N. S. McFARLAND.

Hoisting Apparatus.

No. 143,706. Patented Oct. 14, 1873.

Fig. 1

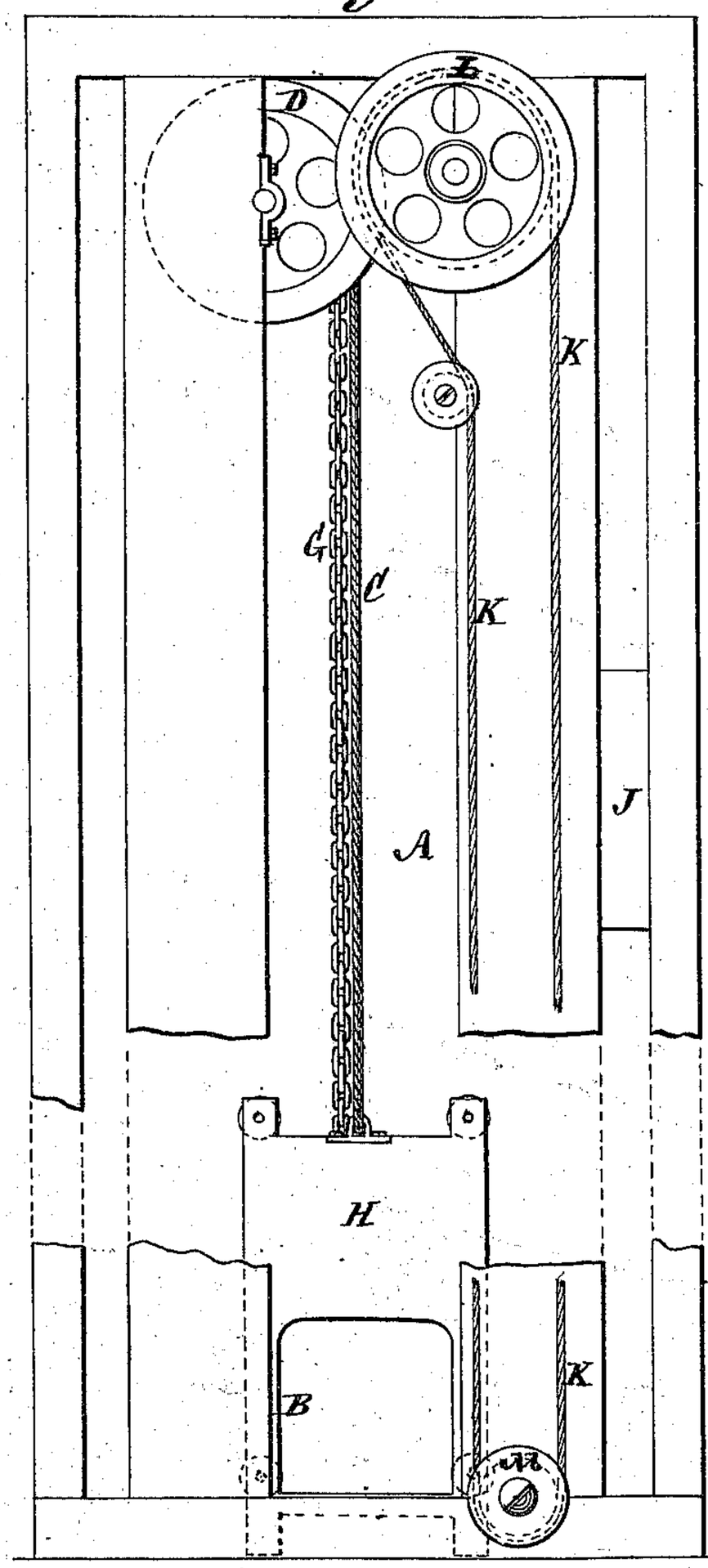


Fig. 2

