

Nov. 5, 1935.

E. E. McKEIGE

2,019,690

TOY STREAM LINED RAILROAD TRAIN

Filed June 19, 1934

2 Sheets-Sheet 1

Fig. 1.

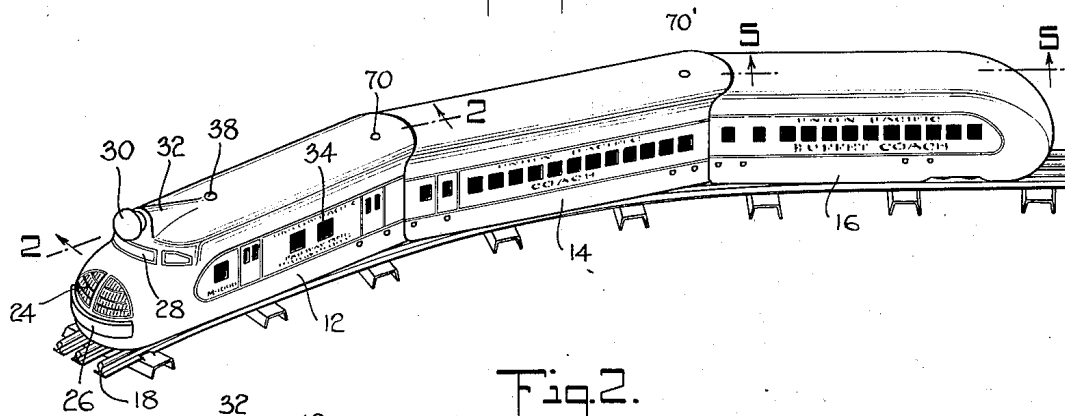


Fig. 2.

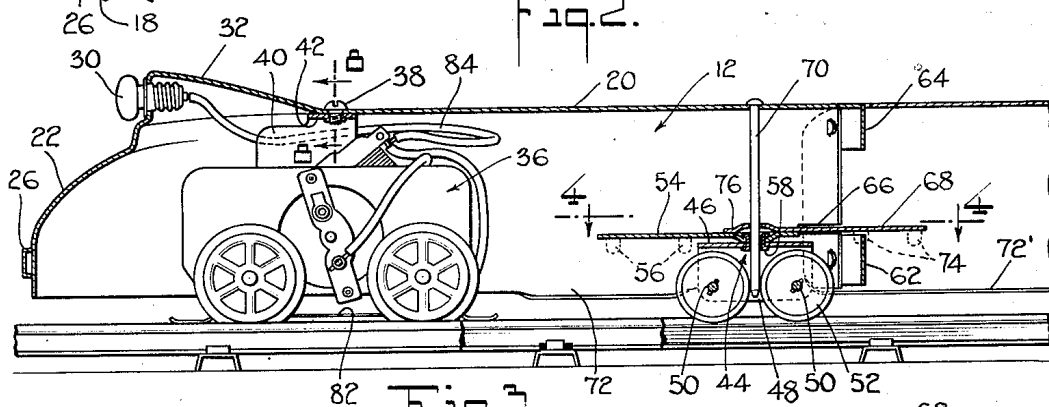


Fig. 3.

