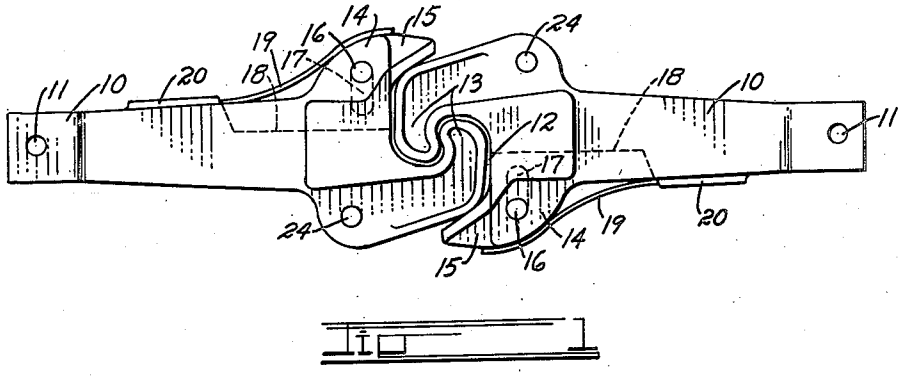
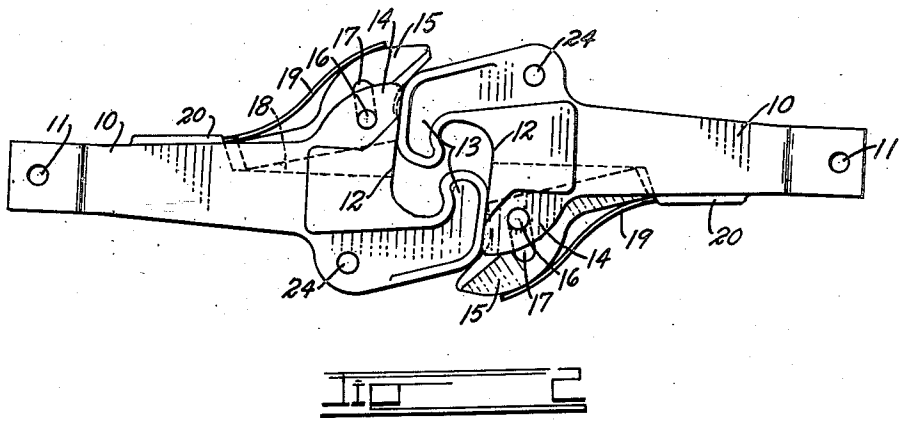
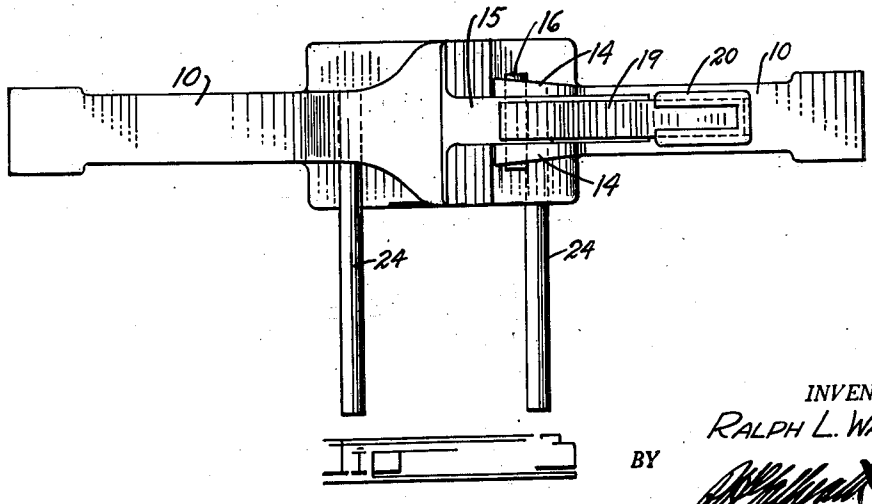
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COUPLER FOR MODEL RAILROADS

