(No Model.)

2 Sheets—Sheet 1.

B. G. LUTHER.

CAPSTAN WINDLASS.

No. 309,477. Patented Dec. 16, 1884.

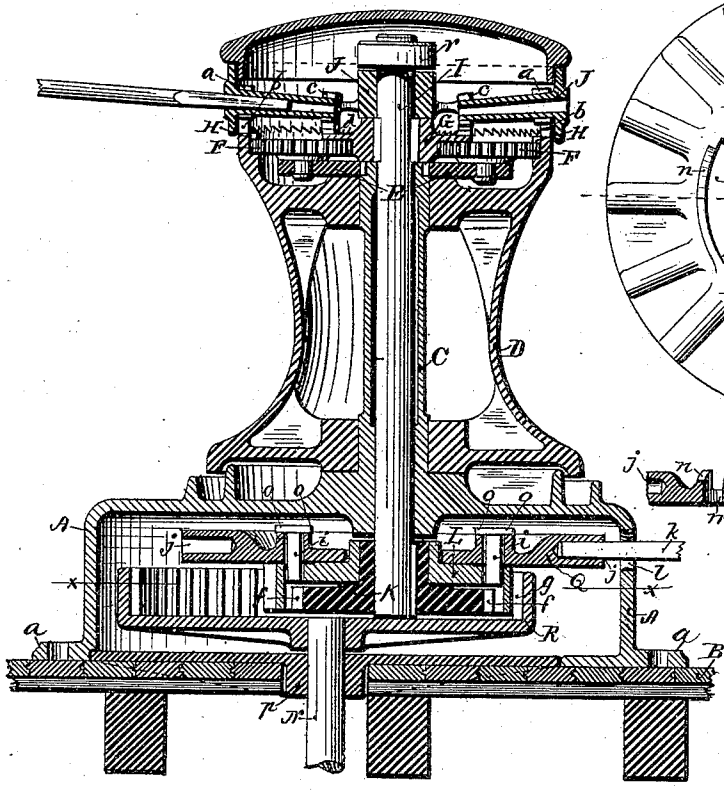


FIG. 1.

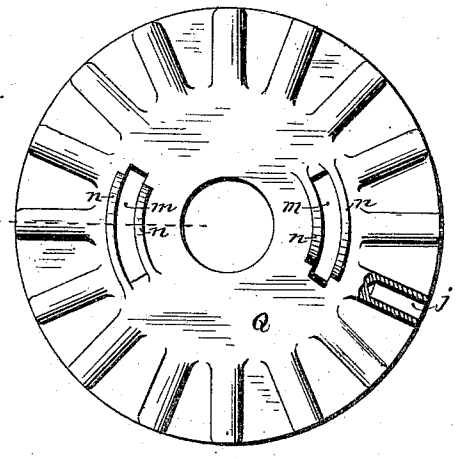


FIG. 3.

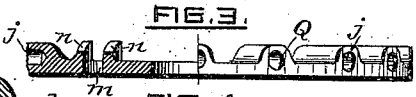


FIG. 4.

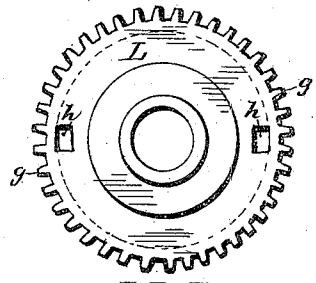


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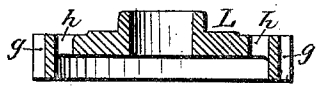


FIG. 6.

