2 Sheets--Sheet 1.

E. SCHLENKER.

Hoisting-Machine or Elevator.

No. 166,730. Patented Aug. 17, 1875.

Figure 1.

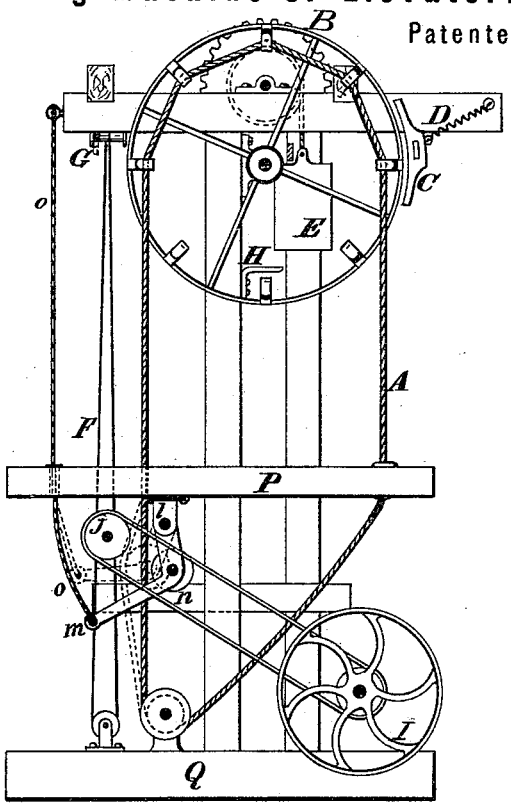
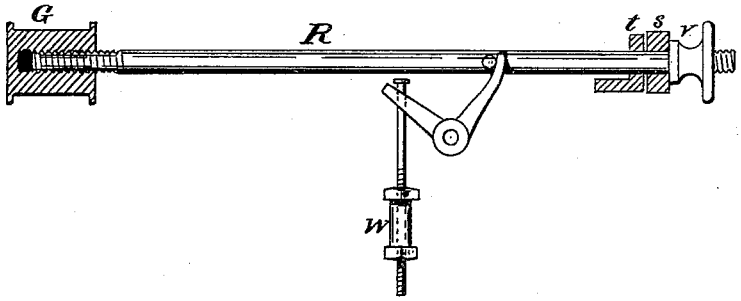


Figure 2.



Witnesses,

F. P. Burtis

S. Finley

Inventor.

Erhard Schlenker

2 Sheets--Sheet 2.

E. SCHLENKER.

Hoisting-Machine or Elevator.

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Figure 3.

