(No Model.)

C. K. ROGERS.

AUTOMATIC HATCHWAY GUARD FOR ELEVATORS.

No. 313,450. Patented Mar. 3, 1885.

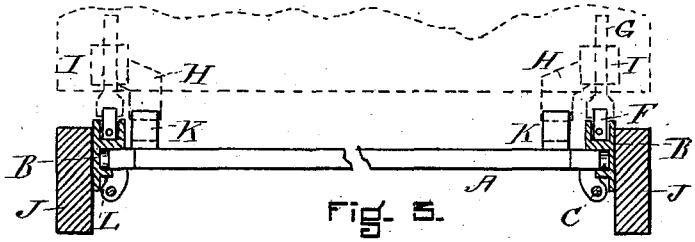

Fig. 5.

Fig. 2.

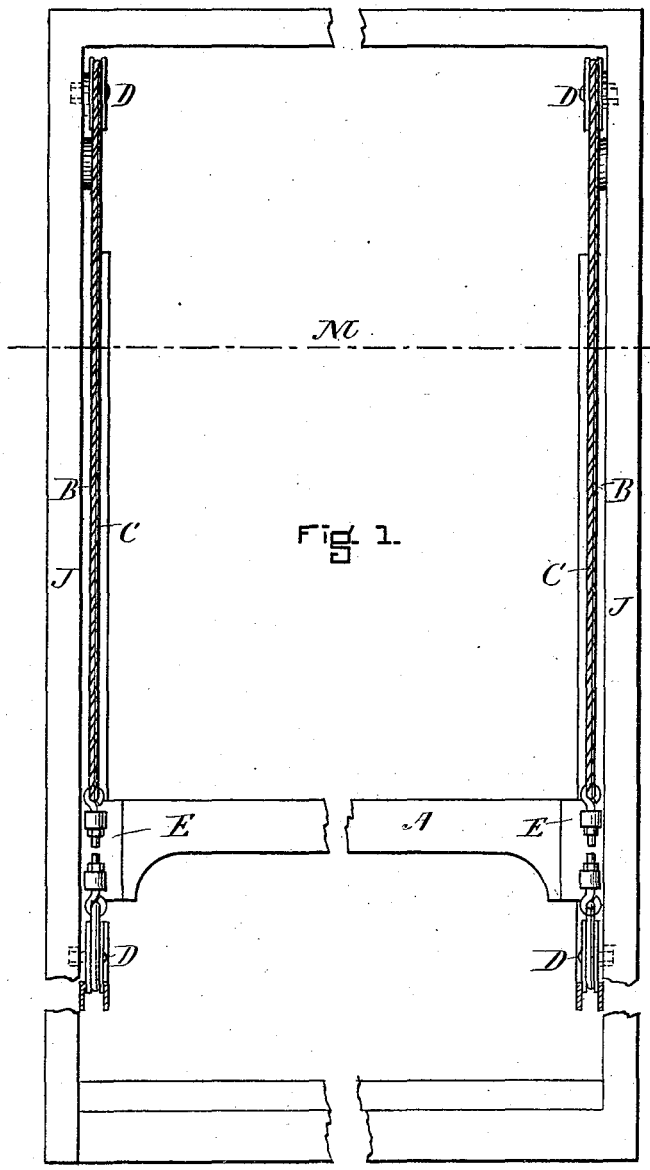

Fig. 1.

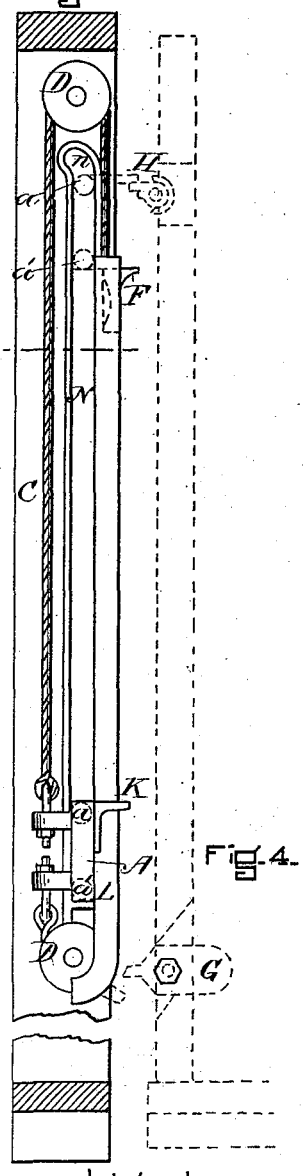

Fig. 4.

WITNESSES.

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COLUMBUS K. ROGERS, OF SALEM, MASSACHUSETTS.

AUTOMATIC HATCHWAY-GUARD FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 313,450, dated March 3, 1885.

Application filed November 12, 1884. (No model.)

To all whom it may concern:

Be it known that I, COLUMBUS K. ROGERS, of Salem, in the county of Essex and State of Massachusetts, a citizen of the United States, have invented a new and useful Improvement in Automatic Hatchway-Guards for Elevators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

This invention relates to the automatic opening and closing of a gate at the entrance to an elevator-shaft by the rise and fall of the elevator.

In the drawings, Figure 1 is a front elevation of the apparatus. Fig. 2 is a vertical section transverse to the plane of Fig. 1. Fig. 3 is a horizontal section on the line M of Fig. 1. Fig. 4 represents the elevator and its attachments for operating the gate. (Shown in section at Fig. 2.)

