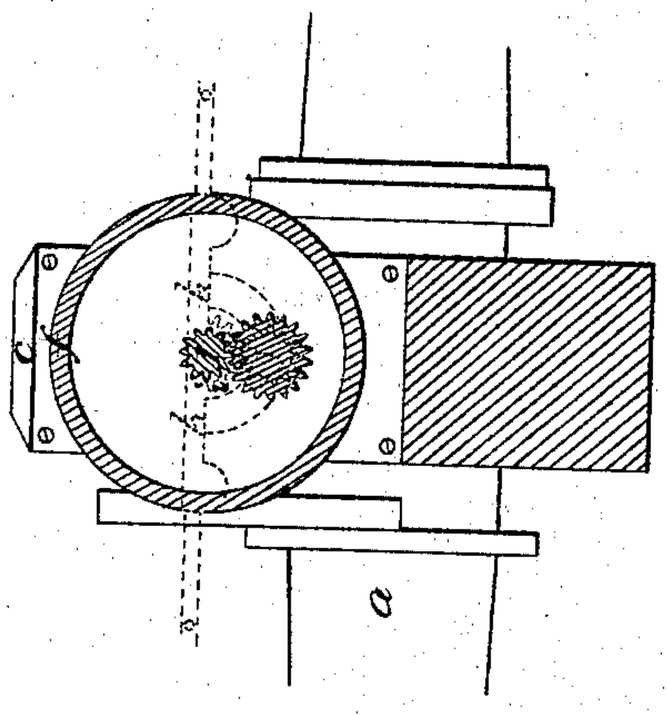


Fig: 5.

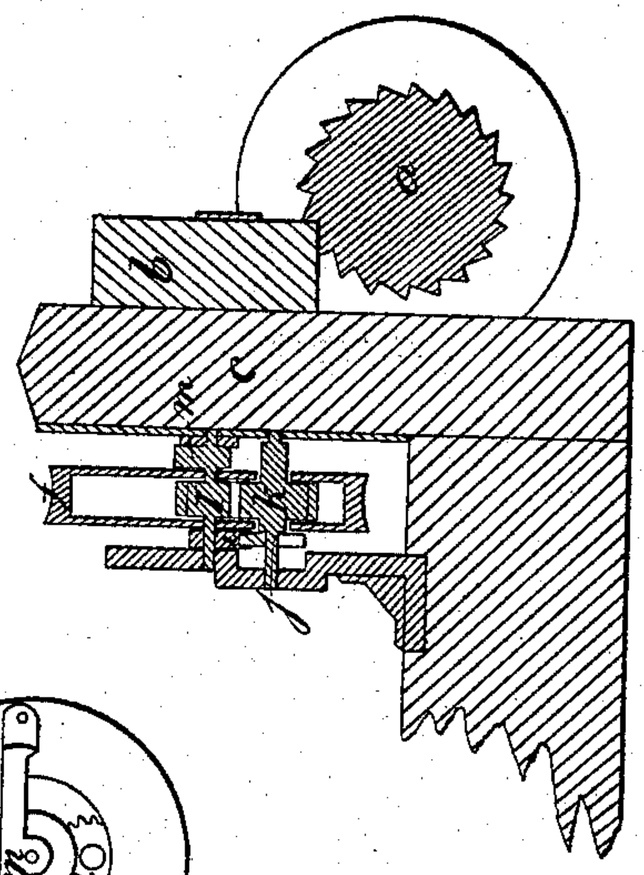


Fig: 4.

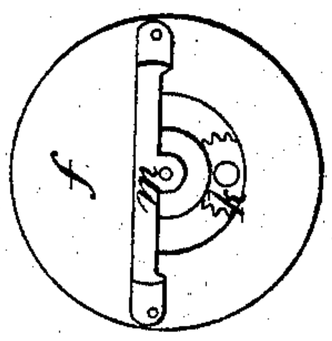


Fig: 1.