Filed March 25, 1949 3 Sheets-Sheet 1







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COUPLER FOR MODEL RAILROADS

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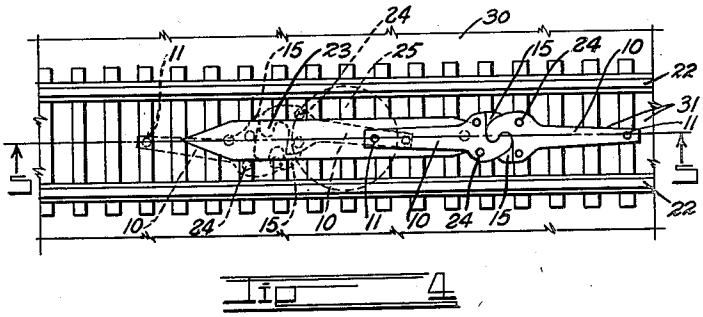


FIG. 4

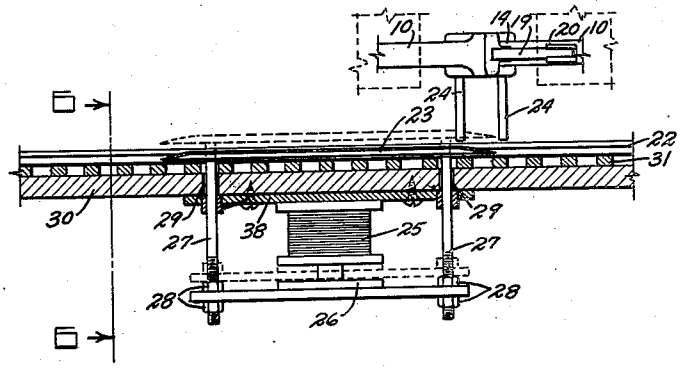


FIG. 5

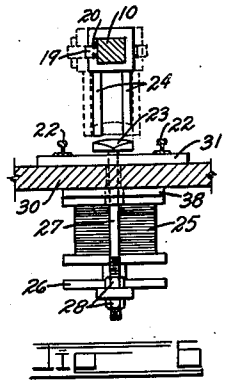


FIG. 6

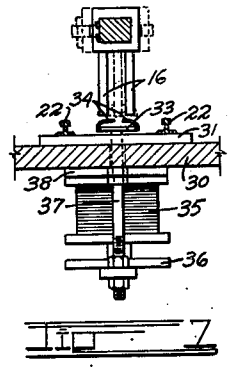


FIG. 7

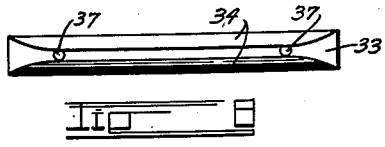


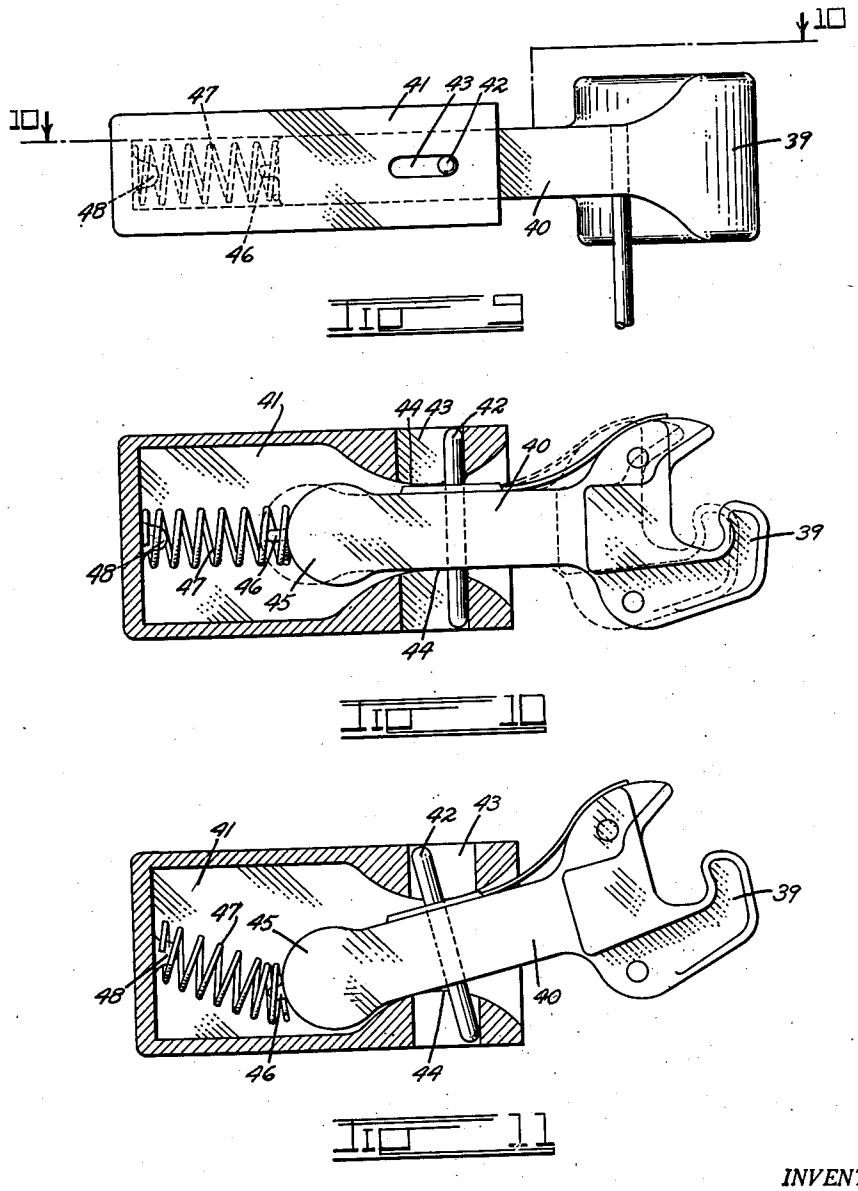
FIG. 8

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2,631,740

COUPLER FOR MODEL RAILROADS

Ralph L. Watson, Denver, Colo.

Application March 25, 1949, Serial No. 83,471

1 Claim. (Cl. 213—212)

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This invention relates to a railroad car coupler, more particularly designed for use on small-scale model railroad cars.

The principal object of the invention is to provide a simple and highly efficient coupler which will automatically engage and which can be disengaged by remote control on model railway systems.

A further object is to provide a coupler which, when two cars are brought into contact, they will automatically couple themselves together, and so constructed that it cannot be damaged by the collisions usually encountered in model railway systems.

A further object is to provide an electrically operated uncoupling device which will cooperate with the improved coupler, and which may be placed at desired points along the railway for remote uncoupling control.

Other objects and advantages reside in the detail construction of the invention, which is designed for simplicity, economy, and efficiency. These will become more apparent from the following description.

In the following detailed description of the invention, reference is had to the accompanying drawing which forms a part hereof. Like numerals refer to like parts in all views of the drawing and throughout the description.

