

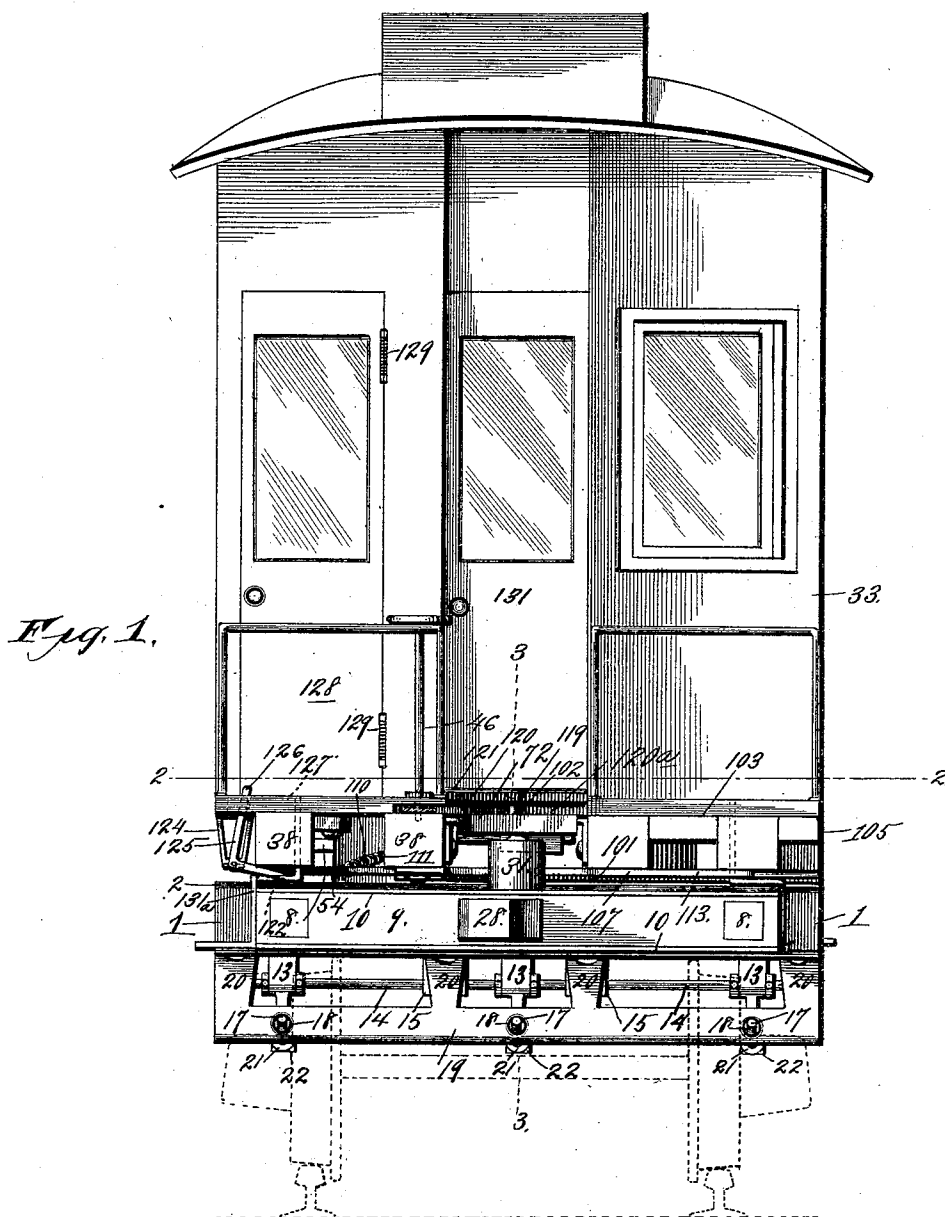
(No Model.)

6 Sheets—Sheet 1.

J. E. PAGE.
NON-TELESCOPIC RAILWAY CAR.

No. 493,597.

Patented Mar. 14, 1893.



Witnesses:
[Signature]
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Inventor:
J. E. Page.
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BY *[Signature]*
Attys.

(No Model.)

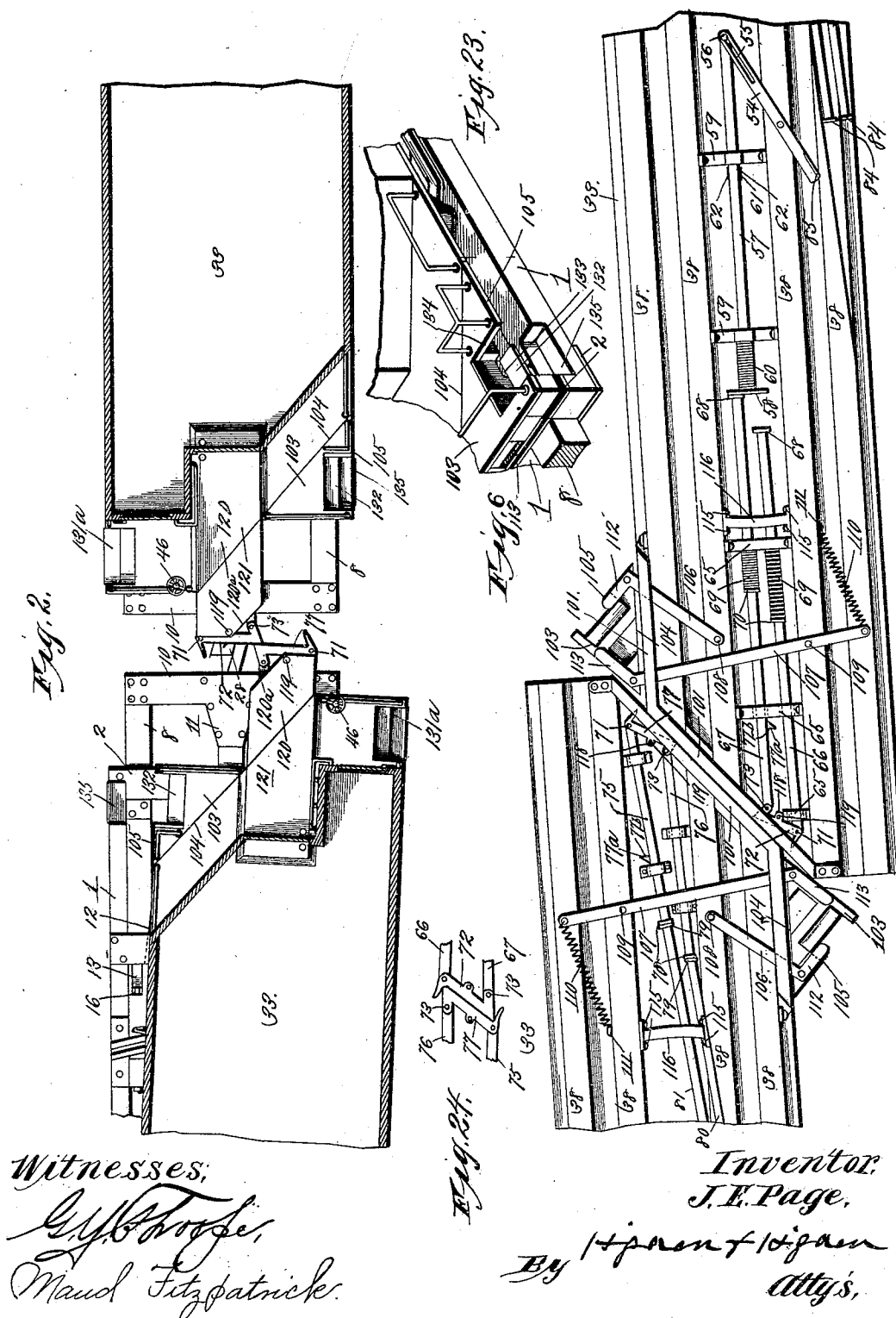
6 Sheets—Sheet 2.

