



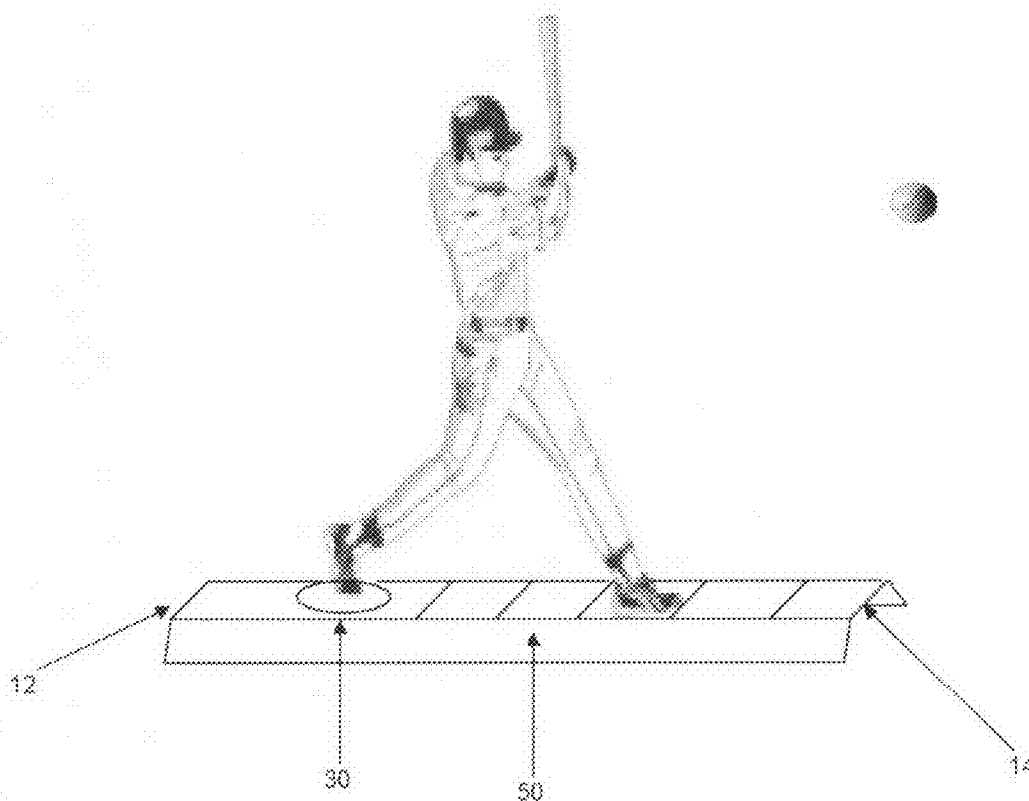
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(19) **United States**(12) **Patent Application Publication**
Shimizu et al.(10) **Pub. No.: US 2008/0188331 A1**(43) **Pub. Date: Aug. 7, 2008**(54) **SWING TRAINING DEVICE**(22) Filed: **Feb. 6, 2007**(76) Inventors: **Donald T. Shimizu**, San Diego, CA (US); **Cameron C. Shimizu**, San Diego, CA (US); **William E. Maginn**, San Diego, CA (US); **Kyle Smith**, Vista, CA (US)**Publication Classification**(51) **Int. Cl.**
A63B 69/00 (2006.01)(52) **U.S. Cl.** **473/451; 473/452**

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Donald T. Shimizu
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San Diego, CA 92130(57) **ABSTRACT**

The present invention relates to training aids to promote well balanced swing technique for any sport that requires a swinging motion related but not limited to baseball, softball, golf, tennis, racquetball, squash and cricket, including a rotating foot pad connected to a portable balance platform.

(21) Appl. No.: **11/702,255**

A batter stands on the swing training device with the back foot on the rotating foot pad, and the front foot on the non-slip surface attached to the top horizontal portion of the balance platform. Making eye contact with the baseball or softball as it approaches the area of contact with a bat the batter swings at the ball while rotating the back foot facilitated by the rotating foot pad.

