(No Model.)

G. V. DELUE.

AUTOMATIC GATE FOR ELEVATORS.

No. 265,220. Patented Sept. 26, 1882.

Fig 1

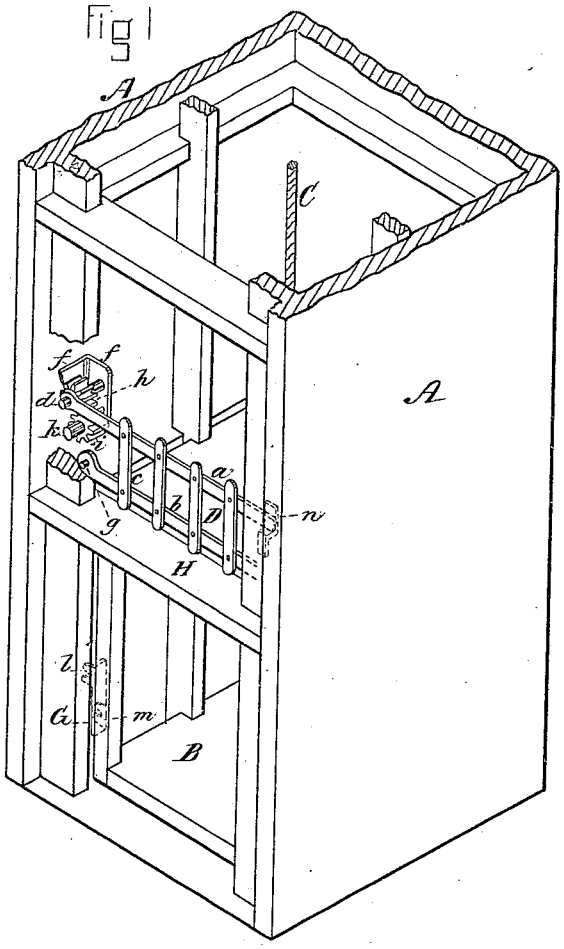


Fig 2

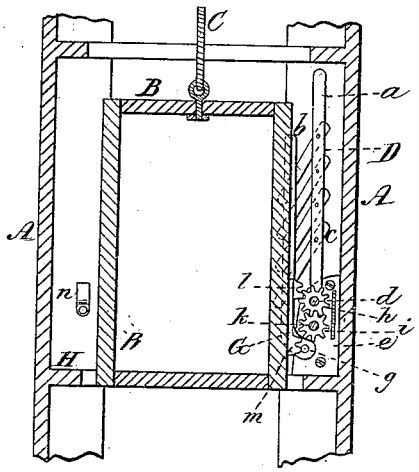
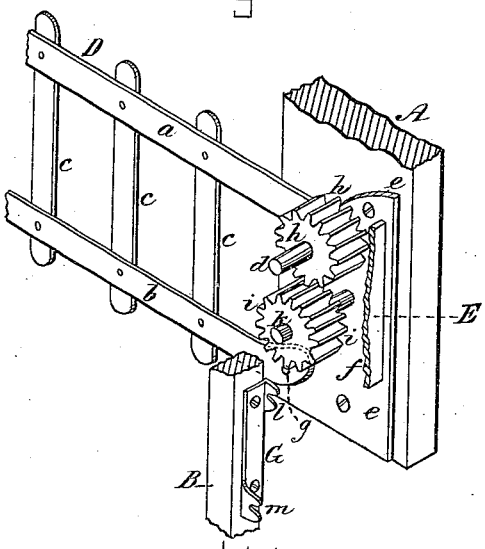


Fig 3



WITNESSES

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UNITED STATES PATENT OFFICE.

GEORGE V. DELUE, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO HIMSELF AND EDWIN J. LLOYD, OF SAME PLACE.

AUTOMATIC GATE FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 265,220, dated September 26, 1882.

Application filed June 21, 1882. (No model.)

To all whom it may concern:

Be it known that I, GEORGE V. DELUE, a subject of the Queen of Great Britain, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Automatic Gates for Elevators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of my automatic gate and its operative mechanism applied to an elevator-well and its car. Fig. 2 is a vertical section through the same. Fig. 3 is a perspective view (enlarged) of a portion of the gate and its operative mechanism.

My invention relates to an improvement in automatic gates for elevators, and has for its object to simplify the construction of the mechanism for operating the gate, thus reducing its cost, and at the same time rendering it more reliable in its action and less liable to get out of order; and my invention consists in a novel combination and arrangement of parts, as hereinafter set forth and specifically claimed.

