

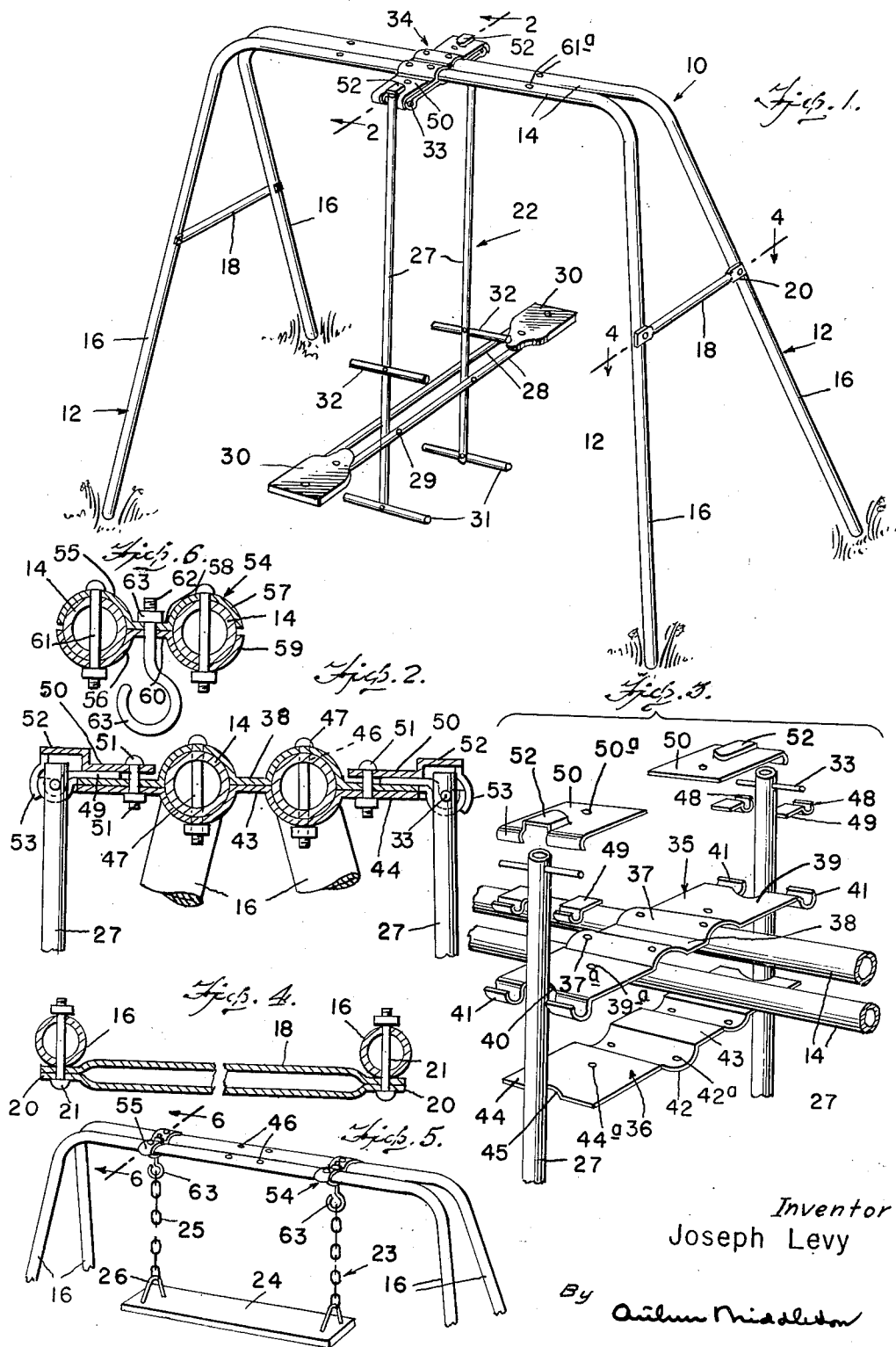
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DEMOUNTABLE SWING SUPPORT

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DEMOUNTABLE SWING SUPPORT

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This invention relates generally to gymnastic play structures and is directed particularly to structures having swinging units for the amusement of children.

