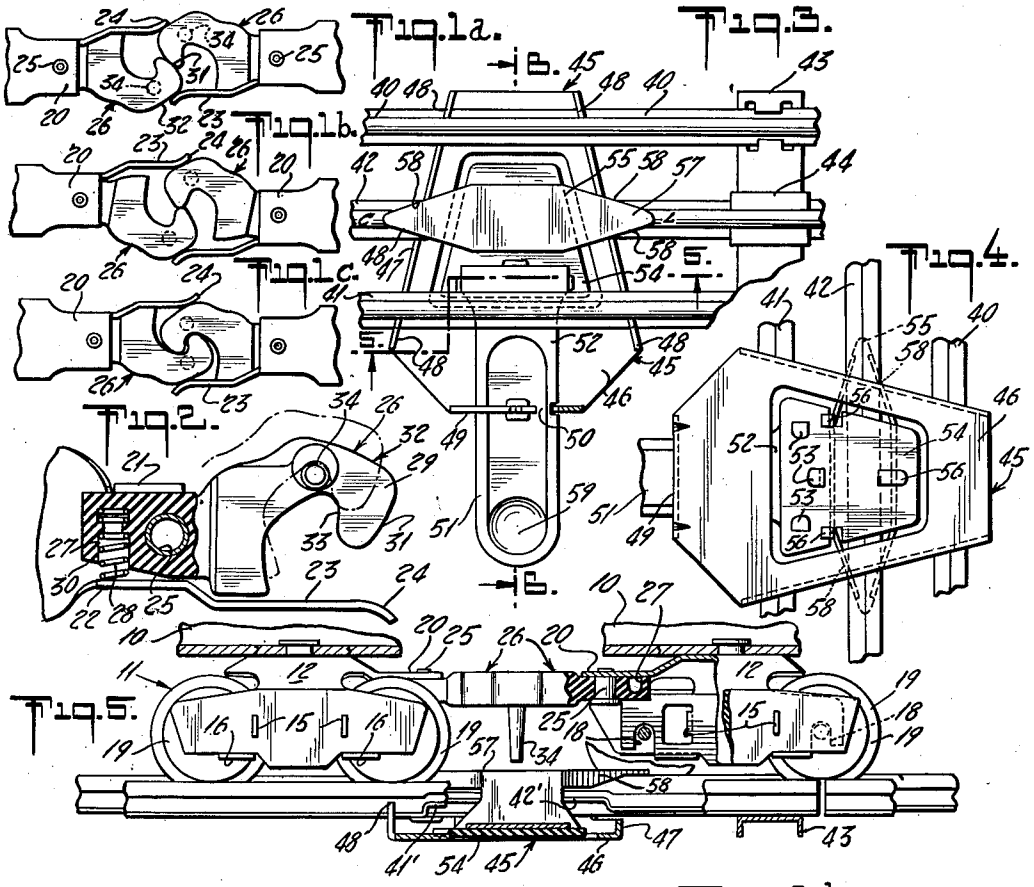
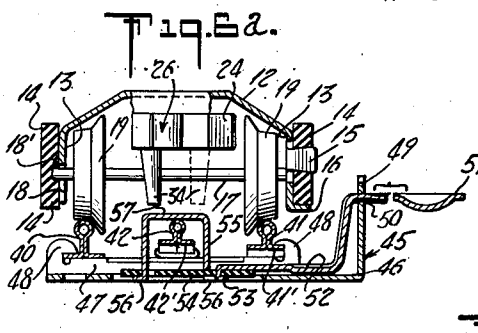
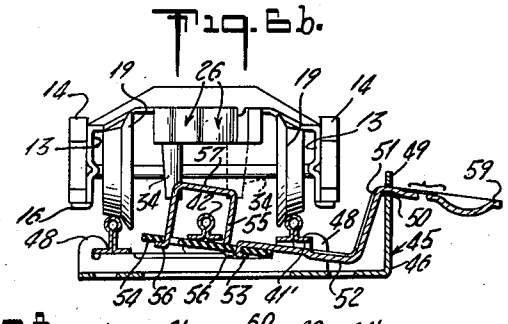
March 17, 1953 J. L. BONANNO 2,631,739

