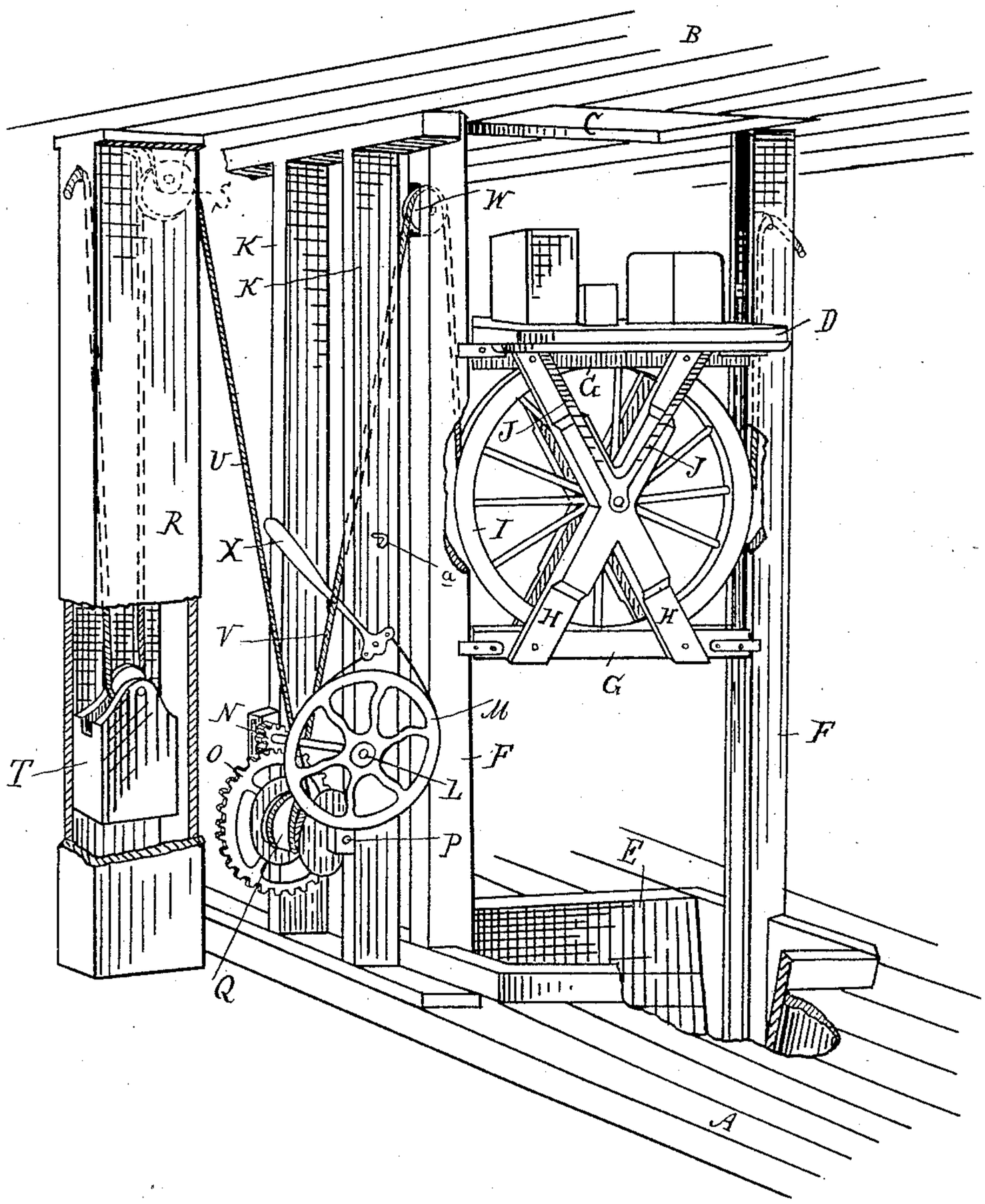
(No Model.)

E. B. POWELL.

ELEVATOR.

No. 315,166. Patented Apr. 7, 1885.



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EDWARD B. POWELL, OF PORTLAND, MICHIGAN.

ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 315,166, dated April 7, 1885.

App'ication filed October 10, 1884. (No model.)

To all whom it may concern:

Be it known that I, EDWARD B. POWELL, of Portland, in the county of Ionia and State of Michigan, have invented new and useful Improvements in Elevators; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, which forms a part of this specification.

This invention relates to certain new and useful improvements in the construction and operation of hoisting apparatus of that class that are ordinarily denominated as "elevators."

The want of some convenient method of lowering and hoisting merchandise to and from the basement has long been felt by those occupying only the basement and ground-floor of a building. A hatchway provided with a rope and slide or block and tackle with a swinging platform was about their only aid, and this was, at best, slow and uncertain and required the aid of two or more persons to operate it, depending upon the weight to be moved. The ordinary modern elevator, with its machinery above the platform, was not adapted to the wants of such on account of the space it occupied above the floor; and the object of this invention is to supply such want in a safe and convenient form of elevator which occupies no space on the floor when not in use and is no obstruction when in use, and which combines all the advantages of the elevator in common use.

