

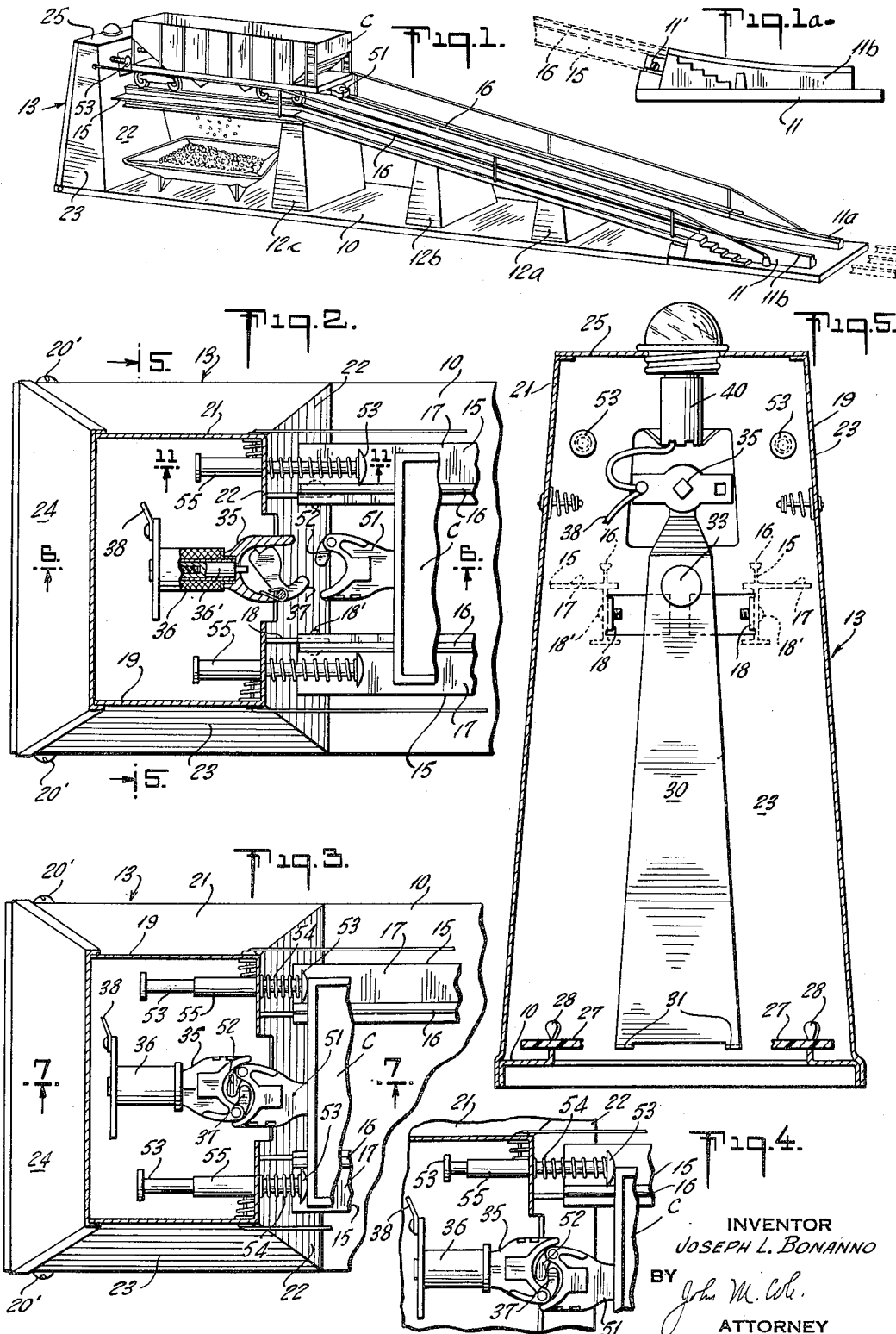
Dec. 6, 1955

J. L. BONANNO
TOY RAILROAD ACCESSORIES FOR SIMULATING
THE UNLOADING OF RAILROAD CARS

2,725,668

Filed Nov. 16, 1951

3 Sheets-Sheet 1



INVENTOR
JOSEPH L. BONANNO
BY *John M. White*
ATTORNEY

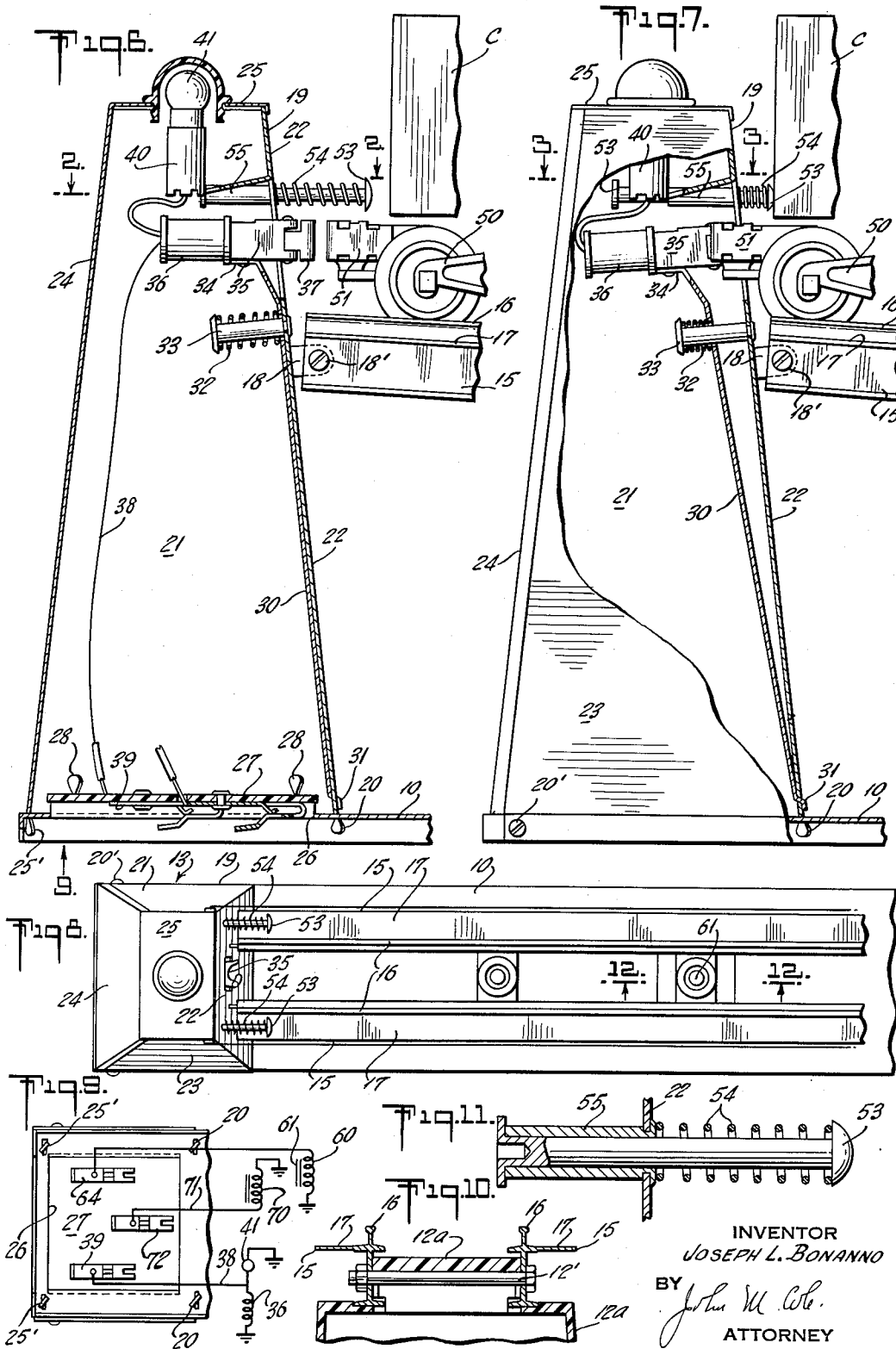
Dec. 6, 1955

J. L. BONANNO
TOY RAILROAD ACCESSORIES FOR SIMULATING
THE UNLOADING OF RAILROAD CARS

2,725,668

Filed Nov. 16, 1951

3 Sheets-Sheet 2



