(No Model.) 3 Sheets—Sheet 1.

A. N. LAMPORT.

SAFETY CAR.

No. 473,323. Patented Apr. 19, 1892.

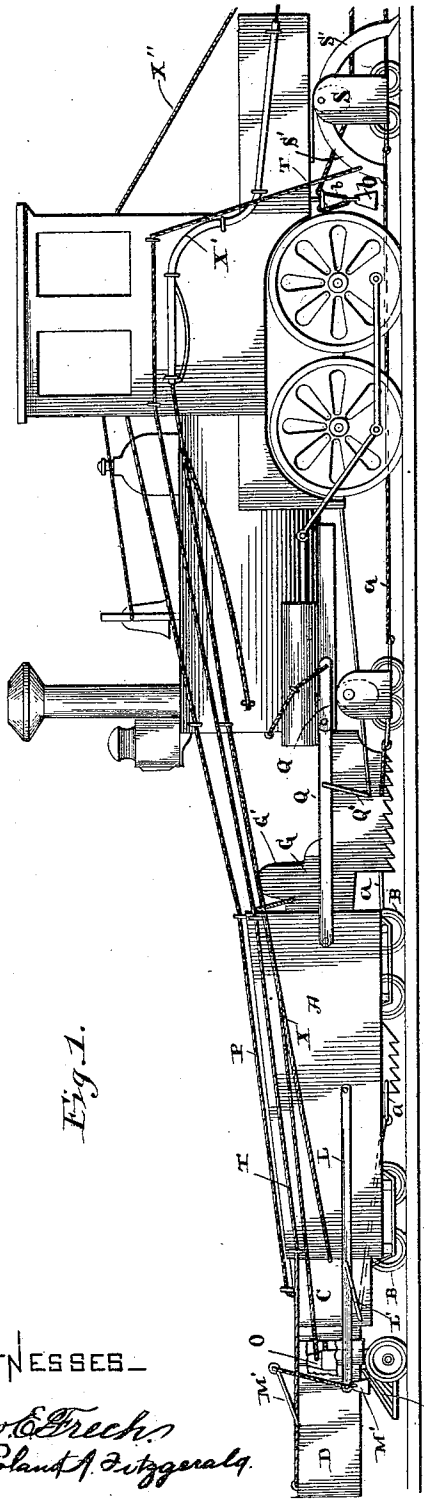

Fig. 1.

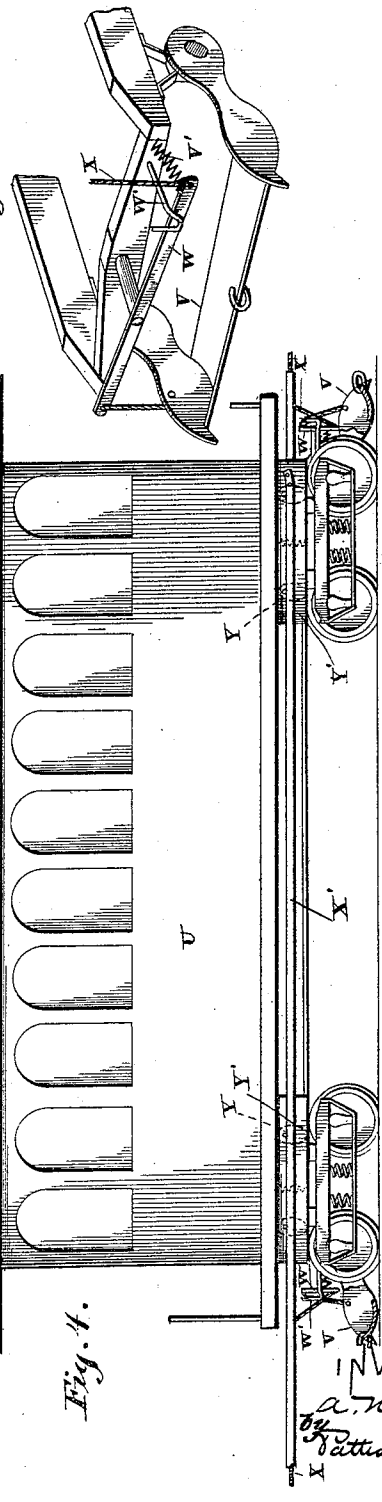

Fig. 4.

