2. Sheets. Sheet 1.

G. McKenzie,

Elevator.

No. 109232, Patented Nov. 15. 1870.

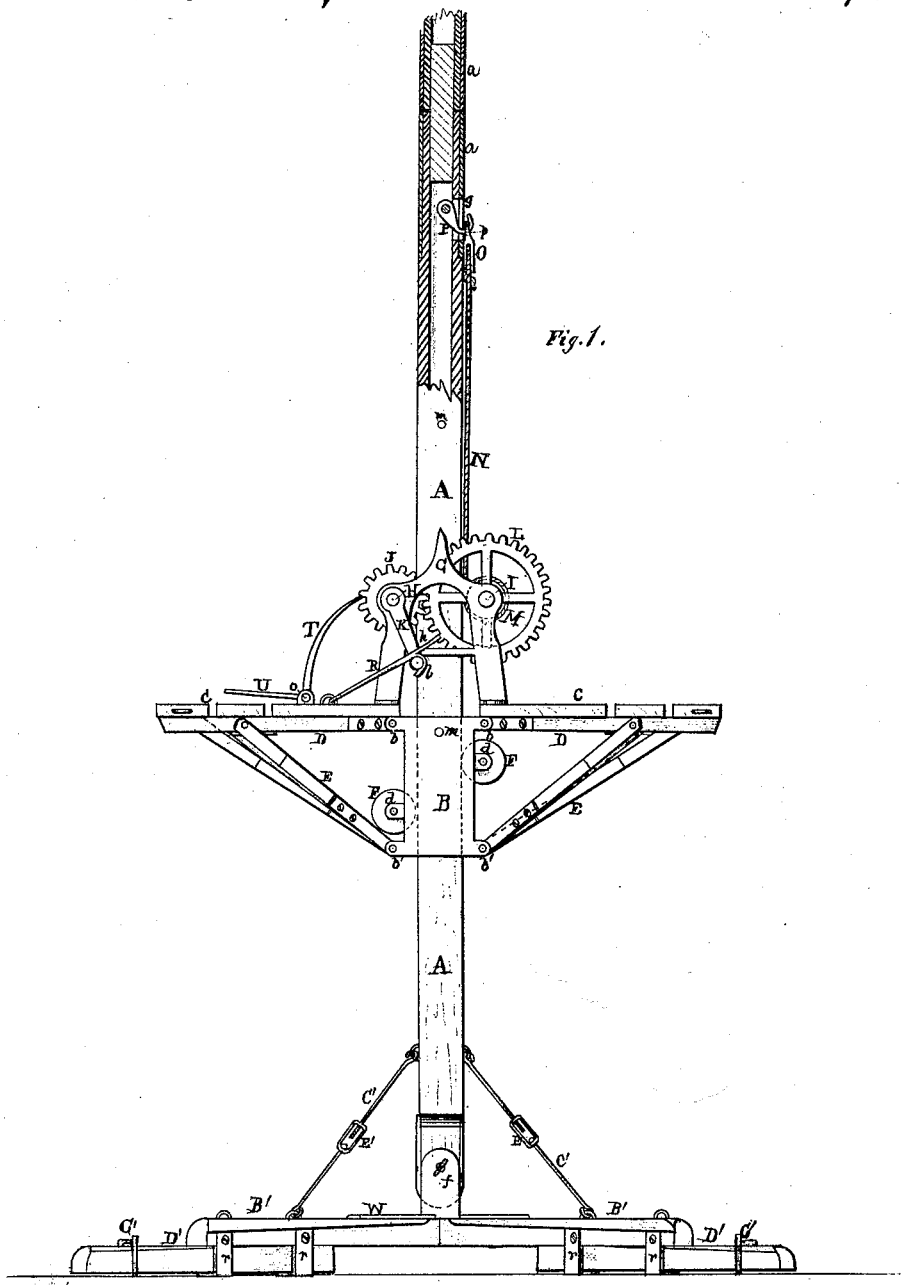


Fig. 1.

Witnesses:
M. A. Finckel.
James L. Norris.

