Dec. 11, 1962 W. R. SMITH ET AL 3,067,540

PICKABACK LOADER AND UNLOADER FOR TOY RAILWAY

Filed Aug. 31, 1959 2 Sheets-Sheet 1

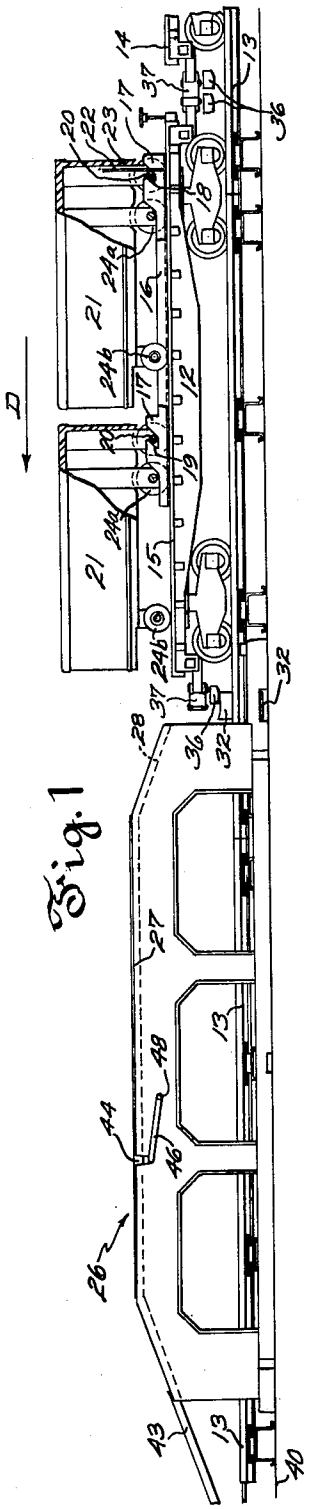


Fig. 1

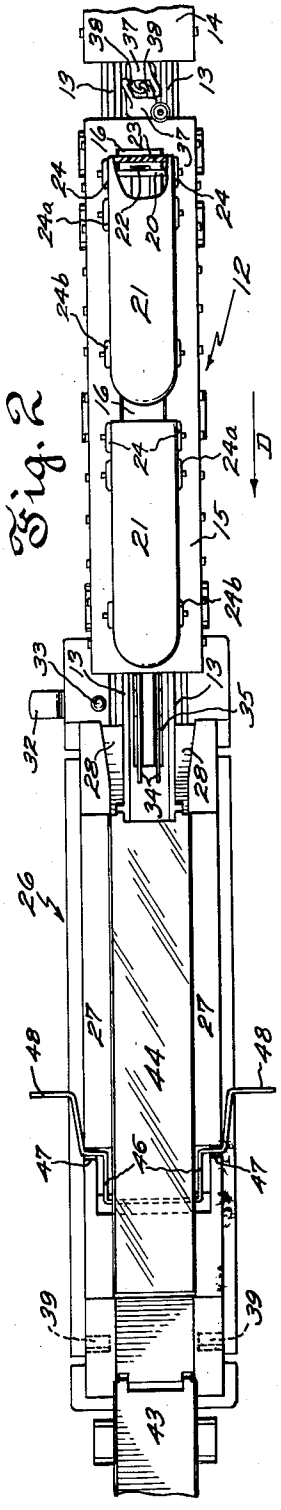


Fig. 2

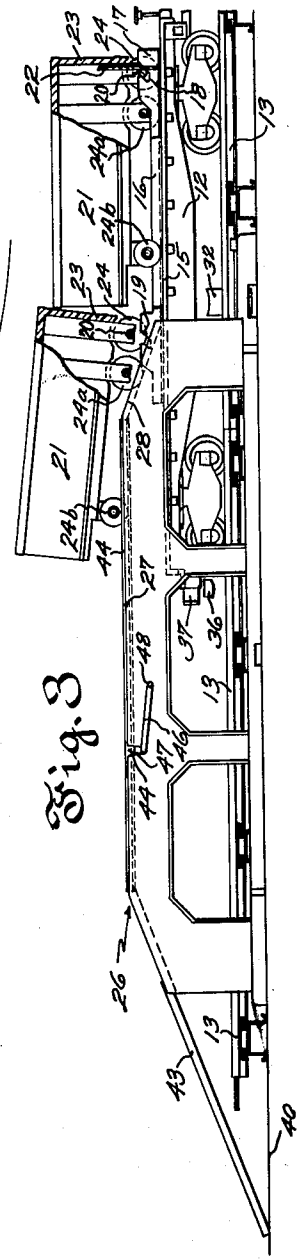


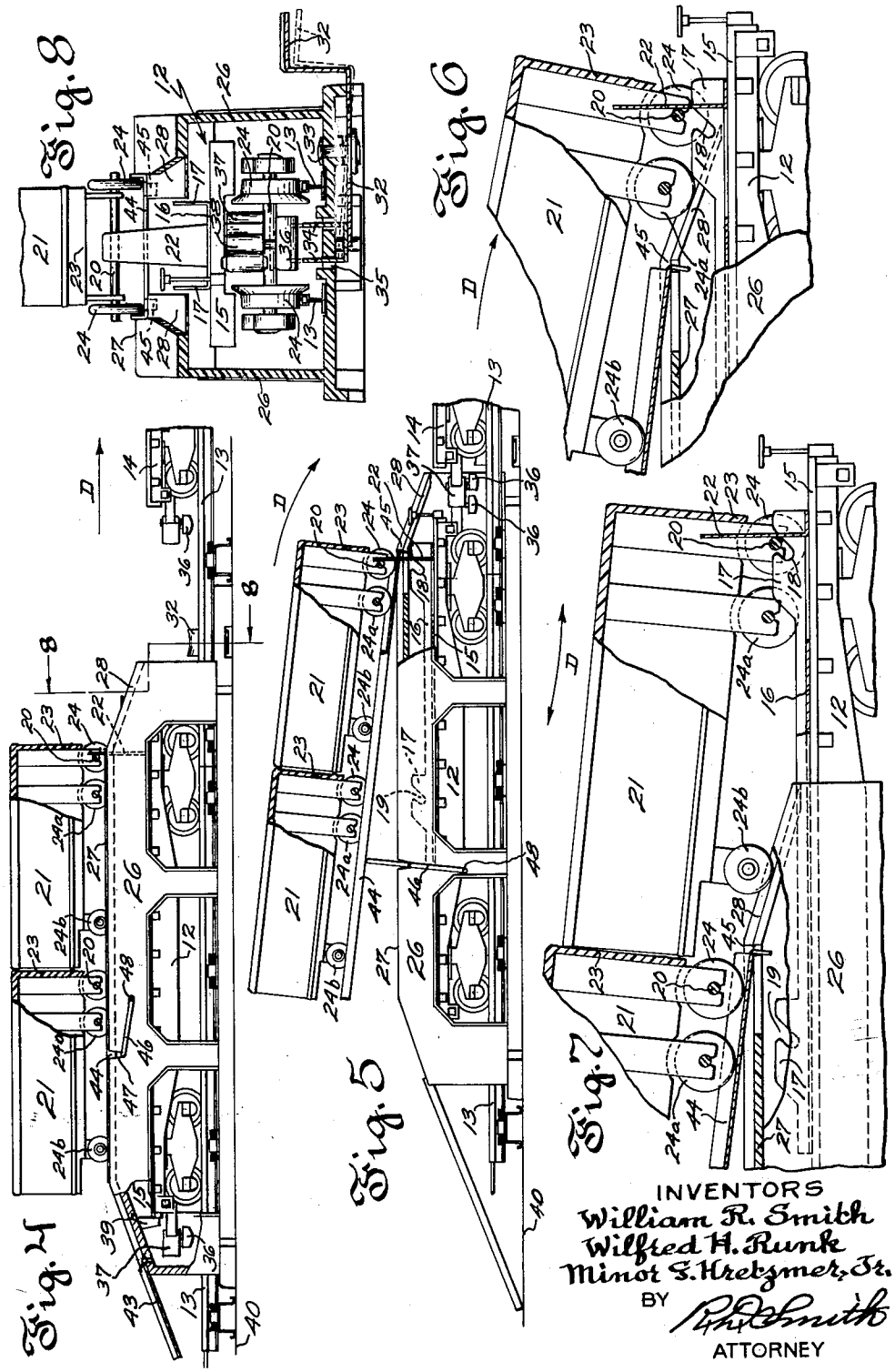
Fig. 3

INVENTORS
William R. Smith
Wilfred H. Runk
Minor F. Kretzmer, Jr.
BY R. R. Smith
ATTORNEY

Dec. 11, 1962 W. R. SMITH ET AL 3,067,540

PICKABACK LOADER AND UNLOADER FOR TOY RAILWAY

Filed Aug. 31, 1959 2 Sheets-Sheet 2



INVENTORS
William R. Smith
Wilfred H. Runk
Minot S. Kretzmer, Jr.
BY
ATTORNEY

United States Patent Office 3,067,540 Patented Dec. 11, 1962

3,067,540
PICKABACK LOADER AND UNLOADER FOR TOY RAILWAY

William R. Smith, Collingswood, N.J., and Wilfred H. Runk, Milford, and Minor G. Kretzmer, Jr., East Hampton, Conn., assignors to The A. C. Gilbert Company, New Haven, Conn., a corporation of Maryland

Filed Aug. 31, 1959, Ser. No. 837,000
6 Claims. (Cl. 46—40)

This invention relates to apparatus for automatically unloading from or loading onto the platform of a toy railway freight car one or more toy road vehicles such as a toy wheeled highway truck or passenger bus adapted to be carried in pickaback fashion on the freight car.

