Dec. 21, 1937. N. RYDIN 2,102,649

TOY TRAIN COUPLER

Filed Aug. 6, 1936 2 Sheets-Sheet 1

FIG. 1.

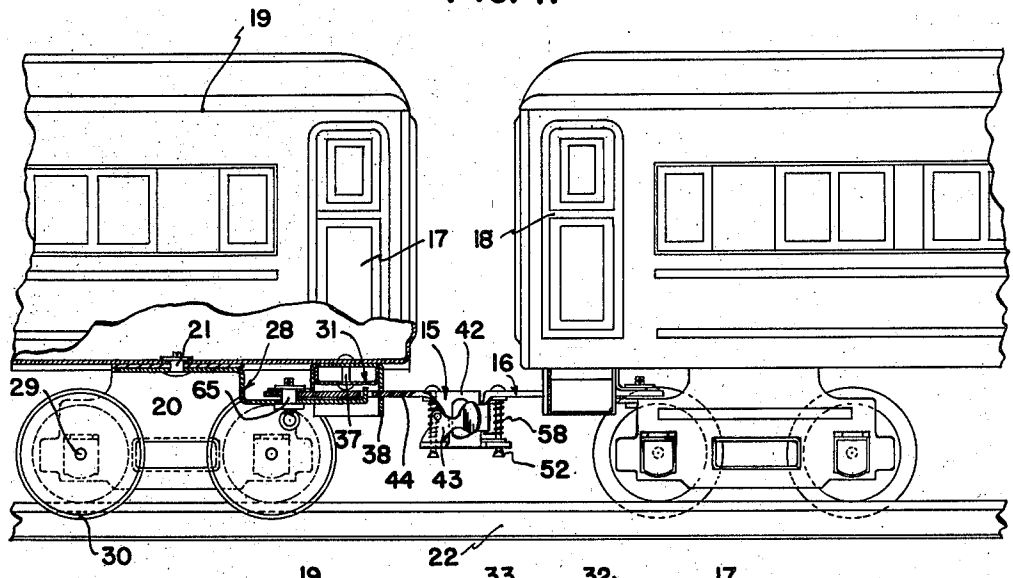


FIG. 2.

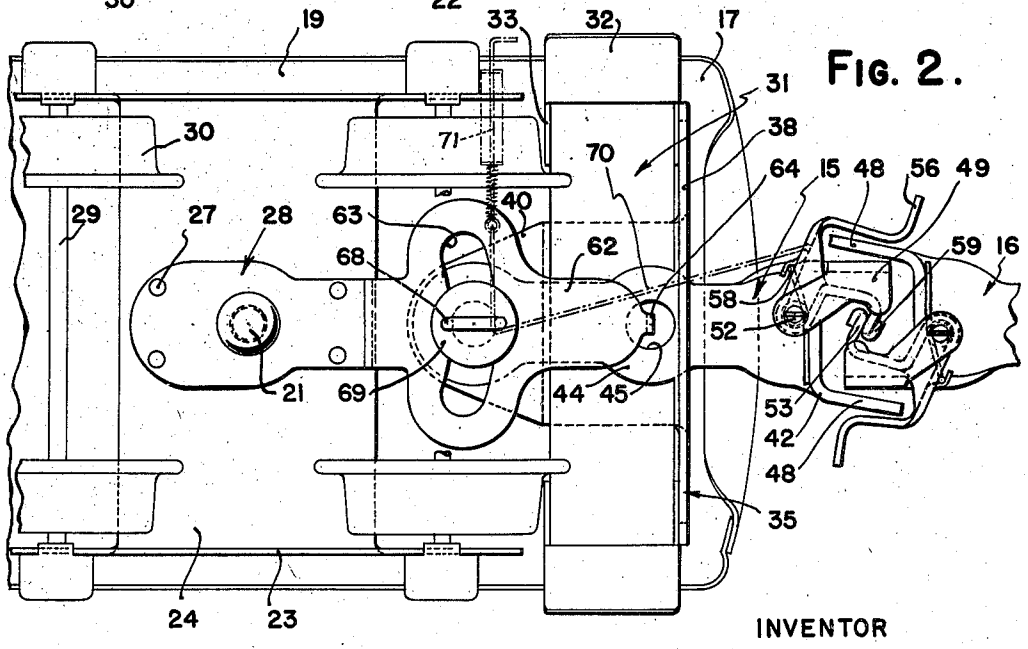
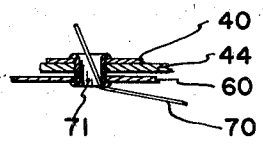


