

June 26, 1951

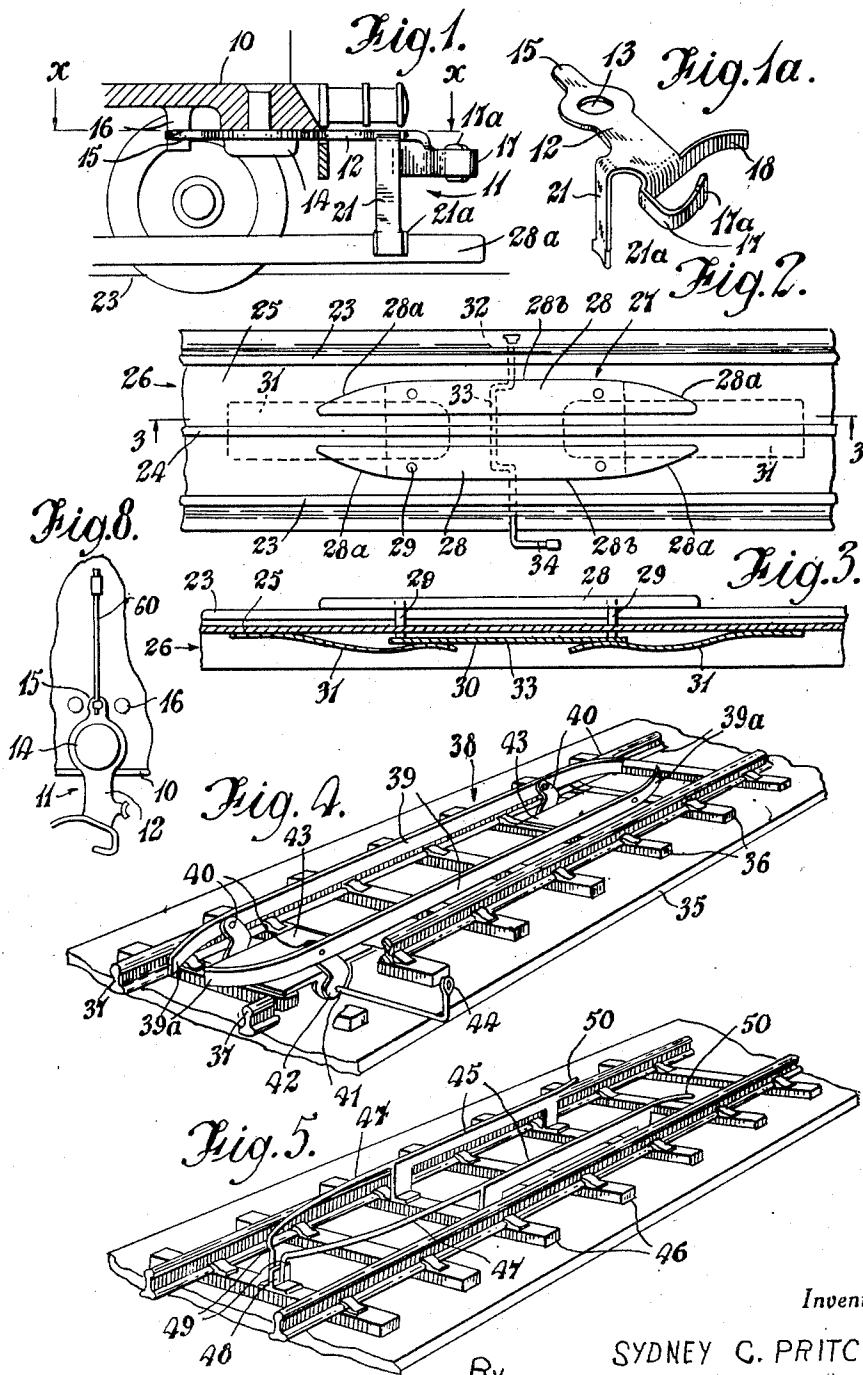
S. C. PRITCHARD

2,558,383

AUTOMATIC COUPLING FOR MODEL RAILWAY ROLLING STOCK

Filed Nov. 27, 1946

2 Sheets-Sheet 1



Inventor

SYDNEY C. PRITCHARD.
Emery Holcombe & Blair
Attorneys

June 26, 1951

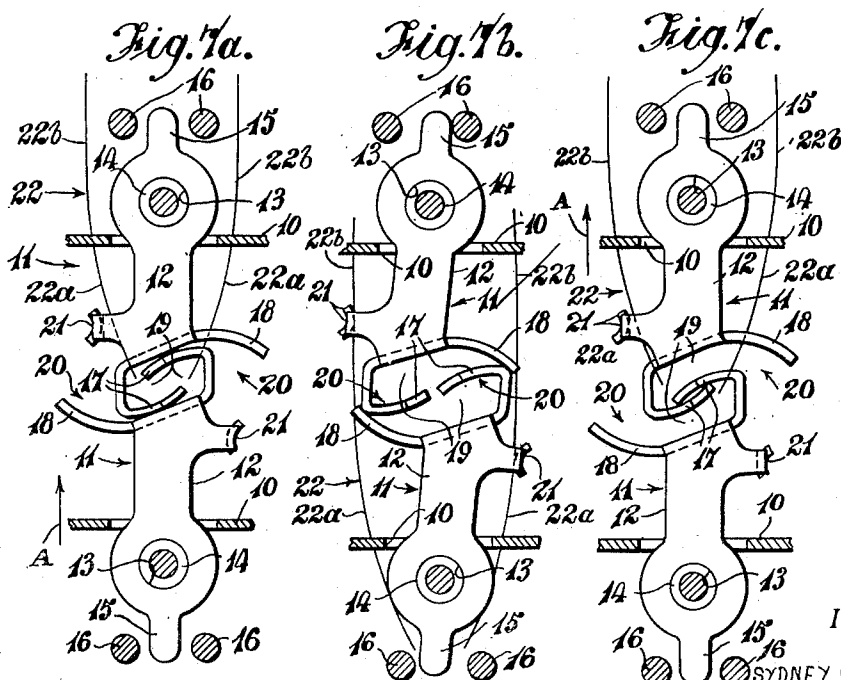
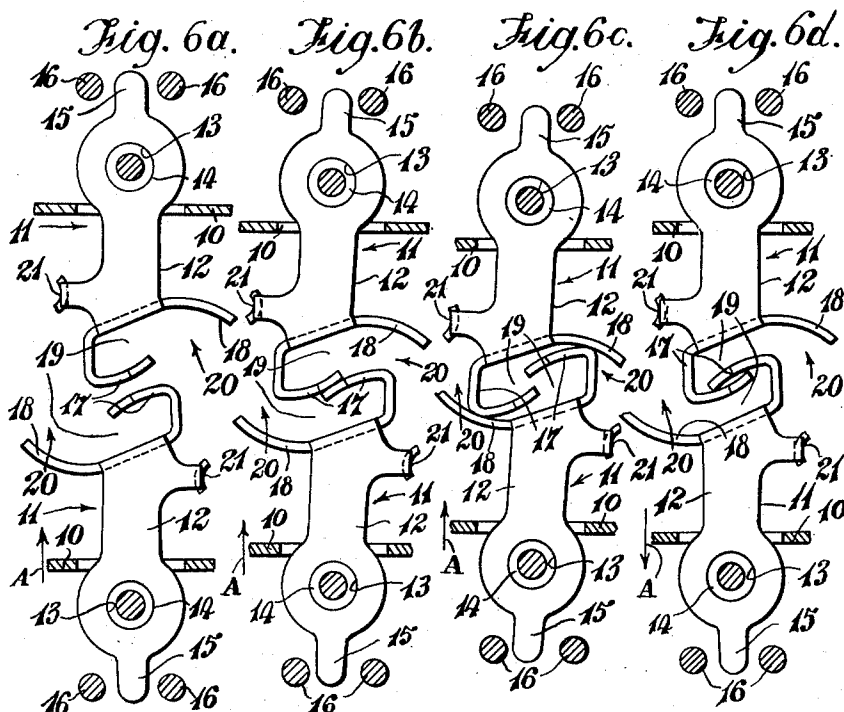
S. C. PRITCHARD

2,558,383

AUTOMATIC COUPLING FOR MODEL RAILWAY ROLLING STOCK

Filed Nov. 27, 1946

2 Sheets-Sheet 2



Inventor

SYDNEY C. PRITCHARD

By Emory Holcombe & Blair
Attorneys

UNITED STATES PATENT OFFICE

2,558,383

AUTOMATIC COUPLING FOR MODEL
RAILWAY ROLLING STOCK

Sydney Charles Pritchard, Seaton, England

Application November 27, 1946, Serial No. 712,594
In Great Britain December 4, 1945

26 Claims. (Cl. 213—211)

1

This invention relates to automatic coupling and uncoupling devices for model railway rolling stock. Several types of automatic coupling and uncoupling devices for model railways are known having parts which cooperate with a ramp on the track for effecting automatic uncoupling. Among the objects of this invention are to provide an improved form of coupling and improved forms of uncoupling ramps. In miniature-scale model railways, the curves on the track are of rather sharp radius so that when rounding curves the couplings are turned considerably out of the aligned position which they assume on straight sections of the track, and it has been found that many existing types of coupling quite often become uncoupled at such places. A further object of the invention is to provide a coupling which obviates this defect. Another object is to provide a coupling which operates satisfactorily when pushing, and precludes any tendency to overriding leading to buffer interlocking. Another object is to provide a coupling which permits a waggon or coach to be readily detached from a train and removed from the track, as may sometimes be desired, without interference with and possible derailment of other parts of the train.

These and other objects are achieved by providing a coupling which is arranged for coupling and uncoupling by sideways movement, i. e., in a plane substantially parallel to the plane of the track, and by providing a track ramp suitable for cooperating with the coupling to automatically accomplish the desired sideways uncoupling movement when required.

In practising the invention, I provide a model railway vehicle with a coupling comprising a rigid supporting arm which is mounted on the vehicle so as to swivel only sideways with respect thereto and which preferably carries a depending uncoupling striker member and is provided at its end with a coupling hook arranged on its side and extending laterally and rearwardly towards an abutment and guide which extends laterally and preferably forwardly from behind the hook in the same lateral direction as the hook.

I also provide in a preferred construction and as a new article of manufacture, a coupling comprising a rigid supporting arm adapted for swivel mounting and provided at one end with a coupling hook arranged on its side and extending laterally and rearwardly towards an abutment and guide member which extends laterally and forwardly from the arm from behind the hook in the same lateral direction as the hook, the arm having a striker member depending therefrom

2

which is laterally offset from the arm and hook in the direction opposite to that in which the hook extends. In the preferred form, such coupling is stamped and pressed in one piece.

