J Emerson,

Ship Windlass,

No 12,718, Patented Apr. 17, 1855.

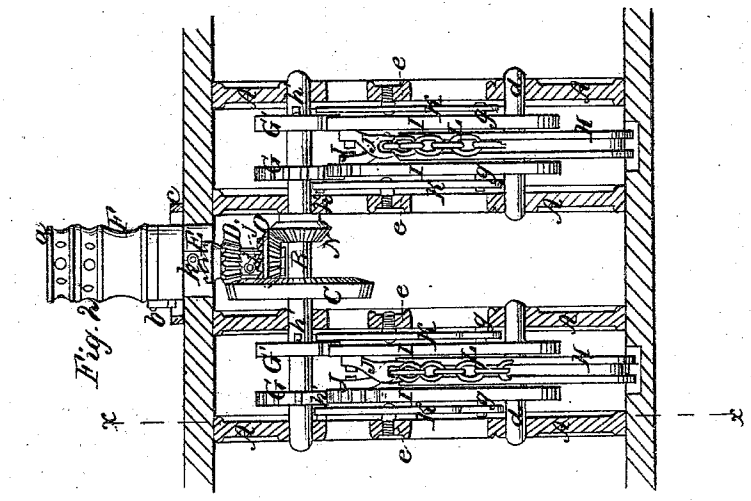


Fig. 2

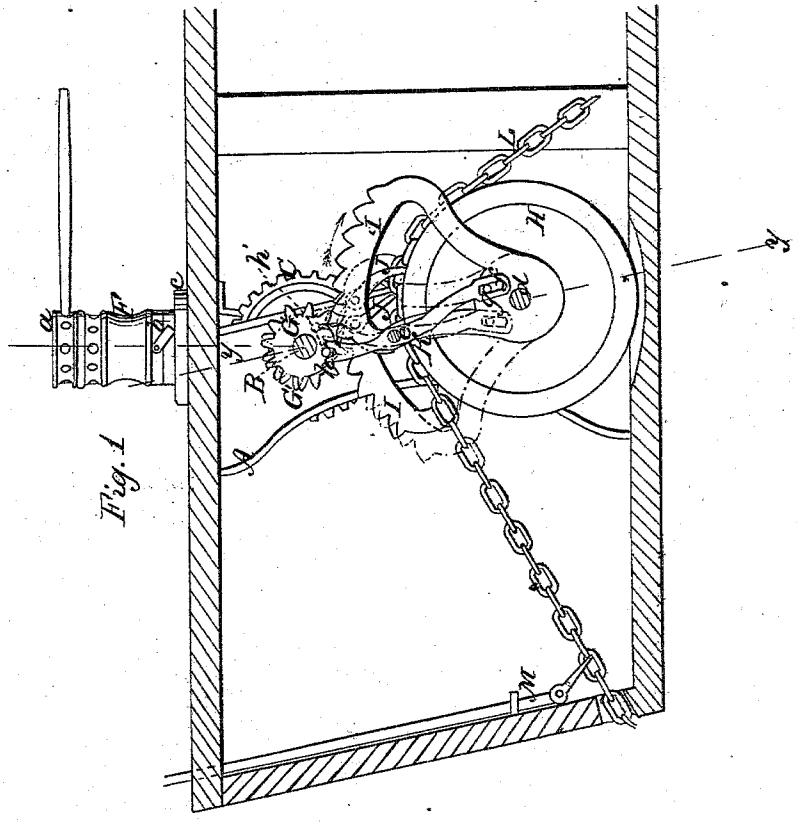


Fig. 1

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C

UNITED STATES PATENT OFFICE.

JAMES EMERSON, OF WORCESTER, MASSACHUSETTS.

SHIP'S WINDLASS.

Specification forming part of Letters Patent No. 12,718, dated April 17, 1855; Reissued July 31, 1860, No. 1,020.

To all whom it may concern:

Be it known that I, JAMES EMERSON, of Worcester, in the county of Worcester and State of Massachusetts, have invented a new and Improped Ship's Windlass; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a longitudinal section of my improved windlass, (*x*) (*x*) Fig. 2 showing the plane of section. Fig. 2, is a transverse section of ditto (*y*) (*y*) Fig. 1, showing the plane of section.

