

S. A. YOUNGBERG & J. B. PARNALL.
CAR FENDER.

APPLICATION FILED JUNE 30, 1908.

940,772.

Patented Nov. 23, 1909.

3 SHEETS—SHEET 1.

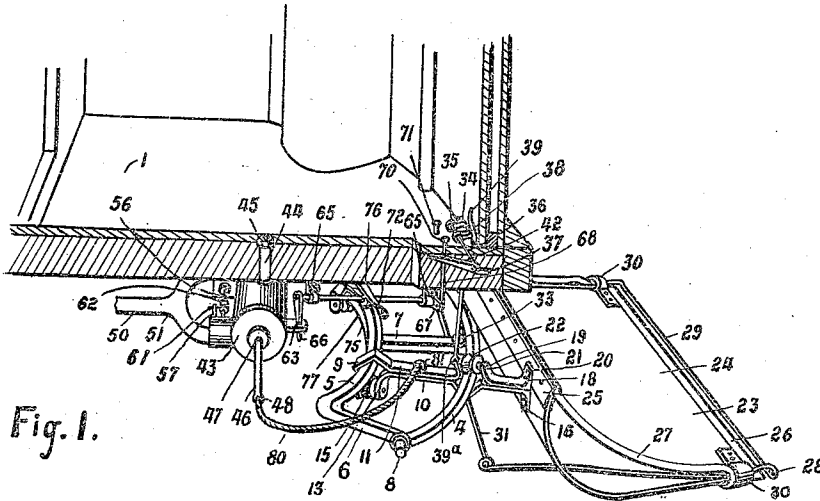


Fig. 1.

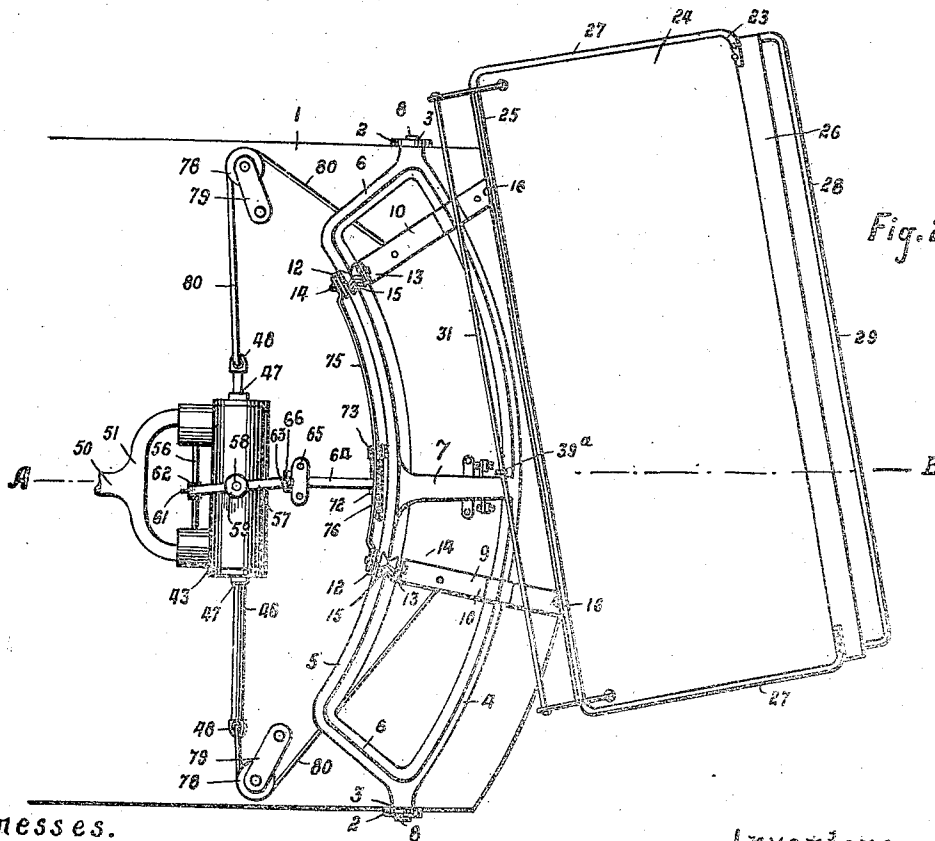


Fig. 2.