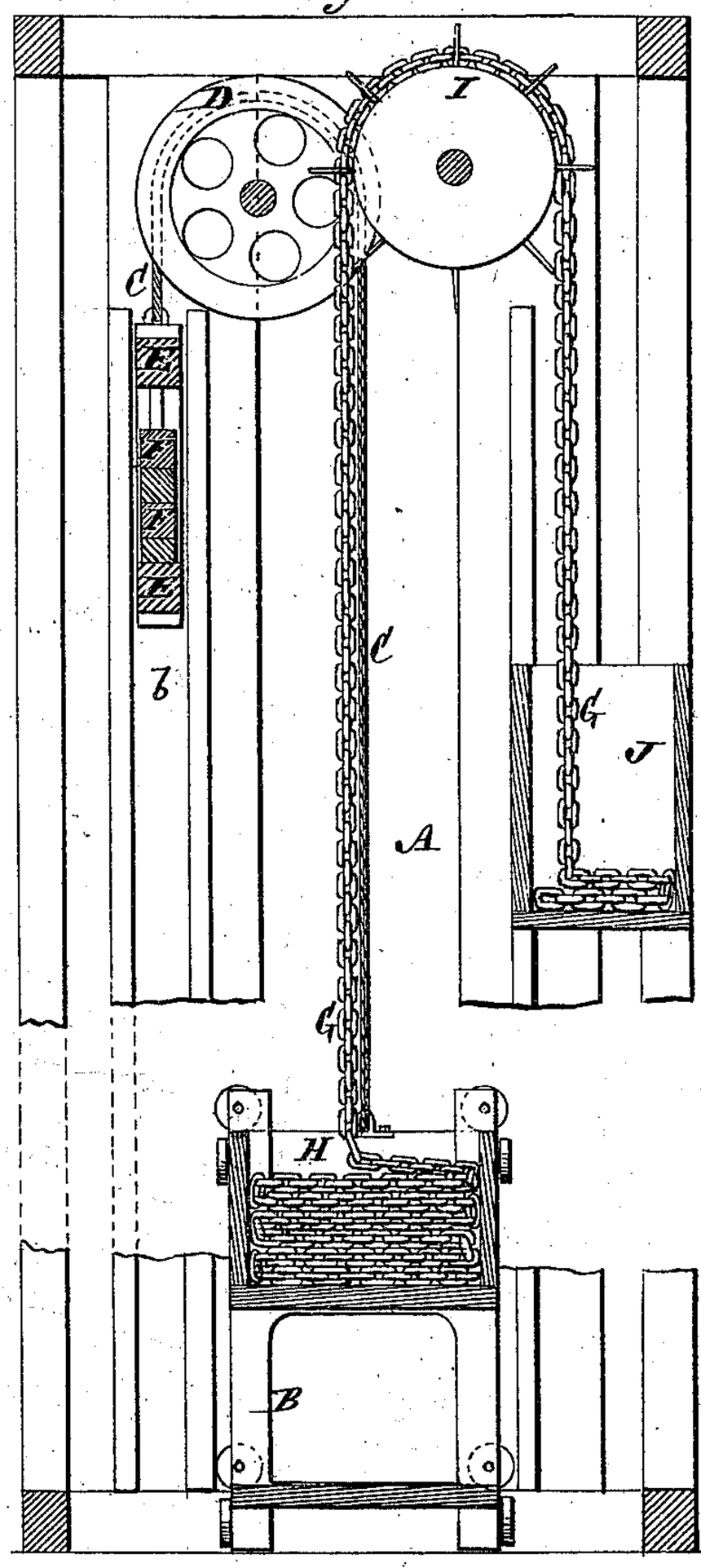


Fig. 3

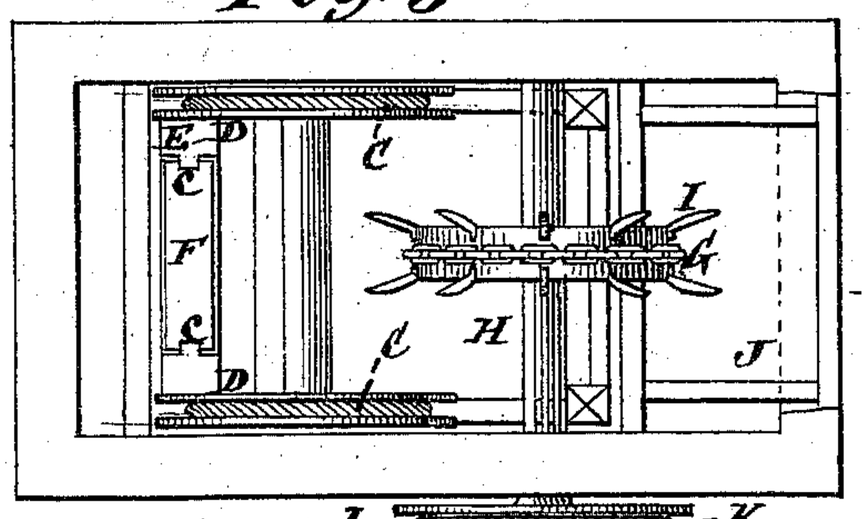
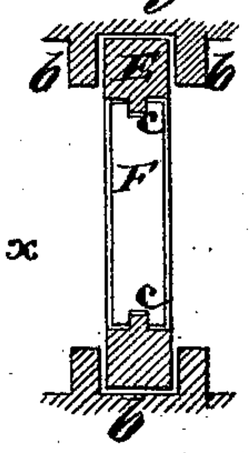


Fig. 4



Witnesses.

