A hanger assembly for supporting a swing device or the like from a crossbar is provided. The hanger assembly comprises a mounting housing and at least one swing member. An arc-limiting mechanism is mounted between the mounting housing and the swing member for limiting the upward rotation of the swing member relative to the mounting housing. A swivel mechanism is secured between the arc-limiting means and the swing member. An anti-wrap mechanism is mounted between the mounting housing and the swing member for inhibiting the wrapping of the swing member around the crossbar.
Front View

1 1/4" Dia. Bearing and shaft assembly
See pendulum detail change

1 1/4" Pipe - Length varies

Threaded 3/4" Bolt

1 1/4" D-Ring
Side View
1 1/4" Dia. Bearing & shaft assembly
See pendulum detail change

1 1/4" Pipe - Length varies

Threaded 3/4" Bolt
Slip Bearing

1 1/4" D-Ring
HANGER ASSEMBLY FOR SUPPORTING A SWING DEVICE OR THE LIKE

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] This invention relates generally to hanger assemblies for supporting a swing device or the like and, more particularly, the invention relates to hanger assemblies for supporting a swing device or the like which inhibit many of the inherent problems in present day hanger assemblies.

[0003] 2. Description of the Prior Art

[0004] Swing devices which are attached to an overhead support are well known in the art. A typical children's swing set includes several pieces of play equipment suspended from a fastening mechanism secured to a horizontal crossbar supported above the ground. These items of play equipment include swings, rings, tire swings, trapezes, or chains, and often a glide ride. The glide ride usually comprises a pair of rigid parallel tubes which hang down from the crossbar with a seat member attached to the lower end of the parallel tubes or chains.

[0005] Sometimes the swing set merely includes one or more swing seats suspended from the horizontal crossbar. Many of the swing seats of the conventional swing sets are commonly found in playgrounds and in home use with the swing being supported by two parallel chains, ropes, or cables from a hanger mechanism mounted to the horizontal crossbar. Unfortunately, many of the hanger mechanisms in the prior art do not limit the extent of the potential arc of the swing, do not prevent the swing from being wrapped about the crossbar, and/or do not provide a swivel mechanism to maintain the intended swing seat height off the ground.

[0006] One example of a swing device is described in the Weakly, U.S. Pat. No. 4,289,310, which describes a swing device having an upper single support cable for securing to an overhead support. The swing device of the Weakly patent has parallel spaced support cables secured with the lower end of the single support cable through a spacer connection and universal connection means and has a swing seat secured to the lower ends of the spaced support cables. While the Weakly patent describes a swivel mechanism to inhibit twisting of the parallel spaced support cables, the Weakly patent neither teaches nor suggests any mechanism which would either inhibit the potential arc of the swing during use or inhibit the swing from being wrapped around the horizontal crossbar from which the swing hangs.

[0007] Accordingly, there exists a need for a hanger assembly for supporting a swing device or the like which limits the extent of the potential arc of the swing. Additionally, a need exists for a hanger assembly for supporting a swing device or the like which inhibits the swing from being wrapped about the crossbar. Furthermore, there exists a need for a hanger assembly for supporting a swing device or the like which provides a swivel mechanism to maintain the intended swing seat height off the ground and inhibit potential twisting of the swing seat.

SUMMARY

[0008] The present invention is a hanger assembly for supporting a swing device or the like from a crossbar. The hanger assembly comprises a mounting housing and at least one swing member. Arc-limiting means are mounted between the mounting housing and the swing member for limiting the rotation of the swing member upward relative to the mounting housing. Swivel means are positioned between the arc-limiting means and the swing member.