Witnesses.

Lloyd Blackmore
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by E. J. Hutchinson, Atty.

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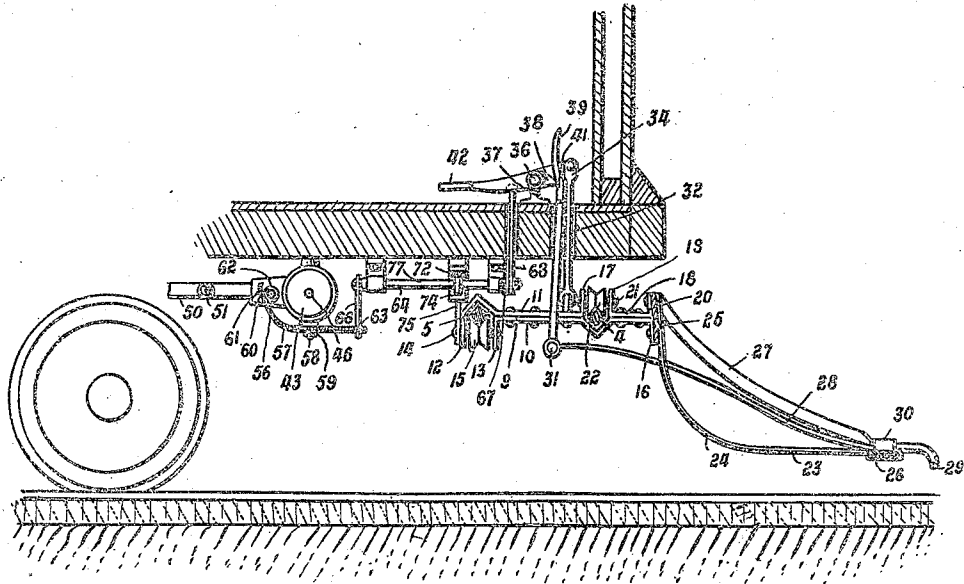


Fig. 3.

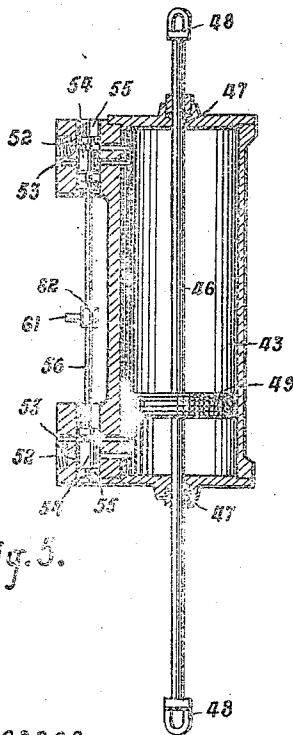


Fig. 5.

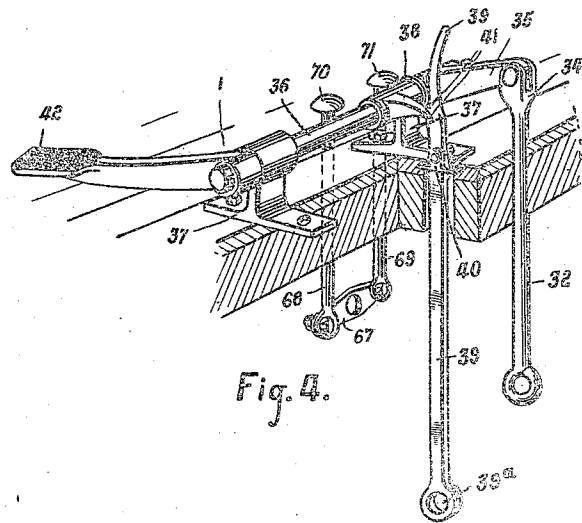


Fig. 4.

Witnesses.

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3 SHEETS—SHEET 3.