The present improvements may be embodied in a variety of constructions, all characterized preferably by a repository structure upstanding in flanking relation to a portion of the run of a toy railroad track on which track the freight car rides, in a manner to afford a loading and unloading station for the freight car which will be hauled to and away from such station as rolling stock of a toy train drawn by a toy locomotive.

It is one object of the invention to incorporate with such repository structure a means to elevate and lower a road vehicle with respect to the carrying platform of the railway freight car in the operation of loading the road vehicle onto the latter while at its loading and unloading station and flanked by the repository structure.

A further object is to provide means whereby, as an alternative, the unloaded road vehicle can roll down from an elevated position on the repository structure and reach the road level free and clear of the railroad track.

A further object is to cause the elevating and lowering of the road vehicle with respect to the railway car to occur automatically under control from a distant point if desired.

A further object is to enable the railway car that is to be unloaded to be coupled to or uncoupled from the remainder of the toy train when at its loading or unloading station so that the railway car can be left standing at the station while the remainder of the train departs and returns.

The foregoing and other objects of the invention will become clear in greater particular from the following description of a preferred embodiment of the invention in a toy railway accessory, in which description reference is had to the accompanying drawings wherein:

FIG. 1 is a view in elevation showing a toy railroad track flanked by a repository structure which determines a loading and unloading station at a terminal portion of the run of the track, together with a toy railway freight car carrying two toy road vehicles to be unloaded therefrom when the railway car enters such station.

FIG. 2 is a plan view looking downward on FIG. 1.

FIG. 3 shows the toy freight car entering the loading and unloading station in a manner to cause one of its carried road vehicles to be transferred from the railroad car to a position on the repository structure.

FIG. 4 shows both of the road vehicles transferred from the railroad car to the repository structure and shows the adjoining car of the toy train uncoupled and departing from the railway freight car in leaving it at the unloading station.

FIG. 5 shows the toy train returned into coupled relation to the freight car for hauling it away from the loading station, the road vehicles being raised to a tilted position whereby to cooperate with the departure of the freight car in a manner to cause road vehicles to be loaded onto the freight car by rolling by gravity down the ramp as the freight car is being hauled away from its loading station.

FIG. 6 shows on an enlarged scale a further advanced stage of the loading of one of the road vehicles onto the departing freight car.