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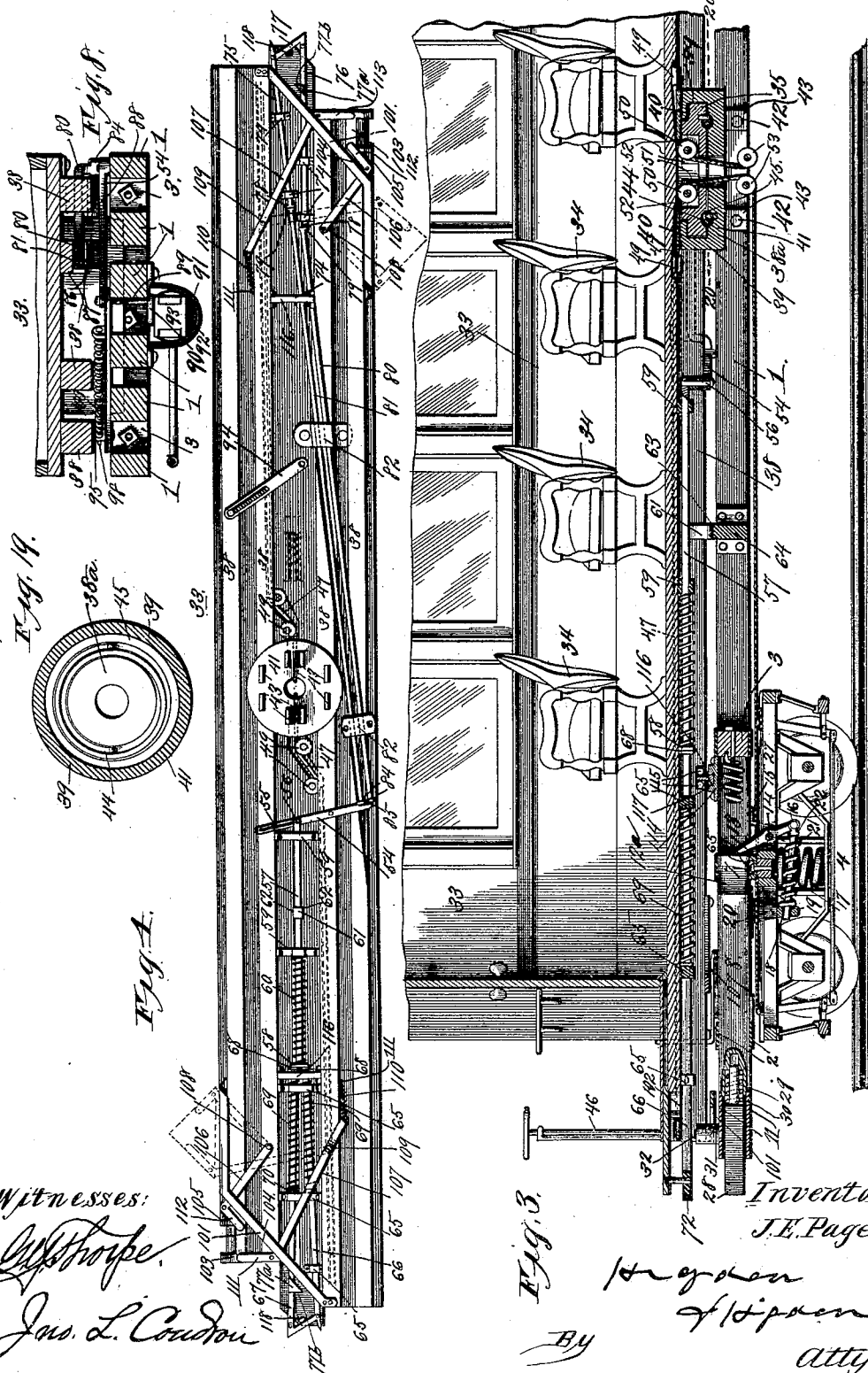
6 Sheets—Sheet 4.

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NON-TELESCOPIC RAILWAY CAR.

No. 493,597.

Patented Mar. 14, 1893.



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Fig. 3.

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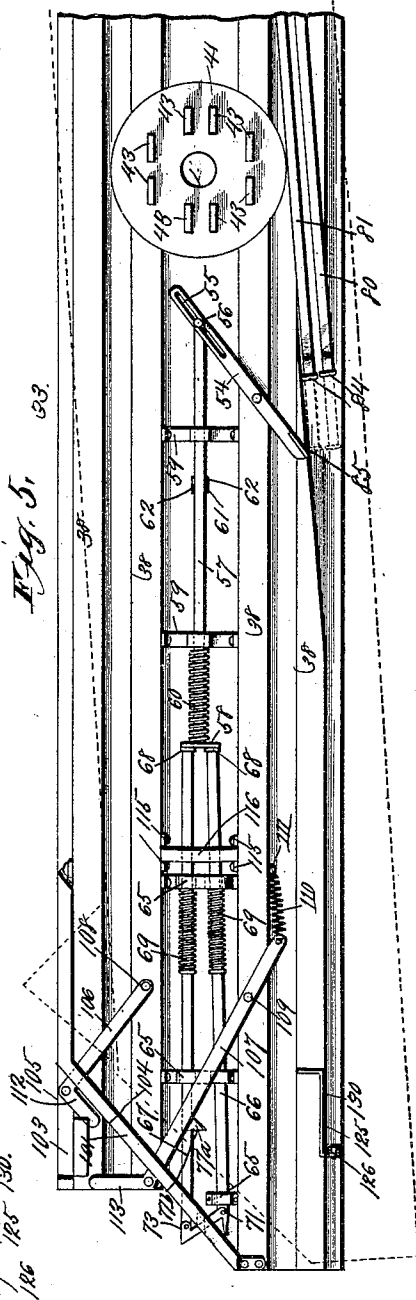
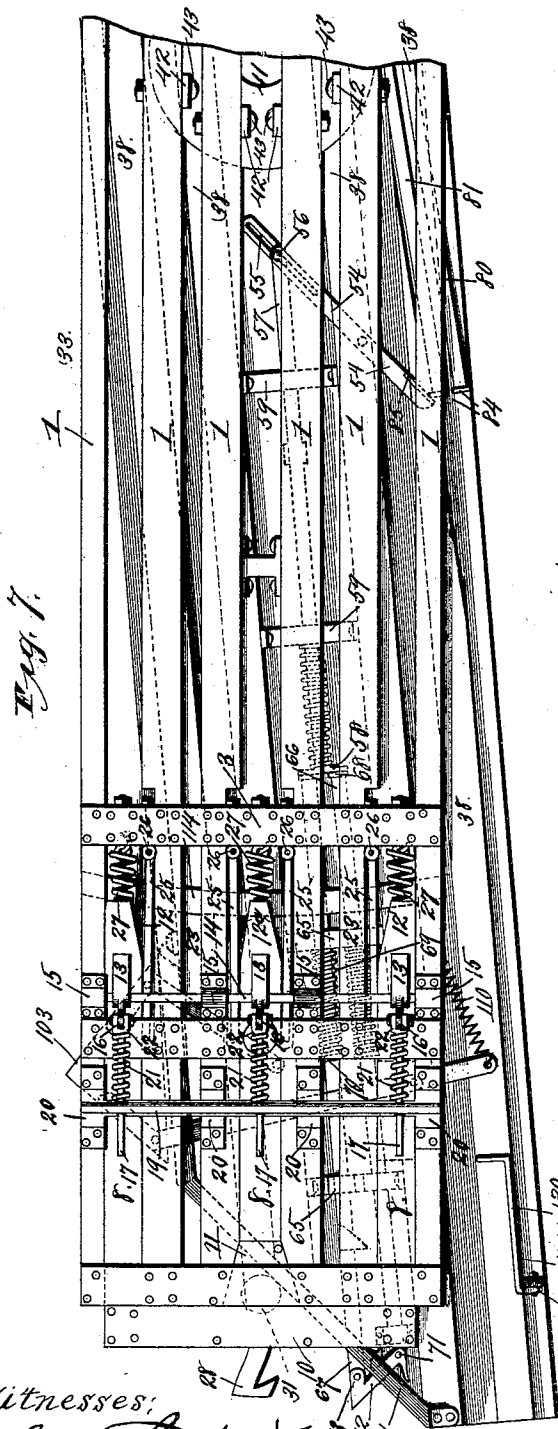
(No Model.)

