(No Model.)

H. A. BEIDLER.

DEVICE FOR OPERATING ELEVATOR VALVES.

No. 460,934. Patented Oct. 6, 1891.

Fig. 1.

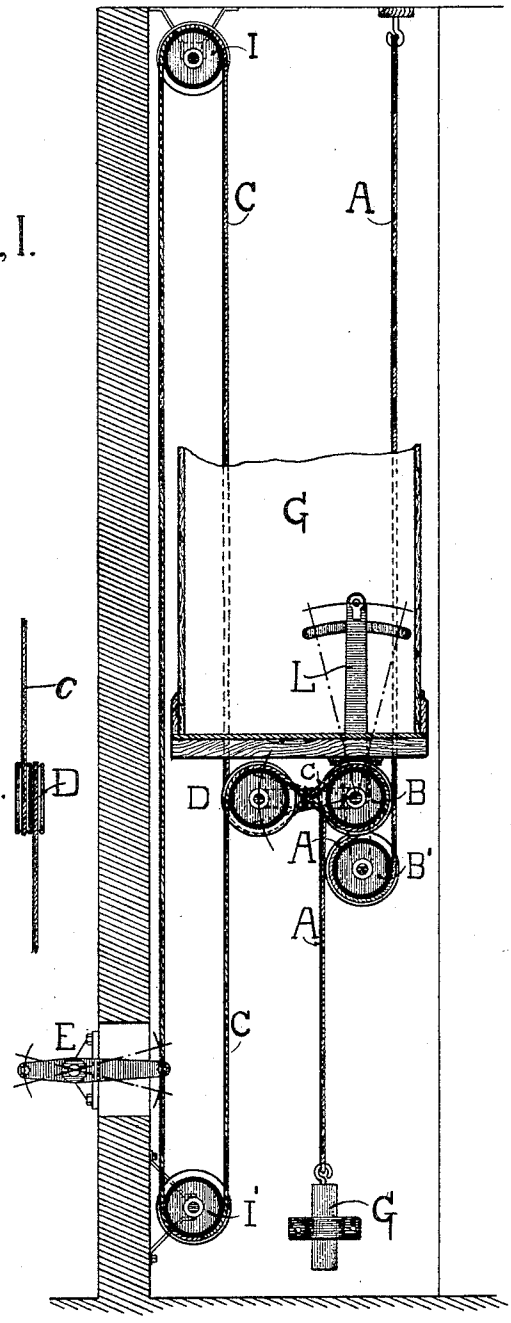
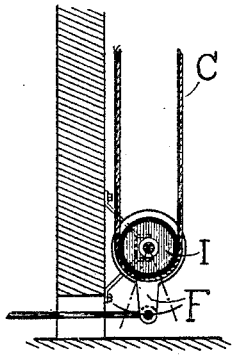


Fig. 2.

Fig. 3.

Fig. 4.



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DEVICE FOR OPERATING ELEVATOR-VALVES.

SPECIFICATION forming part of Letters Patent No. 460,934, dated October 6, 1891.

Application filed May 23, 1891. Serial No. 393,827. (No model.)

To all whom it may concern:

Be it known that I, HERBERT A. BEIDLER, 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 Means for Operating the Valves of Elevators, of which the following is a specification.

This invention relates to elevators; and its object is to provide a convenient and effective means for operating the valves of such elevators from the moving car.

It consists in the construction and arrangement substantially as hereinafter described, and pointed out in the claims.

Like letters refer to the same parts in the several figures of the drawings, in which—

Figure 1 is a vertical section of the elevator-shaft, car or cage, and the means connected therewith for operating the valves. Fig 2 is a detailed view, in end elevation, of one of the sheaves and the arrangement of the rope around such sheaves. Fig. 3 is a similar view of a pair of sheaves and the arrangement of ropes around the same; and Fig. 4 is a detailed view, partly in section, of a modified arrangement for throwing the valve.