Fig. 6.

WITNESSES—

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(No Model.) 3 Sheets—Sheet 2.

A. N. LAMPORT.

SAFETY CAR.

No. 473,323. Patented Apr. 19, 1892.

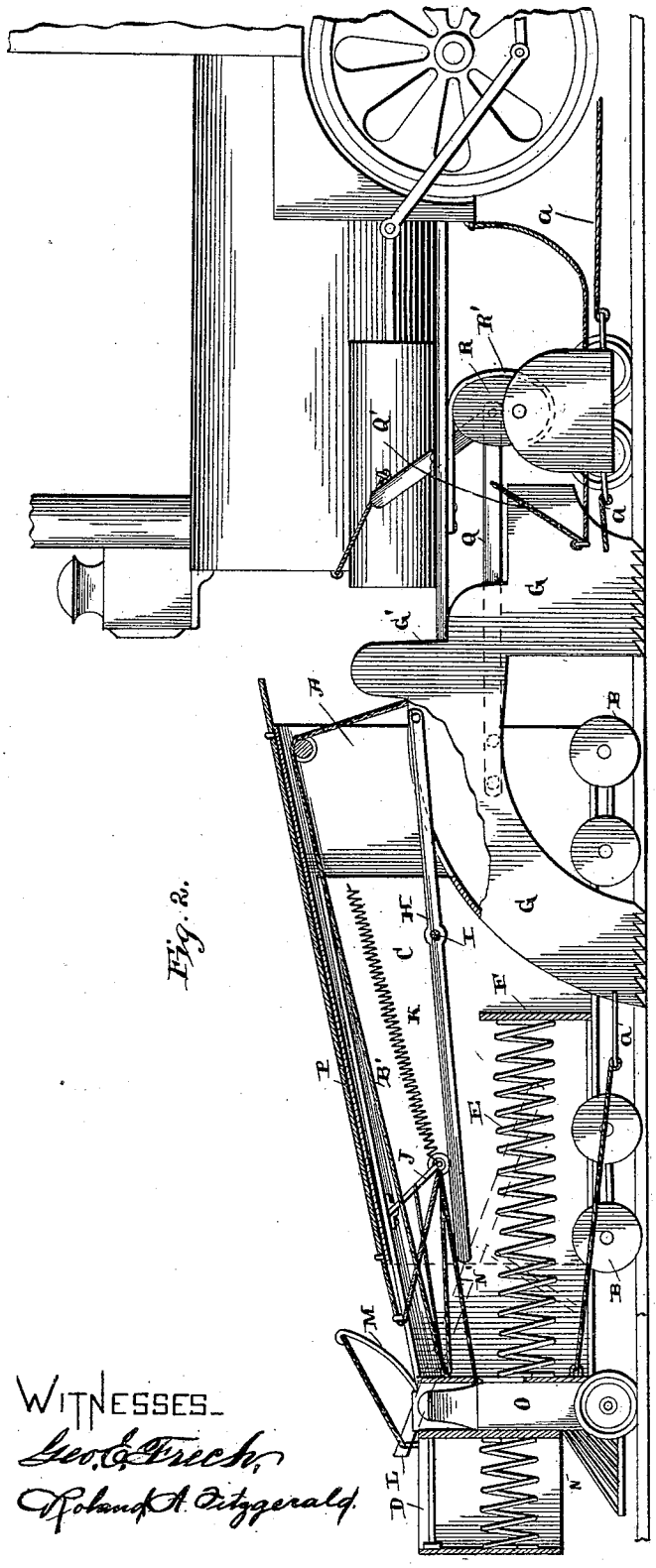

Fig. 2.