Playground structures of a large number of different designs are at present to be had in which there are provided swinging units of various types which include chain suspended seats, gliders and bars, such units being suspended from a horizontal rail structure by means of hook bolts which pass through the rail and are permanently secured thereto or by means of cross members permanently attached to the horizontal supporting rail. Such structures further include pairs of leg members arranged with a cross coupling bar in the form of the letter A, the convergent ends of the legs being more or less permanently secured to the ends of the horizontal head rail from which the swinging units are suspended. Such structures are primarily intended for out-door use and the connecting means between the parts soon become so tightly joined together by corrosion that it is extremely difficult, if not impossible, to take down the structure for storage or transportation to another location for use.

The play structure of the present invention embodies a supporting structure from which a swing or glider unit may be suspended, which is formed and assembled in a new and novel manner whereby the several parts can be readily separated.

It is, accordingly, an object of the present invention to provide a gymnastic play structure of the above described character which is designed and assembled in a new and novel manner whereby the parts of the structure can be easily separated to facilitate use of the structure indoors or out of doors as may be desired.

Another object of the invention is to provide a play structure of the character stated wherein the supporting structure for the swinging units comprises two inclined frames having juxtaposed head rails, with a novel means for coupling the head rails together which also functions as a supporting means for a swinging unit.

A further object of the invention is to provide a play structure of the above described general character wherein the swinging unit support comprises a pair of frames having juxtaposed head rails and means for swinging suspending a unit such a swing or glider, from such head rails, which includes an elongate saddle plate disposed transversely of the head rails and joined to each whereby it couples the head rails together and other means by which the swinging unit can be suspended from such saddle plate for free movement beneath the head rails.

A still further object of the invention is to provide a new and novel means for suspending a free swinging unit upon which a child or adult may ride, which means comprises a pair of opposed elongate clamping plates between which a rail of a supporting structure is secured and wherein one of said plates is formed to provide a pair of bearing stirrups in which is positioned for turning movement a bearing pin carried by a part of the swinging unit.

The invention broadly contemplates the provision of two substantially U-shaped frames arranged in inverted position whereby each provides a horizontal head rail and a pair of leg rails or side rails, the side rails of the frames being disposed in downwardly divergent relation with a cross brace between them.

The free swinging units upon which a child or adult may ride, comprise in one form a seat and a pair of suspension chains and in another form a pair of seats connected by horizontal bars which are in turn joined

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The means for connecting the free swinging units with the head rails of the supporting frames comprises in each instance an elongate plate member disposed transversely of the tops of the head rails and secured to the latter whereby such plate member couples the head rails together. Thus the coupling plate, or plates, performs the double function of detachably securing together the head rails of the frames and supporting the swinging units.

In the case of the swinging unit having the seat and suspension chains, a pair of plates is employed, each of which carries a hanger hook from which a chain is depended and, in the case of the glider type swinging unit, the connecting plate between the head rails includes bearing stirrups positioned at opposite sides of the head rails and in which hang for turning movement horizontally disposed pivot pins or axles carried by and extending transversely of the hanging bars.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawing forming part of the specification, with the understanding that the invention is not confined to a strict conformity with the showing of the drawing but may be changed or modified within the scope of the appended claims.

In the drawing:

Fig. 1 is a view in perspective of a gymnastic play structure constructed in accordance with the present invention and showing one form of swinging unit.

Fig. 2 is a transverse sectional view taken substantially on the line 2—2 of Fig. 1, the figure being on an enlarged scale.

Fig. 3 is a separated or exploded view of the coupling and suspension means for the swinging unit shown in Fig. 1.

Fig. 4 is a detail section taken substantially upon the line 4—4 of Fig. 1.

Fig. 5 is a fragmentary view illustrating the means for coupling together the head rails of the frames and supporting a swinging unit of the type comprising a seat and suspension chains.

Fig. 6 is a sectional view of a detail along the line 6—6 of Fig. 5.