For effecting automatic uncoupling I also provide a track ramp which in the generally preferred forms is arranged in the track so as to come between the strikers of interengaging couplings for urging the strikers and thereby the couplings laterally apart, and is constructed with laterally inclined sides or ends which are adapted to engage and force the strikers apart.

Although I have shown in the accompanying drawings and described in this specification some preferred embodiments of my invention and suggested certain modifications and alternatives, it should be understood that these are not intended to be exhaustive or limiting of my invention but on the contrary are given with a view to explaining the principles of the invention and instructing others in the best manner of constructing and using the same in order that others skilled in the art may be enabled to utilise the invention in various embodiments and with various modifications each as may be best adapted to the conditions of a particular use.

In the drawings,

Fig. 1 is a fragmentary elevation showing the preferred form of coupling mounted on an end of a model railway vehicle, Fig. 1a showing the coupling in perspective.

Figs. 2 and 3 are respectively a fragmentary plan and sectional elevation showing one preferred form of track ramp suitable for use in conjunction with the preferred coupling according to the invention.

Figs. 4 and 5 are fragmentary perspective views of portions of track showing further forms of ramp.

Figs. 6a, 6b, 6c and 6d are diagrammatic plan views taken on the plane X—X of Fig. 1 showing diagrammatically a sequence of positions assumed by two opposed couplings in effecting the coupling process,

Figs. 7a, 7b and 7c are diagrammatic plan views taken on the plane X—X of Fig. 1 illustrating diagrammatically the process of automatic uncoupling.

Fig. 8 is a fragmentary underneath plan of the coupling on a vehicle, showing an optional centralizing spring.

Figure 1 depicts an end of a vehicle fitted with the improved coupling 41, which is shown in perspective in Fig. 1a and the plan view of which may be seen by reference, for example, to Fig. 6a.

The coupling 11 comprises a supporting arm 12 provided with an aperture 13 at one end by which the arm is mounted by a rivet pin 14 on the base of the vehicle 10 so as to swivel only sideways. That is to say, the arm 12 is restrained from executing any up-and-down movement other than the slight amount that may be afforded by the working tolerances necessary to permit its free sideways movement. At that end, the arm 12 has a portion 15 projecting between a pair of fixed stops 16 on the vehicle base for limiting the swivel of the arm. If desired, although not essential to the working of the coupling as will later be explained, a light spring 60, shown in Fig. 8; may be provided acting on the arm 12 to locate it yieldably in a normal central position. At its other end the arm 12 is provided with a coupling hook 17 arranged on its side and curved so as to extend laterally and rearwardly (as best seen in the plan view) towards an abutment and guide 13 which is curved to extend laterally and forwardly from the arm 12 from behind the hook 17 in the same general lateral direction as the hook, so that the hook 17 and abutment guide 18 between them define a space 19 having a lateral entry opening 20 through which the hook of a similar coupling can enter into that space. The arm 12 also has a depending striker member 21 which is disposed near the hook end of the arm as shown and is laterally offset with respect to the axis of the arm and to the hook 17 in the opposite lateral direction to that in which the hook 17 and guide abutment 18 extend. The striker 21 is provided for the purpose of effecting automatic uncoupling in conjunction with a track ramp 22, as will later be explained.

As will now be seen from Fig. 6a, with such a coupling fitted at each end of a coach, wagon or other model railway vehicle, the two couplings 11 at adjacent ends of two vehicles to be coupled will have their coupling hooks 17 and abutment guides 18 facing in opposite lateral directions, the two hooks thus being in position for effecting the coupling operation automatically as one vehicle is shunted back onto the other to push one coupling longitudinally against the other. As the two couplings are thus brought together (Fig. 6b), their two hooks 17 butt against and push each other aside until their tips override, and each passes through the opening 20 into the space 19 of the other coupling. While the two hooks are thus moving laterally outwards in opposite directions, their abutment guides 18 are in consequence moving laterally inwards towards each other, so that after the hook tips override, each hook is engaged and guided inwardly by the abutment guide of the other coupling (Fig. 6c) with the result that the couplings reverse their turning movements to bring each hook behind the other, and so into the coupling position. This position is represented in Fig. 7a since the hooks assume it not only in the process of uncoupling (to which Fig. 7a particularly refers), but also in the process of coupling. The two hooks will thus interengage and the couplings be coupled, when the engine is pulling (Fig. 6d). When the engine is pushing, the couplings assume the position shown in Fig. 7a in which each coupling hook is displaced longitudinally to the rear of the space 19 of the other coupling so that the hook 17 of one coupling and the abutment guide 18 of the other coupling bear against each other to transmit the tractive push.

Each coupling hook 17 is made sufficiently long in the lateral direction to maintain the hooks

of coupled couplings in interengagement when pulling around curves which tend to separate them sideways. The abutment guide 18 of each coupling is so inclined and forwardly directed and laterally extended as to maintain engagement with the hook of a cooperating coupling when pushing around curves which tend to separate them sideways.