[0009] In addition, the present invention includes a hanger assembly for supporting a swing device or the like from a crossbar. The hanger assembly comprises a mounting housing and at least one swing member. Anti-wrap means are mounted between the mounting housing and the swing member for inhibiting the wrapping of the swing member over the crossbar. Arc-limiting means are mounted between the mounting housing and the swing member for limiting the rotation of the swing member upward relative to the mounting housing. A member is included having a first end and a second end with the first end being rotatably mounted to the mounting housing and the second end being mounted to the swing member wherein the arc-limiting means includes a groove formed in the first end of the member and a pin mounted to the mounting housing, the pin receivable in the groove and limiting the rotation of the member upward relative to the mounting housing and the crossbar.

[0010] Furthermore, the present invention includes a hanger assembly for supporting a swing device or the like from a crossbar. The hanger assembly comprises a mounting housing and at least one swing member. Anti-wrap means are mounted between the mounting housing and the swing member for inhibiting the wrapping of the swing member. Swivel means are mounted between the anti-wrap means and the swing member to inhibit twisting of the seat.

[0011] Further still, the present invention includes a method for supporting a swing device from a crossbar. The method comprises providing at least one swing member, limiting the rotation of the swing member relative to the crossbar, and swiveling the swing member.

[0012] Further yet, the present invention includes a method for supporting a swing device or the like from a crossbar. The method comprises providing at least one swing member, inhibiting the wrapping of the swing member, and swiveling the swing member.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] FIG. 1 is a sectional front view illustrating the hanger assembly for supporting a swing device or the like, constructed in accordance with the present invention;

[0014] FIG. 2 is a sectional side view illustrating the hanger assembly for supporting a swing device or the like as illustrated in FIG. 1, constructed in accordance with the present invention;

[0015] FIG. 3 is a section side view illustrating the hanger assembly for supporting a swing device of the like as illustrated in FIGS. 1 and 2, constructed in accordance with the present invention;

[0016] FIG. 4 is a sectional side view illustrating another embodiment of the hanger assembly for supporting a swing device or the like, constructed in accordance with the present invention;

[0017] FIG. 5 is a sectional side view illustrating yet another embodiment of the hanger assembly for supporting a swing device or the like, constructed in accordance with the present invention;
FIG. 6 is a sectional front view illustrating still another embodiment of the hanger assembly for supporting a swing device or the like, constructed in accordance with the present invention;

FIG. 7 is a sectional front view illustrating yet still another embodiment of the hanger assembly for supporting a swing device or the like, constructed in accordance with the present invention;

FIG. 8 is a perspective view illustrating an embodiment of an arc-limiting mechanism of the hanger assembly for supporting a swing device or the like, constructed in accordance with the present invention;

FIG. 9 is a side view illustrating the embodiment of the arc-limiting mechanism as shown in FIG. 8 of the hanger assembly for supporting a swing device or the like, constructed in accordance with the present invention;

FIG. 10 is a side view illustrating another embodiment of an arc-limiting mechanism of the hanger assembly for supporting a swing device or the like, constructed in accordance with the present invention;

FIG. 11 is a side view illustrating a cable anti-wrap mechanism of the hanger assembly for supporting a swing device or the like, constructed in accordance with the present invention;

FIG. 12 is a side view illustrating the cable anti-wrap mechanism similar to FIG. 11 of the hanger assembly for supporting a swing device or the like, constructed in accordance with the present invention;

FIG. 13 is a perspective view illustrating an embodiment of the hanger assembly, constructed in accordance with the present invention, with the anti-wrap mechanism being a cable surrounded by a cover material; and

FIG. 14 is a perspective view illustrating another embodiment of the hanger assembly, constructed in accordance with the present invention, with the anti-wrap mechanism being a cable.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

As illustrated in FIG. 1, the present invention is a hanger assembly, indicated generally at 10, for supporting playground equipment (not shown), such as a swing or the like, from a substantially horizontal support bar (not shown) found in typical playground or home swing sets (not shown). The swings, are generally used with the hanger assembly 10 of the present invention, typically have at least one pair of spaced parallel flexible support members (not shown) with a seat member (not shown) or other type of amusement device supported between the support members. The support members can be any type including, but not limited to, cables, ropes, chains, and the like and the seat member can be any type of seat including, but not limited to, a horizontal seat, a child seat, and the like.