The invention consists in the peculiar construction and operation of an elevator wherein friction applied by means of a brake will regulate the speed of the descent of the load, and a counterbalance-weight will return the platform to its original position whenever such platform is relieved of its load, and wherein force applied to the brake-wheel will carry the platform upward when loaded, and in the peculiar construction, arrangement, combination, and operation of the several parts, as more fully hereinafter described.

In the drawing which accompanies this specification my invention is shown in perspective located in the basement of the building, and adapted to convey goods to or from said basement from the ground-floor of the building; and in this drawing, A represents the floor of the basement, and B the next floor above in the building, the latter having an open hatchway, C, cut therein, of a suitable size to allow the platform D of the elevator to fill it.

E is a well in the basement-floor, with its side walls projecting slightly above such floor for the purpose of preventing sweepings or other matter from accidentally filling such well.

F are two vertical guides, one standing at each end of the well, and between these guides is a frame consisting of the two cross-heads G, connected together by the cross-ties H, in which, at their point of crossing being centrally intermediate between the two cross-ties, a grooved pulley, I, is suitably journaled. Upon the top of the upper cross-head is secured a platform, D, corresponding to the size of the hatchway C, cut in the floor, and braces J, extending from the lower side of the platform to the pivotal point of the grooved wheel, support such platform in its position.

K represents two standards or upright posts, to which is suitably journaled the shaft L, upon the overhanging end of which is secured the brake-wheel M, while near the other end of such shaft is secured the pinion N, adapted to engage with the spur-wheel O upon the shaft P, which is also suitably journaled to such standards below the first-named shaft, and has secured upon it the spool or drum Q.

R is a hollow vertical box having journaled within it near its upper inner end a shaft carrying the groove-pulley S.

T is a weight designed to a little more than counterbalance the platform and frame to which it is attached, and this is connected by means of a suitable rope or cable, U, running over the pulley S to the drum Q. Another cable, V, secured to the drum so as to wind in the opposite direction from the first-mentioned cable, passes thence over a pulley, W, journaled in and near the top of one of the guides F, and leads around the lower portion of the wheel I to a point near the top of the opposite vertical guide, where it is secured, these cables being so arranged that when the platform descends the weight rises, and vice versa.

X is a band-brake of the ordinary construction, and adapted to embrace the periphery of

the brake-wheel M, a hook-stop, *a*, or its equivalent, being secured to one of the standards K, for the purpose of limiting the backward throw of the brake-lever.

In the drawing, the elevator-platform is shown, with a load superimposed thereon, as descending. When the lowest point of descent has been reached, the platform will rest upon the curbing of the well, while the frame carrying the platform will descend into the well, and at the same time the weight is carried upward in its box, the brake being applied to regulate the rapidity of the descent. When the load upon the platform is removed, as well as the brake-tension, the weight will compel the platform to ascend to the level of the floor above. If, however, when the platform is in the basement, it is desired to employ it to carry up a load, the brake holds it down until the load is placed upon it, when the pressure of the brake is removed, and power may be applied to a crank projecting from the brake-wheel to elevate the load, which, on arriving at the floor above, is removed from the platform, or, if allowed to remain upon it, the brake below should be applied to hold it in position.

What I claim as my invention is—

1. The combination, with an elevator-platform and its support, of a weight heavier than said platform and its support, constructed and arranged to cause said platform to ascend to the level of the upper floor when the load is removed from the platform after being depressed below said upper floor, substantially as described.

2. The combination, with an elevator-platform and its support, of a weight heavier than said platform and its support, a brake for regulating the speed of the descent of said platform, and means, substantially as described, operating on the brake-wheel to cause said platform to ascend when loaded, substantially as specified.

3. A support for the platform of an elevator, consisting of cross-heads working between vertical guides and secured together by means of cross-ties, within which is journaled a grooved wheel, substantially as and for the purposes specified.

4. The combination, in an elevator, of the vertical guides F, platform D, resting upon a support composed of cross-heads and cross-ties carrying a grooved wheel, the shafts L and P, carrying, respectively, a brake-wheel and pinion and spur-wheel and drum, pulleys S and W, weight T, cables U and V, and band-brake X, the parts being constructed, combined, and operating substantially as and for the purposes described.

5. In combination with an elevator-platform, a rope supporting the same in its bight, one end being attached to a pulley-drum, a weight overbalancing said platform, and a rope carrying said weight and attached to and wound on said pulley-drum, whereby the weight exerts a positive force to return or keep the platform at a fixed position, substantially as described.

EDWARD B. POWELL.

Witnesses:
H. S. SPRAGUE,
E. SCULLY.