The improved coupling may readily be made in one piece from metal sheet or strip by appropriate stamping and pressing operations, to produce a device which is compact and neat in appearance, is a complete unit and can be readily fitted to a vehicle without soldering. The coupling is of universal application to rolling stock, is adapted to couple waggons and coaches at either end thereof regardless of their orientation on the track, is suitable for slip-coach working and for "two rail" electrification systems as well as "third rail" systems, and produces a realistic clanking noise on starting a train equipped therewith. The improved coupling will not uncouple when not desired, such as when rounding curves, and it functions equally satisfactorily when pushing as when pulling. As it cannot override when pushing, owing to the provision of the abutment guide 18, buffer interlocking is prevented. Also, since the coupling operation is effected by a sideways movement of the coupling hook, it will be appreciated that there is no constraint of the hook in the vertical direction (i. e. perpendicular to the plane of the track) and, therefore, a coach or wagon can, if so desired, be lifted straight off the track without in any way disturbing the remainder of the train and without the necessity for preliminarily manipulating the vehicle on the track.

To uncouple vehicles on the track, interengaging couplings may be swivelled sideways in opposite directions to disengage their hooks clear of each other. For effecting such uncoupling automatically, I have provided the improved coupling with the striker 21 which is adapted to be engaged by a suitable track ramp 22 arranged for urging the striker sideways in the opposite lateral direction to that in which the hook and abutment of the coupling extend, whereby to cause the coupling to execute an uncoupling movement. With this arrangement it will be apparent that to uncouple two interengaging couplings, the ramp is required to engage the two strikers of the couplings and urge them sideways in opposite directions to cause their couplings to disengage.

It will be seen by reference to the diagrams of Figs. 7a-c that the ramp 22 has a leading end portion providing laterally curved sides 22a which diverge and lead to a portion with straight sides 22b, the ramp being arranged to come between the strikers 21 of two coupled couplings 11 as the vehicles 10 carrying them are moved along the track towards the leading end of the ramp. When the strikers meet the ramp, the divergent sides 22a thereof urge the strikers outwards to push the two couplings apart sideways and so uncouple them, the strikers being held out in the uncoupling position by the straight sides 22b of the ramp. Fig. 7a in conjunction with Fig. 7b illustrate the process of uncoupling by shunting on to the ramp. With the engine pushing, the couplings assume the position shown in Fig. 7a as they approach the ramp, and upon engagement of the strikers by the ramp the couplings are urged apart so as to assume and be held by the ramp portions 22b in the position shown in

Fig. 7b, where the two coupling hooks 17 are laterally clear of each other and the couplings thus uncoupled. The engine may be stopped and reversed to leave the uncoupled vehicle or vehicles on the ramp, or the uncoupling may be effected at a reasonable travelling speed, and the engine then being stopped, so as to utilise the momentum of the uncoupled vehicles to carry them onwards from the ramp. Slip-coach working may also be performed, and in that case the engine is pulling over the ramp and the couplings assume the position shown in Fig. 7c as they approach the ramp. Notwithstanding that the coupling hooks 17 are interengaging, the action of the ramp on the strikers pushes the coupling hooks apart into the position shown in Fig. 7b, so as to slip the uncoupled following vehicle or vehicles. In view of the curvature of the coupling hooks, it will be apparent that in this mode of uncoupling the following vehicle or vehicles will be momentarily accelerated just prior to uncoupling, by the camming action of the hook of the pulling coupling on the other hook as the hooks are drawn apart.

In the diagrams of Figs. 6a—d, Figs. 7a and 7c the arrows A indicate the direction of travel of the engine.

The ramp may be constructed in various forms, and in Figs. 2 to 5 I have shown some preferred forms suited to different types of track. With known types of track utilising a centre conductor rail for current collection by the electric locomotive, the centre rail is usually arranged level with the top of the running rails, and electric locomotives used for this kind of track generally have rather wide current collectors, and some constructions of locomotive have low-lying portions of the electric mechanism projecting between the locomotive wheels to a very low level providing only a very small clearance (in some cases less than $\frac{1}{8}$ "') from the top of the centre rail. Under such conditions and in view of the very restricted amount of available space for accommodating an uncoupling ramp, which condition is especially accentuated in the case of 00 gauge or 16 mm. gauge track having a centre rail, important considerations in providing a ramp in such a track are that the ramp shall be operable without interfering with the collection of current by the locomotive and without the locomotive collectors and low-lying parts fouling the ramp and causing short-circuits and possible derailment.

With the foregoing considerations in view, I have devised a ramp which is resiliently supported so as to float in a raised operative position from which the ramp can be depressed to an inoperative position against the action of its resilient supporting means. Such a floating ramp is advantageous for use with centre-conductor track and under conditions such as above mentioned. The ramp may be made of an insulating material such as a plastic, and when arranged on such a track it will not cause short circuits with the locomotive collectors when coming into contact with them. Also, owing to its resilient mounting, the ramp can yield when a locomotive collector or a projecting part of the locomotive mechanism comes into contact with and passes over it. For such track, the ramp is constructed with its striker-engaging portions for effecting automatic uncoupling arranged longitudinally at each side of the centre conductor rail. The resilient loading of the ramp is made less than that of the usual sprung locomotive collectors so

that the latter upon coming in contact with the ramp can depress it at least level with the surface of the conductor rail so as to ensure continuity of contact with that rail by the collector as well as avoiding derailment due to fouling.

