April 10, 1951 W. H. NICHOLSON 2,548,443

LAWN SWING

Filed April 13, 1946 2 Sheets-Sheet 1

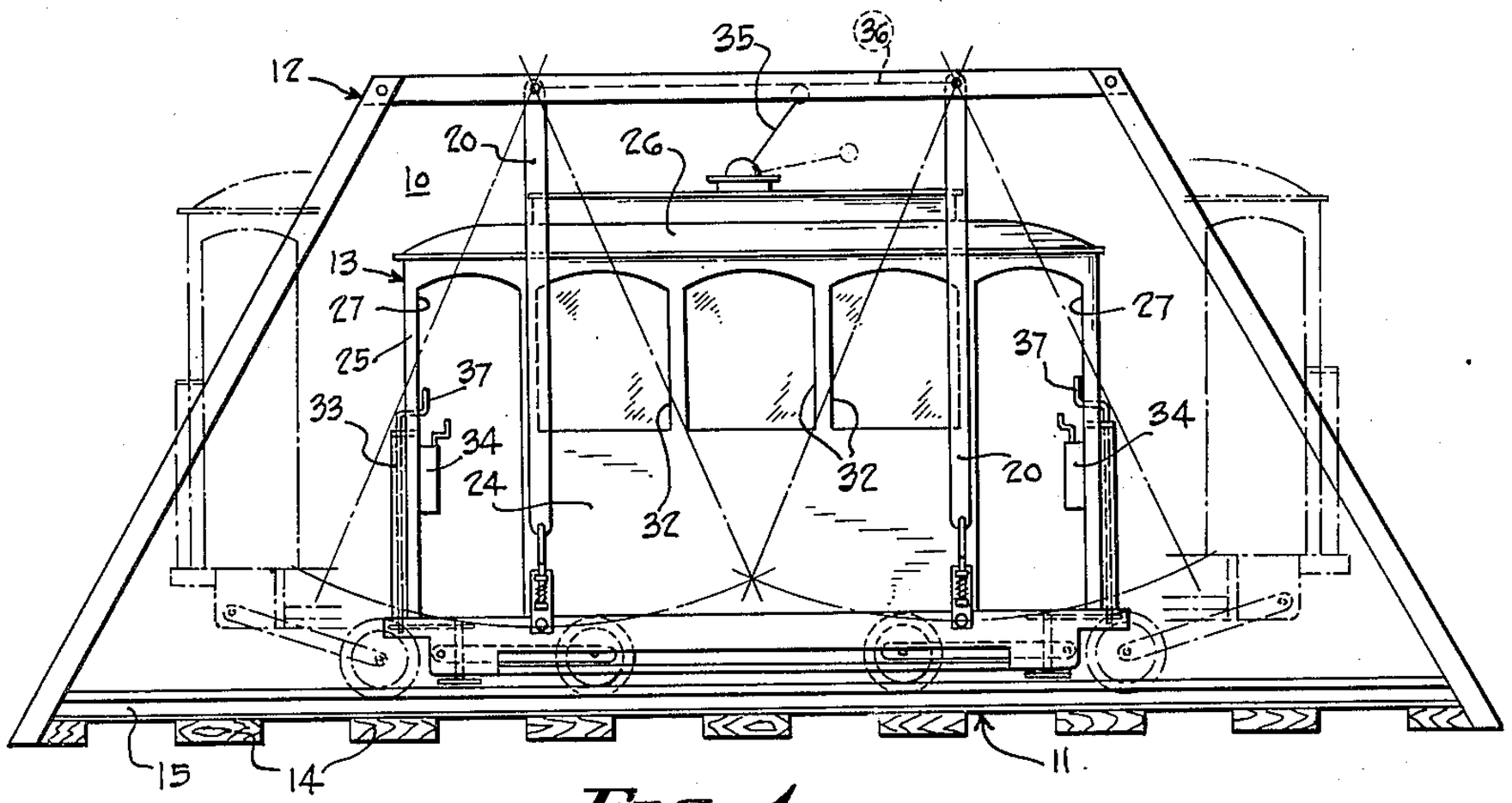