The hanger assembly 10 of the present invention includes a main support member 14 substantially surrounding the support bar. In one embodiment, as best illustrated in FIG. 1, the main support member 14 has a separate substantially round top end 16 and a separate elongated open bottom end 18. When the top end 16 and the bottom end 18 are positioned about the support bar, an aperture 15 is formed on each side of the main support member 14 and are alignable to receive a bolt 17 and corresponding nut 19 thereby releasably securing the top end 16 to the bottom end 18 and releasably securing the main support 14 about the support bar.

In another embodiment, as best illustrated in FIG. 8, the main support member 14 has a separate substantially triangular top end 20 and a separate substantially triangular bottom end 22. In this embodiment, the main support member 14 is adjustable to accommodate a variety of different support bars having varying diameters and cross-sectional configurations. When the triangular top end 20 and the triangular bottom end 22 are positioned about the support bar, an aperture 21 is formed on each side of the main support member 14 and are alignable to receive a bolt 23 and corresponding nut 25 thereby releasably securing the triangular top end 20 to the triangular bottom end 22 and releasably securing the main support 14 about the support bar.

In yet another embodiment, as best illustrated in FIG. 7, the main support member 14 comprises a base portion 64 and a pair of support straps 66 mounted to the base portion 64. The support straps 66 are sized and configured to wrap around the support bar and be connected back to the base portion 64. Once again, in this embodiment, the main support member 14 is adjustable to accommodate a variety of different support bars having varying diameters and cross-sectional configurations.

Regardless of the embodiment, the main support member 14 is, but not necessarily, secureable to the support bar by at least one fastening mechanism (not shown) such as, but not limited to, a threaded bolt and corresponding nut. In such instances wherein the main support member is secured to the support bar, the fastening mechanism extends through the main support member 14 and the support bar inhibiting movement of the main support member 14 relative to the support bar during use of the swing on the swing set. Furthermore, the main support member 14 can, but not necessarily, have a plurality of teeth or ridges immediately adjacent the support bar to further inhibit movement of the main support member 14 relative to the support bar.

The hanger assembly 10 of the present invention further includes an arc-limiting mechanism 26 for limiting the swing arc of the swing device relative to the main support member 14 and the support bar. In one embodiment of the arc-limiting mechanism 26, the arc-limiting mechanism 26 is rotatably secured to the bottom end 18 of the main support member 14. In this embodiment, the arc-limiting mechanism 26 includes a main body 28 rotatably mounted within the bottom end 18 of the main support member 14 about a support bolt 30 mounted through the bottom end 18 of the main support member 14. The main body 28 freely rotates, to the extent as described below, about the support bolt 30 allowing the swing device to swing.

The arc-limiting mechanism 26 includes a swing limiting member 32 extends from the main body 28 in a direction generally toward the support bar and an attachment member 34 opposite the swing limiting member 32 and extending in a direction generally toward the swing device. During use of the swing device, the swing limiting member 32 engages a shoulder 36 formed on the bottom end 18 of the main support member 14 to limit the arc of the swing.
As illustrated in FIGS. 8-10, in another embodiment of the arc-limiting mechanism 26, the arc-limiting mechanism 26 includes an extended rigid member 66 having a first end 68 and a second end 70 opposite the first end 68. A groove 72 is formed in the first end 68 of the rigid member 66. A pin 74 mounted to the main support member 14 is receivable in the groove 72 limiting the swing arc of the swing device relative to the main support member 14 and the support bar.

As illustrated in FIGS. 8 and 9, the groove 72 is formed in the top 76 of the first end 68 of the rigid member 66 while the pin 74 extends in a direction generally away from the support bar into the groove 72. As illustrated in FIGS. 10, 13, and 14, the groove 72 is formed in the side 78 of the first end 68 of the rigid member 66 while the pin 74 extends in a direction substantially parallel to the support bar and into the groove 72 to follow the groove 72 during use of the swing. The groove 72 limits the extent of the rigid member 66 or a cable 67 (as described further below) thereby limiting the arc of the seat member.

