

(No Model.)

2 Sheets—Sheet 1.

T. W. HEERMANS.
CONTROL DEVICE FOR ELEVATORS.

No. 566,516.

Patented Aug. 25, 1896.

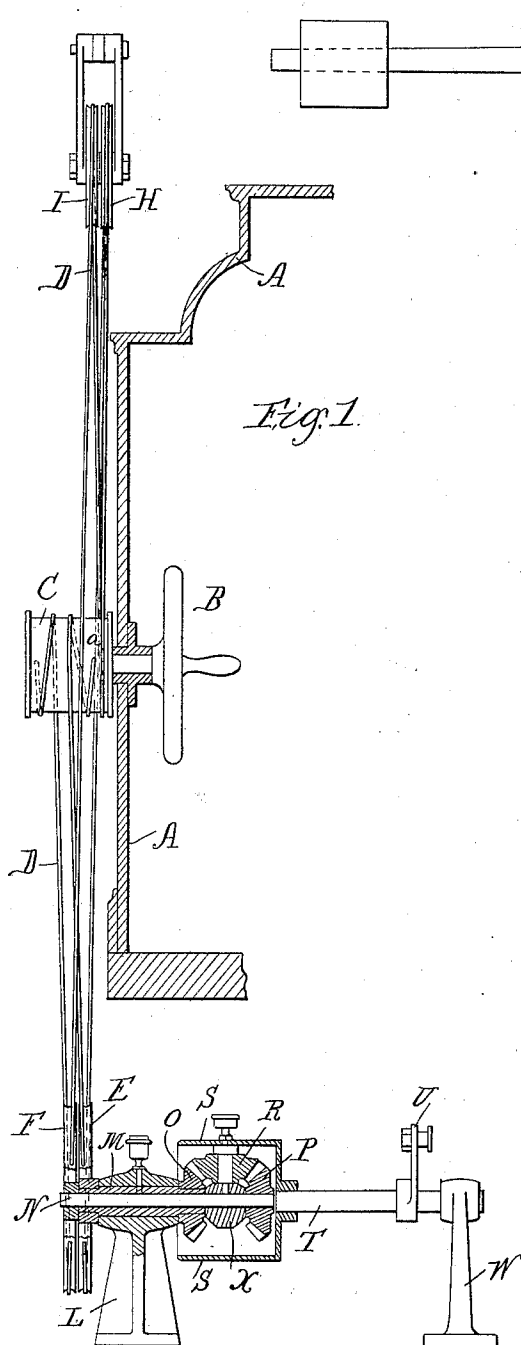


Fig. 1.

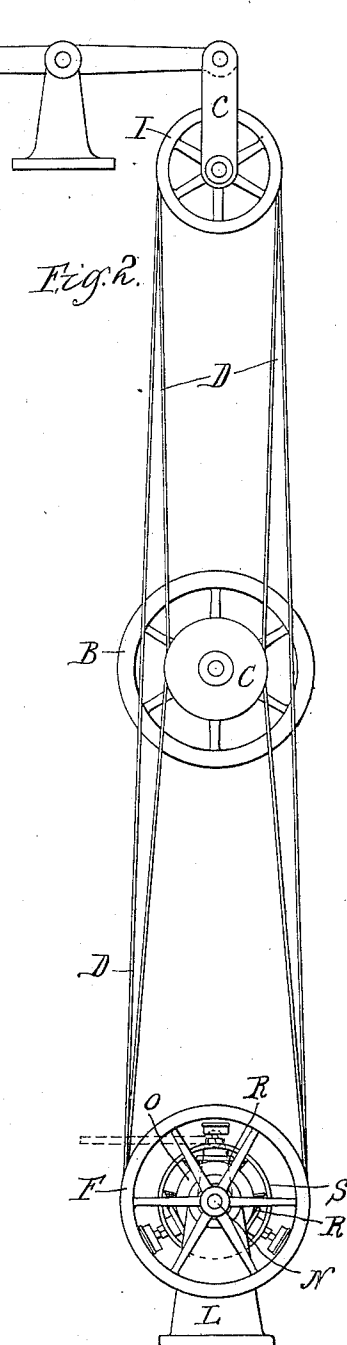


Fig. 2.

