(No Model.)

S. T. RICHARDSON.

WINDLASS.

No. 311,374. Patented Jan. 27, 1885.

Fig. 1.

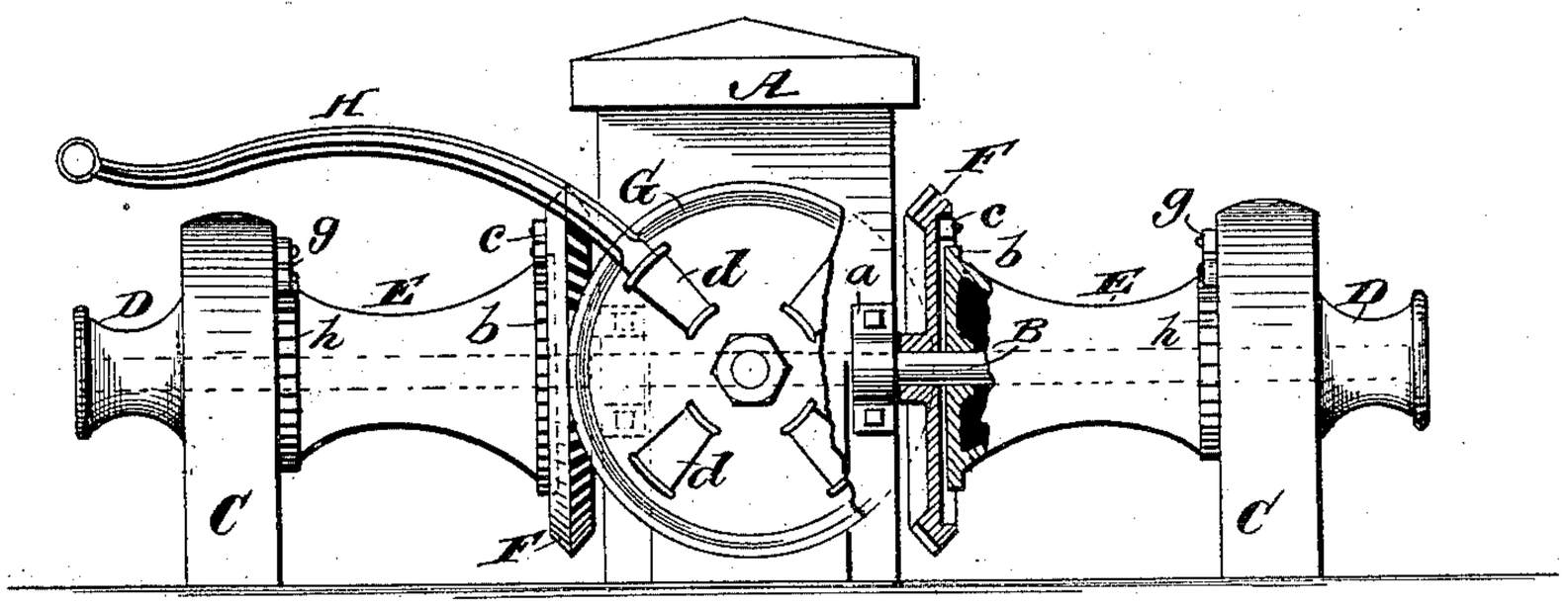


Fig. 2.

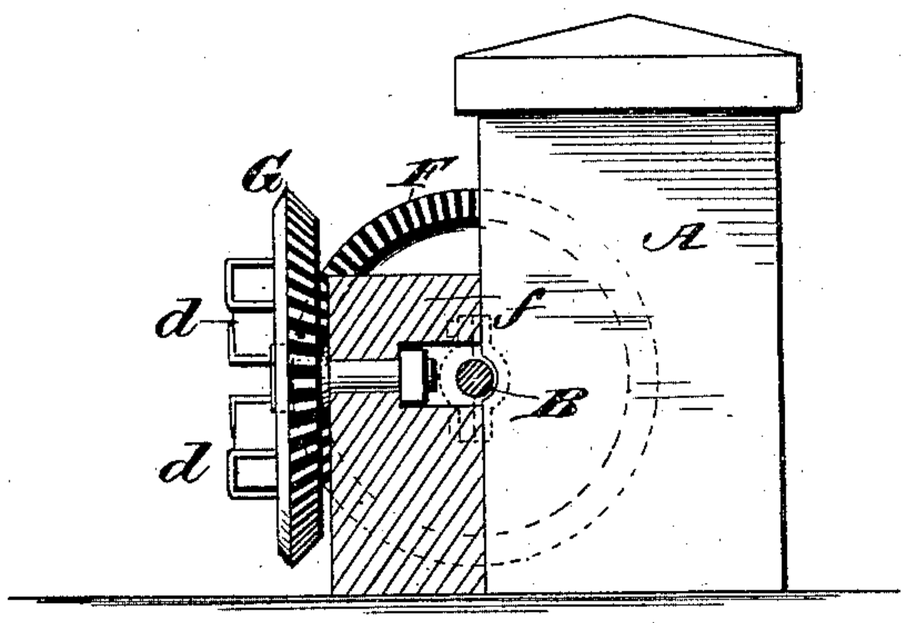
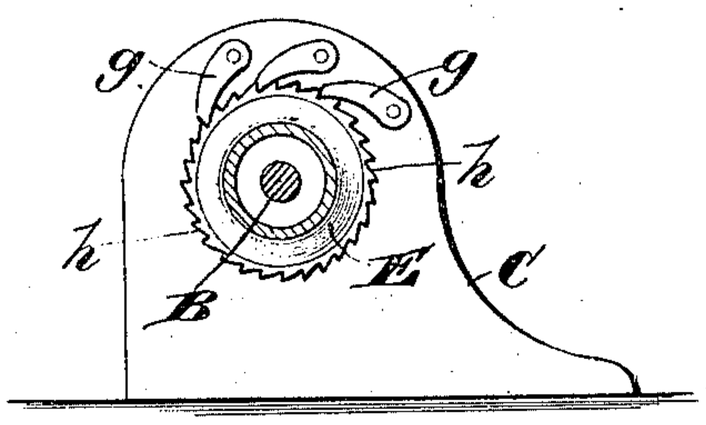


Fig. 3



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UNITED STATES PATENT OFFICE.

