

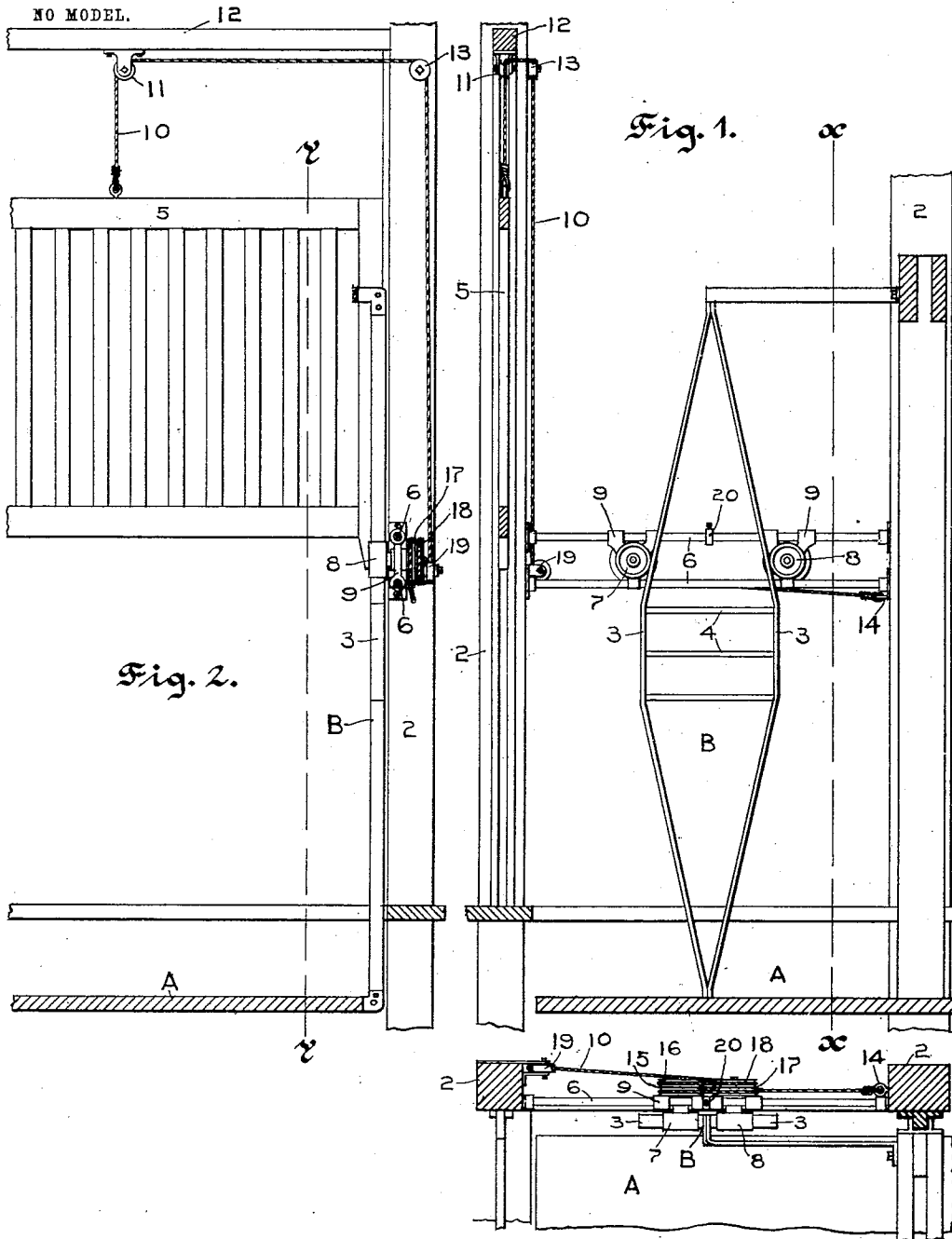
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J. O. LEE.

GATE LIFTING DEVICE FOR ELEVATORS.

APPLICATION FILED MAY 25, 1903.



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UNITED STATES PATENT OFFICE.

JOHN O. LEE, OF ST. PAUL, MINNESOTA.

GATE-LIFTING DEVICE FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 751,796, dated February 9, 1904.

Application filed May 25, 1903. Serial No. 158,564. (No model.)

To all whom it may concern:

Be it known that I, JOHN O. LEE, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Gate-Lifting Devices for Elevators, of which the following is a specification.