Referring now more particularly to the drawing, the numeral 10 generally designates the support for the hereinafter described free swinging units. This support comprises the two frames 12 which are of duplicate form and each of which is preferably of substantially U-shaped configuration as illustrated and comprises the horizontal head rail 14 and the two side rails 16 which extend from the ends of the head rail 14 in substantially right-angular relation thereto.

In the set up structure, the frames are disposed in inverted position and are inclined toward one another so as to bring the head rails 14 into juxtaposed relation as illustrated particularly in Fig. 2. The side rails 16 of the two frames thus extend downwardly in divergent relation and the adjacent side rails of the two frames are rigidly but detachably joined together by the interposed brace bar 18 which is here illustrated as having flattened ends 20, each of which is disposed across a rail 16 to which it is secured by the removable bolt 21, or in any other suitable manner. The support 10 as a whole thus has a horizontal top part made up of the head rails 14, and side legs each made up of two side rails joined together by the intermediate brace bar 18.

The horizontal top of the support, comprising the head rails 14, has suspended from it a swinging unit adapted to support a person, particularly a child, and there are here shown two different units, one of which is generally designated 22 and which may be identified specifically as a glide swing unit, while the other unit which is generally designated 23 is in the form of a conventional swing which comprises a seat 24 having at each end a means for attaching thereto an end of a suspension chain 25.

The means for attaching an end of the chain to an end of the seat 24 is here illustrated as comprising an upstanding U bolt 26 but obviously any other suitable means may be employed for this purpose.

The glide swing unit 22 comprises the two vertical, spaced suspension poles 27 which extend at their lower

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ends between two horizontally disposed spaced parallel seat supporting bars 28.

Extending transversely through the pair of bars 28 and through the interposed poles 27 are the coupling pivot bolts 29. These bolts function to pivotally join the poles 27 with the spaced seat supporting bars 28 and they also support the seat bars from the poles as illustrated.

The outer ends of the seat bars 28 support seat members 30 and such ends of the bars 28 are coupled together by the seats as will be readily apparent.

The lower ends of the poles 27 have secured thereto, below the seat supporting bars 28, the transversely disposed foot bars 31 while at the proper elevation above the seat bars 28, each of the poles 27 has secured thereto the transversely extending handle bar 32 which is grasped by an occupant of the seat 30 who rests his feet upon the adjacent foot bar 31.

Secured to and extending transversely of the top end of each suspension pole 27 is an axle 33, the ends of which project equal distances beyond the two sides of the carrying pole as is clearly shown in Fig. 3. These axles are mounted for turning movement in suitable bearing stirrups carried by the top of the support 10 in the manner about to be described whereby the glide swing unit 22 may be caused to freely pendulate under the action of occupants of the seats 30 cooperatively pushing and pulling upon the adjacent handle and foot bars.

The combined suspension means and head rail coupling means for the unit 22 is generally designated 34. This comprises two plates 35 and 36 which are arranged in clamping relation with respect to the head rails 14 which are interposed therebetween, the plate 35 being shown as the top plate and the plate 36 as the bottom or under plate.

The plates 35 and 36 are of substantial length whereby when they are disposed transversely of the rails 14 they will project a substantial distance beyond the opposite or remote sides of the rails and such plates are also of substantial width for the purpose about to be described.

The top plate 35 is pressed or otherwise suitably formed to provide the two spaced, transversely disposed and downwardly opening channels 37, there being a narrow spacing portion of the plate between the channels as indicated at 38 while at the outer side of each of the channels 37 a substantial portion of the plate extends outwardly as indicated at 39.

The outer or transverse edge of each of the portions 39 has a central recess 40 therein and the two parts of the plate thus formed are bent to provide the two spaced aligned and upwardly opening bearing stirrups 41.

Each of the recesses 40 is of a size to readily receive the upper end of a pole 27 and the bearing stirrups are designed to receive the end portions of the adjacent axle 33 whereby the pole is suspended for free swinging movement in a vertical plane extending transversely of the head rails of the support.

The channel portions 37 of the plate 35 are provided with bolt openings 37a as shown and the outer portions 39 of the plate each has a bolt opening 39a therethrough for the purpose hereinafter set forth.