INVENTOR
JOSEPH L. BONANNO
BY
John M. Cole
ATTORNEY

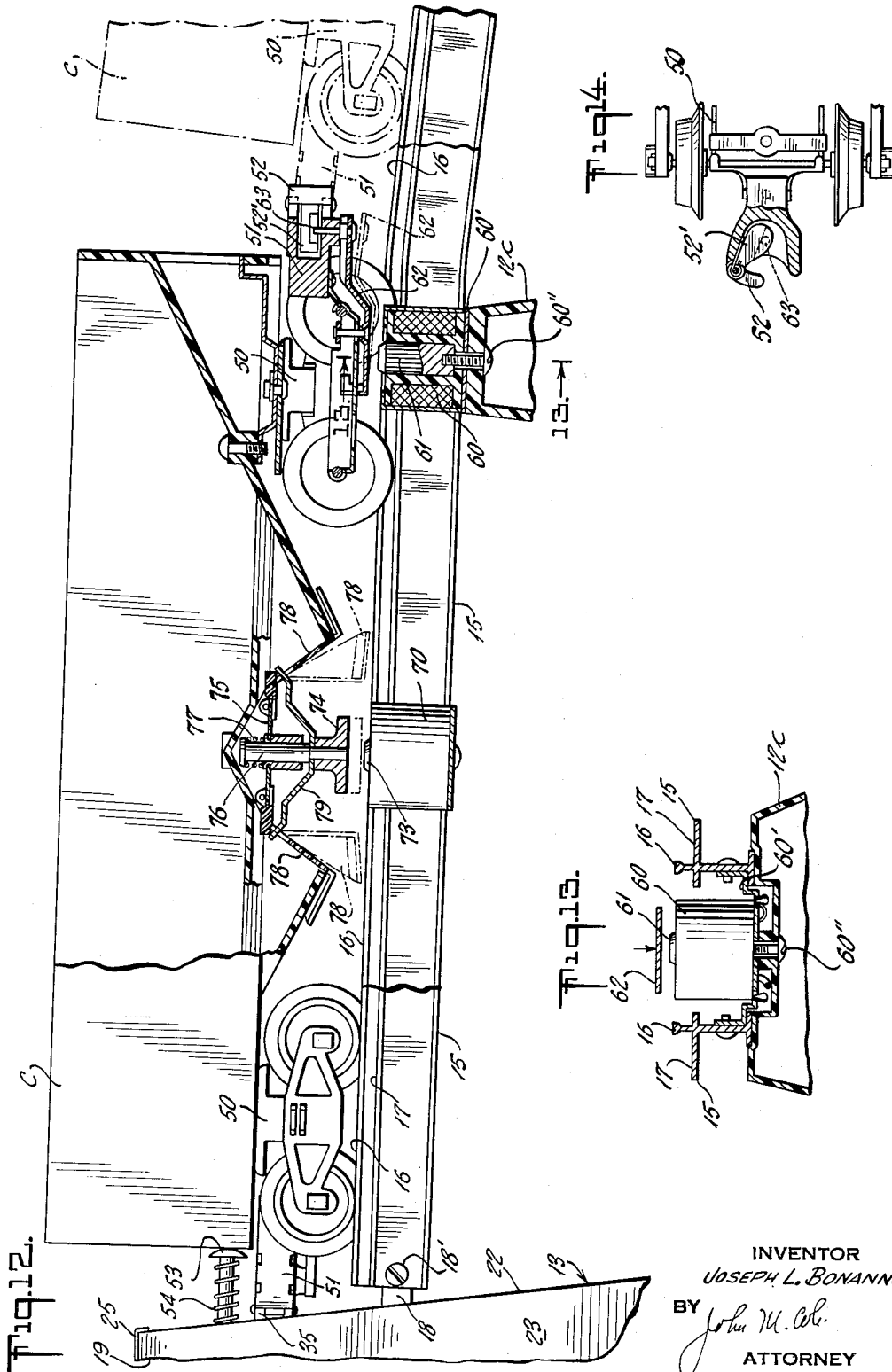
Dec. 6, 1955

J. L. BONANNO
TOY RAILROAD ACCESSORIES FOR SIMULATING
THE UNLOADING OF RAILROAD CARS

2,725,668

Filed Nov. 16, 1951

3 Sheets-Sheet 3



INVENTOR
JOSEPH L. BONANNO
BY *John M. Cole*
ATTORNEY

1

2,725,668

TOY RAILROAD ACCESSORIES FOR SIMULATING THE UNLOADING OF RAILROAD CARS

Joseph L. Bonanno, Madison, N. J., assignor to The Lionel Corporation, New York, N. Y., a corporation of New York

Application November 16, 1951, Serial No. 256,695

10 Claims. (Cl. 46—40)

The present invention relates to toy railroad accessories for simulating the unloading of railroad cars and is directed more particularly to accessories for unloading of toy hopper cars, or for the temporary storage of a car to be later returned to the other trackage of the layout.