Figure 1

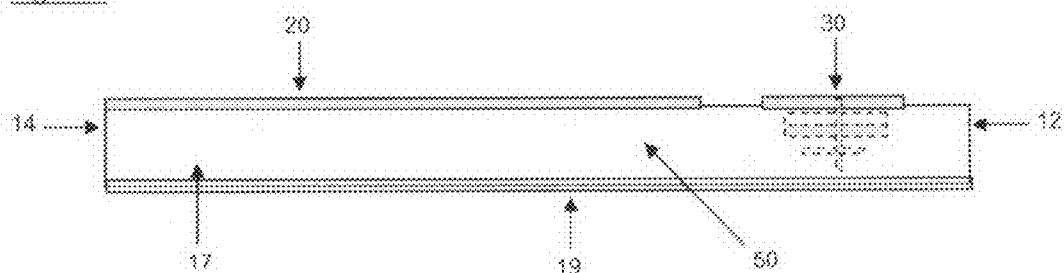


Figure 2

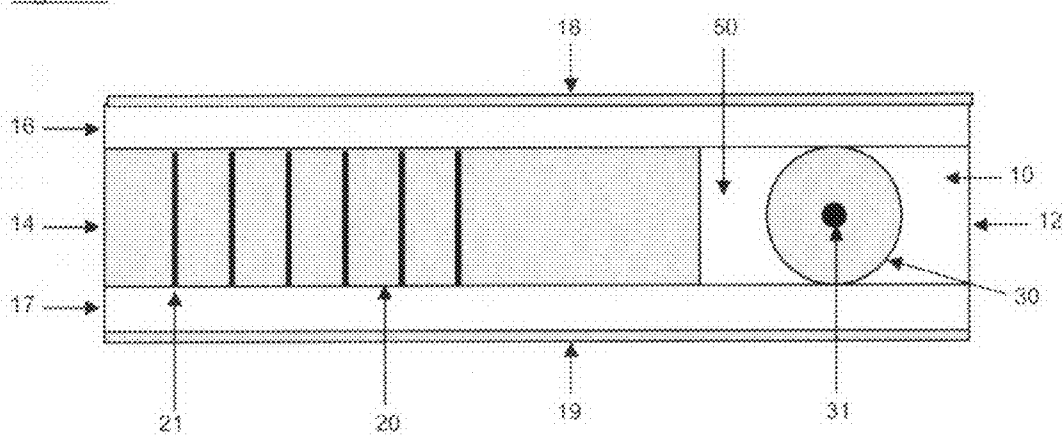


Figure 3

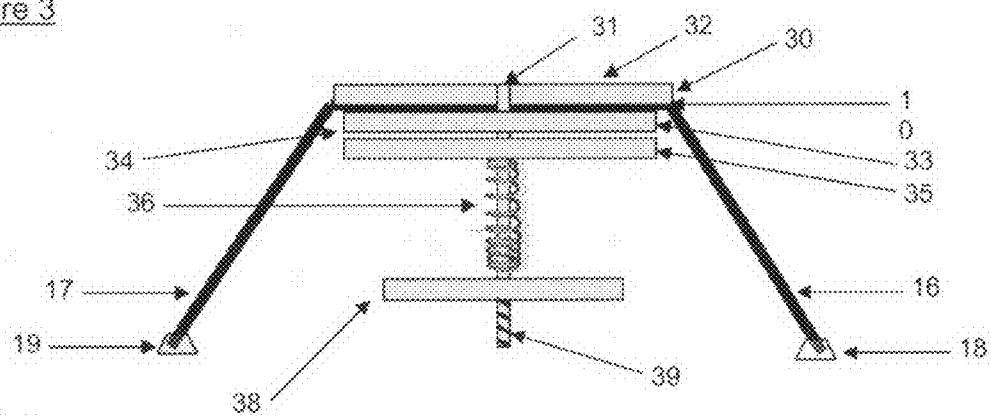
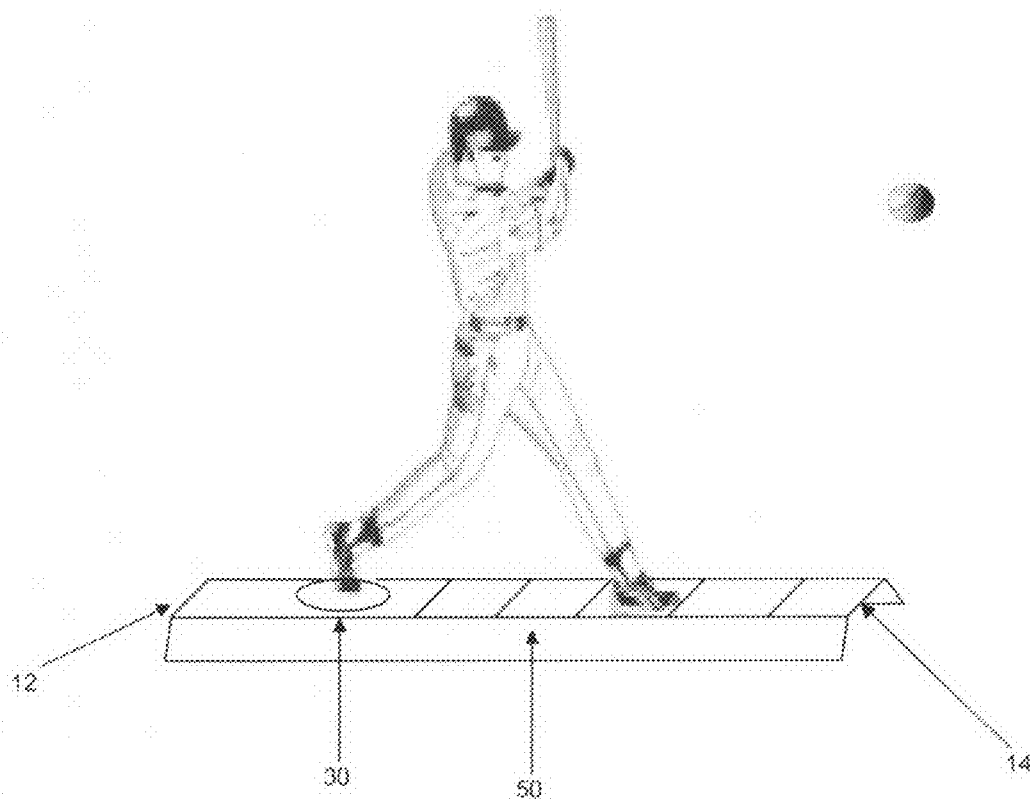
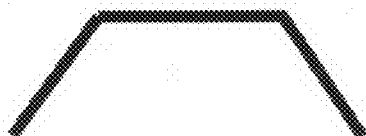


Figure 4



A batter stands on the swing training device with the back foot on the rotating foot pad, and the front foot on the non-slip surface attached to the top horizontal portion of the balance platform. Making eye contact with the baseball or softball as it approaches the area of contact with a bat, the batter swings at the ball while rotating the back foot facilitated by the rotating foot pad.

Figure 5



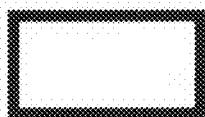
