June 9, 1925. 1,541,281

F. H. RICKER

RAILWAY

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Fig. 1.

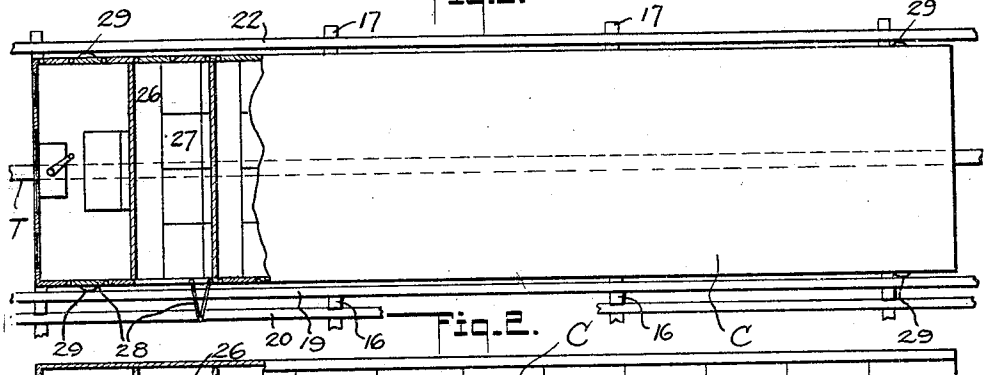


Fig. 2.

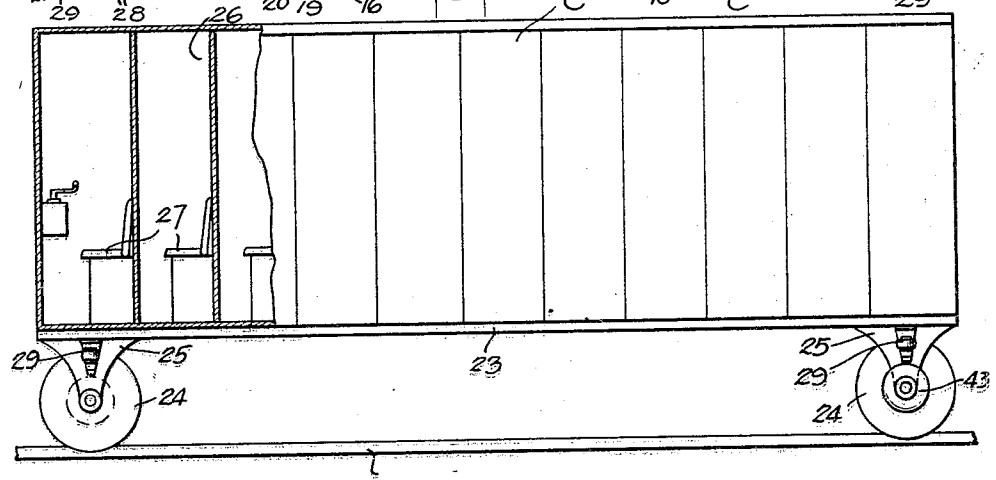


Fig. 3.

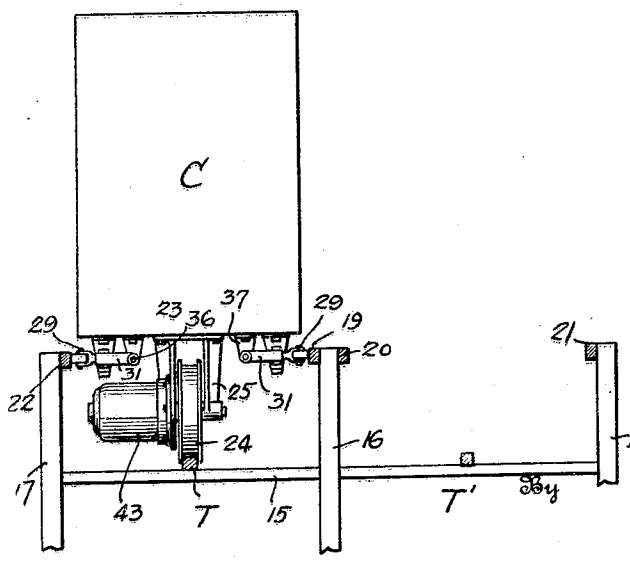
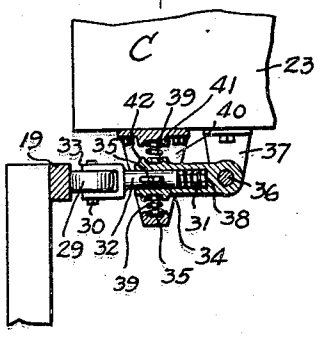


