

J. W. Tucker,

Elevator.

No 65,307.

Patented May 28, 1867.

Fig. 2.

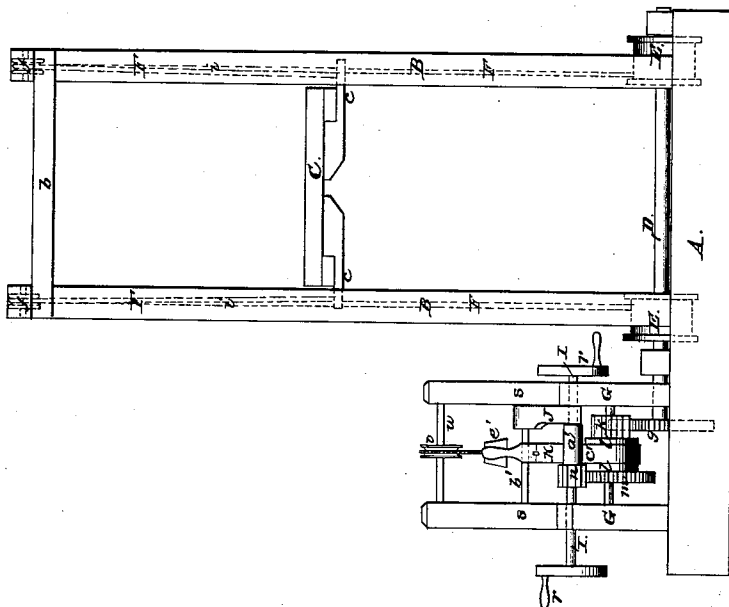
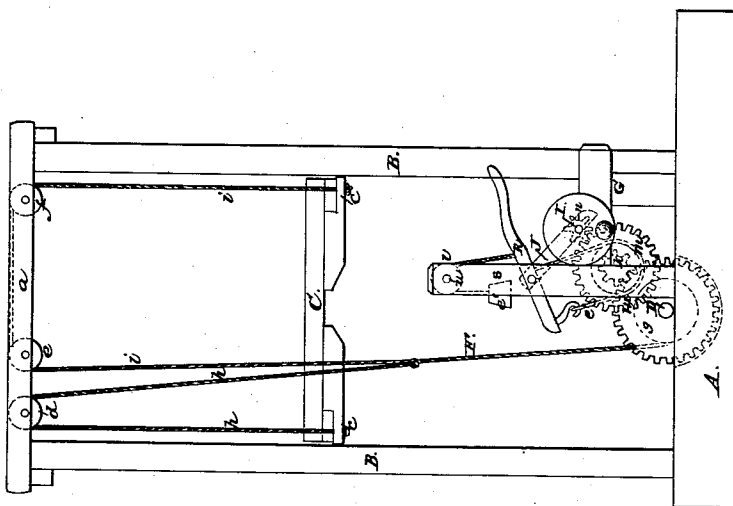


Fig. 1.



Witnesses:

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J. W. Reed.

Inventor.

J. W. Tucker.
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Attys.

United States Patent Office.

JAMES W. TUCKER, OF NEW YORK, N. Y.

Letters Patent No. 65,807, dated May 28, 1867.

IMPROVEMENT IN HOISTING MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JAMES W. TUCKER, of the city, county, and State of New York, have invented certain new and useful Improvements in Hoisting Machines or Elevators; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a portion of this specification, in which—

Figure 1 is a side elevation of a hoisting machine or elevator constructed according to my invention.

Figure 2 is a side elevation of the same, taken at right angles to fig. 1.

Similar letters of reference indicate corresponding parts in both figures.

This invention relates to that class of hoisting or elevating machines which are employed in stores, hotels, manufacturing establishments, and the like, to raise goods or other materials from one story of the building to another.

The invention consists in a novel arrangement of pulleys and bifurcated lifting chains, with reference to each other and with the platform of the elevator and suitable winding drums, whereby a very simple, efficient, and economical means of raising the aforesaid platform is secured. The invention further consists in a locking-dog and sliding-shaft, so combined in relation with each other and with the gearing which operates the lifting chains to raise the aforesaid platform, that the shaft may be readily brought into and securely retained in gear with the said gearing during the operation of raising the aforesaid platform, and be easily thrown out of gear therewith to prevent the speedy descent of the platform, when desired. The invention further consists in a friction-brake and pulley, arranged in such relation with each other and with the sliding-shaft and the gearing which operates the lifting chains, that when the aforesaid shaft is brought out of gear with the said gearing, the speed with which the platform descends may be effectually controlled.

To enable others to understand the construction and operation of my invention, I will proceed to describe it with reference to the drawings.