FIG. 7 shows a still further advanced stage of the loading operation wherein the road vehicle is about to become interlocked with the load platform of the freight car as the latter completes its departure from the loading station.

FIG. 8 is a view drawn on the same scale as FIGS. 6 and 7, taken in section on the planes 8—8 in FIG. 4 looking in the direction of the arrows, and shows the uncoupling mechanism which frees the toy train to leave the freight car at the unloading station.

In all figures of the drawings a toy railway freight car 12 rides on conventional toy track rails 13 forming part of a run of toy railway track along which car 12 can be drawn or impelled by a toy electric locomotive (not shown) with or without other rolling stock 14 of a toy train.

Car 12 presents a load bearing platform 15 which, in the presently illustrated embodiment of the improvements, is equipped with a fixed bracket 16 in the form of a channel-shaped piece having upstanding side walls 17 each of which contains slanted notches 18 and 19 adapted to receive and anchor wheel axles 20 of wheeled toy road vehicles 21 resting in rollable manner on platform 15. Some other cross rod or equivalent at a low level on the vehicle body might perform such function in place of axle 20.

In FIGS. 1 and 2, two such road vehicles are seen to be carried, in popular parlance "piggy back" style, end-to-end on the freight car 12. It will be noticed, as best shown in FIGS. 6 and 7, that bracket 16 incorporates a bent up tongue forming a post 22 that intervenes between abutments constituted by axle 20 and the nearest end wall 23 of road vehicle 21.

The intended function of a toy embodying the present improvements is that it shall cause to be unloaded from and loaded onto platform 15 of the flat car 12 one or more rollable load articles herein represented by the road vehicles 21. This is accomplished at an unloading and loading station comprising a repository structure which may assume a variety of forms, preferably characterized by means to raise and lower the road vehicle 21 in relation to the load bearing platform 15 of the freight car. Such repository may include stationary structure which at the unloading and loading station upstands above a portion of the run of track 13 in flanking relation thereto. An example of suitable structure is the trestle 26 having a top deck 27 which bridges a portion of the run of toy track. Said portion of the track may or need not be a terminal portion as herein shown.

The particular way of transferring road vehicles 21 to the trestle deck 27 herein illustrated makes use of a short ramp 28 that slopes downward from the top level of deck 27 to a point just above the top surface of platform 15 and sufficiently close thereto to enable the road vehicle to roll on its road wheels 24, 24*a* and 24*b* from the car platform 15 up the ramp 28 to the top level of trestle deck 27 as the railroad car approaches in the direction of arrow D its position shown in FIGS. 3 and 4. In other words, platform 15 is sufficiently low and bracket 16 is sufficiently narrow to pass under deck 27 and at a level sufficiently near the height of the ramp portion of the deck to permit the latter to intervene between the wheels 24 of the vehicle and the car platform as the car enters the unloading station. See FIG. 3.

The toy further incorporates means for leaving the freight car 12 at its unloading station after being impelled thereto by a locomotive or a train of rolling stock of which it was a part. Such means comprise an uncoupling device best shown in FIG. 8 wherein a manually

operable uncoupling lever 32 is rockable between full line and broken line positions upon a fulcrum 33 that may be an integral extended part of the trestle structure 26. Upstanding fins 34 are guided for vertical shifting movement in slots 35 so as to be lifted and then permitted to drop by gravity according with the rocking movement of lever 32. In their uppermost positions fins 34 engage and lift the tripper shoe 36 of the knuckle coupling 37 in a manner which unlocks the hook arm 38 of the coupling according to details of construction and mode of operation disclosed in U.S. Patent No. 2,738,080. When thus uncoupled the railroad freight car 12 can be left at its unloading station while the remainder of the train of which it was a part pulls away. After such uncoupling has been effected, the fins 34 drop automatically by gravity so as not to interfere with recoupling of a locomotive or a train of cars when brought back to the unloading station to pick up freight car 12.