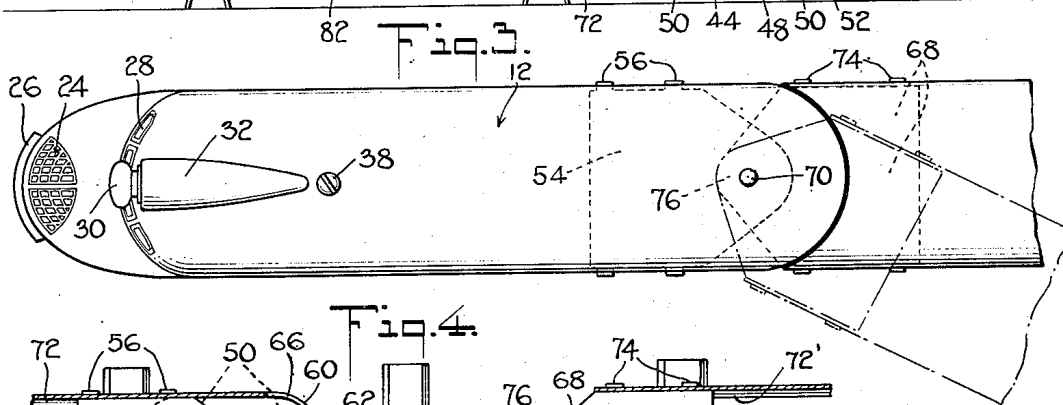
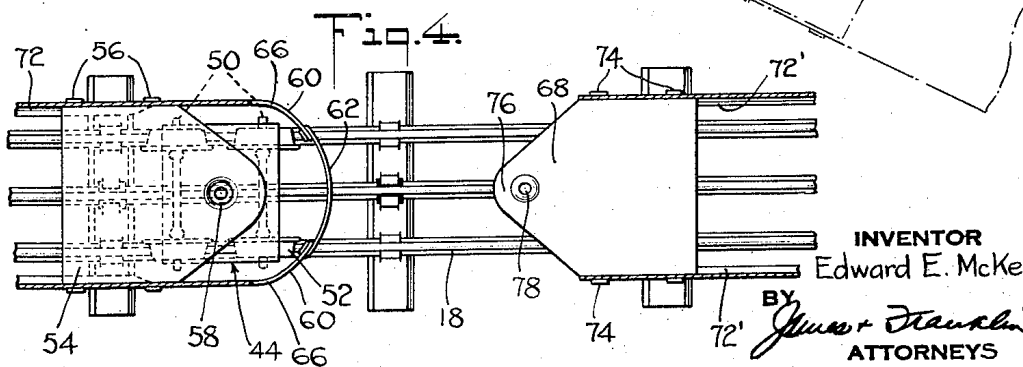


Fig. 4.



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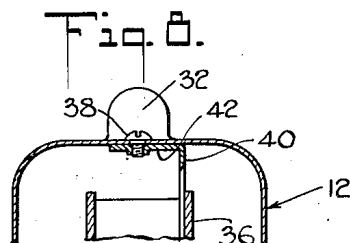
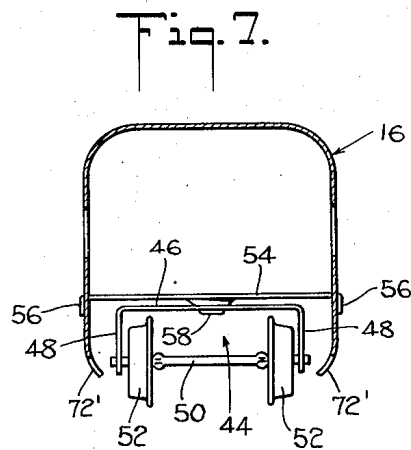
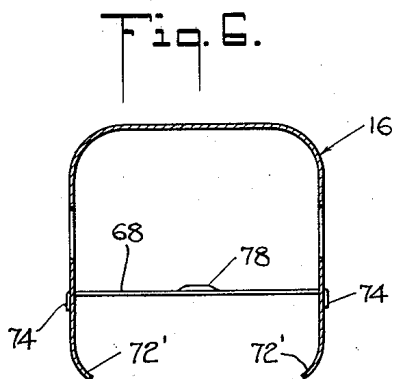
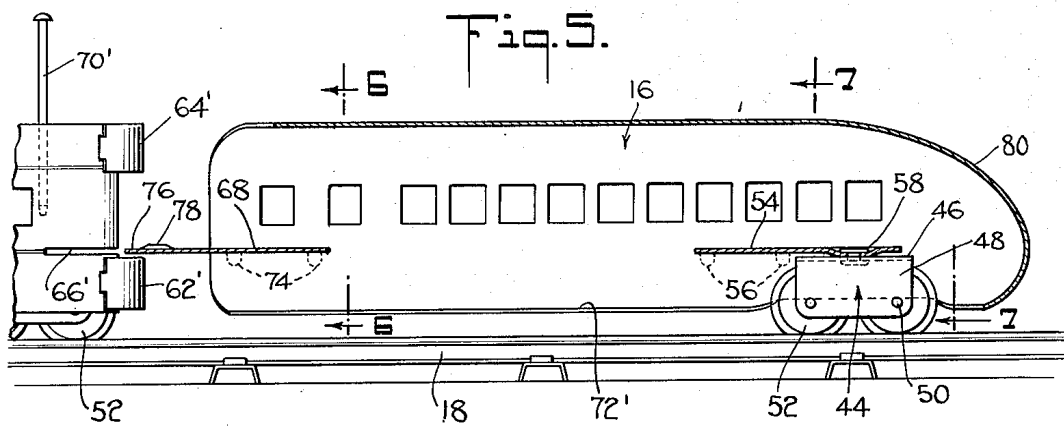
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TOY STREAM LINED RAILROAD TRAIN

