

No. 747,951.

PATENTED DEC. 29, 1903.

N. W. DICKERSON.
SAFETY DEVICE FOR MINE SHAFTS.

APPLICATION FILED JULY 14, 1903.

NO MODEL.

Fig. 1.

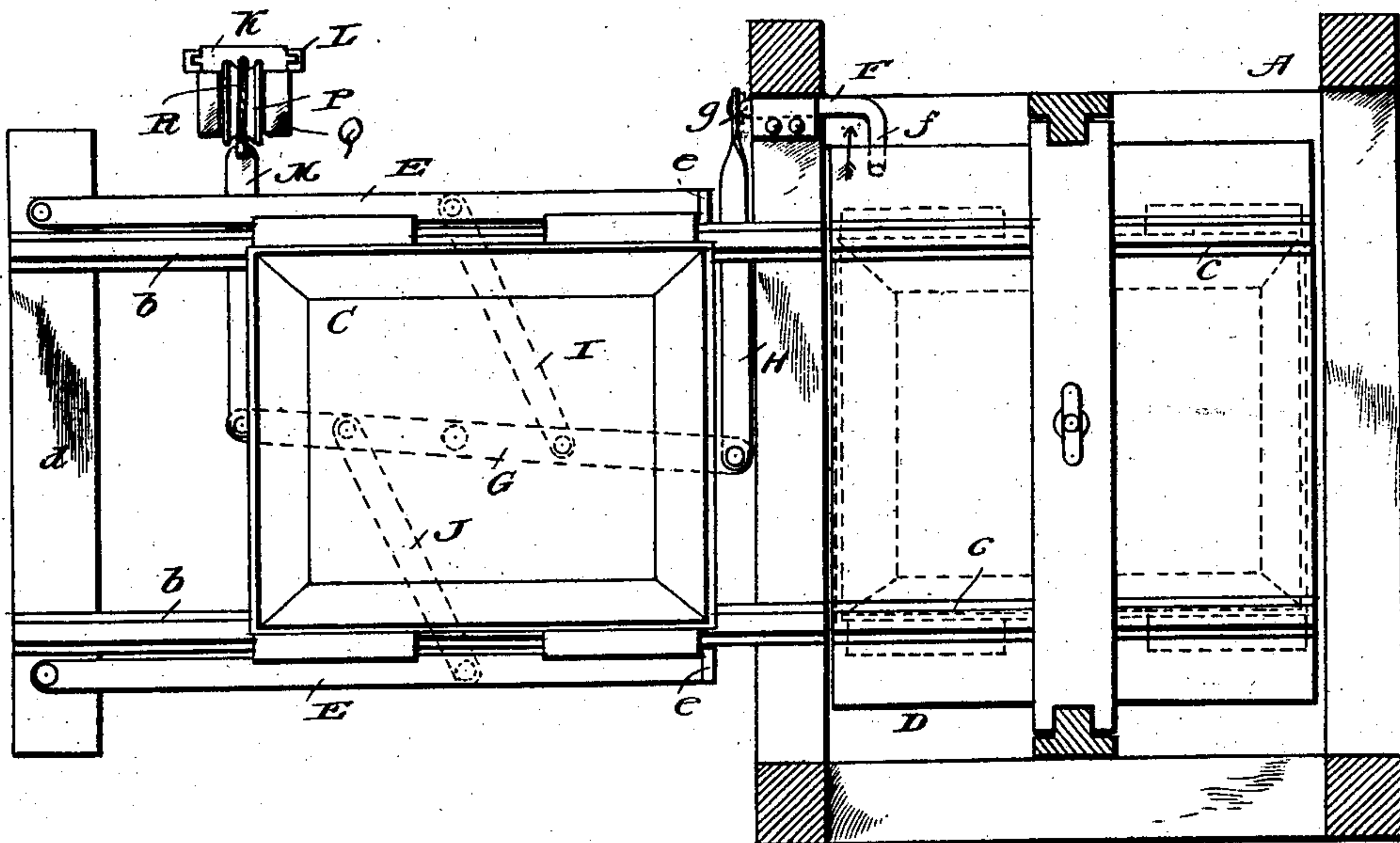


Fig. 3.