Witnesses.
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Thaddeus W. Heermans
by Brown & Darby, attys.

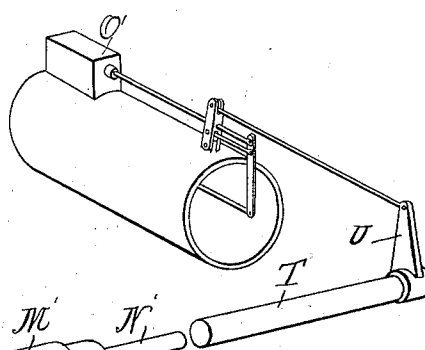
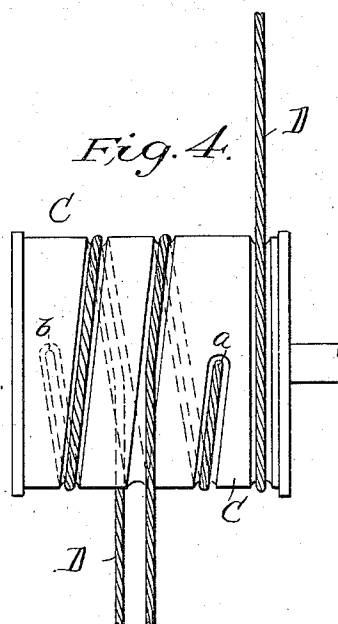
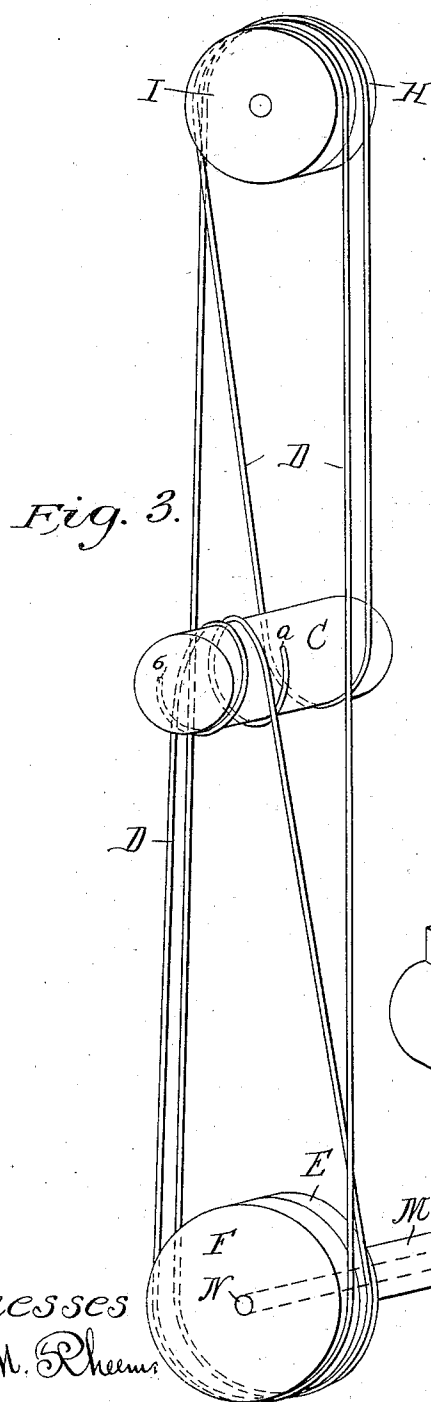
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2 Sheets—Sheet 2.

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CONTROL DEVICE FOR ELEVATORS.

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Witnesses

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UNITED STATES PATENT OFFICE.

THADDEUS W. HEERMANS, OF CHICAGO, ILLINOIS.

CONTROL DEVICE FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 566,516, dated August 25, 1896.

Application filed February 24, 1896. Serial No. 580,365. (No model.)

To all whom it may concern:

Be it known that I, THADDEUS W. HEERMANS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Control Devices for Elevators, of which the following is a specification.