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2 Sheets-Sheet 2



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## UNITED STATES PATENT OFFICE

2,019,690

## TOY STREAM LINED RAILROAD TRAIN

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Application June 19, 1934, Serial No. 731,252

21 Claims. (Cl. 46—48)

This invention relates to toys, and more particularly to a toy streamlined railroad train.

The object of the present invention resides generally in the provision of a toy streamlined 5 railroad train. More particular objects are to provide car bodies formed substantially of only a single piece of sheet metal; to mount the trucks on the car bodies so that they are substantially housed therewithin; to so couple the cars that 10 they may turn on the usual toy track radius and yet are fitted closely together in end to end relation; to provide coupling means which will be readily accessible for coupling or uncoupling the cars; and, in general, to provide a construction 15 which, while effective and realistic in appearance, may be made in a simple manner at low cost.

To the accomplishment of the foregoing and other objects which will hereinafter appear, my invention consists in the toy elements and their 20 relation one to the other, as are hereinafter more particularly described in the specification and sought to be defined in the claims. The specification is accompanied by drawings in which:

Fig. 1 shows a toy train embodying features of 25 my invention;

Fig. 2 is a longitudinal section taken in the plane of the line 2—2 in Fig. 1;

Fig. 3 is a plan view;

Fig. 4 is a section taken in the plane of the 30 line 4—4 of Fig. 2, and shows the car coupling mechanism;

Fig. 5 is a vertical section taken in the plane of the line 5—5 of Fig. 1;

Fig. 6 is a section taken in the plane of the 35 line 6—6 of Fig. 5;

Fig. 7 is a section taken in the plane of the line 7—7 of Fig. 5; and

Fig. 8 is a section taken in the plane of the 40 line 8—8 of Fig. 2.

Referring to the drawings and more particularly to Fig. 1 thereof, the toy streamlined train of my invention comprises a locomotive car 12, one or more intermediate cars 14, and a trailing or end car 16. These cars are directly and closely 45 coupled together, yet are adapted to run on the tracks 18 of conventional toy railroad systems. The cars are next described in detail, but it may be stated in a preliminary way that each of the car bodies is preferably made substantially of a single piece of sheet metal pressed downwardly 50 to form roof and side walls which are smooth and continuous. The car body is a thin light hollow shell open at the bottom, but because of its shape and construction the shell possesses ample strength and rigidity. The trucks are piv-

otally mounted within the car bodies and are substantially housed and concealed thereby. The sides of the car body are brought down close to the tracks, and only the bottommost parts of the trucks project below the car bodies. 5

Referring now to Figs. 2 and 3, the locomotive car 12 comprises a single piece of sheet metal 20 pressed downwardly to form not only roof and side walls but also a rounded front wall 22. The forward part of the car further includes a radiator simulation 24, a bumper 26, windows 28, and a headlight 30. The body converges at 32 in order to effectively streamline the headlight. The side walls of the car are provided with win- 15 dows 34.

The locomotive car is provided near its forward end with a motor truck 36. This may be a four-wheel truck of conventional type provided with electric motor and reduction gear mechanism. The truck is substantially fully housed 20 within the locomotive car and is pivotally mounted therein at the roof pivot 38. For this purpose, one of the conventional frame plates of truck 36 has secured thereto an upstanding bracket 40, best shown in Figs. 2 and 8. The upper 25 part 42 of the bracket is threaded to receive pivot 38. The attachment of bracket 40 to one side only of the truck is especially convenient to avoid interference with the brushes and wiring of the motor mounted on the opposite frame plate, while 30 the pivoting of the truck directly to the roof dispenses with the necessity for special mounting means.

