Feb. 3, 1959 G. W. DUNBAR 2,872,051

AUTOMATIC COUPLING AND UNCOUPLING MEANS FOR MINIATURE TRAINS

Filed June 6, 1957 2 Sheets-Sheet 1

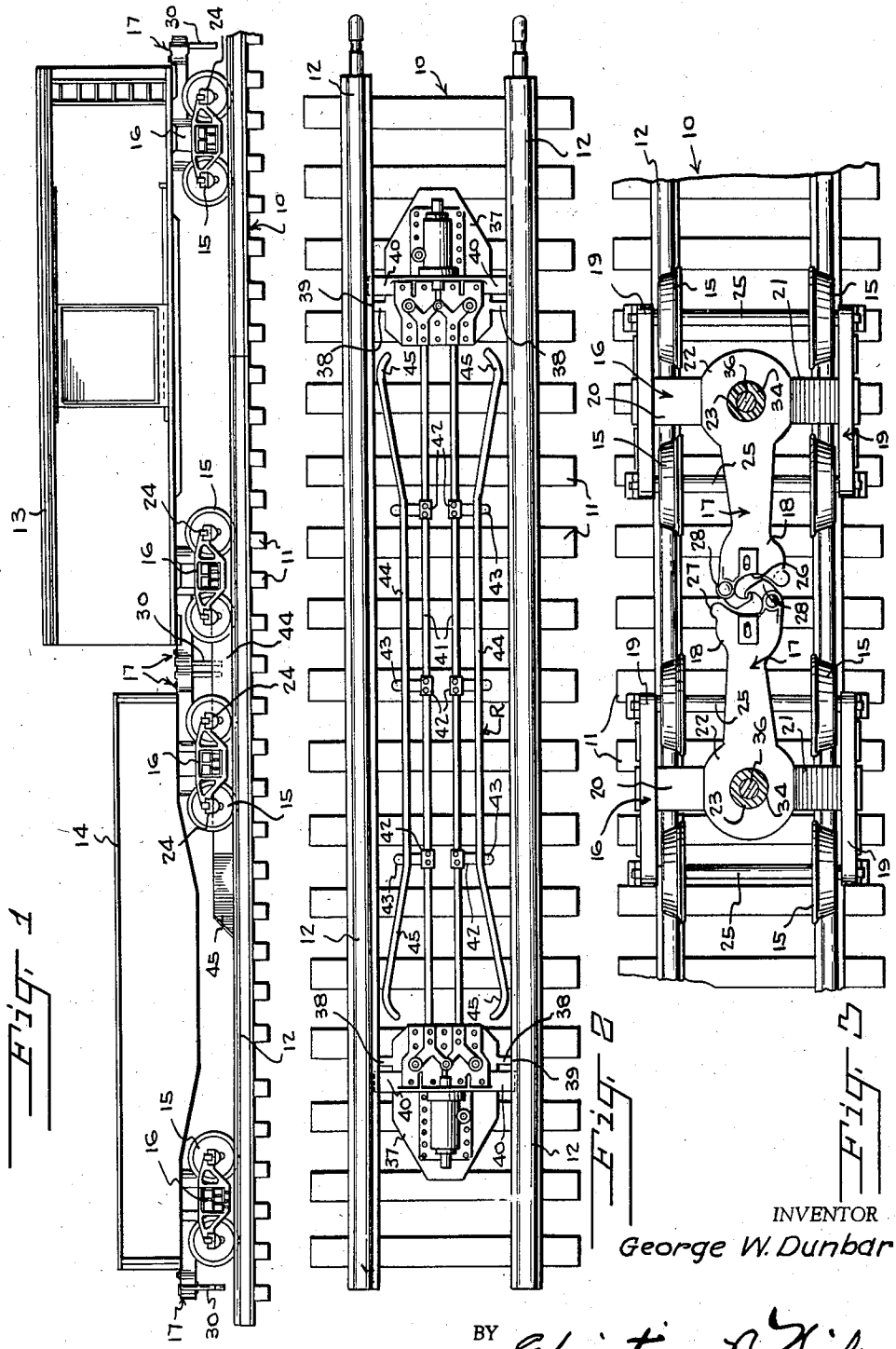


Fig. 1

Fig. 2

Fig. 3

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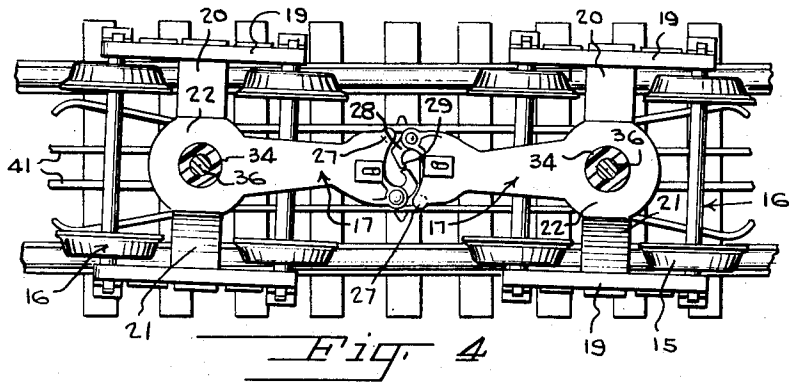


