Sept. 17, 1963 J. L. BONANNO ETAL 3,103,897

TRACK CLEANING CAR

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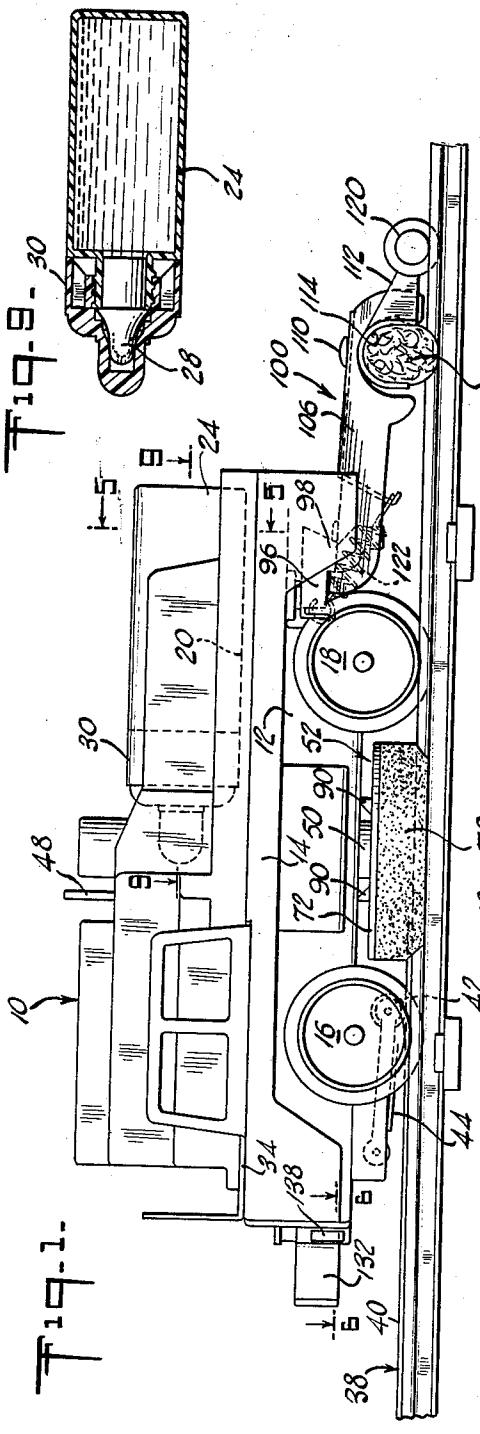


Fig. 1.

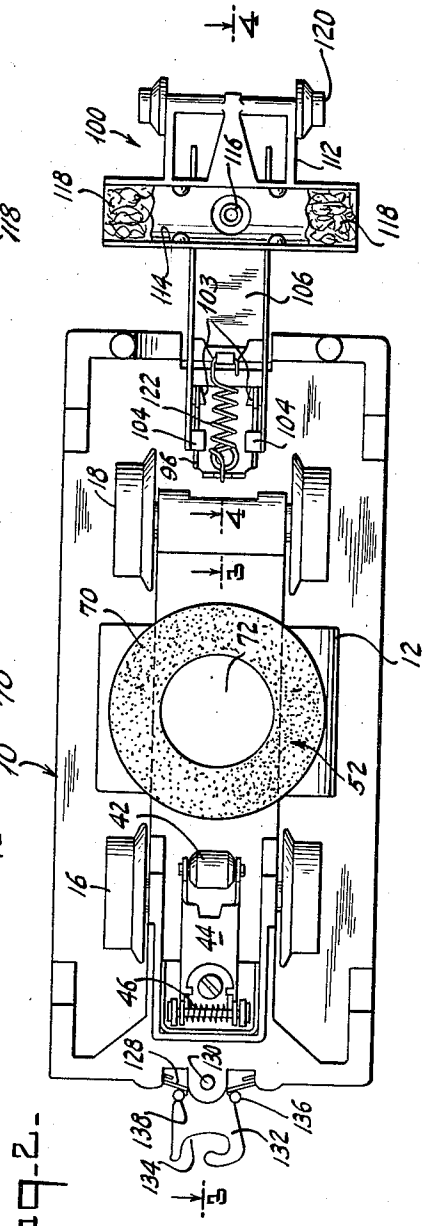


Fig. 2.

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Fig. 3.

