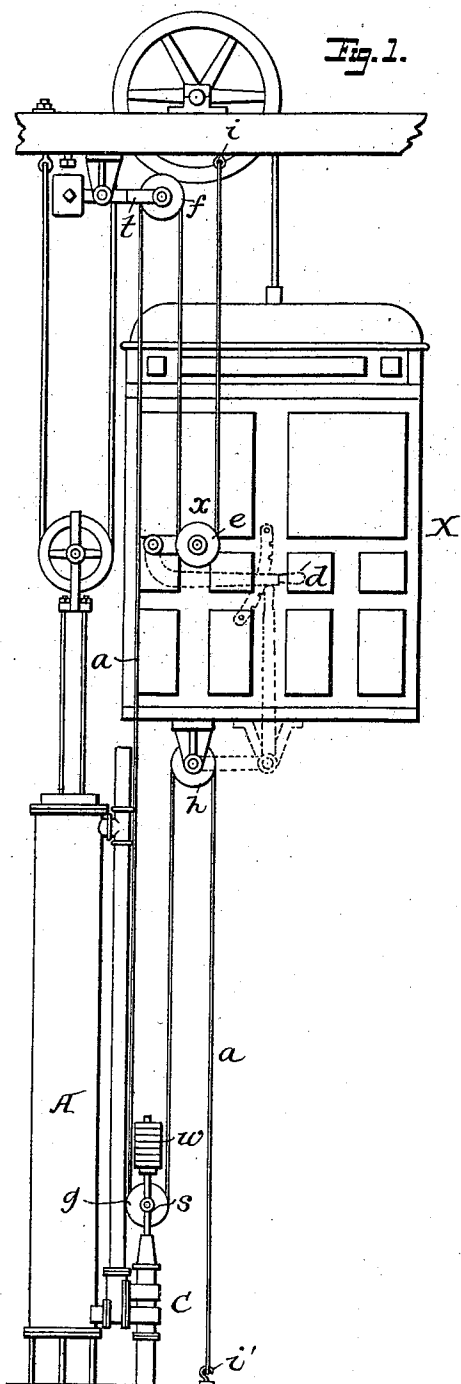


(No Model.)

C. E. FOSTER.
CONTROLLING DEVICE FOR ELEVATORS.

No. 530,936.

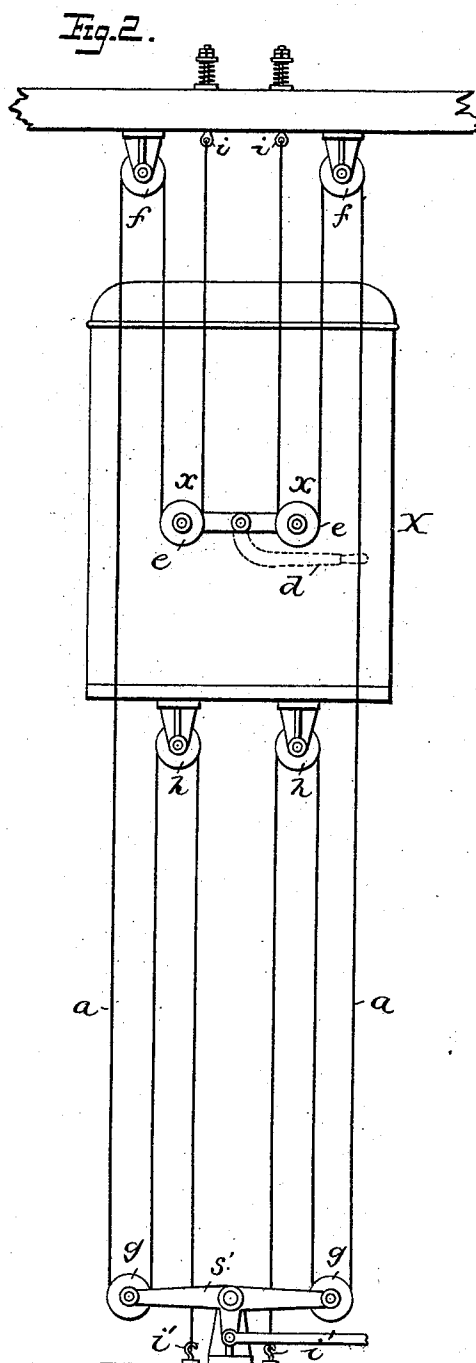
Patented Dec. 18, 1894.



Witnesses

Prof. Hinkel

Alle H. Dobson



Inventor
Charles E. Foster
by Foster Freeman

Attorneys

UNITED STATES PATENT OFFICE.

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

CONTROLLING DEVICE FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 530,936, dated December 18, 1894.