FIG. 13.



INVENTOR

NORVAL RYDIN

BY

ATTORNEYS

Dec. 21, 1937. N. RYDIN 2,102,649

TOY TRAIN COUPLER

Filed Aug. 6, 1936 2 Sheets-Sheet 2

FIG. 3.

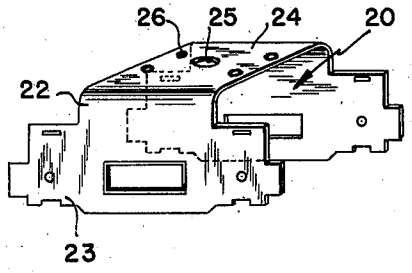


FIG. 4.

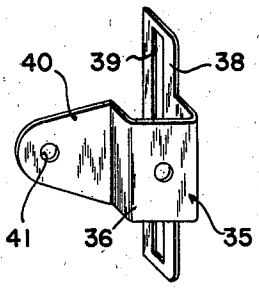


FIG. 5.

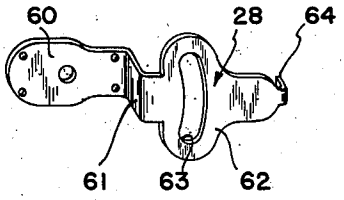


FIG. 6.

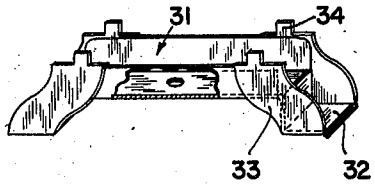


FIG. 7.

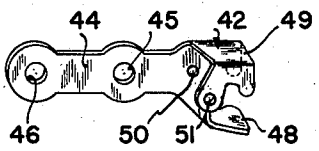




FIG. 8.

FIG. 11.

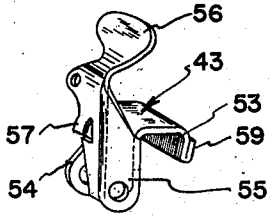


FIG. 10



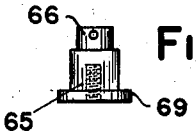
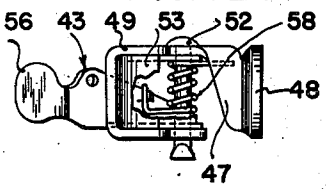


FIG. 9.

FIG. 12.



INVENTOR

NORVAL RYDIN

BY

ATTORNEYS

Patented Dec. 21, 1937 2,102,649

UNITED STATES PATENT OFFICE

2,102,649

TOY TRAIN COUPLER

Norval Rydin, Chicago, Ill.

Application August 6, 1936, Serial No. 94,603

2 Claims. (Cl. 213—100)

This invention appertains to toy trains, and more particularly to a novel coupler therefor.

One of the primary objects of my invention is to provide a toy train coupler, which will permit the quick and expeditious coupling of the cars automatically upon the coming together of the cars, and which will effectively hold the cars coupled against accidental displacement.

Another object of my invention is the provision of a toy train coupler embodying novelly constructed and pivoted spring-pressed knuckles adapted to automatically spring open upon the coming together of the coupler heads and automatically interlock after the jaws of the knuckles have sprung past one another.

