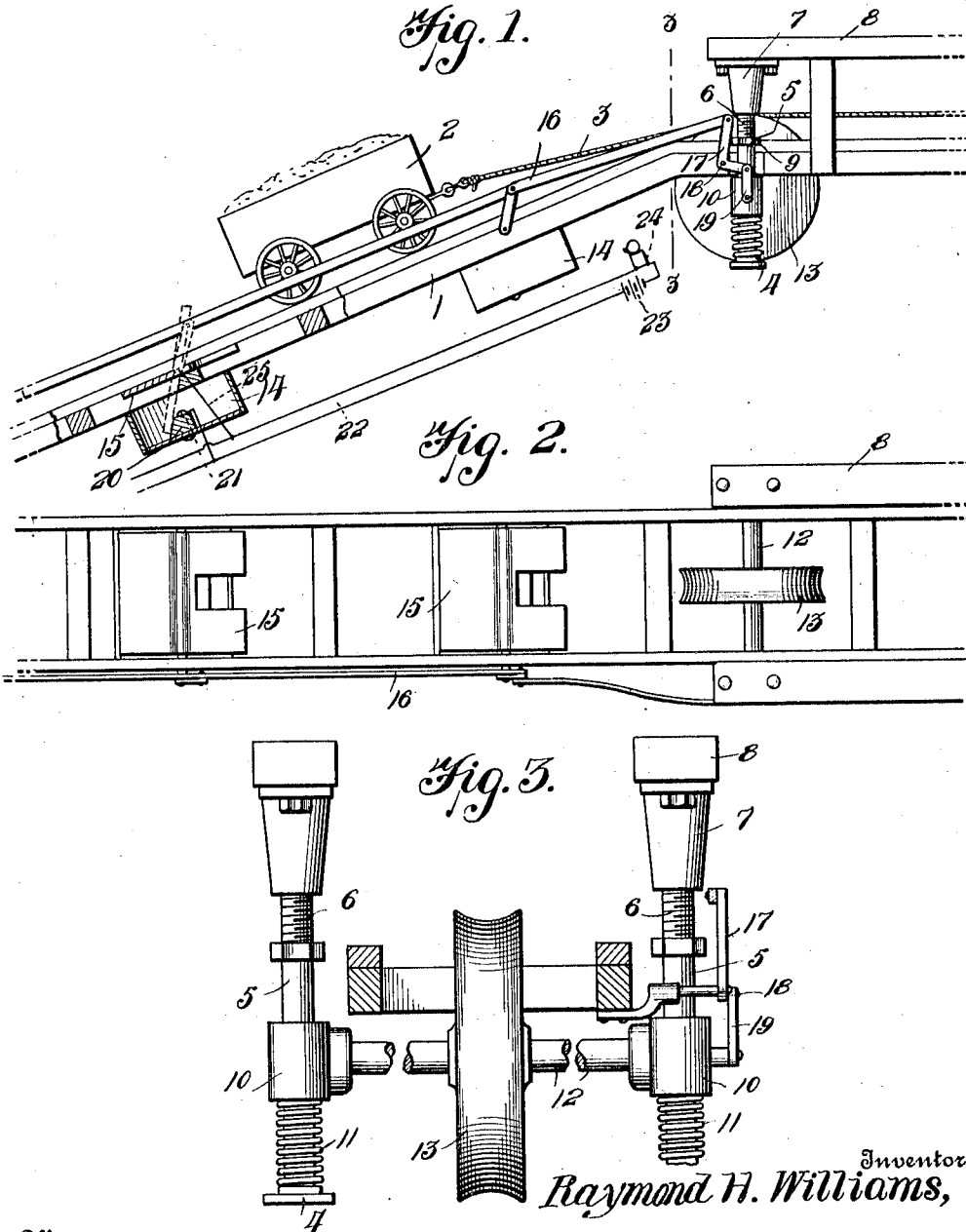


R. H. WILLIAMS.
SAFETY DEVICE FOR CABLE RAILWAYS.
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Patented Mar. 4, 1913.



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SAFETY DEVICE FOR CABLE-RAILWAYS.

1,055,249.

Specification of Letters Patent.

Patented Mar. 4, 1913.

Application filed December 26, 1911. Serial No. 667,789.