Fig. 4

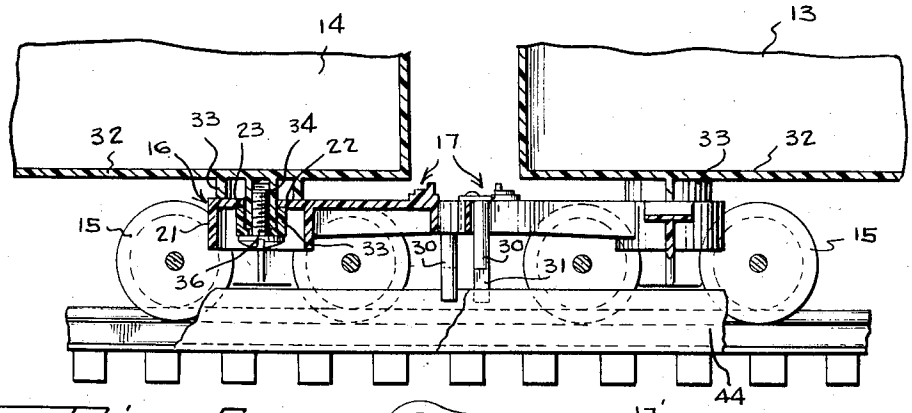


Fig. 5

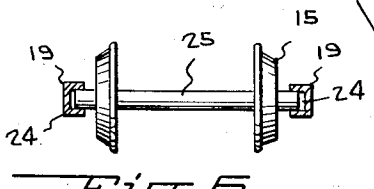


Fig. 6

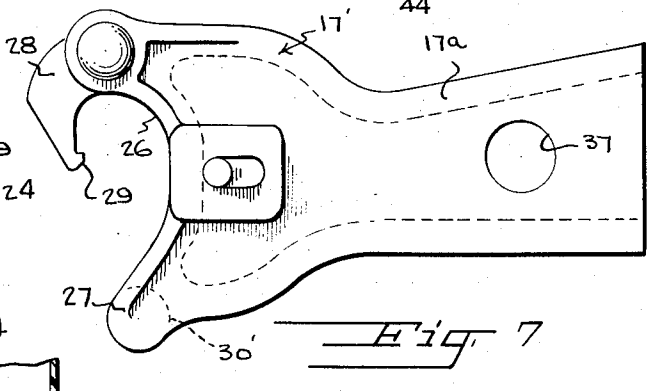


Fig. 7

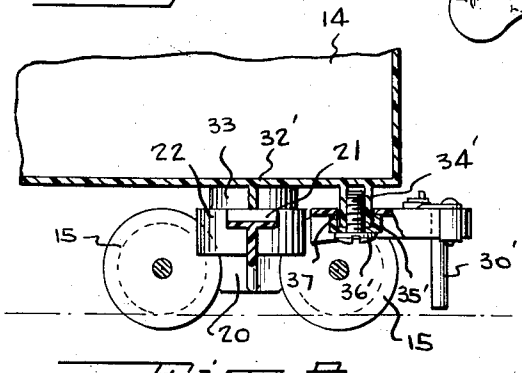


Fig. 8

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AUTOMATIC COUPLING AND UNCOUPLING MEANS FOR MINIATURE TRAINS

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3 Claims. (Cl. 213—75)

This invention relates to coupling and uncoupling devices for use in connection with railway cars of miniature railroads and it consists in the constructions, arrangements and combinations herein described and claimed.

Heretofore, coupling and uncoupling devices have been employed upon cars of miniature railways, closely resembling the well known Janney type coupler, and as well understood in the art, these coupling and uncoupling devices embody movable interlocking knuckles which are actuated through impact one with the other or by means of ramps disposed medially of the trackway.

It is therefore the cardinal object of the invention to provide coupling and uncoupling means for miniature railway cars in which the coupling device per se is devoid of movable knuckles, and in which the trucks of the cars in conjunction with a novel construction of ramp disposed medially of the track impart a lateral movement to the trucks of the cars to effect uncoupling of the cars when moved back into position over the ramp.

