

(No Model.)

F. WITTRAM.

SAFETY ATTACHMENT FOR ELEVATORS AND INCLINED RAILWAYS.

No. 327,048.

Patented Sept. 29, 1885.

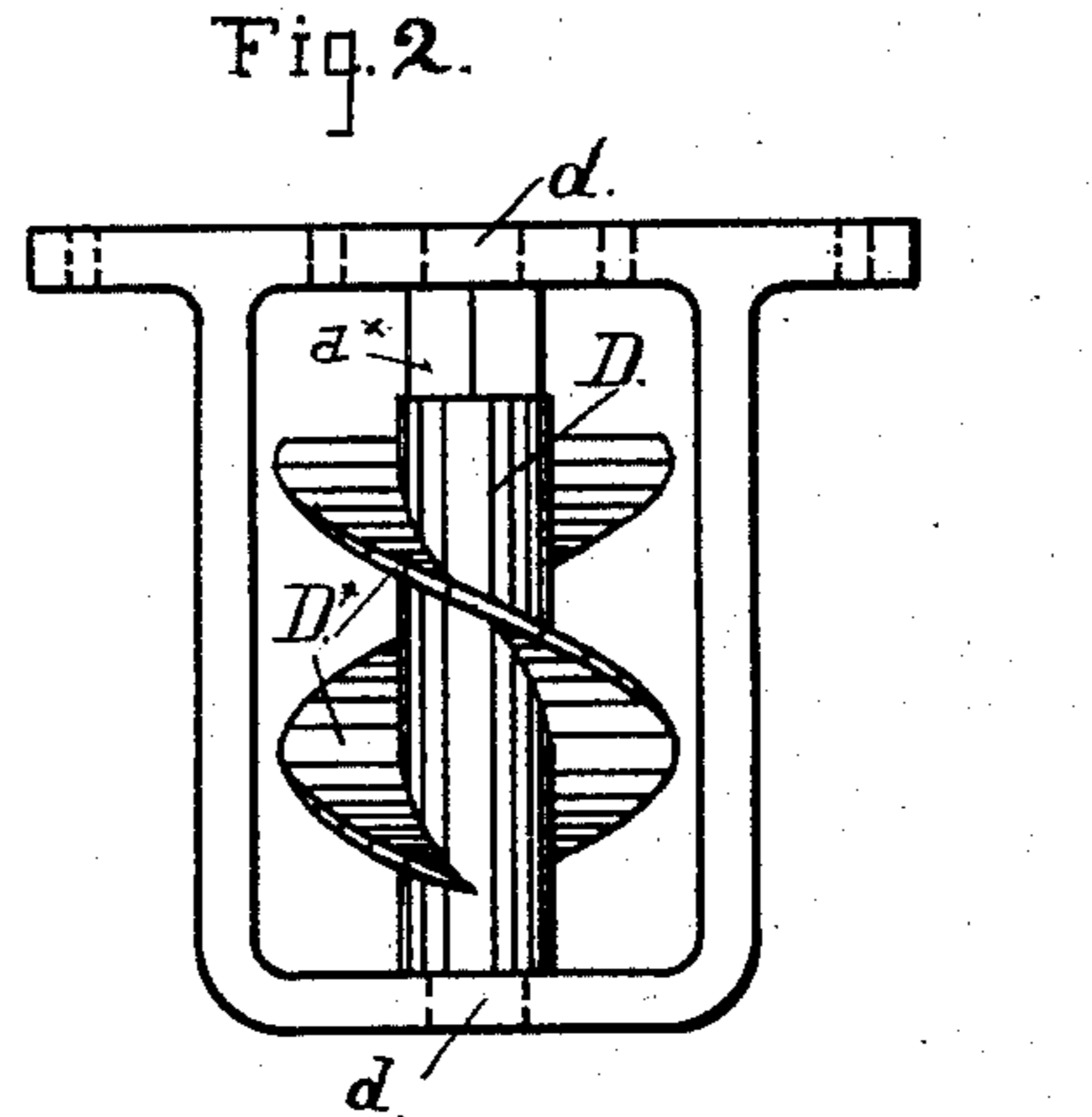