The bottom plate 36 is preferably of the same width as the plate 35 but of less length and, like the plate 35, it is provided with the two transverse channels which are designated 42 and which have the same spacing as the channels 37 to receive the head rails 14.

The channel portions 42 have formed therethrough bolt apertures 42a which are spaced or located to align with the apertures 37a of the top plate 35.

Between the channels 42, the plate 36 has the spacing web 43 which opposes the portion 38 of the top plate and, outwardly of the channels 42, the plate is formed by the lateral extensions 44 which oppose the outer portions 39 of the top plate.

The extensions or outer portions 44 also have bolt openings 44a aligning with the openings 39a of the top plate and the outer transverse edge of each portion 44 of the under plate has a recess 45 therein in which the adjacent side of a suspension pole 27 is located.

The suspension and coupling means 34 is joined to the head rails 14 by locating the under plate 36 with the rails positioned in the channels 42 and positioning the upper plate 35 across the tops of the rails with the latter positioned in the channels 37. The portions 38 and 43 of the plates come together as illustrated in Fig. 2 and form a spacer between the rails and the rails 14 are pro-

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vided with suitable bolt apertures 46 which align with the apertures 37a and 42a to receive the securing bolts 47. Thus the plates 35 and 36 rigidly couple the head rails together and the bearing stirrups 41 are disposed at a substantial distance outwardly from the head rails to receive the axles 33 carried by the suspension poles 27, as illustrated.

Formed for positioning within each of the bearing stirrups 41 is a semi-cylindrical bushing 48 in which the axles 33 are located. Thus, while the axles 33 are actually supported in the bearing stirrups 41, they are in engagement with these semi-cylindrical bushings 48 which are interposed between the axles and the stirrups as is clearly shown in Fig. 2.

Each of the bushings 48 has formed integral with one side edge, the flange 49 which extends inwardly from the stirrup in which the bushing is located and rests upon the top of the adjacent plate portion 39.

Disposed over the top of each of the portions 39 of the top plate 35 and bearing upon the bushing flanges 49 is an axle retaining means in the form of a cap plate 50 which has an aperture 50a which aligns with the underlying aligned apertures 39a and 44a and passing through these aligned apertures 50a, 39a and 44a, is a securing bolt 51 as shown in Fig. 2.

The outer portion of each cap plate has a central upwardly pressed portion forming a hood 52 which overlies or covers the top end of the adjacent pole 27 and upon opposite sides of the hood 52 is a depending inwardly curved lip 53 which forms an integral portion of the adjacent edge of the cap plate 50 as shown in Fig. 3. These lips 53 which are in spaced relation, engage against the outer sides of the adjacent underlying bearing stirrups 41, curving downwardly and part way around the stirrups as shown in Fig. 2.

The cap plates 50 firmly clamp the bushings 49 in position and they also function to prevent the axles 33 from rising or jumping out of the bearing stirrups and bushings as will be readily apparent from reference to Fig. 2 of the drawing.

The spacing between the bearing stirrups at one end of the suspension means 34 and the stirrups at the opposite end of the suspension means is the same as the spacing between the coupling bolts 29 by which the lower ends of the poles are pivotally connected to the seat supporting bars 28. Accordingly, it will be seen that the poles 27 hang in parallel relation and will maintain this relation during the swinging or gliding of the unit 22 and consequently it will be seen that the bars 28 and the seat supported thereon will also move back and forth in an upwardly curving arc while maintaining a horizontal position.

The swing unit 23 is connected to the top or head rails 14 of the support by two suspension and coupling means, each of which is generally designated 54 and each of which is, in part, of similar construction to the suspension and coupling means 34 in that each means 54 comprises an upper plate 55 and a lower plate 56.

The plates 55 and 56 extend transversely of the head rails 14 and the upper plate is formed to provide the two transversely extending channels 57 connected by a straight intermediate portion 58 while the lower plate 56 is similarly formed to provide the two transverse channels 59 connected by the intermediate flat portion 60.