In the drawings, A is the gate which closes the hatchway and which is to be moved. It slides up and down in the ways N on the jambs J of the hatchway, with which way it engages by means of two dowels, *a a'*. These ways N have a switch at the top, *n*, into which the guide-pin a^2 runs when the gate A is at its highest point. At each end of the ways are pulleys D, and on the elevator side of the ways is a chain-guard, L. Over these pulleys D is an endless belt, rope, or chain, and preferably a lathe-chain or sprocket-chain to secure perfect uniformity in the travel of the two ends of the bar A. The opposite ends of this belt or chain C are made fast to ears E on the bar A. A dog, F, is made fast to a proper point on the belt C, and this dog F is adapted to engage with a gravity-pawl, G.

On the elevator side of the gate A, and nearer toward its center than the ears E, is another dog, K, which is adapted to engage with a gravity-pawl, H, on the elevator itself.

It will be seen from this construction that in the depression of the elevator past the hatchway provided with this apparatus the gravity-pawl G will engage with the dog F on the chain C, and carrying it down with itself will lift the gate A until it has carried the dog F to the lower pulley, D, when the dog F, being attached to the chain C, will bend away from the gravity-pawl G, and by the further descent of the elevator the gravity-pawl G will disengage itself from the dog F and the gate A will descend by its own weight, while if the elevator be stopped just before the disengagement the gate will remain up. In the ascent of the elevator the gravity-pawl G will be free to snap past the dog F, and so no effect will be produced upon the chain in the upward motion of the elevator. When the elevator is moving up, on the contrary, the gravity-pawl H, situated about the length of the ways away from the gravity-pawl G and on the upper part of the elevator, will engage with the dog K on the bar A itself, and as the elevator goes up will lift the said bar or gate A to the top of the ways N. If the elevator be now stopped, the gate will be sustained at this height on the gravity-pawl H. If, however, the elevator moves on to go to a still higher elevation, the guide-pin *a* on the end of the gate A will enter the switch *n* at the end of the ways N, and withdraw the upper edge of the bar A and with it the dog K from the elevator, thus disengaging the dog K from the gravity-pawl H.

In the descent of the elevator the parts which operate to raise the gate in its ascent are arranged to engage and prevent the gate from slamming down, and the parts which operate to raise the gate in the descent of the elevator are arranged to engage during its ascent and similarly ease down the gate, and either gravity-pawl may be arranged to clasp its dog positively above as well as below.

A hatchway-guard was patented to Woods, May 3, 1881, No. 241,111, wherein a counterpoised gate was lifted by engagement of a dog on the gate with a gravity-pawl on the car, and in which the ways for the gate had switches at the top, and I do not claim as of my invention anything described in said Woods's patent. A hatchway-guard was also patented to Stevens, September 23, 1884, No. 305,542, wherein a counterpoised gate was similarly lifted by a dog on the car and a gravity-pawl on the gate, and in descending by a dog on the counterpoise and a gravity-pawl on the car; and I do not claim to have invented the things described in said Stevens's patent, so far as they differ from said Woods's; but I do not deem it necessary to counterpoise the gate, but prefer to use a lathe-chain passing over

chain-pulleys above and below and fast at each end to the gate, in lieu of the counterpoise, its guides, and single-pulley purchase, because my construction makes the car the counterpoise of the gate. I prefer to guide only the gate in cam-guides, as Woods did, instead of guiding both gate and counterpoise in cam-guides, as Stevens did. I prefer to have the dogs on the gate and chain and the gravity-pawls on the car, because of ease of repairs, and I prefer to disengage my chain-pawl by having it retire below the pulley, instead of guiding it by slots, as easier of adjustment and equally certain of action.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. An uncounterpoised automatic hatchway-guard consisting of a gate guided in ways which curve away from the elevator-shaft at their upper ends by two pins on a side—one near the upper and one near the lower edge of said gate—which gate carries on its elevator-shaft side dogs, K, suitably located to engage with pawls on the elevator-car, and which gate is suspended at each end by a lathe-chain passing over chain-pulleys at top and bottom of the ways and made fast at both ends to the gate, whereby the gate is made to descend, when released, evenly at each end, in combination with gravity-pawls on the upper part of the elevator-car, substantially as described.

2. An uncounterpoised elevator hatchway-guard consisting of a gate guided in ways by pins, which gate is suspended by lathe-chains passing over chain-pulleys at top and bottom of the ways, and each made fast at both ends to the gate, each of said lathe-chains being provided with a dog on the elevator-shaft side, in combination with a gravity-pawl on the elevator-car near its bottom, suitably located to engage with said chain-dogs, substantially as described.

3. In an uncounterpoised automatic elevator hatchway-guard, the combination of a gate guided in ways which terminate upwardly in a switch inclined away from the elevator-shaft, lifting-dogs on said gate, lathe-chains, one at each end of said gate, both ends of each of which chains are fast to the gate, a depression-dog on each of said chains, chain-pulleys for the lathe-chains on each side of the gate above and below the ways, an elevator-shaft, and ascending and descending car by means of gravity-pawls on said car near its top and bottom, whereby the gate may be lifted when the car passes its hatchway, either up or down, held up when the car stops at its hatchway, and the rate of descent of the gate is regulated by the rate of motion of the elevator-car, substantially as described.

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Witnesses:
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