6 Sheets—Sheet 5.

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NON-TELESCOPIC RAILWAY CAR.

No. 493,597.

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(No Model.)

6 Sheets—Sheet 6.

J. E. PAGE.
NON-TELESCOPIC RAILWAY CAR.

No. 493,597.

Patented Mar. 14, 1893.

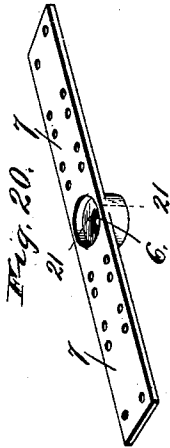
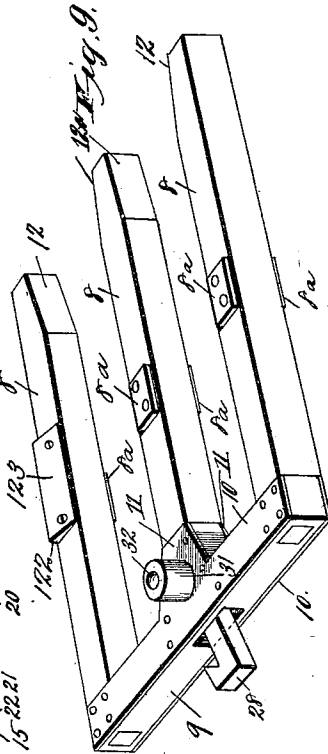
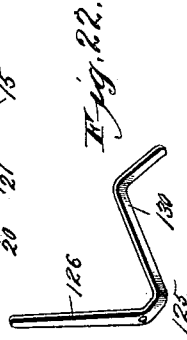
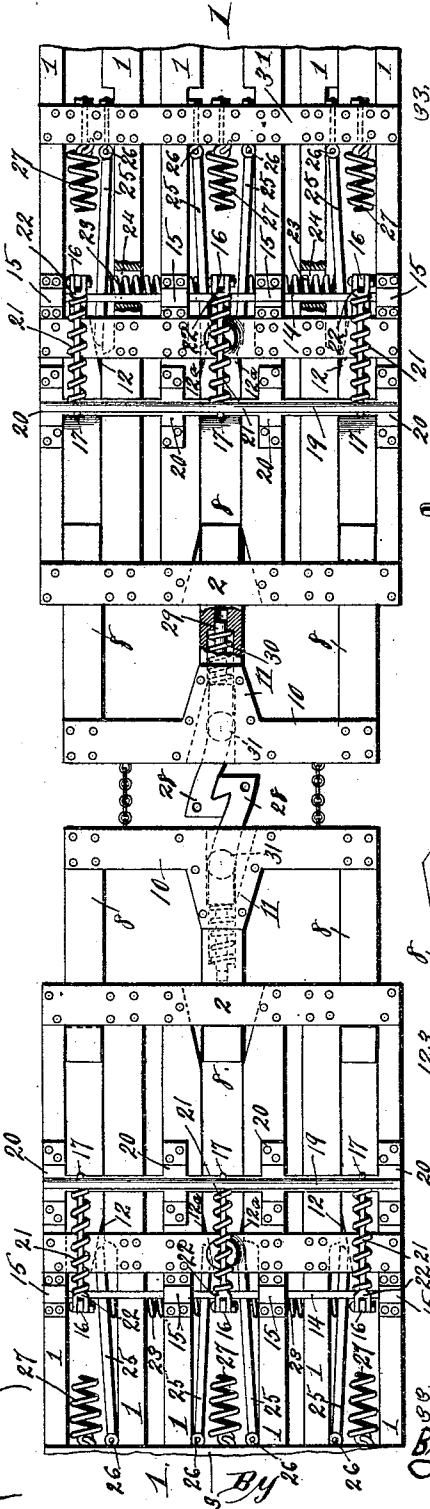


Fig. 6a.



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UNITED STATES PATENT OFFICE.

JUSTIN E. PAGE, OF INDEPENDENCE, MISSOURI, ASSIGNOR OF ONE-HALF
TO JOSEPH LUFF, OF SAME PLACE.

NON-TELESCOPIC RAILWAY-CAR.

SPECIFICATION forming part of Letters Patent No. 493,597, dated March 14, 1893.

Application filed September 23, 1892. Serial No. 446,892. (No model.)

To all whom it may concern:

Be it known that I, JUSTIN E. PAGE, of Independence, Jackson county, Missouri, have invented certain new and useful Improvements in Non-Telescopic Railway-Cars, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to railway passenger cars such as day coaches, chair cars, dining cars, sleeping cars and the like, likewise to baggage cars, express cars, cabooses and the like, and also to stock cars and to other types of freight cars for transporting the more valuable classes of freight.

The object of my invention is to provide a railway car which shall be automatically nontelescopic in the event of a collision at front or rear, or in the event of contact with any obstruction upon the road bed which would tend to produce a sudden and dangerous stoppage of the the train.

A further object of my invention is to so construct a railway car that the concussion produced in the event of a collision with another train or from any other cause sufficient to produce a sudden and dangerous stoppage of the train, will be divided into several distinctly separate and lightershocks and therefore lessen the danger of destruction to life and property.

A still further object of my invention is to provide a train so under control of the engineer, that in the event of a defective or destroyed bridge perceived too late to stop the train by the use of the ordinary brakes he may cause a part of the front end of one of the foremost cars of his train while in motion to collide with the frame work of an overhead bridge or a safety post erected at the approach of a bridge for the purpose, and thus prevent the cars from being plunged into a gulch, creek or river, as the case may be; if in his judgment by so doing he may avert a worse destruction of life and property.

A still further object of my invention is to produce a railway car which shall be mounted pivotally upon its supporting frame work so that in the event of accidental or premeditated collision (as above explained) the ends of the car shall swerve laterally, thus permit-

ting them to glance or glide past each other, thus avoiding all possibility of direct impact, such as would telescope the car bodies.

A still further object of my invention is to provide safety exit attachments for this type of railways cars, of such character that when the car bodies are turned laterally so as to avoid telescoping, the doors of the safety exits shall be automatically unlocked, to permit said doors to open automatically and thus allow the passengers to escape from the cars, the doors of the safety exits being normally retained in locked position.

To the above purposes my invention consists in certain peculiar and novel features of construction and arrangement, as hereinafter described and claimed.

In order that my invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which:

Figure 1. is an end elevation of a railway passenger car embodying my invention. Fig. 2. is a horizontal section taken on the line 2—2 of Fig. 1. Fig. 2^a is a plan view of the supporting platform for the carbody, certain of the longitudinal floor-beams of the carbody being also shown in position upon the supporting or truck platform, and the end sliding-frames of the platform being shown as extended. Fig. 3. is a vertical longitudinal section of one end of the lower part of the car and its truck platform, on the line 3—3 of Fig. 1. Fig. 4. is an inverted plan view of the car-body; the actuating devices being in extended or locked position. Fig. 5. is also an inverted plan view of the car-body, the actuating devices being in unlocked and partially retracted position. Fig. 6. is an inverted plan view of the adjacent ends of two car bodies in their folded or contacted position. Fig. 6^a is an inverted plan view of the adjacent end portions of two truck platforms, with the telescopic sliding frames in an extended position. Fig. 7. is an inverted plan view of an end portion of the truck platform and of the car-body, the car-body being shown as set in its lateral position, as in a collision. Fig. 8. is a transverse vertical section of the truck platform, on the line 8—8 of Fig. 2^a. Fig. 9. is a detached perspective view of one

of the telescopic sliding frames which are carried at the ends of the truck platform as shown in Fig. 6^a. Fig. 10. is a detached perspective view of the socket post for the car body locking mechanism, and certain of the parts immediately adjacent to said post. Fig. 11. is a detached perspective view of the two operating bars for the locking head. Figs. 12 and 13 are detached perspective views of the two bearing plates for the lock-operating bars. Fig. 14 is a detached perspective view of two of the actuating bars for the lock-operating bars. Fig. 15. is a detached perspective view of the two opposite actuating-bars for the lock-operating bars. Fig. 16. is a detached perspective view of the locking-bar and its locking-head. Fig. 17. is a detached perspective view of one of the pivotal transmitting-levers of the pneumatic unlocking-mechanism, and the actuating bar therefor. Fig. 18. is a detached perspective view of the companion transmitting lever of the pneumatic unlocking mechanism and its retracting spring. Fig. 19. is a horizontal section of the turn-table of the car, on the line 20—20 of Fig. 3, showing the check spring connection. Fig. 20. is a detached perspective view of one of the bars which are carried by the truck platform, and the socket for the truck-pivot. Fig. 21 is a vertical cross-section of the same, on the line 21—21 of Fig. 20. Fig. 22. is a detached perspective view of one of the locking levers for the safety doors of the car. Fig. 23. is a detail perspective view of the swinging platform, showing the corner of the car of which it forms a part. Fig. 24. is a top plan view in detail, showing the normal and advanced positions of the buffing plates of two adjacent and connected cars.