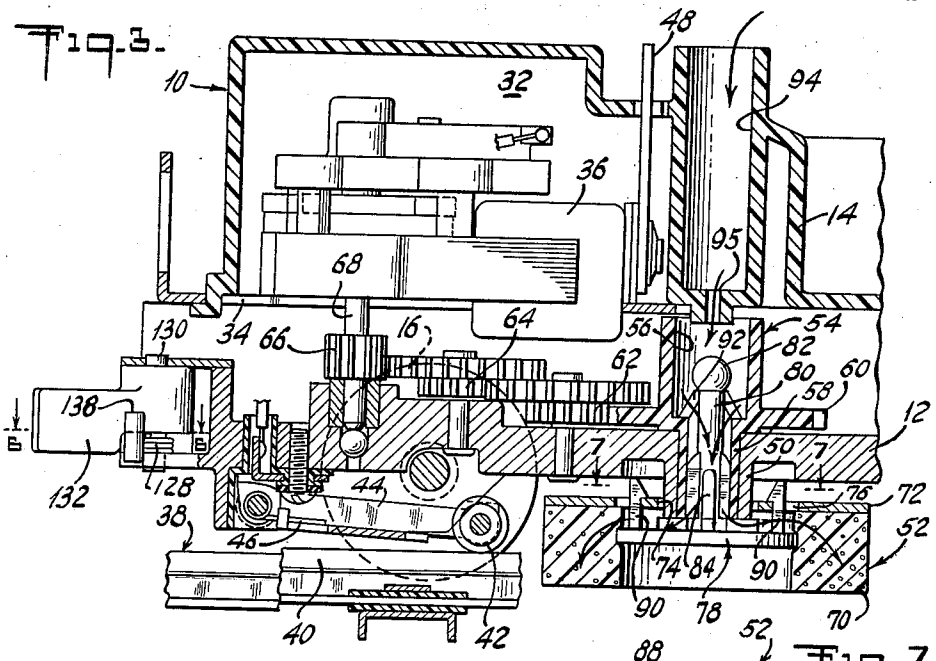


Fig. 4.

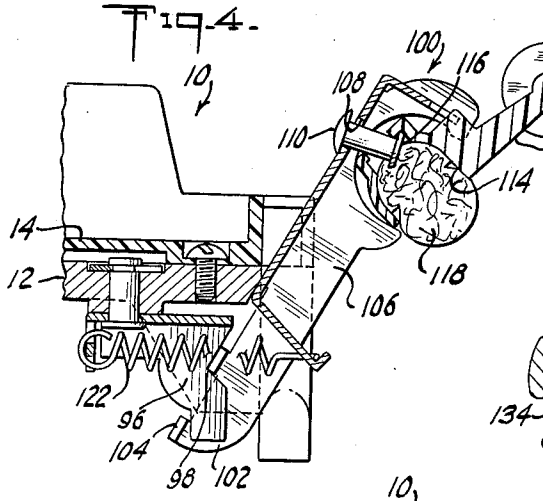


Fig. 7.

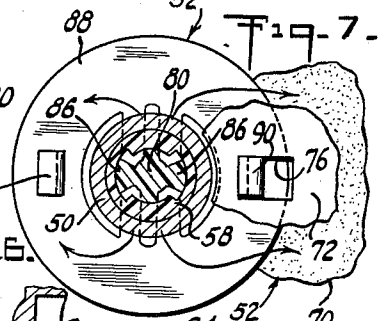


Fig. 6.

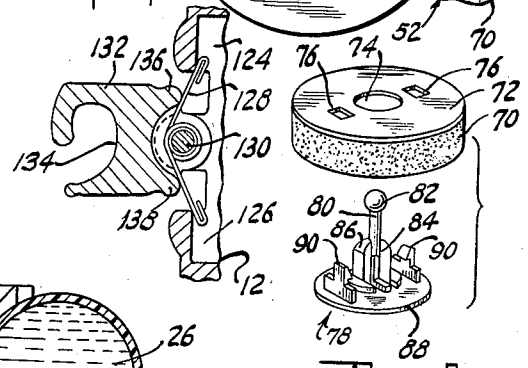


Fig. 5.

