D. H. MERRITT.

HOISTING-MACHINE.

No. 189,123. Patented April 3, 1877.

Fig. 1

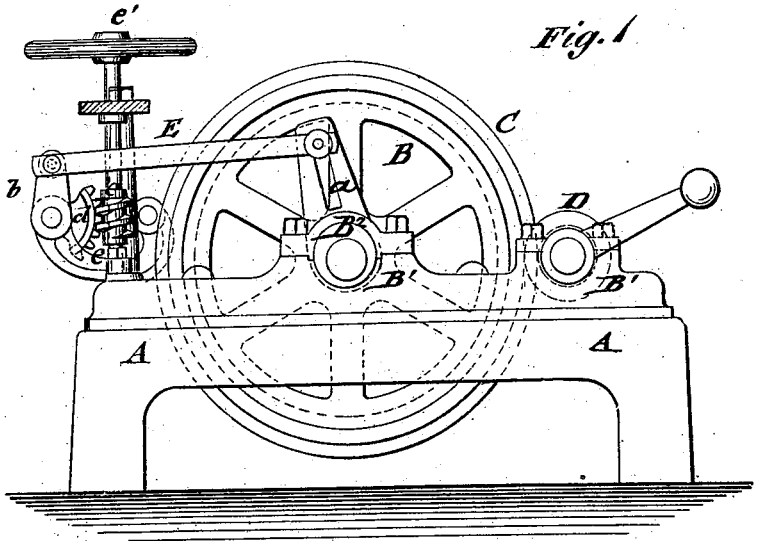


Fig. 4

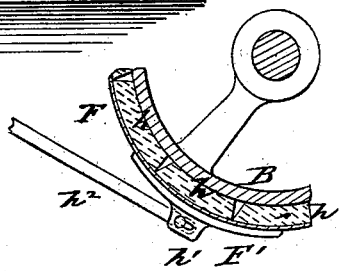


Fig. 2

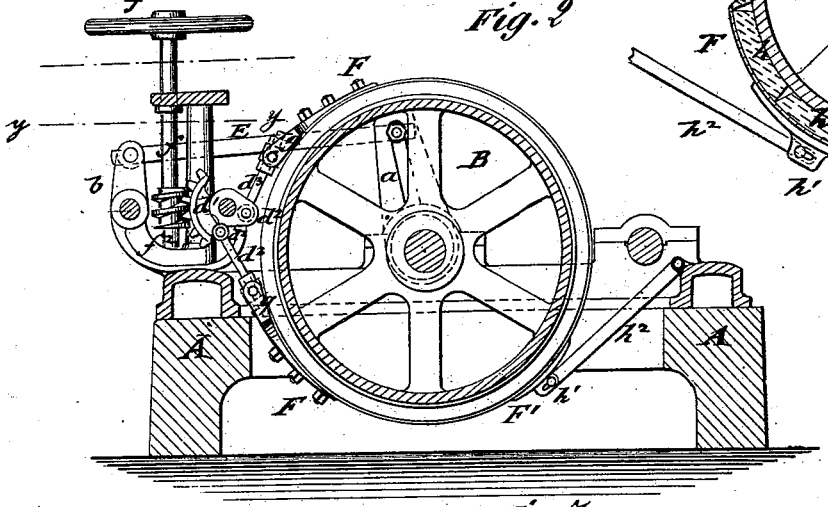
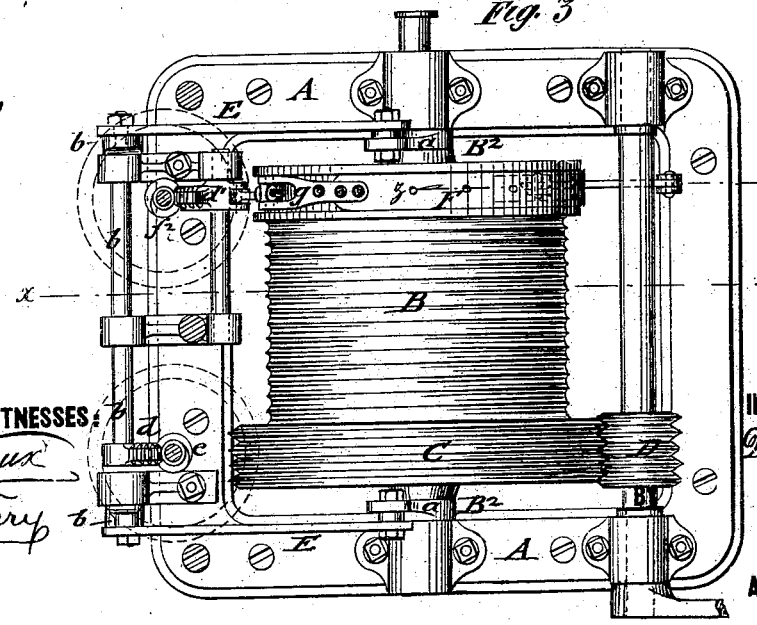


Fig. 3



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DANIEL H. MERRITT, OF MARQUETTE, MICHIGAN.

IMPROVEMENT IN HOISTING-MACHINES.