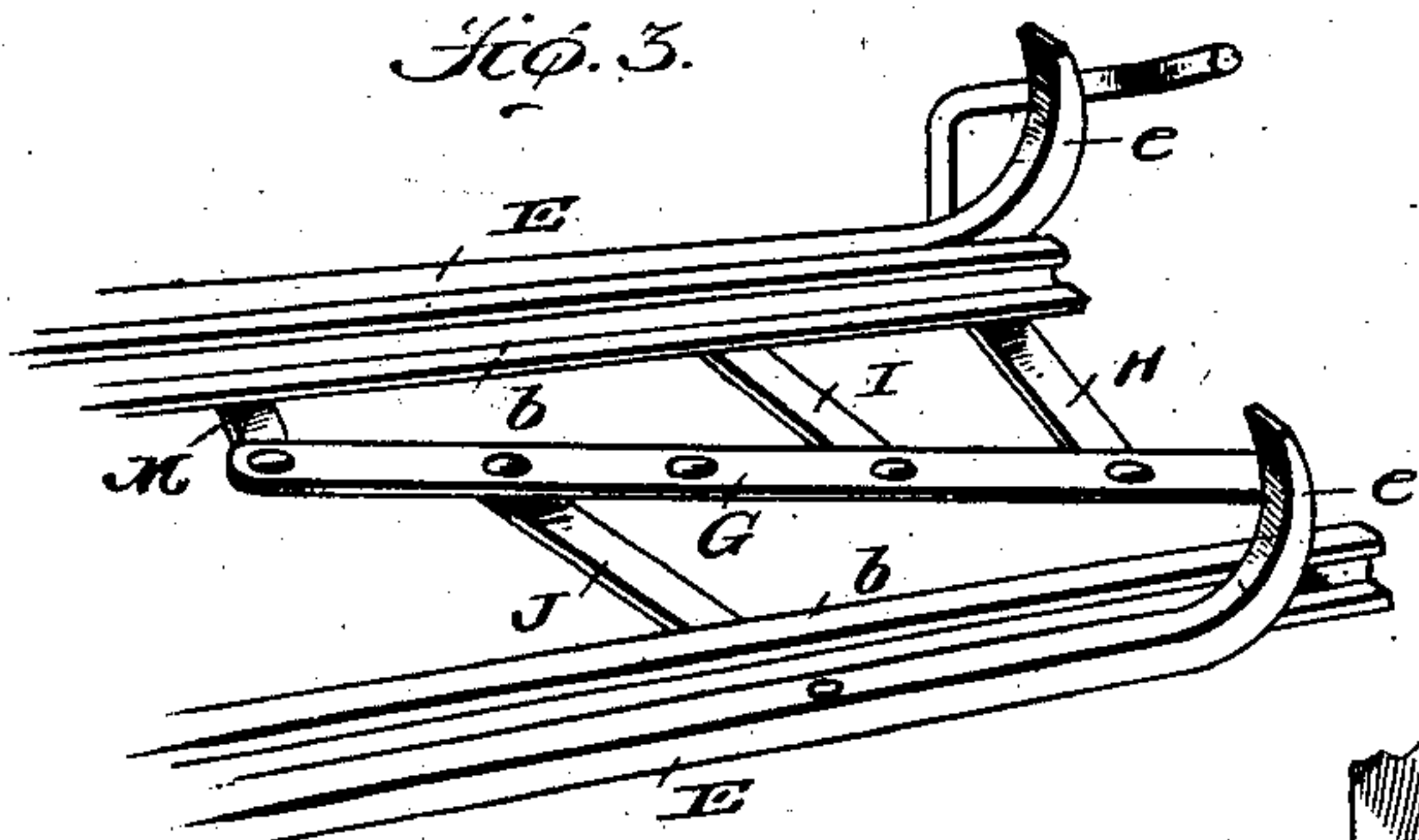