Previous to my present invention, the principal destruction of life and of property in railway accidents has resulted from the telescoping of the cars; and also by the plunging of the train into gulches, creeks and rivers on account of defective or destroyed bridges.

As will be understood from the following description, I have produced a railway car, which, owing to its peculiar and novel construction will largely avert the danger of injuring the car and its occupants when concussion occurs in case of collisions, and which makes telescoping of the cars practically impossible, and not only prevents the blocking of door-ways, but causes certain of them to be thrown open, thereby furnishing a ready means of exit from the car.

Referring now to the drawings in detail, 1 designates the truck platform upon which the body of the car is supported, as hereinafter explained, so as to make the car body capable of lateral swinging movements upon a central pivot. This truck platform is shown as composed of a number of parallel longitudinal beams which are of any suitable or preferred length, and which are shown as braced together by two transverse end-beams 2 and suitable transverse intermediate beams

3. I desire it to be understood that this truck platform may be either of this precise structural character, or any other, suitable to supporting the car body in the manner hereinafter described, and also for supporting the operative connections also to be described. In any event, the truck platform is of approximately oblong rectangular form, and is supported at its ends upon two trucks 4; these trucks being also, in their general construction, of any suitable or preferred type, and having either four truck-wheels or any other suitable or preferred number of such wheels, as circumstances may require. Each of these trucks is attached to the truck-platform by means of the usual pivot 5; this pivot extending at its upper end upward into a countersunk cavity 6 which is formed midway of the length of a pivot beam or bar 7. The beam or bar 7 is bolted or otherwise suitably secured to the under side of the truck platform near one end thereof, and so as to extend transversely of said truck-platform; there being thus two of the beams or bars 7, one near each end of the truck-platform.

At each end, the truck platform 1 is provided with a longitudinally sliding frame which is composed of three, or any other suitable or preferred number of longitudinal and parallel beams 8, the outer ends of which are connected together by a cross bar or beam 9; this bar or beam 9 being preferably shod on its upper and lower sides with metal plates 10 each of which corresponds in length with the cross bar or beam 9 and each of which is also formed with a rearwardly extending offset 11 midway of its length, and this offset overlies the outer end of the middle bar or beam 8, as shown. Secured, both on the upper and lower sides preferably of the longitudinally extending bars or beams 8 are the top or retaining plates 8^a which when the sliding or telescopic frames are extended bear against the rear edge of transversely extending bar 2 of the truck platform and thus prevent the said sliding or telescopic frame being withdrawn from its connection with the truck-platform. A plate, to be hereinafter described, secured to the upper side of one of the beams or bars 8 has its front edge in transverse alignment with the front ends of the top plates 8^a, and thus serves the purpose of one of the stop plates as will be readily understood. The inner sides of the two outer bars 8 are beveled rearwardly and outwardly, as at 12, while the two outer sides of the rear end of the middle bar 8 are also beveled rearwardly and inwardly, as at 12^a, the purpose of so beveling these rear ends of the bars 8 being presently explained. The two sliding end frames just described are each retained normally in outwardly extended or protracted position by means of three or any other suitable or preferred number of pivoted arms 13 which are carried by a horizontal pivotal rod 14 which extends transversely of the corresponding truck 4, just within, or in other words

slightly toward the middle of the platform from the central cross-beam thereof; the said rod being held in position by suitable pendent brackets 15 which are bolted to the under sides of the longitudinal beams of the truck-platform 1. The lower ends of the pivoted arms 13 are knuckle jointed, as at 16, to the rear ends of a corresponding number of horizontal rods 17 which extend outwardly beneath the central cross-beam of the truck-frame and which work freely through openings 18 in a horizontal thrust-bar 19 which extends transversely of the truck-frame, and which is supported in its required position by pendent hangers 20; said hangers being bolted or otherwise secured at their upper ends to the under sides of the longitudinal timbers of the truck-platform.

Each rod 17 is surrounded by a spiral spring 21, the outer end of which impinges against the inner side of the thrust bar 19, and the opposite or inner end of which abuts against a shoulder 22 which is formed by the bifurcated inner end of the rod. It will thus be seen that the tendency of the spring 21 is to force the upper ends of the pivoted arms 13 outward against the inner ends of the beams 8 of the sliding frames and thus hold said sliding frames extended or projected outwardly at the ends of the car-body. The intention is to retain these sliding frames extended outwardly in spite of all usual strains which would tend to force them inward, and in order to insure this result, a number of auxiliary laterally acting spiral presser springs 23 are provided. Two of these lateral springs are shown as located at each end of the truck-platform, said springs extending in longitudinal alignment with each other, transversely of the truck frame, and being set freely in transverse openings 24 which are formed through the end portions of the two intermediate longitudinal beams of the said truck-platform. Each lateral presser spring 23 impinges at its ends against the inner sides of two pivoted bars 25, at the outer end portion thereof; these bars 25 extending horizontally outward at the end of the truck-frame, as shown. There are thus four of these bars 25 shown in the drawings, but there may be any suitable number desired at each end of the truck-platform, and each of said bars is pivoted, at its inner end, as at 26, upon the front side of one of the cross-beams 3 of the truck-frame. The outer ends of these bars are pressed, by the lateral springs 23, outward and inward against the sides of the beams 8 of the sliding frames; the said outer ends of the bars 23 normally lying in contact with the inclined side-portions 12 and 12^a of the beams 8. Now, when the sliding frames are forced inward, the pressure must be unusually great as in a collision so as to carry the outer ends of the bars 23 beyond the inclined surfaces 12 and 12^a, and it will be seen that no ordinary pressure is sufficient to accomplish this, and to overcome the pressure

of the arms 13 also. When the sliding frames have been forced inward (as will be hereinafter described) the inner ends of the beams 8 of said sliding frames come into contact each with a spiral cushion spring or buffer spring 27 which projects horizontally outward from one of the inner cross bars 3, that is to say, from the inner cross bar to which the bars 25 are pivoted. Thus the springs 27 serve to prevent injury to the sliding frames, and also to the truck-platform when the sliding frames are forced inward violently, as in a collision.

The sliding frames carry at their outer ends coupling-heads 28; these coupling-heads being of the usual or any preferred type of construction, and their stems or draw-bars 29 working in sockets in the outer ends of the middle beams 8 of the sliding frames. The draw-bars 29 are surrounded by suitable draft-springs 30, in customary manner, and it is to be understood that the entire draw-bar and coupling devices may be of the usual or any preferred type of construction, either of the automatic or hand type, as required.

Upon the front end of the middle beam 8 of the front sliding end frame of the car next to the engine and also on the rear sliding frame of the rear car of the train is mounted a vertical friction-roller 31 which revolves freely upon a vertical pin or bolt 32; the purpose of this roller 31 being hereinafter described.