The rear end of the locomotive car is carried upon a truck 44. As is best seen from inspection of Figs. 2, 5, and 7, this truck is of exceedingly simple character comprising merely a rectangular piece of sheet metal 46 bent downwardly to form sides 48 in which are journaled the axles 50 of flanged truck wheels 52. Except for 40 the motor truck 36, the remaining trucks 44 of the train are uniform in character, and a description of one suffices for all.

The truck 44 is pivotally mounted on a truck support plate 54 which extends horizontally across 45 the rear end of the locomotive car and which is secured to the side walls thereof by tongue and slot connections 56. This truck support plate spaces the side walls of the car and strengthens the car end. The plate is elevated within the car so that the truck 44 is substantially received 50 within and housed by the car. Truck 44 is pivoted on truck plate 54 by an eyelet or hollow rivet 58, and the plate is preferably depressed at rivet 58 in order to keep the head of the rivet below 55

the generally flat smooth top surface of plate 54.

The end of locomotive car 12 is convex and conforms to the surface of a vertical cylinder the axis of which passes through the pivot of the truck 44. The end of the car may, if desired, be left open, but I prefer to partially close the same near the top and bottom of the car. Specifically, the parts 60, best shown in Fig. 4, are bent inwardly and are joined by a connecting piece 62. The parts 60 are employed to economize in the use of metal, for they correspond in length to the projection of the convex end of the roof beyond the side walls. The parts shown in Fig. 4 are located near the bottom of the car, but similar parts are located near the top of the car, as shown at 64 in Fig. 2.

The side walls of the car are slit at 66 just above the level of truck plate 54, these slits affording increased clearance for the coupling plate 68 of the succeeding car when rounding a turn. The car is further provided with a coupling pin 70 which extends downwardly through the roof of the car, then through coupling plate 68 and the hollow rivet or truck pivot 58, this construction being clearly shown in Fig. 2. The coupling pin is thus supported in vertical position between the top and bottom of the car and is made readily accessible despite the close end to end coupling of the cars. The lower edges of the side walls of the car are turned inwardly, as indicated at 72, but these inwardly turned edges are discontinued at the trucks 36 and 44 in order not to reduce the clearance for oscillation of the trucks within the car body.

The intermediate car 14 comprises a piece of sheet metal which is bent downwardly to form continuous roof and side walls. The rear end of car 14 is constructed exactly like the rear end of locomotive car 12 and therefore need not be described in detail. As in the case of car 12, there is provided a truck support plate on which is pivotally mounted the single truck of the car. The end is convex on a cylinder the axis of which passes through the pivot of the truck. At this axis there is also located the coupling pin 70' (Fig. 1) corresponding to coupling pin 70 of the locomotive. Convex bands 62' and 64' (see Fig. 5), corresponding to the bands 62 and 64 of the locomotive car, are also provided. The side walls of the car are horizontally slotted at 66', corresponding to the slots 66 of the locomotive car.

The forward end of car 14 may be described with reference to Figs. 1 through 4. The car end is patterned to conform to the surface of a cylinder having the coupling pin 70 as its axis. Differently expressed, the forward end of car 14 is concave and mates with the convex end of locomotive car 12. The sides of the car are connected by coupling plate 68 which is secured thereto by tongue and slot connections 74. The forward end 76 of the coupling plate projects beyond the end of the car and converges to an apex overlying the truck pivot 58 and provided with a hole 78 for receiving the coupling pin 70. It will be evident from inspection of Fig. 2, that coupling plate 68 is so located in the car as to just overlie the truck support plate 54 and the truck pivot 58. It will also be evident that the rear truck 44 of the locomotive car is common not only to the locomotive car but also to the succeeding or intermediate car. It will further be understood that coupling plate 68 is aligned with the slots 66 of the locomotive car, so that when the cars are turned from an aligned to an angular position, as shown by the broken lines