One form of such a floating ramp is illustrated in Figs. 2 and 3 as applied to a type of 00 gauge track having the running rails 23 and centre conductor rail 24 mounted on the top surface 25 of an open-bottomed hollow track bed 26 which may, for example, be made of pressed tinplate and may be suitably printed or embossed with representations of track sleepers and ballast. The ramp 27 depicted is made of a plastic or other suitable insulating material and comprises a pair of members 28 arranged above the top 25 of the track bed 26 along each side of and spaced from the centre rail 24, the outer sides of the ramp members 28 being adapted for engaging the strikers of couplings in the manner earlier described, and accordingly being shaped with laterally curved end portions 28a leading to straight portions 28b. The ramp members 28 are mounted on pins 29 which pass through holes in the top 25 of the track bed 26 and are secured on a baseplate 30 which is housed within the hollow bed and is supported at each end on springs such as leaf springs 31, the latter being also housed within the hollow bed 26 and being secured conveniently to the underside of the bed top 25. The springs 31 normally urge the ramp 27 upwards into operative position where the ramp members 28 lie above the level of the tops of the rails 23, 24, as seen in Fig. 3. The ramp is thus resiliently supported at a plurality of points so as to be capable of depression with a non-parallel movement. In other words, either end of the ramp can be depressed while leaving the other end raised. The resilient loading of the ramp imparted by its springs 31 is made less than the spring loading of the conventional type of sprung locomotive collector so that the latter, upon coming into contact with the ramp members 28 can depress the ramp at least level with the surface of the centre conductor rail 24 so as to ensure continuity of contact with that rail by the collector as well as avoiding derailment due to fouling, as the locomotive passes over the ramp. By supporting the ramp at a plurality of points, only the end of the ramp which may be making contact with the collector or projecting part of the locomotive mechanism is depressed as the locomotive passes thereover, while the other end of the ramp remains in sufficiently raised position to be operative for uncoupling the vehicle next to the locomotive.

A suitable device is provided for depressing the ramp bodily and holding it down when it is not required to be in use, such device being adapted for releasing the ramp and allowing it to rise into operative position when required. As such device there is shown, for example, a rotatable spindle 32 transversely mounted within the hollow bed and having a cranked portion 33 acting as a cam which is arranged to bear against the baseplate 30 of the ramp. The spindle may have an end extending through the side wall of the track bed 26 and bent to form a trackside operating lever 34 by which the spindle may be rotated to control the setting of the ramp. Of course, if desired the control device may be operated from a suitable remote control device (not shown).

The ramp 27 is shown as having inclined leading portions 28a at both ends thereof so that the ramp is suitable for two-way working, enabling

automatic uncoupling to be effected in either direction of travel along the track.

A floating ramp of the character described, although especially suitable for the type of track referred to, is also suitable for use with other kinds and gauges of track, whether working on the "two-rail" system of electrification or the "third-rail" system using either a centre or an outside third (conductor) rail. Such a floating ramp is, in general, especially advantageous for use with locomotives having low-lying parts of mechanism.

In Fig. 4 is illustrated another form of movable ramp which is especially advantageous for scale-model track built up on a baseboard 35 with sleepers 36 and rails 37. The depicted embodiment is illustrated, by way of example, as applied to track working on the "two-rail" electrification system in which current for the electric locomotive is collected from one running rail and returned through the other. The figure also shows the ramp raised into operative position above rail level.

In this embodiment the ramp 38 comprises a pair of rail or like members 39 which are disposed one along each side of the track between the running rails 37, the ends of the ramp rails being curved inwardly to provide the required lead-in portions 39a for effecting the uncoupling process as previously described. As shown, the ramp rails are curved at both ends, thus making the ramp suitable for two-way working. The ramp is raised and lowered by a parallel-motion linkage, and in the arrangement shown each ramp rail 39 is pin-jointed at conveniently longitudinally spaced points to links 40 which are respectively fixed on a pair of parallel spindles 41 rotatably mounted in bearings 42 carried by a pair of plates 43 adapted for fixture to the track bed or sleepers 36 to support the ramp in position on the track. Either of these spindles 41 may be turned for raising and lowering the ramp bodily with a parallel action, and for such actuation either spindle may be coupled or provided with any suitable actuating device or mechanism, such as an electric or mechanical remote control device (not shown), or a trackside lever 44 formed as a bent extension of the spindle and operating at track level as shown or from underneath the baseboard 35.

Such a ramp, constructed with rails or like members arranged at the sides of the track, resembles check rails in appearance, so that the ramp is in a neat and unobtrusive form which does not appear incongruous with normal track formation. Such a ramp, as well as avoiding the ugly appearance of a solid ramp in the track, also avoids fouling gears or other low-lying parts of the electric locomotive mechanism. The described ramp is suitable not only for "two-rail" electrification systems, but also for "third-rail" systems using an outside third (conductor) rail. For the latter systems, the ramp is fitted lower than the standard height for the third rail so as not to foul the collector bars on the electric locomotive.