Another salient object of my invention is to provide novel finger-pieces formed integral with each knuckle, whereby the couplers can be instantly and conveniently released from either side of the cars, the fingers being so disposed as to facilitate the guiding of the couplers into coupling position.

A further object of my invention is the provision of means for forming the coupler bodies and knuckles in such a manner that a car can be bodily lifted off the tracks and out of a coupled train without manipulating the finger-pieces in any way.

A further important object of my invention is the provision of means for forming the coupler, whereby the coupler head and drawbar can be formed from a single blank of sheet metal, and whereby the knuckle and finger-piece can be formed from a single blank of sheet metal.

A still further object of my invention is to provide novel means for centering the coupler heads relative to one another when the cars are on a curve of a track, whereby to facilitate the coupling of the cars under all conditions.

A still further object of my invention is to provide novel means for supporting the coupler heads from the car steps and for operatively connecting the drawbars to the car trucks.

A still further object of my invention is to provide a toy train coupler of the above character, which will be durable and efficient in use, one that will be simple and easy to manufacture, and one which can be placed upon the market and incorporated with an ordinary toy train at a small cost.

With these and other objects in view the invention consists in the novel construction, arrangement, and formation of parts, as will be hereinafter more specifically described, claimed, and illustrated in the accompanying drawings, in which drawings:

Figure 1 is a fragmentary side elevation of two cars equipped with my invention, one of the cars and couplers being shown partly broken away and in section to illustrate structural details.

Figure 2 is an enlarged, fragmentary, bottom plan view of one of the cars showing my improved coupler connected therewith.

Figure 3 is a detail perspective view of the body portion of a car truck.

Figure 4 is a detail perspective view of the plate for supporting a car coupler.

Figure 5 is a detail perspective view of the centering lever for a car coupler, looking from the bottom thereof.

Figure 6 is a detail perspective view of one of the car steps, parts of the same being shown broken away and in section.

Figure 7 is a detail perspective view of a coupler head and its drawbar.

Figure 8 is a detail perspective view of a washer utilized in the centering device.

Figure 9 is a side elevation of the centering pivot.

Figure 10 is a side elevation of the screw eye for connection with the centering pivot.

Figure 11 is a detail perspective view of one of the coupler knuckles.

Figure 12 is a front elevation of one of the couplers, parts thereof being shown broken away to illustrate structural details.

Figure 13 is a detail sectional view illustrating another form of pivot for the centering device and guide for a knuckle release pull cord or chain.

Referring to the drawings in detail, wherein similar reference characters designate corresponding parts throughout the several views, the numerals 15 and 16 indicate companion couplers carried by adjacent cars 17 and 18. These cars 17 and 18 can be of any character or type and form no part of my present invention and have been merely illustrated to show the manner of connecting my couplers with toy cars and for centering the couplers from the pivoted trucks of the cars.

As shown, each car includes a body 19 formed from sheet metal, having car trucks 20 pivotally connected thereto by means of pivot pins 21, so as to facilitate the travel of the cars over a track 22. As illustrated in Figure 3, each of the car trucks 20 includes a substantially inverted U-shaped plate 22 having side walls 23 and a con-

necting top piece 24. The top piece 24, at its axial center, is apertured, as at 25, for the pivot pin 21. Smaller openings 26 are formed in the top piece around the center aperture 25 for the reception of rivets or connecting pins 27, employed for connecting my centering lever 28 with the truck. The side walls 23 of the car truck are apertured in the ordinary manner for the car axles 29, which carry the car wheels 30.

The opposite ends of each car can be provided with car steps 31, which are also preferably formed from a single piece of sheet metal. Each car step is of a substantially U-shape in cross-section and the ends are folded to form the treads 32. The sides of the treads are folded back to form wings 33, which define the sides of the stair treads. The upper ends of these wings can have formed thereon tongues 34, which are adapted to be inserted through slots in the car body, after which the tongues can be clinched downward.