In one embodiment of the hanger assembly 10 of the present invention, as best illustrated in FIGS. 1, 2, and 3, the hanger assembly 10 includes a substantially hollow anti-wrap member 38 for inhibiting the wrapping of the swing device about the support bar. The anti-wrap member 38 has a first end 40 and a second end 42 opposite the first end 40. In this particular embodiment, the attachment member 34 of the arc-limiting mechanism 26 includes a threaded bolt 44 inserted into the first end 40 of the anti-wrap member 38 and secured thereto by a corresponding nut 46 releasably secured to the threaded bolt 44. A tack weld can be applied between the nut 46 and the threaded bolt 44 to inhibit removal of the nut 46 from the threaded bolt 44 either accidentally or otherwise.

In another embodiment of the hanger assembly 10 of the present invention, as best illustrated in FIG. 4, the arc-limiting mechanism 26 is a solid rigid shaft formed from a unitary piece wherein the anti-wrap member 38 is a part of the arc-limiting mechanism 26 with the second end 42 of the anti-wrap member 38 extending in a direction generally toward the swing device. In yet another embodiment of the hanger assembly 10 of the present invention, as best illustrated in FIG. 5, the arc-limiting mechanism 26 has a pipe bolt threadably mounted into the first end 40 of the anti-wrap member 38.

In the embodiments of the hanger assembly 10 of the present invention as illustrated in FIGS. 8-10, the rigid or semi-rigid member 66 and the anti-wrap 38 are one and the same.

As illustrated in FIGS. 11 and 12, it should be noted that while the anti-wrap member 38 has been described as being rigid, it is within the scope of the present invention to have the anti-wrap member 38 be semi-rigid, i.e., a cable 67. In this embodiment, the cable 67 is wrapped around the arc-limiting mechanism 26 and clamped to itself with a cable thimble 80 or the like and wrapped at the other end and clamped to itself with another cable thimble 82 or the like. A hose or other cover 84 can be positioned about the cable for safety or to provide rigidity to the cable 67.

As illustrated in FIGS. 13 and 14, one end of the cable 67 is secured within the arc-limiting mechanism 26 by a press-fit, slotted, welding or the like. Securement by slotting allows replacement of the arc-limiting mechanism 26 without replacement of other components. With a less rigid cable 67, as illustrated in FIG. 13, a cover material 101 can be placed around the cable 67 to provide and promote the rigidity of the anti-wrap device 38. This cable 67 can be covered with any type of cover material 101 such as Plassisol. With more rigid cable 67, as illustrated in FIG. 14, the cable 67 can stand alone as the anti-wrap device 38 without the need for a cover material 101.

Regardless of the embodiment of the arc-limiting mechanism 26 of the hanger assembly 10 of the present invention, the hanger assembly 10 includes a swivel mechanism 48 having an attaching portion 50, such as a threaded bolt 52, having a first end 54 and a second end 56 opposite the first end 54. The first end 54 of the attaching portion 50 extends into the second end 42 of the anti-wrap member 38 and is secured to the second end 42 of the anti-wrap member 38 by a corresponding receiving nut 58 releasably secured to the threaded bolt 52. As described above, a tack weld can be applied between the nut 58 and the threaded bolt 52 to inhibit removal of the nut 58 from the threaded bolt 52 either accidentally or otherwise.

As illustrated in FIG. 1, in an embodiment of the present invention, the swivel mechanism 48 includes a D-ring having a slip bearing to allow free swivel of the D-ring relative to the threaded bolt 52. As illustrated in FIG. 12, the swivel mechanism 48 includes a first ring 90 and a second ring 92 connected to a swivel post 94. As illustrated in FIGS. 13 and 14, the swivel mechanism 48 is a ball swivel 102 with a ball portion 103 secured to the cable 67 and a swing attachment device 104 swiveling about the ball portion 103.