I will now proceed to describe the operative connections of the car-body premising this description with a statement of the fact that, excepting as to its end-doors, and platforms, and the connections at the bottom of the car-body, this car-body may be of the usual or any preferred type of construction. This is to say, that whether the car be a passenger car, or a baggage car, or a freight car, the interior fittings and general construction of the car-body may be of the usual or any preferred type. As shown, the car 33 is a day coach, and is provided with the usual rows of seats 34 but, as previously stated, the car may be a chair car, a sleeping car, a dining car, baggage car, an express car or a caboose, and the car may also be a stock car, or any other type of freight car such as is adapted to carry the more valuable classes of freight. To the center or middle of this car-body, at the under side of the same, is secured the upper member 35 of a turn table, upon which the car-body is adapted to turn pivotally, as hereinafter explained. This upper member 35 is of circular form marginally and is secured to the bottom of the car 33 by means of the projections 36 which extend upward through the bottom of the car, and are screw-threaded on their upper ends to receive retaining nuts 37. The lower end of the turntable member 35 is formed with a horizontal marginal flange 39 over which extends a pair of oppositely disposed, inwardly extending lugs 40 which are formed upon the upper end of the lower turn-

table member 38^a. This lower turntable member 38 is bolted to the longitudinal beams 1 of the truck platform, by means of cross bolts 42 which extend transversely through the said platform timbers, and also similarly through a number of lugs 43 which are formed upon the under side of the turntable member 38^a. The upper side of the lower turntable member is formed with a socket or cavity in which fits the body portion of the upper turntable member; the arrangement being such that the upper turntable member 35 can turn freely within the lower turntable member 38^a.

As will be more clearly obvious from the ensuing description, the lateral pivotal movements of the car body are made with considerable quickness, and are consequently accompanied with considerable force, and in order to arrest the lateral movement of the car body at the proper time, I provide a check spring or band 44. This check-spring lies within a circular groove 45 which is formed in the lower end of the upper turntable member 35, and one end of said band is secured to the lower member 41 while the opposite end of the band is secured to the upper member 35 at a point opposite from the point of connection of the first-named end of the band. The arrangement is such that as the car-body turns upon the turntable 35, 41, the check spring 44 shall be tightened round the body portion of the upper turn-table member and thus quickly arrest the movement of the car body without undue shock or strain.

Located at each end of the car platform is a hand brake 46 of the ordinary construction the lower end of which is connected to one end of a chain or cable 47, which extends along the bottom of the car-body, past guide rollers 49, over guide rollers 50 journaled in bearings 51; located in the recesses 52 in the upper side of the member 35 of the turn table under guide rollers 53 journaled beneath the lower member of the turn table between the inner beams of the truck platform, thence returning toward the front end of the car, and attached to the brake levers in the usual manner.

Before describing the unlocking mechanism in detail, I will state it is positively necessary that the said unlocking mechanism which extends the entire length of the car and consists of bars or rods, levers and compression springs, may be acted upon from seven different sources in order that it may be depended upon when applied to a train of cars, to safely unlock the car body to its pivotal motion under all circumstances which might occur in case of either accidental or premeditated collision.

I will now proceed to describe the locking and unlocking mechanism for holding the car body firmly in its position parallel with and over the truck platform. Pivoted to the lower side of one of the longitudinal car beams 38 of the car body 33, and to one side of the center of the same and extending

transversely of the car body, is a lever 54, the inwardly extending end of which is provided with a longitudinally extending slot 55, the object of which will be hereinafter described. A vertically extending bolt or pin 56, adapted to slide in said slot, has pivotally connected to its upper end the rear end of a longitudinally extending bar or rod 57, the front end of which, reaching to about one half the distance between the lever 54 and the front end of the car, is provided with the shoulder or enlargement 58; the bar or rod 57 being supported to its position against the bottom of the car and guided thereunder by the brackets 59, which extend transversely of the car and are bolted at their opposite ends to the longitudinal beams 38. A compression spring 60 surrounds the bar or rod 57 and bears at its opposite ends against the rear side of the shoulder or enlargement 58 and the adjacent supporting bracket 59; the object of this feature of my invention will be hereinafter specified. The bar or rod 57 is further provided on its under side with the depending lug 61 having the laterally extending flanges or projections 62 on each side, said lug engaging, when the car body is in its normal, or locked position, the dove-tail and longitudinally extending recess 63, in the upper end of the casting 64, which is provided with lugs or ears 65, through which bolts extend and secure it to the truck platform timbers 1. It will be seen from this connection between the bar or rod 57 which is secured to the car-body, and the casting 64 which is secured to the truck platform, that it will be impossible for the car-body to swerve or move laterally until the bar or rod shall have been moved or forced longitudinally toward the middle of the car, and the lug 61 out of engagement with the casting 64.

Extending longitudinally and supported against the bottom of the car-body, by means of the transversely extending brackets 65, are the thrust bars or rods 66 and 67, the rear end of which are provided with shoulders or enlargements 68, which abut or bear against the enlargement or shoulder 58 of the bar or rod 57 before mentioned. A compression spring 69 surrounds each of the bars or rods 66 and 67, said springs bearing at their front ends against the shoulder or enlargement 70 on each of said bars or rods, and bearing at their rear ends against the front side of the adjacent bearing bracket 65.

Pivoted at 71 on the front end of the bar or rod 66 is the diagonally arranged buffer plate 72, which extends forwardly and transversely of the car at an angle of about forty-five degrees, the opposite end of said buffer plate having a rearwardly extending ear or projection 73, to which is pivotally attached the front end of the bar or rod 67.

Extending longitudinally of the car-body at the end opposite to that described, and supported against the bottom thereof by transversely extending brackets 74, are bars or rods 75 and 76, similar in construction and arrange-

ment to the bars 66 and 67; these bars or rods 75 and 76 are also provided with a buffing plate 77 diagonally arranged at an angle of about forty-five degrees, and parallel with the buffing plate 72 on the opposite end of the car. The bars or rods 67 and 76 are also provided with a downwardly and inwardly extending lug or projection 77^a, having an abrupt vertical front wall or face 77^b, the object of which will be hereinafter explained. The rear end of each of these bars or rods 75 and 76 is provided with the enlargement or shoulder 78; which shoulders bear respectively against the enlargement or shoulder 79 on the front end of each of the obliquely extending transmitting bars or rods 80 and 81. These transmitting bars or rods 80 and 81 are supported in their position a suitable distance from the bottom of the car and parallel with each other by means of the brackets 82, which are bolted to the bottom of the car and are provided with aligned passages 83 for the reception and operation of the bars or rods 80 and 81. The sills of beams 38 of the car body are also preferably cut away as shown at 80 to allow the bars or rods 80 and 81 to be operatively attached to the car body. The rear ends of the transmitting bars or rods 80 and 81 are also provided with enlargements or shoulders 84, which bear against the face of an enlargement 85 on the outer end of the transversely arranged lever 54.

The transmitting bar or rod 81 is provided about midway of its length with a pin or projection 86, extending vertically downward for a short distance, and bearing normally against the rear or inclined face of a lug 87 projecting from the upper side and near the inner end of a transversely extending lever bar 88, the outer end of which is pivoted to the upper side of the stationary platform.

The mechanism I am about to describe inclusive of the bar 88 referred to, is operated from the cab of the engine to unlock and force successively the car body from its normal or parallel position with and above the stationary platform, to the desired position across the track. This mechanism forms one of the seven ways for operating the unlocking mechanism. The opposite or inner end of the lever bar 88 is pivoted on the upper end of a bolt or rod 89, the lower end of which has pivoted thereto the forward end of a bar or rod 90.

Secured by means of the clips or brackets 91 to the under side of the truck platform is the compressed air cylinder 92 and to the end of the piston rod sliding bearing 93 of which, is pivotally connected the rear end of the lever bar or rod 90.

Pivotally connected to the bolt or rod 89 about centrally thereof, between the upper surface of the platform timbers 1, and the longitudinal timbers 38 of the car body is the front end of the oblique and transverse arranged lever 94, the forward ends of said lever 94 and lever 88 forming an obtuse angle

in plan view, the apex of which is toward the adjacent end of the car.