Option 1 - Inverted 3-sided with Angled Legs

Figure 6



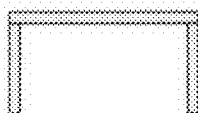
Option 2 -- Solid Square or Rectangle

Figure 7



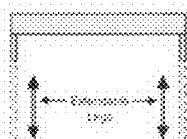
Option 3 -- Hollow Square or Rectangle

Figure 8



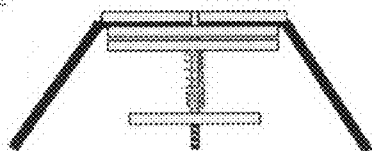
Option 4 -- Inverted 3-sided, U shape

Figure 8a



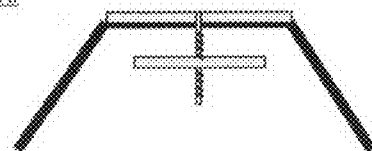
Option 5 -- Inverted 3-sided, U shape with extendable legs

Figure 9



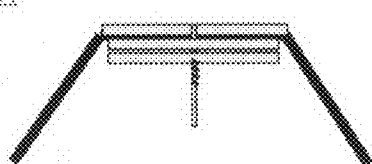
Option A -- Threaded shaft with multiple disks, with or without a spring with a knob or nut to adjust rotational tension, or ball bearings between the disks or similar mechanism to control rotation.