Fig. 5 illustrates a modified arrangement for scale-model track. In this embodiment, a ramp is provided which remains in a fixed position on the track. A pair of rigid straight ramp rails or like members 45 are fixed to the track sleepers 46, at the sides of the track between the running rails, and at one end the ramp rails 45 are provided with incurved resilient lead-in members such as spring blades or wires 47 which diverge

laterally towards the rigid ramp rails 45. Between the resilient members 47, one or more fixed abutments serving as stops therefor are provided. For example, there is shown a single stop plate 48 fixed on a sleeper and placed between the extremities 49 of the two resilient members 47 so as to serve as a stop for both. With such a ramp, as the strikers of two interengaging couplings approaching the ramp respectively engage the resilient lead-in members 47, the latter are prevented by their stop 48 from yielding and hence deflect the strikers sideways to effect uncoupling, the strikers being held out in the uncoupling position by the rigid ramp members 45. At their other end, the ramp members 45 are left "open" so that the strikers of couplings approaching the ramp from that end can pass unimpeded between the ramp members 45, and as the strikers reach the "closed" end of the ramp formed by the resilient members 47, the latter can yield to the strikers and be deflected away from their stop 48 to enable the strikers to pass out of the ramp, the resilient members subsequently recoiling into their normal position. At the "open" end of the ramp, the ramp members 45 may be provided with curved or inclined portions converging towards the ramp members to provide a positive lead-in for the strikers when approaching the ramp from that end. These convergent lead-in portions may also be constituted by spring elements 50 which can be deflected by the strikers (with subsequent recoiling), so as not to foul a striker when it is moved off the "open" end of the ramp after uncoupling. Such a ramp functions entirely automatically and without control, for effecting uncoupling in one direction of travel of the strikers along the track while allowing them to pass in the opposite direction without being actuated. Instead of members 47 being resilient they may be rigid and hinged to members 45 to swivel under suitable control between an intumed uncoupling position and an out-turned inoperative position.

The invention is susceptible of other modifications and embodiments. For example, the coupling may be made as a unit ready for fixing to a vehicle without requiring assembly of parts. Such unit may comprise a bracket for fixing, e. g., by clips or rivets, to a vehicle and having the coupling swivelly mounted on it, and embodying the limit stops for the arm, formed, e. g., by a pair of spaced ears on the bracket, between which the arm can swivel.

Hook 17 and guide 18 are preferably made sufficiently deep vertically, tip 17a being preferably also enlarged in depth, to provide sufficiently deep coupling surfaces to compensate for slight differences or variations between the heights of the couplings, as may occur, for instance, due to slight differences in mounting levels of the couplings on their vehicles or to variations in track level.

I claim:

1. Coupling and uncoupling mechanism for miniature railroad vehicles, comprising, in combination, couplings carried by the ends of the vehicles, each of said couplings comprising a rigid supporting arm which is mounted on the vehicle so as to swivel only sideways with respect thereto and which is provided at its forward end with a coupling hook which is arranged on its side with its free end extending laterally and rearwardly towards an abutment guide which is disposed behind the hook and extends laterally from the arm in the same lateral direction as the

hook so that the hook and abutment guide define between them a space having an opening for receiving the oppositely laterally directed hook of an opposed similar coupling to permit automatic interengagement of the two hooks when the two couplings are brought together, stops on said vehicles and cooperating with said couplers to limit the extent of pivotal movement of said couplers, each coupling further comprising an uncoupling striker member depending from said arm and terminating at its lower end close to but slightly above the level of the tops of the running rails of the miniature railroad track, and an uncoupling ramp on said track, said ramp having laterally inclined ends and adapted for disposition slightly above the level of the tops of said rails so as to engage by its said ends laterally with the lower ends of the uncoupling striker members of a pair of interengaging couplings and urge their coupling hooks laterally apart to an uncoupling position as the strikers are moved along the ramp.

2. Coupling and uncoupling mechanism as defined in claim 1, wherein the striker of each coupling is arranged so that the strikers of a pair of interengaging couplings are laterally spaced, and wherein the ramp is arranged in the track so as to be positioned between such strikers for engaging and urging them laterally apart to disengage their coupling hooks.

3. Coupling and uncoupling mechanism for miniature railroad vehicles, comprising, in combination, couplings carried by the ends of the vehicles, each of said couplings comprising a rigid supporting arm which is mounted on the vehicle so as to swivel only sideways with respect thereto and which is provided at its forward end with a coupling hook which is arranged on its side with its free end extending laterally and rearwardly towards an abutment guide which is disposed behind the hook and extends laterally from the arm in the same lateral direction as the hook so that the hook and abutment guide define between them a space having an opening for receiving the oppositely laterally directed hook of an opposed similar coupling to permit automatic interengagement of the two hooks when the two couplings are brought together, stops on said vehicles and cooperating with said couplers to limit the extent of pivotal movement of said couplers, each coupling further comprising an uncoupling striker member depending from said arm and terminating at its lower end close to but slightly above the level of the tops of the running rails of the miniature railroad track, and an uncoupling ramp on said track, said ramp having laterally inclined ends and adapted for disposition slightly above the level of the tops of said rails so as to engage by its said ends laterally with the lower ends of the uncoupling striker members of a pair of interengaging couplings and urge their coupling hooks laterally apart to an uncoupling position as the strikers are moved along the ramp, resilient means supporting said ramp and urging said ramp into a raised position in which the ramp is disposed slightly above the level of the tops of said rails in which it is operative for effecting uncoupling, said resilient means permitting the ramp to be yieldable to downward pressure thereon, and means for depressing and holding the ramp in an inoperative position against the action of its said resilient supporting means.

4. Coupling and uncoupling mechanism as defined in claim 1, wherein the hook and abutment

guide of each coupling have coupling surfaces of sufficient depth to compensate for slight differences in the levels of inter-engaging couplings on adjacent vehicles.

