2 Sheets--Sheet 1.

H. J. REEDY.

Elevator.

No. 160,469. Patented March 2, 1875.

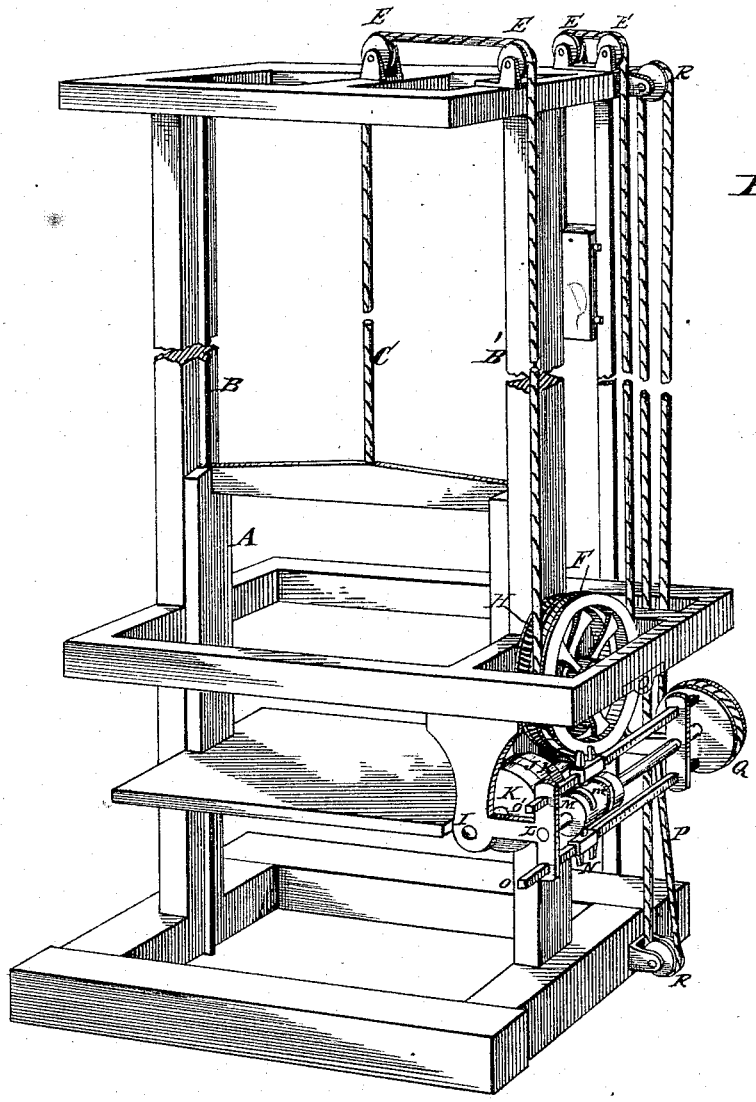

Fig. 1.

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Edgard Gross

Edwd. C. Dike

Inventor

H. J. Reedy

By Y. Millward

Attorney

2 Sheets--Sheet 2.

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Fig. 2

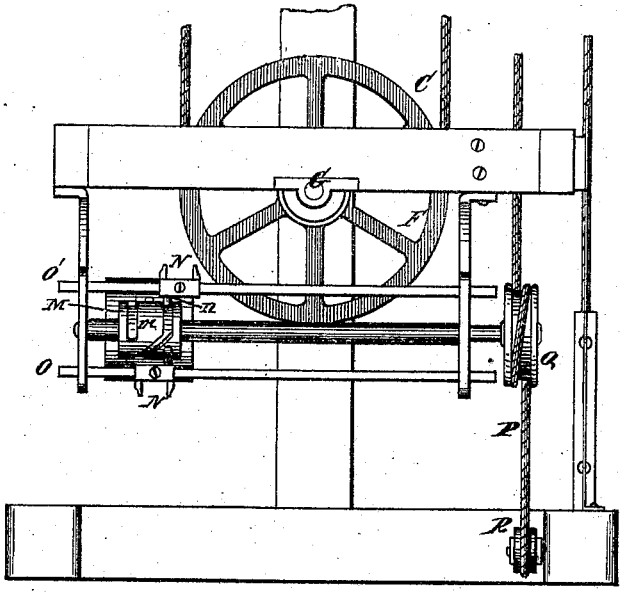


Fig. 3

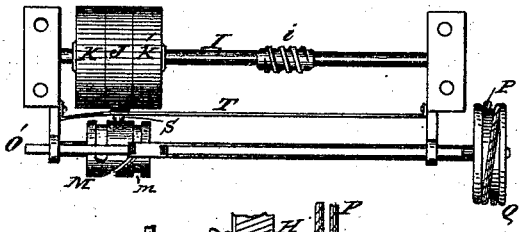
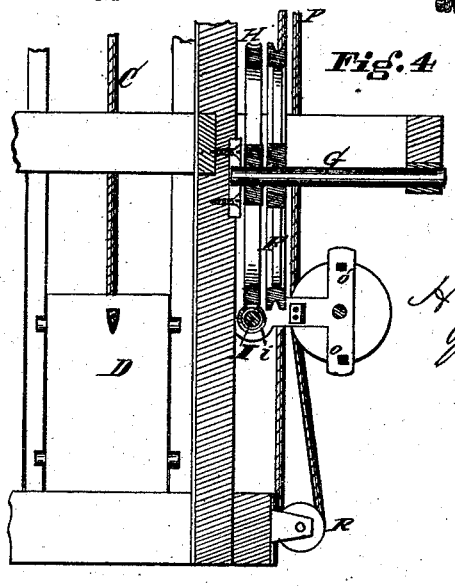