of Fig. 3, the edge of the coupling plate may pass into one of the slots 66. If desired, the forwardly projecting end 76 of the coupling plate may be narrowed so as to dispense with the necessity for the slots 66, but an advantage of the construction here illustrated is that the relatively wide overlapping plates help support the intermediate car against sideward oscillation. In the case of the intermediate car, as in the case of the locomotive car, the lower edges of the side walls are turned inwardly, as is indicated at 72', and in this case the inwardly turned edges extend for almost the entire length of the car, being terminated only at the rear end in the neighborhood of the single rear truck of the car.

The end car 16 is best shown in Figs. 5 through 7. This car also comprises a single piece of sheet metal pressed downwardly to form roof and side walls and also to form a converging trailing or end wall 80. The car is provided with a single truck 44 located near its rear end. The truck is supported upon a truck support plate 54 extending between the side walls of the car and secured thereto by tongue and slot connections 56, just as has heretofore been described in connection with cars 12 and 14. In this case, however, no coupling pin is necessary or provided.

The forward end of the car is constructed exactly like the forward end of car 14, it being concave and patterned to mate with the convex rear end of either car 12 or car 14. The sides of the car are connected by a coupling plate 68 secured thereto by tongue and slot connections 74. Coupling plate 68 has a forward end 76 projecting out of the car and adapted to overlie the truck support plate of the preceding car. It is perforated at 78 to receive the coupling pin. The lower edges of the side walls are turned inwardly, as indicated at 72', except at the rear truck 44 where clearance is provided for sufficient oscillation of the truck.

It will be understood that the end car 16 may, if desired, be coupled directly to the locomotive 12, and, on the other hand, that more than one intermediate car 14 may be interposed between the locomotive car 12 and the end car 16. It will also be understood that Fig. 6, taken through the forward end of car 16, is also applicable to the forward end of car 14, and, similarly, that Fig. 7, taken through the rear end of car 16, is also applicable to the rear end of car 14, except for coupling pin 70' used with car 14 but not with car 16. I may explain that the locomotive car really simulates a combined locomotive and U. S. railroad mail car or/and baggage car, though it is briefly referred to as a locomotive car. It will be seen that the locomotive car is provided with a truck at its forward end; that the end or trailing car 16 is provided with a truck at its rear end; and that a single truck is provided which is common to the articulated ends of the cars. It is preferable that the first common truck be made a part of the locomotive car, as here shown, for the locomotive car may then be run by itself even if the succeeding cars are disconnected therefrom. The mating car ends are respectively convex and concave, and it is preferable that the truck bearing car end be the convex end, thus bringing the truck close to the succeeding car and permitting the cars and truck to be articulated on a common axis or coupling pin, while substantially housing or enclosing the truck within one of the cars.

Motor truck 36 is energized by current conducted through a shoe 82 adapted to engage an insulated third rail. The circuit is completed in

conventional manner by grounding the frame and wheels to the outer or regular rails. A part of the current supply may, if desired, be connected to energize the head lamp 30, and in such case the conductor 84 used for that purpose is preferably flexible or so connected as not to interfere with the normal oscillation of the truck relative to the ground locomotive car.

To couple two cars together, for example the intermediate and end cars 14 and 16, it is merely necessary to preliminarily elevate the coupling pin 70' as shown in Fig. 5, and to then slide the coupling plate 76 of the end car forwardly into the intermediate car, and to thereupon lower the coupling pin. To uncouple the cars this procedure is reversed.

It is believed that the mode of constructing and using, as well as the many advantages of my improved streamlined toy railroad train, will be apparent from the foregoing detailed description thereof. It will further be apparent that while I have shown and described my invention in preferred form, many changes and modifications may be made in the structure disclosed, without departing from the spirit of the invention, defined in the following claims.

I claim:

1. A toy streamlined railroad car, the body of said car comprising a single piece of sheet metal pressed downwardly to form roof and side walls, a truck support plate extending across said body between the side walls thereof and a truck pivoted on said truck support plate, said plate being elevated within the car body so that all except the bottommost part of the truck is received within the car body.