This invention relates to control devices for elevators, and its object is to improve the efficiency of such devices.

The invention consists substantially in the construction set forth in the subjoined description, and more particularly pointed out in the appended claims.

Like letters of reference designate the same parts in the several figures of the drawings, in which—

Figure 1 illustrates a vertical section of an elevator-cage with the control device applied in operative relation thereto. Fig. 2 illustrates an outside end elevation of the control device. Fig. 3 illustrates a perspective of the sheaves, the drum, and the cables, and of a valve connected to the shaft T, the gearing being omitted. Fig. 4 illustrates a detailed view of the drum and short sections of the control-cables.

The car or cage is of the usual construction, and therefore need not be particularly described. A section of the car or cage is illustrated in Fig. 1 of the drawings, and is designated by the reference-letter A.

Mounted upon the car is any suitable hand-grasp for manipulating the cable; and a convenient form is shown in the drawings as consisting of a wheel B, arranged upon an inner side of the car and having its shaft or axis extend outside of such car and carrying a drum C. This drum is enfolded by the control-cable D, which latter is supported by suitable sheaves at top and bottom, as will be hereinafter more particularly described. Starting at a point *a*, Figs. 1 and 3, the cable passes down and under the drum, diagonally across the far side of the same, over the top, down under a sheave E, up over a sheave H, down and under the drum C, up and over the sheave I, down and under the sheave F, up and around the drum C, and finally secured to the rear side and outer end (reckoning from within the car) of the drum at the point *b*. In this man-

ner there are formed in the cable two complete turns and an intermediate loop around the drum and two loops or bights at the top and two at the bottom of the hatchway, all as most clearly indicated in Fig. 3 of the drawings.

The upper sheaves H and I may be suitably mounted at the top of the hatchway, and are preferably journaled in a hanger *c*, depending from one end of a lever K, the other end of which is weighted, whereby the control-cable is kept taut. The sheaves E and F may be respectively secured to independent short shafts M and N, the former of which serves as a sleeve or bearing in which the latter may rotate, and such sleeve may be supported by a stand or bracket L. The short shaft M has secured to its inner end a bevel-wheel O, and the short shaft N has fixed at its inner end the bevel-wheel P. A cup or hollow frame S carries one or more bevel-wheels R, the axes of which are secured at one end to a collar X, which latter is loosely mounted upon the shaft N, so as to be adapted to revolve thereon. The cup or hollow frame has its bottom fixedly secured to one end of a shaft T, the other end of which is supported in a standard W, and this shaft T is adapted to be connected to the valve, switch, or other device for controlling the direction or speed of the engine or motor, which is ordinarily termed a shifting or control device. In the drawings a crank M' is shown as connected by a rod N' to the valve O', which latter may be a pilot-valve or main valve, at the discretion of the constructor, and of the usual and well-known form; but other means may be employed to connect the shaft T with the valve or switch, and, of course, this means may be widely varied by those skilled in the art. The sheaves should in practice be of the same diameter and the drum of uniform diameter, as shown in Figs. 1, 3, and 4 of the drawings; but Fig. 3 illustrates varying diameters, so as to more clearly show the leads of the various runs of the cable.

Many modifications may be made in the mechanism shown and described without departing from the spirit of the invention.

The manner of operation of this control device will now be described. When the car is

