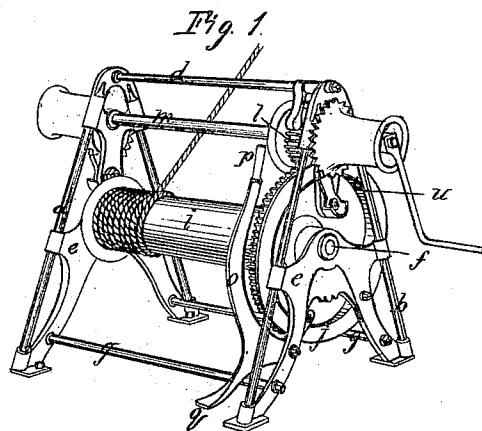
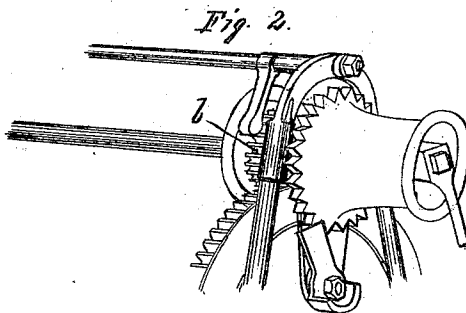


D. N. B. COFFIN, Jr.
WINDLASS.

No. 172,556.

Patented Jan. 25, 1876.



Witnesses.
Frank K. Rogers.
Benjamin Woodward

Inventor.
D. N. B. Coffin Jr

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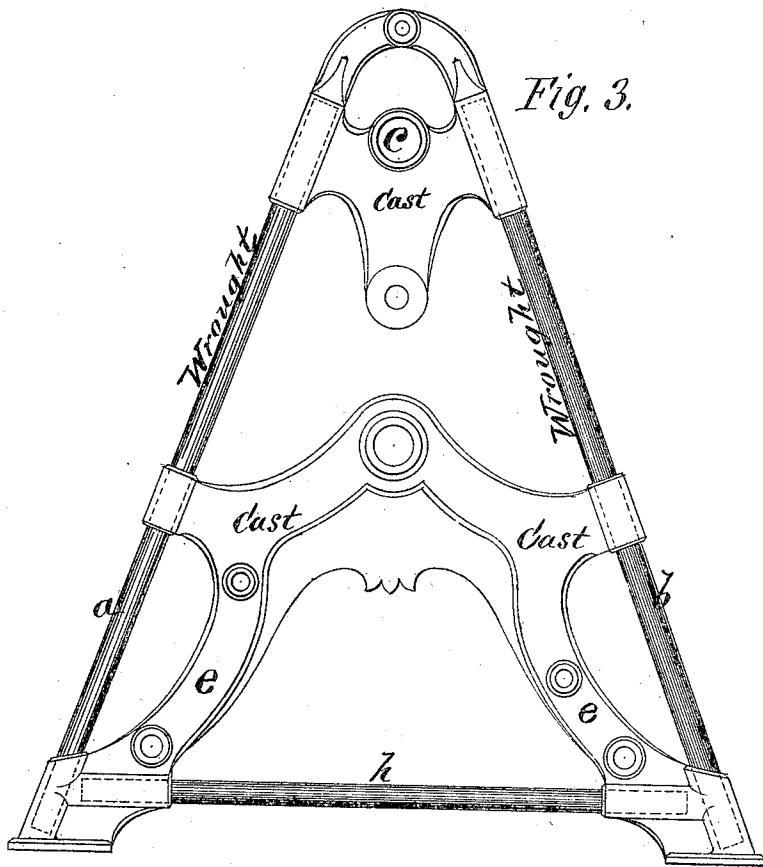


Fig. 3.

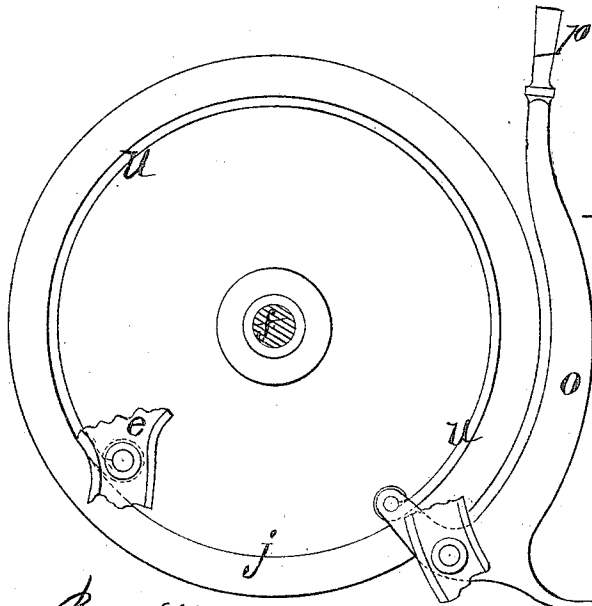


Fig. 4.