SAMUEL T. RICHARDSON, OF BALTIMORE, MARYLAND, ASSIGNOR TO THE RICHARDSON MANUFACTURING COMPANY, OF SAME PLACE.

WINDLASS.

SPECIFICATION forming part of Letters Patent No. 311,374, dated January 27, 1885.

Application filed June 24, 1884. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL T. RICHARDSON, a citizen of the United States, residing at Baltimore, Maryland, have invented certain new and useful Improvements in Windlasses, of which the following is a specification.

This invention relates to certain peculiarities in the construction of lever-power windlasses for various purposes on shipboard and in other places, the object being to afford ample support for the windlass-shaft and barrels of large windlasses and provide for relieving the windlass and its gearing from the injurious effects of back-strain.

My invention consists in the combination, with a windlass-shaft rotating in bearings at its center and each end and carrying a pair of windlass-barrels provided at each end with ratchet-teeth, of mechanism for converting an oscillatory movement into a continuous rotation of the windlass barrels and shaft, and a series of pawls pivoted to the outer standards or end bearings, and adapted to engage with the outer ratcheted ends of the barrels, so as to take up the back-strain, as hereinafter more fully set forth.

In the accompanying drawings illustrating the invention, Figure 1 is a front elevation of my improved windlass; Fig. 2, a sectional side elevation of the main supporting post or standard with windlass-shaft and bevel-gears. Fig. 3 is a side view of one of the auxiliary standards, with pawls pivoted thereto, the shaft and ratcheted barrel being shown in section.

To the front of the center post or main standard, A, are secured bearings *a a* for the windlass-shaft or rotary axis B. This shaft is also supported near each end in an auxiliary standard or bearing, C, through which the end of the shaft passes, as shown by dotted lines in Fig. 1, a thimble, D, being secured to each end of the shaft beyond the standards C C, for the purpose of preventing end movement, and at the same time to afford a convenient point for the attachment of a rope or line. The cables are wound upon a pair of windlass-barrels, E E, that are firmly keyed or otherwise secured to the shaft B on the inner sides of the standards C C. These windlass-barrels are provided at their inner ends with ratchet-teeth *b b*, for the engagement of pawls *c c*, that are pivoted to the outer faces of a pair of bevel-gears, F F, that are loosely mounted on the shaft B at each side of the main standard A and between it and the windlass-barrels. The loose bevel-gears F F are oscillated in opposite directions by an intermediate bevel-gear, G, that is provided with sockets *d d* for the insertion of detachable hand-levers H H. The pivoted pawls *c c* on the bevel-gears F F engage with the ratchet-teeth *b b* by gravity, and as these pawls all point or work in the same direction, it will be seen that the oscillatory movements of the gears F F in opposite directions will cause their respective pawls to engage alternately with the ratcheted windlass-barrels, thereby communicating thereto a continuous rotary movement. The intermediate bevel-gear, G, is journaled in a plane at right angles to the bevel-gears F F upon a pin or stud, *e*, Fig. 2, that is supported in an abutment, *f*, immediately in front of the main or central standard.

In order to release the windlass-barrels and connected gearing from the damaging effects of sudden back-strain on the cables, a series of pawls, *g g*, are pivoted to the inner side of each standard C in position to engage by gravity with ratchet-teeth *h* on the outer ends of the windlass-barrels, as shown in Figs. 1 and 3. These pawls are not intended to have any action in rotating the windlass-barrels, as they lie against the ratchet-teeth *h* in such position that said ratchet-teeth are normally propelled away from them by the forward rotation of the windlass; but when the movements of the windlass are suddenly checked, or when it is subjected to a sudden back-strain, the positive engagement of the pawls *g g* and ratchet-teeth *h*, which then comes into play by the tendency of the windlass to reverse its motion, results in a more uniform distribution of the strain and relieves the bevel-gearing, on which the jar would otherwise have been mostly expended.

Having thus described my invention, what I claim is—

1. In a windlass, the combination of a rotary shaft journaled in bearings on a main standard and supported in an additional bearing or standard at or near each end, a pair of windlass-barrels rigidly secured to said shaft and

provided with ratchet-teeth at each end, a pair of bevel-gears loosely mounted on the shaft at the inner ends of the barrel, and having pawls for engaging the ratchet-teeth thereon, an intermediate bevel-gear, and a series of pawls pivoted to the inner side of the outer standards in position to engage with the ratchet-teeth on the outer ends of the barrels under back-strain thereon, substantially as described.

2. In a windlass, the combination of the main standard A, having abutment *f*, the outer standards, C C, provided with pawls *g g*, the shaft B, windlass-barrels E E, having ratchet-teeth *b h*, loose bevel-gears F F, having pawls *c c*, and the intermediate bevel-gear, G, having detachable hand-levers H H, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

SAMUEL T. RICHARDSON.

Witnesses:

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JOS. L. COOMBS.