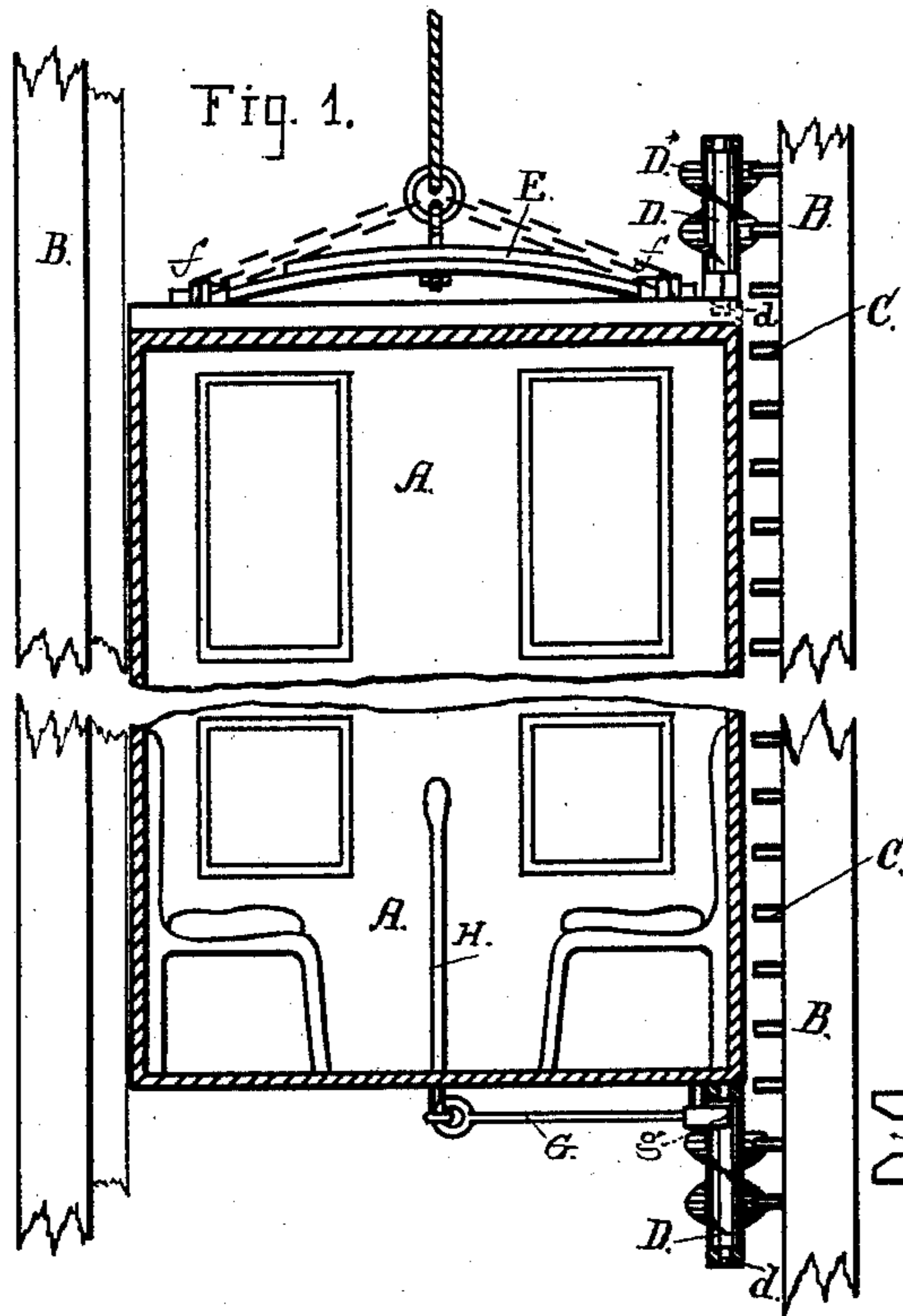
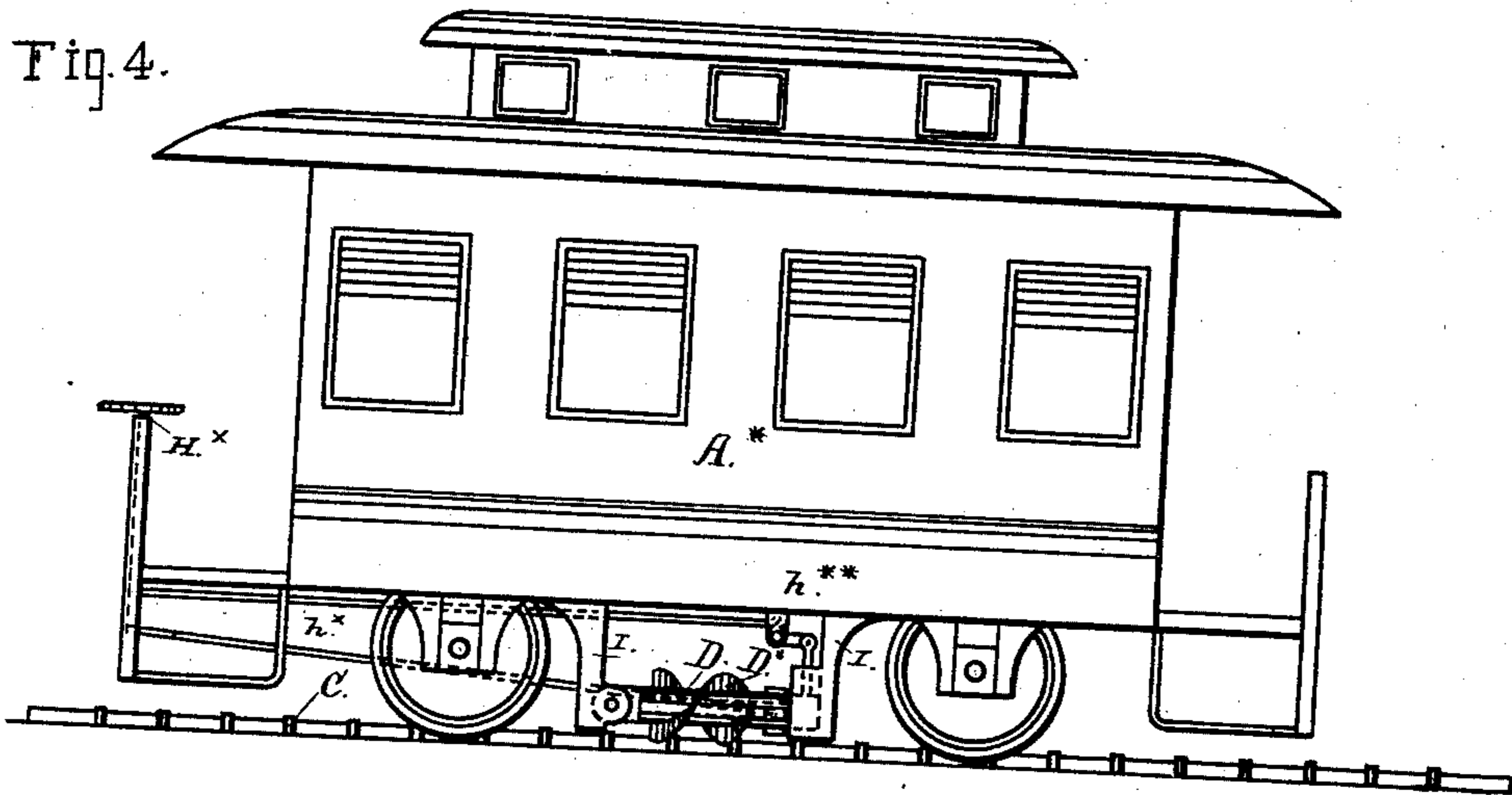


