H. SNOWDEN.

HOISTING-MACHINE.

No. 187,425. Patented Feb. 13, 1877.

FIG. I

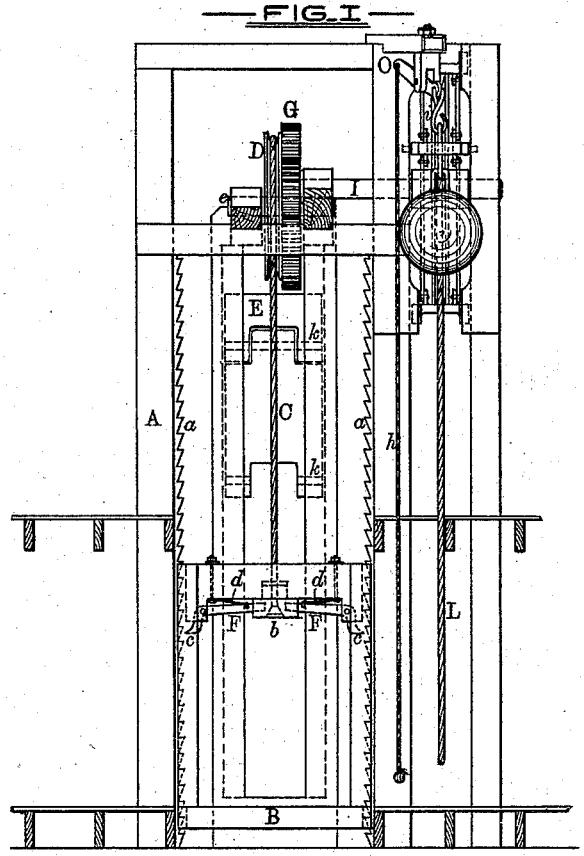
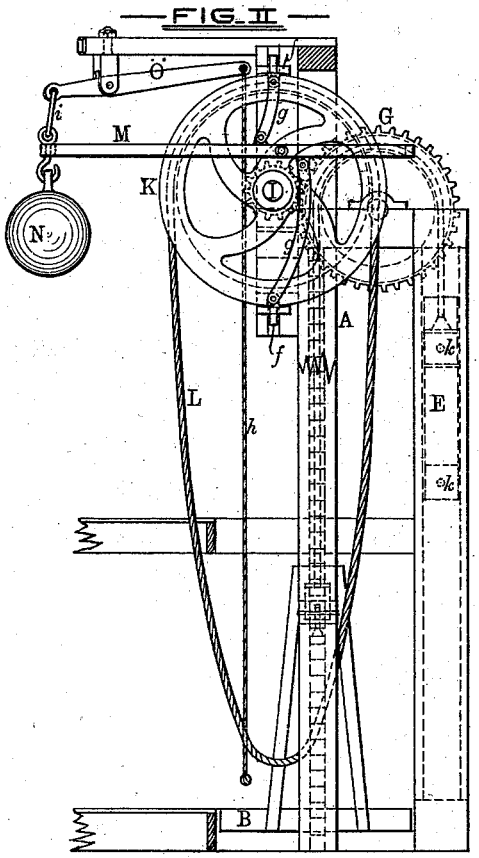


FIG. II



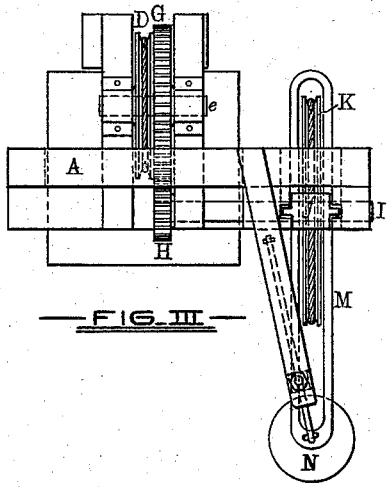


FIG. III

WITNESSES

Wm. H. Dawson

W. W. Thaxton

INVENTOR

Henry Snowden

by G. H. & W. T. Howard

attys.

UNITED STATES PATENT OFFICE.

HENRY SNOWDEN, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN HOISTING-MACHINES.

Specification forming part of Letters Patent No. **187,425**, dated February 13, 1877; application filed January 17, 1877.