FIG. 1

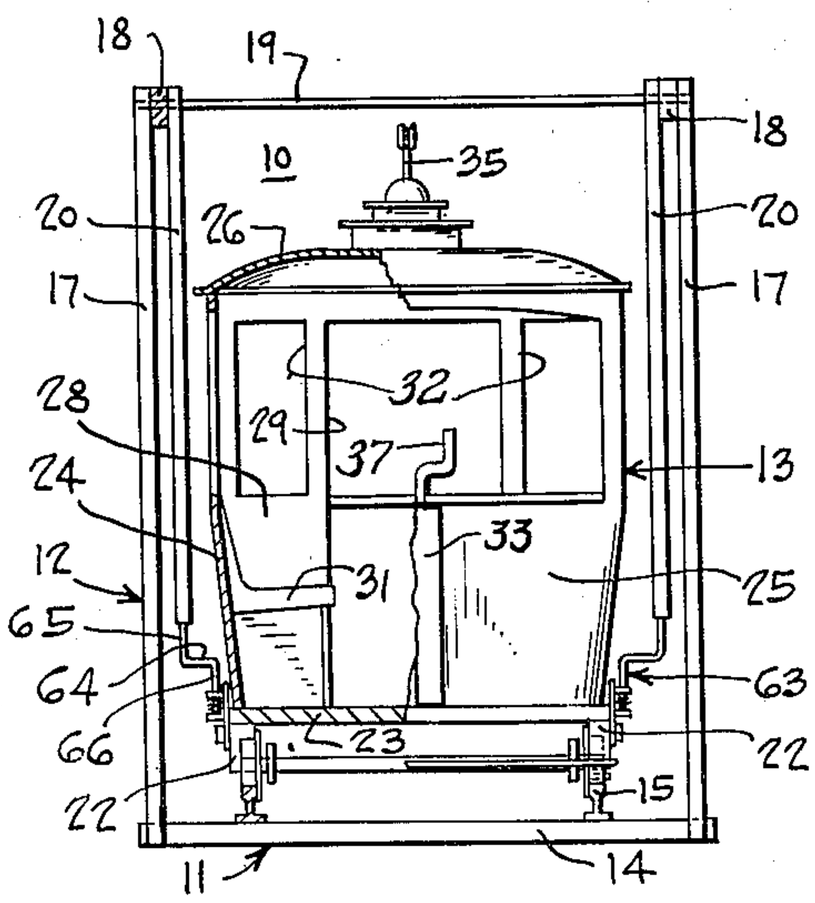

FIG. 2

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LAWN SWING