A indicates the floor, upon which are supported four upright posts B, which are connected at their upper ends by horizontal bars or braces, *a* and *b*, and constitute a rectangular vertical frame, within which the horizontal platform C has a vertical movement, the corners of the said platform being furnished with notched projections *c*, which are fitted to the inner corners of the posts B in such manner as to prevent the platform from swinging laterally outward from between the aforesaid posts. The two top bars or braces *a* are provided with vertical longitudinal slots, in which are pivoted the grooved pulleys *d e f*, the pulleys *d e* of each of the said braces *a* being situated close together at or near one end thereof, while the remaining pulley *f* is situated at or near the opposite end of the same. Working in suitable bearings secured to the floor A, and passing underneath the platform C, is a horizontal shaft, D, one end of which is furnished with a spur-wheel, *g*, in order that it may be rotated by a series of spur-gearing, as will be hereinafter fully set forth. Secured upon this shaft D, at each side of the frame composed of the posts B, are two winding-drums E. The lower end of a lifting chain, F, is attached to each of these drums E. The upper portion of each of the aforesaid lifting chains is made bifurcated, or, in other words, is composed of two branch chains *h* and *i*, one of the said branch chains, *h*, passing over the contiguous pulley *d*, and thence downward to the corner below it of the platform C, to which it is attached, while the other branch, *i*, thereof is passed over the pulleys *e f*, and thence downward to the corner below it of the platform C, and attached thereto, the said platform being thus suspended at its four corners by the branches of the bifurcated lifting chains F, in such manner that when the lower portions of the said chains are wound upon the drums E by the rotation of the shaft D, the platform C will be drawn upward, and *vice versa*. G represents a small framework, which is situated adjacent to the spur-wheel *g* of the shaft D, and supported in this framework is a shaft which is provided with a pinion, *k*, gearing into the aforesaid spur-wheel *g*, also, with a pulley or friction-wheel, *l*, and furthermore with a spur-wheel, *m*, which, during the operation of raising the platform C, as will be presently more fully explained, works in gear with a pinion, *n*, secured upon the sliding crank-shaft I, in such manner that the pinion *n* may be brought laterally away from the spur-wheel *m*, when desired. The crank-shaft I is situated at the top of the framework G, and is furnished at each end with a crank, *r*. The said shaft is capable of a longitudinal movement in its bearings, and is furnished or constructed with an enlargement, *a'*, which not only limits the aforesaid longitudinal movement of the shaft, but also enables

the locking-dog J to hold the shaft in position when the pinion *n* is in gear with the spur-wheel *m*, as will presently be further set forth. This locking-dog consists of a bar pivoted at its rearmost end to a shaft, *b'*, situated between two uprights S, in such manner that it may be turned upward away from the crank-shaft I, when desired. Situated at the top of the uprights S is a shaft, *u*, which is furnished with a grooved pulley, *v*. The friction-brake K consists of a lever pivoted upon the shaft *b'*, and furnished with a looped band, *c'*, which passes underneath and around the pulley *l* in such manner that when the long arm of the aforesaid lever is forced downward, the band *c'* will be pressed forcibly upon the circumference of the said pulley, and by the friction thus exerted thereon will impede the movement thereof, and consequently retard the downward movement of the platform C. The long arm of the aforesaid lever is brought upward in order to bring the band *c'* clear from the pulley *l* by means of a cord, *d'*, attached thereto and passing over the grooved pulley *v*, with a weight secured upon its extremity, as shown at *e'*.

In order to elevate the platform C, the pinion *n* is brought into gear with the spur-wheel *m*, as represented in the drawings, and the locking-dog J is brought downward with its outer end resting upon the cranked shaft I, between one of the bearings of the said shaft and the enlargement *a'* thereof, in such manner as to prevent the longitudinal movement of the said shaft, and thus retaining the pinion *n* in gear with the aforesaid spur-wheel *m*. The crank-shaft is then rotated by means of the cranks *r* thereof, and operating through the agency of the gearing *n m k g*, rotates the shaft D and causes the lower portion of the lifting chains F to be wound upon the drums E, and thus raising the platform, as hereinbefore explained. When it is desired to lower the platform, the locking-dog J is turned upward away from the shaft I, and the said shaft is moved longitudinally, so that the pinion *n* is moved laterally out of gear with the spur-wheel *m*, whereupon the platform descends by its own weight, the long arm of the lever of the friction-brake being pressed downward during such descent of the platform, in order that the friction of the band *c'* thereof upon the friction-pulley *l* may retard, and consequently control and regulate, the speed of the said platform as it descends. Instead of operating the shaft I by cranks, as hereinbefore described, the rotary movement may be communicated thereto by any suitable or appropriate power acting upon belt-wheels secured to the ends of the said shaft.

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

1. The arrangement of the pulleys *d e f* and bifurcated chains F, in relation with each other and with the platform C and winding-drums E, substantially as herein set forth for the purpose specified.
2. The locking-dog J and sliding-shaft I, combined in relation with each other and with the gearing which operates to elevate the platform C, substantially as and for the purpose herein set forth.
3. The friction-brake K and pulley *l*, arranged with reference to each other and with the sliding-shaft I and the gearing which operates to raise the platform C, substantially as herein described for the purpose specified.

J. W. TUCKER.

Witnesses:

A. LE CLERC,
J. W. COOMBS.