Figure 10



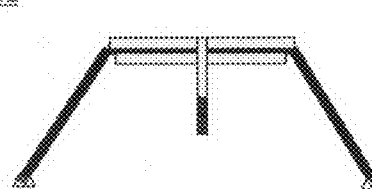
Option B -- Threaded shaft with a knob or nut to adjust the rotational tension, or a free spinning platform without knob or nut

Figure 11



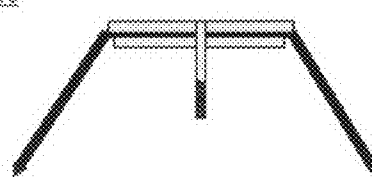
Option C -- Threaded or non-threaded shaft with multiple discs, one or more of which may make use of ball bearings or mechanical teeth to control rotation of the rotating footpad

Figure 12



Option D -- Rubber or any anti-slide material on feet of hating beam legs to prevent sliding

Figure 13



Option E -- Sharp edges, ridges, nails or spikes on the feet of the swing training device to prevent sliding

Figure 14

Weight sensor pads added to the balance platform to measure the distribution of weight between the left foot and the right foot.

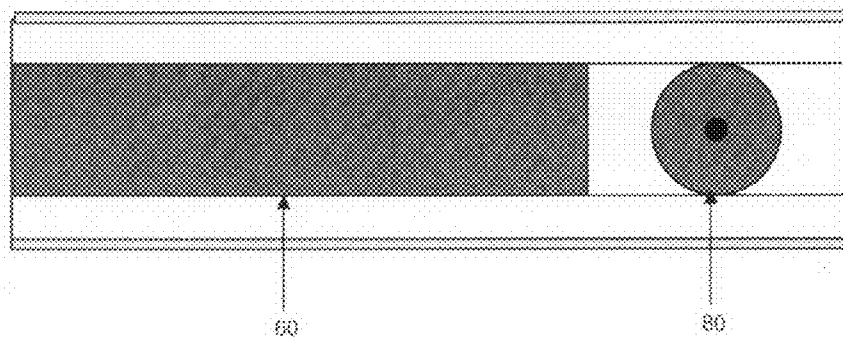


Figure 15

The weight sensor pads are connected to an electronic device which is connected (wireless or wired) to a display showing the distribution of weight between left leg and right leg throughout the swing cycle.

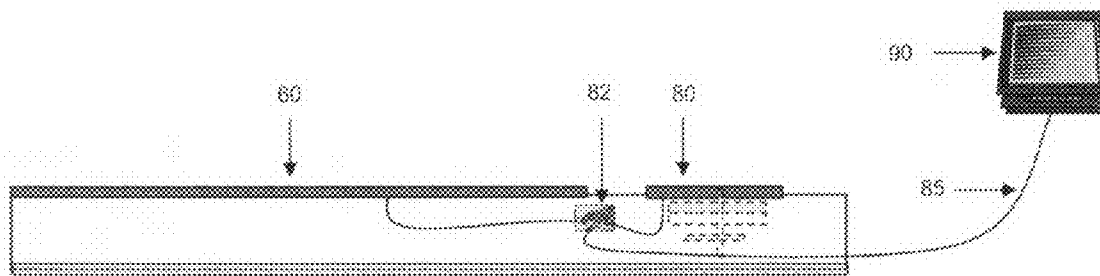
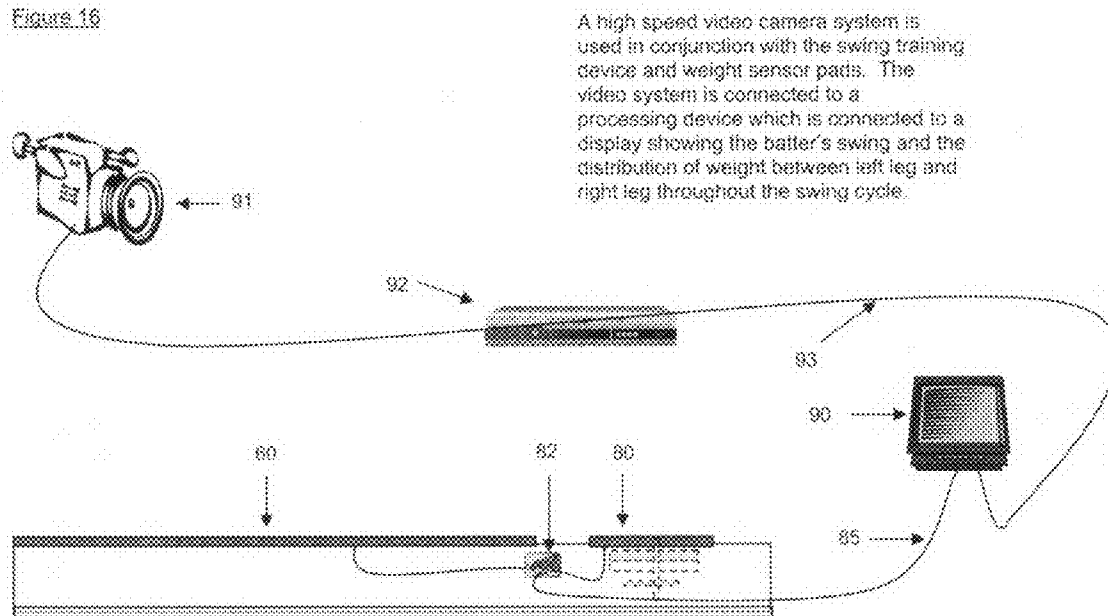