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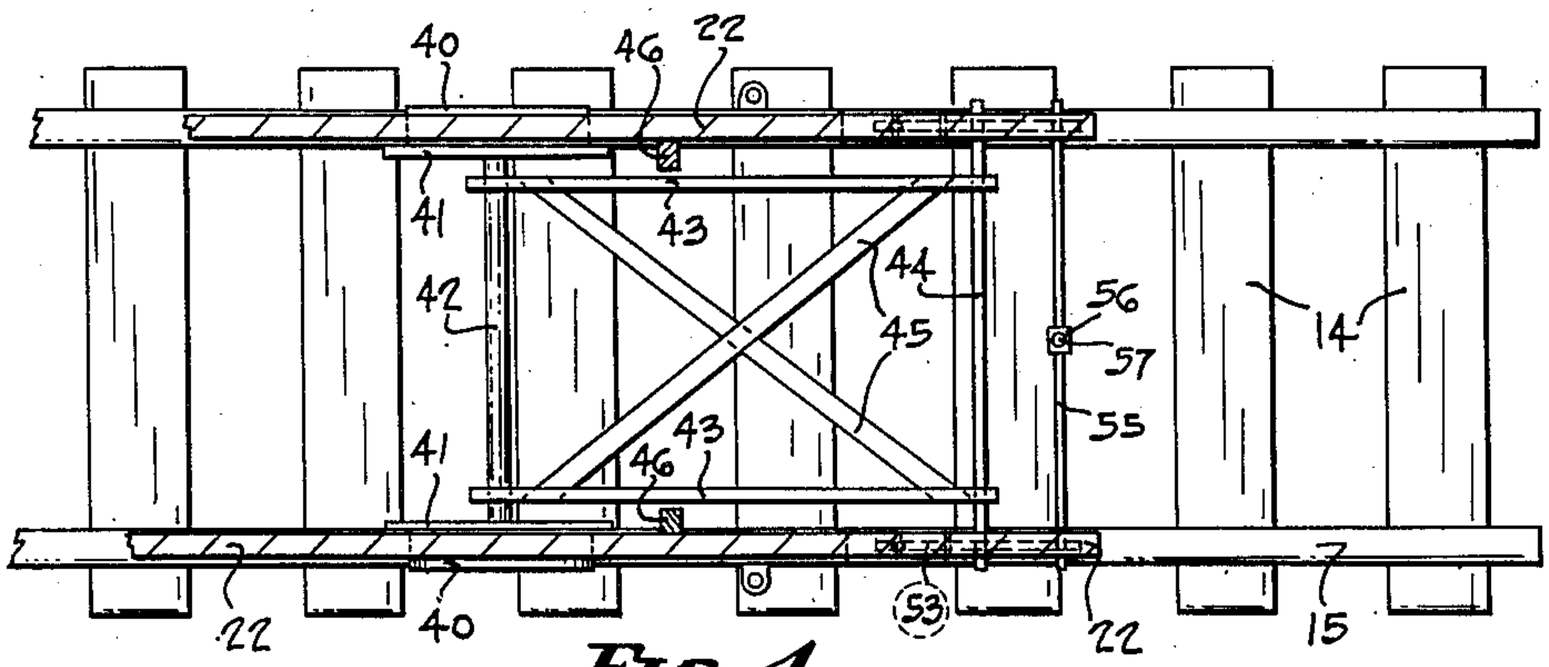
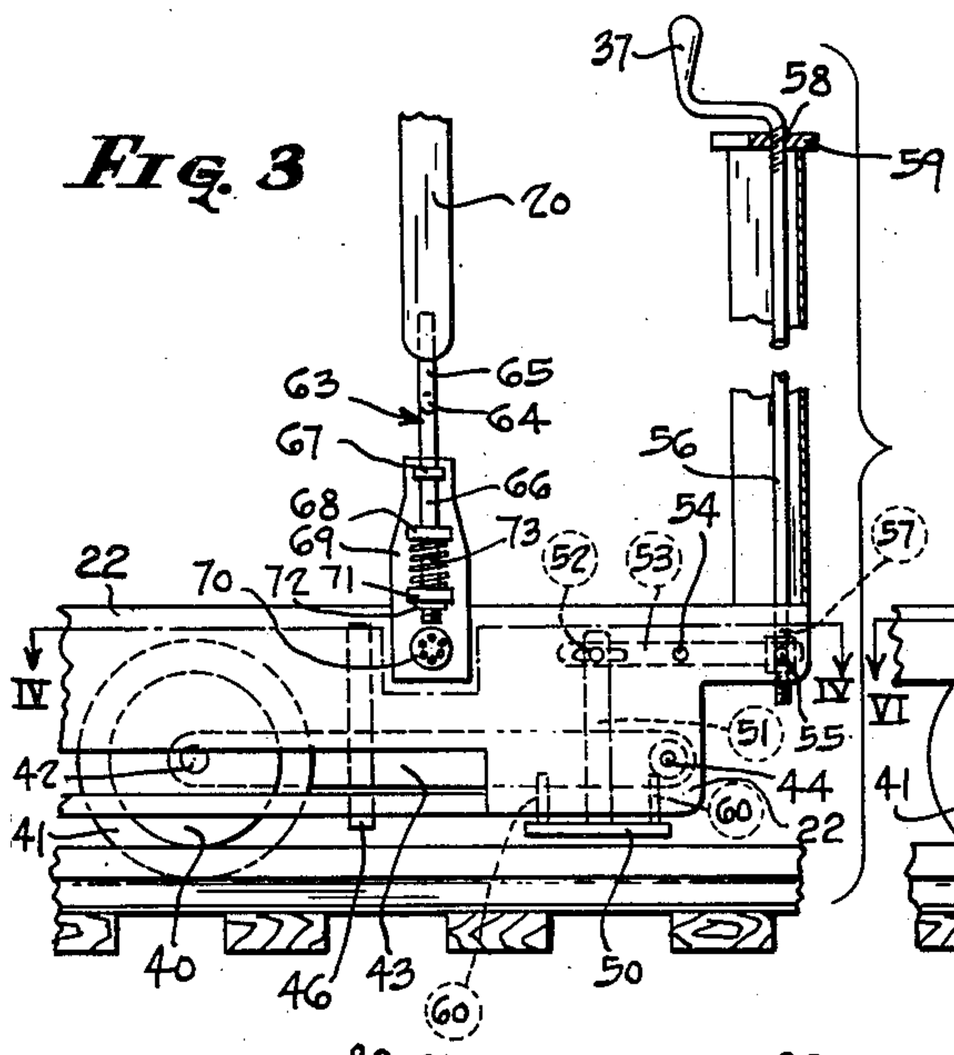


