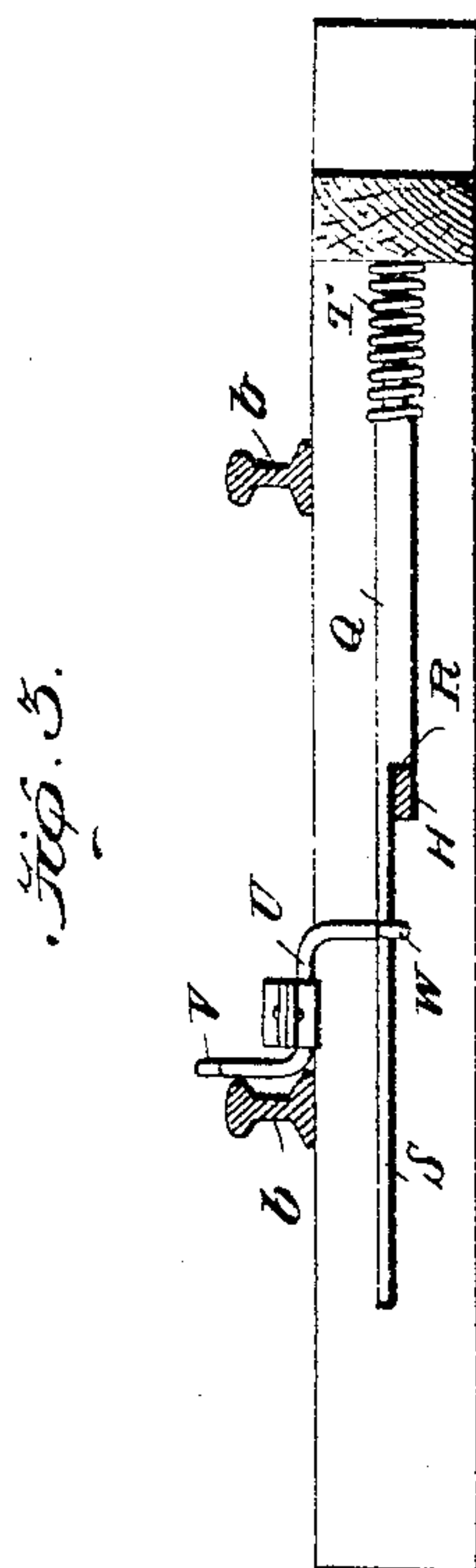
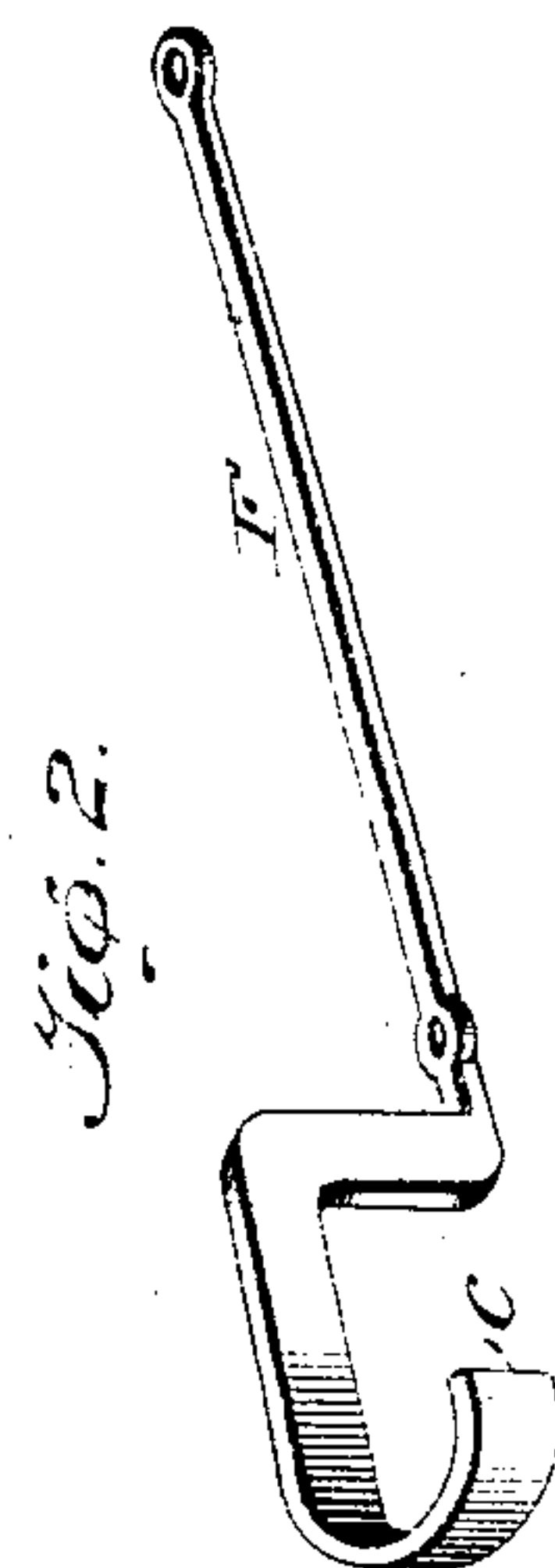