More specifically, it is an object of the invention to provide the trucks of miniature railway cars with a rigid coupling device having a draw-head constructed to interlock with a like draw-head when brought into coupling relation, each draw-head having a downwardly extending actuating rod of a length to contact a respective flange of a ramp positioned medially and longitudinally of a trackway to impart lateral movement of the truck either through slight oscillatory movement of the truck or through lateral movement of the wheels and axles of the truck upon the rails of the trackway.

It is also an important object of the invention to provide a coupling and uncoupling device for miniature railways which is of very simple construction, enabling the device to be manufactured at a very low cost embodying no moving interlocking knuckles and therefore of sturdy construction and which is efficient in operation.

Additional objects, advantages and features of invention will be apparent from the following description considered in conjunction with the accompanying drawings, wherein,

Figure 1 is a side elevation of a pair of miniature railway cars in the uncoupling position over the ramp.

Figure 2 is a top plan view of the track illustrating the ramp.

Figure 3 is a top plan view illustrating a pair of trucks wherein the draw-heads are shown in coupled relation prior to entrance upon the uncoupling ramp.

Figure 4 is a view similar to Figure 3, but illustrating the trucks as having been moved to a position above the ramp to uncouple the draw-heads.

Figure 5 is a side elevation, partly in section, illustrating the relation of the actuating rods with respect to the flanges of the ramp, and also illustrating the pivotal mounting of one of the trucks to the body of the car.

Figure 6 is a cross section through a wheel and axle mounting, illustrating the lateral movement of the axle and wheels secured thereto.

Figure 7 is an enlarged plan view of a modified form of draw-head, and

Figure 8 is a fragmentary side elevation illustrating the mounting of the modified form of draw-head to the car body.

Referring more particularly to the drawings, a portion of a miniature railway track is indicated by the reference character 10 which consists of cross ties 11 for support of rails 12. In Figure 1 of the drawings, a pair of cars 13 and 14 are shown supported upon the rails by means of flanged wheels 15 of respective trucks 16.

A coupler 17 of the present invention is associated with each truck 16 at fore and aft ends of the cars, in order that when two cars are brought into end to end relation under force of movement, the cars will be coupled together.

Attention is now invited to Figures 3, 4 and 5 for an understanding of the construction of the trucks 16 and the coupler devices 17, and while these units have been shown as formed from plastic materials, it should be understood this is not a requisite in the production of the units.

The trucks 16 are of identical construction, which is also true of the draw-heads 18, except that the heads are mounted in reversed position in order to effect a coupling and uncoupling relation as clearly shown in Figure 3.

The trucks 16 include a suitable framing consisting of a pair of side bars 19 connected by a cross bar 20, the intermediate portion of which is upwardly offset as at 21 forming a fifth wheel 22 and medially of the fifth wheel an opening 23 is formed for pivotal mounting of the car or truck body, as will be explained.

The coupler bar 17 is integrally formed with the fifth wheel as well as the draw-head 18, the coupler bar being of a length to project beyond the end of the car or truck body and thus present the draw-heads 18 in coupling or uncoupling relation.

The side bars 19 are formed with respective front and rear journals 24 for receiving a shaft 25 therebetween and upon the shafts the flanged wheels 15 are secured for movement along the rails 12. From a consideration of Figure 6, it will be seen that the shafts are rotatable within the journals 24 and these shafts likewise have limited lateral movements within the journals for a purpose to be explained.

The draw-heads 18 are formed with an arcuate shaped recess 26, one end of which terminates in a guide tongue 27, while upon the opposite side a rigid hook member 28 is formed, the latter having a short tooth member 29 directed inwardly of the recesss 26, which tooth effects the locking engagement with a similarly constructed draw-head, as clearly shown in Figure 3.

Each draw-head 18 is formed with a downwardly extending rigid pin 30 positioned upon the draw-head beneath the guide tongue 27, one side of the pin having a longitudinally extending flat face 31, for a purpose presently to be explained.

In order that the trucks 16 may be pivotally mounted to the underside of a car or truck body, the floor 32 thereof is provided with an integral annular collar 33 adjacent the end of the car or truck body, as best seen in Figures 3 and 5, the lower edge of which rests upon the cross bar 20. Centrally of the collar 33 an interiorly threaded boss 34 is integrally formed with the bottom 32, of a length to extend through the opening 23 formed in the fifth wheel 22 a suitable distance for receiving a bearing or bushing 35. A screw 36 engaged in the threaded bore of the boss 34 secures the truck to the body.