traveling, but the operator is not manipulating the hand grasp or wheel, the sheaves E and F will be rotated in opposite directions, causing the bevel-wheels O and P to be rotated in opposite directions and the wheel R to be rotated on its axis; but when the operator manipulates the wheel he thereby accelerates the rotation of one of the sheaves and one of the bevel-wheels O P, and thus causes the bevel-wheel R to revolve the cup or hollow frame S, and consequently turn the shaft T, which latter will communicate a corresponding movement to the device which controls the action or direction of the engine or motor. Accordingly, the operator, by manipulating the hand grasp or wheel can control the engine or motor, and so control the speed and direction of the car. Again, when the elevator car is at rest, and it is desired to start the same, the operator may, by turning the wheel or pulling upon one side of the rope, or in any other convenient manner, cause both the sheaves E F to be rotated in the same direction, and the gears O P to be rotated in the same direction, which will, in effect, lock the gear R against rotation and cause it to revolve the cup or frame S and consequently open the valve or operate the control device of the motor. It will be readily seen that while the beveled gearing shown and described is a convenient form of gearing for this purpose, yet other arrangements of gearing might be employed for the same purpose; and while a wheel and drum are illustrated for manipulating the cable, yet such cable could readily be actuated by other familiar forms of hand grasping devices, and indeed without a hand grasping device at all, provided the cable ran through the car or otherwise within the reach of the operator.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. In an elevator, the combination with a valve or other device for controlling the motor, of two rotatable shafts, serving independently to actuate the valve or other shifting device, connections between such shafts and the valve or other shifting device, two sheaves respectively secured to these two shafts, other sheaves at the other end of the hatchway for supporting the cable, a cable passing around both pairs of sheaves and connected to travel with the car: substantially as and for the purpose set forth.

2. In an elevator, the combination with a valve or other shifting device of a motor, a pair of rotatable shafts for independently actuating such valve or shifting device, connections between the latter and the shafts, actuating-sheaves mounted upon and secured to such shafts, supporting-sheaves at the other end of the hatchway, a cable passing around the sheaves and connected to travel with the car, and an operating device upon the car engaging said cable to operate the same: as and for the purpose set forth.

3. In an elevator, the combination with a valve or shifting device, of a motor; of two independently-rotatable shafts for actuating the shifting device, and connections between the latter and such shafts, actuating sheaves secured to these shafts, supporting sheaves at the other end of the hatchway, a cable passing around these sheaves, and a car having a hand-grasp carried thereon, to which is secured the cable; substantially as and for the purpose set forth.

4. In an elevator, the combination with a valve or shifting device of the motor, of two independently-rotatable shafts for actuating this shifting device, and connections between the latter and the shafts, actuating-sheaves secured to these shafts, supporting sheaves mounted at the other end of the hatchway, a car, a hand-grasp on such car, and a drum connected to such hand-grasp, a cable the runs of which are passed in opposite directions around the drum and which passes around both pairs of sheaves; substantially as and for the purpose set forth.

5. In an elevator, the combination with a valve or shifting device of the motor, of two independently-rotatable shafts for actuating such shifting device, gearing for independently connecting the respective shafts with the shifting device, actuating-sheaves secured to such shafts, supporting sheaves at the other end of the hatchway, a cable passing around such sheaves and connected to the operating device on the car; substantially as and for the purpose set forth.

6. In an elevator, the combination with a shifting device of the motor, of two independent concentric rotatable shafts, serving to independently actuate said shifting device, gearing connecting the shafts with the shifting device, actuating-sheaves secured to such shaft, supporting-sheaves mounted at the other end of the hatchway, a cable passing around such sheaves and connected to a hand operating device on the car; substantially as and for the purpose set forth.

7. In an elevator, the combination with the shifting device of the motor, of supporting-sheaves at one end of the hatchway, actuating-sheaves at the other end of such hatchway, independent concentric shafts, each of which carries a bevel-gear at its other end, one or more bevel-gears intermeshing with the gears upon the shafts and mounted in a revolving frame, connections between such frame and the shifting device of the motor, and a cable passing around the sheaves and connected to an operating device on the car; substantially as and for the purpose set forth.

8. In an elevator, the combination with the shifting device of the motor, of supporting-sheaves at one end of the hatchway, actuating-sheaves at the other end of such hatchway independent concentric shafts, upon which said actuating-sheaves are secured, a gear upon the other end of such shafts, inter-

meshing gear mounted in a revolving frame,
connections between such frame and the
shifting device of the motor, a cable passing
around the sheaves and around a drum
5 mounted upon the car, and a handle for op-
erating such drum; substantially as and for
the purpose set forth.

In witness whereof I have hereunto set my
hand, this 21st day of February, 1896, in the
presence of the subscribing witnesses.

THADDEUS W. HEERMANS.

Witnesses:

FRANK T. BROWN,
S. E. DARBY.