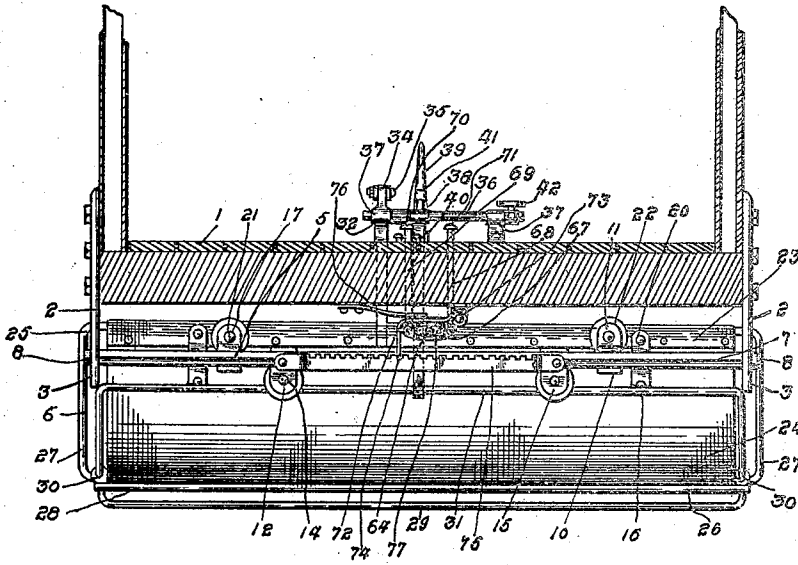


FIG. 6.

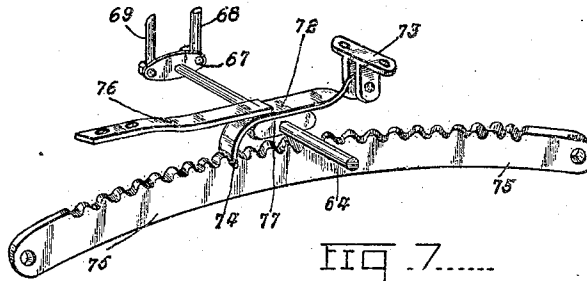


FIG. 7.

WITNESSES.....

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UNITED STATES PATENT OFFICE.

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CAR-FENDER.

940,772.

Specification of Letters Patent.

Patented Nov. 23, 1909.

Application filed June 30, 1908. Serial No. 441,229.

To all whom it may concern:

Be it known that we, STEPHEN AARON YOUNGBERG and JAMES BOYD PARNALL, a citizen of the United States of America and a subject of the King of Great Britain, respectively, residing at the town of Rosthern, in the Province of Saskatchewan, in the Dominion of Canada, have invented certain new and useful Improvements in Car-Fenders, of which the following is a specification.

The invention relates to improvements in car fenders, as described in the present specification and illustrated in the accompanying drawings that form part of same.

The invention consists essentially in the novel arrangement and construction of parts whereby the fender frame is permitted a lateral movement in each direction in relation to the car body on a trackway support and suitably tripped to its lower position.

The objects of the invention are to facilitate the movement of the fender to accommodate the different directions taken temporarily by the car body in rounding curves and to devise a simple, sure and durable form of car fender.

In the drawings, Figure 1 is a view partly sectional and partly perspective of the forward end of a car, showing the fender and operating mechanism attached thereto. Fig. 2 is a plan view from the under side of the fender and operating mechanism. Fig. 3 is a longitudinal section on the line A—B in Fig. 2. Fig. 4 is an enlarged partly sectional and partly perspective detail of the operating pedals and rocker shaft attached thereto. Fig. 5 is a longitudinal sectional view of the air cylinder, and connections for operating the carriage. Fig. 6 is a sectional view on the line A—B in Fig. 2 looking toward the front of the car. Fig. 7 is an enlarged perspective detail view of the rack secured to the carriage and the automatic locking device.

Like numerals of reference indicate corresponding parts in each figure.

Referring to the drawings, 1 is the front platform of a car which is mounted on either a single or double truck in the customary manner.

2 are brackets bolted to each side of the platform 1 in proximity to the front thereof, said brackets extending downwardly for a

short distance, and terminating in the bearings 3.

4 and 5 are parallelly arranged arc-shaped tracks extending from side to side of the car platform, and having the outside of the curve thereof facing the front of the car.