My invention relates to improvements in that class of elevators provided with lifting gates or doors arranged in the elevator-shaft at floor-levels, its object being to provide improved means actuated by the elevator in its travel automatically to raise or open said gates or doors.

To this end my invention consists in the features of construction and combination hereinafter particularly described and claimed.

In the accompanying drawings, forming part of this specification, Figure 1 is a vertical section of the elevator, taken on line *y y* of Fig. 2 and looking toward the gate-actuating mechanism. Fig. 2 is a section on line *x x* of Fig. 1, and Fig. 3 is a top view of the parts shown in Fig. 1.

In the drawings, A represents the car, slidable intermediate of the timbers 2, suitable means (not shown) being provided for raising and lowering the elevator-car.

Supported upon one side of the car is a frame B, which constitutes a spreader, as hereinafter set forth. The spreader B preferably consists of a pair of outwardly-bowed vertical bars 3, connected by cross-bars 4 and suitably supported from the car at its upper and lower ends, as shown in Fig. 1. Slidably supported between the uprights 2 at each floor is a gate 5, which when lowered forms a barrier between the main floor and the elevator-shaft. Secured between the uprights 2 upon one side of the elevator-shaft above each floor are the parallel horizontal rods 6. Between the rods 6 are slidably supported the cross-heads 9. Supported upon the inner sides of the cross-heads 9 are the pulleys 7 and 8, between which works the spreader B. Supported upon the rear sides of the cross-heads are loosely-mounted pulleys 15, 16, 17, and 18. The supporting-cable 10 for the gate 5 passes from the gate upwardly over the

sheave 11, supported from the cross-beam 12, thence horizontally over the sheave 13, thence downwardly around a sheave 19, and thence around the pulleys 15, 16, 17, and 18 to the adjacent rear upright 2, to which it is secured, as by a staple 14.

The cable is wound around the pulleys as follows: From the sheave 19 the cable first passes under and over the pulley 18, thence over and under the pulley 16, thence under and over the pulley 17, and thence over and under the pulley 15 to the staple 14. Thus when the pulleys are separated the length of cable which surrounds the pulleys will necessarily be increased, shortening the length of cable between pulleys and gate and lifting the gate. When the pulleys move toward each other, conditions will be reversed, and the gate consequently lowered. When the car approaches the floor either in ascending or descending, the spreader B will pass between the pulleys, as shown in Fig. 1, separating the pulleys until the car is in alinement with the floor, in which position the pulleys will be in contact with the sides of the widest portion of the spreader. As the car leaves the floor, carrying the spreader away from the pulleys, the tension of the rope upon the pulleys, due to the weight of the gate, will draw the pulleys together and allow the gate to drop to normal position. The cross-heads are normally held in position to be actuated by the spreader by a collar 20, secured upon one of the rods 6.

It will be noted that by having a spreader working between two pulleys a double-winding action of the rope is secured, allowing the gate to be raised with relatively slight movement of the individual pulleys. The double arrangement of pulleys and spreader shown minimizes the wear of the parts and centralizes the strain, preventing jar of the elevator.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with an elevator-car and an inclosing framework, of horizontal rods carried by said framework, pulleys slidably upon said rods, a spreader carried by said car in position to separate said pulleys

when the car is raised or lowered, a gate mov-
ably supported in said framework, and a ca-
ble passing from said gate around said pul-
leys and connected with an adjacent support,
5 said cable being so wound around the pulleys
as to be shortened intermediate of the pulleys
and gate when the pulleys are separated.

2. The combination with an elevator-car
and inclosing framework, of a pair of hori-
10 zontal rods carried by said framework, cross-
heads slidable between said rods, a pair of
pulleys supported upon said cross-heads upon
one side of said rods, a second pair of pulleys
supported upon said cross-heads upon the op-
15 posite side of said rods, a spreader carried by
said car in position to pass between and sepa-

rate one pair of said pulleys when the car is
raised or lowered, a movable gate arranged
in connection with said framework, and a ca-
ble passing from said gate around the oppo- 20
site pair of said pulleys and connected with
an adjacent support, said cable being so wound
around the pulleys as to be shortened inter-
mediate of the pulleys and gate when the pul-
leys are separated. 25

In testimony whereof I affix my signature in
presence of two witnesses.

JOHN O. LEE.

Witnesses:

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