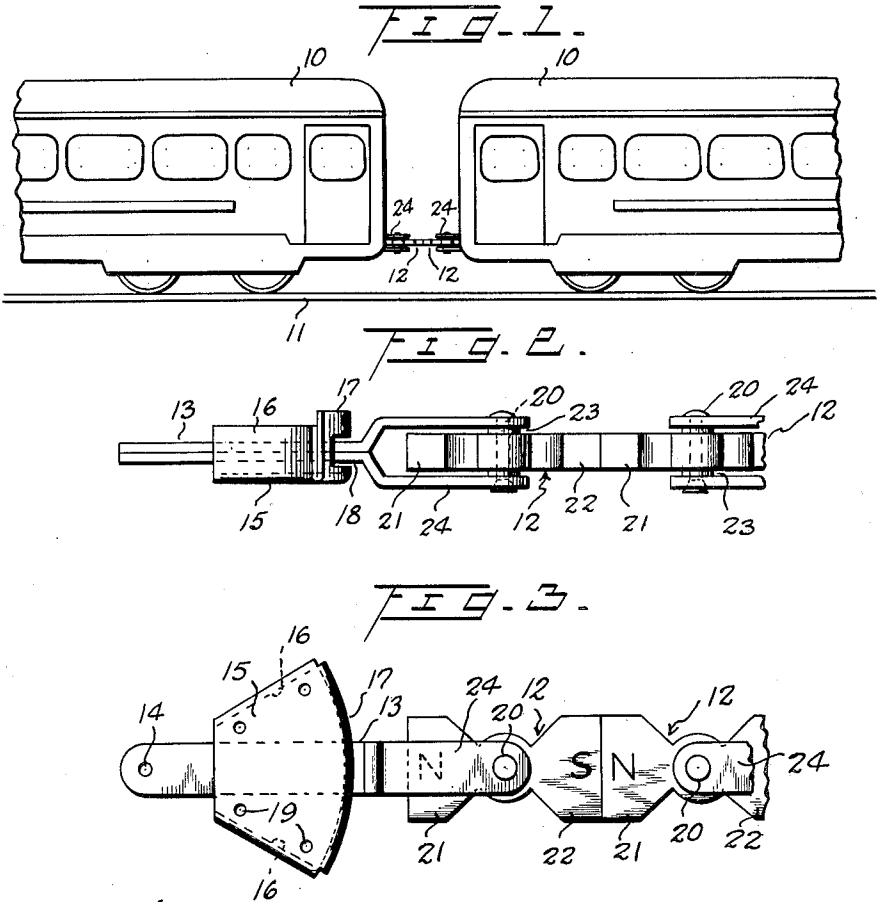


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H. HUBBELL
COUPLING FOR TOY TRAINS

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COUPLING FOR TOY TRAINS

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1 Claim. (Cl. 46—45)

1

This invention relates to couplings for toy trains, and has for an object to provide an improved coupling which will attach the cars by merely bringing two ends of two cars together, and may be as easily separated, but will effectively couple the cars together during normal operation.

Another object is to provide an improved coupling means for toy trains which embody permanent magnets as the main coupling means, and which magnets are so constructed and arranged that they will automatically position themselves when two couplings are brought together, so that unlike poles will be in engagement to secure a proper holding effect.

With the foregoing and other objects in view, I have devised the construction illustrated in the accompanying drawing forming a part of this specification. It is, however, to be understood the device is not limited to the specific details of construction and arrangement shown, but may embody various changes and modifications within the scope of the invention.

In this drawing:

Fig. 1 is a side elevation of the adjacent ends of two toy cars showing my improved coupling means in position;

Fig. 2 is a side elevation on an enlarged scale of one form of coupling removed from the cars but in attached position, part of one coupling being broken away;

Fig. 3 is a plan looking toward the bottom of Fig. 2.

Considerable difficulty is experienced with the usual couplings used on toy cars in that they often become separated in use and it is often difficult for a child to couple and uncouple them. With this present improved construction it is not necessary to lift a car from the track or twist one sideways to couple or uncouple adjacent cars, it being necessary merely to bring the ends of the cars together or pull them apart, thus greatly facilitating these operations. The improved device comprises primarily a pair of permanent magnets mounted one at each of the ends of a car, and so arranged that the magnets will automatically position themselves when the ends of two cars are brought together so that unlike poles will engage to secure the proper attraction and maximum holding effect.

In the drawing, the end portions of two cars of a toy train are shown at 10 running on the usual rails or track 11. In the form of the device shown in Figs. 1, 2 and 3 the coupling mounted on each car comprises a permanent bar magnet 12 mounted on a drawbar 13 forming a support

2

for the magnet arranged to permit lateral movement when the car is negotiating a switch or curve in the track. This drawbar is pivoted to the car at 14 by any suitable pivot pin (not shown) and is embraced by a guard 15 to hold the drawbar in place and to limit the lateral movements. This guard comprises a metal plate having side flanges 16 to provide strength and stiffness and also a curved flange 17 at one edge provided with a slot 18 through which the drawbar 13 extends. The opposite ends of this slot will form stops to limit lateral movements of the bar and insure that when the cars are uncoupled the coupling will be retained near the normal coupling position so as to insure two couplings properly engaging when the ends of two cars are brought together. This guard is mounted on the car by any suitable means, such, for example, as screws or rivets through the openings 19. The magnet 12 is mounted on the bar 13 for free turning movements, the present mounting being shown as a pivot pin 20 passing through the central part of the magnet between the poles 21 and 22, and there may be provided washers 23 to hold the magnet central. In the form shown in Figs. 2 and 3 the bar 13 is forked at its free end 24 to provide a yoke for mounting the magnet. The magnet is mounted for free turning movement so that when the couplings of two adjacent cars are brought to adjacent positions the magnets will swivel around so that unlike poles will be brought into alignment should it happen that like poles were projecting from the drawbar, and thus bring unlike poles together which attract each other and will be brought into alignment and finally be attracted surface to surface, providing a suitable attaching means for joining the two cars while in motion.

The magnets are preferably made of some material highly retentive of magnetism, such for example as the alloy "alnico," and the drawbars are made of nonferrous metal.

In operation, when the two cars fitted with this coupling are brought together, if the two magnets should happen to come together with unlike poles adjacent, they will merely line up and come in contact, and by their mutual attraction couple the cars together. Should, however, the two magnets come together with like poles adjacent, their mutual repulsion will cause one or the other of the two magnets to swivel on its loose pivot mounting so as to bring unlike poles in alignment and together, which attract each other, and produce the attaching or coupling action as previously described. All cars are thus mutually interchange-

3

able and either ends of two cars may be coupled by this coupling. The permitted lateral movement of the free ends of the supports or draw-bars 13 permits lateral movement of the coupling to compensate for relative lateral movement between the cars in negotiating switches or curves in the track. In uncoupling the cars it is merely necessary to pull in opposite directions on the two cars with sufficient force to overcome the attraction of the two magnets.

Having thus set forth the nature of my invention, what I claim is:

In combination with a pair of toy cars, means for coupling the cars comprising two supports, each extending from the end of a separate car and pivotally mounted at one end of said support thereto to permit lateral movement of the free end of said support, and a bar permanent magnet

4

pivotally mounted at a point between its poles to said support at said free end, so as to rotate freely about such pivot, permitting the unlike poles of magnets so mounted on separate cars to assume automatically a mutually attractive position when the cars are placed within coactive distance.

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10

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The following references are of record in the file of this patent:

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