6 are end cross bars, and 7 is an intermediary cross bar extending between the tracks 4 and 5, and forming with said tracks a rigid frame.

The tracks 4 and 5 are preferably square in cross-section and obliquely set so that the corners form a ridge on the upper and under sides of the said tracks.

8 are studs in axial alinement one with the other, and projecting from the ends of the track 4. The studs 8 are journaled in the bearings 3.

9 is a carriage supporting the fender, and traveling on the tracks 4 and 5.

10 and 11 are bars securely riveted or otherwise fastened together and forming the ends of the carriage 9, said bars extending across from the track 4 to the track 5. The bars 11 where they meet the track 5 are bent over the upper side of the said track to conform to the shape thereof, and terminate in the downwardly extending ends 12. The bars 10 where they meet the track 5 have the downwardly extending ends 13 corresponding to the ends 12 of the bars 11.

14 are pins extending between the ends 12 and 13 on the under side of the track 5, the said pins having the grooved rollers 15 mounted thereon, and running on the ridge on the under side of the track 5.

The bars 10 where they meet the track 4 are bent under the said track conforming to the shape thereof, and continue for a short distance terminating in the downwardly extending ends 16. The bars 11 where they meet the track 4 terminate in the upwardly-turned ends 17.

18 are short lengths of bar bent in substantial U-shape, and firmly riveted or otherwise fastened to the bars 10 where they extend on the outer side of the track 4. The bars 18 have the ends thereof bent upwardly at 19 and 20, the ends 19 being similar to the up-turned ends 17 of the bar 11, while the ends 20 are in alinement with the downwardly bent ends 15 of the bars 10.

21 is a pin extending across the upwardly extending ends 17 and 19 of the bars 11 and

18, having the grooved roller 22 mounted thereon, and running on the upper side of the track 4.

23 is a fender of any suitable design, but here shown as formed of a mesh 24 extending between and securely attached to the head-piece 25 and the foot-piece 26. The head-piece 25 is securely riveted or otherwise secured to the ends 20 and 16 of the bars 10 and 18.

27 are side rods, or arms extending from the head-piece 25 to the foot-piece 26 and completing the frame of the fender.

28 is a trip frame having the front bar 29 extending across the fender in front of the foot-piece 26. The side rods of the trip frame are slidably arranged in the brackets 30 secured to the foot-piece 26 of the fender 23.

31 is a cross-rod connecting the side rods of the trip frame where they extend to the rear of the fender 23. It will be thus seen that the fender 23 is supported by the carriage 9; the said carriage being supported in turn on the arc-shaped tracks 4 and 5. The studs 8 pivotally securing the track-ways 4 and 5 to the platform of the car will allow the front of the fender to be lowered on to the track-way, and in order to hold the fender clear of the track when the car is moving, a suspension rod 32 is linked at its lower end to the eye 33 securely fastened to the front of the central cross-bar 7 extending between the tracks 4 and 5. The suspension rod 32 extends upwardly through an orifice in the platform of the car, and has the forked upper end 34 pivotally secured to the outer end of the lever 35.

36 is a rocker shaft laterally journaled in the bearings 37 secured on the upper side of the car platform in a convenient position in front of the motorman.

The crank lever 35 is fixedly mounted at one end of the rocker shaft 36, and as above explained has the outer end thereof pivotally secured to the forked upper end 34 of the suspension rod 32.

38 is a dog fixedly mounted on the rocker shaft 36 intermediate of the length thereof.

39 is a trip lever pivotally secured to the bracket 40 fastened to the platform of the car in such position that the trip lever extends upwardly so that the tooth of the dog 38 engages one of the notches 41 in the trip lever and prevents the rocker shaft 36 from rotating and allowing the suspension rod supporting the fender to drop. The trip lever 39 extends downwardly from the platform of the car, and terminates in the eye 39^a through which the cross-rod 31 of the trip frame 28 extends.

42 is a pedal lever fixedly mounted on the rocker shaft 36 at the other end thereof for returning the rocker shaft with the crank lever and suspension rod attached thereto to

their raised position where they are held as above explained by the dog 38 engaging a notch in the trip lever 39.

43 is an air cylinder secured to the under side of the car platform by the cylinder stud 44 which extends upwardly through the car platform and is secured by the nut 45.

