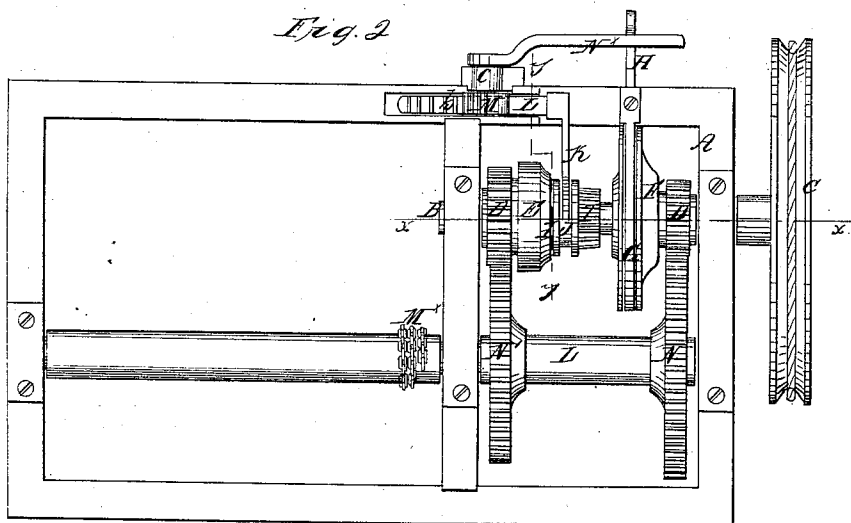
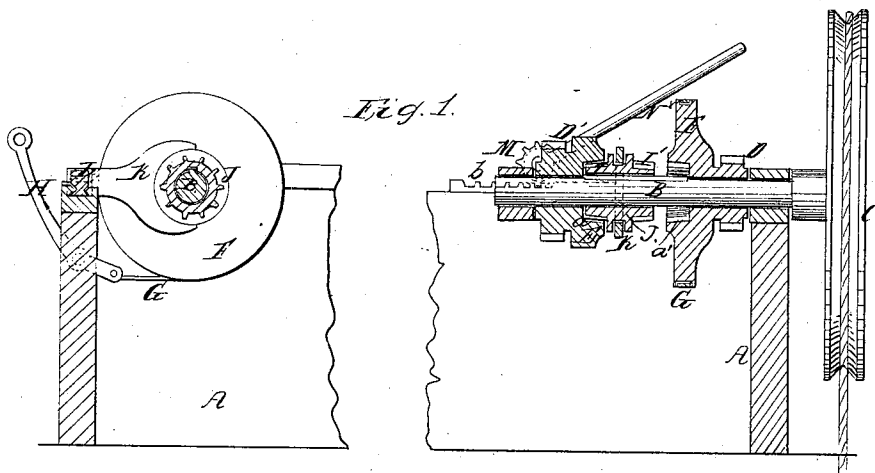


A. I. Sweet,

Clutch.

N^o 44,124.

Patented Sep. 6, 1864.



WITNESSES.
W. L. Topliff.
Henry Moore.

UNITED STATES PATENT OFFICE.

ALONZO L. SWEET, OF NORWICH, CONNECTICUT.

IMPROVEMENT IN HOISTING APPARATUS.

Specification forming part of Letters Patent No. 44,124, dated September 6, 1864.

To all whom it may concern:

Be it known that I, ALONZO L. SWEET, of Norwich, in the county of New London and State of Connecticut, have invented a new and Improved Hoisting Device; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical longitudinal section of my invention, taken in the line *x x*, Fig. 2. Fig. 2 is a plan or top view of the same; Fig. 3, a transverse vertical section of the same, taken in line *y y*, Fig. 2.

Similar letters of reference indicate like parts.

This invention relates to a new and improved hoisting device, by which heavy and light loads may be elevated with a speed corresponding to their weight, so that advantage may be taken of a light load and the power extended or applied in rapidly hoisting it, while the speed may be diminished and the power correspondingly increased in hoisting a heavy load, the device at the same time admitting of articles being lowered without the running of the driving-rope, thereby effecting a saving in the wear and tear of the rope.

A represents a framing which may be constructed in any proper manner to support the working parts of the device. B is the driving-shaft, which has a pulley, C, at one end of it, around which the hoisting-rope passes, and D D' are two pinions, which are placed loosely on the shaft B, the pinion D being smaller in diameter than the pinion D'. The larger pinion D' has a collar or hub, E, connected or cast with it, in which there is a concentric sunken gear, *a*, and the smaller pinion D has a wheel, F, attached to or cast concentrically with it, at the center of which there is a sunken gear, *a'*. The wheel F is used as a brake-wheel, and it has a metal strap, G, fitted around it, to one end of which a lever, H, is attached, the other end being attached to the framing. By actuating the lever H the strap G may be made to hug or bear upon wheel F with a greater or less pressure, as may be desired. On the shaft B there are also placed

two pinions, I I', connected together at their inner ends, or rather connected to a hub, J, which has a groove made circumferentially in it to receive the fork of an arm, K. The pinions I, I' and hub J may all be cast in one piece, and they are allowed to slide freely on shaft B, but made to turn with it by the usual feather and groove. The arm K is attached at its outer end to a slide, L, fitted in a suitable guide on the framing A, and having a rack, *b*, on its upper surface, into which a pinion, M, gears, the latter being on a shaft, *c*, which has a lever, N^x, on its outer end. By actuating the lever N^x the arm K and pinions I I' may be moved either to the right or left, and the pinion I be made to fit into or engage with the sunken gear *a* of pinion D', or the pinion I' made to fit into the sunken gear *a'* of the pinion D, or said pinions I I' adjusted free from both of the sunken gears.

L represents the hoisting-shaft, to which the hoisting-chain M^x is attached. This shaft L has two toothed wheels, N N', keyed permanently to it, into which the pinions D D', respectively, gear. The wheel N is rather larger in diameter than the wheel N'.

From the above description it will be seen that when the shaft B is rotated through the medium of the rope, which passes around the pulley C, the hoisting-shaft L may be rotated from B through the medium of either the gears N D or N' D', and the speed of the shaft L varied accordingly, a light load being hoisted quickly with the gears D' N', and a heavy load being hoisted slower, but with corresponding increase of power through the medium of the gears D N, and in lowering articles the pinions I I' are adjusted out of gear with both of the sunken gears *a a'*, so that the shaft B will not be rotated, and the hoisting-rope consequently remain stationary, the descent of the article being regulated by the pressure of the strap G on wheel F.

I would remark, that the outer ends of the teeth of the pinions I I' may be of taper form, to insure their ready entrance into the sunken gear *a a'*.

The device is extremely simple, and it is applicable to all purposes for hoisting where a windlass can be used. The lever N^x may be actuated from any reasonable distance or

from any story of a building by having two ropes attached.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The two sliding or shifting pinions I I', and the loose sunken gears *a a'*, and the pinions D D' on the shaft B, in combination with the wheels N N' on the hoisting shaft L, the pinions D D' and wheels N N' being of different diameters, and all arranged to operate in the

manner substantially as and for the purpose set forth.

2. The rack *b* on the slide L, the pinion M, and lever N^x, for moving the arm K and pinions I I', substantially as described.

ALONZO L. SWEET.

Witnesses:

W. E. WHEELLEY,
E. F. ROGERS.