As shown in Fig. 6, when these plates 55 and 56 are in operative superposed relation, the channels of the upper plate will be opposed to the channels of the lower plate forming substantially circular receivers in which the head rails 14 are seated and the intermediate portions 58 and 60 will come into close relation or bear one against the other and function to separate the rails 14.

Suitable securing elements in the form of bolts 61 pass through the opposing channel portions of the upper and lower plates and through apertures in the interposed head rail 14 to couple the parts together as illustrated in Fig. 6.

The central portions or intermediate portions 58 and 60 of the plates 55 and 56 are provided with suitable aligned apertures to receive the threaded shank portion 62 of a hook 63. This shank portion is extended upwardly through the openings in the intermediate portions 58 and 60 and receives the holding nut which is threaded thereon as shown.

When the structure is set up for use with the glide swing unit 22 as shown in Fig. 1, the suspension and coupling means 54 for the swing 23 may be removed

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or left off if desired or they may be left in position as they will not interfere with the use of the unit 22 but will, on the other hand, add to the rigidity of the structure in cooperation with the suspension and coupling means 34. Likewise, when the swing 23 is to be used, the unit 22 may be detached by removing the cap plates 50 and the bearings 48, allowing the top and bottom plates 35 and 36 to remain in position, if desired, where they will add to the rigidity of the structure by holding the head rails 14 in operative relation one with the other, as will be obvious.

From the foregoing, it will be seen that the present invention embodies a number of new and original features in a structure of the character claimed in the fact that the construction can be readily assembled and disassembled for use or for storage; the glide swing suspension means can be attached to the supporting structure for use without welding or otherwise permanently joining the parts so that such parts can be separated at will; the glide swing unit uprights or suspension poles have a bearing rest in the suspension and coupling means which allows smooth swinging motion and, at the same time, provides maximum safety in that the suspension poles cannot become detached from the support; the suspension and coupling means for both the glide swing unit and the conventional swing unit not only provide a required means for supporting the units but also perform the added function of firmly coupling together the top rails of the support frames, and finally the new and novel features provide for the ready adaptability of the device to either indoor or outdoor use as desired.

I claim:

1. A play structure comprising a support having an elongate, elevated top part, a rider supporting unit having seats designed for pendulate movement below said top part, said unit including two upright poles, an elongate suspension means for said unit, said suspension means being disposed across and secured to said top part, and means forming pivot couplings between the top ends of said poles and the ends of the suspension means, said suspension means including a plate, and said pivot couplings comprising an upwardly opening stirrup bearing at each end of said plate and an axle member carried by and perpendicular to each pole and seated for turning movement in a bearing.

2. A play structure comprising a support having an elongate, elevated top part, a rider supporting unit having

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seats designed for pendulate movement below said top part, said unit including two upright poles, an elongate suspension means for said unit, said suspension means being disposed across and secured to said top part, and means forming pivot couplings between the top ends of said poles and the ends of the suspension means, said suspension means including a pair of superposed plates having said top part secured therebetween, and said pivot couplings comprising a pair of substantially semicylindrical upwardly opening bearing stirrups in spaced relation at and directed across each end of the uppermost plate of said pair, an axle member carried by and extending across the top end of each pole, the end portions of each axle lying in a pair of bearing stirrups with the adjacent end of the pole in the space between the stirrups, and means for retaining the end portions of each axle in their stirrups.

3. The invention according to claim 2, wherein said retaining means comprises a cap plate secured to the top of each end of said uppermost plate to overlie the adjacent stirrups, each of said cap plates having a portion covering the top end of the adjacent pole.

4. The invention according to claim 2, with a bearing member within each bearing stirrup and having the adjacent axle portion resting thereon.

5. The invention according to claim 3, wherein the portion of each cap plate covering the end of the adjacent suspension pole is shaped to form an upstanding hood.

6. The invention according to claim 3, wherein the portion of each cap plate covering the end of the adjacent suspension pole is shaped to form an upstanding hood, said cap plate having a pair of depending lips at opposite sides of the hood for engagement across the adjacent bearing stirrups.

7. The invention according to claim 4, wherein each bearing includes a flange portion lying between and secured against movement by the cap plate and said uppermost plate.

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