Projecting vertically downward from one of the timbers 38 of the car-body and through the slot 96 in the rear end of the lever bar 94 is a bolt or rod 95 which is provided near its upper end with an enlarged transverse opening 97, through which projects the rear end of a rod 98, the forward end of which is secured in the vertically and upwardly extending lug 99, near the opposite end of the bar 94. The slot 96 also extends for a suitable distance toward the lug 99. A spring 100 surrounds the rod 98 and bears at its opposite ends against the lug 99 and the bolt or rod 95. The usual pipes connect the compressed air cylinder with the valve lever for operating the same in the cab of the engine. When the engineer deems such extreme measure necessary, by operating a suitable lever in the cab of the engine the compressed air is allowed to force the piston head of the air cylinder 92 toward the center of the car, or in a direction opposite to that pointed by the apex of the angle formed by the bars 88 and 94. The piston rod therefor being connected to the vertical bolt 89 through the medium of the bar 90, causes the bar 88 to pivotally move toward the air cylinder, and the cam projection thereof, engaging the pin 86 forces the bar 81 against the lever 54, the effects of which will be presently described. The bar 94 being pivotally connected to the vertical bolt 89 pivotally moves and slides on the pin or projection 95 of the car body. The end of the slot toward the apex of the angle mentioned comes in contact with the pin 95 simultaneously with the unlocking of the car body from its connection with the truck platform, due to the pivotal movement of the lever 54 which is operated by the pressure of the bar 81 against the outer end of said lever, thus causing the inner end of said lever, to which is pivotally connected in the slot of said lever, the inner end of the locking bar 57 to move longitudinally and withdraw the depending lug from its connection with the dove-tail recess of the casting 64 secured to the stationary platform. The continued movement of the piston head then causes the end wall of the slot of bar 94 to bear against the pin or bolt 95 and force the car-body to swerve on its pivot as described. When the pressure is removed which holds the car body in said position, the check spring 44 tends to return the car-body to its normal position parallel with and above the truck platform, and the spring 100 bearing at its opposite ends against the pin or bolt 95 and lug 99 causes the unlocking mechanism described to return to its former and normal position. The compression spring 60 tends to cause the lug 61, carried by bar or rod 57, to re-engage the dove tail recess in casting 64 of stationary platform as will be readily understood.

Referring now to the drawings, and particularly to Fig. 2, it will be observed that the

end formation of my improved cars is different from the ordinary or squared end cars now in use. Beginning at a point, a suitable distance to the left and right of the central line of the car (at the left and right hand ends respectively of the car looking in the direction of the arrow Fig. 2^a) it will be observed that my improved car is beveled at an angle of about forty-five degrees toward the opposite or right hand and left hand sides of the car; thus leaving a portion of the projecting telescopic or sliding frames uncovered by the car-body, when both are in their extended position. The inside construction and fixtures of the car-body will be of the usual or any preferred construction. Bolted to the under side of the beams 38 of the car body at the apex of the forward or outer angles thus formed are the front ends of the angle deflecting bars 101, the rear ends of which are secured to the outer longitudinal beams 38 of the car body. The beveled ends of the car platform extending parallel to the deflecting bars 101 are each provided at a point midway of the car with a recess 102 the object of which will be hereinafter explained. These beveled ends of the car are provided each with a swinging platform 103 having an oblique or beveled rear side 104 bearing against the beveled ends of the car body, and the outer sides 105 of said platforms extend in continued alignment with the car proper, but reaching only for a suitable distance toward the end of the car, the object of which will be presently explained. The swinging platforms 103 are each supported by two pivoted levers 106 and 107, and the levers in turn are supported by the deflecting bar 101, between which bar 101 and the lower side of the longitudinal car beams 38, they are adapted to operate; the rear ends of the shorter levers 106 being pivoted at 108 to the adjacent ends of the inner longitudinal beams 38, and the levers 107 are also pivoted near their inner or rear ends at 109 to the opposite inner longitudinal beam 38, the projecting rear inner ends of said levers having secured thereto the front ends of springs 110 which are secured at 111 to the side of the said inner longitudinal beams 38. The forward ends of the levers 106 are each provided with a short extension 112 at right angles to the pivotal arm thereof; and each lever 107 is also provided with an extension 113, which extends parallel with the front ends of the car and the swinging platforms 101.

Secured transversely of the car and concentrically to the pivotal point thereof, upon the upper surface of the truck platform, are the dove tail guide rails or tracks 114; and secured between the two inner car beams 38 by means of bolts 115 are the slides 116 which are wedge shaped in cross section, and which depend and engage the grooves 117 of the guide tracks 114. The said dove tail grooves in tracks or rails end in abrupt vertical shoulders 114^a against which, when the car body is in its normal or parallel position with and above

the truck platform the sides of the slides 116 abut and rest; thus preventing front end of the car body when unlocked from swinging in the way of an approaching train where double tracks are employed; as the tendency of the check spring is to throw the front end of the car to the left hand side of the track. The obliquely arranged buffing plates 72 and 77 are each provided about midway of their length, with a rearwardly projecting ear or lug 118 which pivotally engages the lower end of the vertically extending bolt 119, the upper end of which is secured to the front end of the extension gangway platform 120, which is adapted to slide between a board 121 and the upper surface of the car platform proper; the board 121 being beveled at its forward end to conform to the beveled end of the platform. The extension platform 120 is also beveled at 120^a the beveled side extending parallel with the bevel of the board 121 and of the platform proper, the bevel extending from a point slightly to the left of bolt 119 as seen in Fig. 2.

Secured to the upper surface of the right hand beam 8 (in Figs. 1 and 9) and in rear of the cross bars 2 of the truck-platform, is the unlatching plate 122, the beveled surface of which is inclined upwardly and outwardly, forming the cam surface at 123.

Pivoted to the pendent brackets 124 which are secured to the bottom of the car beyond the outer longitudinal beams 38 thereof, is the bell crank lever 125; the upwardly extending arm 126 of which projects through a transversely extending slot 127 in the platform of the car and bears against the outer side of the safety doors 128 in the opposite square ends of the car. The safety doors 128 are provided with the usual spring hinges 129 which when the unlocking levers 125 are operated by the pivotal movement of the car body cause the said doors to automatically open.

The arm 130 of the bell crank lever 125 is approximately L shaped in plan view being bent near its pivotal point to extend longitudinally toward the opposite end of the car for a suitable distance so as not to interfere with the telescoping movement of the sliding or telescopic frames and then bent transversely inward to engage the upper and inner surface of the cam face 123 of the plate 122 at its rear end, thus it will be understood that as the sliding or telescopic frames recede and reach their inmost extremity, the arm 130 of the bell crank lever rests or bears upon the forward end and squared ends of the car-body of said cam plate 122; the pivoted motion of the car body thus causes the lower extremity of the arm 130 to be elevated as it travels laterally up the cam face 123 of the plate 122; the upper arm 126 at the same time moving toward the outer edge of the car beyond the outer edge of the door, thus allowing the springs to automatically open the door at each end of the car. The end walls of the car

forming the squared end portion in which the safety doors are secured, and the oblique sides extending from the inner side of said squared ends, with a suitable intervening squared portion for the ordinary passenger doors 131 of the car in the center of the ends thereof to the outer side of the car, are erected at a suitable distance from the end of the car body platforms and parallel there with to allow walking space for the passengers, and at the sides adjacent to the square ends; the said platforms are provided with steps 131—^a of the usual construction and arrangement. Owing to the peculiar construction of their supporting levers, the swinging platforms 103 are provided with only one step 132 and that is notched or cut out at 133 shown in detail Fig. 23 to allow the extended arm 112 of lever 106 to operate. The sides 105 of swinging platforms 103 are also cut out or notched at 134 and when said swinging platforms are in their normal position against the beveled ends of the car the notch 134 is directly over the step 135 formed by recessing the outer and adjacent side beam 1 of the truck platform. It would be impossible for the swinging platforms to be provided with the ordinary hanging steps because the lower step would be in the way of the outer and adjacent longitudinal beam 1 of the truck-platform, and also it would be impossible for the car body to pivotally operate without breaking or wrenching the steps from the swinging platform.

