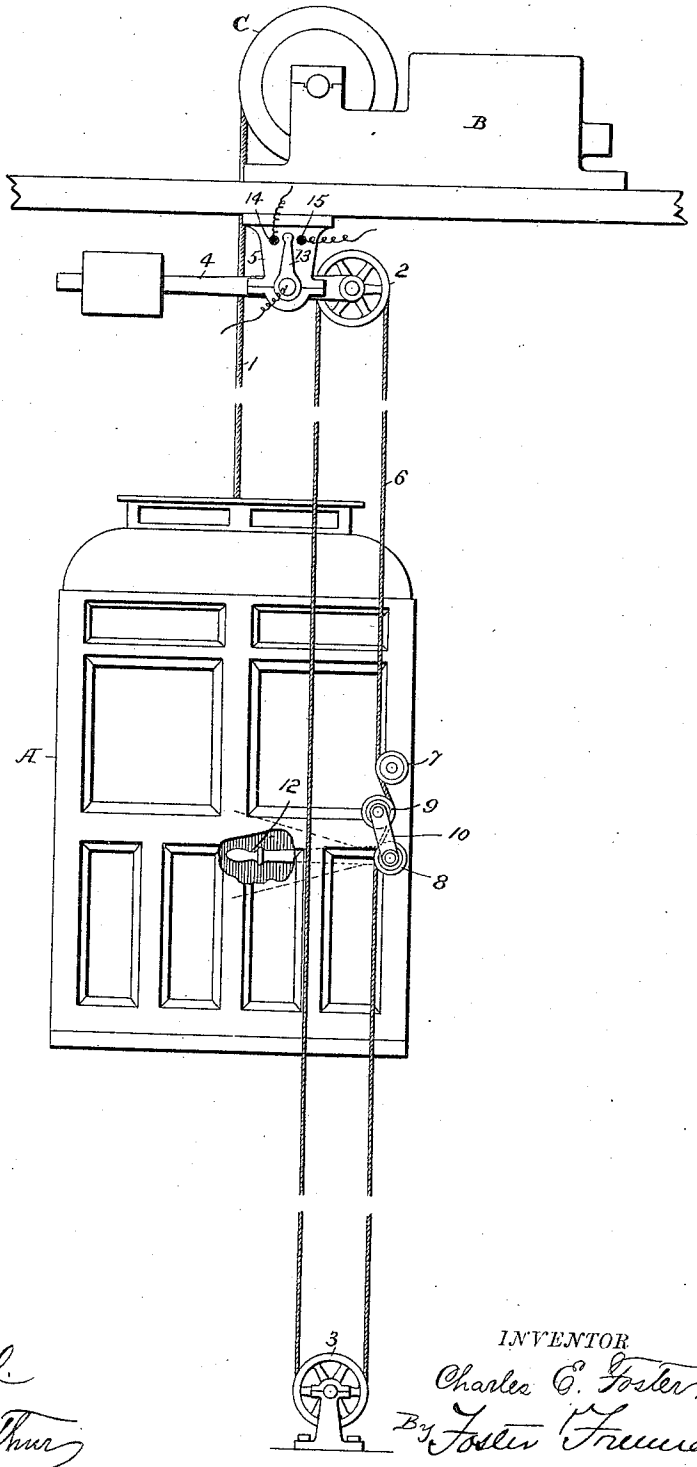
(No Model.)

C. E. FOSTER.

ELEVATOR.

No. 443,273. Patented Dec. 23, 1890.



WITNESSES

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UNITED STATES PATENT OFFICE.

CHARLES E. FOSTER, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO THE HYDRAULIC ELEVATOR COMPANY, OF CHICAGO, ILLINOIS.

ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 443,273, dated December 23, 1890.

Application filed April 17, 1890. Serial No. 348,325. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. FOSTER, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Elevators, of which the following is a specification.

My invention relates to that class of elevators in which the movements of the cage are regulated by means of a device within the cage, connected with a stopping and starting device of an elevator-engine; and my invention consists in certain connections hereinafter set forth for moving said stopping and starting device from the operating-handle within the cage.

The figure in the drawing represents an elevation of sufficient of an elevator to illustrate my improvement.

The cage A is of any suitable construction, or it may be a platform connected to be operated by the engine B, which may be of any of the usual forms, either a hydraulic engine, steam-engine, or, as shown, an electrical engine, and connected to operate a drum C, around which is wound the hoisting-rope 1, connected to the cage. Within the well are two pulleys 2 3, one of which is fixed, while the other is movable. As shown, the lower pulley turns in fixed bearings, while the upper pulley turns in bearings upon a weighted lever 4, supported by a bracket 5. Around both pulleys passes an endless cable 6, which thus hangs in a position within the well adjacent to the sides of the cage, and upon the latter is carried a tightening device of any suitable construction, whereby the cable may be tightened or slackened, as required. As shown, the tightening device has two pulleys 7 8, turning upon fixed bearings upon the sides of the cage, and a pulley 9, carried by a frame 10, outside the cage, connected to a short shaft extending through the cage, and provided at the inside of the cage with an operating-handle 12.

The movable pulley 2 is connected in any suitable manner with the stopping and starting device of the elevator-engine. Such starting and stopping device may be a belt-shifter or valve, or, as shown, may be an electric circuit-breaker or switch 13, capable of being set to connect with either of two contacts 14 15, the shifting from either contact breaking the circuit and holding the apparatus at rest, while connection with the contact 15 will complete the circuit to elevate the cage, and connection with the contact 14 will complete the circuit to lower the cage. It is not necessary to describe these circuits, as they are well known to those connected with electrical engineering and to those familiar with electrical elevator apparatus.

When the pulley 9 is moved by the handle 12 to a position between the two parallel portions of the cable, so as to wholly release the latter, the upper guide-pulley 2 rises to the limit of its upward motion, connection is made between the switch and the contact 14, and the engine is driven so as to lower the cage.

If it is desired to arrest the motion of the cage, the pulley 9 is brought into its mid-position—that is, so as to tighten the cable 6, as shown, to such an extent that the switch 13 is brought between the contacts 14 and 15, when the motion of the engine will at once be arrested. If it is desired to ascend, the cable is then still further tightened by moving upward the handle 12 until the switch 13 is on the contact 15, when the engine will be reversed and the cage will be elevated.

It will be seen that the cable 6 is not connected to positively travel with the cage, but hangs at times loosely within the well, but that it is tightened or slackened by means of the cable-tightening device upon the cage, and when acted upon by the latter will either travel with the cage or around the pulleys of the tightening device, according as there may be more or less friction upon the different portions.

Without limiting myself to the precise construction and arrangement of parts shown and described, I claim—

1. The combination, with the cage, elevator-engine, and stopping and starting device thereof, of a fixed and a movable pulley within the well, the movable pulley connected to operate the stopping and starting device, a continuous cable passing round said pulleys and disconnected from the cage, and a cable-tight-

ening device upon the cage, substantially as set forth.

2. The combination of the cage, stopping and starting device, movable pulley at one end of the well connected with said device, fixed pulley at the opposite end of the well, continuous cable passing round said pulleys and disconnected from the cage, and a cable-tightening device provided with pulleys outside the cage and with an operating-handle within the cage, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES E. FOSTER.

Witnesses:
W. S. MCARTHUR,
J. S. BARKER.