Application filed April 14, 1892. Serial No. 429,204. (No model.)

To all whom it may concern:

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

My invention relates to that class of elevator apparatus in which the stopping and starting device, valve, switch or whatever it may be, is operated through the medium of the cable suspended within the well; and my invention consists of the parts fully set forth hereinafter used in connection with one or two cables secured at the ends to fixed supports and formed into loops passing around pulleys with means for contracting and relaxing the said loops so as to move the stopping and starting device.

In the accompanying drawings: Figure 1 is an elevation of sufficient of an elevator apparatus to illustrate my invention in connection with one operating cable. Fig. 2 is the same in connection with two operating cables.

The elevator engine A, is of any suitable character and is provided with a stopping and starting device C, the character of which will depend upon that of the engine. As shown, the engine is a hydraulic engine provided with a stopping and starting device in the form of a valve to the stem of which is connected any suitable form of shifting device as set forth hereinafter.

The cage X, travels up and down the well under the action of the engine as usual and carries a guide-pulley or pulleys *h*, and one or more take-up pulleys or sheaves *e*, the latter being shifted vertically by means of a hand lever *d*, or other suitable device within the cage.

Upon the shifting device for the stopping and starting device, whether said shifting device is in the form of the stem *s*, of the valve as shown in Fig. 1, or a lever *s'*, as shown in Fig. 2, is a support for a pulley or pulleys *g*, and at the top of the well are one or more guide pulleys *f*, each of which may be upon a counterbalanced lever *t*, for the purpose of taking up the slack in the cable *a*. Each cable *a*, is secured at one end to an eye-bolt *i*, or other fixture within the well, passes around

one of the pulleys *e*, upward over one of the pulleys *f*, and down and around one of the pulleys *g*, up again and over one of the pulleys *h*, and thence downward to another eye-bolt or fixture *i'*, at the bottom of the well. This is the arrangement of each of the cables when two are used as in Fig. 2, or of the single cable when one is used as in Fig. 1, and it will be seen that the cable is formed into a number of bights or loops one of which passes around the movable sheave *e*, while the other passes around the movable sheave *g*. When a single cable is used a weight *w*, is the means of moving the single sheave or pulley *g*, in one direction, but when two cables are used the pulleys *g*, *g*, are upon opposite ends of the lever *s'*.

Whether the single or the double cable be employed the movement of each pulley *e*, carried by the cage serves either to relax or contract the bight *a*, that passes around or embraces the pulley *g*, connected with the stopping and starting device. Thus, any vertical movement of the shifting device upon the cage is the means of imparting motion to the stopping and starting device. In the case of a single cable this motion is imparted positively in one direction by contracting the bight *a*, and in the other direction by the weight *w*, but when two cables are used in connection with pulleys upon opposite ends of a cross bar carried by the lever *d*, as shown in Fig. 2, the movement is positive in both directions.

If desired the pulley *e*, at the side of the cage, may turn upon a fixed bearing and the lower pulley *h*, may be adjustable and constitute the shifting pulley as in the other apparatus of this character, and as indicated in dotted lines Fig. 1.

I am thus enabled to make use of one or two standing cables, each secured at both of its ends at opposite ends of the well and yet secure a loop for receiving the pulley connected with the stopping and starting device, which is not affected by the movement of the cage but which may be contracted and released from the cage to impart proper movement to the said stopping and starting device.

Instead of using a counter-weighted lever

to maintain the cable taut, I may use a spring for lifting the eye-bolt to which the cable is attached, as shown in Fig 2.

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

1. The combination with a cage, engine, and stopping and starting devices, of guide pulleys adjacent to the ends of the well, one being movably supported and connected with the stopping and starting device, a guide pulley and a shifting pulley on the cage, and a cable connected at opposite ends to supports at the bottom and top of the well and passing around said pulleys forming bights, the contracting and releasing of which shift the stopping and starting device, substantially as described.

2. The combination of the cage and stopping and starting device of an elevator, of a shifting pulley on the cage, a movable pulley connected with the stopping and starting device and a cable connected at its ends to

supports at the bottom and top of the well and formed into bights passing round the shifting pulley and the pulley connected with the stopping and starting device, substantially as set forth.

3. The combination of a cage, stopping and starting device, a lever on the cage carrying two shifting pulleys *e, e* guide pulleys *h, h*, connected with the cage, guide pulleys at one end of the well, a lever at the opposite end of the well carrying guide pulleys and connected with the stopping and starting device and two cables each connected at its ends to supports at the opposite ends of the well and passing round said pulleys, substantially as described.

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

CHARLES E. FOSTER.

Witnesses:

J. S. BARKER,
G. P. KRAMER.