Figure 16



SWING TRAINING DEVICE

FIELD OF INVENTION

[0001] The present invention relates to training aids to develop a well balanced swing technique including a balance platform and an adjustable, rotating foot pad attached to the top horizontal surface of the balance platform so that standing on the platform while swinging helps develop a balanced, correctly aligned, and well controlled swing technique when hitting various types of sports balls with a bat, club, racquet or similar means.

BACKGROUND OF THE INVENTION

[0002] In any sport that requires a swinging motion, i.e., Golf, Baseball, Softball, Cricket, Tennis, Racquetball, and Squash, it is understood that the art or science of an optimal swing requires balance. Balance throughout the swing ensures minimal eye movement and proper body mechanics prior to and during the moment of impact with the ball. In baseball, it's been said that the hardest thing in sports is to hit a moving round ball with a round bat. Without a balanced swing, consistently hitting a baseball is nearly impossible.

[0003] When swinging a bat, club or racquet during a game or match, it is imperative prior to impact that the player is completely focused on making contact with the ball without worrying about swing mechanics or body balance. Using a training aid to train the body and in turn muscle memory to swing consistently with balance will help athletes during the pressures of a game or competition to maximize their chances for success of consistently hitting the ball.

[0004] The present invention makes it difficult or impossible to complete an unbalanced, incorrectly aligned, and/or uncontrolled swing without losing balance and falling off the platform. Additionally, a rotating foot pad is used to encourage the back foot to pivot correctly during a balanced, controlled swing.

SUMMARY OF THE INVENTION

[0005] In accordance with one embodiment of the present invention, there is provided a swing training device having a first portion attached to a second portion. The first portion is a rotating foot pad which is connected by spring, nut, bolt, or any resilient member to the second portion which consists of a balance platform.

[0006] The rotating foot pad can be any shape and can be free spinning or have a limited and controlled rotation. The rotation of the rotating foot pad can be adjusted by use of a spring and metal plate clutch or other spring-like or rotational control mechanism. The rotation of the rotating foot pad may be controlled by use of disks, springs, ball bearings or similar type mechanism. The rotating foot pad may consist of multiple disks, a shaft, a tension adjusting mechanism, fasteners, a handle to adjust the rotation and a non-slip material on the top portion of the rotating platform to prevent the user's foot from slippage during usage.

[0007] Accordingly, there is described herein, a swing training device to promote a balanced swing comprised of a first portion having a rotating foot pad attached to the top horizontal surface of the second portion. In the preferred embodiment, the second portion has a proximal and distal end, elevated from the ground by angled legs to prevent sliding or slippage of the device during use, a horizontal surface to allow a person to stand on and to swing a bat, club

or racquet while remaining on the horizontal surface. A non-slip material can be placed on the horizontal surface to prevent the user's foot from slipping while standing or swinging a bat, club or racquet. A non-slip material or mechanism attached to or embedded on the feet of the angled legs can be used to further prevent sliding or slippage of the device during use.

