



US 20080039290A1

(19) **United States**

(12) **Patent Application Publication**  
**Manguso**

(10) **Pub. No.: US 2008/0039290 A1**

(43) **Pub. Date: Feb. 14, 2008**

(54) **SWING FIT AEROBIC AND STRENGTH TRAINING EXERCISE MACHINE**

(52) **U.S. Cl. .... 482/78; 482/143; 482/96**

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(57) **ABSTRACT**

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The Swing Fit invention is for aerobic and strength training and comprises an open-framed design allowing for a 100 percent range of motion. Swing Fit has a very low center of gravity for increased stability and safety. Ergonomically correct resistance bands provide for unlimited range of motion and full articulation of the arms, which allows the user to exercise the muscles of the back, chest and shoulders through a full 100 percent range of motion. The device's wide impact absorbing foot pad reduces impact and increases the comfort and effectiveness of the machine, and an integral chin up bar allows for variably spaced grips to exercise specific muscles of the back and increases the structural rigidity of the machine. The machine is also portable and collapsible and uses a dynamic, free swinging motion coupled with the user's bodyweight to provide resistance

(21) **Appl. No.: 11/758,077**

(22) **Filed: Jun. 5, 2007**

**Related U.S. Application Data**

(60) **Provisional application No. 60/812,707, filed on Jun. 9, 2006.**

**Publication Classification**

(51) **Int. Cl.**  
**A63B 26/00 (2006.01)**

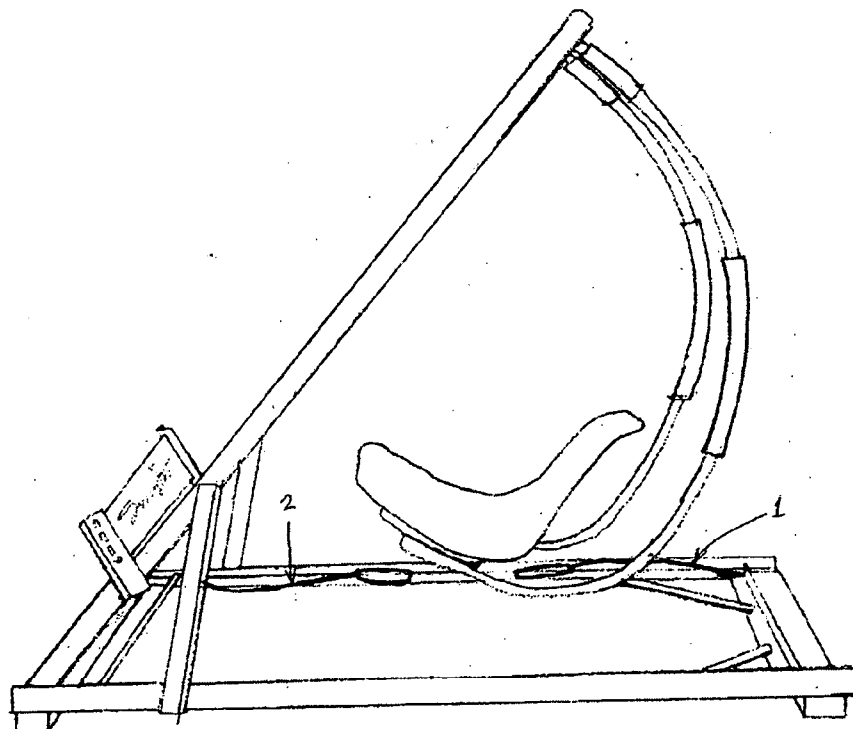


Figure 1

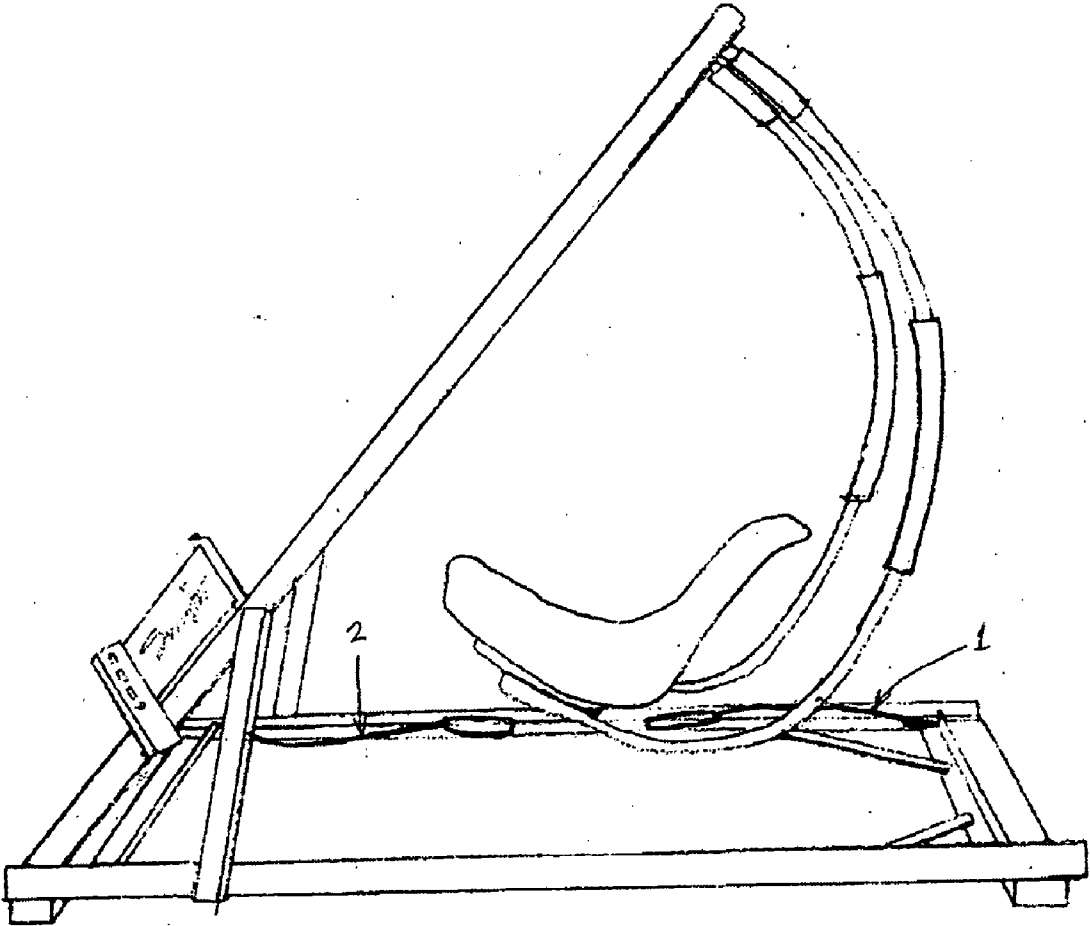
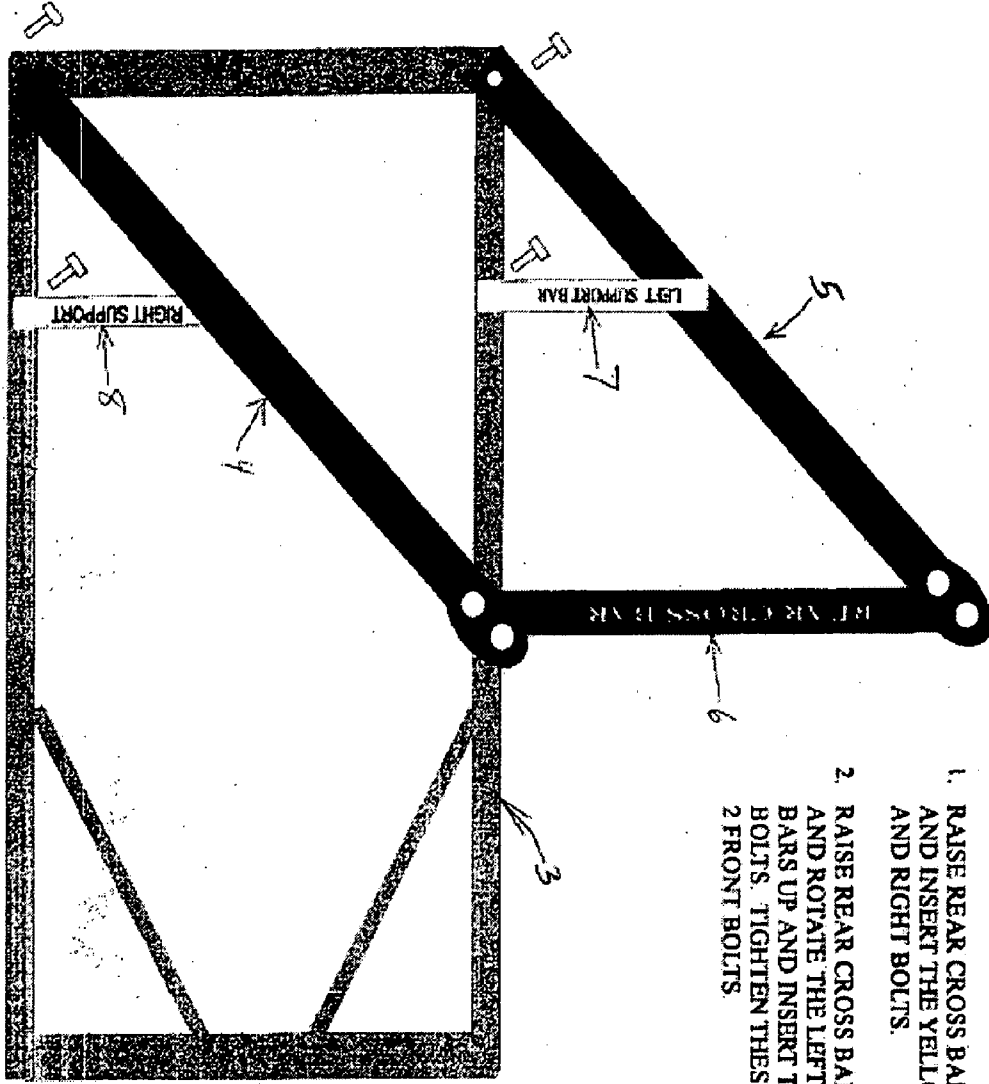