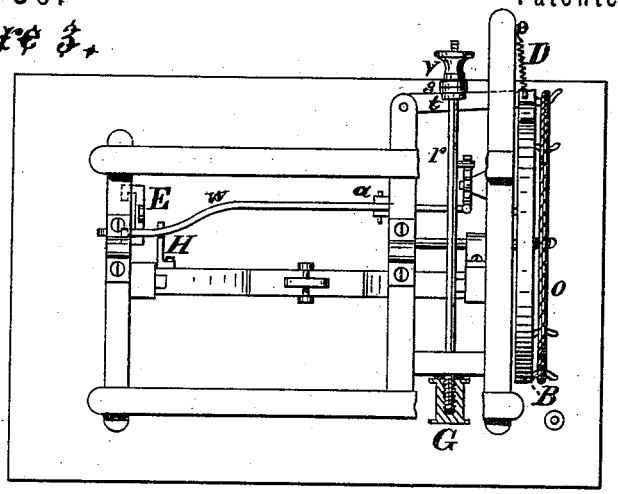
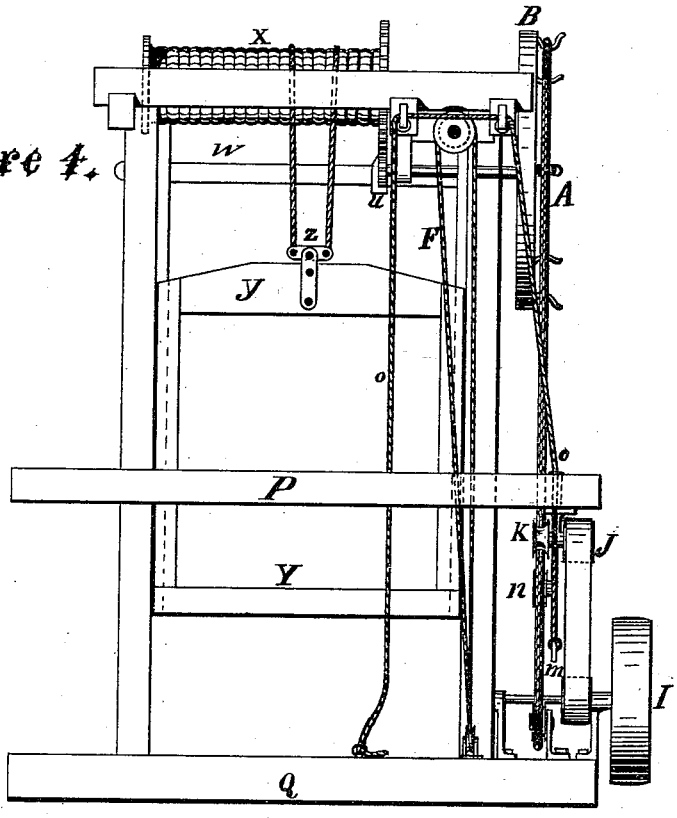


Figure 4.



Witnesses,
P. C. Burtis
S. Finley

Inventor.
Erhard Schlenker

UNITED STATES PATENT OFFICE.

ERHARD SCHLENKER, OF BUFFALO, NEW YORK, ASSIGNOR OF ONE-HALF HIS RIGHT TO RUFUS L. HOWARD AND GIBSON F. HOWARD, OF SAME PLACE.

IMPROVEMENT IN HOISTING-MACHINES OR ELEVATORS.

Specification forming part of Letters Patent No. **166,730**, dated August 17, 1875; application filed August 4, 1874.

To all whom it may concern:

Be it known that I, ERHARD SCHLENKER, of the city of Buffalo, in the county of Erie and State of New York, have invented a Hoisting-Machine or Elevator, in which motive-power and hand-power are combined, so that either may be used at the will of the operator, of which the following is a specification:

The object of my invention is to make a hoisting-machine or elevator that can be operated either by motive-power or by ordinary hand-power, so that either may be used at the will of the operator, and without changing any part of the machinery.

The machine is illustrated more in detail in the accompanying drawings.

Figure 1 is a view of the same, as seen upon the right-hand side. Fig. 2 represents the brake-rod and its connections, by which the brake is operated. Fig. 3 is a top view of the hoister. Fig. 4 is a front view of the same.

In Fig. 1 the hoisting-rope is represented by letter A, which is used either by hand or by motive-power. Letter B represents the hoisting-wheel, which is operated by the hoisting-rope. Letter C represents the brake-shoe. Letter D is a coiled spring, which serves to hold the brake-shoe from the hoisting-wheel when not in use. Letter E represents the counter-weight. Letter F represents a rope, which revolves or operates the brake-pulley (represented by letter G in Fig. 2) forward and back, for the purpose of applying or taking off the brake from the hoisting-wheel B. By letter H is represented a bracket attached to the upper part of the platform, in such a manner that the same shall strike the brake-lever W when it reaches the upper floor. This lever is shown in Figs. 2, 3, and 4 by letter W. Letter I represents a pulley, which represents motive-power as applied to pulley *j*, upon the shaft of which is placed a grooved pulley, K. (Shown in Fig. 4.) Letter *l* represents a casting attached to the under side of the floor of the building, in proximity to the place where the hoisting-rope passes through the same. Letter *m* represents a crooked lever, which is hinged to said casting. Letter *n* represents a grooved pulley, running loose upon an axis near the elbow of said crooked lever, to which it is attached. Letter O represents a small rope attached to the end of lever *m*, which extends up and passes through stationary eyes, or upon rollers on the top of the frame of the hoisting-gear, and is brought down convenient to the hand of the operator, and may be fastened to the lower floor. Letters P and Q represent the upper and lower floors.