To all whom it may concern:

Be it known that I, HENRY SNOWDEN, of the city of Baltimore and State of Maryland, have invented certain Improvements in Hoisting-Machines, of which the following is a specification; and I do hereby declare that in the same is contained a full, clear, and exact description of my said invention, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

This invention relates to certain improvements in that class of hoisting-machines commonly known as elevators, and specially adapted for use in warehouses, stores, hotels, &c.

In the description of the said invention which follows, reference is made to the accompanying drawing, forming a part hereof, and in which—

Figure 1 is a front view of the improved elevator; Fig. 2, a side view of the same, partly in section; and Fig. 3, a plan of the elevator.

Similar letters of reference indicate similar parts in all the figures.

A is the frame of the elevator, extending from the ground floor or cellar of the building to the roof of the same. Two uprights, forming a part of the frame A, are used as guides for the vertically-moving platform B, and are provided with toothed racks *a* on their inner faces, for purposes hereinafter described. C is a rope or chain extending from the platform B, over the grooved pulley D, to the counterbalancing-weight E. The rope or chain C is not attached directly to the frame-work of the platform, but passes through an aperture therein, and is secured to a vertically-movable block, *b*. F F are levers, the long arms of which extend longitudinally of the upper cross-beam of the platform, with their inner ends resting within cavities in the vertically-movable block *b*. The short arms of the levers are bent at nearly a right angle with the long arms of the same, and provided with teeth *c c*, which teeth, when the long arms of the levers are depressed, engage with the teeth on the racks *a*. The levers are pivoted to the frame of the platform, and are furnished with springs *d*, which serve to depress the long arms of the levers, and force the teeth on the short arms of the same, in gear with the racks, under circumstances hereinafter described.

The pulley D is either secured to or cast with a gear-wheel, G, and revolves upon or with a shaft, *e*, supported in bearings on a part of the frame A. The gear-wheel G and pulley D receive their joint motion from a pinion, H, on the counter-shaft I, to which the main hoisting-wheel K is secured. The main hoisting-wheel is operated by hand through the medium of an endless rope, L, which passes through the floors of the building. It will be understood that by combining the gear-wheel G and grooved pulley D, as described, the shaft supporting them is not subjected to any torsional strain in the operation of the elevator. The combination also prevents independent motion of the said grooved pulley and gear-wheel, which independent movement is a fruitful source of accidents when the said parts are separated and secured independently to the shaft by means of keys or equivalent devices liable to become inoperative by constant wear. The brake mechanism consists of two clamps or shoes, *f*, situated at opposite sides of the hoisting-wheel, and adapted to slide vertically in grooves in the frame A. The clamps or shoes are drawn together, and in contact with the periphery of the hoisting-wheel, by means of rods *g*, which connect them with a slotted or bifurcated lever, M, that surrounds the said wheel. One end of the slotted lever is weighted, the weight, which in the drawing is represented by N, operating to keep the shoes in contact with the hoisting-wheel, thus preventing its revolution and the movement of the platform. The slotted lever also serves as a guide for the hoisting-rope, and prevents the same from riding over the edge of the wheel in the hoisting and lowering operations. A second lever, O, to which the check-line *h* is attached, is connected to the one, M, by a link, *i*, and is used to elevate the lever M and remove the brake-shoes from contact with the wheel K. In the ordinary operation of the elevator, the teeth on the short arms of the levers F are inoperative, admitting of the free vertical movement of the platform, but upon the breakage of the rope or chain C, the said teeth are forced out by the springs *d* and en-

gage with the teeth on the racks *a*. The counterbalancing-weight E is formed of a series of blocks of different sizes, each one of which, except the upper one, has a tongue at one end and a groove at the other. The ends of the blocks are perforated to allow of the insertion of a coupling-bolt, *k*. By this arrangement of tongued and grooved blocks a sectional weight may be formed to suit or counterbalance a platform of any size without the construction of patterns specially for the purpose.

Having thus described my invention, what I claim as new, and wish to secure by Letters Patent of the United States, is—

1. The combination of the frame-work B of the platform, rope C, vertically-moving block *b*, and levers F, supported within the sockets of the said block, substantially as and for the purposes specified.

2. The combination of the bifurcated lever and rope-guide M, upper and lower brake-shoes *f*, and rods *g*, substantially as herein described, and for the purposes specified.

In testimony whereof I have hereunto subscribed my name this 9th day of December, in the year of our Lord 1876.

HENRY SNOWDEN.

Witnesses:
WM. T. HOWARD,
JNO. T. MADDOX.