Along a railroad right of way, it is customary to provide some form of siding arranged for the dumping of coal, gravel, sand, rock and the like from hopper cars. This often involves the provision of elevated track connected by a ramp to the rails on the ground so that a car to be dumped may be brought above the coal pocket or the like which is to receive the contents of the car.

The present invention contemplates a toy railroad accessory with which it is possible to carry out similar operations with toy cars loaded with toy coal. To simulate the over-all operation of the regular railroad, the accessory is provided with a ramp up which the cars of a train may be pushed by the toy locomotive, a storage track in which the end car may stand adjacent a bumper, an automatic coupler to hold the end car in this position as long as desired, a remote controlled uncoupler to release the cars on the ramp so they can return to the other trackage, means to unload the standing car and means to uncouple and release this car, whether or not it has been unloaded, and to insure its return down the ramp to the other trackage. If desired, the entire car shifting, coupling and uncoupling operation may be carried out by a car with no unloading mechanism, as, for example, a caboose or observation car which should be at the end of the train.

To carry out these operations, the invention is preferably embodied in a complete preassembled unit having all the operating parts, other than the cars. The cars may be of various forms.

The accompanying drawings show, for purposes of illustrating the present invention, one embodiment in which the invention may take form, it being understood that the drawings are illustrative of the invention rather than limiting the same.

In the accompanying drawings:

Figure 1 is a perspective view of the toy railroad accessory showing a hopper car in position for being unloaded;

Figure 1a is a fragmentary elevation of the lower part of the ramp;

Figure 2 is a fragmentary top plan view showing the uncoupled car in position to meet the locking coupler, parts of the bumper-tower being in section on the line 2—2 of Figure 6;

Figure 3 is a view similar to Figure 2, showing the car coupled and taken on the line 3—3 of Figure 7;

Figure 4 is a fragmentary view similar to Figures 2 and 3, showing the coupled car with the parts in normal position after coupling;

Figure 5 is a vertical sectional view on the line 5—5 of Figure 2;

Figure 6 is a longitudinal sectional view on the line 6—6 of Figure 2;

2

Figure 7 is a longitudinal sectional view on the line 7—7 of Figure 3;

Figure 8 is a top plan view at reduced scale to show the stationary structure without a car in position;

Figure 9 is a view taken in the direction of the arrow 9 of Figure 6 and showing the wiring diagram;

Figure 10 is a section showing the securement of the tracks to one of the piers;

Figure 11 is a section on the line 11—11 of Figure 2;

Figure 12 is an enlarged side elevational view showing a car coupled in the position of Figure 4, and showing in section, on the line 12—12 of Figure 8, a track magnet and cooperative coupler;

Figure 13 is a sectional view on the line 13—13 of Figure 12; and

Figure 14 is a top plan view of the car coupler with parts broken away and parts in section.

The coal ramp illustrated in Figure 1 has an elongated base 10 made of sheet metal and a cast end indicated at 11. The portion 10 supports three plastic piers 12a, 12b and 12c, and a sheet metal bumper tower indicated generally at 13. The cast end section 11 is provided with tracks 11a and 11b, and the piers 12a, 12b, 12c and tower 13 support aluminum extensions 15, 15, which form track rails 16 and have flat areas 17 to simulate the walkway along the track. The extensions 15 are secured to the end 11 and to the piers 12a and 12b by bolts 11' and 12', to the tower 13 by struck-out ears 18 and screws 18', and to the pier 12c as shown in Figure 13 to be described.

The ramp tracks have relatively steep portions extending from the low level up to the tower element 12c and a portion which slopes at a much less angle between the tower 12c and the bumper tower 13. The length of this latter section is sufficient to hold both trucks of a toy railroad car as indicated in Figures 1 and 12. The body 19 of bumper tower 13 is formed of sheet metal and is secured to the base 10 by ears 20 and screws 20'. The tower has three fixed sides 21, 22 and 23, and a removable side 24 which carries a top portion 25, and is secured in place by ears 25'. The base 10 is cut out as indicated at 26 to accommodate a terminal plate 27 of insulating material secured in place by ears 28, Figure 6. This terminal plate is connected to a suitable control not shown.

A relatively long lever 30 is pivoted to the lower side 22 of the bumper tower as indicated at 31. This lever is normally pushed to the position indicated in Figure 6 by coiled spring 32 carried about a post 33. The upper end 34 of the lever 30 is secured to the body 35 of a form of electromagnetic coupler now in use and shown more fully in Patent #2,658,629, granted November 10, 1953. This automatic coupler has a solenoid coil 36 adapted to actuate a plunger 36' which releases a spring biased latchable knuckle 37 so that when released, the knuckle may be in the position shown in Figure 2 and when closed or coupled, the knuckle may be in the position shown in Figures 3 and 4. The coil 36 is connected by wire 38 with terminal 39 carried by the insulating plate 27.