Witnesses.

Lysander Burnett
Frank H. Rogers.

Inventor.

David N. B. Coffin, Jr.

UNITED STATES PATENT OFFICE.

DAVID N. B. COFFIN, JR., OF NEWTON, MASSACHUSETTS.

IMPROVEMENT IN WINDLASSES.

Specification forming part of Letters Patent No. 172,556, dated January 25, 1876; application filed February 27, 1875.

To all whom it may concern:

Be it known that I, DAVID N. B. COFFIN, Jr., resident of the city of Newton, county of Middlesex and State of Massachusetts, have invented Improvements in Winches or Windlasses, of which the following is a specification:

The nature of my invention relates to the improved construction of both the frame-work and the operative mechanism, as hereinafter more fully described.

Accompanying and forming part of this specification are drawings, of which Figure 1 is a perspective view of a portable winch or windlass, in which my improvements are illustrated. Fig. 2 is a similar enlarged view of a portion of the same machine. Fig. 3 is a view, in elevation, of one of the end sections of the frame-work as constructed before setting up in the full machine. Fig. 4 shows an end view of the combined friction and gear wheel, the friction expansion-band, combined hand and foot lever, &c.

The essentials in the improved construction of the end sections of the frame, as illustrated in Figs. 1 and 3, and whereby greater strength, lightness, and elasticity are obtained, consist in the two wrought-iron or steel rods, *a b*, which may be made solid or hollow, but are arranged to stand in inclined positions converging upward toward or near to the bearings *c* of the shaft. These wrought rods may be made of round, square, T-shaped, or polygon-sectioned iron or steel, and are secured in position and relation to each other by casting the necessary cast-iron bearings and attachments for the shafts and other appendages upon them in the form of connections and braces, at once holding and giving them the necessary support, as shown, the upper cast connection forming a bearing for shaft *m*, attachments for connecting rod or piece *d*, and other appendages, the lower cast connection forming suitable feet for bolting down to any desirable foundation or resting-place, a bearing for shaft *f*, attachments for the connecting pieces or rods *g*, the friction-band *u*, and any other desired appendages and suitable braces for the rods *a b*, substantially as shown. These

end sections of the frame may be made with the wrought cross-rod *k* cast in, as shown in Fig. 3, or it may be dispensed with, as in Fig. 1, according to the conditions of strength, lightness, and elasticity desired. A barrel, *i*, is mounted on the shaft *f* for winding or working a rope or chain, and on the same shaft is mounted the wheel *j*, which serves the double purpose of gear to rotate the shaft or barrel *i*, and also as a friction-wheel to retard and control their movements in lowering away, &c. This wheel *j* is provided externally with gear-teeth, playing into gear *l* on the driving-shaft *m*, by which it is driven, and has also an internal periphery, to which is fitted and applied the expansion friction-band *u*. One end of the friction-band *u* is made fast to a stationary point or a part of the frame, thereby being held stationary, while the other end is jointed to the short end of the lever *o*. The lever *o* is provided with a handle, *p*, and a treadle, *q*, by either of which, or both together, it can be operated to expand the band *u* in the wheel *j*, and so control its movements. Whenever it is required to retard or stop the movement of the wheel *j* and barrel *i*, it is done by an outward pressure of the hand at *p*, or a downward pressure of the foot at *q*, or both, which causes a forcible expansion of the band *u* outward into frictional contact with the internal frictional wheel *j*, thereby to control or stop its rotation at the pleasure of the operator. The strap or band *u* may be of spring-steel or other metal; if of spring-metal, and formed to a smaller curve than the internal friction-surface of the wheel, it will relieve itself from frictional contact automatically whenever it is not forcibly expanded; but it will answer a good purpose made of ordinary iron, in which case, if the contractile spring-force is not sufficient to relieve itself from frictional contact, the opposite movement of the lever will relieve it. The gear *l* is disengaged from the gear *j* by sliding it longitudinally upon its shaft and spline. A hand-rim is provided and attached to it for the purpose, and a swinging arm or dog from rod *d* holds it out or in gear, as desired. The usual heads, ratchets, and pawls are provided for the upper shaft, and

may be added to the lower one, if desired, in other respects than those described and claimed below.

The winch or windlass does not differ materially from others now in use.

I claim—

1. The band *u*, made expandable by exterior force, in combination with the internal frictional wheel *j*, and the barrel or shaft of the winch or windlass, substantially as described.

2. The lever *p o*, provided with the foot-treadle *q*, in combination with the friction-band and friction-wheel of a windlass.

3. The end sections of the windlass or winch frame, when constructed by casting the upper and lower connections with shaft-bearings and attachments for other appendages directly upon the two upwardly-converging rods of wrought-iron or steel, *a b*, substantially as described.

DAVID N. B. COFFIN, JR.

Witnesses:

LYSANDER BURNETT,
FRANK K. ROGERS.