FIG. 4

FIG. 3



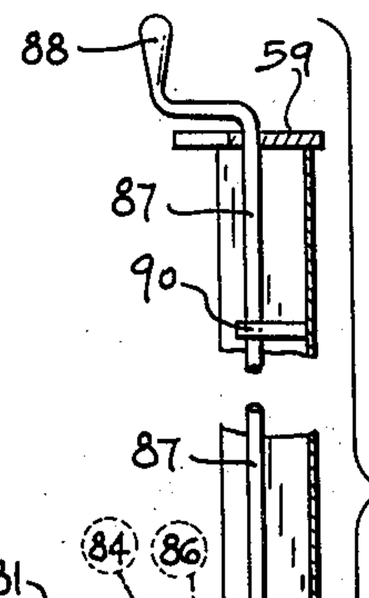
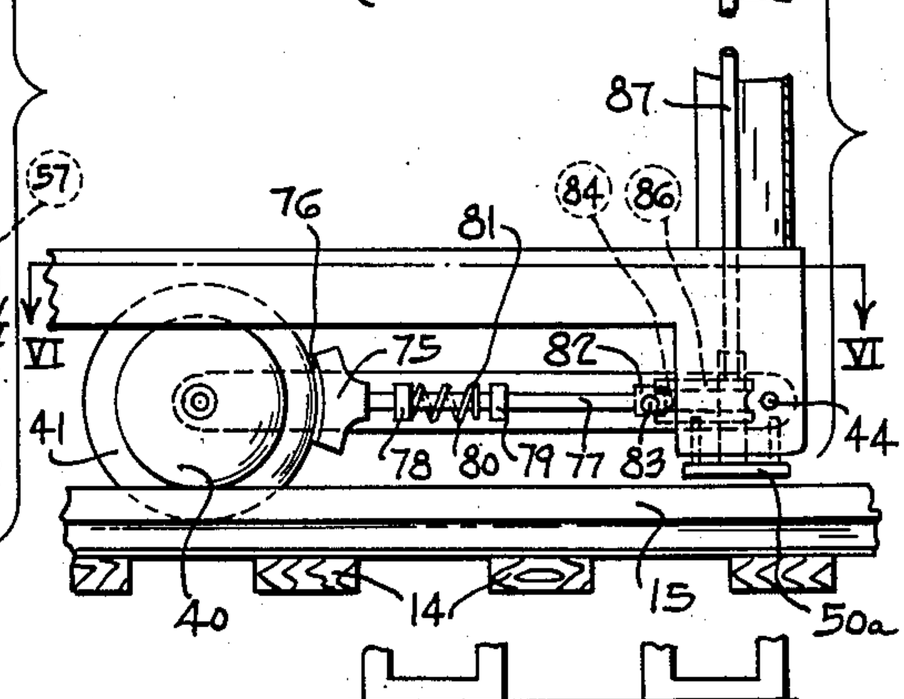


