(No Model.)

B. G. LUTHER.

CAPSTAN.

No. 306,411. Patented Oct. 14, 1884.

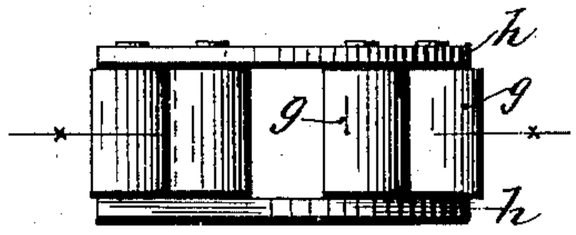

FIG. 2.

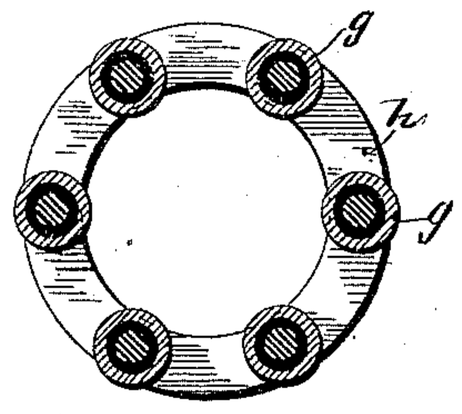

FIG. 3.

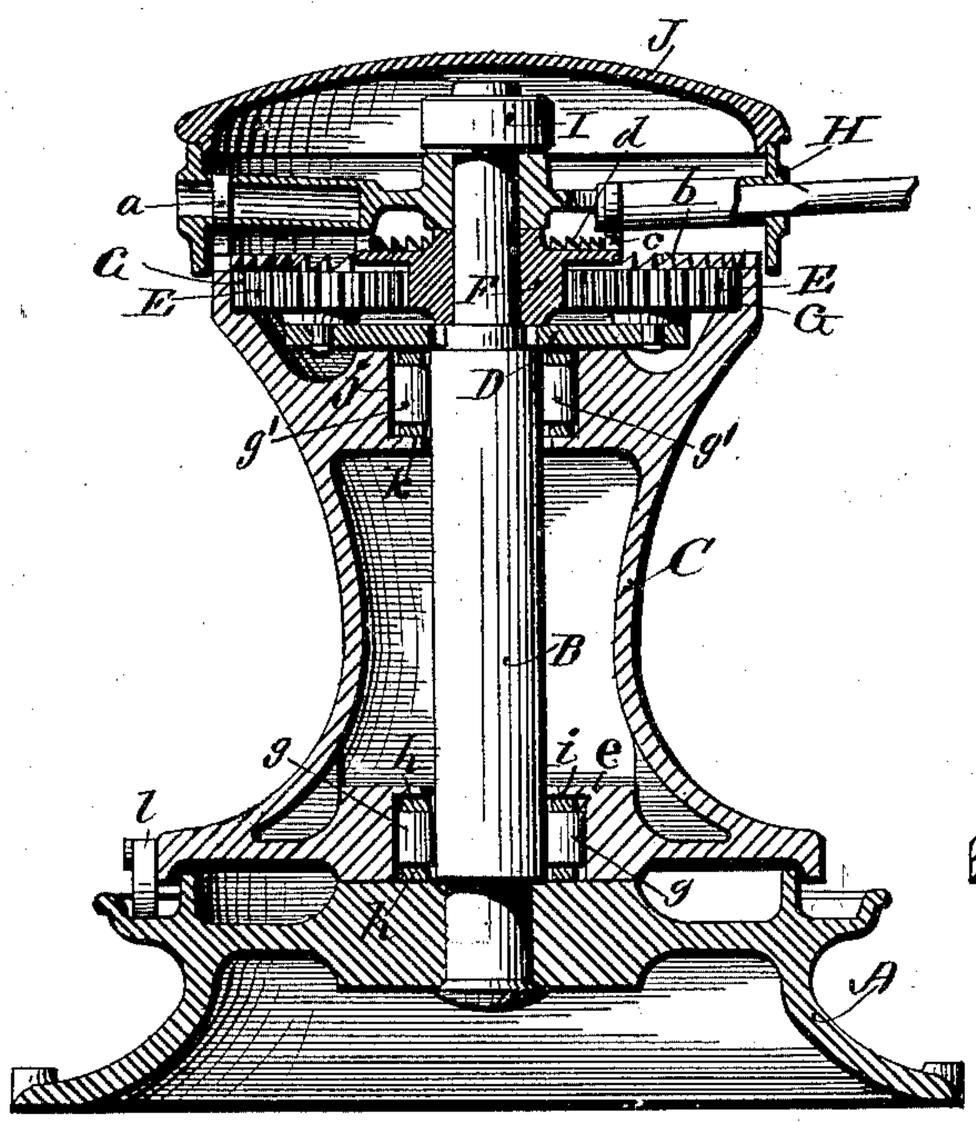

FIG. 1.

