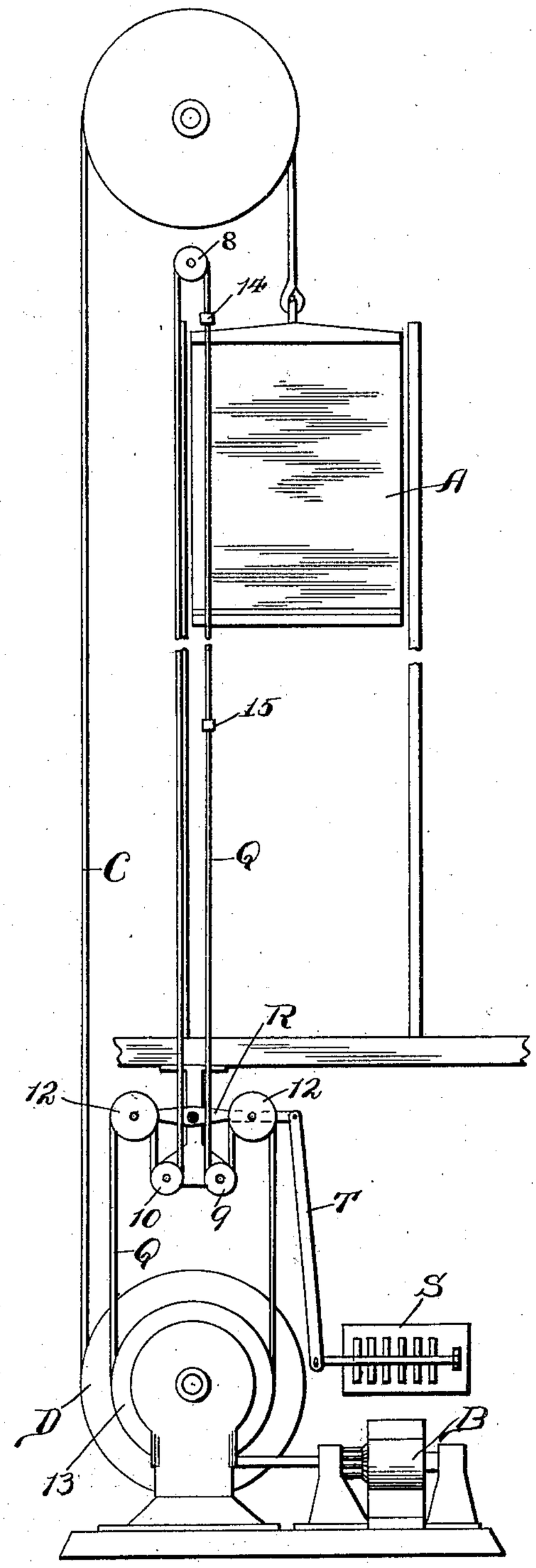
No. 693,908. Patented Feb. 25, 1902.

H. ROWNTREE.

CONTROLLING MECHANISM FOR ELEVATOR HOISTING MOTORS.

(Application filed Sept. 9, 1901.)

(No Model.)



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UNITED STATES PATENT OFFICE.

HAROLD ROWNTREE, OF CHICAGO, ILLINOIS, ASSIGNOR TO BURDETT-ROWNTREE MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

CONTROLLING MECHANISM FOR ELEVATOR-HOISTING MOTORS.

SPECIFICATION forming part of Letters Patent No. 693,908, dated February 25, 1902.

Original application filed May 20, 1901, Serial No. 61,018. Divided and this application filed September 9, 1901. Serial No. 74,733. (No model.)

To all whom it may concern:

Be it known that I, HAROLD ROWNTREE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Controlling Mechanism for Elevator-Hoisting Motors, of which the following is a specification.

This invention relates to controlling mechanism for elevator-hoisting motors.

The object of the invention is to provide a construction and arrangement of controlling mechanism for elevator-hoisting motors whereby the manipulation of the controller-cable may be readily and easily effected.

A further object of the invention is to provide a controlling mechanism which may be actuated automatically to arrest the travel of the car at the limits of travel thereof.

Other objects of the invention will appear more fully hereinafter.

The invention embraces subject-matter divided from my application, Serial No. 61,018, filed May 20, 1901; and it consists substantially in the construction, combination, location, and arrangement of parts, all as will be more fully hereinafter set forth, as shown in the accompanying drawings, and finally pointed out in the appended claims.

The single view on the accompanying drawing is an elevation of an elevator and hoisting and control mechanism therefor, showing the application thereto of a motor-controlling mechanism embodying the principles of my invention.

Referring to the accompanying drawing, reference-sign A designates the car or cage, B the hoisting-motor, and C the hoisting-cable. These parts may be of the usual or any well-known type or construction. In the particular form shown, to which, however, the invention is not limited, the motor B is an electric motor and operates a hoisting-drum D, over which the hoisting-cable C operates, said cable operating over suitable guide-sheaves and being connected to the car in the usual manner.