FIG. 5



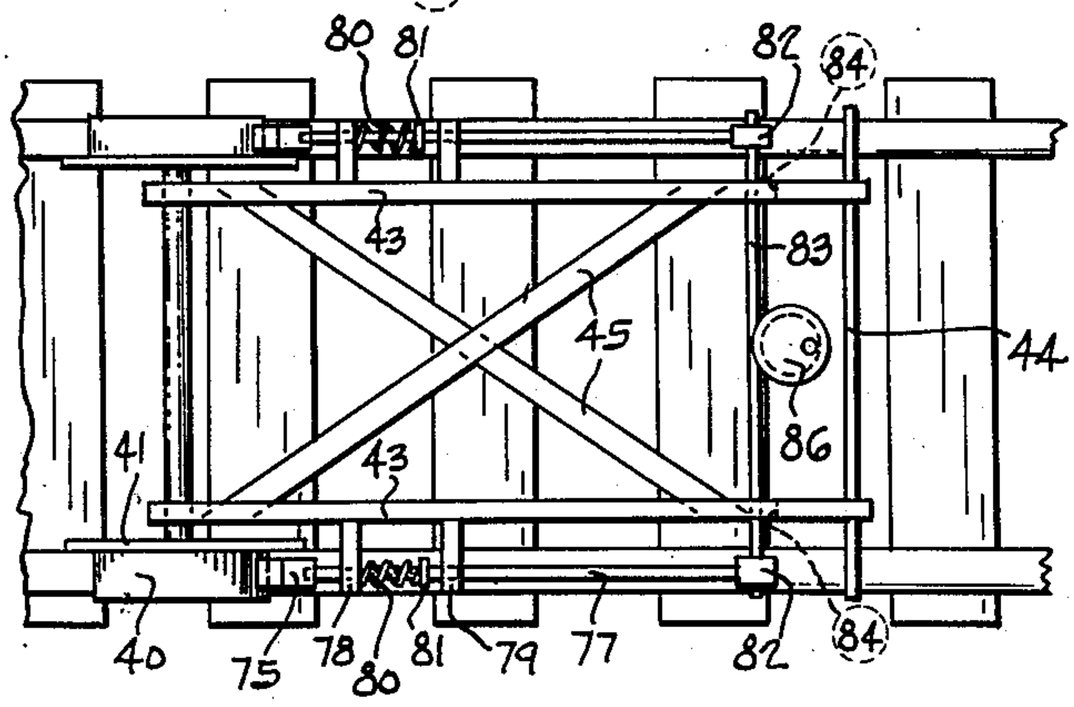


FIG. 6

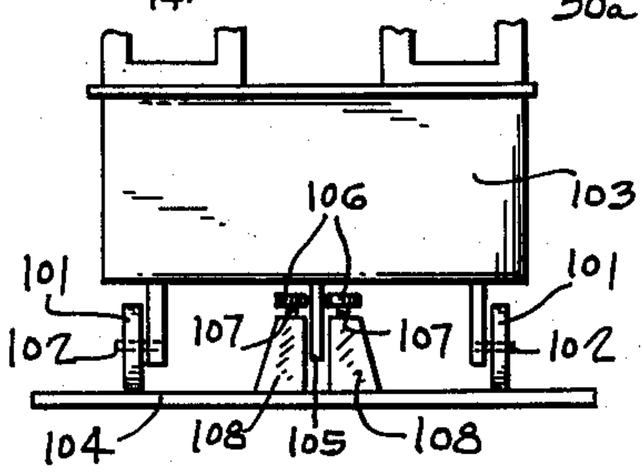


FIG. 7

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2,548,443

LAWN SWING

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8 Claims. (Cl. 155—57)

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This invention relates to lawn swings, more particularly to swings adapted for use by a plurality of persons, and has for an object to provide an improved swing of this type.

Another object of the invention is to provide a lawn swing wherein the swing body is constructed to simulate a vehicle.

A further object of the invention is to provide a swing whose body simulates a vehicle having a plurality of wheels and whose base simulates a track structure, for example, a railroad or trolley track.

Another object of the invention is to provide a lawn swing whose base is constructed in the form of a street car track or a railroad track and whose swing body simulates a track-riding vehicle and is equipped with a plurality of wheels adapted to roll on said tracks during normal swinging movement of the swing body.

Yet another object of the invention is to provide a lawn swing whose body carries a plurality of wheels adapted to roll on a stationary track during swinging movement of the body and including means enabling the wheels to prevent side sway of the swing body.

A further object of the invention is to provide a novel safety overload mechanism for a lawn swing which will automatically prevent swinging movement of the swing body when too many persons attempt to use the swing simultaneously.

Another object of the invention is to provide novel braking mechanism for slowing and/or stopping the swinging movement of lawn swings.

