

H. A. McGRORY.
ELEVATOR CONTROLLING MECHANISM.
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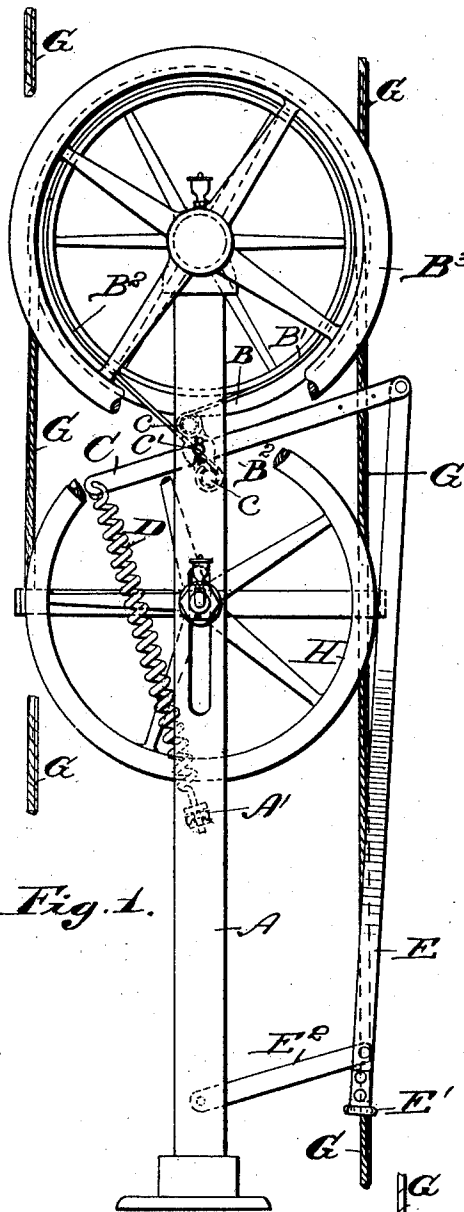


Fig. 1.

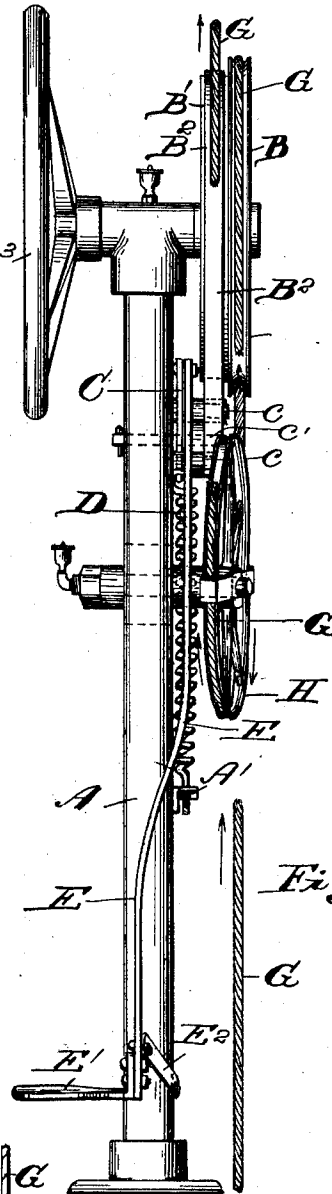
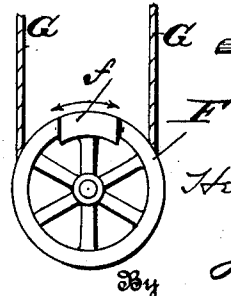


Fig. 2.

Fig. 3.



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ELEVATOR-CONTROLLING MECHANISM.

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To all whom it may concern:

Be it known that I, HENRY A. McGRORY, citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Elevator-Controlling Mechanism, and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to devices employed in connection with cable controlling mechanism for elevators for actuating the starting and stopping mechanism, and its object is to provide means whereby the tendency of an elevator car to creep—when left unattended—due to leaking valves or other causes, may be overcome in order that when the car is left by the operator there is no possibility of its leaving the floor.