5. A miniature railroad vehicle having a coupling comprising a rigid supporting arm which is mounted on the vehicle so as to swivel only sideways with respect thereto and which is provided at its forward end with a coupling hook which is arranged on its side with its free end extending laterally and rearwardly towards an abutment guide which is disposed behind the hook and extends laterally from the arm in the same lateral direction as the hook so that the hook and abutment guide define between them a space having an opening for receiving the hook of an opposed similar coupling, a pair of stops disposed on opposite sides of the arm to limit the swivelling movement thereof, the arm also having an uncoupling striker member depending from the arm and terminating at its lower end close to but slightly above the level of the lowermost points of the vehicle wheel treads, said striker member being adapted for lateral engagement at its lower end by a track ramp for effecting a sideways uncoupling movement of the coupling.

6. A miniature railroad vehicle as defined in claim 5, wherein the abutment guide of the coupling extends for such a distance laterally beyond the free end of the coupling hook, and the arm swivels between a pair of stops which so limit the swivel of the arm, that at extreme swivel positions of a pair of opposed couplings in which their hooks are at extreme lateral separation, the abutment guide of each of such couplings is in position to engage and guide laterally inwardly the hook of the other coupling when the two couplings are brought together.

7. A miniature railroad vehicle having a coupling comprising a rigid supporting arm which is mounted on the vehicle so as to swivel only sideways with respect thereto and which is provided at its forward end with a coupling hook which is arranged on its side with its free end extending laterally and rearwardly towards an abutment guide which is disposed behind the hook and extends laterally from the arm in the same lateral direction as the hook so that the hook and abutment guide define between them a space having an opening for receiving the hook of an opposed similar coupling, a spring for urging the arm into a normal substantially central position with respect to the end of the vehicle, the arm also having an uncoupling striker member depending from the arm and terminating at its lower end close to but slightly above the level of the lowermost points of the vehicle wheel treads, said striker member being adapted for lateral engagement at its lower end by a track ramp for effecting a sideways uncoupling movement of the coupling.

8. A coupling for a miniature railroad vehicle comprising a rigid supporting arm adapted for lateral swivel mounting between a pair of centering stops and provided at one end with a coupling hook which is arranged on its side with its free end extending laterally and rearwardly towards an abutment guide which is disposed behind the hook and extends laterally from the arm in the same lateral direction as the hook so that the hook and abutment guide define between them a space having an opening laterally offset from the arm for receiving the hook of an opposed similar coupling, the arm having an elongated uncoupling striker member depending

11

therefrom which is laterally offset from the arm and hook in the opposite lateral direction to that in which the hook and abutment guide extend, said striker being adapted for lateral engagement at its lower end by a track ramp for urging the striker and thereby the coupling sideways in the opposite lateral direction to that in which the hook and abutment guide extend.

9. A coupling for a model railroad vehicle comprising a one-piece stamping of strip material forming a flat rigid supporting arm adapted for mounting on a vehicle so as to swivel substantially in the plane of the arm between a pair of centering stops carried by the vehicle and provided at one end with two transverse portions which extend from opposite edges of the arm and are bent substantially vertically to the plane of the arm, one of said transverse portions being bent forwardly from the arm and reentrantly towards the other of said portions so as to form a coupling hook arranged on its side with its free end extending laterally and rearwardly towards said other portion which forms an abutment guide disposed behind the hook and extending laterally from the arm in the same lateral direction as the hook, the stamping also comprising a further transverse portion which is bent substantially vertically to the plane of the arm to form an elongated depending uncoupling striker member adapted for lateral engagement at its lower end by a track ramp for effecting a sideways uncoupling movement of the coupling.

10. A coupling as defined in claim 9, wherein the hook and abutment guide have a vertical depth substantially greater than the thickness of the strip material so as to provide sufficiently deep coupling surfaces to compensate for slight variations in the height of the coupling when in use on a vehicle.

11. A coupling as defined in claim 9, wherein the abutment guide is curved forwardly from the end of the arm.

12. A coupling as defined in claim 9, wherein the free end of the coupling hook is enlarged in depth.

13. A coupling as defined in claim 9, wherein the arm has an aperture therein near its other end for mounting it on a pivot pin.

14. A coupling as defined in claim 13, wherein the end of the arm having said aperture therein comprises a projecting portion adapted for disposition between a pair of stops for limiting the swivel of the arm.

15. A coupling as defined in claim 9, wherein the striker is formed at its lower end with a lateral convex ramp-engaging surface.

16. A miniature railroad track including a pair of running rails, an uncoupling ramp disposed longitudinally between said rails and having laterally inclined ends for engaging and urging sideways strikers depending from couplings of miniature railroad vehicles for uncoupling the vehicles as the strikers are moved along said ramp, resilient means supporting and urging said ramp into a raised position slightly above the level of the tops of said rails, in which position the ramp is operative to effect uncoupling and floats so as to be yieldable to downward pressure thereon, means being provided for depressing and holding the ramp in an inoperative position against the action of its said resilient supporting means.

17. A miniature railroad track as defined in claim 16, and including a centre conductor rail between said running rails, said ramp being ar-

12

ranged adjacent the centre conductor rail so that when the ramp is raised into operative position for effecting uncoupling, it lies slightly above the level of the top of the conductor rail but is yieldable so as to be capable of depression by a low-lying part such as a locomotive current collector of a miniature railroad vehicle passing over the ramp.