Fig. 4.



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Fig. 5.

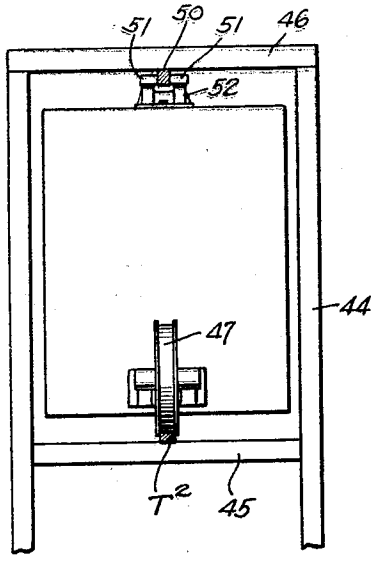


Fig. 6.

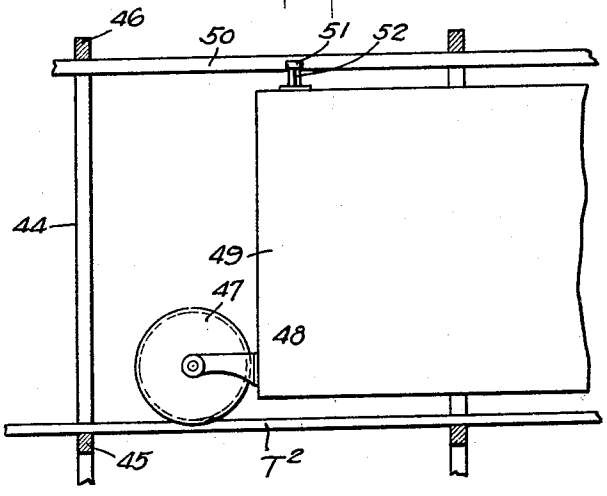


Fig. 7.

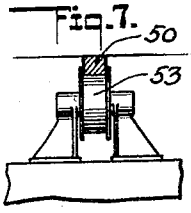


Fig. 8.

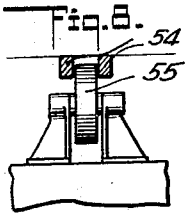
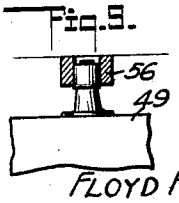


Fig. 9.



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UNITED STATES PATENT OFFICE.

FLOYD H. RICKER, OF LOS ANGELES, CALIFORNIA.

RAILWAY.

Application filed April 22, 1924. Serial No. 708,137.

To all whom it may concern:

Be it known that I, FLOYD H. RICKER, a citizen of the United States, and a resident of Los Angeles, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Railways, of which the following is a specification.

My invention relates to railways of the mono-rail type, and a purpose of my invention is the provision of a mono-rail railway having means at the sides of the trackway co-operating with means on the car for maintaining the car in upright position on the track against side sway or rocking movement, whereby it is possible to greatly reduce the weight of the present car without sacrificing riding comfort and safety, thereby allowing a great decrease in the power required to drive the car at high speeds and the braking action necessary to bring the car to a standstill.

I will describe only five forms of mono-rail railways embodying my invention and will then point out the novel features thereof in claims.