In the modified form of the draw-head 17' as shown in Figures 7 and 8, the inter-engaging portions are the same as previously described, but the draw-head is shown

as a separate unit and connected directly to the car or truck body. As best seen in Figure 8, an interiorly threaded boss 34' is integrally formed upon the underside of the floor 32' of the car or truck body. The draw-bar 17*a* of the draw-head is formed with an opening 37 to receive the boss 34' therethrough as well as a bearing or bushing 35', the latter being held against the draw-bar by virtue of a headed screw 36' engaged in the threaded bore of the boss 34'. It will be seen that the draw-head 17' may partake of lateral movements when pins 30' encounter a ramp R disposed between the rails 12 as will presently be described.

Attention is now invited to Figure 2 of the drawings for an understanding of the construction of the ramp, wherein it will be seen that a pair of anchorage members 37 are employed spaced apart any suitable distance and preferably are molded in a manner to represent mechanism for coupling and uncoupling the cars. It will be noted that the anchorage members 37 are mounted between a pair of the ties 11 and in the present instance comprise a flange 38 adapted to contact a vertical side of one of the ties, the end edges of the flange abutting side edges of the bases of the rails 12 as indicated at 39 to thus centralize the anchorage members between the rails and avoid any lateral play. The anchorage members further include laterally extended wings 40 which are flexible enabling the ends of the wings to be sprung beneath the base of the rails 12 for final securement between the rails of the track.

A pair of parallel longitudinally extending flexible strands 41 are suitably mounted between the spaced apart anchorage members 37 and at suitably spaced points upon the strands, brackets 42 are secured, each bracket having a rigid upright pin 43 secured to the outer sides of the longitudinally aligned deflector rails 44; each deflector rail being vertically disposed and spaced apart and of a height to be contacted by respective flat faces 31 of the pins 30 and it will also be noted that the ends of the deflector rails are diverted in an outward direction as at 45 forming a guide means for the pins 30.

In use, a train may pass over the ramp R without any uncoupling of the cars due to the flexibility of the strands 41 and the forward pull upon the coupled draw-heads. However, if the train is backed into position over the ramp and stopped, a sidewise pressure between the deflector rails 44 and pins 30 is inherent and since the trucks of the cars are oscillatably mounted, the draw-heads will be given a minute lateral movement in opposite directions and thus effect the uncoupling action, due to disengagement of the teeth 29. It will also be seen that when a pair of couplers on the cars come together they will be automatically locked together through interlocking engagement between the teeth 29 of respective draw-heads.

While I have shown and described preferred forms of the coupling and uncoupling device for miniature trains, this is by way of illustration only, and I consider as my own all such modifications in construction as fairly fall within the scope of the appended claims.

I claim:

1. Automatic coupling and uncoupling means for miniature trains wherein coupling and uncoupling of the trucks is effected by lateral movement of the trucks in opposite directions comprising in combination with a trackway, cars on the trackway, each car having a pivotally mounted truck at the ends thereof, a draw-head rigid with each truck, each draw-head having interlocking means with the next adjacent draw-head, ramp means medially of the trackway having a pair of laterally spaced upstanding flexible flanges, a downwardly extending pin on each draw-head, the pin of one draw-head having contacting engagement with one of the flanges and the pin of the other draw-head having contacting engagement with the other flange whereby lateral pressure between said flanges and pins will produce a lateral movement of said trucks in opposite directions to effect uncoupling of said draw-heads when said cars are stopped and backed into position above said ramp.

2. Automatic coupling and uncoupling means for miniature trains comprising in combination with a trackway, cars on the trackway, each car having a pivotally mounted truck at the ends thereof, a draw-head rigid with each truck of the cars having an integral fixed interlocking means, said trucks having a lateral movement in opposite directions with respect to the trackway to effect coupling and uncoupling of the trucks, ramp means comprising a pair of upright laterally spaced flanges positioned medially of said trackway, and said draw-heads having a depending pin slidably engaged with a respective flange of the ramp to impart said lateral movements to the trucks to release said interlocking means between coupled draw-heads.

3. Automatic coupling and uncoupling means for miniature trains comprising in combination with a trackway, cars on the trackway, said cars having a truck at the ends thereof, said trucks having lateral movements in opposite directions to effect coupling and uncoupling of the trucks, each truck having wheels mounted upon an axle having limited lateral movements, a draw-head rigid with each truck, each draw-head having integral fixed interlocking means with the next adjacent draw-head, ramp means medially of the trackway having a pair of laterally spaced upstanding flexible flanges, a downwardly extending pin on each draw-head, the pin of one draw-head having contacting engagement with one of the flanges and the pin of the other draw-head having contacting engagement with the other flange whereby lateral pressure between said flanges and pins will produce a lateral movement of said trucks in opposite directions to effect uncoupling of said draw-heads.

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