These and other objects are effected by the invention as will be apparent from the following description and claims, taken in accordance with the accompanying drawings forming a part of this application, in which:

Fig. 1 is a side elevational view of a lawn swing constructed in accordance with the present invention;

Fig. 2 is an end elevational view of the structure shown in Fig. 1, a portion of the outer structure being broken away in part to show the interior construction;

Fig. 3 is an enlarged fragmentary view of a portion of the structure shown in Fig. 1;

Fig. 4 is a sectional view, taken along the line IV—IV of Fig. 3, looking in the direction indicated by the arrows;

Fig. 5 is an enlarged fragmentary view similar to Fig. 3, but showing a modified braking structure;

Fig. 6 is a sectional view, taken along the line VI—VI of Fig. 5, looking in the direction indicated by the arrows, a portion of the structure being omitted for the sake of clearness; and,

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Fig. 7 is a fragmentary end elevational view of a modified tracking or guiding structure.

Referring now to the drawings more in detail, and particularly to Figs. 1 and 2 thereof, the reference character 10 indicates, in its entirety, a lawn swing comprised of three major elements; a base 11, a frame 12, and a body 13.

The base 11 consists of a plurality of spaced parallel cross members or ties 14 on which are secured a pair of spaced parallel elongated rails 15 extending at right angles to the ties 14. It will be apparent from consideration of Figs. 1 and 4 that the base members 14 and 15 simulate the cross ties and rails, respectively, of a railroad or streetcar track.

Extending above the base 11, and preferably secured thereto, is the frame 12 comprised by a plurality of corner members 17, horizontal side members 18 and horizontal cross members 19. If desired, two of the last-mentioned members may be in the form of round rods serving as pivots for two pairs of links 20, which extend downwardly therefrom in parallel relation adjacent the sides of the frame and serve to pivotally support the swing body 13 for arcuate swinging movement relative to the frame 12 and base 11, in a plane parallel to the rails 15.

While in the construction herein illustrated the frame 12 is secured to base 11, it will be apparent that it may be independent thereof, for example, by securing the corner members 17 in the ground where the swing is located outdoors.

Preferably, the swing body 13 is constructed to simulate a vehicle of the common carrier type, for example, a railroad freight car, box car, caboose, street car, subway car, bus, delivery wagon, ambulance, fire engine, etc. In the construction herein illustrated, a street car has been shown, having a pair of parallel side members 22 carrying a floor 23. Side walls 24 and end walls 25 define the passenger-carrying space, which is covered by the roof 26. Side doorways 27 at both ends of the vehicle provide access to the passenger-carrying space, and this space is separated by a pair of intermediate transverse walls 28 into platform spaces at each end and a central interior space, access to the latter space being provided by doorways 29 in the walls 28. Opposed benches or seats 31 are provided along the sides of the interior space, and the side walls 24 preferably include windows 32. Additional windows 32 may be provided in the transverse walls 28, at both sides of the door-

ways 29. Preferably, the vehicle is of sufficient height for children to stand upright therein, and for adults to sit upright, if not to so stand. The resemblance to an actual trolley may be furthered by inclusion of auxiliaries such as the control box 34, trolley pole 35 adapted to ride on wire 36, and brake handle 37.

An important feature of the present invention is the provision of wheels 40, of which two pairs are shown. These wheels are flanged, as at 41, and are adapted to roll on the rails 15 as the swing body 13 moves through the arc of its travel. In order that the wheels may have straightline rolling motion on the tracks while the vehicle is moving in an arc, the wheels are mounted on shafts 42 (Figs. 3 and 4), carried by one end of a pair of spaced parallel arms 43 whose other ends are pivotally mounted on cross rod 44, carried by the floor-supporting side members 22. Preferably, the parallel wheel-supporting arms 43 are strengthened by diagonal braces 45. It will be apparent that as the swing body, including the floor-supporting side members 22, moves in an arcuate path the wheel-supporting arms 43 will pivot about the rods 44 and the wheels 40 will remain on the rails 15.

Heretofore, lawn swings of this overhead-pivoted type have been subject to the danger of damage resulting from side sway or side swing of the body relative to the frame, resulting in collision of the body and frame with consequent damage thereto, and injury to the users of the swing. In the present invention the flanged wheels 40 and the rails 15 cooperate to prevent side sway of the body 13 relative to the frame 12, thereby positively eliminating any possibility of collision between these two elements.