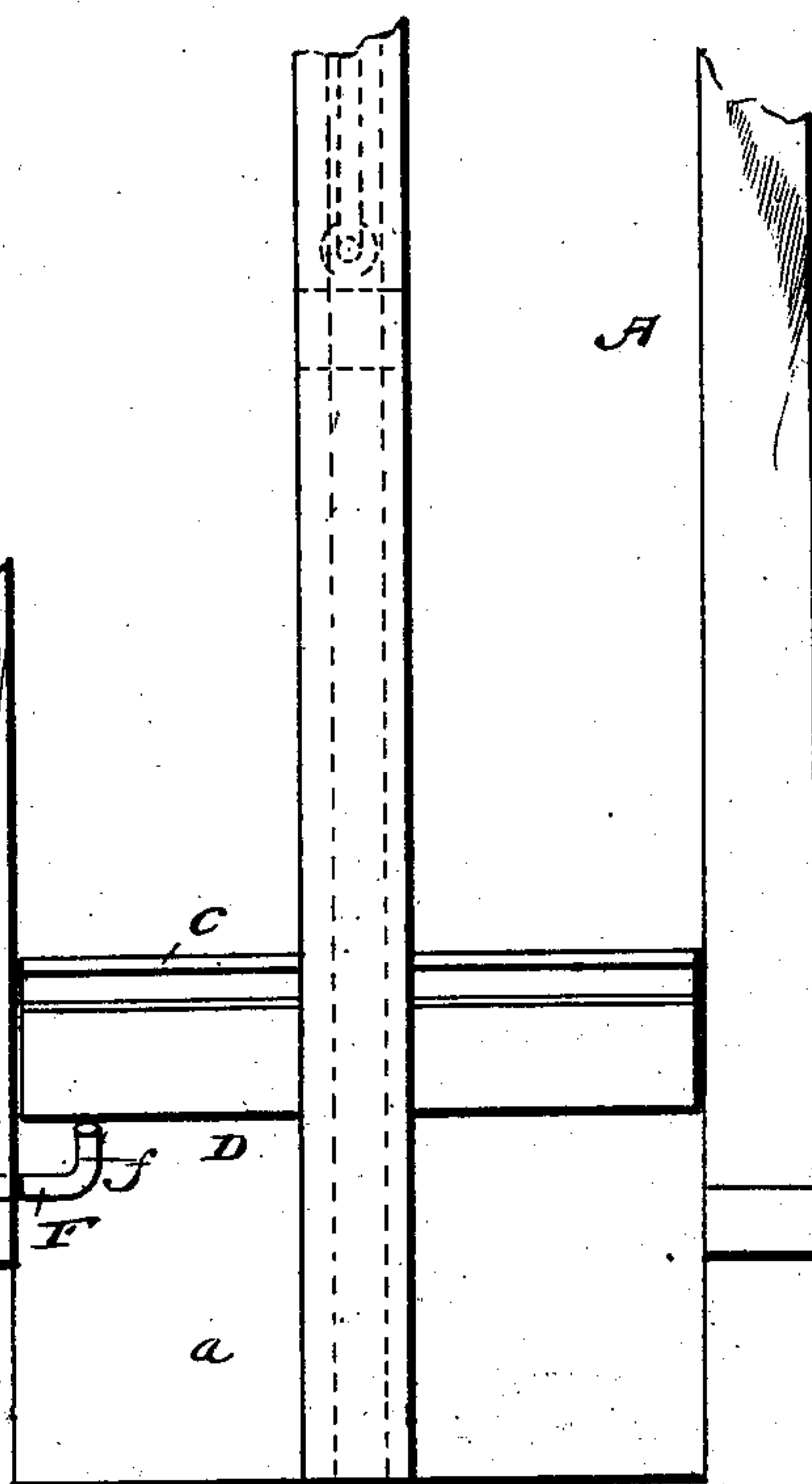