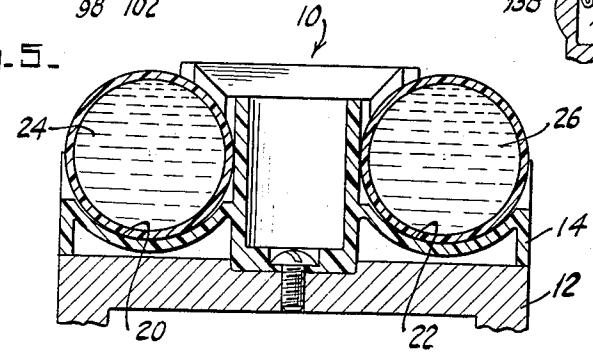


Fig. 8.

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TRACK CLEANING CAR

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12 Claims. (Cl. 104—279)

This invention relates in general to model railways and particularly to a new and useful service-type railroad car for such railways incorporating novel means for cleaning and oiling the tracks.

In accordance with one aspect of the invention a railroad car is provided which has a novel means for continuously supplying small quantities of cleaning or lubricating material to an absorbent element which is maintained in rotating contact with the railway tracks in order to clean or lubricate the tracks.

In accordance with another aspect of the invention there is provided in conjunction with the washing or oiling means, a renewable cleaning element which may be an absorbent material, or a roughened surface material to either scrape clean or wipe clean the tracks. Depending on which way the car is advanced the oiling or washing element may be used effectively to both wash and wipe dry the track surfaces or to oil the surfaces and to remove the excess therefrom.

A railroad car constructed in accordance with the invention incorporates means for continuously rotating the washing or oiling member as it is fed with a supply of a washing liquid or an oiling liquid. In addition, such a train incorporates a wiping or abrading element arranged so that it may be biased against the tracks during use or biased in a position off the tracks when not in use. The car of the invention is also constructed with a novel self-aligning coupling, facilitating the easy connection of this car to other units of the model railway.

Accordingly, it is an object of this invention to provide a model railway car having a mechanism for continuously applying either cleaning or lubricating liquid to the railway tracks.

A further object of this invention is to provide a model railway car having an improved combination rotating liquid or oil applying member and a track abrading or track wiping element which act in combination to thoroughly clean or oil the railway tracks.

A further object of this invention is to provide an improved self-aligning coupling for a railway car.

A further object of the invention is to provide a railway car of the character described which is simple in design, rugged in construction and economical to manufacture.

The various features of novelty which characterize the invention are pointed out with particularity in the claims annexed to and forming a part of this specification. For a better understanding of the invention, its operating advantages and specific objects attained by its use, reference should be had to the accompanying drawings and descriptive matter in which there is illustrated and described a preferred embodiment of the invention.

In the drawings:

FIG. 1 is a side elevational view of a track cleaning car made in accordance with the present invention;

FIG. 2 is a bottom plan view of the car shown in FIG. 1;

FIG. 3 is a fragmentary vertical sectional view taken along the line 3—3 of FIG. 2;

FIG. 4 is a fragmentary vertical section taken along the line 4—4 of FIG. 2;

FIG. 5 is a fragmentary vertical section taken along the line 5—5 of FIG. 1;

FIG. 6 is a fragmentary horizontal section taken along the line 6—6 of FIG. 1;

FIG. 7 is a horizontal section taken along the line 7—7 of FIG. 3;

FIG. 8 is an exploded perspective view of a portion of a washing or oiling element assembly; and

FIG. 9 is a longitudinal cross-sectional view of an oiling fluid or a washing fluid supply tank for use with a railway car constructed for use with the invention.

Referring to the drawings in particular, the invention as embodied therein includes a service-type railway car generally designated **10** having an underframe **12** upon which a body **14** is supported. The body **14** has a configuration simulating that of an authentic track cleaning car.

The underside of the frame **12** is provided with suitable bearing means at each end to rotatably support a forward set of wheels **16** at one end and a rear set **18** at the opposite end. In this instance, the car **10** is made without a self-propelling motor and it is normally pushed along the track in front of a locomotive or engine car. In some instances, however, it may be desirable to provide a self-contained driving means for the wheels of the car.

The body **14** is opened at the top forward portion and is provided with curved supporting recesses **20** and **22**, shaped to hold therein a pair of cylindrical liquid containers **24** and **26** respectively (FIG. 5). The liquid containers **24** and **26** (FIG. 9) hold a reserve supply of either a washing or cleaning liquid such as water, liquid soap, solvent cleaner, etc., or they may contain a lubricating oil. Each container is provided with a discharge nipple **28** having a suitable opening through which the liquid may be poured. The discharge nipple **28** is covered and protected by a screw cap **30**.