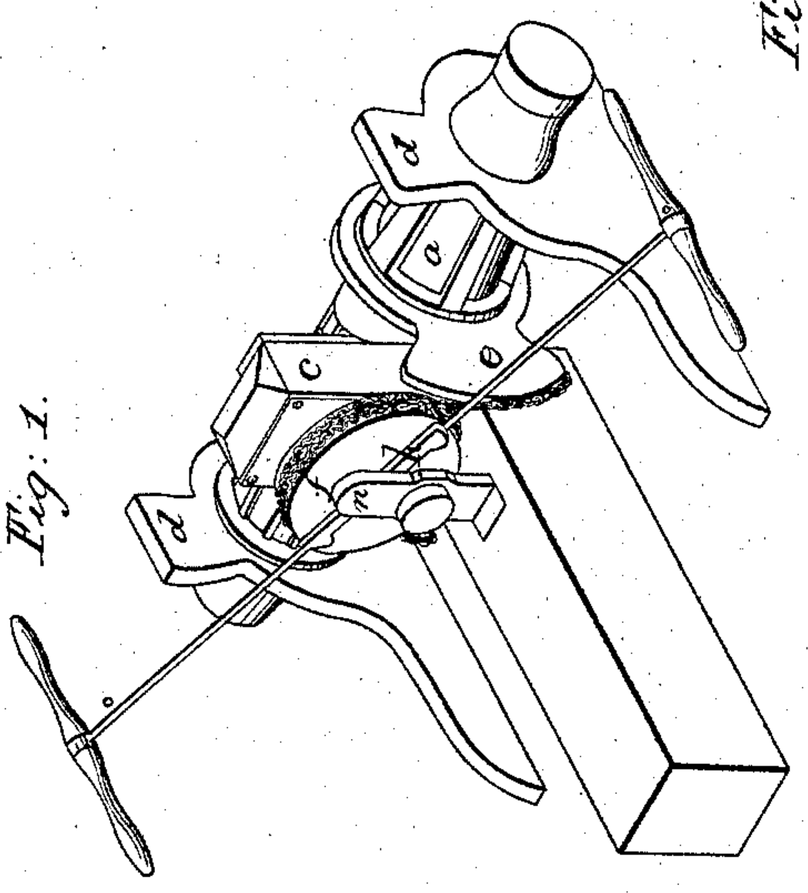
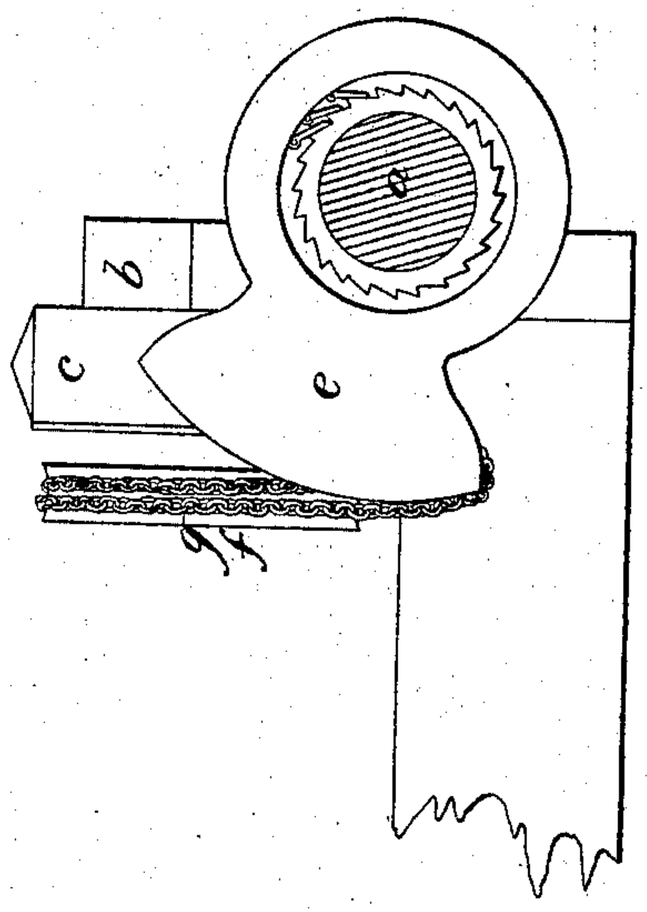


Fig: 3.



Witnesses:
J. Herbert Shedd
Wm. M. R. French

Inventor;
Nath'l. Robbins, Jr

United States Patent Office.