In use with a typical swing on a typical swing set, there is a pair of hanger assemblies 10 for each swing device. On parallel support member is attached to the D-ring 62 of the swivel mechanism 48 of each of the hanger assemblies 10. As appreciated by one skilled in the art, the hanger assembly 10 of the present invention is a novel and unique product for use in public and private playgrounds and home yards. The hanger assembly 10 of the present invention provides at least three key features, in combination, notably absent in today’s market: 1) arc limitation to limit the upward arc extend of the swing; 2) anti-wrap control to inhibit wrapping of the swing about the support bar; and 3) swivel means to inhibit twisting of the swing chain, cable, or the like.

The foregoing exemplary descriptions and the illustrative preferred embodiments of the present invention have been explained in the drawings and described in detail, with varying modifications and alternative embodiments being taught. While the invention has been so shown, described and illustrated, it should be understood by those skilled in the art that equivalent changes in form and detail may be made therein without departing from the true spirit and scope of the invention. Moreover, the invention as disclosed herein, may be suitably practiced in the absence of the specific elements which are disclosed herein.

What is claimed is:

1. A hanger assembly for supporting a swing device or the like from a crossbar, the hanger assembly comprising:
a mounting housing;

at least one swing member;

arc-limiting means mounted between the mounting housing and the swing member for limiting the upward rotation of the swing member relative to the mounting housing; and

swivel means secured between the arc-limiting means and the swing member.

2. The hanger assembly of claim 1 wherein the mounting housing substantially surrounds the crossbar.

3. The hanger assembly of claim 1 wherein the mounting housing is releasably securable to the crossbar.

4. The hanger assembly of claim 1 wherein the mounting housing has a shoulder defining a hollowed portion between the crossbar and the arc-limiting means, and further wherein the arc-limiting means includes an arc-limiting body rotatably mounted to the housing, the arc-limiting body having a protruding member extending into the hollowed portion in a direction generally toward the crossbar whereby the protruding member is contactable with the shoulder during rotation of the arc-limiting body.

5. The hanger assembly of claim 1 and further comprising:

a member having a first end and a second end, the first end being rotatably mounted to the mounting housing, the second end being mounted to the swing member; and

wherein the arc-limiting means includes a groove formed in the first end of the member and a pin mounted to the mounting housing, the pin receivable in the groove and limiting the rotation of the member relative to the mounting housing.

6. The hanger assembly of claim 5 wherein the groove is formed in the top of the first end of the member and the pin extends in a direction generally away from the crossbar.

7. The hanger assembly of claim 5 wherein the groove is formed in the side of the first end of the member and the pin extends in a direction substantially parallel to the crossbar.

8. The hanger assembly of claim 1 and further comprising:

anti-wrap means for inhibiting the wrapping of the swing member about the crossbar.

9. The hanger assembly of claim 8 wherein the anti-wrap means comprises a rigid elongated member having a first end and a second end, the first end being mounted to the arc-limiting body, the second end being mounted to the swing means.

10. A hanger assembly for supporting a swing device or the like from a crossbar, the hanger assembly comprising:

a mounting housing;

at least one swing member;

anti-wrap means mounted between the mounting housing and the swing member for inhibiting the wrapping of the swing member;

arc-limiting means mounted between the mounting housing and the swing member for limiting the upward rotation of the swing member relative to the mounting housing;

a member having a first end and a second end, the first end being rotatably mounted to the mounting housing, the second end being mounted to the swing member; and

wherein the arc-limiting means includes a groove formed in the first end of the member and a pin mounted to the mounting housing, the pin receivable in the groove and limiting the rotation of the member relative to the mounting housing.