The after portion of the body **14** is built up to define an inner motor chamber **32** having a horizontal platform **34** on which is mounted an electrical motor **36**. The car **10** is usually operated by placing the sets of wheels **16** and **18** in position on a set of parallel guiding outer tracks **38**. The tracks are constructed with an inner third rail or power supplying track **40**. Energy is supplied to the motor **36** through a roller contact **42** arrange at the end of an arm **44**, pivotally mounted on the underside of the frame **12** and biased by a spring **46** in a direction urging the roller **42** into contact with the third rail **40**. The pivot arm **44** is connected electrically through a switch **48** to the motor **36**. The switch **48** has a long handle which extends through an opening in the frame **14** to permit the making and breaking of electrical contact by moving the end of the handle.

In accordance with the invention the central portion of the underframe **12** has a cylindrical bearing portion **50** defining a bearing mount for a track cleaning or oil dispensing assembly generally designated **52**. The cleaning or dispensing member assembly **52** includes a driving sleeve generally designated **54**. The sleeve **54** includes a large diameter upper portion **56** and a small diameter lower portion **58**, the latter being rotatably mounted in the sleeve portion **50** of the underframe **12**. The lower outer annular surface of the portion **56** bears against the upper surface of the underframe **12** during rotation of the assembly **52**.

The driving sleeve **54** is provided with a gear **60** which extends outwardly from the lower end of the large diameter sleeve portion **56** and is rotated through two sets of reduction gears **62** and **64** by the electric motor **36** driving through a small gear **66** mounted on the motor driving shaft **68**.

The cleaning or dispensing member assembly **52** also includes a liquid applying element **70**, preferably of a resilient, absorbent material such as a foam, plastic or rubber-sponge, which is affixed to a metal disc **72** as by adhesively sealing thereto. The metal disc **72** is provided with a central cylindrical opening **74** and a set of diametrically opposed rectangular openings **76**, positioned to receive an intermediate driving and oil distributing member generally designated **78**.

The driving and oil distributing member **78** includes an upstanding cylindrical post **80** terminating in a spherical head **82**. The cylindrical post is cut away at the lower end to define a passage **84** to facilitate liquid flow therethrough. The post **80** is provided with laterally extending spline projections **86** which fit into spline-like grooves in the lower small diameter portion **58** to lock the parts for rotation together. Then post **80** with the spline projections **86** is mounted in the center of a flat disc **88**. A pair of resilient latch elements **90** are arranged at diametrically opposite sides of the disc **88**, and normally fit into the rectangular openings **76** on the disc **72** to lock the parts together. A set of spacers **90** are provided on the disc **88** to hold the disc **88** a distance below disc **72**.

The intermediate driving and oil distributing member **78** is connected to the liquid applying element **70** by inserting the post **80** through the opening **74** and the latched members **90** through the openings **76** (see FIG. 8). These two groups of elements are then positioned in the driving sleeve **54** by aligning the spline projections **86** with the grooves in the small diameter sleeve portion **58**. A resilient frusto-conical open-topped holding shoulder **92** is affixed to the inside of the large diameter sleeve **56**. The spherical head **82** of the post **80** may be pressed through the top of the shoulder **92** and is retained thereabove during rotation of the assembly **52**. The intermediate driving member may be removed by pulling the spherical head **82** through the opening in the shoulder **92**.

The body **14** is provided with a cylindrical liquid filling chamber **94** arranged in vertical alignment with the track cleaning and oil dispensing member assembly **52**. The cylindrical slot **94** is provided with an opening **95** at the bottom end made large enough to permit the dripping of liquid therethrough into the driving sleeve assembly **54**. The liquid thus received flows in the direction of the arrows (FIGS. 3 and 7) downwardly around the post **80** and in on top of the disc **88**, where it is distributed by centrifugal and gravitational action to the absorber element **70**.

In accordance with the invention the car **10** is provided with an additional track cleaning or wiping mechanism to supplement the action of the rotating liquid absorbent element **70**. To this end, a mounting bracket **96** is affixed to the underside of the frame **12** at the rear end thereof. The mounting bracket **96** is provided with suitable L-shaped bearing surfaces **98** on which is pivotally mounted an auxiliary cleaning carriage generally designated **100**. The auxiliary cleaning carriage **100** is provided with a pair of spaced side frame members **102** having stub shafts **103** which project inwardly therefrom and are pivoted on the L-shaped bearing surfaces **98**. One end of the side frame members **102** is provided with a pair of inwardly extending lateral stops **104** which are effective to contact the mounting bracket **96** and limit the upward movement of this end of the frame members and the downward movement of the opposite end.