In conjunction with the car steps 31, I employ a novel support 35 for the car couplers. This support is illustrated in detail in Figure 4 of the drawings, and includes an inverted U-shaped body portion 36, which is adapted to extend transversely over the center portion of the car steps. A rivet or the like 37 is adapted to extend through the U-shape body portion 36 of the support, through the center of the car steps, and through the bottom of the car body. This effectively holds the support and the car steps to the car body.

The front of the inverted U-shaped body 36 of the support has formed thereon a depending plate 38 having a slot 39, for a purpose which will be later set forth. The rear end of the U-shaped body portion 36 has formed thereon a rearwardly extending arm 40 having its rear end apertured, as at 41, for a purpose which will also be more clearly set forth.

Referring more particularly to my novel couplers 15 and 16, it will be noted that each of the same includes a coupler body, head or housing 42, and a pivoted knuckle 43. The coupler head has formed thereon the rearwardly extending drawbar 44, and the head 42 and the drawbar 44 are formed from a single piece of sheet metal of the desired gauge. The drawbar has formed therein intermediate its ends, an opening 45, and adjacent to its rear end, an opening 46.

The coupler head 42 extends forwardly from the drawbar and has formed thereon at one side thereof, the depending rear wall 47. The outer side edge of this rear wall has formed thereon the forwardly extending side wall 48. The opposite side of the coupler has formed thereon the depending U-shaped knuckle support 49, and the upper and lower walls of the support are apertured, as at 50 and 51, for the reception of the pivot pin 52 for the knuckle 43.

The knuckle 43 is likewise formed from a single piece of sheet metal of the desired gauge and includes the angle-shaped jaw 53 having formed on its opposite edges side plates 54 and 55, which are apertured for the pivot pin 52. One side wall 50 has formed thereon the forwardly extending curved finger-piece 56. If desired and preferred, the inner end of the finger-piece can have struck out therefrom a tongue 57, over which one end of the tension coil spring 58 can be hooked.

This spring 58 is placed about the pivot pin 52 between the upper and lower plates 54 and 55 of the knuckle, and the opposite end of the spring bears against the rear wall 47 of the coupler head. Thus, the spring functions to normally move the knuckle to a closed centering position, with the finger-piece against the coupler head. The finger-piece bearing against the coupler head prevents the knuckle from moving too far over, and thus the finger-piece holds the knuckle in proper position for engagement with a knuckle of a companion coupler.

By referring to Figure 2, it will be noted that the outer piece of each jaw of the knuckle extends at an acute angle to the transverse center line. Thus, substantially cam faces are provided on the jaws of the knuckles to facilitate the springing back of the knuckles against their springs when the couplers come together. Also, it might be well to note that the outer ends of the couplers are folded back upon themselves, as at 59, to reinforce the jaws and to provide a smooth edge, so as to prevent the coupler jaws from catching in one another when it is desired to release or connect the couplers.

The drawbar 44 of each coupler extends through the slot 39 of the coupler support, as clearly illustrated in Figures 1 and 2, and the drawbar extends toward the centering lever 28.

This centering lever 28 is of a novel construction and includes the attaching body portion 60, through which extend the rivets 27 and the pivot pin 21 for the car truck. Obviously, the car truck and the centering lever can be welded together in lieu of employing the rivets 27.

Forwardly of the attaching portion 60, the centering lever is provided with a depending, substantially right-angularly disposed arm 61, which in turn carries the forwardly extending leg 62. This leg has formed thereon a transversely extending arcuate body piece having an arcuate slot 63 therein. The extreme forward end of the leg 62 has an upwardly extending foot 64 formed thereon, which is adapted to extend into the intermediate opening 45 in the drawbar of a coupler.