46 is a piston rod extending through the orifices 47 in the ends of the air cylinder 43, and projecting for a slight distance beyond each end of said cylinder and terminating in the eyes 48.

49 is a piston secured on the rod 46 within the cylinder 43.

50 is an air pipe leading from a suitable supply of compressed air on the car and branched at 51 where it leads to the inlets 52 at each end of the air cylinder 43.

53 are exhaust openings in the air cylinder 43 immediately next to the inlet openings 52.

54 are piston valves arranged in the valve chambers 55 which intercept the inlets 52 and the exhaust openings 53 of the air cylinder 43. The piston valves 54 are connected by the rod 56 so that the valves 54 normally cover the inlet ports 52.

57 is an arm pivotally secured on the stud 58, centrally arranged on the under side of the air cylinder 43, by the nut 59. The arm 57 at one end thereof is curved upwardly around the cylinder 43 into proximity of the valve rod 56, and has the orifice 60 toward the end thereof.

61 is a pin projecting from the collar 62 secured on the valve rod 56 intermediate of the length thereof.

The other end of the pivoted arm 57 extends outwardly from the air cylinder 43 for a short distance, and has the orifice 63 toward the end thereof.

64 is a rocker shaft journaled longitudinally in the bearings 65 secured to the under side of the car platform. The rocker shaft 64 at the inner end thereof has the downwardly projecting finger 66 firmly secured thereto, and extending through the orifice 63 in the pivoted arm 57.

67 is a cross-bar fixedly secured to the rocker shaft 64 at the outer end thereof.

68 and 69 are rods pivotally secured at their lower ends to the ends of the cross-bar 67 and extending upwardly through orifices in the car platform and terminating in the pedal buttons 70 and 71.

72 is a dog pivotally secured to the bracket 73 fastened to the under side of the car platform. The dog 72 extends across the rocker shaft 64, and has the downwardly extending tooth 74, which normally engages a curved rack 75 securely fastened to the ends 12 of the bars 11.

76 is a flat spring secured to the under side of the car platform in alinement with the dog 72, and having the end thereof nor-

mally exerting a downward spring pressure on the pivoted dog 72.

77 is a T-shaped cam securely mounted on the rocker shaft 64, immediately under the dog 72 and raising the said dog from engagement with the rack 75 on the rotation of said rocker shaft.

78 are grooved pulleys journaled in the sheaves 79 on the under side of the platform of the car in alinement with the piston rod 46 and in proximity to the sides of the said car.

80 are cables secured at one end to the eyes 48 at the ends of the piston rod 46 and extending around the grooved pulleys 78 being securely fastened at the other end to the eyes 81 on the bars 10 and 11 of the carriage 9.

The arrangement of the pedal buttons, drop lever and foot pedal on the upper side of the platform of the car will enable the motorman to all times drop the fender as desired without stepping from the car or in any way detracting his attention from his work.

In the operation of the device, it is apparent that very little attention is required by the motorman, as the several parts are all locked or operated automatically other than pressing the pedal buttons or pressing the pedal lever to raise the fender to its upper position after it has been dropped to pick up an obstruction on the tracks.

When the car is rounding a curve it is only necessary for the motorman to press on one or other of the buttons 70 or 71, when the rocker shaft 64 will be turned, and the cam 77 raise the tooth of the dog 72 from the engagement with the rack, thus leaving the carriage 9 free to move on the track-ways 4 and 5. At the same time the finger 66 at the end of the rocker shaft 64 will move the lever 57, and through its connection with the valve rod and valves, air will be admitted to one end of the cylinder 43 and the piston moved toward one end, and through the connection of the piston rod 46 and cables 80 the carriage 9 will be moved along the track-ways to the desired position over the tracks on which the car is running.

The release of the button 70 or 71 will allow the rocker shaft 64 to return to its mid-position by the action of the spring 76 on the dog and cam; this shuts off the supply of air to the air cylinder and also locks the carriage on the track-ways by the re-engagement of the tooth of the dog 72 with the rack 75.