Similar letters of reference indicate corresponding parts in the two figures.

The nature of my invention consists in the employment or use of geared sectors with pawls attached, half or part pinions, levers, and pulleys, arranged, combined and operated as will be hereafter fully shown and described.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A represents a framing constructed in any proper manner, to support the working parts.

B, represents a transverse shaft which extends entirely across the framing, the ends of said shaft working in suitable bearings in the sides of the framing.

On the shaft B at about its center is hung a bevel toothed wheel C, in which a bevel pinion D gears, said pinion D being hung on a vertical shaft E, having a head F, on its upper end provided with a cap (*a*) with holes for the insertion of levers. The lower part of the head F, has a pawl (*b*) attached to it, the lower end of which works over an annular rack, (*c*) as usual.

On the outer ends of the shaft B, there are hung part pinions G, G′, two at each end of the shaft a suitable distance or space being allowed between them. The part pinions exceed half pinions, each having a few teeth over, and they are placed reversed upon the shaft B, the smooth portion of one being opposite the toothed portion of the adjoining one. H, H, are pulleys, the axes (*d*) (*d*) of which work in suitable bearings in the frame A, and I, I, are geared sectors, the lower ends of which are fitted loosely on the axes (*d*) (*d*) one sector at each side of the pulleys H, H, as shown in Fig. 2. Each sector I is provided with a pawl J, the pawl of one sector being at the end opposite to the end to which the pawl of the adjoining sector is attached as shown clearly in Fig. 1.

At the outer side of each sector I, there is a lever K. These levers work on pivots (*e*), attached to the framing A. The lower ends of the levers are provided with slots (*f*) and pins (*g*) attached to the lower ends of the sectors fit in the slots (*f*) as shown clearly in Fig. 1. The upper ends of the levers K are forked as shown at (*h*) see more particularly, Fig. 1, and (*h′*) are pins attached to the outer sides of the part pinions G, G′.

L, L, represent the chains of the anchors, which pass over the top of the pulleys H, H, one chain over each pulley.

M, M, Fig. 1, are chain stoppers which work or are placed over the hawse holes (*i*), (*i*).

N is a small bevel wheel on the shaft B. This wheel N, gears into a corresponding sized wheel O, on the lower part of the shaft E. The wheel O, is placed loosely on the shaft E, and its upper edge is toothed or notched and a pawl (*j*) attached to the shaft E catches into the notches when the shaft E is turned from left to right.

The bevel wheel D, is also placed loosely on the shaft E and moves or turns with said shaft from right to left in consequence of a pawl (*k*) catching into the notched edge of the wheel E, see Fig. 2.

The operation will be readily understood, by turning the shaft E, from right to left, by means of levers placed in the caps (*a*). The shaft B will be rotated in consequence of the wheel D, gearing into the wheel C, and the part pinions G, G′, will alternately gear into the sectors I, I, and one sector will be moved backward or in the direction indicated by the arrow, see Fig. 1, and then the other, and the pawls J, of the sectors catch against the chains L, and of course move them over the pulleys H. The movement of the chains is continuous, because the part pinions are rather more than half pinions, and one catches its sector before the other pinion leaves its sector. When the pinions leave the sectors, they, the sectors, are thrown forward so as to be

ready to be caught by the part pinions, by means of the levers K, the upper ends of which are operated by the pins (h') catching into the forks (h), and the lower ends of the levers are thrown forward and also the sectors in consequence of the pins (g) fitting in the slots (f).

The above windlass has two pulleys H, H, operated precisely alike so that two chains or cables may be drawn up. The small gear wheels N, O, by reversing the motion of the shaft E, increases the speed of the parts, and this gearing is used when great power is not required. The chain stoppers M, M, are used for stopping the chains or cables and holding them while throwing up the pawls J, in order to drop the anchors.

The windlass does not monopolize much room. One or two chains may be operated by it, and it holds on muddy or icy chains as well as if they were dry and clean.

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

The combination of the geared sectors I, I, with pawls J, attached, the part pinions G, G′, levers K, and pulleys H. The above parts being constructed and arranged substantially as herein shown and for the purpose as set forth.

JAMES EMERSON.

Witnesses:
JAMES H. BANCROFT,
JESSE W. GOODRICH.

[FIRST PRINTED 1913.]