To avoid any possible failure in this tracking or guiding function of the wheels, due to play in the wheel-supporting structure, a pair of vertical posts 46 are secured to the floor-supporting side members 22 and extend downwardly in guiding relation to the pair of wheel-supporting arms 43 (Figs. 3 and 4).

The floor-supporting side members 22 carry, at each end, a brake shoe 50 overlying a rail 15 and adapted to engage the upper surface of the latter under certain conditions. As best shown in Fig. 3, each brake shoe 50 is carried by a vertically-movable post 51 having a pin and slot connection, at 52, with one end of a lever 53 pivoted intermediate its ends, as at 54, and connected at its other end with a transverse rod 55. This rod 55 is adapted to be raised and lowered upon rotation of the vertical rod 56 with which it is threadedly connected, at 57. The rod 56 is threaded, at 58, through a horizontal plate 59 and terminates in the brake handle 37 (Fig. 3). The threaded portions 57 and 58 of the rod 56 are reversely threaded with the result that when the handle 37 is rotated counterclockwise the rod 56 will move upward and the adjacent end of the lever 53 will also move upward, but twice as far and twice as fast, with corresponding downward movement of post 51 and brake shoe 50 until the latter drags on the track during movement of the swing body 13 through the central portion of its arcuate travel, this engagement of the brake shoes with the tracks serving to bring the swing body to a stop. Preferably, the brake shoes 50 are elongated in parallelism with the rails 15, and are maintained in that relation by guide or dowel pins 60 carried by the brake shoes and sliding in mating recesses in the side members 22.

Another important feature of the present invention lies in the automatic overload safety

mechanism, now to be described. Referring to Figs. 2 and 3, it will be seen that the links 20, which connect the swing body 13 to the frame 12, terminate at their lower ends in rods 63 which are of stepped construction intermediate their terminal portions, as at 64, so that while the lower terminal portions 65 are disposed adjacent and secured to the swing body side members 22, the upper terminal portions 66 are spaced outwardly relative to the swing body to provide ample clearance between the body and the links 20 which extend upwardly from the rod upper terminal portions 66.

The lower terminal portions 65 of the rods 63 are slidably received in aligned openings in pairs of lugs 67—68 projecting from the side of plates 69. Each plate 69 is pivotally mounted, as at 70, to one of the body side members 22. A heavy washer 71 is retained on each terminal portion 66 of each rod 63 by suitable means, such as the nuts 72, and a heavy coil compression spring 73 is disposed between each lower lug 68 and the washer 71 in surrounding relation to each rod lower terminal portion.

It will be apparent that as the load carried by the swing body 13 increases, the springs 73 will be compressed until, when a predetermined safe load is exceeded, the springs will be shortened and the body lowered to such a degree that the brake shoes 50 contact with the rails 15, whereupon swinging of the body 13 will automatically be prevented until the load has been decreased sufficiently to permit the springs to raise the body and its brake shoes so that the latter clear the rails.

In the same manner, the spring supports will function to prevent damage from concentrations of the load at one end of the body, as for example, when all the children or persons on the swing gather on one platform, in which case the springs 73 of the pair of links adjacent that end will compress and cause engagement of the brake shoes at that end with the rails, thereby preventing swinging until the load is more uniformly distributed.

In the modified construction illustrated in Figs. 5 and 6, the brake shoes 50*a* are not manually adjustable, as in the previously described construction, but act only upon overloading of the swing body 13. In this construction, manual braking action is applied to the wheels 40 by brake shoes 75 which may be provided with special wear surfaces 76. The brake shoes 75 are carried at the ends of brake rods 77, slidably mounted in pairs of lugs 78—79 carried by the wheel-supporting arms 43. Coil springs 80, surrounding the rods 77 and compressed between the lugs 78 and opposed blocks 81 fixed on the rods, normally urge the brake shoes away from the wheels. The other ends of the brake rods 77 are connected, at 82, to a transverse operating rod 83, mounted in elongated openings 84 in the wheel-supporting arms 43.

Movement of the operating rod 83 towards the wheels to apply the brakes is effected by rotation of the cam wheel 86, whose grooved edge rides on the rod 83 at all times. The cam wheel is rotated by the vertical rod 87, which terminates in a manually operable crank 88, the rod 87 being vertically slidable in the plate 59 and the supporting lug 90, to accommodate the vertical movement of operating rod 83 resulting from pivoting of the wheel-supporting arms 43 about their pivotal mounting on rod 44 during arcuate movement of the swing body 13.