In Fig. 2, letter R represents the brake-rod, with a thread cut upon each end. Letter S represents a rubber band, or an equivalent spring, placed upon the brake-rod, between the nut *v* and the brake-shoe lever *t*. Letter *r* represents a nut, which serves the purpose of taking up the wear on the brake-shoe, which is done by hand, by means of the screw at the end of the brake-rod, and the screw at the other end of the brake-rod is used for the purpose of applying the brake-shoe to the hoisting-wheel by revolving the pulley placed upon this screw. Letter W, in Figs. 3 and 4, represents the brake-lever, which is hinged to the frame at letter *u*, and is also attached to the brake-rod R by an elbow and pin in the brake-rod, which is attached in this manner in order to bring it into right angles with the brake-rod.

In Fig. 3 the brake-shoe lever is represented by letter *t*, which is hinged to the frame, made fast to the shoe, and also to the brake-rod R.

In Fig. 4, letter X represents the winding-drum, with a right and left thread cut thereon, which thread starts each way from a point opposite to the center of the platform. Letter Y represents the platform. Letter Z represents an equalizing-beam, to which the lifting-ropes are attached, one at each end, so as to equalize the strain upon the ropes.

The machine is operated by hand, by means of the hoisting-rope A, which revolves the wheel B, the shaft of which extends to a line drawn perpendicular to the end of the winding-drum, and at this end of the shaft is placed a small cog-wheel, which meshes into a cog-wheel placed upon the shaft of the winding-

drum, and by this arrangement and connection the said drum is made to revolve.

In order to use motive-power, the operator pulls the cord, letter O, which raises lever *m*, as shown by dotted lines in Fig. 1, and the hoisting-rope is tightened, and held between the grooved wheels, lettered K and *n*, in the grooves of which some soft material, such as rubber, leather, &c., is placed, such material being used in order to have it yield somewhat to the pressure of the hoisting-rope, and still maintain and increase the adhesiveness of the rope, and by this means motive-power is instantly applied to the hoisting-rope, and can be instantly removed by letting go of rope O, when the hoisting-rope is released from the grooved wheels K and *n*.

When the platform reaches the top floor, the bracket H strikes the brake-lever W, and through its connections the brake-shoe is applied to the hoisting-wheel, and the machine is stopped, and when the platform descends, the counter-weight is raised, and as soon as the platform reaches the bottom the counter-weight strikes the brake-lever W, and the brake is again applied and stops the machine; and this arrangement, by which the hoister is prevented from going above or below a certain point, I call my "automatic safety-brake."

In order to stop the hoister or platform at any point, by pulling upon the rope F, which revolves the brake-pulley G, the brake R is screwed forward and backward, and the brake-shoe lever *t* applies or removes the shoe from the hoisting-wheel, and by this means the machine may be stopped and held at any point.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a hoisting-machine or elevator, the rope A and the wheel B, with shaft and gearing for operating the winding-drum X, arranged with relation to the cord O, lever *m*, and grooved wheels *n* and K, operated by mechanical power, so that either manual or mechanical power, or both together, may be used at the will of the operator, and without special adjustment or alteration of any of the parts of the machine, substantially as and for the purpose specified.

2. The automatic safety-brake lever W, whereby the brake-shoe is operated by the bracket H and the counter-weight E, substantially as described, and for the purposes set forth.

3. The brake-rod R, having the nut Y and spring S, in combination with the brake-shoe lever *t*, pulley G, and rope F, and with the lever W, operating substantially as and for the purpose specified.

ERHARD SCHLENKER.

In presence of—
P. P. BURTIS,
S. FINLEY.