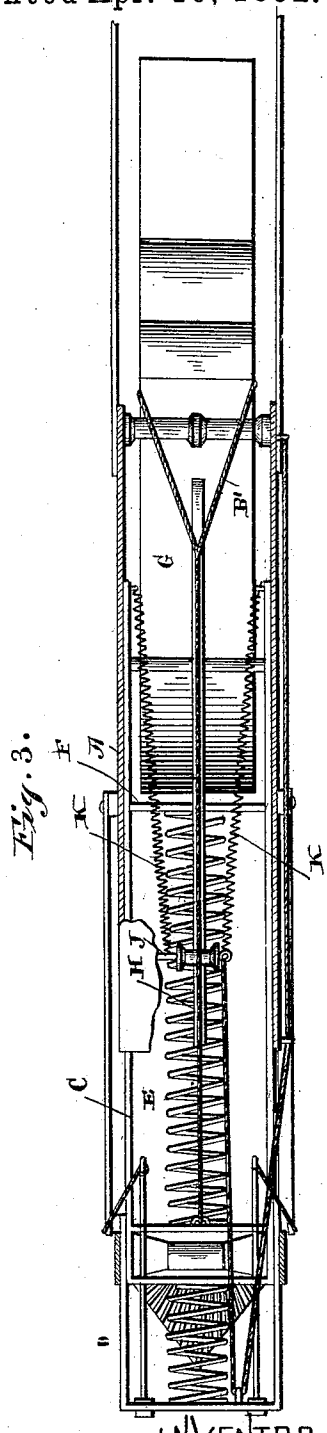

Fig. 3.

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(No Model.) 3 Sheets—Sheet 3.

A. N. LAMPORT.

SAFETY CAR.

No. 473,323. Patented Apr. 19, 1892.