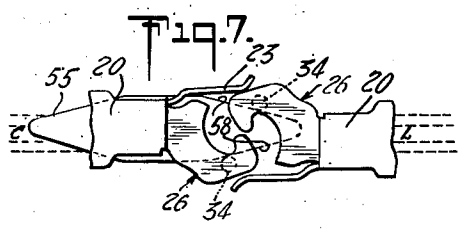
UNCOUPLING MECHANISM FOR TOY RAILROAD CARS

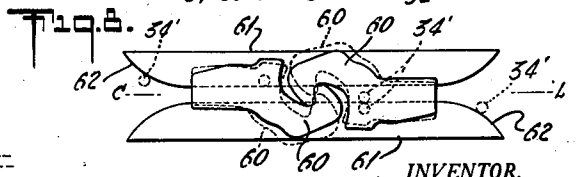
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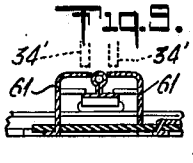












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UNCOUPLING MECHANISM FOR TOY RAILROAD CARS

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2 Claims. (Cl. 213—211)

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The present invention relates to coupling and uncoupling mechanism for toy railroad cars and is more particularly directed toward improvements in automatic couplers for toy cars and track carried manually operable uncoupling mechanism cooperable with the couplers.

The play value of toy electric trains is greatly enhanced by providing the cars and trains with automatic couplers so that the cars may be coupled together by moving one car toward the other along the track in a manner similar to the coupling of railroad cars. The play value is also greatly enhanced by providing some means for uncoupling the cars as they are moved along the track. The present invention is directed toward such cars and uncoupling means wherein the structures are low in cost and characterized by the absence of electric circuits, magnets and the like.

According to the present invention, the car trucks are provided with coupler heads automatically shiftable about vertical axis to effect coupling when the cars approach and these coupler heads are provided with depending elements which reach down nearly to the tracks but do not go below track level so that they do not interfere with moving the toy cars over trackage with third rails, switches and the like. The couplers resemble in appearance and operation the usual couplers on regular railroad equipment.

The present invention also contemplates a track carried unit normally below the level of the depending elements upon the couplers but manually shiftable to bring it up where it can engage the depending elements on the couplers and so shaped that when the couplers move past it, the couplers are disengaged so as to uncouple the cars.

The accompanying drawings show for purposes of illustrating the present invention, two of the many embodiments in which the invention may take form, it being understood that the drawings are illustrative of the invention rather than limiting the same.

In the accompanying drawings:

Figures 1*a*, 1*b* and 1*c*, are fragmentary plan views showing the couplers only, Fig. 1*a* showing them in initial contacting position, Fig. 1*b* showing them in the intermediate position just prior to coupling, and Fig. 1*c* showing them fully coupled;

Figure 2 is an inverted plan view of one of the couplers on a larger scale, showing it in normal position in full lines and in shifted position in dot and dash lines;

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Figure 3 is a top plan view of a piece of three-rail track carrying the uncoupling device;

Figure 4 is an inverted plan view of the track carried uncoupling device in place;

Figure 5 is a side elevational view showing parts of the track carried uncoupling device in section along line 5—5 of Fig. 3 and showing two coupled car trucks, with parts broken away to show interior construction;

Figures 6*a* and 6*b* are transverse sectional views on a line 6—6 of Fig. 3, showing the uncoupler in normal position and in uncoupling position and illustrating the car trucks in section and in elevation, respectively;

Figure 7 is a top plan view showing a pair of couplers just being opened as in Fig. 6*b*;

Figure 8 is a top plan view of a modified form of construction; and

Figure 9 is a fragmentary transverse section of the same.

The car bodies are fragmentarily illustrated at 10, 10 in Fig. 5. Each car body is carried on a car truck designated generally as 11. This truck has a sheet metal body 12 forming a bolster for the car body and having depending sides 13, 13 which carry the ornamental plastic side members 14, 14. These side members are secured in place by stakes 15 extending outwardly from the side walls of the truck body and aligned by flanges 16 extending under the sides.

The truck body carries axles 17 which extend through notches 18 in the sides of the truck body and into recesses 18′ in the plastic sides. The axles carry wheels 19.

Each truck body 12 carries a coupler support 20 midway between the wheels and extending slightly beyond one of the axles. This coupler mounting has depending flanges 21, 22 (Fig. 2), the flange 22 being extended as indicated at 23 and having an oblique guiding tip 24.

A tubular rivet 25 secures a molded coupler head 26 to the coupler mounting. This coupler head has a recess 27 to receive a spring 28 which biases the hook-shaped end 29 of the coupler head toward extension 23. The flange 21 provides a stop to limit such movement of the coupler head against the spring tension. The beveled surface 30 engages the other flange 22 to limit movement in the other direction.