The frame members **102** support an inverted U-shaped mounting member **106** which extends outwardly to the rear of the car. Mounting member **106** is provided with a cylindrical slot **108** in which is loosely positioned a universal supporting bolt **110**. The bolt is of a diameter small enough to permit free movement in the slot **108**, but is provided with a head large enough to prevent it from falling therethrough.

A substantially dipper-shaped open-ended wiper and wheel piece generally designated **112** is provided with a cylindrical slot in the top of an open-ended inverted U-shaped portion **114** through which the bolt **110** is loosely fitted. The bolt **110** is provided with a lower flange **116** which prevents disengagement of the member **112** therefrom. The complete carrier and wiper member **112** pivots freely about the bolt **110** in a manner similar to a universal joint. The U-shaped portion **114** is packed with an absorbent material **118** such as cotton, cloth, tape or the like which projects downwardly beyond the side edges thereof. In some instances, it may be desirable to place a sheet of an abrasive material such as sandpaper over the abosrbent material **118** in order to clean the track of gritty substances, if desired.

The rear end of the member **112** is provided with suitable bearings to rotatably mount a pair of guiding wheels **120**. A tension spring **122** is affixed to a depending portion of the bracket **96** at its one end, and to the lower forward edge of the mounting member **106**. The frame members **102** may be rotated about their L-shaped bearing surfaces or L-shaped pivot surfaces **98** to permit the movement of the aft auxiliary cleaning carriage **100** to the position indicated in FIG. 4, in which instance the spring **122** will act to bias it in this position. When the aft auxiliary cleaning carriage **100** is brought downwardly into an operative position, with the wheels **120** in engagement with the tracks (FIG. 1), the spring will again act to bias the carriage in a direction toward the tracks. Thus, it is seen that the pivot at the L-shaped bearing surfaces **98** and the spring location is such that the spring will urge the carriage **100** into the position indicated in FIG. 4 when it is initially moved manually slightly above the horizontal and it will urge it into a track engaging position similar to FIG. 1 when it is initially moved manually slightly below the horizontal.

In accordance with another aspect of the invention, the forward end of the lower frame **12** is notched at each side of the center line to provide holding recesses **124** and **126** to confine each end of a leaf spring **128**. The leaf spring **128** is made in one piece of resilient metal which is coiled around a central vertical pivotal bolt **130** held in the frame **12**. Also pivotally mounted on the same bolt **130** is a self-aligning coupling **132**. The coupling is substantially rectangular and is provided with a forward recessed mating end **134** suitably contoured to mate and hold with a male coupling. It is provided with cylindrically shaped rear corners **136** and **138** arranged in contact with spring **128**. The coupling **132** is self-aligning, and any tendency to misalign it, as by moving it from the left or to the right, will be overcome by the force of the spring **128**.

To operate the car **10** in accordance with the invention, a quantity of cleaning or oiling liquid is poured from one of either of the cylinders **24** or **26** into the reservoir slot **94**. The liquid flows by gravity through the opening **95** into the driving sleeve **54**, from whence it passes around the post **80** to the surface of the disc **88**, from whence it is distributed to the absorbent element **70**. The train is positioned on the tracks and is pushed or pulled by a locomotive or similar power driven car attached to the coupling **132**. The switch **48** is closed and current is effective to operate the motor **36** to continuously rotate the complete track cleaning or oil dispensing member assembly **52**.

It is preferable to apply cleaning fluid or oil to the tracks when the aft auxiliary cleaning carriage is in a position out of operational engagement with the tracks (FIG. 4). After the oil or cleaning fluid has been applied, the motor **36** may be switched off and the disc **88** with the absorbent element **70**, and the intermediate driving and liquid distributing member **78** may be removed from the sleeve driving element **54**. The absorbent member **70** may be removed from the remainder of the parts and replaced or cleaned. If desired, the auxiliary cleaning unit **100** may be placed in an operative position (FIG. 1) to clean the tracks with the absorbent element

70 removed and the motor 36 disconnected, or both the cleaning unit 100 and the absorbent element 70 may be operated simultaneously.