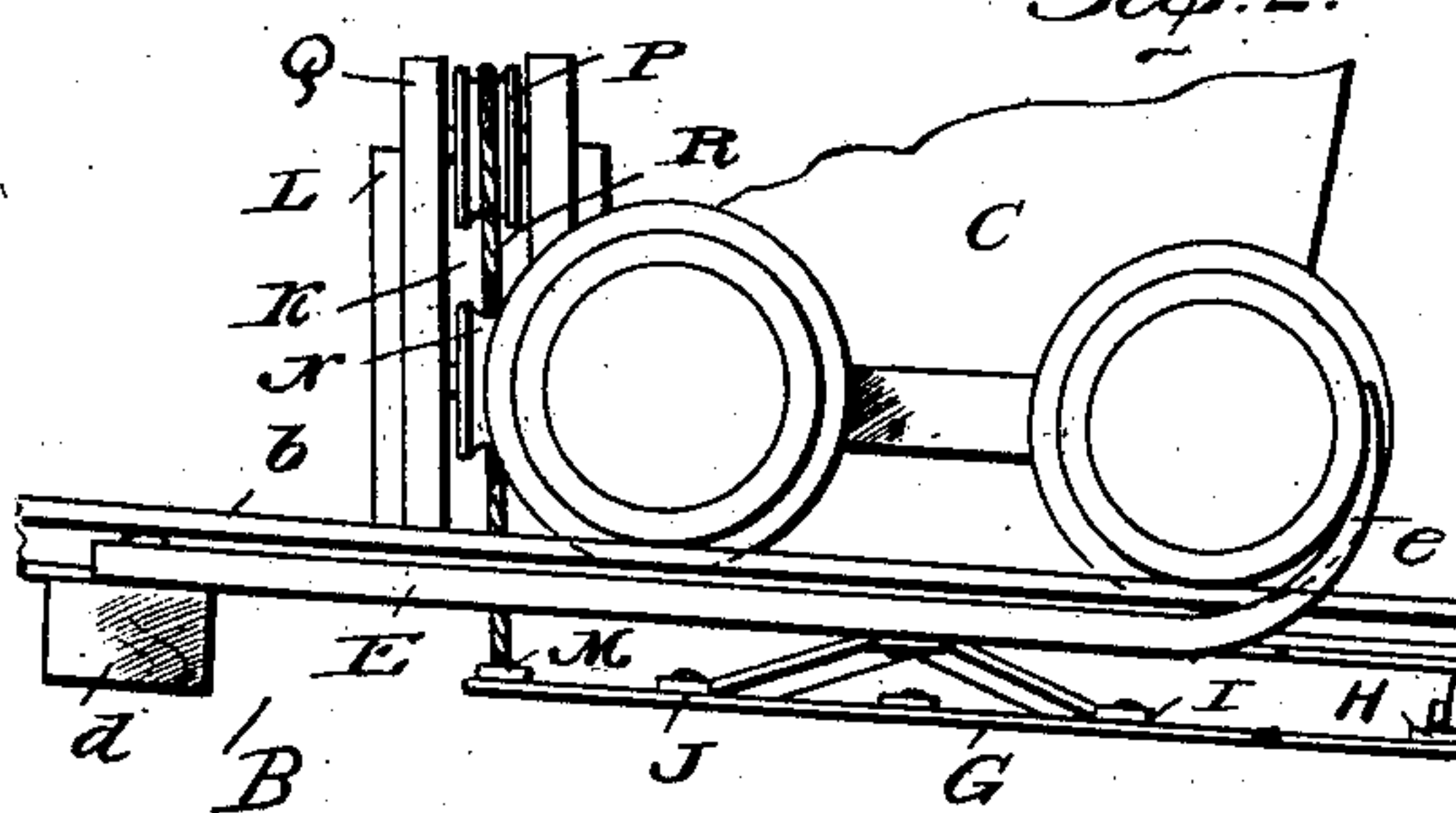