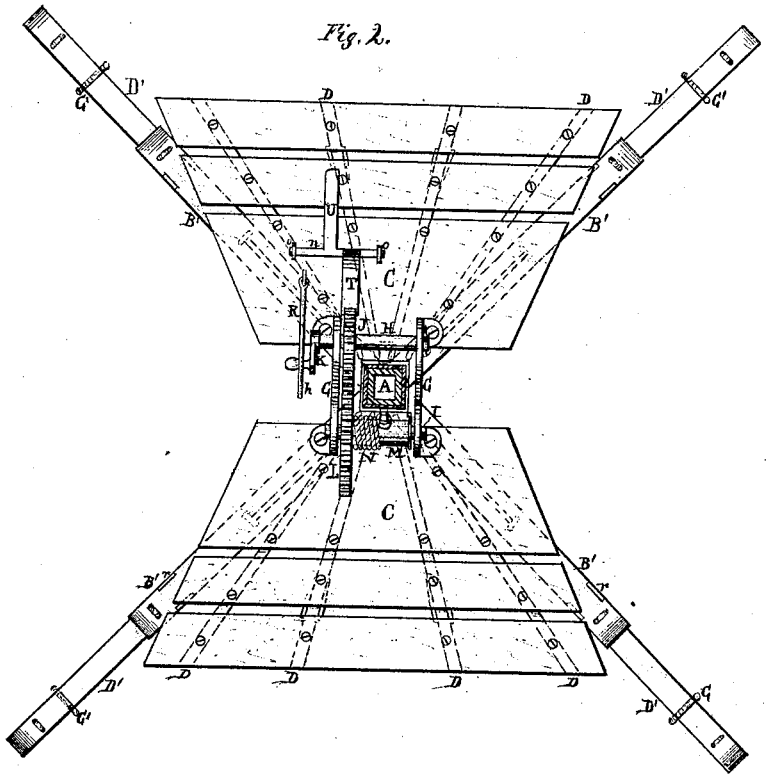
Inventor:
George McKenzie
by Wiedersheim & Norris
Attorneys.

G. McKenzie, 2 Sheets, Sheet 2.

Elevator.

No. 109,232. Patented Nov. 15. 1870.

Fig. 2.



Witnesses.
W. A. Finckel
James L. Norris.

Inventor.
George McKenzie
by Wiedersheim & Norris
Attorneys

United States Patent Office.

GEORGE McKENZIE, OF ZANESVILLE, OHIO.

Letters Patent No. 109,232, dated November 15, 1870.

IMPROVEMENT IN ELEVATORS.

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, GEORGE McKENZIE, of Zanesville, in the county of Muskingum and State of Ohio, have invented a new and useful improvement in 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 drawing forming part of this specification, in which—

Figure 1 is a side view of my improved elevator, the shaft partly in section.

Figure 2 is a top or plan view.

Similar letters of reference indicate corresponding parts.

This invention relates to that class of devices known as self-elevators; and

It consists—

First, in the means for successively increasing the height of a vertical shaft so that the carriage which moves on the shaft may be elevated relatively to the number of sections applied to the shaft.

Second, in the means of holding the carriage at any desired height.

Third, in the method of pivoting and bracing the vertical shaft upon which the carriage moves.

Fourth, in a weighted pawl arranged upon the carriage so as to engage automatically with the gear-wheels and arrest the descent of the carriage, should the operator by accident lose control of the hoisting mechanism.

A A represents a vertical shaft, formed by a series of hollow or solid shafts, joined together, if solid timber be used, by means of a hollow plate, *a*, which firmly surrounds and embraces both ends of the solid timber on each side, or if hollow timber be used, connecting them together by means of a plug or block of wood rigidly secured in one end, which enters or fits snugly into the opening of the corresponding shaft.

This hollow shaft I construct by uniting and firmly securing together several stout planks.

Moving freely up and down this shaft A is a carriage, B, carrying with it the platform or platforms C, of any length, width, or shape, and the mechanism for raising and lowering said carriage.

This carriage B has formed with it projecting lips *b b'*, on or near its top and bottom, from the top ones of which extend horizontal supports D D, upon which the platform or platforms C C are secured by means of bolts, screws, or other devices.

E E are braces, which radiate from the lower projections on the carriage B, and are attached or otherwise secured to the supports D D and platform or platforms C C.