While the invention has been shown in a plurality of forms, it will be apparent to those skilled in the art that it is not so limited, but is susceptible of various changes, modifications and applications without departing from the spirit thereof.

In Fig. 7 there is shown a modified tracking or guiding mechanism wherein unflanged wheels **101** are rotatably supported from axles **102** fixed to the swing body **103**, these wheels being adapted to roll on the ground or floor or on a base **104**, or may remain out of contact therewith. Lateral swing or sway of the body **103** is prevented by a guide strip or keel board **105** depending from the body **103** and guided by and between opposed rollers or wheels **106** mounted on vertical axes **107** extending upwardly from supports **108**.

Throughout the specification and claims the term "lawn swing" is not intended to limit the invention to swings used only on lawns, as swings embodying the invention may be used in amusement parks, playrooms, homes, basements, and numerous other places. The term merely indicates one of the better known types of swings to which the invention is particularly applicable.

What is claimed is:

1. In a lawn swing, a base including a pair of parallel spaced rails, a frame carried by said base, a body supported solely by means having pivotal mounting on said frame for swinging movement relative to said frame and base, a pair of wheels, and means mounting said wheels on said body for vertical movement relative thereto, said wheels being adapted to roll on said pair of rails throughout swinging movement of said body.

2. In a lawn swing, a base construction having major and minor axes, a frame extending up from said base construction, a body construction, means pivotally supporting said body construction entirely from said frame by a plurality of parallel links for swinging movement in a plane parallel to the major axis of said base construction, rail structure fixedly secured to one of said constructions, a pair of wheels, links supporting said wheels from the other of said constructions, said wheels being adapted to engage opposite sides of said rail structure at all times, whereby deviation of said body construction from said plane parallel to said base construction major axis is resisted.

3. In a lawn swing, a base including a pair of parallel spaced rails; frame structure secured to and extending upwardly from said base; a body; a plurality of parallel links pivotally supporting said body from said frame for swinging movement of the body in an arc lying in a vertical plane including the vertical planes of said pair of rails, said parallel links constituting the sole support for said body; a pair of wheels adapted to roll on said pair of rails during swinging movement of the body; and means mounting said wheels on said body for swinging movement relative thereto, whereby said wheels may have straight line rolling movement on said rails while said body moves arcuately relative to said rails.

4. Structure as specified in claim 3, including braking mechanism associated with said pair of wheels and operable from said body.

5. In a lawn swing, a base, a frame thereon, a body, means mounting said body from said frame for arcuate movement relative to and above said base, and resilient overload mechanism for preventing arcuate movement of said body when the weight carried thereby exceeds a predetermined amount.

6. In a lawn swing, a base; a frame on said base; a body; a plurality of links pivotally supporting said body from said frame for swinging movement of said body relative to said base; and resilient means associated with said links and normally supporting said body free of said base and adapted, when the load on said body exceeds a predetermined value, to cause said body to engage said base, thereby preventing swinging movement of the body when the latter is overloaded.

7. In a lawn swing, a base, a frame on said base, a body, means pivotally mounting said body on said frame for swinging movement relative to said frame and base, a wheel-supporting structure pivotally mounted on the body, a pair of wheels carried by said wheel-supporting structure and adapted to roll on said base throughout swinging movement of said body, manually operable first braking means associated with said wheels for retarding swinging movement of the body, and automatically operable second braking means carried by said body and adapted to frictionally engage said base upon overloading of said body to prevent swinging movement of the latter.

8. In a lawn swing, a base including a pair of spaced parallel rails and cross ties associated with said rails, a frame disposed on said base, a swing body simulating a wheeled vehicle, means mounting said body on said frame for arcuate movement relative to said frame and base in a vertical plane parallel to said rails, a pair of wheels adapted to roll on said pair of rails during arcuate movement of the swing body, movable arms connecting said wheels with said swing body, said movable arms providing for vertical movement of said wheels relative to said body during arcuate movement of the latter, and braking mechanism carried by said swing body and adapted to be moved into frictional engagement with said rails. to retard swinging movement of the swing body.

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