[0008] The invention also includes a method of training to hit a tossed or stationary baseball or softball utilizing a bat and a baseball training device comprising of a balance platform with a rotating foot pad where the balance platform is positioned on dirt, clay, turf or other indoor or outdoor practice or game surface, the player mounts the balance platform with the back foot on the rotating foot pad towards the distal end and with a bat in hand, on or near the shoulder closest to the distal end, in a ready-to-swing position, the player then makes eye contact with the baseball or softball as it approaches the area of contact by a batter standing on the baseball training device, the player commences the swing while rotating the back foot facilitated by the rotating foot pad, then continues the swing of the bat and making contact with the baseball or softball, until the bat reaches the shoulder opposite the starting point of the swing while maintaining balance on the baseball training device.

[0009] The device can also be used by either left or right-handed batters or swingers.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] FIG. 1 is a side view of the swing training device with the first portion (foot pad) attached to the second portion (balance platform) in accordance with one embodiment of the present invention.

[0011] FIG. 2 is a top view of the swing training device shown in FIG. 1.

[0012] FIG. 3 is a distal view of the invention shown in FIG. 2 and shows one embodiment of the assembly of the rotating platform and the attachment to the balance platform.

[0013] FIG. 4 is an illustration showing a batter standing on the swing training device and exhibiting a balanced swing.

[0014] FIG. 5 through FIG. 8a is a view from either the distal or proximal end of the balance platform without the rotating foot pad and shows the different options for the shape of the balance platform.

[0015] FIG. 9 through FIG. 11 is the same view shown in FIG. 5 and includes the rotating foot pad assembly.

[0016] FIG. 12 and FIG. 13 are the same view shown in FIG. 9 and shows the anti-slide feet attached to the legs of the balance platform. Two options to prevent sliding of the training device are shown.

[0017] FIG. 14 and FIG. 15 is a top and side view of the balance platform with weight detection sensors pads attached connected to an electronic device communicating either through wire or wirelessly to a display.

[0018] FIG. 16 shows a video camera to show swing sequence in relation to weight distribution.

DETAILED DESCRIPTION OF THE DRAWINGS

[0019] Referring to FIG. 1, a preferred embodiment of the swing training device includes a first portion 30 and a second portion 50, where the first portion is connected to the second portion by a mechanical assembly near the distal end 12. The second portion includes an anti-slip material 20 attached starting at the proximal end 14 and terminating near the first

portion and an anti-slide material **19** or a beveled edge or nail-like pieces attached to the feet of the legs **17** of the first portion.

[0020] FIG. **2** is a top view of a preferred embodiment of the swing training device and shows both sides of the second portion. This drawing shows the top horizontal surface **10** of the second portion, the left leg **17** and right leg **16** of the second portion, the left foot with anti-slide material **19** and the right foot with anti-slide material **18**, and the stride measuring marks **21** on the anti-slide surface.

[0021] FIG. **3** is a view of the swing training device from the distal end. This view shows the details of the first portion including the shaft **31** which can be threaded **39** or non-threaded, the anti-slip pad **32**, two discs **33** and **35** used to adjust the rotational tension, a spring **36** to further help adjust the rotational tension, a knob or handle to grab and adjust the rotational tension, and a material **34** to cushion the interaction between the two discs **33** and **35**.

[0022] FIG. **4** is an illustration of a balanced swing using the swing training device. In this illustration, a baseball player is swinging a bat hitting a pitched ball and using his back foot to rotate on the first portion **30** located near the distal end and striding with his front foot toward the pitched ball landing his front foot on the anti-slip pad **20**, and also possibly making use of the stride measuring mark **21**.

[0023] FIG. **5** through FIG. **8a** is the same view as FIG. **3** with different options for the balance platform structure. Option **1** (FIG. **5**) is an inverted 3-sided beam with angled legs. Option **2** (FIG. **6**) is a solid beam in a rectangle or square shape. Option **3** (FIG. **7**) is a hollow beam in a rectangle or square shape. Option **4** (FIG. **8**) is an inverted 3-sided beam in a U shape. Option **5** (FIG. **9**) is an inverted 3-sided beam in a U shape with an option for extendable legs.