2. A toy streamlined railroad car, the body of said car comprising a single piece of sheet metal pressed downwardly to form smooth continuous roof and side walls, a truck support plate extending horizontally across said body between the side walls thereof and secured thereto by tongue and slot connections, and a truck pivoted on said truck support plate, said plate being elevated within the car body so that all except the bottommost part of the truck is received within the car body, the lower edges of the side walls of said body being turned inwardly except at the truck.

3. A toy streamlined car comprising sheet metal bent to form roof and side walls, a truck received and substantially enclosed within said body, and a swivel connection between said truck and the roof of said car body.

4. A toy streamlined railroad locomotive car comprising sheet metal bent to form roof, rounded front and side walls, a motor truck received and substantially enclosed within said body at the forward end thereof, a swivel connection between said truck and the roof of said car, an idler truck received within the rear end of said body, and a swivel connection for said idler truck.

5. A toy streamlined railroad locomotive car comprising a sheet metal shell pressed downwardly to form roof, rounded front and side walls, a motor truck received and substantially enclosed within the front end of said body, a swivel connection between said truck and the roof of said car, a truck support plate at the rear end of said car, and a truck pivoted on said truck support plate.

6. A toy streamlined railroad locomotive car comprising a single piece of sheet metal pressed downwardly to form roof and side walls, a motor truck received and substantially enclosed within

the front end of said body, said motor truck including a frame, a driving motor therein, and driving wheels thereon, a bracket secured to said frame and extending upwardly to the roof of said car, a truck support plate extending across said body between the side walls thereof at the rear end of said car and a truck pivoted on said truck support plate, said plate being elevated within the car body so that all except the bottommost part of the truck is received within the car body.

7. A toy streamlined railroad car comprising sheet metal pressed downwardly to form roof and side walls, a coupling plate extending horizontally across one end of the car between the side walls thereof and rigidly secured thereto, said coupling plate projecting out of the car for directly pivotally coupling the same to an adjacent car.

8. A toy streamlined railroad car comprising sheet metal pressed downwardly to form roof and side walls, a truck support plate near one end thereof extending across said body between the side walls thereof, a truck pivoted on said truck support plate, said plate being elevated within the car body so that all except the bottommost part of the truck is received within the car body, a coupling plate extending across the other end of the car between the side walls thereof, said coupling plate projecting out of the car for coupling the same to an adjacent car.

9. A toy streamlined intermediate railroad car comprising a single piece of sheet metal pressed downwardly to form roof and side walls, a truck support plate near one end thereof extending across said body between the side walls thereof, a truck pivoted on said truck support plate, said plate being elevated within the car body so that all except the bottommost part of the truck is received within the car body, a coupling plate extending across the other end of the car between the side walls thereof, said coupling plate projecting out of the car for coupling the same to an adjacent car, said end of the car being concavely patterned to conform to a part of the curved surface of a cylinder having a vertical axis, and the other end also being patterned to conform to a portion of the curved surface of said cylinder.

10. A toy streamlined railroad end car, said car comprising sheet metal bent to form roof and side walls and a convergent end wall, a truck pivoted on said car and substantially housed within the car, a coupling plate extending across the forward end of the car and secured to the side walls, said coupling plate projecting forwardly of the car, said forward end of the car being concavely formed to conform to a part of the curved surface of a cylinder having a vertical axis.

11. A toy streamlined railroad end car, said car comprising sheet metal pressed downwardly to form roof and side walls and convergent trailing end wall, a truck support plate extending across said body between the side walls of said car, and a truck pivoted on said truck support plate, said plate being elevated within the car so that the truck is substantially housed within the car.

12. A toy streamlined railroad end car, said car comprising sheet metal pressed to form roof and side walls and a convergent end wall, a truck support plate extending across said body at the trailing end between the side walls of said car, a truck pivoted on said truck support plate, said plate being elevated within the car so that the truck is substantially housed within the car, the forward end of the car being convexly formed to

conform to a part of the curved surface of a cylinder having a vertical axis.