In the main figure in the drawings there is shown an elevator-shaft of the usual form, in which is placed an elevator car or cage G, likewise of a customary construction. Two sheaves or pulleys I I′ are journaled in brackets, respectively, at the upper and lower portion of the shaft and serve as guides and supports for an endless rope or cable C. To this rope may be fixed directly a lever E for operating the valves; or the connection of the valve may be made, as shown in Fig. 4, by providing the lower sheave I′ with a projecting arm F, to which the valve may be connected.

To a bracket attached to the cage or car are journaled two sheaves B B′, and a third sheave D is pivoted at the outer end of an angular lever L, which latter is journaled upon the same shaft with the sheave B, but independently thereof, and has an arm projecting up into the cage or car.

A rope or cable A is secured at one end of a device near the top of the elevator-shaft and its other end is preferably attached to a weight arranged near the lower portion of the same elevator-shaft; but if it is desired this end may also be fixed to a bracket or other device at such lower end. According to the arrangement which I prefer the rope A is passed around the sheave B′ from the outer toward the inner side and thence goes again outward and around the sheave B, and then extends downward to its lower connection or weight. In such an arrangement the sheave B′ may be termed an "idler," and while it is desired to use the same it is not absolutely necessary, but, instead, the rope may be passed directly around the sheave B and extended downward from the outer side thereof. The sheave B should be connected with the sheave D in such a manner as to impart its revolution thereto, and this may be effected by gearing of a suitable kind; but I prefer to employ a loop of the rope C. According to this arrangement, which I prefer, the rope C passes downward around the outer side of the sheave D, and thence upward around the upper and outer side of the sheave B, and thence under the same and over the top of the sheave D and downward to the stationary sheave I′, and upward around the similar sheave I.

The operation of the invention is as follows: As the car or cage travels back and forth in the elevator-shaft it carries with it the lever L and the sheaves B B′ D; but the cords A and C normally remain stationary. The friction of the loop in the cord A, which encircles the sheaves B B′, causes them to revolve, and such revolution is communicated to the sheave D by the crossed loops of the cord C, which encircles and gears together the sheaves B D. While the lever L remains at rest the sheaves merely travel up and down upon the two ropes A and C; but when such lever is moved in either direction the outer sheave D is caused to move in a similar direction and pull the rope C, and thereby operate the valve.

It is obvious that changes may be made in the above arrangement and construction by those skilled in the art without departing

from the spirit of my invention, and I therefore do not wish to be limited to this exact construction and arrangement.

What I claim, and desire to secure by Letters Patent, is—

1. In an elevator, the combination of a car, an angular lever connected to and movable therewith and carrying a sheave at its lower outer end, another sheave carried by the car, the two sheaves being geared together, a rope connected at its upper and lower ends, respectively, to points adjacent to the top and bottom of the elevator-shaft and having an intermediate loop encircling one of the sheaves, and an endless rope passing around sheaves at the top and bottom of the elevator-shaft and having a loop encircling the sheave upon the end of the lever and connected with a valve of the motor, substantially as and for the purpose set forth.

2. In an elevator, the combination of a car, an angular lever carried thereby and itself carrying a sheave upon its outer lower end, another sheave carried by the car and adjacent to the first-mentioned sheave, a rope extending from the top to the bottom of the shaft and having an intermediate loop encircling one of the sheaves, an endless rope also extending from the top to the bottom of the shaft and having crossed loops encircling both sheaves, and connections from such latter rope to the valve, substantially as and for the purpose set forth.

3. In an elevator, the combination of a car, an angular lever carried thereby, which in its turn carries a sheave at its outer lower end, another sheave carried by the car adjacent to the first-mentioned sheave, and a third sheave below the last-mentioned sheave and also carried by the car, the rope secured near the top of the shaft and passing around and between the sheaves arranged in vertical line and supporting a weight at its lower end, an endless rope passing over sheaves at the top and bottom of the shaft and having an intermediate portion forming crossed loops for the two sheaves in horizontal line, and a device connecting this endless rope with the valve, substantially as and for the purpose set forth.

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