No. 724,490. PATENTED APR. 7, 1903.

C. NOEVER.

SAFETY OR BUFFER CAR FOR RAILWAY TRAINS.

APPLICATION FILED JUNE 23, 1902.

NO MODEL.

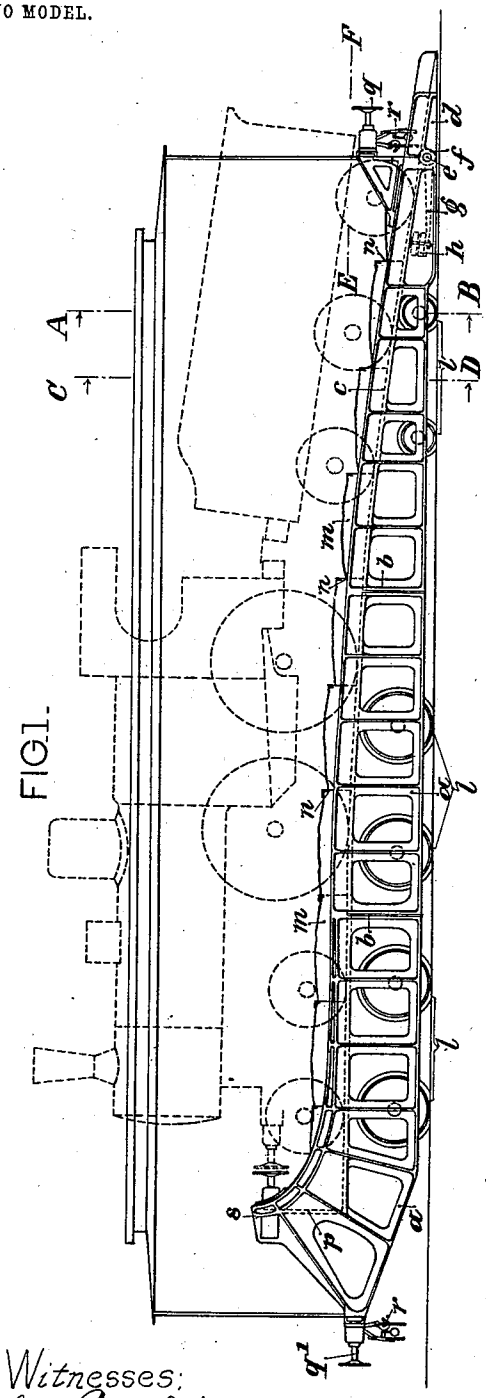


FIG. 1.

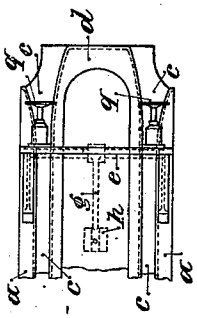


FIG. 4.

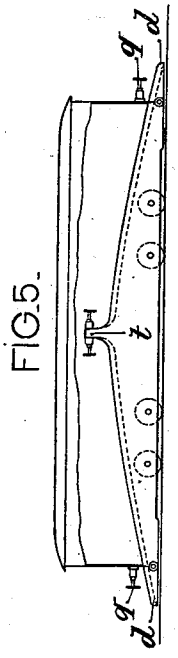


FIG. 5.

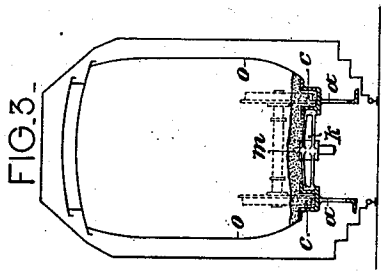


FIG. 3.

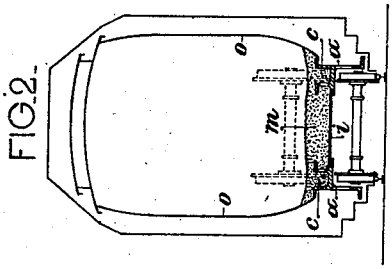


FIG. 2.

Witnesses:
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UNITED STATES PATENT OFFICE.

CARL NOEVER, OF BERLIN, GERMANY.

SAFETY OR BUFFER CAR FOR RAILWAY-TRAINS.

SPECIFICATION forming part of Letters Patent No. 724,490, dated April 7, 1903.

Application filed June 23, 1902. Serial No. 112,899. (No model.)

To all whom it may concern:

Be it known that I, CARL NOEVER, merchant, a subject of the German Emperor, residing at Berlin, Kingdom of Prussia, Empire of Germany, have invented new and useful Improvements in Safety or Buffer Cars for Railway-Trains, of which the following is a specification.