11. The hanger assembly of claim 10 wherein the mounting housing is releasably securable to the crossbar.

12. The hanger assembly of claim 10 wherein the anti-wrap means comprises a rigid elongated member having a first end and a second end, the first end being mounted to the mounting housing and the second end being mounted to the swing member.

13. The hanger assembly of claim 10 wherein the anti-wrap means comprises a cable.

14. The hanger assembly of claim 10 and further comprising:

swivel means mounted between the anti-wrap means and the swing member.

15. The hanger assembly for supporting a swing device or the like from a crossbar, the hanger assembly comprising:

a mounting housing;

at least one swing member;

anti-wrap means mounted between the mounting housing and the swing member for inhibiting the wrapping of the swing member; and

swivel means mounted between the anti-wrap means and the swing member.

16. The hanger assembly of claim 15 wherein the mounting housing is releasably securable to the crossbar.

17. The hanger assembly of claim 15 wherein the anti-wrap means comprises an elongated member having a first end and a second end, the first end being mounted to the mounting housing and the second end being mounted to the swing means.

18. The hanger assembly of claim 15 and further comprising:

arc-limiting means mounted between the mounting housing and the anti-wrap means for limiting the upward rotation of the swing member relative to the mounting housing.

19. The hanger assembly of claim 18 wherein the mounting housing has a shoulder defining a hollowed portion between the crossbar and the arc-limiting means, and further wherein the arc-limiting means includes an arc-limiting body rotatably mounted to the housing, the arc-limiting body having a protruding member extending into the hollowed portion in a direction generally toward the crossbar whereby the protruding member is contactable with the shoulder during rotation of the arc-limiting body.

20. The hanger assembly of claim 18 and further comprising:

a member having a first end and a second end, the first end being rotatably mounted to the mounting housing, the second end being mounted to the swivel means; and

wherein the arc-limiting means includes a groove formed in the first end of the member and a pin mounted to the
mounting housing, the pin receivable in the groove and limiting the rotation of the member relative to the mounting housing.

21. A method for supporting a swing device from a crossbar, the method comprising:

providing at least one swing member;

limiting the rotation of the swing member relative to the crossbar; and

swiveling the swing member.

22. The method of claim 21 and further comprising:

providing a mounting housing having a shoulder;

defining a hollowed portion;

limiting the rotation of the swing member with an arc-limiting body mounted to the mounting housing, the arc-limiting body having a protruding member extending into the hollowed portion in a direction generally toward the crossbar whereby the protruding member being contactable with the shoulder during rotation of the arc-limiting body.

23. The method of claim 21 and further comprising:

providing a mounting housing;

mounting a member having a first end and a second end, the first end being mounted to the mounting housing, the second end being mounted to the swing member; and

limiting the rotation of the swing member with a groove formed in the first end of the member and a pin mounted to the mounting housing, the pin receivable in the groove and limiting the rotation of the member relative to the mounting housing.

24. The method of claim 21 and further comprising:

inhibiting the wrapping of the swing member about the crossbar.

25. A method for supporting a swing device or the like from a crossbar, the method comprising:

providing at least one swing member;

inhibiting the wrapping of the swing member; and

swiveling the swing member.

26. The method of claim 25 and further comprising:

limiting the rotation of the swing member.

27. The method of claim 26 and further comprising:

providing a mounting housing having a shoulder;

defining a hollowed portion;

limiting the rotation of the swing member with an arc-limiting body mounted to the mounting housing, the arc-limiting body having a protruding member extending into the hollowed portion in a direction generally toward the crossbar whereby the protruding member being contactable with the shoulder during rotation of the arc-limiting body.

28. The method of claim 26 and further comprising:

providing a mounting housing;

mounting a member having a first end and a second end, the first end being mounted to the mounting housing, the second end being mounted to the swing member; and

limiting the rotation of the swing member with a groove formed in the first end of the member and a pin mounted to the mounting housing, the pin receivable in the groove and limiting the rotation of the member relative to the mounting housing.