Fig. 4



Attest
Edgar J. Gross
Thos. Hunter

Inventor
H. J. Reedy
By F. Millward
Attorney

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

HENRY J. REEDY, OF CINCINNATI, OHIO.

IMPROVEMENT IN ELEVATORS.

Specification forming part of Letters Patent No. **160,469**, dated March 2, 1875; application filed July 31, 1874.

To all whom it may concern:

Be it known that I, HENRY J. REEDY, of Cincinnati, Hamilton county, State of Ohio, have invented certain new and useful Improvements in Hoisting-Machines, of which the following is a specification:

My invention relates to that class of elevators known as steam-elevators or power hoisting-machines, wherein the driving-belt may be in constant motion, while the platform is adapted for reversibility or stoppage at will; and my invention consists of a peculiar combination of devices by which the platform-rope is driven by frictional contact with a sheave driven by worm-gearing, in such a way as to provide for the balancing of the platform, and by the same means to prevent the entanglement of the rope when the platform is accidentally stopped in its descent, and prevent the breaking of the rope in the accidental stoppage of the platform in the ascent thereof, the worm-gearing constituting a reliable lock to hold the hoisting mechanism in any position in which it may be in stopping it.

My invention consists, in the second part, in the combination of a rotary grooved shifter-block for operating the belt-shifter rods, with a projection on said block, and a spring-bar for it to operate upon, by which at proper times (when both driving-belts are on the loose pulleys and off the fixed driving-pulley) the spring-bar is made to act as a brake in stopping the platform at a definite point.

Figure 1 is a perspective view of an elevator embodying my invention. Fig. 2 is a partial elevation, showing shifter-block, shifter-rods, &c. Fig. 3 is a plan of the shifting and braking mechanism. Fig. 4 is a partial section, showing wheel and driving-worm and connecting devices.

A is the platform of my elevator, and B B′ the guiding-ways of the same. C is the hoisting-cable, one end of which is attached to the platform, as shown, and the other to a balance-weight, D, the cable between the platform and weight passing over idlers E, and under the grooved sheave-wheel F, which operates it by frictional contact only. This grooved sheave-wheel is secured to the counter-shaft G, upon which is also rigidly secured a driving worm-wheel, H. I is the power-shaft or driving-shaft of the machine, fitted with worm *i*, meshing into worm-wheel H, and operated, as usual, by one or the other of two belts (straight and cross for reversal) upon the fixed pulley J. K K′ are the customary loose pulleys upon which the two belts run when the machine is stopped. L is a shaft, carrying the shifter-block M, formed with cam-grooves *m*, into which the toes *n* of the belt-jaws N fit, as shown, the jaws being secured to the sliding shifter-bars O O′. The shifter-shaft is operated by hand by means of the rope P, stretched over driving sheave-wheel Q and idlers R; and the grooves *m* in block M are so formed that one belt can be thrown off the tight onto the loose pulley before the other belt is laterally disturbed; and after one of the belts is moved off the fast pulley it can remain undisturbed while the other is moved onto the fast or tight pulley.

It will be understood from this construction that the positive character of the driving-shafts G I and gearing H *i* is such as to render the attention of the operator to the rope P extremely important, were it not for my peculiar connection of the platform-rope to it, wherein the driving-force is frictional, produced by the sheave-wheel F, platform A, weight D, and rope C. One of the most important characteristics of this combination of positive and frictional yielding driving-forces is that, when in operation in the direction necessary to lower the platform, the rope C, if the platform is accidentally stopped by the presence of obstacles across the hatchway, will become slack to a slight degree; the motion of the rope is instantly stopped, while the motion of the sheave-wheel F may continue safely in the same direction without danger to the rope, entanglement of the same, or endangering the support of the platform. Another advantage, due to the use of worm-gearing, is that, on the stoppage of the machine, this gearing constitutes a lock.

To provide for the instant stoppage of the platform at definite points, I provide a projection, S, on the block M, and a spring brake-bar, T, in close connection with pulley J. At the proper time when both belts are off pulley J the projection presses a projecting brake on the bar T against the pulley J, and thus stops the machine.

I claim—

1. The combination, in a hoisting-machine, of positive driving and locking mechanism H G I *i*, frictional grooved sheave-wheel F, platform A, rope C, and weight D, substantially as described.

2. The combination of shifter-shaft L M, projection S, spring brake-bar T, and driving-pulley J, operating substantially as and for the purpose specified.

In testimony of which invention I hereunto set my hand.

H. J. REEDY.

Witnesses:

FRANK MILLWARD,

R. M. HUNTER.