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UNITED STATES PATENT OFFICE.

NATHANIEL S. McFARLAND, OF WILLIAMSBURG, NEW YORK.

IMPROVEMENT IN HOISTING APPARATUS.

Specification forming part of Letters Patent No. **143,706**, dated October 14, 1873; application filed September 2, 1873.

To all whom it may concern:

Be it known that I, NATHANIEL S. McFARLAND, of Williamsburg, in the county of Kings and State of New York, have invented an Improvement in Hoisting Apparatus, of which the following is a specification:

This invention relates to hoisting apparatus in which the car is raised or lowered by loading or unloading it with chain or other weight, as required, to which description of hoisting apparatus the arrangement described in my Letters Patent No. 125,064, dated March 26, 1872, belongs. In such previous arrangement, however, I used a double hoistway, and two cars arranged to travel, the one up and the other down, simultaneously, and connected so that the one car balanced the other, the chain or chains being payed into or out of the cars from stationary chain-boxes. This improvement has for its object a similar principle of action, using a stationary chain-box in connection with a movable one on or as formed by the car; and consists generally in a combination of an independent counterpoise of invariable weight relatively to the car, a stationary chain box or chamber, the car, a single hoistway, the chain, and a wheel over which the chain is transferred from the car to the stationary box, or vice versa, whereby a very effective and easily-handled hoisting apparatus is produced, and space economized in the hoistway.

In the accompanying drawing, Figure 1 represents a side elevation of a hoisting apparatus constructed in accordance with my invention; Fig. 2, a vertical section of the same on the line *x x;* Fig. 3, a plan thereof; and Fig. 4, a horizontal section of the counterpoise.

Similar letters of reference indicate corresponding parts.

A is a single hoistway, and B the car arranged to travel up and down therein, and connected by ropes or chains C, which pass over upper pulleys D, with a counterpoise composed of a vertically-sliding frame, E, carrying independent weights F, mounted one upon the other within the frame, which latter is free to move up and down ways *b*, and the weights F grooved at their ends to fit ways *c c* in the frame.

The main object of thus constructing the counterpoise, which is of an elongaged or flattened shape, extending across the hoistway or in proximity to it, so as to occupy but little horizontal space, is to adapt the same-sized frame to different hoisting apparatus by varying the number of weights in the frame, said weights being readily inserted or removed, as required; but said counterpoise, when adjusted or loaded, is of a fixed or invariable weight relatively to the car—that is to say, it does not vary with the raising or lowering of the car.

The car B and counterpoise-frame E may, if desired, be provided with rollers to ease their travel up and down the ways.

G is the loose or independent chain, capable of being payed in and out of a box, H, in or on the car, and arranged to pass over an upper chain-pulley or sprocket-wheel, I, to a stationary chain-box, J, preferably situated at about half the height of the hoistway, on the opposite side of the latter to that on which the counterpoise is arranged.

This chain, the paying in and out of which to or from the boxes H J controls the movement of the car, may, if desired, be manipulated for such purpose by gearing connected with the pulleys D, as in my patent hereinbefore referred to, or be controlled wholly in a direct manner, and without multiplying gearing, if preferred, by an endless belt, rope, or chain, K, extending from top to bottom on the side of the hoistway, and arranged to pass over a pulley, L, on the shaft of the sprocket-wheel I, and under a lower pulley, M, for operation by hand.

In working the apparatus, it is only necessary, when it is required to lower the car, to pay out a sufficient quantity of the chain G from the stationary chamber or box J into the box H, by suitably pulling on the rope K to overcome the counterpoise E F and start or carry down the car. To elevate the car, it is required to pay out sufficient chain G from the box H back into the box J to provide for the counterpoise raising the car and its load.

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

1. The combination of an independent counterpoise of invariable weight, F, relatively to

the car, with the stationary chain box or chamber J, the car B, the hoistway A, the chain G, and wheel I, the whole being arranged for operation substantially as described.

2. The counterpoise constructed of a sliding frame, E, and independent weights F, in combination with the car B, chain G, wheel I, and stationary chain-box J, essentially as described.

N. S. McFARLAND.

Witnesses:
MICHAEL RYAN,
FRED. HAYNES.