The fender drops to the roadway automatically when an obstruction touches the trip frame 28, as the cross-rod 31 forming the back is connected to the trip lever 39, and the said trip lever is pushed rearwardly at the bottom which disengages the tooth of the dog 38 from the notch 41, leaving the

rocker shaft 36 free to rotate and lower the link rod 32 which supports the track-ways carrying the carriage and fender.

The track-ways are pivoted at the ends at a point in alinement with the rack, and where it is engaged by the dog 72, so that the dropping of the fender and the consequent rocking of the track-ways on their pivot bearings will not interfere with the said dog 72 in its engagement with the said rack 75.

What we claim as our invention is:

1. In a car fender, the combination with the car body, of a double trackway pivotally supported laterally beneath said car body, a running gear traveling on said trackway, a fender supported by said running gear, and means for moving said running gear on said trackway.

2. In a car fender, the combination with the car body, of a double trackway pivotally and laterally supported beneath said car body, a carriage traveling on said trackway, a fender supported in its raised position by said carriage, means for moving said carriage on said trackway, and means for tripping said fender to its lower position.

3. In a car fender, the combination with the car body, of a trackway extending laterally beneath said car body and pivotally supported at each end thereof, a carriage running on said trackway, a fender supported by said carriage, means for moving said carriage to any desired position along said trackway, and means for retaining said carriage with said fender in said position.

4. In a car fender, the combination with the car body, of a trackway pivotally supported in brackets secured to the under side of said car body toward each side thereof, a carriage running on said trackways, a fender supported by said carriage, means for supporting said fender in its raised position, and means for tripping said fender to its lowered position.

5. In a car fender, the combination with the car body, of a trackway pivotally supported in brackets secured to the under side of said car body at each side thereof, a carriage running on said trackways, a fender supported by said carriage, means for supporting said trackways with said carriage and said fender in a raised position above the ground, and means for disengaging said supporting means and tripping said trackways with said carriage and said fender to their lower position.

6. In a car fender, the combination with the car body, of a trackway pivotally supported at each end thereof in brackets secured to the under side of said car body, a carriage running on said trackways, a fender supported by said carriage and projecting in front of said car body, means for supporting said trackways with said carriage and said fender above the ground, means for dis-

engaging said supporting means, means for moving said carriage on said trackways to any desired position, and means for locking said carriage in said position on said trackways.

7. In a car fender, the combination with the car body, of a trackway pivotally supported at each end thereof in brackets secured to the under side of said car body, a carriage running on said trackways, a fender supported by said carriage and normally held to its raised position and having means connected therewith for tripping it to its lower position, pneumatic means for moving said carriage with said fender on said trackways to any desired position, and means for retaining said carriage in said position.

8. In a car fender, the combination with the car body, of a trackway pivotally supported at each end thereof in brackets secured to the under side of said car body, a carriage running on said trackways, a fender supported by said carriage and normally held to its raised position, a cylinder connected with a suitable supply of expansible fluid and secured to said car body, a piston operating in said cylinder, a piston rod connected to said piston and operatively connected to said carriage for moving the same along said trackway, means for admitting air to either end of said cylinder and means for locking said carriage in any position on said trackways.

9. In a car fender, the combination with the car body, of a plurality of brackets secured to the under side of said car body toward each end thereof, a plurality of curved tracks joined by suitable spacing bars and pivotally supported at the ends thereof in said brackets, a carriage having a suitable running gear and traveling on said tracks, a toothed rack secured to said carriage, a fender supported by said carriage and projecting in front of said car body, an air cylinder having inlet and outlet ports and secured to said car body on the under side thereof, a feed pipe leading to said inlet ports and connected to a suitable supply of expansible fluid, piston valves intercepting said inlet and outlet ports, a lever pivoted intermediate of its length to said cylinder and having one end thereof operatively connected with said piston valves, a rocker shaft journaled in bearings secured to said car body, a finger secured to the inner end of said rocker shaft and operatively connected with the lever pivotally arranged on said cylinder, a spring-held dog pivotally secured to said car body having the tooth thereof normally engaging the toothed rack on said carriage, a cam fixedly secured to said rocker shaft and engaging said dog for raising the same clear of said toothed rack, a cross-piece secured to the outer end of said rocker shaft a plurality of rods extending downwardly through

the platform of said car body and having their lower ends pivotally secured to the ends of said cross-piece, a piston arranged in said cylinder, and a piston rod secured to said piston and operatively connected with said carriage for moving the same to any desired position on said trackway.