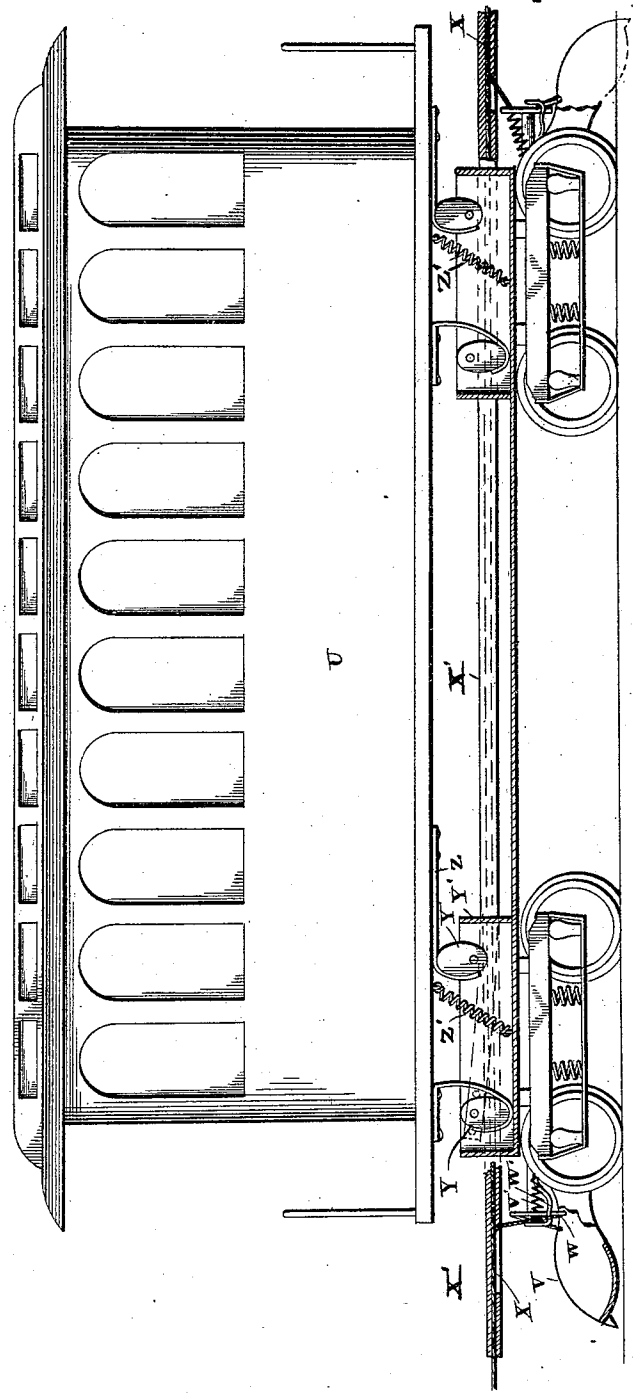

Fig. 5

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UNITED STATES PATENT OFFICE.

ABRAHAM N. LAMPORT, OF NEW YORK, N. Y.

SAFETY-CAR.

SPECIFICATION forming part of Letters Patent No. 473,323, dated April 19, 1892.

Application filed July 15, 1891. Serial No. 399,667. (No model.)

To all whom it may concern:

Be it known that I, ABRAHAM N. LAMPORT, of New York, State of New York, have invented a new and useful Railroad Safety-Car, of which the following is a specification.

My invention relates to an improvement in safety-cars; and it consists in certain novel features of construction, which will be fully described hereinafter, and more particularly referred to in the claims.

The object of my invention is to provide an improved means of instantly stopping trains which are in imminent danger of collision, or when they have actually collided, or when there is an undiscovered break in the track or in a bridge immediately ahead of the approaching train.

Referring to the accompanying drawings, Figure 1 is a side elevation of my improved safety apparatus. Fig. 2 is a similar view enlarged and shown partly in section. Fig. 3 is a horizontal sectional view of the safety-car. Fig. 4 is a side elevation of an improved passenger-coach to be used in connection with my improved safety-car. Fig. 5 is a similar view showing the longitudinal movement of the car. Fig. 6 is a detail view of the car-stopping mechanism.

A represents the safety-car proper, having suitable trucks; B C, the longitudinally-moving buffer-frame, and D the spring-actuated buffer.

E is a horizontal spiral spring located between the forward end of the frame C and the vertical partition F in the rear portion of the car A.

G represents the stopping-shoe having the front and rear toothed projections, as shown, and this shoe is pivotally supported on the rear end of the lever H, which is fulcrumed at I at the inner end of the frame C. Depending from the top of the car A is the bail J, which is adapted to bear down upon the outer end of the lever H, and thus hold the shoe G in a raised position and away from the track. This bail is connected to the rear end of the frame C by the spiral springs K, so that when the said frame is moved rearward the bail is also carried in that direction, releasing the lever H and allowing the shoe G to drop. Thus it will be seen that in the event of a collision, the buffer-frame being moved rearward, the said shoe will be instantly released and allowed to engage the track, forming a complete stop and obstruction to the train behind it.

Pivoted to the sides of the car A are the forwardly-extending arms L, which are connected between their ends to the bail L′ on the front end of the frame C and which are connected at their outer ends to the arms M on the buffer D. Suspended on the outer ends of these arms L are the weights M′, which hold the said arms drawn downward. When in a horizontal position, these arms form a rigid connection between the frame C and the car A, so that in order to move the frame C rearward in the car these arms must be raised, and this can only be done by overcoming the weights M′, so that an obstruction in front of the buffer, causing considerable resistance, is necessary in order to force it rearward against the action of the weights, and it will be seen that this upward movement of the outer ends of the weights is necessary to break the rigid connection between the frame C and the car A, so as to allow the former to move rearward for the purpose of releasing the shoe G, as above described. This mechanism is provided so that a slight obstruction which can be shoved to one side by the buffer will not effect the shoe-dropping mechanism.