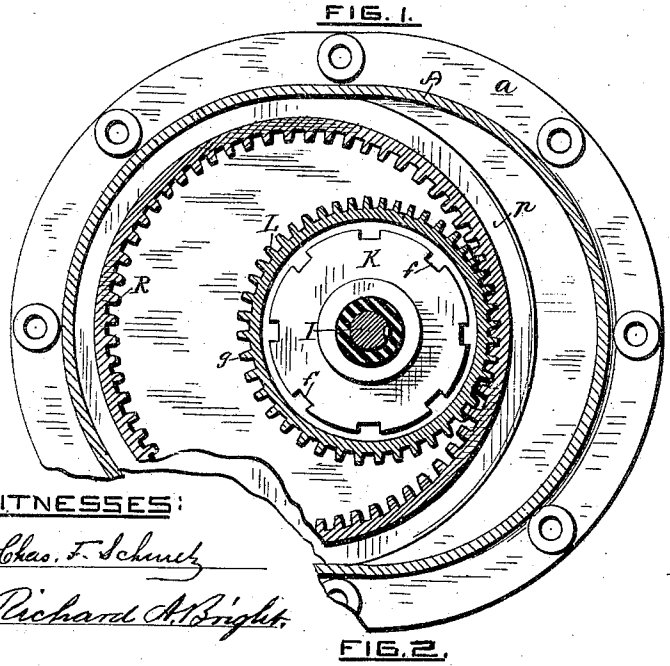


FIG. 2.

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(No Model.) 2 Sheets—Sheet 2.

B. G. LUTHER.

CAPSTAN WINDLASS.

No. 309,477. Patented Dec. 16, 1884.

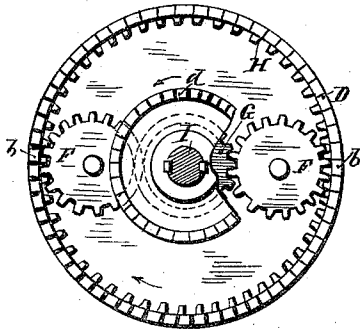


FIG. 7.

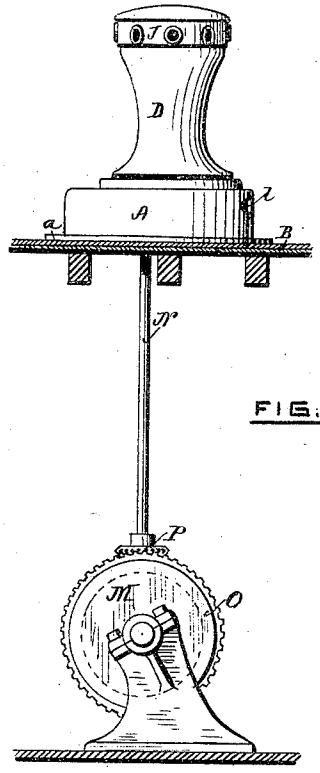


FIG. 10.

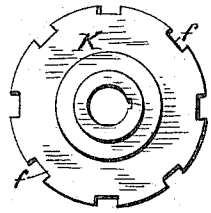


FIG. 8.

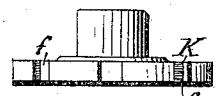


FIG. 9.

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UNITED STATES PATENT OFFICE.

BENJAMIN G. LUTHER, OF MANSFIELD, MASSACHUSETTS.

CAPSTAN-WINDLASS.

SPECIFICATION forming part of Letters Patent No. 309,477, dated December 16, 1884.

Application filed October 6, 1884. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN G. LUTHER, of Mansfield, in the county of Bristol and State of Massachusetts, have invented an Improvement in Capstan-Windlasses, of which the following is a specification.

My invention consists in the improved driving-connection between the upright shaft of the capstan and the upright shaft of the windlass, as hereinafter fully set forth.

Figure 1 is a vertical section of the capstan of the windlass. Fig. 2 is a horizontal section taken in the line *x x* of Fig. 1. Figs. 3, 4, 5, 6, 8, and 9 are detail views. Fig. 7 is a plan of the upper end of the capstan with the cover removed. Fig. 10 is an elevation showing the relative positions of the capstan and windlass.

In the accompanying drawings, A is the hollow base secured to the deck B by means of the perforated flange *a*, and provided with the hollow upright spindle C, over which is placed the loosely-revolving barrel D.

Upon the extremities of a cross-bar, E, securely keyed to the spindle C, are placed the loose gears F F, which engage with the internal gear, H, at the upper end of the barrel D, and also with the gear G, which is securely keyed to the upright shaft I, which passes downward through the hollow of the spindle C.