In the form of the improvements herein shown recoupling of the freight car to an arriving train is insured by the blocking off of the travel of the freight car toward the left in its position shown in FIG. 4. This is accomplished by stop lugs 39 on the inner surface of the side walls of trestle structure 26 which lugs lie in the path of the left end of car platform 15. In other forms of the invention we may prefer to construct the entire left end of trestle structure 26 so completely open that it clears a path for car 12 to continue through and out of the unloading station on the track 13 in a continuous direction toward the left.

When as herein shown the portion of the run of track at the unloading station is a terminal portion of the track, the trestle 26 may be equipped with a long ramp 43 sloping from the deck 27 to the ground level 40 so that the road vehicles 21 can roll down ramp 43 and reach the "ground" clear of the railroad track. If, on the other hand, the run of the track at the unloading station is continuous through and beyond both ends of the trestle structure, ramp 43 may be laterally curved to discharge the load vehicles to the ground level at the side of the continuous railroad track. If freight car 12 is impelled into the loading station with sufficient speed to bring it up sharply against the stop lugs 39 the impetus thus given to the road vehicles 21 by the car carried post 22 can be such as to cast the vehicles toward the left in FIG. 4 with sufficient momentum to cause them to continue rolling beyond the trestle deck 27 and automatically down the ramp 43, all at one operation. For this purpose the end wall 23 of the vehicle 21 is high enough to clear the post 22 in FIGS. 4 and 8.

For the purpose of reloading the toy vehicles onto the railroad car starting, say, with the position of parts shown in FIG. 4, trestle deck 27 is equipped with a vehicle lifting mechanism including a chute 44 pivotally anchored at its right end in FIGS. 5, 6 and 7 to the trestle deck 27 by tongue and notch engagement at 45 so that the left end of the chute can be elevated above deck 27 to tilt the chute into its position shown in FIG. 5. This may be accomplished in a simple manner by means of a crank bail 46 pivotally lodged in notches 47 in the side wall of the trestle structure and having a crank operating handle 48 at each side of the trestle structure. When bail 46 is swung clockwise in notches 47 from its position in FIG. 4 to its position in FIG. 5, it will automatically maintain its latter position until returned manually counterclockwise which again permits the chute 44 to drop into parallelism with the trestle deck 27.

As long as chute 44 remains tilted, gravity gives the road vehicles 21 a tendency to run downward toward the right in FIGS. 5 and 6 and over the short ramp 28 until vehicle axle 20 encounters the post 22 upstanding from the freight car. The parts will then remain in their position shown in FIG. 5 until the freight car starts to be withdrawn from the loading station in the direction of arrow D, whereupon axle 20 will trail post 22 to the

positions shown successively in FIGS. 6 and 7. This results in one axle 20 dropping into anchorage engagement with bracket notches 18 which will be followed by the axle 20 of the other road vehicle dropping into anchorage engagement with bracket notches 19.

The repository structure 26 can conveniently be made of rigid molded plastic material including as an integral part of its molded form a ground supported extension carrying the uncoupling lever 32. Said extension and other ground supported floor portions of the repository structure serve to engage and orient the toy track in proper relationship to the trestle 26 from which the track is removable.

Any equivalent uncoupling device, electromagnetically operated or otherwise, can be substituted for the manual uncoupling lever 32 and supported on some part of the molded form of the repository structure. An example of an electromagnetically operated uncoupling device that could be so substituted is disclosed in United States Patent No. 1,989,804.

Likewise the swinging of crank bail 46 between its positions in FIGS. 4 and 5 can be electromagnetically effected or controlled through the use of mechanisms well known to those skilled in the art of animated toys, whereby the complete operation of loading and unloading can be accomplished electrically by remote control and not require the handles of uncoupling lever 32 and of load lifting bail 46 to be within reach of the hands of an operator of a toy railway layout.