The opening 46 of the drawbar is disposed directly above the arcuate slot 63. A pivot pin 65 extends through the opening 46 and into the slot 63 and is limited in its upward movement by its annular flange 69. This pivot pin 65 is provided at its upper end with a reduced axial extension 66, which receives a washer 67. This washer is adapted to rest on top of the drawbar, and a split pin or the like is adapted to be inserted through the upper end of the extension 66 to hold the washer in place. A screw eye 68 is threaded directly into the pivot 65, for a purpose which will be later set forth.

By this construction and arrangement of parts, when a car goes around a curve the centering lever 28 will be carried with the truck due to its rigid connection with the truck. The lever tends to slide on the pivot 65 due to the slot 63. The tongue 64, engaging in the opening 45 of the drawbar will swing the coupler and drawbar on the pivot 65 when the centering lever moves with the truck.

In use of the improved coupler, it is merely necessary to allow two of the cars equipped with my coupler to move toward one another, and the inclined faces of the jaws will swing back the knuckles and allow the knuckles to interlock. When it is desired to release the couplers, either one of the finger-pieces 56 can be swung back.

Particular attention is invited to the arrangement of the finger-pieces 56 relative to the coupler heads, and it is to be noted that the finger-pieces act as a guide for centering the couplers

relative to one another. Thus, the parts 48 of the couplers tend to engage the finger-pieces, and this engagement not only helps to center the couplers, but also functions to open the coupler knuckles. Obviously, the portions 48 of the coupler heads also act as guides for facilitating the interengagement of the couplers.

By my arrangement and construction I have provided an exceptionally simple and rugged coupler construction, and as the top and bottom of the couplers are left open, a car can be lifted vertically off a track and disconnected from a train without the necessity of manipulating the couplers.

However, accidental disconnection between the couplers is prevented due to the fact that a considerable latitude of up-and-down movement between the connected couplers is permitted. Likewise, when coupler knuckles are connected together the same tend to more tightly engage one another as pull is exerted on a car.

If desirable, a pull cord or chain 70 can be threaded through an opening in the finger-piece 56, and these cords can be threaded through the screw eye 68 and brought out from the opposite sides of the car body at any convenient point.

While the arrangement of the centering pin 65 and the screw eye 68 performs the desired function, I can, if it is so preferred, substitute a loose rivet 71 therefor, as shown in Figure 13 of the drawings. This rivet will extend through the slot 63 in the centering lever and through the opening 46 in the drawbar of a coupler. The pull cord or chain for actuating the finger-pieces on the knuckles can be threaded directly through the eye of the rivet.

As suggested in Figure 2 of the drawings, a spring-pressed pull rod 71 can be carried by the car and connected with the pull cord or chain 70, to facilitate the actuation of said chain or cord. The rod can be brought out of the side or end of the car body at any desired point.

Changes in details may be made without departing from the spirit or the scope of my invention, but what I claim as new is:

1. In a toy coupler, a drawbar, a coupler head on said drawbar having a forwardly extending inclined side wall, a substantially bell crank-shaped knuckle, means pivotally connecting the knuckle, at its angle, to the head, said knuckle having an outer jaw portion normally urged in the direction of the side wall, said outer jaw portion being normally arranged at an acute angle to the transverse axis of the head, and a manipulating finger-piece on the knuckle disposed at one side of the head, said finger-piece extending in close proximity to the coupler head.

2. In a toy train coupler, a coupler head including a drawbar, a rear plate depending from said drawbar, a forwardly projecting, angularly disposed side wall on the outer edge of the rear wall, a depending U-shaped wall projecting forwardly from the drawbar, arranged in spaced relation to the side wall, a knuckle including a jaw and a laterally extending finger-piece, means pivotally connecting the knuckle to the U-shaped portion of the coupler head, spring means normally urging the jaw portion toward the side wall, the finger-piece normally engaging the U-shaped portion for limiting the swinging movement of the knuckle under influence of the spring, and said jaw having its outer end disposed at an acute angle to the transverse axis of the head.

NORVAL RYDIN.