Specification forming part of Letters Patent No. **189,123**, dated April 3, 1877; application filed March 12, 1877.

To all whom it may concern:

Be it known that I, DANIEL H. MERRITT, of Marquette, in the county of Marquette and State of Michigan, have invented a new and Improved Hoisting-Machine, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a side elevation of my improved hoisting-machine; Fig. 2, a vertical transverse section on line *x x*, Fig. 3; Fig. 3, a plan view of the same, partly in horizontal section on line *y y*, Fig. 2; and Fig. 4, a detail vertical section of brake on line *z z*, Fig. 3.

Similar letters of reference indicate corresponding parts.

The object of this invention is to provide an improved hoisting-machine of considerable power, operated by a friction-gearing at varying motion, and capable of being stopped at any moment, to support the load to be hoisted, by a superior brake arrangement.

The invention consists of a hoisting-drum which is operated with friction-wheels, and whose shaft is adjusted in parallel manner by eccentric sleeves with slotted arms, connecting-rods, and a worm and toothed segment-gear. The brake is applied by a similar gear to the other end of the drum, capable of adjustment to wear, being taken off by a brake-shoe and supporting-arm at the lower end.

In the drawing, A represents a supporting-frame of suitable size and strength, which is cast in one piece or in sections, screwed together, the boxes B^1 for the shafts being cast in one piece with frame A, for the purpose of securing lightness, economy, and strength. The shaft of the winding-drum B turns in the eccentric sleeves B^2 of the boxes B^1, which sleeves are provided with slotted arms *a*, that are connected at both ends of the drum, by pivot-rods E, with the arms of shaft *b*, turning in suitable side supports of frame A. The shaft *b* is provided with a toothed segment, *d*, into which gears a worm, *e*, that is set by an upright shaft with hand-wheel *e'*, so as to produce the parallel motion of the shaft of the winding-drum at both ends by the same movement, and secure thereby a parallel motion of the grooved friction-wheel C of the drum toward the friction-pinion D of the operating crank-shaft. The connecting-rods E may be adjusted to a greater or less distance from the drum-shaft in the slotted arms *a*, so as to change the motion of the winding-drum, as required. By turning the hand-wheel the drum is either moved toward the friction-wheel by the turning of the eccentric sleeves in the boxes, or away from the same, so as to produce or interrupt the motion of the winding-drum B. The tighter the friction-wheels bear against each other the heavier may be the load to be hoisted, while for lighter loads a less intimate contact of the friction-wheels will be required. A second upright shaft, *f*, with hand-wheel f^1 and worm, gears, in similar manner as before, with a second toothed segment, d^1, which works, by fixed arms d^2 and pivoted arms d^3, a brake mechanism, F. The pivoted arms d^3 are adjusted at their threaded ends by suitable screws and jam-nuts in swivel sockets of yokes *g* at the ends of the brake, so as to compensate for the wear of the brake-blocks. The brake E is made of an outer band, with inner wood lining-blocks *h*, that are fastened to the band, and constructed in the manner shown in detail in Fig. 4—namely, the outer sides or faces of the blocks are so constructed as to touch each other at the ends, while the inner faces of the blocks are made, by means of the V-shaped or tapering ends, to close tightly up on the drum when worn by use, so as to conform to the circumference of the brake-wheel without springing or bending into position.

At a point nearly diametrically opposite to the brake-adjusting gear is attached to the band a shoe, F', that is hung by slotted lugs h^1 to a pivoted supporting-arm, h^2. The shoe takes off the contact of the brake with the wearing-surface when not in use, while the worm and toothed segment-gear either stop or hold the load to be hoisted in position at any required point, or release the contact of the brake and drum whenever desired, the shoe assisting then in taking off the brake in quick and reliable manner, all around the drum. An indicator-pulley may be applied to the end of the drum-shaft, over which passes a small wire-cord rope, passing over a second pulley in convenient position, with a weight or indicator attached, to show the position of the object to be hoisted or lowered at any point in miniature, and

forms thus a convenient little device for facilitating the working of the hoisting-machine.

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

1. In hoisting-machine, the combination of frame A, having boxes B^1, eccentric sleeves B^2, having slotted arms *a*, connecting pivot-rods E, and arms *b*, operated by worm and segment-gear, with the shaft of winding-drum seated in the eccentric sleeves, to impart a parallel motion to the friction-wheel of drum toward the friction-pinion, substantially in the manner and for the purpose set forth.

2. The combination of a worm and segment-gear, by connecting pivot and swivel rods, with brake F and winding-drum, to put on or take off the brake at any moment, substantially as set forth.

3. The combination of worm f^2, toothed segment d^1, having arms d^2, and adjustable pivot-rods d^3, with swivel-sockets of forked yoke ends *g* of brake F, to compensate for the wear of the brake, substantially as specified.

4. The combination of the brake F with a shoe, F′, at a point opposite to the worm and segment-gear, and with a pivoted supporting-rod, h^2, to hold brake, when not in use, clear of wearing-surface, substantially as described.

5. The brake F, composed of an outer band, faced with blocks, having wedge-shaped or tapering ends, for the purpose set forth.

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Witnesses:
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