NATHANIEL ROBBINS, JR., OF ROCKPORT, MASSACHUSETTS.

Letters Patent No. 66,634, *dated July* 9, 1867.

IMPROVED WINDLASS.

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, NATHANIEL ROBBINS, Jr., of Rockport, in the county of Essex, in the State of Massachusetts, have invented a new and improved Windlass; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, and to the letters of reference marked thereon.

The nature of my invention consists in using certain sectors and gear-wheels in combination with a windlass, whereby, at times, an increased power with slow motion may be gained, and at other times, with the same apparatus, at pleasure, an increased speed with less power may be obtained.

In the accompanying drawings the application of my invention to a ship's windlass is represented.

Figure 1 is a perspective view.

Figure 2 is a section through the drum.

Figure 3 is a section through one cam.

Figure 4 is a rear view of the drum which contains the gear-wheels for increasing the speed, and to which the arms moving or moved by the gear-wheels may be fastened; its edge is a concave surface for holding the chain by which the sectors are driven.

Figure 5 is a cross-section through the windlass and the working-gear.

Similar letters refer to similar parts.

a is an ordinary windlass; *b* is an ordinary pawl; *c* is the pawl-bit; *d d* are the windlass-bits; *e e* are sectors, used with the ordinary ratchet and palls, for driving the windlass; *f*, a drum, containing gear-wheels, carrying the chain and, at pleasure, attached to the arm in which the brakes are used, or to the arm on the opposite side of the drum; *g*, a chain attached to the drum, and having one end attached to one sector while the other end is attached to the other sector; *h*, an arm playing on the axis of the drum *f*, though independent of it, and driven by the ordinary windlass-brakes; *i* is a portion of a gear-wheel attached to the arm *h* and moving with it. *j* is a gear-wheel playing into the gear *i*. It is free to slide laterally on its axis, so as to be unshipped; *k* is a gear-wheel fixed on its axis, which also forms the axis of the gear-wheel *j*. *l* is a gear-wheel playing into the gear-wheel *k*. It is fixed on its axis, and through it to the arm *m* outside of the drum *f*. The shaft which forms the axis of this gear is also the axis of the arm *h*, which plays freely over it, and the axis of the drum *f*, which plays freely over it. *m* is an arm moving with the gear-wheel *l*, which can, at pleasure, be attached to and moved with the drum *f*. *n* is a standard for the support of one side of the working-gear, the other side being supported by the pawl-bit; *o o*, brakes, of the ordinary kind, for heaving a windlass.

By the use of the sectors *e e*, the chain which carries the driving power is kept at a uniform distance from the axis of the windlass, thus maintaining a uniformity of motion and the greatest power. The drum *f* serves a similar purpose, with a similar result, in keeping the chain at a uniform distance from the axis over which the brakes play. The gear *i*, attached to the arm *h*, has a greater radius than the gear-wheel *j* into which it plays, thus causing a more rapid motion of the axis of *j* than is given to the axis of the gear *i*. The gear-wheel *k* has a greater radius than *j*, and moving with the same axis, its circumference moves more rapidly, which in turn playing into the gear-wheel *l* of less radius, gives still greater velocity to the axis of *l*, and through it to the arm *m*. By this multiplication of motion the arm *m* is made to move much faster than the arm *h*, and as I can at pleasure attach the drum *f* to the arm *h* for slow motion, or to the arm *m* for rapid motion, I am enabled to haul in an anchor much more rapidly, after it has broken loose from its bed, and requires less power to move it than is possible in any other arrangement with which I am acquainted. I can accomplish this object with two wheels instead of four, and I do not wish to be confined to any particular number of gear-wheels.

In practise the slots represented in the drum *f* are covered, so as to prevent the entrance of water or snow into the drum. To attach the arm *h* and the arm *m* to the drum *f*, I use any convenient device suitable for the purpose.

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

1. The combination of the drum *f* with the sectors *e e*, the whole arranged with pawls and brakes, in connection with a windlass, substantially as described.

2. The use of the gear-wheels *i*, *j*, *k*, and *l*, in combination with the arms *h* and *m* and the drum *f*, substantially as and for the purposes set forth.

NATH'L ROBBINS, JR.

Witnesses:

HENRY F. FRENCH,

OTIS F. CLAPP.