18. A miniature railroad track comprising an open-bottomed hollow track bed having a top surface on which the running rails and a centre conductor rail are mounted, and an uncoupling ramp made of insulating material supported within the hollow bed on springs mounted and housed within the bed, the ramp having two upper portions arranged one at each side of the centre conductor rail above the top surface of the bed and having laterally curved sides for engaging and urging sideways strikers depending from couplings of model railway vehicles for uncoupling the vehicles, said ramp being normally resiliently urged by said springs into a raised position in which the ramp is operative to effect uncoupling, and control means being provided for moving the ramp positively downwards and to hold it rigidly in a depressed inoperative position.

19. A miniature railroad track as defined in claim 18, said control means including camming means rotatably mounted within said hollow bed and having camming engagement with said ramp.

20. A miniature railroad track including a pair of running rails and an uncoupling ramp comprising a pair of rail members disposed longitudinally between said running rails, said ramp members being adapted to be positioned slightly above the level of the tops of said running rails and having spaced parallel portions and end portions adapted to be laterally intumed to lead divergently to the parallel portions so that said end portions are adapted for laterally engaging and urging apart strikers depending from interengaging couplings of model railway vehicles and for leading the strikers divergently to said parallel portions provided for holding the strikers apart, so as to uncouple the vehicles as the strikers are moved along the ramp members.

21. A miniature railroad track as defined in claim 20, wherein said end portions are rigid with said parallel portions of said ramp members and are laterally curved inwardly, and said ramp members are adapted to be raised and lowered bodily by a parallel-motion linkage comprising links pivotally attached to said ramp members and fixed on a pair of parallel spindles rotatably mounted in bearings carried by a pair of plates fixed to the track bed for supporting said ramp members.

22. A miniature railroad track as defined in claim 20, wherein said ramp members are fixed in said position slightly above the level of the tops of the running rails, and have articulated end portions which are laterally movable into and out of a laterally intumed position in which they are operative to effect uncoupling.

23. A miniature railroad track as defined in claim 20, wherein said ramp members are fixed in said position slightly above the level of the tops of the running rails, and are provided at one end only thereof with laterally resilient end portions which are normally laterally intumed and resist inward deflection so as to be operative for laterally engaging and urging apart the strikers of interengaging couplings on vehicles travelling in one direction along the track so as

to uncouple the vehicles, said ramp members permitting the strikers of interengaging couplings on vehicles travelling in the opposite direction along the track to pass longitudinally between the ramp members and said resilient end portions being yieldable to engagement by strikers thus passing between the ramp members so as to be deflected laterally outwardly from their normal inturnd position to permit the strikers to pass between said end portions.

24. A miniature railroad trackway including a pair of running rails and an uncoupling ramp mounted on the trackway and disposed between the running rails, model railway vehicles having pivotally mounted couplers, said couplers being urged by resilient means to normal coupling positions, said ramp having pointed end portions spaced longitudinally with respect to the rails and laterally spaced apart intermediate contact portions, a striker depending from each of said couplers, said couplers when interengaged are adapted to be uncoupled by the engagement of the respective associated strikers with said ramp thereby moving laterally apart said strikers and causing their connected couplers to pivot in opposite directions to uncouple the vehicles.

25. A miniature railroad trackway including a pair of running rails and an uncoupling ramp mounted on the trackway and disposed between the running rails, model railway vehicles having pivotally mounted couplers, stops on said vehicles and cooperating with said couplers to limit the extent of pivotal movement of said couplers, said couplers having laterally extending abutment guide portions adapted to guide said couplers to normal coupling positions when interengaged, said ramp having pointed end portions spaced longitudinally with respect to the rails and laterally spaced apart intermediate contact portions, a striker depending from each of said couplers, said couplers when interengaged are adapted to be uncoupled by the engagement of the respective associated strikers with said ramp thereby mov-

ing laterally apart said strikers and causing their connected couplers to pivot in opposite directions to uncouple the vehicles.

26. A miniature railroad trackway including a pair of running rails and an uncoupling ramp mounted on the trackway and disposed between the running rails, model railway vehicles having pivotally mounted couplers, said couplers being free to pivot without resilient restraint and having laterally extending abutment guide portions adapted to guide said couplers to normal coupling positions when interengaged, stops on said vehicles and cooperating with said couplers to limit the extent of pivotal movement of said couplers, said ramp having pointed end portions spaced longitudinally with respect to the rails and laterally spaced apart intermediate contact portions, a striker depending from each of said couplers, said couplers when interengaged are adapted to be uncoupled by the engagement of the respective associated strikers with said ramp thereby moving laterally apart said strikers and causing their connected couplers to pivot in opposite directions to uncouple the vehicles.

SYDNEY CHARLES PRITCHARD.

REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
771,105	Swint	Sept. 27, 1904
1,186,994	Kramer	June 13, 1916
1,900,204	Sharp	Mar. 7, 1933
1,912,249	Becker	May 30, 1933
1,989,804	Hoffer et al.	Feb. 5, 1935
2,184,103	Rydin	Dec. 19, 1939
2,235,555	Koch	Mar. 18, 1941
2,261,258	Kinnear	Nov. 4, 1941
2,263,959	Tyler	Nov. 25, 1941
2,318,741	Bowen et al.	May 11, 1943
2,411,394	Stayer	Nov. 19, 1946