In the unloading operation, when the freight car travels toward the left in FIG. 3, one of the road vehicles 21 will be impelled by post 22 and in turn will push against the other vehicle to force it up the ramp 28 of the trestle structure while chute 44 lies in its collapsed position shown in FIGS. 3 and 4. FIG. 3 further shows that the rolling of vehicle wheel 24*a*, when being pushed up the ramp 28 by the other vehicle, will lift axle 20 out of notch 19 as the vehicle tilts counterclockwise about the axis of its wheels 24*a* as a fulcrum to bring its wheels 24*b* downward into rolling contact with chute 44. The direction of slant of notch 19 permits this freely to happen. Light rubbing, at the same time, will occur between the vehicle end wall 23 and the adjacent end wall of the other vehicle wherefore these walls should be smooth where they contact. The vehicle that is directly impelled by post 22 unloads in the same way while continuing to push the first unloaded vehicle ahead of it along the collapsed chute. When unloading of both cars has been completed, it will be observed in FIG. 4 that the vehicle wall 23 becomes sufficiently elevated above car platform 15 to enable the top of post 22 to clear and pass out from under wall 23 when the railway car is next pulled out of the loading station toward the right.

This loading of a vehicle or vehicles onto the flat car 12 is seen to be occurring in FIGS. 5, 6 and 7 where chute 44 has been tilted so that the vehicles will coast down the sloping chute as fast as is permitted by the holding back action of post 22 against the vehicle axle 20. Both vehicles finally resume their position shown in FIGS. 1 and 2 for being carried away on the flat car. All arrows D indicate direction of train travel.

Many variations of shapes and arrangements of the parts will be suggested by the present disclosure to those skilled in the art wherefore the appended claims are directed to and intended to cover all fair equivalents that come within a broad interpretation of the definitions of the invention as worded in the claims.

We claim:

1. Apparatus for automatically unloading from and/or loading onto the platform of a toy railway freight car at least one wheeled toy road vehicle, comprising in combination, a toy railway car having a platform for loads, a toy road vehicle having road wheels rollable on said platform, a ramp adjoining and inclined upward with respect to said platform onto and off from which ramp

said road wheels can roll for respectively elevating and lowering said vehicle with respect to the level of said platform, two abutments spaced lengthwise of said vehicle and positioned at respectively different heights in relation to said road wheels the higher of said abutments being nearer one end of the vehicle and the lower of said abutments being farther from said end of the vehicle, and a vehicle engaging post upstanding from said platform in the lengthwise space between said abutments to a fixed height such that the top of said post is at a level higher than both of said abutments when said road wheels rest on said platform and at a level intermediate the different heights of said abutments when said vehicle is raised to elevated position with respect to said platform, whereby said post remains engageable by said lower abutment but is cleared of engagement by said higher abutment for rolling off from said platform when said vehicle is impelled up said ramp by said post to said elevated position.

2. Apparatus as defined in claim 1, in which one of the said abutments is a wheel axle of the said road vehicle.

3. Apparatus as defined in claim 1, in which the said road vehicle has a hollow body including a housing end wall, and the said higher of the said abutments is the lower marginal portion of said end wall.

4. Apparatus as defined in claim 1, together with a ridge extending lengthwise of the said railway car upstanding from the said load platform to a level higher than the lower extremity of the lower of the said two abutments and containing a notch sloping upward toward the said vehicle impelling post, whereby one of said abutments can enter said notch and said vehicle can be engaged and impelled by said ridge in one direction lengthwise of the car or engaged and impelled by said post in the opposite direction.

5. Apparatus as defined in claim 4, in which the said abutment that can enter the said notch is a wheel axle of the said road vehicle.

6. Apparatus as defined in claim 5, together with a second road vehicle having a wheel axle, and a second notch in the said ridge spaced lengthwise therealong from the first said notch a sufficient distance to be entered by said wheel axle of said second road vehicle when said vehicles are substantially end-to-end on the said load platform of the said railway car.

References Cited in the file of this patent

UNITED STATES PATENTS

1,506,849	Mancha	Sept. 2, 1924
2,313,335	Godfrey	Mar. 9, 1943
2,373,148	Smith	Apr. 10, 1945
2,405,833	Johnston	Aug. 13, 1946
2,720,324	Cosentino	Oct. 11, 1955
2,855,115	Casey	Oct. 7, 1958