In parallel with the solenoid coil 36 is a lamp socket 40 carrying a lamp 41 to indicate when the solenoid is energized.

The car C as here shown is of the hopper type. It has two trucks 50, 50 with wheels adapted to ride on the rails as usual, and each truck is equipped with an electromagnetically releasable coupler indicated generally at 51. A suitable form of coupler for this purpose is shown in Patent #2,661,852, granted December 8, 1953. It is provided with a releasable knuckle 52 adapted to be latched in position when automatic coupling takes place and be unlatched by a track carried solenoid coil as shown

in that application. The details of such coupler will be described below. It is cooperable with other like couplers or with the coupler of the first mentioned application.

If it be assumed that a train including car C is backed up the ramp toward the bumper tower and one or the other of the couplers 35 or 51 are open, the continued movement of the car C will effect automatic coupling of this car to the bumper tower. As the car carried coupler approaches the bumper-carried coupler, the inner end of the latch arm of one or both of these couplers engages the outer end of the other coupler so that the open knuckle (or knuckles) become latched. When the car moves toward this coupling position, the couplers first engage and couple together, and, rather than have this abruptly stop the train, the device provides for further movement of the car which brings about a shifting of the bumper coupler 35 and arm 30 to the position of Figure 7 in which the spring 32 is compressed. The end of the car also engages buffers in the form of plungers 53 urged to the right of springs 54 and sliding in tubes 55 carried by the tower 13. These springs 54 are compressed from a position shown in Figures 6 and 8 to the position shown in Figures 3 and 7.

As soon as the push of the locomotive no longer is applied to the car C, the weight of the cars on the ramp and the energy in the springs 54 and 32 will push the car C from the position of Figure 7 to the position of Figure 4. At this time, the bumper carried coupler 35 is back in the original position and the car C is held in a definite position on the trackage. This position is indicated more fully in Figure 12.

In order that the other cars of the train and the locomotive may be released from the car C, which has now been coupled to the bumper, the accessory is provided with devices for uncoupling the end car from the rest of the train. In the construction here shown, the ramp is provided with a solenoid coil 60 mounted between the tracks by means of a bridge strap 60' and screw 60'' which passes through the top of pier 12c, and at the proper distance from the bumper tower 13 so that its core 61 is directly below the armature 62 carried by the right-hand coupler 51 of the car C. When this coil 60 is energized, the armature 62 is moved to the dotted line position of Figure 12 and the pin 63 is pulled down so as to be out of the path of movement of the longer arm 52' of the knuckle 52. This releases other cars so that they may roll down the ramp. The coil 60 is connected to the terminal 64 carried by the plate 27.

The tracks 15, 15 also carry a solenoid 70 connected by wire 71 with terminal 72. This solenoid is located so as to be under the center of the car C. Its core 73 is adapted to actuate an armature such as 74 carried by the car to pull it down and operate a convenient accessory. Where the car is a hopper car as above referred to, this accessory includes a mounting plate 75 secured to the car body, a vertically guided plunger 76 biased upwardly by a spring 77 and connected at its lower end to the armature 74. The mounting plate 75 carries two hinged doors or closures 78, 78 designed to close off the discharge openings in the bottom of the hopper car. The doors 78 are biased upwardly by a bridging member 79 carried by the reciprocable plunger. The car dumping mechanism above briefly described forms the subject-matter of my concurrently filed application for unloading toy car, Serial No. 256,696, filed November 16, 1951.

Since it is obvious that the invention may be embodied in other forms and constructions within the scope of the claims, I wish it to be understood that the particular form shown is but one of these forms, and various modifications and changes being possible, I do not otherwise limit myself in any way with respect thereto.

What is claimed is:

1. A toy railroad accessory for simulating the unloading of railroad cars, comprising a toy car having remotely controlled electromagnetically releasable car couplers for

automatic coupling and uncoupling cooperation with other toy car couplers and remotely controlled electromagnetic car unloading mechanism including an armature for operating the same, trackage including rails forming an inclined ramp and an elevated car storage track at the upper end thereof, whereby additional cars coupled to said toy car remain on said ramp when said toy car is on said storage rack, for separation therefrom by gravity when uncoupled, a bumper at the far end of the storage track, and a bumper-carried, remotely controlled electromagnetically releasable coupler cooperable to couple the car to the bumper in proper spacing on said storage track to place said armature in cooperative position to its actuating means when the car is pushed against the bumper, or to uncouple the car, and a fixed magnet coil associated with said storage track and positioned opposite the armature when the car is properly spaced on the storage track and acting when energized to shift the armature to actuate the car unloading mechanism.