In the accompanying drawings—

Figure 1 is a view showing in top plan and partly in section one form of railway embodying my invention;

Figure 2 is a view showing the railway in side elevation, and with a portion of the car broken away;

Figure 3 is a vertical sectional view of the track and supporting structure comprised in the railway shown in the preceding views, with a car in position upon one of the tracks;

Figure 4 is a fragmentary view showing in vertical section one of the stabilizing means embodied in the railway shown in the preceding views;

Figure 5 is a view showing in vertical transverse section another form of railway embodying my invention;

Figure 6 is a vertical longitudinal section of the track and supporting structure comprised in the railway shown in Figure 5;

Figures 7, 8 and 9 are views showing modifications of the stabilizing means shown in Figures 5 and 6, the rails of such means being in section.

Similar reference characters refer to similar parts in each of the several views.

Referring specifically to the drawings, and particularly to Figures 1 to 4, inclusive, my invention in this embodiment is shown as comprising a pair of mono-rail tracks T and T′ supported upon a structure including transverse ties 15 and vertical uprights 16, 17 and 18. The uprights 16 are arranged medially of the outer uprights 17 and 18 and provide a common means for supporting guide rails 19 and 20. Other guide rails 21 and 22 are supported upon the outer uprights 17 and 18, and these guide rails are adapted to co-operate in conjunction with means carried by a car C for stabilizing the latter.

The car C embodied in the railway includes a body 23 supported for movement over either rail T or T′ by flanged wheels 24 arranged beneath and at opposite ends of the body 23 and on a line parallel to the longitudinal axis of the car body. These wheels 24 are provided with double flanges, as clearly shown in Figure 3, and are supported in hangers or trucks 25 which may be fixedly secured to the car body or rotatable thereon in a manner similar to the common wheel truck. The car body 23 is constructed to provide compartments 26 which extend transversely of the car body, as clearly shown in Figures 1 and 2, and in each compartment a transverse seat 27 is arranged. The opposite ends of each compartment are normally open, but are adapted to be closed by doors 28 composed of hinged sections, as clearly shown in Figure 1.

To maintain the car C in upright position upon the mono-rail track T or T′ and to prevent undue side sway or transverse movement of the car body, I have provided stabilizing means including the rails 19 to 22 inclusive and rollers 29 movable about vertical axes 30 and having contact with the confronting sides of the rails 19, 20, etc. Each roller 29 is movably mounted upon an extensible member including a tube 31 and a rod 32 provided with a forked end 33, in which the roller 29 is journaled. The rod 32 is slotted, as indicated at 34, to receive a pin 35 which extends through the tube 31 to limit the movement of the rod outwardly of the tube. The tube is pivotally supported at the point 36 upon a hanger 37 secured to the bottom of the car body 23, and an extensible spring 38 is arranged within the tube 31 to engage the rod 32 and thus normally urge the roller

29 into engagement with the corresponding rail 19 or 20, etc.

To yieldingly maintain the extensible member in horizontal position expansible springs 39 are arranged above and below the tube 31 and are supported in a yoke 40 secured to the under side of the car body 23 and having flanges 41 co-operating with flanges 42 on the tube for maintaining the springs in proper position with respect to the tube. As shown in Figures 2 and 3, I have provided the car C with two pairs of extensible members and rollers, arranged at opposite ends of the car body, and with the rollers of each pair engaging the guide rails 19 and 22.

In practice, the wheels 24 of the car C move over the mono-rail T, such wheels being driven by motors 43 having direct connections with the wheels in the manner clearly illustrated in Figure 3. With the car in position upon the mono-rail, the guide rails 19 and 22 being above the mono-rail and engaged by the rollers 29, it will be clear that the car is supported in upright position upon the tracks and by virtue of the mounting of the rollers 29 such rollers are maintained in engagement with the guide rails to support the car against side sway or transverse rocking movement. It will be understood that any side sway of the car C is opposed by the guide rails 19 and 22, the extensible members and springs 38 providing a limited yielding movement between the car and guide rails so as to prevent undue strains or stresses being exerted upon any of the parts comprised in the stabilizing means. To prevent lateral rocking movement of the car, while at the same time maintaining the rollers 29 in contact with the rails 19 and 22, the yokes 40 and springs 39 have been provided, such springs serving to yieldingly maintain the car body in normal parallel position with respect to the extensible members and thus yieldably holding the car body against transverse rocking movement.