Fig. 2.



Witnesses

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SAFETY DEVICE FOR MINE-SHAFTS.

SPECIFICATION forming part of Letters Patent No. 747,951, dated December 29, 1903.

Application filed July 14, 1903. Serial No. 165,450. (No model.)

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 mine-shafts; and it has for its object to provide simple and efficient means for preventing mine-cars from falling from a landing into a shaft-pit, and this without interfering with the free passage of the cars from the landing to an elevator-car when the latter is flush with 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, in which—

Figure 1 is a horizontal section taken through a mine-shaft above a landing and illustrating a mine-car and my improvements in plan. Fig. 2 is a side elevation of the same, and Fig. 3 is a broken perspective view illustrating the relative arrangement of the catches forming part of my improvements and the railway-rails on the landing.

Similar letters designate corresponding parts in all of the views of the drawings, referring to which—

A is a mine-shaft having the usual pit *a*; B, a landing provided with railway-rails *b*, preferably pitched downwardly toward the shaft; C, a mining-car on the rails, and D an elevator-car movable in the shaft and provided with rails *c*, arranged to aline with the rails *b* when the car is flush with the landing. These parts may be and preferably are of the usual construction.

E E are the catches comprised in my improved means for preventing the mine-car from falling into the shaft-pit. The said catches are arranged alongside of and adjacent to the rails *b* and are pivotally connected at their rear ends to a tie *d* or other suitable support, so as to enable them to swing horizontally. At their forward ends the catches are provided with upwardly-extending arms *e*, which are adapted when the catches are moved against the rails *b* to rest in the path of the wheels of the car, and thereby effectually prevent the car from pass-

ing to the shaft and falling into the pit thereof. It will be observed, however, that when the forward ends of the catches are swung away from the rails *b* the said arms *e* will offer no obstruction to the passage of the car.

F is a trigger which is preferably in the form of a shaft journaled in the wall of the shaft A adjacent to the landing B and having arms *f* *g* disposed within the shaft and outside the same, respectively.

G is a horizontally-movable lever fulcrumed at an intermediate point of its length on the landing B; H, a bar interposed between and pivotally connected to the forward arm of said lever and the arm *g* of shaft F; I, a bar pivoted to and connecting the forward arm of the lever G and one of the catches E; J, a bar pivoted to and connecting the rear arm of lever G and the other catch E; K, a weight arranged and adapted to move in a vertical guide L; M, a bar pivotally connected to the rear arm of the lever G and extending laterally therefrom; N P, sheaves mounted in an upright Q, rising from the landing, and R a cable passed under the sheave N and over the sheave P and connecting the bar M and the weight K.

As will be readily observed by reference to Fig. 1, the gravitation of the weight K operates, through the medium of the cable R, bar M, lever G, and bars I J, to move and hold the catches E against the rails *b* and assures the catches normally resting in position to prevent the passage of the car C to the shaft. The gravitation of the said weight also serves, through the medium of the lever G and the bar H, to rock the shaft F in the direction indicated by arrow and normally hold it in the position shown—i. e., with its arm *f* inclined upward. From this it follows that when the elevator D descends until its floor is flush with the landing B it will engage the arm *f* and rock the shaft F in the direction opposite to that indicated by arrow, Fig. 1, and thereby move the forward portions of the catches E away from the rails *b*. This will obviously permit the car C to pass from the rails *b* on the landing to the rails *c* on the elevator-car. When, however, the elevator-car moves upwardly from the landing the weight K will operate to return the parts to and hold them in the normal positions illus-

trated, when the catches E will preclude another car passing to the shaft and falling into the shaft-pit.

It will be appreciated from the foregoing that notwithstanding their simplicity my improvements are entirely automatic in operation and may be depended on to prevent the casual passage of a mine-car from a landing to the shaft.

I have entered into a detailed description of the construction and relative arrangement of the parts embraced in the present and preferred embodiment of my invention in order to impart a full, clear, and exact understanding of the same. I do not desire, however, to be understood as confining myself to such specific construction and arrangement of parts, as such changes or modifications may be made in practice 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 of an elevator-shaft, a landing provided with rails, an elevator-car movable in the shaft, and provided with rails arranged to register with those of the landing, a horizontally-movable catch pivoted at its rear end alongside one of the rails on the landing, and having an upwardly-extending forward portion, means for normally holding the catch so that its upwardly-extending portion rests in the path of a car on the landing-rails, a rock-shaft journaled in a wall of the elevator-shaft, and having arms at its ends; one of said arms being arranged

to be engaged by the elevator, a longitudinally-disposed lever fulcrumed at an intermediate point of its length on the landing, a bar connecting the other arm of the rock-shaft and the forward arm of the lever, and a bar connecting the said lever and the catch.

2. The combination of an elevator-shaft, a landing provided with rails, an elevator-car movable in the shaft, and provided with rails arranged to register with those of the landing, horizontally-movable catches pivoted at their rear ends alongside the rails on the landing, and having upwardly-extending forward portions, a rock-shaft journaled in a wall of the elevator-shaft, and having arms, one of which is arranged to be engaged by the elevator-car, a longitudinally-disposed lever fulcrumed at an intermediate point of its length on the landing, and movable horizontally between the landing-rails, a bar connecting the other arm of the rock-shaft and the forward arm of said lever, a bar connecting the forward arm of the lever and one of the catches, a bar connecting the rear arm of the lever and the other catch, an upright arranged on the landing, alongside the rails, and bearing sheaves, a cable passed around said sheaves and connected with the rear arm of the lever, and a weight connected to said cable.

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

NORVAL W. DICKERSON.

Witnesses:

C. R. FUNK,
CLARENCE TURNER.