To all whom it may concern:

Be it known that I, RAYMOND H. WILLIAMS, a citizen of the United States, residing at Shamokin, in the county of Northumberland and State of Pennsylvania, have invented new and useful Improvements in Safety Devices for Cable-Railways, of which the following is a specification.

This invention relates to safety devices for cable railways.

The principal object of the invention is to provide efficient means for controlling any retrograde movement of the vehicles in case the cable should break.

Further objects of this invention will appear as the following specific description is read in connection with the accompanying drawing, which forms a part of this application, and in which:—

Figure 1 is a side elevation with parts broken away showing the device applied to an inclined railway. Fig. 2 is a top plan view. Fig. 3 is a section on the line 3—3 of Fig. 1.

Referring more particularly to the drawing, 1 represents an inclined railway, and 2 a vehicle adapted to be drawn thereover by means of the cable 3 which is connected to a winch or other suitable winding mechanism, not shown.

Mounted upon opposite sides of the railway are stepping plates 4 in which are removably seated the standards 5 having their upper ends threaded, as shown at 6, so as to be adjustably entered into socket members 7 carried by the supports 8. A combined limiting collar and nut 9 is securely connected to the standards so that a wrench may be applied thereto for turning the standards into the socket members 7 for a purpose to be hereinafter described. Slidably mounted upon the standards are suitable shaft boxings 10 which are normally raised against the collars 9 by means of heavy spiral springs 11 which surround the standards 5 and are interposed between the boxings and the stepping plates. These boxings have journaled therein a shaft 12 upon which a wheel 13 is mounted in position to receive the cable 3.

Arranged between the tracks of the railway are suitable wells 14 positioned at intervals throughout the length of the incline and pivotally mounted in the wells are

safety devices which are in the nature of heavy plates 15, which when operated will raise one end above the tracks so as to lie in the path of the rear axle of the vehicle and thereby prevent its retrograde movement upon the incline. All of the safety devices are operated in the following manner: The plates have each connected thereto a crank which is connected by a rod common to all the safety devices, which in turn is connected to a bell crank pivoted at 18 and operated by the rise of the shaft 12 to a link 19 which connects the bell crank with one of the boxings 10.

Under normal conditions, the tension of the cable 3 in drawing the vehicle up the incline will depress the shaft 12, against the tension of the springs 11 and all of the safety plates 15 will be maintained in a plane parallel with the incline. If, however, the cable is broken from any reason, the tension thereof is released from the wheel 13, which will rise under the influence of the springs 11 and will then operate the safety plates, through the bell crank 17 the rod 16 and the cranks and raise the forward end of the plates, as shown in dotted lines in Fig. 1, so that they will lie in the path of the rear axle of the vehicle. When the plate is tilted, its depressed end comes into engagement with a substantial stop 20 carried in a well 14. When the springs 11 break, a wrench may be applied to the nuts 9 and the standards secured into the socket member 7 so as to disconnect the lower ends from the stepping plates, where by new springs may be applied.

Secured to the abutments 20 are suitable contacts 21 which are connected in multiple to one side of an alarm circuit 22 including the battery and a single bell 24. The opposite side of the circuit is connected through jumper wires 25 to the axles of the safety plates 15 or to some other metal part connected with said plates. The contacts 21 are so arranged that the plates will not be brought into engagement with them until the wagon or other vehicle contacts with the plate, at which time the circuit will be closed, as will be readily understood and the engineer or operator notified. Each safety plate may be in an independent circuit instead of having all of the plates connected in multiple in a single circuit. In

this manner, the engineer or operator may readily determine at what station or place the vehicle has stopped.

What is claimed is:—

- 5 In an inclined railway, a vehicle adapted to operate over said railway, a cable connected to the vehicle, a plurality of wells arranged throughout the incline, pivoted
10 safety plates arranged throughout the incline and adapted to operate in the wells, a spring elevated wheel over which the cable passes, a rod connecting all of the plates, a bell crank connecting the rod and the wheel

for elevating the plates in the path of the vehicle when the cable breaks, said bell crank, the rods, and the plates being positively returned to normal or inoperative position upon repair of the cable, and signal mechanism controlled by the position of the plates. 15 20

In testimony whereof I affix my signature in presence of two witnesses.

RAYMOND H. WILLIAMS.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
