J. P. L. CREITZ.

SAFETY APPLIANCE FOR INCLINED RAILWAYS.

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1,033,674. Patented July 23, 1912.

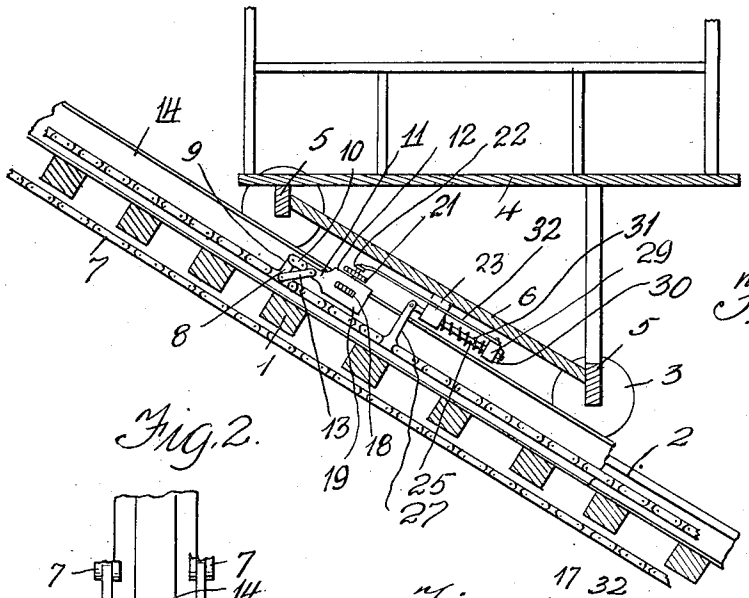


Fig. 1.

Fig. 2.

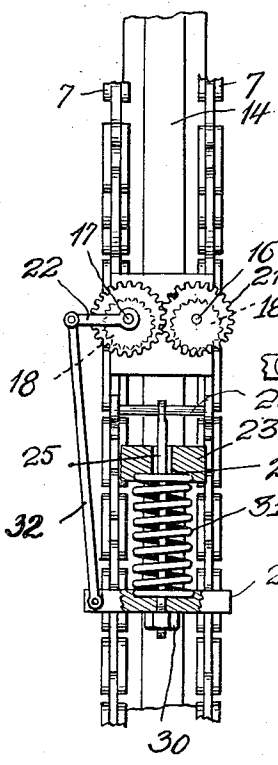


Fig. 3.

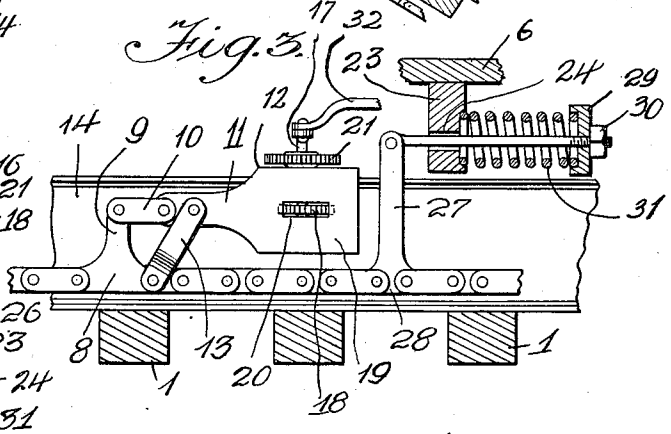
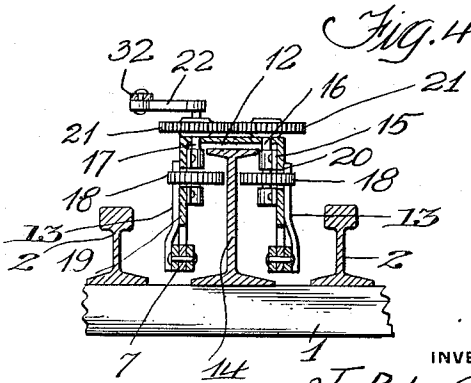


Fig. 4.



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SAFETY APPLIANCE FOR INCLINED RAILWAYS.

1,033,674. Specification of Letters Patent. Patented July 23, 1912.

Application filed March 31, 1910. Serial No. 552,609.

To all whom it may concern:

Be it known that I, JOSEF P. L. CREITZ, a citizen of the United States of America, residing at Monongahela city, in the county of Washington and State of Pennsylvania, have invented certain new and useful Improvements in Safety Appliances for Inclined Railways, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to a safety appliance for inclined railways, and more particularly to that type of inclined railway operated through the medium of endless sprocket chains to which a car or carrier is connected and moved back and forth upon the incline by a movement of the sprocket chains.

The primary object of my invention is to provide the car of an inclined railway with positive and reliable means for gripping a stationary structure and holding the car should the operating chains thereof break and release the car.

Another object of this invention is to provide a safety appliance for inclined railways that will be positive in its action, simple in construction, durable and free from injury by ordinary use.

I attain the above objects by an appliance that aims to prevent the destruction of property and the injury of passengers by the car of an inclined railway being suddenly released, it being a well-known fact that many lives have been lost by such accidents.

My invention will be hereinafter considered in detail and then claimed, and reference will now be had to the drawing forming a part of this specification, wherein there is illustrated a preferred embodiment of the invention, but it is to be understood that the structural elements thereof can be varied or changed, as to the size, shape, and manner of assemblage without departing from the scope of the invention.