13. A toy streamlined railroad end car, said car comprising sheet metal pressed downwardly to form roof and side walls and a convergent trailing end wall, a truck support plate extending across said body at the trailing end between the side walls of said car, a truck pivoted on said truck support plate, said plate being elevated within the car so that the truck is substantially housed within the car, a coupling plate extending across the forward end of the car, said coupling plate projecting forwardly of the car, said forward end of the car being concavely formed to conform to a part of the curved surface of a cylinder having a vertical axis, the lower edges of the side walls of the car being bent inwardly except at the truck in order to accommodate swiveling of the truck.

14. In a toy streamlined articulated railroad train, coupled car ends, one of said car ends being patterned convexly to a vertical cylindrical pattern, the mating end of the other car being patterned concavely to a vertical cylindrical pattern, whereby said cars abut in end to end relation, a single truck for both cars pivotally mounted at the convex car end, the mating end of the other car being provided with coupling means projecting out of the car and adapted to reach the truck, and a coupling pin passing through the coupling means and truck for coupling the cars together.

15. In a toy streamlined articulated railroad train, coupled car ends, one of said car ends being patterned convexly to a vertical cylindrical pattern, the mating end of the other car being patterned concavely to a vertical cylindrical pattern, whereby said cars abut in end to end relation, the convex car end including a truck support plate extending between the sides and secured thereto, a single truck for both cars pivotally mounted on said truck support plate, the mating end of the other car being provided with a coupling plate projecting out of the car and adapted to overlie the truck support plate, and a coupling pin passing through the roof of the car and the coupling and truck support plates for coupling the cars together.

16. In a toy streamlined articulated railroad train, coupled car ends, one of said car ends being patterned convexly to a vertical cylindrical pattern, the mating end of the other car being patterned concavely to a vertical cylindrical pattern, whereby said cars abut in end to end relation, the convex car end including a truck support plate extending between the sides and secured thereto, a single truck for both cars pivotally mounted on said truck support plate, the mating end of the other car being provided with a coupling means projecting out of the car and adapted to reach the truck support plate, and a coupling pin passing through the roof of the

car and the coupling means and truck support plate for coupling the cars together, the convex car end being horizontally slit at the truck support plate to accommodate turning movement of the coupling means.

17. A toy streamlined railroad car comprising top and side walls, the end of said car being convexly shaped to conform to the wall of a cylinder having a vertical axis, a car truck, a swivel connection between said truck and said car, and a coupling pin passing vertically from the roof of the car through the plate and the swivel connection of the truck, said coupling pin and swivel connection being located at the aforesaid vertical cylinder axis.

18. A toy streamlined railroad car comprising sheet metal bent to form top and side walls, the end of said car being convexly shaped to conform to the wall of a cylinder having a vertical axis, a four-wheeled car truck, a horizontal plate extending transversely from one side of the car to the other, a swivel connection between said truck and said plate, said plate being located at an elevation such that the truck is substantially housed within the sides of the car, and a coupling pin passing vertically from the roof of the car through the plate and the swivel connection of the truck, said coupling pin and swivel connection being located at the aforesaid vertical cylinder axis.

19. A toy streamlined car comprising top and side walls, one end of said car being concavely shaped to conform to the surface of a cylinder having a vertical axis, and a coupling plate projecting out of the open end and being provided with coupling means located on a center line corresponding to the aforesaid vertical cylinder axis.

20. A toy streamlined car comprising sheet metal bent to form top and side walls, a truck located near one end of the car, the other end of the car being open and having no truck, said open end being concavely shaped to conform to the surface of a cylinder having a vertical axis, a stiffening and coupling plate extending transversely between the sides of the car at the open end, said plate projecting out of the open end and being provided with a coupling hole located on a center line corresponding to the aforesaid vertical cylinder axis.

21. A toy streamlined railroad car comprising sheet metal bent to form roof and side walls, one end of the car being concavely patterned to conform to or mate with a portion of the curved surface of a cylinder with a vertical axis, and the other end being convexly patterned to conform to a portion of the curved surface of said cylinder, the concave end being no higher than the convex end and the roof being straight when viewed in side elevation and upwardly convexly curved when viewed in end elevation.

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