In the drawing:

Fig. 1 is an enlarged, plan view, illustrating two of the improved couplers in the engaged position;

Fig. 2 is a similar view, illustrating the couplers in the disengaging position;

Fig. 3 is a side view of the couplers in the engaged position;

Fig. 4 is a reduced-scale, plan view of a section of track, illustrating an uncoupling device used with the improved coupler;

Fig. 5 is a longitudinal section through the uncoupler of Fig. 4, taken on the line 5—5, Fig. 4;

Fig. 6 is a cross-section through the track of Fig. 4, taken on the line 6—6, Fig. 5;

Fig. 7 is a similar section, illustrating an alternate form of uncoupling device;

Fig. 8 is a plan view of the uncoupling member of the alternate form of uncoupling device;

Fig. 9 is a side view of a self-centering mounting for the improved coupler; and

Figs. 10 and 11 are horizontal sections taken on the line 10—10, Fig. 9.

The improved railway car coupler is provided with a draw bar shank 10 terminating at its car extremity in any of the usual attachment devices for attaching the coupler to the car. As illustrated, the shank 10 is provided with a draw bar pin opening 11, by means of which it may be attached to the car. The shank 10 terminates at its outer extremity in a head 12 extending substantially transversally of the axis of the draw bar 10.

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At one side of the head 12 the coupler extends forwardly, thence inwardly to form a hook-shaped, stationary lip 13 which extends partially over the front surface of the head 12. At the other side the head 12 is bifurcated to form a tongue notch 18 between two hinge ears 14.

A movable lip 15 having an inclined forward face is hingedly and movably mounted between the two ears 14 upon a retaining pin 16. The pin 16 extends through an elongated pin slot 17 in the movable lip 15. The tongue notch 18 extends inwardly and rearwardly from the head 12 into the shank 10, as indicated in broken line in Figs. 1 and 2, to receive the movable lip 15. The inner edge of the lip 15 is flat and lies against a flat bottom in the notch 18 when in the engaged position of Fig. 1. When in the latter position, the pin 16 is in the outer extremity of the pin slot 17.

A leaf spring 19 is mounted on the side of the draw bar 10 in any desired manner. As illustrated, the rearward extremity of the spring 19 is slid into a spring-receiving pocket 20 formed on the shank 10. The forward extremity of the spring 19 presses against the movable lip 15 to constantly urge it to the engaged position of Fig. 1.

Operation

Let us assume that two cars equipped with the improved couplers are brought together. The hooked lips 13 of each coupler will engage and slide upon each other until they strike the inclined faces of the movable lips 15, forcing the latter outwardly until the two lips 13 pass each other, at which time the spring-actuated, movable jaws 15 will force the stationary lips 13 into the hooked engagement of Fig. 1.

To uncouple the cars it is only necessary to swing the two engaged couplers outwardly in opposite directions so that the stationary lips 13 will force the movable lips 15 outwardly, as shown in Fig. 2, sufficiently to allow the two lips 13 to be drawn past each other. As the movable lips 15 are forced outwardly, the slots 21 will travel along the retaining pins 16 to allow outward movement of the jaws until the extreme position of Fig. 2 is reached.

The two engaged couplers may be swung away from each other for uncoupling either manually

or by any desired uncoupling device. An uncoupling device for this purpose is illustrated in Figs. 4, 5, and 6, which operates against uncoupling pins 24, one of which extends downwardly from the head of each coupler at one side of the axis thereof. In Figs. 4, 5, and 6 the rails of a typical model railway track are indicated at 22, the cross ties at 31, and the supporting table at 30. The uncoupling pins terminate slightly above the level of the tops of the rails 22.

The uncoupling device consists of a boat-shaped uncoupling plate or member 23 which is pointed at both extremities and positioned on the center line between the rails 22. When the uncoupling member 23 is elevated, the pins 24 will engage the inclined side edges of the member 23, as indicated in broken line in Fig. 5, so that the two pins 24 will be forced outwardly to the disengaging position of Fig. 2 so as to uncouple the cars.

One method of elevating the member 23 for uncoupling purposes is illustrated in Fig. 5, and consists of a solenoid 25 arranged when energized to magnetically attract an armature bar 26. The solenoid is mounted on a solenoid plate, and the armature bar 26 is supported from the uncoupling member 23 through the medium of two hanger rods 27 and lock nuts 28. The rods 27 pass through the solenoid plate and through holes 29 drilled in the table 30.

