J. WALLACE.

Hoisting-Machine.

No. 168,594. Patented Oct. 11, 1875.

Fig. 1

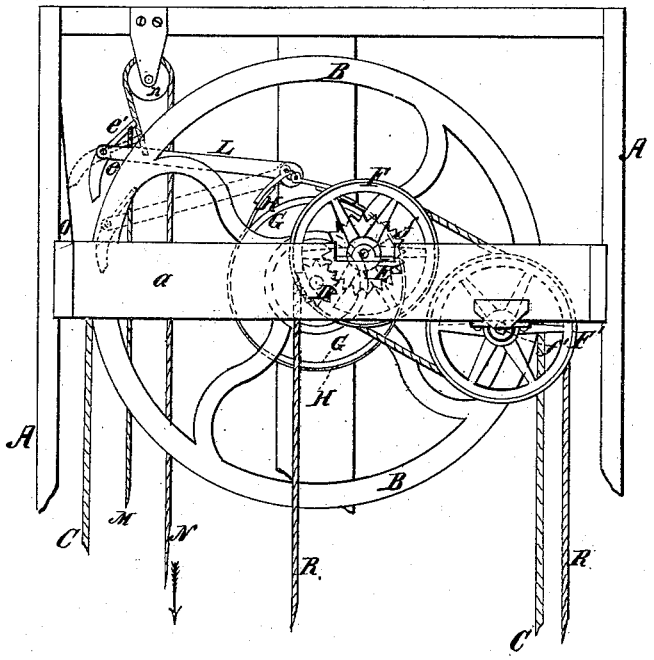


Fig. 2.

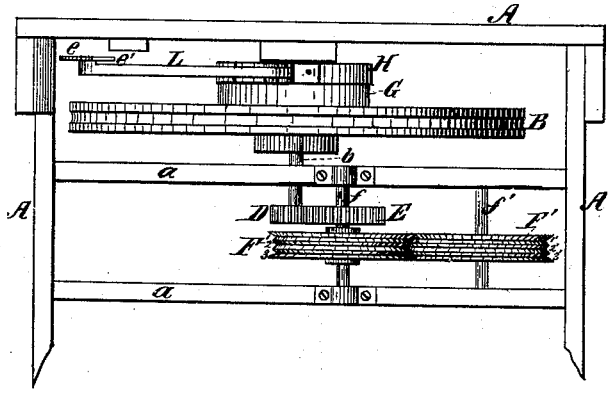
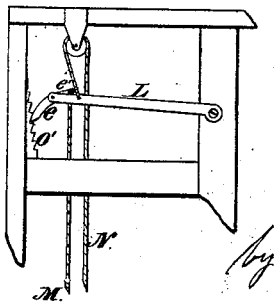


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN WALLACE, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN HOISTING-MACHINES.

Specification forming part of Letters Patent No. **168,594**, dated October 11, 1875; application filed April 8, 1875.

To all whom it may concern:

Be it known that I, JOHN WALLACE, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Hoisting-Machines; 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 which it pertains to make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to an improvement in counterbalance center-lift hoisting-machines; and consists, first, in the arrangement of two drum-sheaves in such manner that while sufficient friction is produced upon a hoisting-rope which passes around them (having one end attached to the center of a platform, and the other to a weight) to prevent slipping, the lifting strain of said rope is exerted upon the platform always in exactly the same vertical line, and the counter-weight traverses also a vertical line; second, in an improvement in the brake devices for hoisting-machines.

In the drawing, Figure 1 is an elevation, and Fig. 2 a plan view, of a hoisting-machine constructed according to my invention. Fig. 3 is a modification of the brake device.

A represents the frame-work of a hoisting-machine. B is the large motor-pulley, over which passes the operating-rope C. On the end of shaft *b* of pulley B is a pinion, D, which meshes with a gear-wheel, E, upon shaft *f*, upon which shaft is also mounted a drum-sheave, F. The bearings of shaft *f* are arranged upon the top edges of beams *a a*. A short distance from the drum-sheave F is another drum-sheave, F′, having the bearings of its shaft *f′* arranged upon the bottom edges of beams *a a*. Each of these drum-sheaves F F′ has three peripheral grooves, 1 2 3, and 1′ 2′ 3′. (Shown in Fig. 2.) The hoisting-rope R, which leads from the platform up through the centers of the hatchways, passes, first, over drum-sheave F, occupying groove 1, which it enters at a point directly over the center of the platform, and, passing over the top of sheave F, said rope passes to groove 1′ of drum-sheave F′, passes around F′ and back to F, occupying groove 2, and so on around both the drum-sheaves, until it occupies all the grooves, and descends from groove 3′ of drum-sheave F′ to the counter-weight, to which it is attached. The drum-sheaves may have as many grooves as desired.

It is evident that the rope will lead directly from the platform to groove 1 of drum-sheave F at all times, either in hoisting or lowering, and no sidewise pull will be exerted upon the platform or the drum-sheave.

G is a friction rim or flange, attached to large motor-pulley B. H is a metallic spring-band, surrounding friction-rim G. The ends of this band are attached, one to the short arm and the other to the long arm of brake-lever L, so that when the outer end of said lever is raised, the band will be pressed against rim G. At the outer end of the long arm of this lever L is pivoted a pawl, *e*, which, when free, hangs down, and it has an arm, *e′*, projecting upward. The lower end of the pawl *e* is beveled on its inner side, forming a point at the terminus of the outer edge. M is a cord, attached to arm *e′* of pawl *e*, and hanging down within reach of the person who operates the hoister. N is a rope attached to lever L, near the outer end of said lever, passing over a small pulley, *n*, and hanging down within reach of the operator. O is a block of wood, fastened to an upward-projecting portion of one of the uprights of frame; or said block may be attached to the wall of a building. This block O is in the path of pawl *e* when said pawl is thrown outward by pulling upon cord M.

When, in operating the hoister, it is desired to stop the platform at any point, the rope N is pulled in the direction of the arrow in the drawing, thus raising the long arm of lever L, as shown in full lines, Fig. 1, and so tightening band H upon the friction-rim G. If it is desired to retain the platform at the point where it is stopped, the cord M is pulled, thus throwing pawl *e* outward, as shown in dotted lines, against block O, and both cords M and N being then let go, the point of the pawl *e* catches in wooden block O, and retains the lever in its elevated position, the effect of which is obvious. When it is desired to loosen band H, or take off the brake, the lever L must be slightly raised by pulling on cord N

to detach the point of pawl *e* from block O, the cord M being left loose in order to allow pawl *e* to fall away from block O, as shown in full lines in the figure. Rope N is then let go, and the lever L falls to its normal position, as shown in dotted lines in the figure.

In the modification shown in Fig. 3, an iron ratchet-plate, O′, is substituted for the wooden block O, and the point of pawl *e* need not be so sharp as in the first-described form.

The machine is operated by means of rope C, in the ordinary manner.

Having now described my invention, and explained the operation thereof, I claim—

1. The combination, in a hoisting-machine, of the drum-sheaves F F′, having two or more peripheral grooves, and the hoisting-rope passed two or more times around them, the ends of said rope being attached, respectively, to the platform and counterbalance-weight, the drum-sheave F being connected by intermediate gearing with the motor-pulley B, substantially as described.

2. The combination of brake-lever L and pivoted pawl *e*, arranged to be thrown outward from said lever, and a stationary ratchet or catch-block, O, substantially as shown.

In testimony that I claim the foregoing as my own invention I affix hereto my signature in presence of two witnesses.

JOHN WALLACE.

Witnesses:

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