[0024] FIG. **9** through FIG. **11** is the same view as FIG. **5** through **8a** and shows three options to connect the first portion to the second portion. Option A (FIG. **5**) has multiple discs, a threaded shaft, a spring and a knob all used to connect the first portion to the second portion and to adjust the rotation tension of the first portion. Option B (FIG. **10**) has a shaft connecting the first portion to the second portion with a simple termination part like a knob or a nut. Option C (FIG. **11**) uses a shaft and multiple discs, one or more of which use ball bearings or mechanical teeth to control the rotation.

[0025] FIG. **12** and FIG. **13** are the same view as FIGS. **9** through **11** and shows two options to prevent the second portion from sliding. Option D has a material such as rubber acting as the feet which is connected to the legs of the second portion. Option E uses knobs, ridges or nails connected to the legs of the second portion.

[0026] FIG. **14** is a top view of the balance platform showing a front foot weight sensor pad **60** and a back foot weight sensor pad **80**. FIG. **15** is a side view showing the front foot weight sensor pad, the back foot weight sensor pad, the electronic processing device **82**, the display connection **85** and the weight distribution display **90**. FIG. **16** is showing a high speed camera system **91** connected to a processing device **92** which is connected by a wire **93** or a wireless connection to a display **90**.

[0027] The foregoing description, for purposes of explanation, used specific nomenclature to provide a thorough understanding of the invention. However, it will be apparent to one skilled in the art that the specific details are not required in order to practice the invention. In other instances, well known circuits and devices are shown in block diagram form in order

to avoid unnecessary distraction from the underlying invention. Thus, the foregoing descriptions of specific embodiments of the present invention are presented for purposes of illustration and description. They are not intended to be exhaustive or to limit the invention to the precise forms disclosed, obviously many modifications and variations are possible in view of the above teachings. The embodiments were chosen and described in order to best explain the principles of the invention and its practical applications, to thereby enable others skilled in the art to best utilize the invention and various embodiments with various modifications as are suited to the particular use contemplated. It is intended that the scope of the invention be defined by the following Claims and their equivalents.

1. A baseball training device to assist with proper swing balance, comprising:

- a) A balance platform that can support the weight of one standing adult or child, having a proximal end and a distal end, and
- b) A rotating foot pad consisting of a pad and a swivel connected near the proximity of the distal end.

2. The device in claim 1 wherein the rotating foot pad has a limited and controlled rotation.

3. The device in claim 2 wherein the rotation of the rotating foot pad is adjustable or free spinning.

4. The device in claim 1 wherein the balance platform has angled support legs to prevent the device from sliding or slipping from side to side on a dirt, clay, turf or other indoor or outdoor practice or game surfaces.

5. The device in claim 1 wherein the support legs are angled from 90 to 180 degrees in relationship to the top horizontal surface.

6. The device in claim 1 that includes feet with beveled or pointed ends to the angled support legs to further prevent sliding or slipping from side to side on a dirt, clay, turf or other indoor or outdoor practice or game surfaces.

7. The device in claim 1 utilizing a non-slip material that can be applied to the beveled/pointed ends to further prevent sliding or slipping from side to side on dirt, clay, turf or other indoor or outdoor practice or game surfaces.

8. The device in claim 1 utilizing a non-slip surface on the top horizontal surface to prevent slipping of the user's front foot when in use.

9. The device in claim 1 utilizing a non-slip surface on the rotating foot pad to firmly position the back foot of the user correctly on the rotating foot pad.

10. The device in claim 1 whereas the balance platform varies in length from 2 feet to 8 feet.

11. The device in claim 1 whereas the balance platform varies in width from 2 inches to 12 inches.

12. The device in claim 1 whereas the balance platform varies in height from 0.5 inches to 12 inches.

13. The device in claim 1 including weight sensor pads attached to the balance platform and the rotating foot pad, connected to an electronic processing device interfaced to a display to show the distribution of weight on each leg through the swing.

14. The device in claim 1 including a high speed camera system is used to tape the batter on the swing training device with the weight sensor pads attached to the balance platform and the rotating foot pad, and is connected to a processing device which is interfaced to a display.