As hereinbefore stated the roller 31 mounted upon the sliding or telescopic frames is only necessary and desirable when the train is composed of cars made according to this description, upon the front end of the front car and the rear end of the last car, where it would be necessary at all times in case of a front or rear end collision, for as the explanation of the unlocking operation will show that the forcing inwardly of either of the sliding or telescopic frames which come in contact with each other, the one being mounted upon another like car, will allow the car-bodies to which the unlocking mechanism of each is mounted to so approach each other as to unlock each of the car bodies from their respective truck platforms just before their beveled ends come in contact with each other; and thus in the absence of the friction roller 31 the forcing inward of either or both of the sliding or telescopic frames will allow the beveled portion of the adjacent ends of each car to come into frictional contact, and thus produce the rotating lateral movement of the car bodies upon their respective pivots; which rotating motion will so act upon the unlocking mechanism of the adjacent car-bodies which precede or follow, as to unlock them to their pivotal movement, without the forcing inward of the extending sliding or telescopic frames upon such preceding or following car, as illustrated in Fig. 2. This forms a second means of unlocking the car bodies from their connection with the truck platform. It will

now be understood that the driving inward of the extending sliding or telescopic frames toward a folded position of the different car bodies of a train with relation to each other will take place in proportion to the severity of the collision, and that the driving inward of the sliding or telescopic frames to their extreme cushioning point causing the rotating of the car-body, will first take place at the point nearest to the object with which the train collides, and so on in succession toward the rear end of the train, and thus the distinct shock which would occur with an ordinary train, would be divided into several lighter and therefore less dangerous shocks, while the telescoping of the cars would be impossible.

I will now proceed to a general description of the operation of the invention from the several different sources. In the event of the near approach to a defective overhead bridge, the engineer by operating a lever connected to the compressed air cylinder on one or all of the cars may unlock and swerve the car-bodies across the track, thus precipitating a collision with the bridge frame work, and preventing further advancement of the train. Second. The rotating motion of one of the cars induced by the engineer, or from other cause, unlocks all the other cars in succession, because the obliquely arranged buffing plates 72 (as illustrated in Fig. 2.) moving laterally with their respective car-bodies, force the advanced rod or bar 67 pivotally connected thereto, rearward, the shoulder or enlargement 70 on its rear end bearing against the longitudinally extending bar 57 and causing said bar 80 to move toward the center of the car and carrying the depending locking lug 61 out of engagement with casting 64 of truck-platforms; the position of the companion bar 66 is not altered as this operation takes place. This operation can take place also from the opposite end of the cars (as illustrated in Fig. 2) the obliquely arranged buffing plate 77 forcing rearward the bar or rod 76, which in turn forces the transmitting and obliquely arranged bar 80 to operate the lever 54 and therefore drawing the depending locking lug out of engagement with casting 64 of truck platform. In the event of a front or rear end collision, the engine coming in contact with the extended sliding or telescopic frame causes said frame to recede, the roller 31 fixed upon its upper surface comes in contact with the abrupt vertical wall 77^b of lug 77^a, depending from bar or rod 67 or 76, as the case may be; the continued movement of the roller causes the bar 67 or 76 to recede until the car-body is unlocked through mechanism described. The roller 31 then comes into contact with the deflecting bar 101 and the car body begins to swerve. The roller next comes into contact with the end 111 of lever 107 and forces the swinging platform to swing laterally toward the center and beyond the beveled side of the car. When the roller comes in contact with the lug 77^a, the gangway platform 120 being pivotally connected

at its front end and near the center thereof, to the obliquely arranged buffing plate 72 or 77 connected to bar or rod 67 or 76 is caused to move also, sliding or telescoping between the board 121 and the upper surface of the platform, until the front beveled end 120^a of said gangway platform is flush with the beveled ends of the board 121 and the platform, and the neck of the bolt 119 is resting in the notch or slot 102 in the beveled end of the platform, about midway the width of the car. When the cars, in collision, come together squarely, end for end, the adjacent and meeting buffing plates 72 and 77 situated on their respective bars, force each other inward or rearward toward the center of their respective cars, causing the movement in the same direction of both pairs of bars or rods 76 and 67 and 75 and 76 and also transmitting bars or rods 80 and 81, to unitedly operate against the enlarged ends of 58 and 85 of locking bar 57 and transversely extending lever 54, the slot of which is to allow for the longitudinal movement of their respective bars, and through connections before described, the unlocking of the car-bodies from their fixed position with relation to their respective truck-platforms.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a railway car, a platform having sliding or telescopic frames projecting from each end, and a car body pivotally mounted upon said platform, substantially as described.

2. An improved railway car, having a platform mounted upon trucks, and the body of a car having its ends beveled, and pivotally mounted upon the said platform, substantially as described.

3. An improved railway car, having a truck platform mounted upon trucks, a car-body pivotally mounted above said platform, and telescopic or sliding frames projecting from each end of the truck, and mechanism for holding the telescopic or sliding frames in an extended, longitudinal position, fixed to the platform and adapted to yield automatically to the sliding or telescopic frames when necessary, substantially as described.

4. An improved railway car, having a truck platform, mounted upon trucks, a car-body pivotally mounted upon said truck platform, a guide and sustaining rails, or track, arranged concentrically to the pivot point of the car, and mechanism for locking the car body to the platform, mechanism for automatically unlocking the car body from the truck-platform to its pivotal motion, whereby portions of the car body may be moved laterally upon the truck-platform, substantially as described.

5. An improved railway car, consisting of a rectangular platform having its ends mounted upon trucks, and having a turn-table centrally located upon the platform, a car-body mounted upon the turn-table longitudinally with the platform and adapted to be rotated laterally, and having suitable locking and un-

locking mechanism fixed to the car body and to the platform, whereby the car-body may be unlocked and rotated laterally upon the turn-table while the car is in motion, by the engineer in his cab, by means of power conducted from the locomotive to the said car, substantially as described.

6. An improved railway car, comprising a stationary platform, mounted upon trucks, telescoping platforms projecting from the ends of said stationary platform, a car-body pivotally mounted upon said platform, and suitable mechanism carried by said platform and car-body, for locking and unlocking the car-body longitudinally above and to the said platform, whereby said car-body may be rotated upon its pivot, by the telescoping or folding in, of either of the telescopic end platforms, carried by the stationary platform, substantially as described.

7. An improved railway car, consisting of a rectangular platform mounted upon trucks, having a brake fixed to the said trucks, and having a car-body pivotally mounted upon said platform, and having a brake-staff mounted upon the said car-body, adapted to be operated by hand and so connected to the brake upon the trucks as to be operative in locking or unlocking the brakes without interfering with, or being interfered with, by the pivotal, or lateral, movement of the car-body, substantially as described.

8. An improved railway car, consisting of a platform mounted upon trucks, and a car-body pivotally mounted upon the platform, and adapted to be rotated laterally, with a car-door which will automatically open by rotating the car-body upon the platform, substantially as described.

9. An improved railway car, consisting of a rectangular platform mounted upon trucks, having telescopic or sliding frames projecting from each end, and having a turntable mounted thereon, and having a car-body mounted upon the turntable and adapted to be rotated laterally and mechanism for checking the lateral rotating movement of the car-body upon the rectangular platform, substantially as described.

10. An improved railway car, consisting of a rectangular platform mounted upon trucks and having a car-body with beveled ends, pivotally mounted thereon, a swing step-platform pivotally connected with the car-body at the beveled end thereof, and adapted to be moved laterally and longitudinally with and from the beveled portion of the car-body, substantially as described.

11. An improved railway car, consisting of a rectangular platform mounted upon trucks, and having a car body pivotally mounted upon the platform, and a telescopic gang-way platform mounted upon the said car-body, substantially as described.

12. An improved railway car, comprising a platform supported at each end by a truck of the usual, or any preferred construction, a

folding or telescopic platform located at each end of the truck platform, a car-body pivotally located above said platform, and having formed at its opposite ends and diagonally opposite to each other, oblique deflecting sides, and having also a door located in each squared end portion of the car, and adapted to open automatically when necessary.

13. An improved railway car, comprising a truck platform supported near each end by a truck of the usual, or any preferred construction, a sliding or telescopic platform located at each end of the truck platform, a car-body pivotally located above said truck-platform, and having formed at its opposite ends and diagonally opposite to each other, oblique deflecting sides, and having a door located in each squared end portion of the car, adapted to open automatically when necessary, and a door located also at each end of the car of the ordinary construction and arrangement, and in longitudinal alignment with each other, substantially as described.