The pilot N is secured to the vertically-moving weight O, which is held within the frame C and supported on a truck, as shown. This weight is connected to the bail J by the rope N′, so that when a break is reached in the track or in a bridge the weight drops therein, drawing forward the said bail against the action of the springs K, allowing the shoe to drop into engagement with the track, and thus instantly providing an impassable obstruction in front of the train. The bail J may also be drawn forward by the line P, reaching to the engine-cab, so that when the engineer discovers a break in the track ahead he can instantly drop the shoe G by exerting a pull on the line, as above described.

The engine is held rigid with the safety-car A by the jointed arms Q, so that normally they are at a given distance apart; but when the shoe G drops the joints of these arms are

broken by means of the connections Q′ between them and the shoe. The forward truck of the engine is provided with the eccentrically-pivoted roller R, and upon this roller the end of the engine rests, being connected to the said roller by the strap R′. When from any cause the shoe G is dropped, breaking the joint of the arms Q, the engine is forced ahead by the momentum of the train, and the eccentric roller R turning beneath it by means of the connecting-strap R′ the forward end of the engine is raised and, moving forward in this raised position, strikes the shoulder G′ of the shoe G, forcing the forward end of the former to a secure hold on the track or cross-ties. The truck S at the rear of the engine is also stopped in the event of a collision by means of the downwardly-projecting pivoted dog S′, which is held raised from the track when the frame C is extended by the line T; but when the former is moved rearward the said line is slackened, allowing the shoe S′ to drop into engagement with the track. This truck is also provided with an eccentric roller, to which the engine is connected by means of a strap, as above described, so that when the said truck is stopped the engine may have a forward movement thereon. The trucks of the coaches U are also provided with the pivoted shoes V, which are held up from the track by their connection with the end of the pivoted lever W, supported on the trucks. The opposite ends of these levers are adapted to be drawn outward against the action of the springs V′, and when so drawn outward may be raised past the curved stops W′. When freed from engagement with these stops, the said levers are free to turn upon their pivots, and immediately the shoes V drop and engage the track, arresting the forward movement of the coaches. The outer ends of the levers W are connected to the line X, running parallel with the train and which is secured at its forward end to the frame C. Thus it will be seen that when the said frame is moved rearward the line X is drawn upon, pulling forward the levers W and allowing the shoes V to drop. By this means the said shoes and the shoe G are made to engage the track at the same instant, thus creating obstructions the whole length of the train.

The coaches U are supported on the eccentric rollers Y, pivoted on the housings Y′ on the trucks, and secured to the said rollers are the straps Z, which extend in opposite directions and which are secured at their outer ends to the bottom of the car. By this means the car may have a longitudinal movement in either direction upon its trucks, so that, the latter being suddenly stopped when moving in either direction, the car is afforded a longitudinal movement on its trucks, and in this manner the greater part of the momentum of the train is spent, relieving the coaches of the sudden jar which would occur were they rigid with their trucks. The rope B′ connects the shoe G with the forward end of the frame C, so that when the latter is drawn forward by the spring E after having done service in stopping the train the shoe G is raised from the track. The springs K are for the purpose of affording a yielding connection between the frame C and the bail J, so that the latter may be drawn forward in either of the several ways described without moving the frame C; but the said springs will be sufficiently strong to prevent the bail from being swung forward by a slight movement, which might occur from the rocking and swinging of the train. The coaches are held down normally upon the boxes Y′ by the spiral springs Z′ within them, which are secured at their outer ends to the under sides of the cars.

The line X, which operates the several shoes upon the car-trucks, is preferably wire the greater portion of its length and is extended through the flexible pipe or hose X′, so that it can only bend with the hose and not kink, thus enabling it to be straightened completely when it is stretched.

X″ represents a line branching from the line X immediately behind the engine, and this line extends up into the cab within convenient reach of the engineer.