A further object is to provide against starting the elevator car at any floor other than that at which the car is stationed, it being necessary to first release the braking or controlling mechanism in the car itself before it can be operated.

In the drawings accompanying this specification: Figure 1 is a side elevation of the device as it would appear connected with the cable control, with parts broken away. Fig. 2 is an elevation at right angles thereto with a portion of the controlling cable broken away to more clearly show the parts. Fig. 3 is a detail view of the lower pulley for the controlling cable adapted to actuate the controlling valve or switch (not shown).

Referring now to the letters of reference placed upon the drawings: A is a standard rising from a suitable base secured to the floor of the elevator car adjacent to the controller cable.

B is a pinch sheave journaled at the top of the standard. Projecting from the inner face of the pinch sheave is a brake drum B' preferably integral therewith.

B² is a band brake sleeved around the brake drum, the ends of which are respectively secured to the projecting pins c, c', of the rocking arm C pivoted at c' to the standard.

D is a spring engaging the rocking arm C at one end and the bracket A' secured to the standard at the other.

E is a bar pivoted to the rocking arm C provided at its lower end with a treadle E'. Adjacent to the lower end of the bar is a link E² pivoted to the standard and to the treadle bar.

B³ is a hand operating wheel keyed to the shaft on which the pinch sheave is mounted.

F is a pulley mounted on the shaft of the controller valve or switch (not shown) governing the starting of the elevator.

f is a weight secured to the pulley to insure against accidental movement of the valve or switch when once operated.

G is a controlling cable leading from the pulley F, at the bottom of the elevator well, up around the pinch sheave B, thence around the pulley H, and thence up around a pulley at the top of the elevator well (not shown) down again to the pulley F in the usual manner.

It will be seen that the pulley H is preferably set at an angle to the pinch sheave in order that the cable will not interfere with the portion encircling the pinch sheave above on its way to the pulley at the top of the elevator shaft.

The pulley H is supported in suitable bearings in a slotted way formed in the standard in order that the portion of the cable passing around it and the pinch sheave may be under tension due to the weight of the pulley and cable in order to insure a gripping relation between the pinch sheave and the cable.

Having indicated the several parts by reference letters, the operation of the device will be readily understood.

When the operator desires to start the elevator car, he depresses the treadle E' with his foot, which action releases the band brake B² from engagement with the drum, then with the foot still on the treadle the operator turns the hand wheel B³ so as to start the elevator car in the direction desired. The cable being held against slipping by the pinch sheave, the controlling valve is actuated, thereby starting the elevator car. When the car reaches the floor at which it is desired to stop, the operator actuates the shut-off valve or switch controlling mechanism by a reverse movement of the hand wheel B³, accomplished by merely grasping the wheel and holding it against rotation while the elevator car is moving, it being understood that the hand wheel revolves continually during the movement of the elevator car due to the rotation

of the pinch sheave,—actuated through traction of the cable G. Upon releasing the treadle E', the band brake B² is applied to the drum B' by means of the spring D, whereupon, in the event of the controller valve leaking or the switch being displaced,—occasioning the "creeping" of the elevator car,—its movement will be promptly arrested by the operation of the controller cable actuated by traction with the pinch sheave in turn held against rotation by the brake band upon the drum B'. It will thus be seen that there is no chance of the car creeping from the floor at which it was left by the operator,—the cause of many fatal accidents due to stepping into an unprotected well while under the impression that the elevator car was still at the floor at which it had been left.

My invention also provides an effectual locking device to insure against the operation of the controlling cable by persons at any floor other than that at which the car has been left. By this means in operating freight elevators in which it is often the custom not to employ a regular conductor, the operator is protected while discharging or loading freight against the carelessness of other employees who may attempt to start the elevator car from another floor.

By providing the pulley F with the weight f, the cable controlled mechanism for governing the starting of the elevator car is given the full predetermined valve or switch movement necessary to operate the mechanism and is insured against accidental displacement.