Above the gear G, upon the shaft I, is placed the handspike-rim J, which is loose upon the shaft, and over the hub of the rim J is placed the collar *r*. The rim J is provided with one or more pivoted dogs, *a*, which are adapted to engage with the ratchet-teeth *b* at the upper end of the barrel D, and also with one or more pivoted dogs, *c*, adapted to engage with the reversely-directed ratchet-teeth *d* at the upper side of the gear G, so that when the rim J is turned in one direction the dogs *a* will cause the direct revolution of the barrel D in the same direction, and when turned in the opposite direction the dogs *c*, by engaging with the ratchet-teeth of the gear G, will cause a slower and more powerful continued movement of the barrel, and in each case a corresponding movement will be imparted to the shaft I.

To the lower end of the shaft I, within the hollow of the base A, is secured the disk K, provided at its periphery with the notches *f f*, preferably made in rectangular form, as shown in Figs. 8 and 9, and upon the upwardly-directed hub of the disk K is loosely placed the gear L, the teeth *g* of which are preferably made to extend downward and cover the edge of the notched disk, as shown in Fig. 1, the gear L being also provided with the opposite vertical perforations, *h h*, also preferably made in rectangular form, as shown in Fig. 5, and adapted to receive the vertically-moving dogs *i i*, which serve to lock the gear L firmly with the disk K whenever it is desired to operate the windlass M, by means of the intervening vertical shaft N and the bevel-gears O and P.

Loosely upon the hub of the gear L is placed the disk Q, (shown in detail in Figs. 3 and 4,) Fig. 3 being a plan view and Fig. 4 an edge view and partial section of the same. The periphery of the disk Q is provided with radial openings *j j*, adapted to receive the end of a removable lever, *k*, which is to be inserted into the openings *j*, through a slot-opening, *l*, made in the side of the hollow base A. The disk Q is also provided with the circularly-formed slot-openings *m m*, the opposite sides of which at the upper side of the disk are provided with the inclined cam-flanges *n n*, which are adapted to pass under the oppositely-projecting horns *o o* of the dogs *i i*, which are held in the slot-openings *m m*, and which, by the partial revolution of the disk Q may be either caused to drop into locking contact with the gear L and disk K or be raised therefrom, as desired.

Upon the upper end of the shaft N, within the hollow of the base A, is secured the internal gear, R, which engages with the teeth of the gear L, the shafts N and I upon which the gears are respectively placed being arranged slightly out of line with each other, in accordance with the relative diameters of the two gears. Whenever the dogs *i i* are raised by the proper partial revolution of the disk by means of the removable lever *k*, as shown in Fig. 1, the rotary movement of the capstan will not serve to impart a correspond-

ing movement to the windlass, the disk K moving with the shaft I in conformity with the movement of the barrel D, without imparting movement to the gears L and R and slotted cam-disk Q. The windlass M will, therefore not be affected by such movement of the capstan, but by moving the cam-disk Q in the proper direction to cause the fall of the dogs *i i* through the perforations *h h* of the gear into engagement with the notches *f f* of the disk K, the gear L will become firmly locked with the disk K, and will thereafter partake of the movement of the shaft I caused by the movement of the capstan, and such movement will be proportionately imparted to the shaft N and windlass M. The upper bearing, *p*, for the shaft N is preferably made in the form of a flat circular disk, provided with a downward hub passing through the deck B, as shown in Fig. 1.

My invention provides a mechanical connection between the shafts I and N, occupying less deck-space than heretofore.

I claim as my invention—

In a capstan-windlass, the combination of the upright capstan-shaft, the notched disk at the lower end of the shaft, the loose gear provided with perforations adapted to receive the vertically-moving dogs, the vertically-moving locking-dogs, means for raising and lowering the dogs, the upright driving-shaft of the windlass, and the internal gear secured to the upper end of the windlass-driving shaft, substantially as described.

BENJAMIN G. LUTHER.

Witnesses:
SOCRATES SCHOLFIELD,
CHARLES F. SCHMELZ.