It is to be understood that the mono-rail T' provides means for supporting another car C for movement thereover and that the guide rails 20 and 21 co-operate with the rollers 19 and 22 of such car for preventing side sway or lateral rocking movement of the car.

Referring now to Figures 5 and 6, I have here shown another form of railway embodying my invention, including a supporting structure comprising uprights 44 arranged in pairs at spaced intervals and with the uprights of each pair connected by cross ties 45 and 46. The ties 45 serve to support one mono-rail T^2 upon which move flanged wheels 47 supported in hangers 48 projecting from the opposite ends of a car body 49. Suitable means (not shown) may be provided for driving the wheels 47. The car body is supported in upright position upon the mono-rail by means of a guide rail 50 secured to the cross ties 46 and engaged on the opposite sides thereof by guide rollers 51 rotatably supported on mountings 52 secured to the upper side of the car body 49. These rollers 51 are arranged in pairs and two pairs of rollers are provided, one at each end of the car body 49. It will be understood that through the co-operation of the rollers 51 and the guide rail 50 lateral swaying of the car upon the mono-rail is prevented.

In Figure 7 I have shown a stabilizing means for the mono-rail car shown in Figures 5 and 6, in which the same guide rail 50 is employed, but a single roller 53 provided with double flanges is mounted on the top of the car body for engagement with the rail to prevent side sway or lateral movement of the car. In Figures 8 I have shown two guide rails 54 supported on the cross ties 46 and between which is arranged a roller 55 rotatably supported upon the upper side of the car body 49 and co-operating with the rails to prevent side sway or lateral movement of the car. In Figure 9 I have shown spaced guide rails 54 and a roller 56 between and contacting with the rails 54. This roller 56 is mounted upon the upper side of the car body 49 to rotate about a vertical axis, while the roller 55 rotates about a horizontal axis. Any one of the stabilizing means shown in Figures 7, 8 and 9 may be substituted for the stabilizing means shown in Figures 5 and 6, the several forms of stabilizing means having been illustrated to show the various ways in which side sway or lateral rocking movement of the mono-rail car can be prevented.

Although I have herein shown and described only two forms of railways embodying my invention, and five forms of stabilizing means all embodying my invention, it is to be understood that various changes and modifications may be made herein without departing from the spirit of the invention and the spirit and scope of the appended claims.

What I claim is:

1. A railway comprising a mono-rail track, a car having wheels arranged along the longitudinal axis of the body of said car and movable over said track, seats extending transversely of the car body, doors on the car body at opposite ends of each seat, and means for supporting the car body against side sway.

2. In a railway, a pair of mono-rail tracks, guide rails above and at opposite sides of the mono-rail tracks, with a pair of guide rails for each of the tracks, and a common supporting means for the adjacent guide rails of said pairs.

3. A mono-rail car having telescopic members thereon pivoted to move about horizontal axes, rollers carried by the members, and means for urging the members outwardly to extended position and for yieldingly maintaining the members in a horizontal position.

4. A railway comprising a mono-rail track, a car movable over the track, means for supporting the car in upright position on the track comprising guide rails at opposite sides of the mono-rail track and disposed below the body of said car, guide rollers, telescopic members pivoted on the car body for movement about horizontal axes for supporting the rollers on the car, and resilient elements for urging the members to extended position and to a horizontal position.

5. A railway comprising a mono-rail track, a car movable over the track, means for supporting the car in upright position on the track comprising guide rails at opposite sides of the mono-rail track and disposed below the body of said car, guide rollers, tubular members mounted on the car body for movement about horizontal axes, rods slidable in the tubular members and having forked ends for rotatably supporting the guide rollers, yokes on the car body, resilient elements in the yokes engaging sockets in opposite sides of the tubular members for urging the members to a horizontal position, and resilient elements in the tubular members for urging the rollers into contact with said guide rails.

6. A mono-rail car having extensible members mounted to move about horizontal axes, means for urging the members outwardly to extended position and means for yieldingly maintaining the members in a horizontal position.

FLOYD H. RICKER.