Having thus described my invention, what I claim is:—

1. In a device of the class described, a controller cable for actuating an elevator car starting mechanism, a sheave journaled on the elevator car adapted to be rotated through traction with the controller cable while the elevator car is moving, means for arresting the movement of the sheave whereby the cable may be operated to control the movement of the elevator car, and means for releasing said last named element that the elevator may be operated.

2. In a device of the class described, a controller cable for actuating an elevator car starting mechanism, a sheave journaled on the elevator car adapted to be rotated through traction with the controller cable when the elevator car is moving, a brake for arresting the movement of the sheave and the operation of the cable, and means for releasing the brake while operating the elevator.

3. In a device of the class described, a controller cable for actuating an elevator car starting mechanism, a sheave journaled on the elevator car adapted to be rotated through traction with the cable when the

elevator car is moving, a brake for controlling the movement of the sheave and thereby the operation of the cable, means for releasing the brake while operating the elevator car, and a hand wheel for actuating the sheave whereby the cable is operated to start the elevator after first releasing the brake.

4. In a device of the class described, a controller cable for actuating an elevator car starting mechanism, the starting mechanism, a pinch sheave journaled on the elevator car adapted to be rotated through traction with the cable when the elevator car is moving, a brake drum carried by the sheave, a band brake adapted to be normally applied to the drum to stop the operation of the sheave and thereby to actuate the cable whereby the starting mechanism is brought under control, and means for releasing the brake band from engagement with the drum.

5. In a device of the class described, a controller cable for actuating an elevator car starting mechanism, the starting mechanism, a pinch sheave journaled on the elevator car adapted to be rotated through traction with the cable when the elevator car is moving, a brake drum carried by the sheave, a band brake adapted to be normally applied to the drum to stop the operation of the sheave and thereby to actuate the cable whereby the starting mechanism is brought under control, means for releasing the brake band from engagement with the drum, and a hand wheel for operating the sheave—turning therewith when the elevator car is moving,—whereby the controller cable may be actuated.

6. In a device of the class described, a controller cable for actuating an elevator car starting mechanism, the starting mechanism, a pinch sheave journaled in the elevator car to receive the cable, a pulley journaled below the sheave around which the cable passes, a brake drum carried by the sheave, a hand wheel for operating the sheave, a band brake adapted to engage the drum, and means for applying and releasing the brake band.

7. In a device of the class described, a controller cable for actuating an elevator car starting mechanism, a pinch sheave journaled in the elevator car to receive the cable, a pulley journaled below the sheave around which the cable passes, a brake drum carried by the sheave, a hand wheel for operating the sheave, a rocking arm, a band brake encircling the brake drum, its ends engaged with the rocking arm, a lever for operating the rocking arm, and a spring engaging the rocking arm to normally apply the brake band.

8. In a device of the class described, a controller cable for actuating an elevator car starting mechanism, a standard secured to the floor of the elevator car, a pinch sheave journaled therein to receive the cable, a

5 pulley journaled in an adjustable bearing in
the standard below the sheave around which
the cable passes, a brake drum carried by
the sheave, a hand wheel for operating the
sheave, a rocking arm, a band brake en-
circling the brake drum, its ends engaged
with the rocking arm, a lever for operating
the rocking arm, and a spring engaging the
rocking arm to normally apply the brake
10 band.

9. In a device of the class described, a
controller cable for actuating an elevator car
starting mechanism, the starting mechanism,
a weighted pulley controlling the operation
15 of the starting mechanism,—around which

the cable passes,—adapted to hold the cable
to the limit of its movement in either direc-
tion, a sheave journaled on the elevator car
adapted to be rotated through traction with
the controller cable when the elevator car is
moving, a brake for arresting the movement
of the sheave and the operation of the cable,
and means for releasing the brake while
operating the elevator car. 20

In testimony whereof, I sign this specifi- 25
cation in the presence of two witnesses.

HENRY A. McGRORY.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."