2. The combination of claim 1, wherein the couplers on the car have armature releasable latches and the trackage carries a second magnet coil cooperable with the coupler remote from the bumper to uncouple an adjacent car therefrom.

3. The combination of claim 1, wherein the bumper carries spring protracted members engageable by the car and held retracted thereby when coupled to the bumper-carried coupler and acting on uncoupling of the car to push it away from the bumper and toward the inclined rails.

4. The combination of claim 1, having a resilient, shock-absorbing mounting for the bumper-carried coupler which yields when the car is being coupled and acts to return the coupled car to a predetermined position.

5. A toy railroad accessory for the temporary storage of a toy railroad car having remotely controlled armature releasable, latched car couplers for automatic coupling and uncoupling cooperation with other toy car couplers, comprising trackage including rails forming an inclined ramp and an elevated car storage track at the upper end thereof, whereby additional cars coupled to said toy car remain on said ramp when said toy car is on said storage rack, for separation therefrom by gravity when uncoupled, a bumper at the far end of the storage track, a bumper-carried, remotely controlled electromagnetically releasable coupler cooperable to couple the car to the bumper in proper spacing on said storage track to place said armature in cooperative position to its actuating means when the car is pushed against the bumper, or to uncouple the car, and a trackage-carried magnet coil associated with said storage track and cooperable with the car-carried coupler remote from the bumper for uncoupling it from an adjacent car so that it may roll down the ramp.

6. A toy railroad accessory such as claimed in claim 5, wherein the bumper carries spring protracted members engageable by the car and held retracted thereby when coupled to the bumper-carried coupler and acting on uncoupling of the car to push it away from the bumper and toward the inclined rails.

7. A toy railroad accessory such as claimed in claim 5, having a resilient, shock-absorbing mounting for the bumper-carried coupler which yields when the car is being coupled and acts to return the coupled car to a predetermined position.

8. A toy railroad accessory for simulating the unloading of railroad cars, comprising an elongated base, a relatively high bumper tower at one end, a plurality of piers of varying height, spaced lengthwise of the base, toy railroad track carried by the piers and the bumper tower and including a ramp up which cars may be pushed and an elevated storage track near the bumper tower adapted to receive one car, a toy train including an end car, adapted to be backed up the ramp to place it on the storage track and having magnetically operable unloading

5

mechanism and remotely controlled electromagnetically releasable car couplers for automatic coupling and uncoupling cooperation with other toy cars, a bumper tower-carried coupler which automatically couples the end car to the tower when the car is pushed against the bumper, means for uncoupling the end car from the cars on the ramp, an electromagnetic release for the tower-carried coupler, and a track carried, remotely controlled magnet coil for energizing the car unloading mechanism.

9. A toy railroad accessory comprising wheel-bearing toy track rails, a bumper tower away from the upper part of which the rails extend, a lever pivoted to the bumper tower below the level of the track rails and carrying an electromagnetically openable, automatically closable car coupler, facing toward the track rails and at an elevation to cooperate with a toy car-carried coupler, and a spring biasing the said lever forwardly and yieldable under extraneous pressure in the opposite direction.

10. A toy railroad accessory comprising wheel-bearing toy track rails, a bumper tower away from which the

6

rails extend, a tower-carried, electromagnetically openable, automatically closable car coupler facing toward the track rails and at an elevation to cooperate with a toy car-carried coupler, spring protractable members carried by the tower and retractable when a car is coupled into position to store energy so that upon uncoupling of the car it is pushed away from the bumper tower.

References Cited in the file of this patent

UNITED STATES PATENTS

377,873	Thomas	Feb. 14, 1888
458,532	Green	Aug. 25, 1891
845,967	Moscovitz	Mar. 5, 1907
1,012,628	Gray	Dec. 26, 1911
1,026,366	Reid	May 14, 1912
1,130,055	Baum	Mar. 2, 1915
1,252,607	Nixon	Jan. 8, 1918
1,622,059	Stockemer	Mar. 22, 1927
1,993,106	Lounsbury	Mar. 5, 1935