Normally the uncoupling member 23 will rest upon the tires 31, supporting the armature bar 26 spaced below the solenoid 25. Should the solenoid be energized, the armature bar 26 will be attracted thereto, to elevate the member 23 to the operation position, as shown in broken line in Fig. 5, where it will contact and separate the uncoupling pins 24 of passing couplers.

The device of Fig. 4 forces the lower extremities of the coupling pins 24 outwardly to disengage the couplers. The same result could be accomplished by eliminating the uncoupling pins 24 and by extending the retaining pins 16 downwardly in their stead to form uncoupling pins, as illustrated in Fig. 7. This places the uncoupling pins on the opposite side of the coupler from the former pins 24. Therefore, the separating or uncoupling action is accomplished by forcing the two lower extremities of the pins 16 toward the coupler axis.

The latter is accomplished by means of an alternate form of uncoupler, as shown in Figs. 7 and 8, in which an uncoupling channel 33 having upwardly and inwardly rolled edges 34 is mounted similarly to the former member 23 so that it may be elevated through the action of a solenoid 35, an armature 36, and a pair of push rods 37. The extremities of the inwardly turned edges 34 are curved or flared outwardly so that they will engage the uncoupling pins 32 of a moving car to force them inwardly to the axial position for uncoupling purposes.

It is essential for automatic coupling purposes that the couplers be maintained in the center position so as to engage each other, as shown in Fig. 1, when two cars are brought together. One means for accomplishing this is shown in Figs. 9, 10, and 11. In this means the coupler, indicated at 39, is formed on the extremity of a draw bar or shank 40, the extremity of which is movably mounted in a coupler box 41. A draft pin 42 extends through the shank 40 at right angles to the axis thereof and through elongated openings 43 in the box 41.

The walls of the box are contoured to form two arcuate guide bosses 44 on the interior which

contact the sides of the shank 40. The extremity of the shank terminates in a rounded head 45, from which a spring-centering point 46 axially extends. A compression spring 47 is positioned over the point 46 and is compressed between the extremity of the shank 40 and the end wall of the box 41. A second spring-centering point 48 holds the spring in axial position in the box 41.

The spring constantly urges the pin 42 against the forward extremities of the slotted opening 43 to maintain the shank on the center line of the box. The shank can be swung to either side when the cars are rounding a curve, as shown in Fig. 11, but will always return to the center position under the influence of the spring 47. The spring also serves as a shock absorber when two cars come together, since the coupler can be forced back to the broken-line position of Fig. 10 against the influence of the spring.

While a specific form of the improvement has been described and illustrated herein, it is to be understood that the same may be varied, within the scope of the appended claim, without departing from the spirit of the invention.

Having thus described the invention, what is claimed and desired secured by Letters Patent is:

Coupling means for model railroads comprising two similar coupling devices adapted to coact with each other to couple two vehicles together, comprising: a draw bar shank; means pivotally securing the rear extremity of said shank to a vehicle; a head formed on the forward extremity of said shank and extending transversally of said shank, said head having greater horizontal width and vertical thickness than said shank; a fixed, hook-shaped jaw extending forwardly from one side of said head, said hook-shaped jaw equaling said head in vertical thickness; two horizontally disposed hinge ears extending from the other side of said head in vertically spaced relation; a movable lip of less vertical thickness than said head positioned between said ears and resting at its rearward extremity against said shank; a pin extending between said ears and through a slotted opening in said movable lip, said slotted opening allowing outward movement of said movable lip with reference to said head; a leaf spring secured against said shank at its rearward extremity and resiliently resting against said movable lip at its forward extremity to urge the forward extremity of said lip inwardly; and an uncoupling pin mounted in, and extending downwardly from, said head to engage an uncoupling device.

RALPH L. WATSON.

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