The train receives its forward pull from the safety-car by means of the draw-bar *a*. As will be seen, this draw-bar is not connected with the engine directly, so that for the purpose of drawing forward the train when the engine is moving forward on the shoe a slack line *b* is provided, which is connected to the under side of the engine and which is kept stretched by the weight *b*′.

A safety-car constructed as herein shown and described is most effectual in instantly stopping the train in the face of impending danger, and by its use the engine and cars are saved from demolition, which is generally, present in the event of a wreck. The lives of the passengers are not only saved, but the railroad company is saved from heavy loss by the preservation of the rolling-stock.

Having thus described my invention, I claim—

1. In a safety-car, the combination, with a frame, a shoe, a longitudinally-moving frame C, and a lever fulcrumed in said frame and which supports the shoe, of a bail depending from the first-named frame, which engages the free end of the said lever, and a connection between the frame C and the said bail, substantially as shown and described.

2. The combination, with a safety-car, a shoe, and a lever fulcrumed within said frame and which supports the shoe, of a bail depending from the said car-top, which engages the free end of the lever, a vertically-moving truck, and a connection between the truck and bail, substantially as shown and described.

3. The combination, with car A, frame C, and buffer D, of arms pivoted to and projecting forward from the said car, weights on the outer ends of the said arms, and a suitable con-

nection between the said arms and the frame C and buffer, substantially as shown and described.

4. In a safety-car, the combination, with a longitudinally-moving frame, a lever fulcrumed therein, and a shoe supported on the rear end of the lever, of a bail depending from the said car-top and which engages the said lever, springs connecting the said bail and rear end of the moving frame, and operating-lines extending forward from the said bail, substantially as shown and described.

5. The combination, with a safety-car, a movable frame thereon, a lever fulcrumed in the frame, and a shoe supported on the rear end of the lever, of a means for tripping the said lever, and a connection between the forward end of the said moving frame and the said shoe, substantially as shown and described.

6. In a safety-car, the combination, with a vertically-moving shoe and a means for automatically dropping the same, of a jointed connection between the said car and the engine, and a suitable connection between the shoe and the said joint, whereby when the former drops the joint is broken, for the purpose substantially as shown and described.

7. In a safety-car, the combination, with a vertically-moving shoe and a means for automatically dropping the same, of a jointed connection between the car and the engine, a connection between the said joint and the shoe, whereby when the former drops the latter is broken, a truck for the forward end of the engine, a roller eccentrically pivoted therein, and a strap connecting the roller with the engine, substantially as shown and described.

8. The combination, with a safety-car, a vertically-moving shoe therein, and a means for automatically dropping the shoe, of a shoulder formed on the said shoe, a jointed connection between the car and the engine, which is broken when the shoe drops, a truck, and an eccentric roller thereon, which carries the engine upward and forward in engagement with the shoulder on the shoe, substantially as shown and described.

9. The combination, with a safety-car and a longitudinally-moving buffer therein, of a truck for the engine, a shoe pivoted thereto, and a line connecting the buffer-frame with the said shoe, substantially as shown and described.

10. The combination, with a safety-car and a longitudinally-moving buffer-frame therein, of the coach-trucks, shoes pivoted thereto, a lever pivoted to the truck and connected at one end with the shoes, a projecting stop above the free ends of the levers, and a line which connects the free ends of the levers with the said buffer-frame, substantially as shown and described.

11. The combination, with a safety-car, a longitudinally-moving buffer-frame therein, coach-trucks, and dogs pivoted thereto, which are operated by the said buffer-frame, of eccentrically-pivoted rollers on said trucks, coaches supported on the rollers, and oppositely-extending straps secured at their inner ends to the rollers and at their outer ends to the car-bottom, substantially as shown and described.

ABRAHAM N. LAMPORT.

Witnesses:
MEYER PHILLIPS,
MORRIS JACOB.