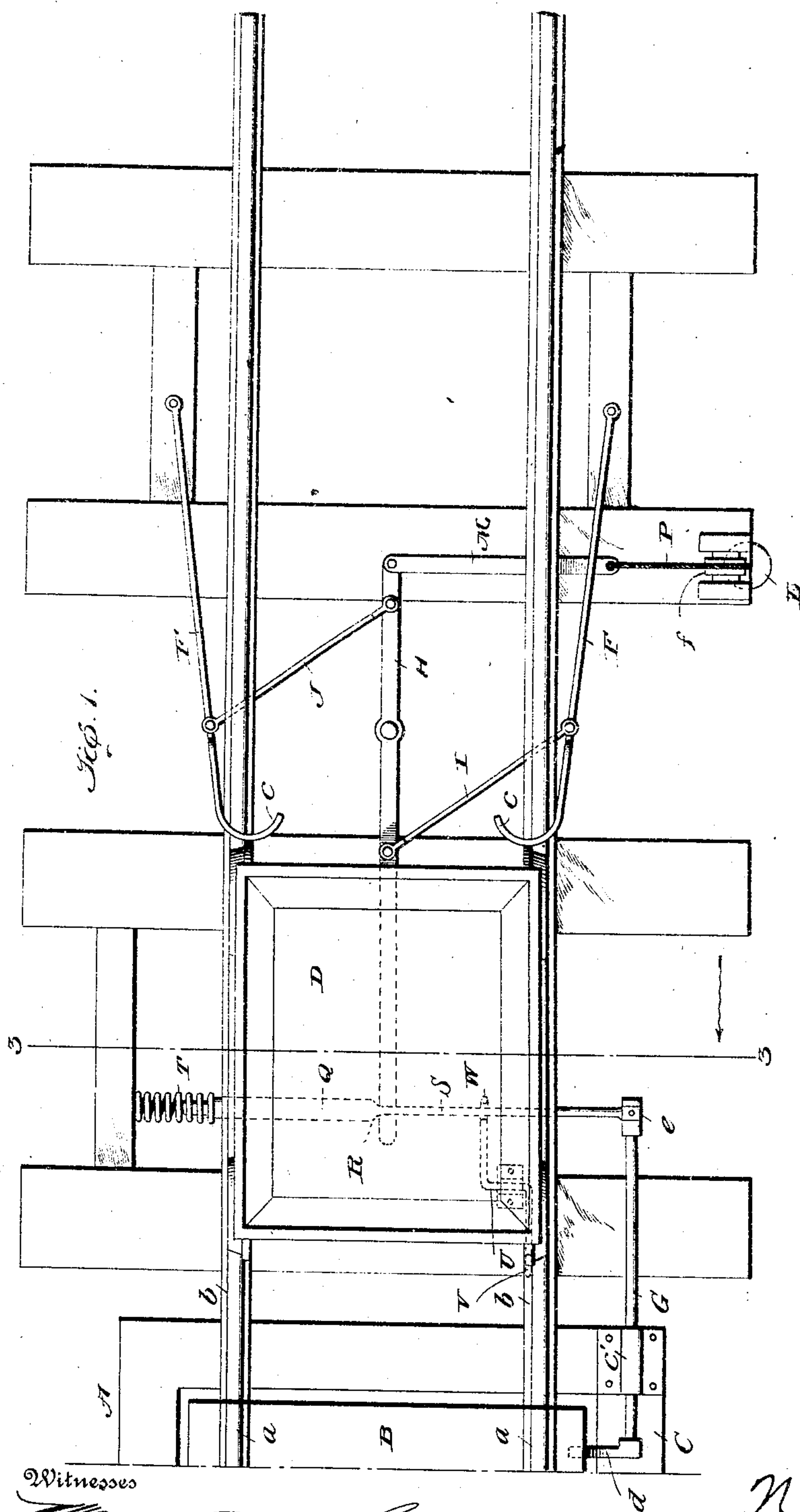