This carriage B has openings or slots in its sides, in which wheels F F are placed, having their journals resting in bearings *d d*, extending from the sides of the carriage B. By the use of said wheels the carriage has a firm, steady, and free movement in its ascent and descent, the resistance also being lessened by the use of said wheels pressing against the sides of the vertical shaft.

Mounted upon the platform C, and immediately over the carriage B, is located the hoisting mechanism for raising and lowering the carriage carrying the platform.

G G represent the sides of the hoisting-machine, which form bearings for the shafts H and I.

The shaft H is provided with a small gear-wheel, J, and a crank, K. This wheel J gears or meshes into a larger wheel, L, on the shaft I, which is provided or formed with a drum, M.

One end of the rope N is secured to the shaft I or drum M, and the other secured to a pulley, O, having a hook, *p*, or to a hook itself, which is readily attached or joined to a pivoted hook, P, working in and out of a slot, *g*, formed in the vertical shaft A; or, if it be desired, the hook P can be dispensed with, and a metal bar inserted through the inside of the shaft about midway of the slot *g*, to which the pulley-hook *p* is easily connected.

Upon the platform C there is attached a metal bar, R, which is provided with a handle, *h*, and a hook, *l*, designed to hold the carriage carrying the platform, by passing it over the crank K of the shaft H, at any desired height.

To further secure this object, and to overcome the danger attending such elevations, I form a series of holes, *m m*, transversely through the shaft and carriage, through which I insert a metal bar, thus securely retaining the carriage and platform in the position desired, should the hook *l* of the bar R be tampered with or become detached from the crank K.

It is a frequent occurrence, on raising and lowering the platforms of elevators, that the attendant working the crank, by accident or oversight, allows the crank to fall or slip from his hands. To obviate such accidents, there is located upon the platform a self-operating pawl, consisting of a heavy arm, T, and a foot-piece, U, attached to a shaft, *n*, which vibrates freely in bearings *o o*.

It will be seen that as the carriage B is raised or lowered, carrying with it the platform C, that the piece U is held down by the pressure of the foot to disengage the arm T from the wheel J; but should any accident occur that the operator of the crank would release the same, the heavy arm T will immediately engage with the teeth of the wheel J, and arrest the falling of the carriage and platform.

The vertical shaft A is pivoted or otherwise secured

in projections *f f*, extending from a bed-plate, W, firmly attached to the feet or arms B′ B′, and is securely braced to the same by means of adjustable tightening-braces C′ C′. These tightening-braces are provided with a swivel or clevis, E′, operating upon the metallic tightening-braces by means of right and left-hand screw-threads, or by means of a thread upon one and a swivel-joint upon the other. These tightening-braces not only perform the office of securely bracing and staying the vertical shaft, but also allowing the shaft to be inclined in order to retain the platform in a horizontal position, should there be any inequalities in the ground where it is designed to be used.

To further increase the stability of the elevator, I have provided the feet or arms B′ B′ with a secondary or extension base or platform, D′ D′, which slide in and out from under or on the sides of the feet or arms B′ B′, between the straps or braces *r r*.

G′ represents a right-angular metal stake, which encircles partly the feet or arms B′ B′ or D′ D′, for the purpose of staking the same securely to the ground.

Having thus described my invention,

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

1. The weighted pivoted pawl T, arranged upon the carriages and operating in connection with hoisting mechanism, substantially as herein shown and described.

2. The swinging hook P, located within the vertical shaft A, for the purpose described.

3. The carriage B, moving on the vertical shaft A, carrying the radiating arms E E, supporting the platform C with its hoisting mechanism, consisting of the frame G, bearing the wheels L and J with their drums, and its brake mechanism.

4. The carriage B with its projections *b′ b′*, to which is secured the radiating arms E E, supporting the platform C, carrying the hoisting mechanism consisting of the wheels L and J, with their drums, journaled to the sides G G, and provided with a suitable crank, operating in connection with the pawl T, rope N, and hook P, substantially as described.

The above signed by me this 7th day of March, 1870.

GEO. McKENZIE.

Witnesses:

JOHN A. WIEDERSHEIM,

JAMES L. NORRIS.