Z. E. Coffin,

Windlass.

No. 58,069. Patented Sep. 18, 1866.

Fig: 2.

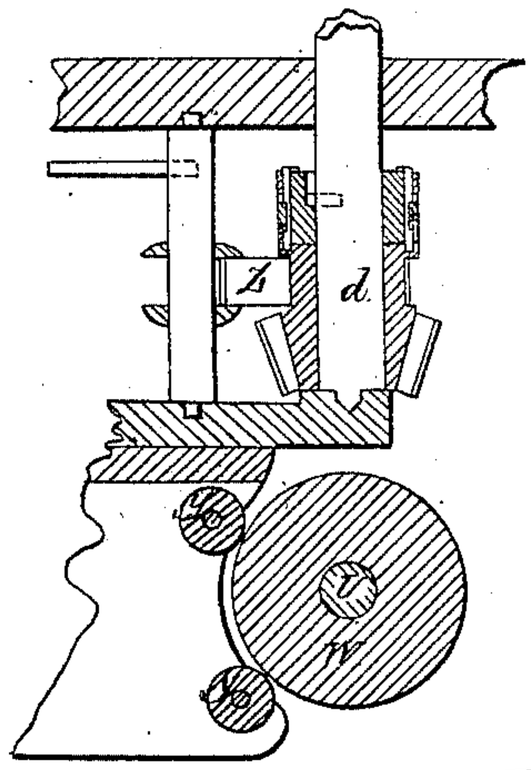
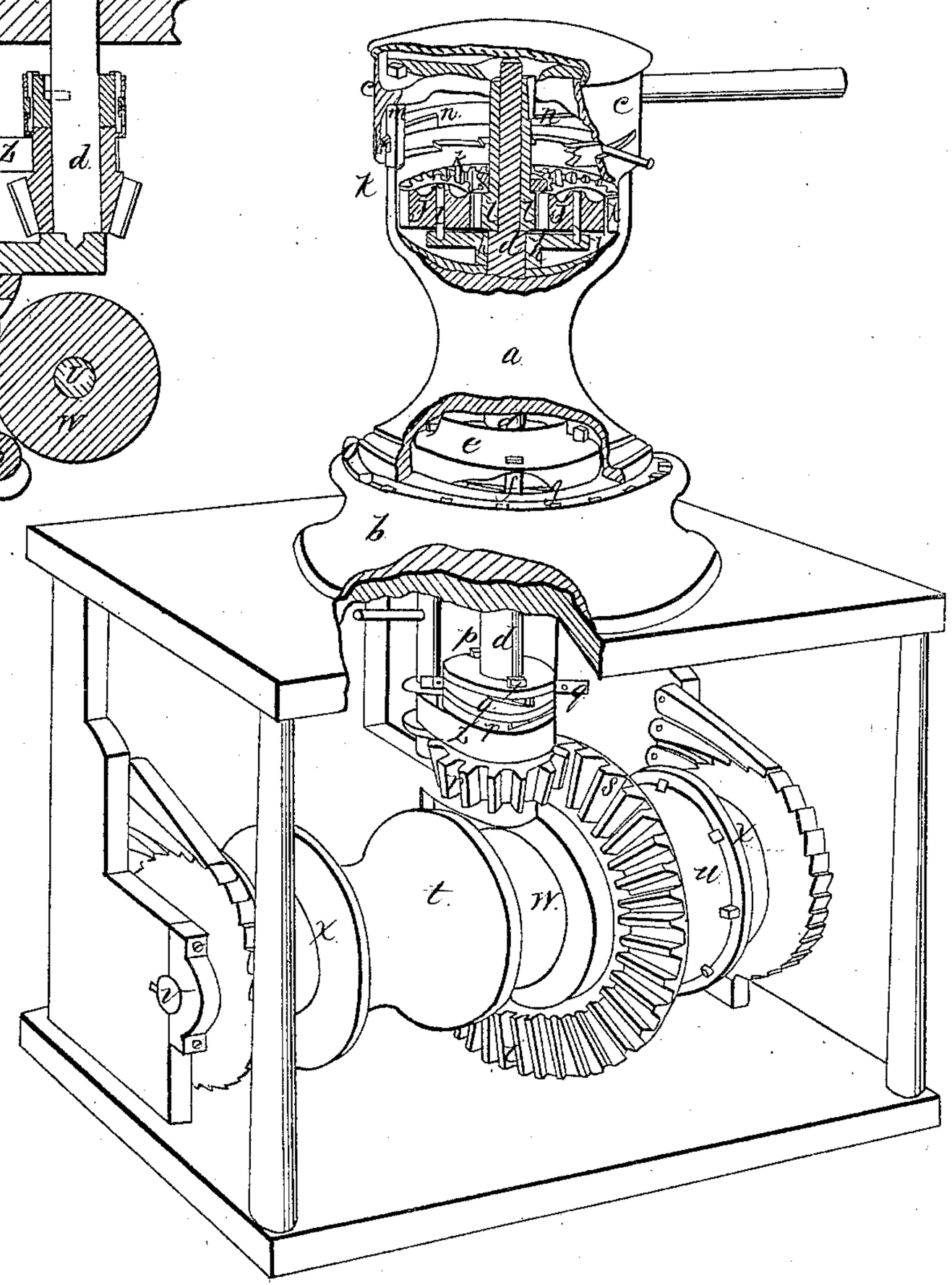


Fig: 1.