When viewed from above, the coupler heads are biased in counter-clockwise direction by the springs. The coupler heads are provided with beveled surfaces 31 adapted to interengage when coupler heads meet one another as shown in Fig. 1*a*, and beveled surfaces 32 adapted to engage the extensions 24, 24 so as to guide the coupler heads

and limit their lateral movement. The inside surface of a coupler hook is indicated at 33.

When the couplers are moved toward one another in position shown in Fig. 1*a*, the coupler heads are deflected against spring tension until the noses of the coupler heads pass by one another as indicated in Fig. 1*b*, whereupon the springs act to close the coupler so that the cars are coupled together and can be pulled or pushed along the track as desired.

Each coupler head has an integral downward extending pin-like member 34 which is offset from the center line of the truck as will be obvious from the drawings. These depending extensions 34 do not extend below the level of the treads of the wheels 19. They terminate sufficiently above this level so as to clear third rails, switches and the like over which the cars are likely to pass.

The uncoupling device above referred to is carried by the track and is normally inactive. The track, as shown in the drawings, has wheel-bearing rails 40, 41 and a third or power rail 42. The rails are carried by cross-ties 43 and the third rail is insulated at 44. This track is similar to the usual three-rail toy railroad track, except that where the uncoupling device is to be connected, the flanges of the track rail 41 are elevated as indicated at 41' (Figs. 6*a*, 6*b*), and opposite this elevated portion of the track rail 41, the flanges of the third rail 42 are similarly elevated as indicated at 42'.

The uncoupling device of Figures 3 to 7, inclusive, is indicated generally at 45 and has a metal frame 46 with stiffening side flanges 47 and bendable lugs 48 adapted to engage the flanges of the rails 40 and 41 and support the plate from these rails. The plate 46 is out of contact with the insulated third rail. The plate 46 has an upwardly extending bracket arm 49, apertured as indicated at 50 to receive lever 51. The inner end 52 of this lever extends under the rail 41 and is secured by three bent over prongs 53, 53 to an insulating plate 54. This insulating plate extends under the third rail and carries a sheet metal bridging member 55 which passes about the third rail. The bridging member 55 is secured to the insulating plate 54 by three prongs 56. The member 55 has an upper platform-like portion 57 with wedge shaped ends 58.

The member 55 normally rests on top of the third rail as indicated in Figs. 5 and 6*b* and when in this position the contact roller for supplying power to the locomotive passes over the platform 57 without hinderance. When, however, the outer end 59 of the lever 51 is depressed as indicated in Fig. 6*b*, the bridging member 55 is raised up to the position indicated in that figure and this brings the diverging sides 58, 58 of the wedge-shaped ends of the member 55 high enough to intercept the depending elements 34 carried by the couplers, irrespective of which the coupled cars move in passing by the uncoupling device. When member 55 is elevated, the members 34 engage with the uncoupling device so as to shift the coupler heads away from the longitudinal center line CL as indicated in Fig. 7 and uncouple the cars.

In the form shown in Figures 8 and 9, the coupler heads 60 are the same as those above described, except that the depending members 34', 34', corresponding with the depending members 34 above referred to, are shifted so as to be on the opposite side of the center line CL, and they approach it when uncoupling is to be effected. In this construction, the uncoupling device is provided with two members 61, 61 on opposite sides of the third rail, arranged to be normally supported below the bottom of the depending members 34' but capable of being lifted up to be in a position to form converging throats at 62, 62 for the approaching depending members 34', 34' as the train passes by. This effects a shift of the coupler from the full line position to the dotted line position.

It is thus apparent that uncoupling can be effected irrespective of whether the uncoupling members are opened by a device with diverging elements adapted to spread the couplers or by converging devices for the same purpose.

Since it is obvious that the invention may be embodied in other forms and constructions within the scope of the claims, I wish it to be understood that the particular forms shown are but two of these forms, and various modifications and changes being possible, I do not otherwise limit myself in any way with respect thereto.

What is claimed is:

1. For use with three-rail toy railroad track having the usual wheel bearing and power rails, an uncoupling device in the form of a conducting plate normally resting on top of the power rail, a track supported lever insulatingly secured to the conducting plate and operable to raise the plate above the track level, the conducting plate having tapered end portions interconnected by a widened mid portion and being symmetrical with respect to the center line of the track.

2. In combination, a toy railroad track having two wheel bearing rails and an insulated center rail, a bridging member secured to the wheel bearing rails and extending below the center rail, a lever pivoted to the bridging member outside one track rail and extending under that rail, an insulating plate carried by the lever and extending under the center rail and an insulating plate carried sheet metal member normally resting on the power rail but shiftable to a higher elevation in depressing the outer end of the lever, the sheet metal member having a horizontally widened mid portion and converging ends.

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