Fig. 4.



Witnesses:

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SAFETY ATTACHMENT FOR ELEVATORS AND INCLINED RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 327,048, dated September 29, 1885.

Application filed May 27, 1885. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK WITTRAM, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented certain new and useful Improvements in Safety Attachments for Elevators and Inclined Railways; and I do hereby declare that the following is a full, clear, and exact description of my said invention, reference being had to the drawings that accompany and form part of this specification.

My invention relates to an improvement in safety devices for arresting the fall of cages and moving platforms in elevators and hoistways when accidents occur either by the breaking of the hoist-rope or the machinery.

It consists in the combination of fixed pins or projecting stops along the wire of the moving cage and for the full run thereof in close order, a helix mounted in bearings upon the cage in position to engage the fixed pins and be continuously rotated while being in continual engagement during the run of the cage, and a clutch so applied to the helix on the cage as to lock and hold the helix, the said clutch being adapted to leave the helix free to rotate under all ordinary conditions, but to be thrown into action to hold the helix, and through it to arrest the cage, at the time of accident, the device being capable of application at small expense, on account of the simplicity of its parts, and to be quick and effective in its operation. Its construction is also of such character that it can be readily applied to the cars of inclined railways and other moving structures of the kind requiring such a safety device.

Referring to the accompanying drawings, Figure 1 shows the general construction and application of the device in an elevator or vertical hoist, and represents two different positions in which it may be set—that is, either at the top or underneath the platform. Fig. 2 is a detail view of the helix and the yoke or frame in which it is set. Fig. 3 shows the clutch-bar to engage and lock the helix. Fig. 4 illustrates the mode of applying the device to cars on inclined railways.

A represents the cage or platform of an elevator, and B B the upright guides along the run or well of the cage from story to story.

C C are pins or pegs securely fixed into the

face of one of the guides at regular distances apart and in suitably close order to form a rack, also with sufficient projection from the guide to take the blade or spiral D^x of the helix. This helix is mounted in bearings $d d$ upon the elevator-cage. It has a uniform pitch and such width of face that it has a substantial hold upon the pins C, with which it engages, and will support the cage under conditions of the heaviest load that would ever be carried without the assistance of the hoisting-rope.

On the shaft D of the helix is a portion with a notch or with angular faces d^x , of suitable form or character to take into or be embraced by the forked or slotted end G of a sliding clutch bar or plate that is mounted in guides f on the cage. This part G is movable longitudinally. In one direction it locks the shaft and stops the helix, and in the other direction it is drawn away and allows the helix to rotate. It is connected with a lever, H, accessible from the inside of the cage, and in position to be seized and readily worked by the operator. This connection is conveniently made either from the top or from the bottom of the cage, according as the device is placed in one or the other position, and a simple mode of providing such a means for moving the sliding bar by hand is shown in Fig. 1 of the drawings, where H is a hand-lever having a fulcrum at h and a connection with the outer end of the sliding bar.

If desired, the clutch could also be moved into engagement with helix D^x automatically by the breaking of the hoisting-rope, so that the operation of locking the helix and stopping the cage would take place instantly and without the dependence on the operator necessary in the construction before described. In such case of automatic action the sliding clutch could be attached to a plate-spring or form a part of such spring, and direct connection then be made of the hoisting-rope to or with this spring in such manner that the weight of the cage and load borne by the rope will be sufficient to overcome the force of the spring and hold the clutch away from the helix. The release of the spring by the parting of the rope would therefore allow the spring to react and throw the clutch against the helix. The hand-lever, however, offers the most

effective means for working the safety device under all emergencies and the various peculiar characters of accidents incidental to the hoisting machinery by which the safety of elevator-cages and the passengers is endangered, in addition to those accidents that result from the parting of the rope, so that for general purposes it is given as the means most suitable.

Fig. 4 of the drawings illustrates a mode of applying the device to the car of an inclined railway, the general construction being the same, but the helix being mounted beneath the car in a horizontal position instead of in the upright position. The pins C are also fixed in upright position along the line of track, and preferably in the middle of the track between the rails. Provision is also therein shown for raising the helix up out of engagement with the pins where it may be desired to have it run clear of them at any points in the line of the track. The helix D^x has one end of its shaft mounted in a vertically-sliding box movable in the supporting frame or yoke in the arc of a circle of which the center is at the opposite bearing of the helix-shaft, and connection by means of a rod or chain and bell-cranks is made with a brake shaft or lever, H^x , on the

car-platform, by which the helix can be raised and lowered, and also fixed in either position.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with a car cage or platform traveling on a fixed track or way, of the fixed pins or pegs CC , the helix D^x , mounted in bearings in the cage in position to engage with and be continuously rotated by the fixed pegs, and the longitudinally-sliding clutch-bar having the clutch, which is adapted to seize and lock the helix-shaft by movement in one direction, and to release the helix by a contrary movement, substantially as hereinbefore described.

2. The combination, with the helix D^x , mounted in bearings to rotate upon a moving cage or other analogous part in position to engage fixed projections, as c , along the run or way, of the spring-bars E , having clutch ends e and connected with the cage-rope, substantially as and for the purpose set forth.

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Witnesses:

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