The hoisting-motor controller is indicated generally by reference-sign S and may be of any suitable or convenient construction, dependent upon the character of the motor. For instance, when an electric motor is employed the motor-controller S will be in the form of an electric switch having suitable connections with the controller-operating mechanism, whereby said switch may be actuated in the required manner. In the particular form of motor-controller-operating mechanism shown I employ a hand-cable of the type known in the art as a "running" cable—that is, a cable suitably connected to move or travel with the car. In the drawings reference-sign Q designates the controller or hand cable. This cable operates over a pulley 8 at the top of the elevator shaft or well, the operating leg or run thereof extending from said pulley through the elevator shaft or well to and around a pulley 9, mounted upon a fixed bracket arranged at the bottom of the elevator shaft or well, thence around pulley 12, carried upon a lever R, mounted to rock upon a fixed support, thence around a pulley or sheave 13, mounted upon the shaft of drum D or connected to said drum to revolve therewith, and thence around a pulley 12, carried by the opposite end of rocking lever R, said lever being pivotally mounted intermediate pulleys 12. Thence the hand or operating cable passes around a pulley 10 upon the fixed bracket, and thence to pulley 8 at the top of the elevator shaft or well. From this construction and arrangement it will be seen that the operating-cable Q travels in the same direction as the car. The controller S is suitably connected to the rocking lever R—as, for instance, by means of a link or arm T. Therefore by rocking lever R the controller is actuated in one direction or the other according to the direction in which lever R is rocked.

In controller-operating mechanism and especially of the running-cable type a considerable pull is required in order to effect an actuation of the control-cable to operate the controller, and if the control-cable travels at the same rate of speed as the car the cable slips through the hands or grip of the operator, especially if the car has attained any considerable speed of travel, which is liable to injure the hands of the operator and to result

in a failure to effect the desired actuation of the controller, particularly in stopping. It is the special purpose of this invention to avoid this difficulty, and in order to accomplish this result I provide means whereby the control-cable is caused to travel at a slower speed than the speed of travel of the car, but still in the same direction, and to this end I employ a pulley or sheave 13, over which said control-cable operates, of smaller diameter than the diameter of the hoisting-drum. By this arrangement the speed of travel of the car exceeds the speed of travel of the control-cable, thereby enabling the operator or elevator-conductor to manipulate the control-cable more readily and easily to effect the actuation of the mechanism which controls the speed of travel of the car and reduces the danger of injury or failure to operate the controller by reason of a high rate of speed of travel of said cable.

In order that the control-cable may be automatically actuated at the extreme limits of travel of the car in order to operate the controlling mechanism, I provide the control-cable with suitable stop devices 14 15, in position to be engaged automatically by the car as it approaches the extreme limits of its travel. Since the car travels at a greater rate of speed than the control-cable, it will be seen that the car overtakes stops 14 or 15, as the case may be, as it approaches the limits of its travel, thereby effecting an automatic actuation of the control-cable and of the controlling mechanism to arrest the hoisting-motor as the car approaches the limits of its travel in either direction.

Having now set forth the object and nature of my invention and a construction embodying the principles thereof, I desire it to be understood that many variations and changes in the details of construction and arrangement would readily suggest themselves to persons skilled in the art and still fall within the spirit and scope of my invention; but,

What I claim as new and useful and of my own invention, and desire to secure by Letters Patent of the United States, is—

1. In an elevator, a car, a hoisting-motor therefor, and means for controlling said motor including a cable, and means for moving said cable at a slower speed than the speed of travel of the car, as and for the purpose set forth.

2. In an elevator, a car, a hoisting-motor, a motor-controlling cable, and means for driving said cable in the same direction with but at a slower speed than the car, as and for the purpose set forth.

3. In an elevator, a car, a hoisting-motor therefor, connections between said motor and car, a control-cable arranged to travel in the same direction as the car but at a different speed, and means controllable by said cable for varying the speed of travel of the car, as and for the purpose set forth.

4. In an elevator, a car, a hoisting-motor therefor, a running control-cable, motor-controlling mechanism for controlling the direction and speed of the car, connections between said running control-cable and said motor-controlling mechanism, and means whereby the control-cable runs at a different speed from but in the same direction as the car, as and for the purpose set forth.

5. In an elevator, a car, a hoisting-drum, means for actuating the same, a sheave or pulley mounted on the shaft of said drum but of smaller diameter than said drum, a control-cable operating over said sheave or pulley, motor-controlling devices, and connections between said control-cable and said controlling devices, as and for the purpose set forth.

6. In an elevator, a car, a hoisting-motor therefor, controlling mechanism for said motor including a controller, a rocking lever, connections between said lever and controller, sheaves carried by said lever, a control-cable, fixed guide-sheaves therefor, said cable operating over the pulleys on said lever, and a sheave actuated by said motor for driving said cable at a slower speed from but in the same direction with the travel of the car, as and for the purpose set forth.

In witness whereof I have hereunto set my hand, this 30th day of August, 1901, in the presence of the subscribing witnesses.

HAROLD ROWNTREE.

Witnesses:

CHARLES H. SEEM,

E. C. SEMPLE.