10. In a car fender, the combination with the car body, of a bracket secured to the under side of said car body at each side thereof, a plurality of curved tracks joined by suitable spacing bars and forming a double trackway and having axial studs projecting from the ends thereof and journaled in said brackets, a plurality of bars having their inner ends extending over one of said trackways and extending at their other ends under the other of said trackways and having projections therefrom extending downwardly and upwardly to the sides of said trackways respectively, a plurality of curved rollers journaled on pins extending between said projections and running on said trackways, a rack extending between and connecting said bars, a fender secured to said bars and projecting in front of the said car body, means for holding said trackways from rotating on their pivotally secured studs, means for disengaging said holding means, an air cylinder having inlet and outlet ports and secured to said car body, a feed pipe leading to said inlet ports and connected to a suitable supply of expansible fluid, piston valves intercepting said inlet and outlet ports, a rod connecting said piston valves, a pin projecting from a collar fixedly secured to said rod intermediate of the length thereof, a lever pivoted intermediate of its length to said cylinder and having one end thereof terminating in proximity to said valve rod and having an orifice through which said pin extends, the other end of said lever extending downwardly for a short distance from said cylinder and having an orifice therethrough toward the end thereof, a rocker shaft journaled in bearings secured on the under side of said car body, a finger secured to the inner end of said rocker shaft and extending through the orifice in the projecting end of said pivoted lever, a spring-held dog pivotally secured in a bracket secured to the under side of said car body having the tooth thereof normally engaging a rack on said carriage, a cam fixedly secured on said rocker shaft and engaging said dog, a cross-piece secured to the outer end of said rocker shaft, a plurality of rods extending downwardly through the platform of said car body and having their lower ends pivotally secured to the ends of said crosspiece and their upper ends terminating in pedal buttons, a piston arranged in said cylinder, a piston rod secured intermediate of its length to said piston and extending through suitable glands in the heads of said

cylinder and terminating in an eye at each end thereof, a plurality of sheaves secured to the under side of said car body, a plurality of pulleys journaled in said sheaves, and a plurality of cables secured at one end to said eyes and extending around said pulleys and secured at the other end to said carriage for moving the same along said trackways.

11. In a car fender, the combination with the car body, of a bracket secured to the under side of said car body at each side thereof, a plurality of curved tracks joined by suitable spacing bars and forming a double trackway having studs projecting from the ends thereof pivotally supported in said brackets, a carriage having suitable running gear and traveling on said trackways, a fender supported by said carriage and projecting in front of said car body, a rocker shaft journaled in bearings on the platform of said car body, a lever secured at one end to said rocker shaft, a link rod pivotally secured at one end to the outer end of said lever and suitably connected at the other end to said trackways, a dog fixedly secured to said rocker shaft, a trip lever engaging said dog, and means for moving and retaining said carriage to any desired point on said trackways.

12. In a car fender, the combination with the car body, of a plurality of brackets secured to the under side of said car body toward each side thereof, a plurality of curved

tracks joined by suitable spacing bars and forming a double trackway pivotally supported at the ends thereof in said brackets, a plurality of bars laterally arranged on said trackways, a plurality of rollers journaled in said bars and running on said trackways, a rack connecting said bars, a fender secured to said bars and projecting in front of the car body, a rocker shaft journaled in bearings on the platform of said car body, a lever secured to one end of said rocker shaft, a link-rod pivotally secured at one end to the outer end of said lever and suitably linked at the other end to an eye secured to one of said spacing bars, a dog fixedly secured to said rocker shaft intermediate of the length thereof, a trip lever having a notch therein toward the upper end thereof and engaging said dog and extending downwardly through the platform of said car body, a trip frame carried by said fender and connected with the lower end of said trip lever, a pedal lever secured to said rocker shaft, and means for moving and retaining said carriage to any desired point on said trackways.

Signed at the town of Rosthern, in the Province of Saskatchewan, in the Dominion of Canada, this 6th day of May 1908.

STEPHEN AARON YOUNGBERG.

JAMES BOYD PARNALL.

Witnesses:

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