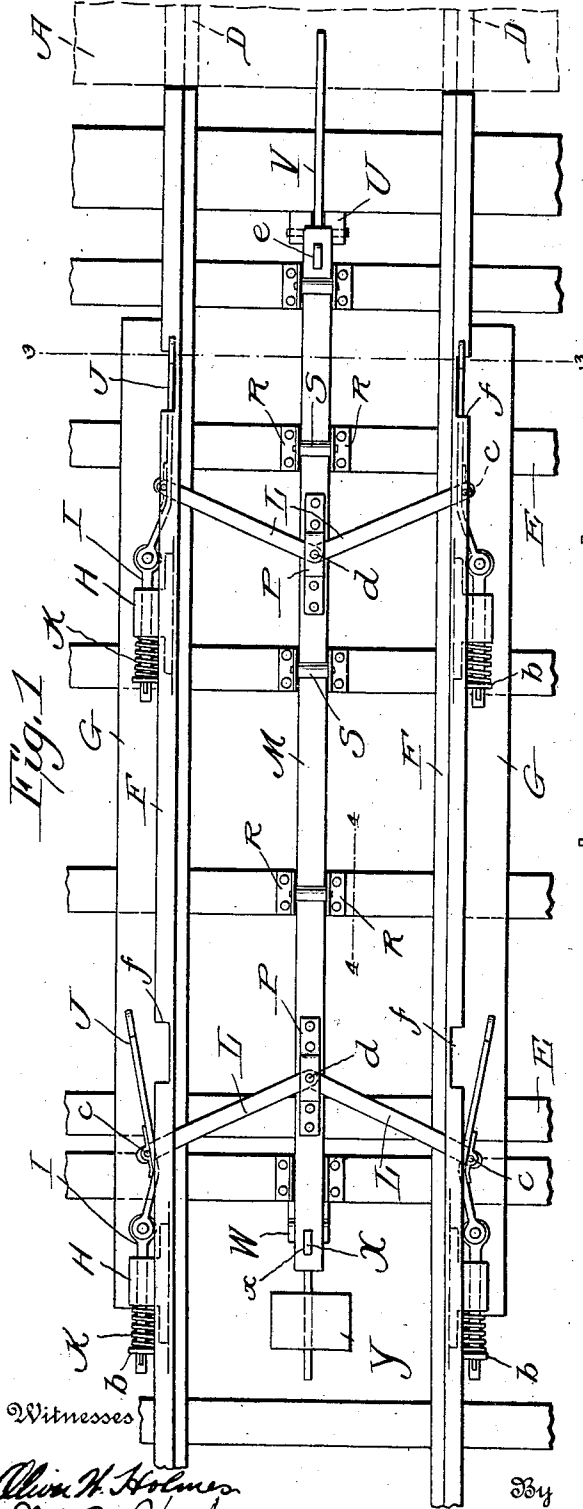


W. H. GREGG.
SAFETY DEVICE FOR MINE SHAFTS.
APPLICATION FILED NOV. 22, 1909.

946,350.

Patented Jan. 11, 1910.



Witnesses

Oliver H. Holmes
W. C. Dealy

By

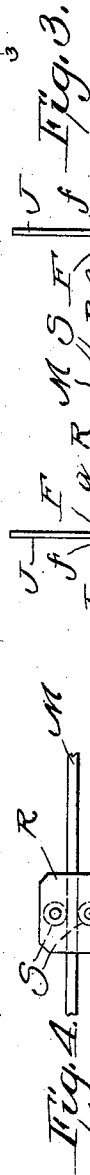


Fig. 4.

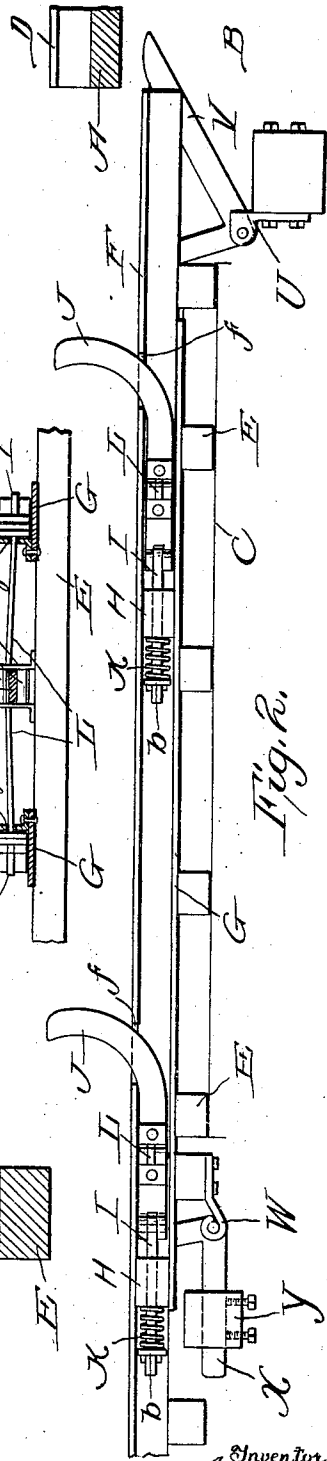
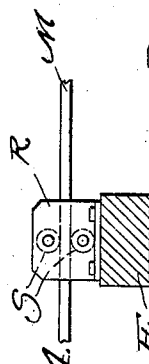


Fig. 2.