Witnesses:
J. B. Thurston
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UNITED STATES PATENT OFFICE.

Z. E. COFFIN, OF NEWTON, MASSACHUSETTS.

IMPROVED CAPSTAN-WINDLASS.

Specification forming part of Letters Patent No. **58,069,** dated September 18, 1866.

To all whom it may concern:

Be it known that I, Z. E. COFFIN, of Newton, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Capstan-Windlasses; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification, and to the letters of reference marked thereon.

With reference to the drawings, Figure 1 is a sectional perspective illustration of my improvement. Fig. 2 is a sectional view, showing the rollers which support the windlass-barrels and their shafts.

Like letters refer to the same or like parts in all the figures.

a is the capstan-barrel. *b* is the base-plate, and *c* the lever-head. A central vertical shaft, *d*, has its bearing in the base-plate *b*, and on this shaft is keyed a plate, *e*, upon which are arranged the self-acting bolts or pawls *f*, which catch in the ratchet-teeth *g* on the bed-plate. On this shaft *d* is also keyed the plate *h*. This plate carries studs *i*, on which are arranged the gear-wheels *j*. These gear-wheels play into the internal gear *k* in the capstan-barrel, and also into a central pinion, *l*, which is fast to the lever-head, and with it turns freely, as does also the capstan-barrel upon the central shaft, *d*.

In the lever-head are a set of self-acting pawls or bolts, *m*, playing into ratchet-teeth on the top of the capstan-barrel, and provision is made, by ring *n* and a series of inclines or other means, for lifting these pawls or bolts, so as to render them inoperative at pleasure. The barrel of the capstan has the usual pawls *o*, playing into pockets or ratchet-teeth in bed-plate. Below, on the shaft *d*, is fixed a head or plate carrying the self-acting bolts or pawls *p*. These bolts or pawls can be lifted and rendered inoperative by means of ring *q* and its inclines, or other means. When in action they catch and drive the bevel-gear wheel *r*, arranged to turn on the same shaft *d*. This bevel-wheel plays into and drives the bevel-gear wheel *s*, and through it the windlass-barrels *t u*. These windlass-barrels are also mounted and turn freely upon the stationary shaft *v*. This shaft *v* is keyed firmly in its bearings, and remains fixed without rotation. The two barrels *t u* have an intermediate neck or barrel, *w*, which bears against two or more rollers, *y*, for the purpose of deriving support additional to that furnished by shaft *v*, the shaft and windlass-barrel being together supported thereby in the direction of the strain to which they are subjected by the action of the chain or cable.

The operation is substantially as follows: The simple capstan power being required, the pawls or bolts *p* are lifted, so disconnecting the windlass below from the capstan above. The levers now being put in action, the capstan-head is driven, and, by bolts or pawls *m*, drives the barrel *a*, the shaft *d* rotating with it. The multiplied capstan power being required, the lever-head is rotated in the opposite direction, when the center gear, *l*, drives gears *j*, and they, in turn, drive the internal gear, *k*, and the capstan-barrel *a*. The bolts or pawls *f*, catching the ratchet-teeth *g*, hold the shaft *d* and stud-plate *h* from turning.

When the windlass is to be used with simple power the pawls or bolts *p* are let into action, and the capstan operated in the same manner and direction as described for simple capstan power. When the multiplied capstan power is required to be applied to the windlass below, the lever-head is rotated in the same direction, the bolts or pawls *m* first being thrown out of action, when the capstan-barrel *a* becomes stationary by the action of pawls *o*, the internal gear, *k*, becoming thereby a fulcrum-gear, and the center gear, *l*, acting on gears *j*, drives their studs *i*, plate *h*, and shaft *d*, and, through gears *r s*, the windlass-barrels.

The chain-barrels *x x* may be connected to and driven, respectively, by the barrels *t u* at pleasure.

A friction-band, *z*, with suitable lever, &c., is provided, by means of which the anchor may be let go, and the windlass-barrels be allowed only to rotate slowly and safely, to lower away gradually, at pleasure. Thus,

Having described my improvement, what I claim as my invention, and desire to secure by Letters Patent, is as follows:

1. The employment of the capstan *a* and its system of gears *j k l*, in combination with gears *r s* and the windlass-barrels *t u*, substantially in the manner and for the purpose set forth.

2. The arrangement of the barrels *t u x x*, and the gear *s*, to turn upon the shaft *v*, this shaft being a fixed one and not allowed to rotate, substantially as described.

3. The two or more rollers *y*, in combination with and to support the windlass-barrels and shaft *t u* and *v*, substantially as described.

Z. E. COFFIN.

Witnesses:
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