The present invention relates to a safety or buffer car for railway-trains, the purpose of which is to absorb in the most rapid manner possible the kinetic energy possessed by colliding trains. For this purpose a short track extending to within a short distance above the main track-rails is placed on a powerfully-constructed truck-frame, from one or both ends of which it slopes upward in order to provide an ascent or ascents for the abutting or colliding car, cars, or engine when a collision has occurred and the buffers have been broken. In order to gradually reduce the kinetic energy which comes into play, the said short track is provided with obstacles. For the purpose of the latter a bed of sand is preferably used, sloping upward to the crest and held in position by thin cross-partitions. At the crest of the short track a buffer-stop is arranged to take up the remaining vis viva possessed by the train. The buffer-car itself is given a light superstructure like that of the closed luggage-vans used with passenger-trains.

In Figures 1 to 4 of the annexed drawings one form of the buffer-car is represented as an example in which a single ascent is provided, the lowest part of the track being at one end of the car and the highest part with the buffer-stop at the other end. Fig. 1 is a side view with the near side wall removed. Figs. 2 and 3 are cross-sections on the lines A B and C D of Fig. 1, respectively. Fig. 4 is a partial horizontal section of the car on the line E F of Fig. 1. Fig. 5 is a diagrammatic side view of a car with two ascents.

The frame of the buffer-car comprises two particularly strongly-constructed frames *a*, held in the necessary lateral distance apart by two vertical stay-plates *b*, the ends of which being securely fastened to the frames *a*. Each frame *a* carries a track-trough *c*, sloping steeply upward in the direction in which the train travels. The rear end of each trough *c* is preferably formed as a movable tongue or flap *d* and extends to within a distance of about fifty millimeters above the rails. In the construction illustrated the tongues *d* are carried by a strong shaft *e*, pivoted in lugs *f*, formed on the frames *a*. To prevent the ends of the tongues *d* from touching the rails, a lever *g* may be fixed to the shaft *e* and depressed to the desired extent by springs or elastic intermediate parts *h*. The upper seat for this resilient support can be formed by a strong horizontal plate *i*, Fig. 2, which, together with the vertical plates already referred to, forms the rigid connection of the two frames *a* and extends from one end of the car to the other where not interrupted by the transverse frames or sleepers *k*, Fig. 3. By means of the latter the car illustrated as an example rests upon three double-axle bogie-trucks *l*, of which only the wheels are shown, for the sake of simplicity. Corresponding to this arrangement of three bogie-trucks three transverse sleepers *k* would be provided. The track formed by the two troughs *c*, the gage of which corresponds to that of the railway-line, is covered with sand *m* or similar suitable material, the surface of which also slopes upwardly from the rear end to the front end of the car. This material may be of such a nature that its position is not changed by the vibration of the train in motion. If ordinary sand is used, a suitably large number of cross-walls *n*, of thin sheet metal, are preferably provided to hold the sand in the desired position. At the sides the sand is held by the side walls *o* of the car, which also preferably consist of thin sheet metal, and at the front by the front wall *p*. The car can be provided with side walls and a roof of such a kind as to differ externally but slightly from the other cars of the train.

At both ends of the car buffers *q q'* and coupling-gear *r* are provided, the buffers being so connected to the frame as to take up concussions produced by shunting and traveling, but to detach themselves from their supports when unintentional collisions take place between trains, so that the abutting or colliding train, cars, or engine can run up the ascent. Above the buffers *q'* in front of the

car a buffer-stop *s* is provided to take up the remaining vis viva of the ascending train. The buffer-car described can be placed either at the end of a train or immediately behind the tender of the locomotive, the buffer-stop *s* being preferably in front in the direction of travel. In order to avoid the necessity of turning the buffer-car, a car with two ascents may be used, as diagrammatically indicated in Fig. 5. In this case a double buffer-stop *t* is required. Arranged in the center of the train this kind of car allows the two abutting cars to ascend it.

When a collision takes place between two trains and the lightly-fastened buffers *q* have been broken down, the wheels of the ascending car or engine depress the tongues *d*, so that a track on the buffer-car is formed. The sand-bed acts as a check on the speed of the ascending train, the residual energy of which is finally absorbed by the buffer-stop *s*.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In a safety-car for railway-trains, the combination of a sloping track, beginning a short distance above the rails and terminating at a point above the wheels of the car, a buffer-stop at the crest of the track, thin partitions provided across the track, and a body of hard granular material between said partitions, substantially as described.

2. In a safety-car for railway-trains, the combination of a sloping track, beginning a short distance above the rails and terminating at a point above the wheels of the car, a buffer-stop at the crest of the track, thin partitions provided across the track, a body of hard and granular material between the partitions, tongues, forming the lower end of the track, a cross-shaft securely fastened to said tongues, and resting in eyes in the frame of the car, and means for normally keeping the tongues above the rails, substantially as described.

3. In a safety-car for railways, the combination with suitable trucks, of an inclined track mounted on the trucks and extending from points adjacent the lower horizontal plane of the truck-wheels to points above said wheels, a buffer arranged at the highest part of said inclined track, and means arranged between said buffer and the lower end of the track for checking the passage of a car over said track.

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

CARL NOEVER.

Witnesses:
WOLDEMAR HAUPT,
HENRY HASPER.