Inventor
W. H. Gregg.
James J. Shulby Attorney

UNITED STATES PATENT OFFICE.

WATSON H. GREGG, OF CAMBRIDGE, OHIO.

SAFETY DEVICE FOR MINE-SHAFTS.

946,350.

Specification of Letters Patent.

Patented Jan. 11, 1910.

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To all whom it may concern:

Be it known that I, WATSON H. GREGG, a citizen of the United States, residing at Cambridge, 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 safety devices for mine shafts, and consists in the simple, practical and reliable safety device hereinafter described and definitely claimed.

In the drawings accompanying and forming part of this specification: Figure 1 is a plan view of the construction constituting the best practical embodiment of my invention that I have as yet devised. Fig. 2 is a side elevation of the same. Fig. 3 is a transverse section taken in the plane indicated by the line 3—3 of Fig. 1, and: Fig. 4 is a detail longitudinal section, taken in the plane indicated by the line 4—4 of Fig. 1.

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

Shown by dotted lines in Fig. 1 and by full lines in Fig. 2 is an elevator cage or car A that is movable vertically in a mine shaft B and toward and from a landing or level indicated by C.

In furtherance of my invention the car or cage A is provided with rails D, and on the landing or level C are placed sleepers E on which rails F are suitably arranged and secured; the said rails F being designed when the car or cage A is at the landing to meet and aline with the rails D on the car or cage.

Interposed between the rails F, which are of Z-form in cross-section, and the sleepers E are supporting and wear plates G, and in the treads of the rails, at points above the said plates G, recesses *f* are formed, as clearly shown in Figs. 1 to 3. I would also have it here understood that transverse openings *g* are formed in the upright portions of the rails F at points in rear of the said recesses *f*. See in this connection Fig. 3.

Fixed to the outer sides of the upright portions of the rails F, at points in rear of the said transverse openings *g*, are longitudinally disposed guide sleeves H, and movable longitudinally in said sleeves are stems or rods I to the forward ends of which laterally swinging car catchers J are pivotally connected; the said car catchers having upstanding forward portions, Fig. 2, which are

designed when the car catchers are drawn inward, to rest in the recesses *f* and therefore in the path of car wheels moving on the rails F.

Interposed between the rear ends of the sleeves H and abutments *b* on the rods I, are coiled springs K which have for their function to cushion the catchers J when the wheels of moving cars bring up against the same, and in that way reduce the liability of the device being impaired or broken while in use. It will also be noted by comparison of Figs. 1 to 3 that a forward pair and a rear pair of catchers J are employed, and that links L are pivotally connected at *c* to the catchers and extend from the points of connection inwardly through openings in the catchers, and also through the before-mentioned openings *g* in the upright portions of the rails F. The pairs of links L are pivotally connected together and to a longitudinally movable bar M at the points *d* in Fig. 1; the inner ends of each pair of links L being arranged and adapted to swing between the upper side of the bar M and plates P fixed on the said bar. It will also be observed by reference to Figs. 1, 3 and 4 that the bar M is movable between and held against lateral deflection by fixed guides R disposed at opposite sides thereof, and that some of the guides are provided with lower and upper transverse antifriction rollers S. The said rollers in addition to rendering easy the movements of the bar, serve to prevent either downward or upward movement thereof, and in that way contribute to assuring operation of the device when the bar is moved longitudinally in one direction or the other.

Mounted on a suitable support U is a bell crank lever V, one arm of which is pivotally connected at *e* to the forward portion of the bar M, while the other arm is located in the path of and is designed to be moved by the cage or car A as the same approaches the landing. Suitably supported at W is a bell crank lever X which is pivotally connected at *x* to the rear portion of the bar M and is provided with a weight Y. The office of the said weighted lever is to return the parts of the device to and yieldingly hold the same in the positions best shown in Fig. 1.