15. A method of training to hit a tossed baseball or softball utilizing a bat and a baseball training device comprising of a balance platform with a rotating foot pad comprising the following steps:

- a) Positioning the balance platform on dirt, clay, turf or other indoor or outdoor practice or game surface,
- b) Mounting the balance platform with the back foot on the rotating foot pad towards the distal end and with a bat in hand, on or near the shoulder closest to the distal end, in a ready-to-swing position,
- c) Making eye contact with the baseball or softball as it approaches the area of contact by a batter standing on the baseball training device,
- d) Commencing the swing while rotating the back foot facilitated by the rotating foot pad,
- e) Continuing the swing of the bat and making contact with the baseball or softball,
- f) Continuing the swing until the bat reaches the shoulder opposite the starting point of the swing while maintaining balance on the baseball training device.

16. A method of training to hit a baseball or softball placed on a batting tee utilizing a bat, ball and batting tee using a baseball training device comprising of a balance platform and a rotating foot pad comprising the following steps:

- a) Obtaining a balance platform,
- b) Positioning the balance platform on dirt, clay, turf or other indoor or outdoor practice or game surface,
- c) Mounting the balance platform with the back foot on the rotating foot pad with a bat in hand, on or near the shoulder closest to the distal end, in a ready-to-swing position,
- d) Making eye contact with the baseball or softball that has been placed on a batting tee,
- e) Commencing the swing while rotating the back foot facilitated by the rotating foot pad,
- f) Continuing the swing of the bat to the baseball or softball,
- g) Continuing the swing until the bat reaches the shoulder opposite the starting point of the swing while maintaining balance on the baseball training device.

17. A ball training device to assist with proper swing balance, comprising:

- a) A balance platform that can support the weight of one standing adult or child, having a proximal end and a distal end, and
- b) A rotating foot pad consisting of a pad and a swivel connected near the proximity of the distal end.

18. The device in claim 15 wherein the rotating foot pad has a limited and controlled rotation,

19. The device in claim 16 wherein the rotation of the rotating foot pad is adjustable or free spinning.

20. The device in claim 15 wherein the balance platform has angled support legs to prevent the device from sliding or slipping from side to side on dirt, clay, turf or other indoor or outdoor practice or game surfaces.

21. The device in claim 15 wherein the support legs are angled from 90 to 180 degrees in relationship to the top horizontal surface.

22. A sporting device comprising of a balance platform and a rotating foot pad wherein the device is used to train athletes from a group consisting of baseball, golf, racket ball, tennis, squash and field hockey.

23. The device in claim 15 that includes feet with beveled or pointed ends to the angled support legs to further prevent sliding or slipping from side to side on dirt, clay, turf or other indoor or outdoor practice or game surfaces.

24. The device in claim 15 utilizing a non-slip material that can be applied to the beveled or pointed ends to further prevent sliding or slipping from side to side on dirt, clay, turf or other indoor or outdoor practice or game surfaces.

25. The invention of claim 1 including a distal weight sensor pad and a proximal weight sensor pad connected to a display showing the weight distribution of the batter.

26. The invention of claim 23 additionally including a video camera also connected to a display to record the batter's swing.

27. The device in claim 15 utilizing a non-slip surface on the top horizontal surface to prevent slipping of the user's front foot when in use.

28. The device in claim 15 utilizing a non-slip surface on the rotating foot pad to firmly position the back foot of the user correctly on the rotating foot pad.

29. The device in claim 15 whereas the beam varies in length from 2 feet to 8 feet.

30. The device in claim 15 whereas the beam varies in width from 2 inches to 12 inches.

31. The device in claim 15 whereas the beam varies in height from 0.5 inches to 12 inches.

32. A method of training to hit a ball, whereby the ball could be a golf ball, tennis ball, racquet ball, squash ball or cricket ball, utilizing a racquet or club and a swing training device comprising of a balance platform and a rotating foot pad comprising the following steps:

- a) Obtaining a balance platform,
- b) Positioning the balance platform on dirt, clay, turf or other indoor or outdoor practice or game surface,
- c) Mounting the balance platform with the back foot on the rotating foot pad or close to the distal end and with a bat in hand, on or near the shoulder closest to the distal end, in a ready to swing position,
- d) Making eye contact with the ball as it approaches if it is tossed or set up on a tee,
- e) Commencing the swing while rotating the back foot facilitated by the rotating foot pad,
- f) Continuing the swing of the racquet or club until contact is made with the ball,
- g) Continuing the swing until the racquet or club reaches the shoulder opposite the starting point of the swing while maintaining balance on the balance platform.

* * * * *