In the said drawings, A A represent the walls of an elevator-well, and B the elevator-car, operated in the usual manner by means of the rope C. At each floor the opening or entrance to the elevator-well is protected by a gate, D, composed of two horizontal bars, *a b*, connected together by vertical slats or bars *c*, pivoted at the top and bottom to the bars *a b*. One end of the upper bar, *a*, of the gate is firmly secured to a short shaft, *d*, the ends of which have their bearings in the two plates *e f* of a supporting frame or casing, E, while the lower bar, *b*, is merely pivoted at *g* to the plate *e*, and thus as the gate is raised in a vertical plane by mechanism to be presently described the bars *a b* will approach each other, as seen in Fig. 2, causing the gate to occupy less space than when shut down.

To the shaft *d* is secured a gear, *h*, which engages with a similar gear, *i*, keyed to a short shaft, *k*, also having its bearings in the two plates *e f*, these two gears being arranged in different vertical planes, so as to slightly overlap each other, which causes their teeth to engage with each other only near the edges of the wheels and not along their entire width, as seen in Figs. 1 and 3.

To one corner of the elevator-car B is secured a plate, G, provided at its upper and lower ends with two short racks or series of teeth or projections, *l m*, which are arranged in different vertical planes, so that the former, *l*, will engage with and rotate the gear *h*, and the latter, *m*, engage with and rotate the gear *i*, by which construction and arrangement as the car B is raised and just before it reaches the level of the floor H the rack *l* will engage with and rotate the gear *h*, which thus causes the gate to be swung up out of the way, as seen in Fig. 2, and should the car then descend without first going higher the rack *l* will at once rotate the gear *h* in the opposite direction and instantly lower the gate. If, however, the car goes farther upward, the other rack, *m*, will engage with and rotate the lower gear, *i*, which then revolves the gear *h* in the proper direction to lower the gate. On the descent of the car, just before it reaches the level of the floor H, the rack *m* first engages with and rotates the lower gear, *i*, which in turn revolves the other gear, *h*, in the proper direction to raise the gate, which is immediately lowered on the farther descent of the car below the floor H by the rack *l* engaging with and rotating the other gear, *h*, and by thus employing two racks or sets of projections, *l m*, arranged in different vertical planes, each adapted to operate one only of a pair of gears engaging with each other, the gate D is operated automatically in a perfectly certain and reliable manner, so as to open just before the car reaches the level of the floor and shut down immediately or soon after the car leaves it, whether the car is going up or down, and in this manner a perfect protection is afforded against accidents, which are liable to occur where a chain or bar is used, which requires to be operated by hand, and which, through neglect or carelessness, is often forgotten, and the entrance to the elevator-well thus left unguarded.

It will be seen that the above-described automatic mechanism has very few parts, and is very strong, simple, and durable, not liable to get out of order, and is at all times perfectly

certain and reliable in its action—advantages which recommend it for use wherever elevators are employed, especially those used for carrying freight or merchandise. Furthermore, the gears *h i* and their supporting frame or casing E are very compact and can be readily set into the wall of the elevator-well out of the way, and at the same time are in a position easily accessible for repairs.

Instead of a gate composed of bars and slats adapted to shut together, as described, a gate of different construction or a single bar adapted to be swung up and down in a vertical plane may be used, if preferred, the gate or bar being secured to and actuated by the shaft *d* or gear *h* in the same manner as the gate D, and when the gate or bar is shut down it is preferably made to drop into a catch or socket, *n*, which stiffens it and holds it firmly against any inward pressure.

I am aware of the United States Letters Patent granted to John F. Newhall, August 12, 1879, No. 218,395; but the mechanism therein shown and described is much more complicated and expensive and occupies much more space than my device. I therefore lay no claim to any of the mechanism described in said patent.

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

1. The shafts *d k*, with their gears *h i* arranged in different vertical planes, and adapted to engage with each other along a portion only of the width of their teeth, in combination with the gate D, secured to the shaft *d* or gear *h*, and two series of racks or projections, *l m*, on the elevator car or platform, arranged in different vertical planes, so that each rack or series of projections will engage with and operate one only of the gears *h i*, all constructed and arranged to operate substantially in the manner and for the purpose set forth.

2. The combination, with the gate D, of the two gears *h i*, arranged in different vertical planes, and adapted to engage with each other along a portion only of the width of their teeth, and operated alternately by two series of racks or projections, *l m*, secured to the elevator car or platform and arranged in different vertical planes, substantially in the manner and for the purpose described.

Witness my hand this 19th day of June, A. D. 1882.

GEORGE V. DELUE.

In presence of—
P. E. TESCHEMACHER,
W. J. CAMBRIDGE.