No. 779,535.

PATENTED JAN. 10, 1905.

N. W. DICKERSON.
SAFETY DEVICE FOR MINE SHAFTS.
APPLICATION FILED APR. 30, 1904.



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Witnesses

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UNITED STATES PATENT OFFICE.

NORVAL W. DICKERSON, OF DERWENT, OHIO.

SAFETY DEVICE FOR MINE-SHAFTS.

SPECIFICATION forming part of Letters Patent No. 779,535, dated January 10, 1905.

Application filed April 30, 1904. Serial No. 205,777.

To all whom it may concern:

Be it known that I, NORVAL W. DICKERSON, a citizen of the United States, residing at Derwent, in the county of Guernsey and State of Ohio, have invented new and useful Improvements in Safety Devices for Mine-Shafts, of which the following is a specification.

My invention pertains to means for preventing mine-cars from passing from a landing into a shaft-pit, and is designed more particularly as an improvement upon the means constituting the subject-matter of my Letters Patent No. 747,951, dated December 29, 1903.

The object of the present invention is to provide means adapted to effectually bar a track, and thereby preclude the passage of a car toward an elevator-shaft subsequent to the passage of a preceding car to an elevator at the landing.

With the foregoing in mind the invention will be fully understood from the following description and claims, when taken in connection with the accompanying drawings, forming part of this specification, in which—

Figure 1 is plan view illustrating my improved safety device with the parts in their normal positions—*i. e.*, in positions to prevent a car from passing to the elevator-shaft. Fig. 2 is a perspective view of one of the car-stopping levers of my novel device; and Fig. 3 is a detail section taken in the plane indicated by the line 3 3 of Fig. 1 looking in the direction of the arrow.

Similar letters of reference designate corresponding parts in all of the views of the drawings.

The mine-shaft A, the elevator-car B, movable in the shaft and bearing rails *a*, the landing C, provided with rails *b*, and the mining-car D, movable on the rails *b a*, may be and preferably are of the ordinary well-known construction.

In the present and preferred embodiment of my invention the safety means is made up of the following elements, viz: horizontally-movable levers F, fulcrumed at opposite sides of the railway and having inturned arms *c* at their ends adjacent to the elevator-shaft; a trigger G, which is preferably in the form of a shaft journaled at *c'* and having arms *d e*

disposed within the shaft and outside of the same, respectively; a horizontally-movable lever H, fulcrumed at an intermediate point of its length between the rails *b* of the landing; a link I, interposed between the forward arm of the lever H and one of the levers F; a link J, extending between and pivotally connected to the rear arm of the lever H and the other lever F; a weight L, arranged to move vertically and connected, through the medium of a bar M and a cable P, with the rear arm of the lever H, the said cable P being passed over a vertical sheave *f*, Fig. 1; a transversly-movable and vertically-movable bar Q, having a shoulder or abutment R adapted to engage one side of the forward arm of the lever H; a bar S, interposed between and connecting the arm *e* of the shaft G and the bar Q; a spring T, connected to the opposite end of the bar Q with reference to the bar S and having for its purpose to return the said bar Q to and normally hold it in the position shown in Fig. 1, and a rock-shaft U, journaled in suitable bearings in front of one of the levers F and having an arm V, arranged to be engaged and depressed by the wheel of a car, and an arm W, disposed below and adapted when the arm V is depressed to raise the bar S, and thereby disengage the shoulder or abutment R of the bar Q from the forward arm of the lever H.