With the parts in the normal positions shown in Fig. 1, it is manifest that a car moving on the rails F toward the shaft B

will bring up against the forward catchers J and be thereby prevented from moving to the shaft B. When, however, the cage or car A descends to the landing, said cage or car by acting on the lever V will draw the bar M forward and thereby throw the forward catchers outward and draw the rear catchers inward. With this done, the car mentioned can be moved from the rails F to the rails D on the cage or car A, while a following car will bring up against and be stopped by the rear catchers J. Then when the cage or car A moves upward from the landing, the weight Y will restore the parts to the positions shown in Fig. 1, whereupon the second-named car will be released by the rear catchers J and will be permitted to proceed toward the shaft B until its forward wheels bring up against the catchers J adjacent the said shaft B.

It will be gathered from the foregoing that my novel device is calculated to preclude the passage of a car to the shaft B when there is no cage at the landing to receive it; also, that because of the described construction and relative arrangement of parts the device is easy and sure of operation and is well adapted to withstand the usage to which devices of corresponding character are ordinarily subjected.

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

1. In a safety device for mine shafts, the combination of an elevator shaft, a landing, an elevator car movable in the shaft and equipped with rails, sleepers arranged on the landing, longitudinal plates arranged on the sleepers, Z-rails disposed on said plates and having forward and rear recesses in their treads and transverse apertures in their upright portions, at points in rear of the recesses, and also having longitudinal guide sleeves fixed in rear of the apertures, guides fixed in the sleepers and provided with lower and upper transverse rollers, a longitudinal bar movable lengthwise in said guides and between said rollers thereof, rods movable longitudinally in the fixed sleeves and having abutments on their rear portions, springs surrounding the rods and interposed between the sleeves and said abutments, forward and rear, laterally-swinging car catchers pivoted to the forward portions of said rods and having upstanding portions adapted to rest in the recesses of the rails, forward links extending through the forward transverse apertures in the rails and pivotally connected to the forward car catchers and the longitudinal bar, rear links arranged reversely to the forward links and extending through the rear transverse apertures of the rails and pivotally connected to the rear car catchers and the longitudinal bar, a suitably supported

weighted lever connected to the rear portion of the longitudinal bar, and a suitably supported lever having an arm connected to the forward portion of the longitudinal bar and also having an arm arranged in the path of and adapted to be moved by the elevator car.

2. In a safety device for mine shafts, the combination of an elevator shaft, a landing, an elevator car, suitably supported rails arranged on the landing and having forward and rearward recesses in their treads and transverse apertures in their upright portions, at points in rear of the recesses, and also having longitudinal guide sleeves fixed in rear of said apertures, rods movable longitudinally in the fixed sleeves and having abutments on their rear portions, springs surrounding the rods and interposed between the sleeves and said abutments, forward and rear, laterally swinging car catchers pivoted to the forward portions of said rods and having upstanding portions adapted to rest in the recesses of the rails, a longitudinally movable bar, forward links extending through the forward transverse apertures in the rails and pivotally connected to the forward car catchers and the longitudinally movable bar, rear links arranged reversely to the forward links and extending through the rear transverse apertures of the rails and pivotally connected to the rear car catchers and the longitudinally movable bar, means connected with said bar for moving the same rearward and yieldingly holding it against forward movement, and means adapted to be engaged by the elevator car and moved and also adapted when so moved to move the longitudinal bar forward.

3. In a safety device for mine shafts, the combination of an elevator shaft, a landing, an elevator car, rails located on the landing and having recesses in the outer sides of their treads, and also having transverse apertures in their upright portions, in rear of said recesses, and further having longitudinal guide sleeves on their outer sides in rear of the apertures, rods movable longitudinally in said sleeves, springs interposed between the sleeves and abutments on the rear portions of the rods, laterally swinging car catchers pivoted to the forward portions of said rods and having upstanding portions adapted to rest in the recesses of the rails, a longitudinally movable bar, links extending through the transverse apertures in the rails and pivotally connected to the car catchers and the longitudinally movable bar, means connected with said bar for moving the same rearward and yieldingly holding it against forward movement, and means adapted to be engaged by the elevator car and moved and also adapted when so moved to move the longitudinal bar forward.

4. The combination in a safety device for

mine shafts, of an elevator shaft, a landing, an elevator car, a rail on the landing having a recess in its tread and also having a longitudinal guide sleeve, a rod movable longitudinally in said guide sleeve, a spring for cushioning forward movement of said rod, a car catcher pivoted to the forward portion of the rod and arranged to swing laterally and having an upstanding portion adapted in one position to rest in the recess of the rail, a longitudinally movable bar, a connection between said bar and the car catcher for moving the latter by the former, means connected with said bar for moving

the same in one direction and yieldingly holding it against movement in the opposite direction, and means adapted to be engaged by the elevator car and moved and also adapted when so moved to move the longitudinal bar in the last named direction.

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

WATSON H. GREGG.

Witnesses:

D. B. SOMERS,
W. W. STEWART.