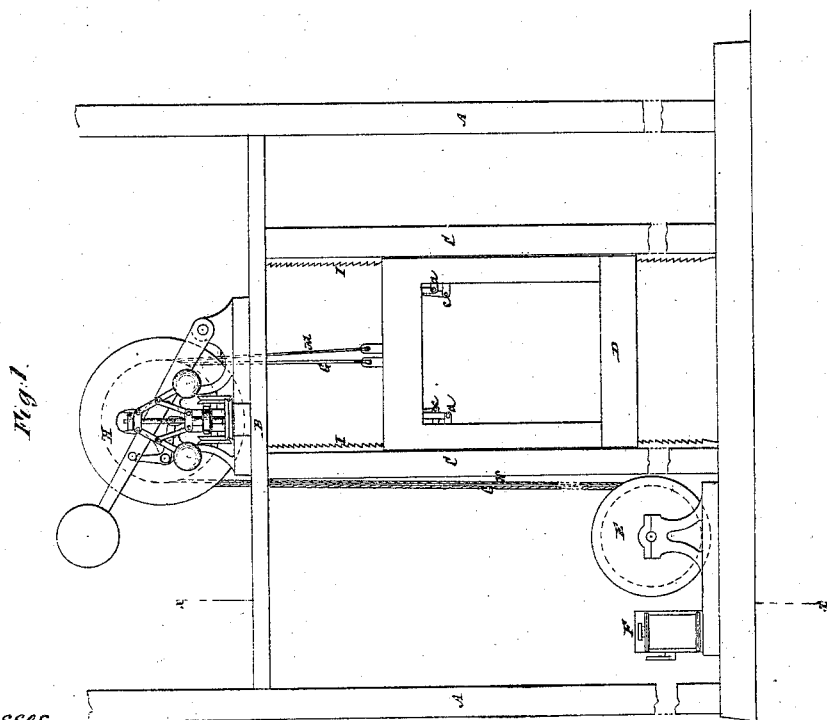
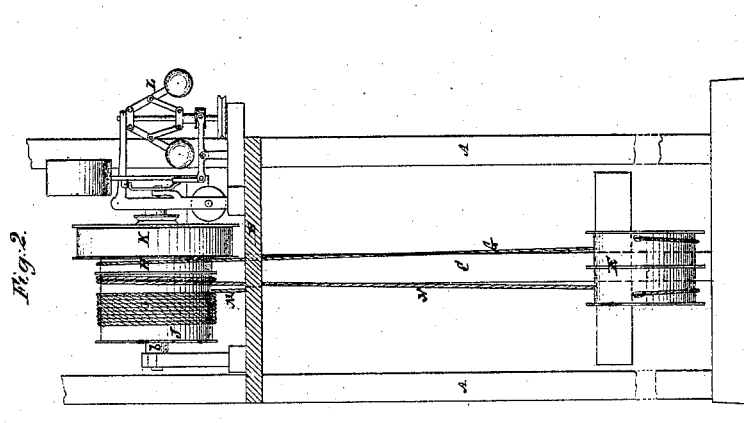


C.R. & M. P. Otis,

Elevator.

No. 110,333.

Patented Jan. 17. 1871.



Witnesses:
Thos. Haynes
R. E. Robinson

Chas. R. Otis
Morton P. Otis

UNITED STATES PATENT OFFICE.

CHARLES R. OTIS AND NORTON P. OTIS, OF YONKERS, NEW YORK.

IMPROVEMENT IN HOISTING APPARATUS.

Specification forming part of Letters Patent No. **110,993**, dated January 17, 1871.

To all whom it may concern:

Be it known that we, CHARLES R. OTIS and NORTON P. OTIS, both of Yonkers, in the county of Westchester and State of New York, have invented a new and useful Improvement in Hoisting Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification, and in which—

Figure 1 represents a side elevation of a hoisting apparatus constructed in accordance with our improvement; and Fig. 2, a sectional view at right angles to Fig. 1, taken as indicated by the line *x x*.

Similar letters of reference indicate corresponding parts.

This invention consists in a certain arrangement of a hoisting-rope, the safety-rope, and the take-up rope, the first connecting the platform, car, or cab with the hoisting-drum, the second connecting the safety-drum with the safety-stops, and the third connecting the safety-drum with the hoisting-drum. This arrangement of the ropes secures simplicity with efficiency, and by it a counter-balance for taking up the slack of the safety-rope may be dispensed with.

Referring to the accompanying drawing, A represents the frame of the apparatus, and B a floor at top of the hoistway. C C are the guides or posts, up or down within which the car, cab, or platform D works. E is the hoisting-drum, and F the engine for operating the same, both arranged to occupy a lower or base position relatively to the rest of the apparatus. G is the hoisting-rope, made fast at its one end to the hoisting-drum E, and arranged to run up over a sheave, H, situated at top of the hoistway, and from thence down to the levers of the usual stop-pawls *a a*, connected with the car, cab, or platform, to lock by spring pressure or action with the safety ratchets or racks I I, in case of the hoisting-rope breaking or of its making slack.

On the same shaft, *b*, as carries the sheave H is arranged the safety-drum J, and likewise, if desired, a brake-wheel, K, for action upon it of a friction-brake under control of a governor, L, or otherwise.

By the arrangement of the safety-drum J on the same shaft as carries the sheave H, over which the hoisting-rope passes, a separate shaft for the safety-drum is dispensed with and general compactness insured; also a timely run of the safety-rope with the hoisting-rope perfectly secured.

M is the safety-rope, secured at its one end to the safety-drum J, and at its other end to the safety-stops *c c*, said safety-drum either being arranged on the same shaft as the hoisting-rope, sheave H, or otherwise.

N is the take-up rope, which provides against slack forming in the safety-rope, and serves to revolve the safety-drum and wind up the safety-rope during the ascent of the car, cab, or platform. This rope N, which is wound in a reverse direction to the safety-rope M on the safety-drum J, is connected at its one end with the latter, and at its other end to the hoisting-drum E, or duplicate drum on the same shaft, and virtually forming an extension of the hoisting-drum. Under this arrangement a balance-weight to take up the safety-rope is dispensed with, and as the hoisting-drum performs the double office of controlling or operating the take-up rope as well as the hoisting-rope, the hoisting-rope, sheave H, and safety-drum J should be of like diameters, so as to have the same surface-travel to secure a proper run of said sheave and drum and of the ropes passing over them.

What is here claimed, and desired to be secured by Letters Patent, is—

The arrangement, essentially as described, of the hoisting-rope G, the safety-rope M, and the take-up rope N, the first connecting the platform, car, or cab with the hoisting-drum, the second connecting the safety-drum with the safety-stops, and the third connecting the safety-drum with the hoisting-drum, for operation in relation to each other as specified.

CHAS. R. OTIS.
NORTON P. OTIS.

Witnesses:

FRED. HAYNES,
R. E. RABEAU.