14. An improved railway car, comprising a platform supported at each end by a truck of the usual, or any preferred construction, a folding, or telescopic platform located at each end of the truck platform, and pivotally connected thereto through the medium of a turntable, comprising an upper section secured to the car body and a lower section secured to the truck platform, having a check spring, a set of guide rollers, located in the upper section of the turn table, and a set of guide rollers located below the lower section of the turn table, a set of guide rollers secured to the car-body, and a chain, or cable, guided by said rollers and connecting the hand brake staffs at each end of the car to the brake levers of the trucks, substantially as described.

15. In an improved railway car, a truck platform, consisting of a suitable number of longitudinal and parallel beams, braced and connected at suitable intervals by beams and guide bars extending transversely thereof; a number of pivoted friction bars longitudinally arranged between said longitudinal beams, a number of lateral presser springs therefor, longitudinally extending cushion springs, a set of transversely aligned and pendent brackets, a cross rod secured therein, a set of arms pivoted thereto, a set of pendent hangers and transversely extending thrust bars connecting said hangers, a number of longitudinally extending rods pivoted to the lower ends of the pivoted arms, and having their opposite ends projecting through aligned openings in the thrust bars and resistance springs surrounding said bars, and bearing at their opposite ends against the lower ends of the pivoted arms and against the inner sides of the thrust bars; and the folding or telescopic platforms located one at each end of the truck platform, and consisting of longitudinally extending beams provided with beveled inner ends and connected at their outer, or forward ends by a transversely extending beam carrying the

coupler, and provided on their upper surface with a roller, a cam plate, and retaining plates, substantially as described.

16. In a railway car, a platform supported at each end by a truck of the usual, or any preferred construction, a sliding or telescopic platform located at each end of the platform, and carrying each a cam plate, with a car body pivotally arranged above said truck platform and having its opposite ends and diagonally opposite to each other obliquely formed sides, a deflecting bar, arranged parallel with said obliquely formed sides, swinging corner platforms resting against said obliquely formed ends, and supporting levers pivotally connected to said swinging platforms and to the car body, substantially as described.

17. In a railway car, a car body having passenger doors located at the opposite ends of the car and in longitudinal alignment with each other, a safety door located in the opposite squared ends of the car and diagonally opposite to each other, the oblique sides formed at opposite ends of the car and diagonally opposite to each other, the swinging corner platforms resting normally against the obliquely formed ends of the car, the transversely arranged lever, pivoted under the longitudinal beams of the car and provided at its outer end with an enlargement, and at its inner end with a slot, the obliquely arranged buffing plates at the opposite ends of the car body, and the intermediate and longitudinally arranged bars or rods held in suitable guides against the bottom of the car-body, and arranged to operate the transversely arranged lever, and the sliding gang-way platforms located at each end of the car, substantially as described.

18. In an improved railway car, a platform supported at each end upon a truck of the usual, or any preferred construction, a folding or telescopic platform located at each end of the truck platform, a locking device secured to said stationary platform, a compressed air cylinder located beneath said truck platform, and a spring returning lever, also located beneath said stationary platform and adjacent to said cylinder, with a car-body pivotally located above said truck platform and having its two diagonally opposite squared end portions provided with safety doors, two diagonally opposite obliquely formed sides, and adjacent swinging corner platforms, and two end doors of ordinary construction, longitudinally opposite each other and in the center of the ends of the car, a sliding gangway platform at each end of the car, and a depending releasing lug or latch, secured to a sliding bar, or rod, under the car, and held normally in engagement with the locking device secured to the stationary platform, and operating levers located between the bottom of the car-body and upper side of the stationary platform, and adapted to be operated by the compressed air, controlled by the engineer, substantially as described.

19. In an improved railway car, a platform supported at each end by a truck of the usual or any preferred form, a sliding or telescopic platform located at each end of the truck
5 platform, a car-body pivotally located above said truck platform, and having at two diagonally opposite squared ends, safety doors, a bell crank lever pivotally located beneath
10 said car-body and locking said doors, with a cam plate located upon the upper side of the sliding, or telescopic, platforms, substantially as described.

20. An improved railway car, comprising a platform supported at its opposite ends on
15 trucks of the usual or any preferred construction, a car body pivotally located above said truck platform guide tracks, or rails, located upon said platform, and a lug depending from the car body engaging said guide track, sub-
20 stantially as described.

21. In an improved railway car, comprising a platform supported at its opposite ends on trucks, and a pivotally mounted car-body lo-
25 cated above said platform, unlocking mechanism, consisting of a transversely arranged lever having a slot therein, a rod extending longitudinally of the car, having a lug de-
30 pending therefrom, and pivotally connected in the slot of said lever, a compression spring surrounding said rod, with the obliquely ar-
35 ranged buffing plate, the longitudinally extending companion thrust rods, pivoted each at one end of said buffing plate, and suitably
40 guided and held by bearings against the bottom of the car and compression springs sur-
45 rounding each of said thrust rods, and bearing against a shoulder, and an end enlargement on each of said rods, substantially as described.

22. In an improved railway car, comprising a platform supported at its opposite ends upon trucks, and a car-body pivotally mounted
50 upon said platform, a transversely arranged lever having a slot therein, a longitudinally arranged bar, or rod pivotally connected to the slot of said lever, a lug depending from
55 said bar or rod, with an obliquely arranged buffing plate, companion thrust bars, or rods, pivotally connected at their outer ends to said buffing plate, suitable guide bearings, for
60 said bars or rods, compression springs surrounding said bars or rods, and bearing against a shoulder and an enlargement of each of said bars or rods, and transmitting
65 and parallel bars or rods, extending obliquely of said car body and bearing at their opposite ends against the outer ends of trans-
versely arranged lever, and enlargements of thrust bars or rods, substantially as described.

23. In an improved railway car, comprising a platform mounted upon trucks and a car
body pivotally mounted upon said platform, a transversely arranged lever having a slot

therein, a longitudinally arranged bar or rod, pivotally connected to the slot in said lever,
65 and a lug depending from said bar, or rod, with a compressed air cylinder located beneath said platform and suitably connected to the locomotive, a lever or pin, depending from the car body, a lever having a slot en-
70 gaging said lug or pin, and a lug having a guide rod projecting through an opening in said lug or pin, a spring surrounding said guide rod, and bearing against the lug or pin, on the car body, and lug on the lever, a ver-
75 tically extending bolt pivotally engaging the inner end of said lever, a pitman rod, or lever, also engaging said bolt at its front end, and pivotally connected at its rear end to the sliding head of the piston rod, and a lever
80 also pivoted at its inner end to said bolt and its outer end to the platform, and a cam lug projecting upward from said lever, and an obliquely arranged transmitting bar or rod, bearing at its inner end against the trans-
85 versely arranged lever, and a pin depending from said transmitting bar and adapted to be engaged by the cam lug, substantially as described.

24. In an improved railway car, comprising
90 a platform mounted upon trucks, and a car body pivotally mounted above said platform a sliding, or telescoping gangway platform, pivotally connected to the obliquely arranged buffing plate, and adapted to recede there-
95 with, substantially as described.

25. In an improved railway car comprising the platform mounted upon trucks, and the car body pivotally mounted above said plat-
100 form, the sliding or telescopic frame located at each end of said platform, and the friction roller carried by said frames, with the unlocking mechanism of the car body comprising the longitudinally arranged bar or rod, the
105 unlocking lug thereof, the compression spring surrounding said bar or rod, and the thrust bar or rod, and compression springs therefor, and the lug depending from said bar or rod, and adapted to be engaged by said roller, sub-
110 stantially as described.

26. In an improved railway car, comprising the platform mounted upon trucks and the car-body pivotally mounted above said plat-
115 form, the friction roller carried by the sliding or telescopic frames located at opposite ends of the platform, with the deflecting bar arranged parallel with the beveled end of the car, and in succession with the swinging corner of the platform, substantially as described.

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

JUSTIN E. PAGE.

Witnesses:

MAUD FITZPATRICK,
MARGARET R. REMLEY.