As will be readily observed by reference to Fig. 1, the weight L operates, through the medium of the cable P, bar M, lever H, and links I J, to move and hold the forward ends of the levers F against the rails *b* and assures said ends normally resting in a position to prevent the passage of a car to the shaft A. The said weight L also serves to rock the shaft G in such direction as to raise the arm *d* and normally hold the same in position to be engaged by the elevator-car B when the latter descends in the shaft. When the said car B descends to the landing C, it will engage the arm *d* and rock the shaft G in the direction opposite to that mentioned and through the medium of the bar S, bar Q, lever H, and links I J will move the forward arms of the levers F away from the rails *b*. This will obviously permit a car to pass the forward ends of the levers F

and move on the elevator-car B. It will also be noticed that incident to the passage of a car between the forward ends of the levers F and the shaft A one of the forward wheels of the car will engage and depress the arm V of the rock-shaft U, and thereby raise the arm W of said shaft and through the medium of the said arm W raise the bar S, and with it the bar Q, so as to disengage the latter from the forward arm of the lever H. With this done, it will be observed that the weight L will instantly return the lever H and the levers F to the positions shown in Fig. 1, so as to enable the forward ends of the said levers F to preclude the passage of a following car toward the shaft A. When the elevator-car moves upwardly from the landing C and out of engagement with the arm d, the spring T will operate to move the bar Q to the position shown in Fig. 1 relative to the lever H, so that when the elevator-car again descends to the landing said bar Q will be in position when moved toward the left, Fig. 3, to engage the forward arm of said lever H for the purpose before described.

While I prefer to employ levers, as F, to control the passage of cars on the rails b, I desire it understood that any other suitable stops may be employed for the purpose without involving a departure from the scope of my invention. I also desire it understood that without departure from the scope of my invention the device Q, adapted to engage the lever H, may be connected with the trigger G in any suitable manner and, further, that such changes or modifications may be made in the general construction of my device as fairly fall within the scope of my invention as claimed.

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

1. The combination with an elevator-shaft, a landing, and an elevator-car movable in the shaft; of a movable device for stopping a car and preventing the passage of the same toward the shaft, means for moving said device to and normally holding it in position to bar the passage of a car, a trigger arranged to be engaged by the elevator-car, a connection between the trigger and the said movable device for moving the latter by the former; said connection comprising parts one of which

is movable out of engagement with the other to break the connection, and a movable device arranged in advance of the first-mentioned movable device and adapted when operated by a car to move the movable part of the said connection out of engagement with the complementary part of the connection.

2. The combination with an elevator-shaft, a landing, and an elevator-car movable in the shaft; of a lever for stopping a car and preventing the passage of the same toward the shaft, a weight for moving said lever to and normally holding it in position to bar the passage of a car, a lever H connected with the first-mentioned lever, a trigger arranged to be engaged by the elevator-car, a bar arranged to engage the lever H, a spring for moving said bar in one direction, a connection between the bar and the trigger, and a movable device arranged in advance of the first-mentioned movable device and adapted when operated by a car to engage the connection between the bar and the trigger, and thereby move the bar out of engagement with the lever H.

3. The combination of an elevator-shaft, an elevator-car movable in the shaft and provided with rails, a landing provided with rails arranged to aline with those of the elevator-car, a horizontally-movable lever fulcrumed alongside one of the rails on the landing, and having an arm for preventing the passage of a car, means for normally holding said lever so that its arm rests in the path of a car on the landing-rails, a rock-shaft journaled in a suitable bearing and having arms one of which is arranged to be engaged by the elevator, a lever H connected with the first-mentioned lever, a transversely-movable bar arranged to engage the lever H, a spring for moving said bar in one direction, a connection between the bar and the other arm of the rock-shaft, and a second rock-shaft having an arm arranged to engage the said connection and disengage the bar from the lever H, and an arm arranged to be engaged by a passing car.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

NORVAL W. DICKERSON.

Witnesses:

MYRTLE OGIER,
C. M. THOMPSON.