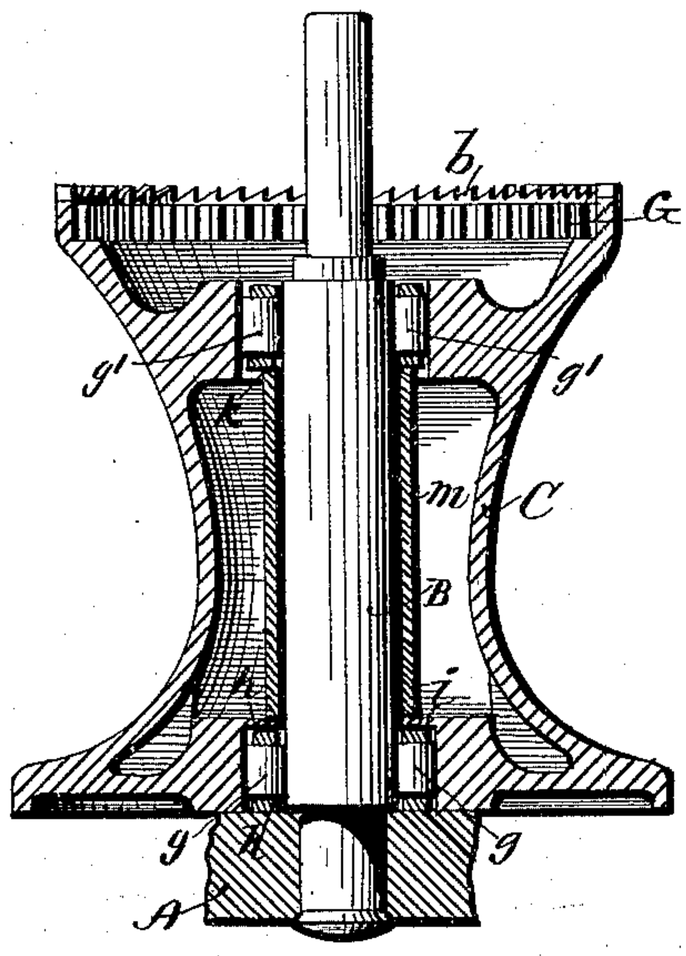

FIG. 4.

WITNESSES:

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BENJAMIN G. LUTHER, OF MANSFIELD, MASSACHUSETTS.

CAPSTAN.

SPECIFICATION forming part of Letters Patent No. 306,411, dated October 14, 1884.

Application filed July 14, 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 Capstans, of which the following is a specification.

The nature of my invention consists in the improved combination of roller anti-friction bearings with the barrel and the upright spindle of the capstan, as hereinafter set forth.

Figure 1 is a central vertical section of the capstan provided with my improvement. Fig. 2 is an elevation, and Fig. 3 a horizontal section, of the circularly-connected series of anti-friction rolls, adapted for insertion between the internal surface of the barrel and the adjacent cylindrical surface of the fixed upright spindle. Fig. 4 is a vertical section of the barrel of the capstan, showing a modification of the shoulder adapted for supporting the upper series of anti-friction rolls.

In the accompanying drawings, A is the stationary circular base, at the center of which is located the fixed upright spindle B, over which is placed the loosely-revolving barrel C.

Upon the extremities of a cross-bar, D, securely keyed to the spindle B, are placed the gears E E, which engage with the loose gear F, located upon the spindle B above the fixed bar D, and also engage with the internal gear, G, at the upper end of the barrel C.

Above the loose gear F is placed the handspike-rim H, which is held upon the spindle B by means of the collar I, and over the rim H is placed the cover J. The rim H is provided with two or more pivoted dogs, *a*, which are adapted to engage with the ratchet-teeth *b* at the upper end of the barrel C, 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 loose gear F, so that when the rim H is turned in one direction the dogs *a* will cause the direct revolution of the barrel C in the same direction, and when turned in the opposite direction the dogs *c*, by engaging with the ratchet-teeth of the loose gear F, will cause a slower and more powerful continued movement of the barrel. The lower end of the barrel C is provided with a chamber, *e*, adapted to receive the anti-friction rolls *g g*, which are held between the perforated rings *h h*, the lower ring *h* resting upon the central upper surface of the base A, and the upper ring *h* being held under an inwardly-projecting flange, forming a shoulder, *i*, which serves to prevent the rolls *g g* from working upward on the spindle B when subjected to the working strain caused by the revolution of the barrel C in winding up a rope or cable under tension. The upper end of the barrel C is provided with a central recess, *j*, the bottom of which serves to form a shoulder, *k*, adapted to support the anti-friction rolls *g' g'* at the upper end of the fixed spindle B.

A modification of my invention is shown in Fig. 4, which shows the rolls *g' g'* as supported by means of a sleeve, *m*, encircling the spindle B, the supporting shoulder *k* being thus formed at the upper end of the sleeve. The barrel C is prevented from turning backward by means of pawls *l* at the base of the barrel and ratchet-teeth upon the upper surface of the stationary bed A.

I claim as my invention—

In a capstan, the combination of the base A, upright spindle B, and barrel C with the retaining-shoulder *i*, supporting-shoulder *k*, the series of rolls *g g g' g'*, and the perforated rings *h h*, which connect the rolls, substantially as described.

BENJAMIN G. LUTHER.

Witnesses:

SOCRATES SCHOLFIELD,

CHAS. F. SCHMELZ.