In the drawings: Figure 1 is a longitudinal sectional view of a portion of an inclined railway, showing a car equipped with the safety appliance. Fig. 2 is an enlarged plan of the safety appliance partly broken away and partly in section. Fig. 3 is a side elevation of the same partly broken away and partly in section, and Fig. 4 is a cross sectional view of the safety appliance.

In the accompanying drawings the reference numeral 1 denotes ties or frames of an inclined railway upon which are secured rails 2 of a track, and upon these rails are adapted to travel the wheels 3 of a car or carrier 4, the trucks 5 of the car or carrier being connected by a longitudinal frame 6.

7 denotes endless sprocket chains adapted to be suitably driven or moved to raise and lower the car or carrier 4 upon the rails 2. The sprocket chains 7 have specially designed links 8 providing posts 9 and connected to said posts by links 10 are the rearward extensions 11 of a channel-shaped housing 12, said rearward extensions being braced relatively to the links 8 by angularly-disposed links 13. The channel-shaped housing 12 is adapted to span or bridge and be supported by an I-beam 14 located centrally of the inclined track, the support being by suitable means such as roller 12^a. The inner sides of the housing 12 confronting the I-beam 14 are provided with vertically-disposed sets of bearings 15. Journaled in these bearings are vertically-disposed shafts 16 and 17, said shafts extending through the top of the housing. Mounted upon the shafts 16 and 17, between the bearings of each set are eccentric toothed or serrated gripping members 18 adapted to be swung into engagement with the web of the I-beam 14. The side walls 19 of the housing are slotted, as at 20, to provide clearance for the eccentrically-mounted gripping members, as best shown in Figs. 3 and 4.

21 denotes gear wheels mounted upon the upper ends of the shafts 16 and 17, these gear wheels meshing with each other whereby the shafts can be moved in unison, and fixed upon the extreme end of the shaft 17 is a crank 22.

The frame 6 of the car is provided with a depending bearing 23 having a central opening 24 and movably mounted in said opening is a tie-rod 25. The rear end of this rod is connected to a transverse pin 26 carried by the upper ends of posts 27 forming part of the links 28 of the endless sprocket chains 7. The opposite end of the tie-rod 25 extends through a cross-head 29 and is provided with a nut 30, and encircling said tie-rod between the cross-head 29 and the depending bearing 23 is a coiled spring 31 having the end convolutions thereof countersunk in the faces of the bearing 23 and the head 29. The cross-head 29 has one end thereof connected by a rod 32 to the crank 22 of the shaft 17.

As will be readily understood, the weight of the car acts to place a tension on the spring 31, thus transferring the weight from the bearing 23 to the chains 7 through the spring 31, cross head 29, tie rod 25, pin 26, and posts 27; this provides a substantially uniform position of the cross head 29 relative to the links and to the housing 12 with the result that the rod 32 has no relative movement and the gripping members are held out of contact with the sides of the rail. This construction provides for an automatic gripping of the rail 14 by the gripping members when either of the chains 7 break. For instance, should the chain shown at the left in Fig. 2 break, the gripping action will be provided in the following manner: Assuming that the car is traveling upwardly, with the chains 7 traveling in that direction, the weight of the car is supported by the posts 27 of the chain. Should the chain 7 at the left break, while the chain at the right continues its movement, the release of pulling strain in an upward direction on the chain 7 at the left immediately releases the support provided by the post 27 of that chain, with the result that the rod 26 is canted or inclined with its left hand end in Fig. 2 carried downwardly in said figure; this permits a movement of the cross head to increase the normal distance between the cross head and the shafts 16 and 17, with the result that the rod 32 is drawn in a direction to rock the shaft 17 and thus bring the gripping members into contact with the rail, the housing not being given this movement by reason of the fact that the chain on the right continues to draw the housing while the relative movement of the chain on the left in opposition to the movement of the housing simply tends to move the link 13 to a vertical position instead of inclined so that this movement of the chain does not carry with it the housing. The rapidity of this movement is increased by the weight of the chain itself which has broken. Where the accident occurs when the car is traveling downward, the same action takes place due to the fact that the resistance against the downward movement of the chains which is normally present, is released on one side and consequently the weight of the chain carries the post 27 downward and thus provides for the canting of the rod 26. The breaking of the chain at the right instead of that at the left obviously provides for the same operation, since there is a canting of the rod 26 in the opposite direction and thus provides for the movement of rod 25 accentuated by the momentary ability of the spring 31 to expand.

What I claim, is:

1. In a safety appliance for inclined railways, the combination with a car, and sprocket chains adapted to move said car, of an I-beam located centrally of said sprocket chains, a housing supported by said chains and extending over said I-beam, shiftable locking members carried by the vertical walls of said housing and adapted to be swung into engagement with said I-beam, shafts rotatably mounted in said housing for shifting said locking members, gear wheels mounted upon said shafts to cause said locking members to move in unison, a crank carried by one of said shafts, a spring-pressed cross-head supported beneath said car, a tie-rod connected to said cross-head and connecting with said chains, and a rod connecting said cross head with the crank of said shaft, substantially as described.

2. In a safety appliance for inclined railways, the combination with a track, a car adapted to travel upon said track, and sprocket chains adapted to move said car, of an I-beam located centrally of said track, a housing supported by said chains and extending over said I-beam, locking members supported by said housing and adapted to be shifted into engagement with said I-beam, a depending bearing carried by said car, a tie-rod movably mounted in said bearing, a spring-pressed cross-head carried by one end of said rod, posts connecting the opposite end of said rod to said chains, and means actuated by a movement of said head to swing said locking members into engagement with said I-beam.

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

JOSEF P. L. CREITZ.

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."