While a specific embodiment of the invention has been shown and described in detail to illustrate the application of the invention principles, it may be understood that the invention may be embodied otherwise without departing from such principles.

What is claimed is:

1. A toy railway car, for cleaning, lubricating or wetting tracks including a railway car frame, car wheels rotatably mounted on said frame and arranged to operatively engage a track structure to permit movement of the car thereover, a liquid applying member rotatably mounted on said frame and extending downwardly therefrom into contact with the tracks, means on said frame to rotate said liquid applying member, and liquid reservoir means mounted on said frame and connecting said member whereby to supply liquid thereto.

2. In combination with a toy railway car having a body mounted above wheels which move over a track, the improvement comprising a liquid applying member rotatably mounted on said body and extending therebelow into contact with the tracks, and means on said body to rotate said liquid applying member.

3. In combination with a toy railway car having a body mounted above wheels which move over a track, the improvement comprising a liquid applying member rotatably mounted on said body and extending therebelow into contact with the tracks, electric motor driving means on said body arranged to rotate said liquid applying member, electric pickup means mounted on and depending from said body and biased against said track and connected to said electric motor means to supply electric current thereto, and means to energize said track.

4. In combination with a toy railway car having a body mounted above wheels which move over a track, the improvement comprising a liquid reservoir on said body, a substantially vertical shaft mounted on said body below said reservoir, a cleaning element mounted on the lower portion of said shaft and extending below said body into contact with said track, means to direct said liquid to said element, and means on said body to rotate said element.

5. In combination with a toy railway car having a body mounted above wheels which move over a track, the improvement comprising a liquid reservoir on said body, a substantially rotatable sleeve mounted on said body, an absorbent cleaning element detachably mounted on the lower portion of said sleeve and extending below said body into contact with said track, passage means to conduct said liquid to said cleaning element, and means on said body to rotate said vertical sleeve.

6. The combination according to claim 5 wherein said cleaning element includes an absorbent material secured to a rigid member, said rigid member being detachably connectable to said sleeve for rotation therewith.

7. The combination according to claim 6 wherein said detachable cleaning element includes a flat mounting disc, a sponge-like material secured to said disc, said disc and said sponge-like material having an aperture therein and a clamping member having an upstanding portion which fits into said aperture and is connectable to said sleeve for rotation therewith whereby said sponge-like material is also held for rotation with said sleeve.

8. A toy railway car for cleaning, lubricating or wetting two and three-rail track structures, comprising a frame, wheels rotatably mounted on said frame and arranged to operatively engage a track structure to permit movement of the car thereover, a liquid applying member larger than the width of the track structure rotatably mounted on said frame and extending downwardly to contact and apply liquid onto each of the rails of the track structure as it is rotated, means on said frame to rotate said liquid applying member, and liquid reservoir means mounted on said frame and connecting said member whereby to supply liquid thereto.

9. A toy car according to claim 8, including a bearing bracket on said frame, a carriage pivotally mounted on said frame and having a cleaning element larger than the width of the track structure and having a portion bearing against said bearing bracket and a portion extending outwardly beyond said pivot, a resilient means connecting said carriage and said frame arranged to bias said cleaning element against said bearing bracket, the outer portion of said carriage being movable to bring said spring above said pivot and to bias said portion upwardly above said track structure and being movable to bring said spring below said pivot to bias said carriage against said track structure.

10. In combination with a toy railway car frame having a body mounted above wheels which move over a track, the improvement comprising a carriage pivotally mounted on said frame and having a cleaning element at one end thereof extending beyond the end of said body and overhanging said track, wheels mounted on said carriage, said wheels operatively engaging the track when the carriage is in an operative position, resilient means connecting said carriage and said body arranged to bias said element against said tracks when the element is manually moved below the horizontal, and to bias said element upwardly substantially above said track when the element is manually moved above the horizontal.

11. In combination with a toy railway car frame having a body mounted above wheels which move over a track, the improvement comprising a carriage pivotally mounted on said frame and having a cleaning element pivotally mounted at one end thereof extending beyond the end of said body and overhanging said track, resilient means connecting said carriage and said body arranged to bias said element against said tracks when the element is manually moved below the horizontal, and to bias said element upwardly substantially above said track when the element is manually moved above the horizontal.

12. The combination according to claim 11, wherein said element is provided with a rearwardly extending portion having wheels rotatably mounted thereon.

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