Figure 2



1. RAISE REAR CROSS BAR APPROX. 18 INCHES AND INSERT THE YELLOW TAPED FRONT LEFT AND RIGHT BOLTS.
2. RAISE REAR CROSS BAR APPROX. 46 INCHES AND ROTATE THE LEFT AND RIGHT SUPPORT BARS UP AND INSERT THE YELLOW TAPED BOLTS. TIGHTEN THESE 2 BOLTS AND THE 2 FRONT BOLTS.

Figure 3

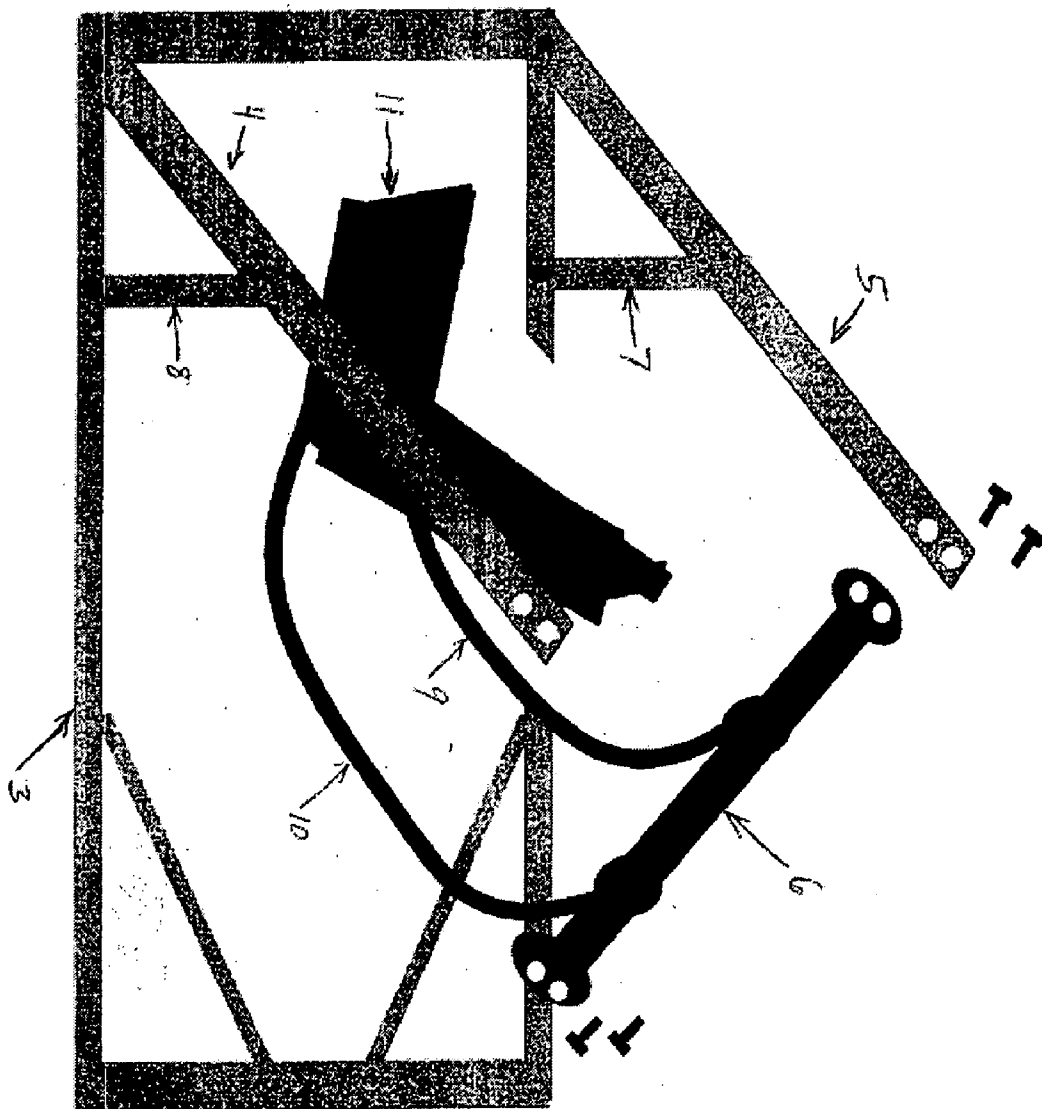
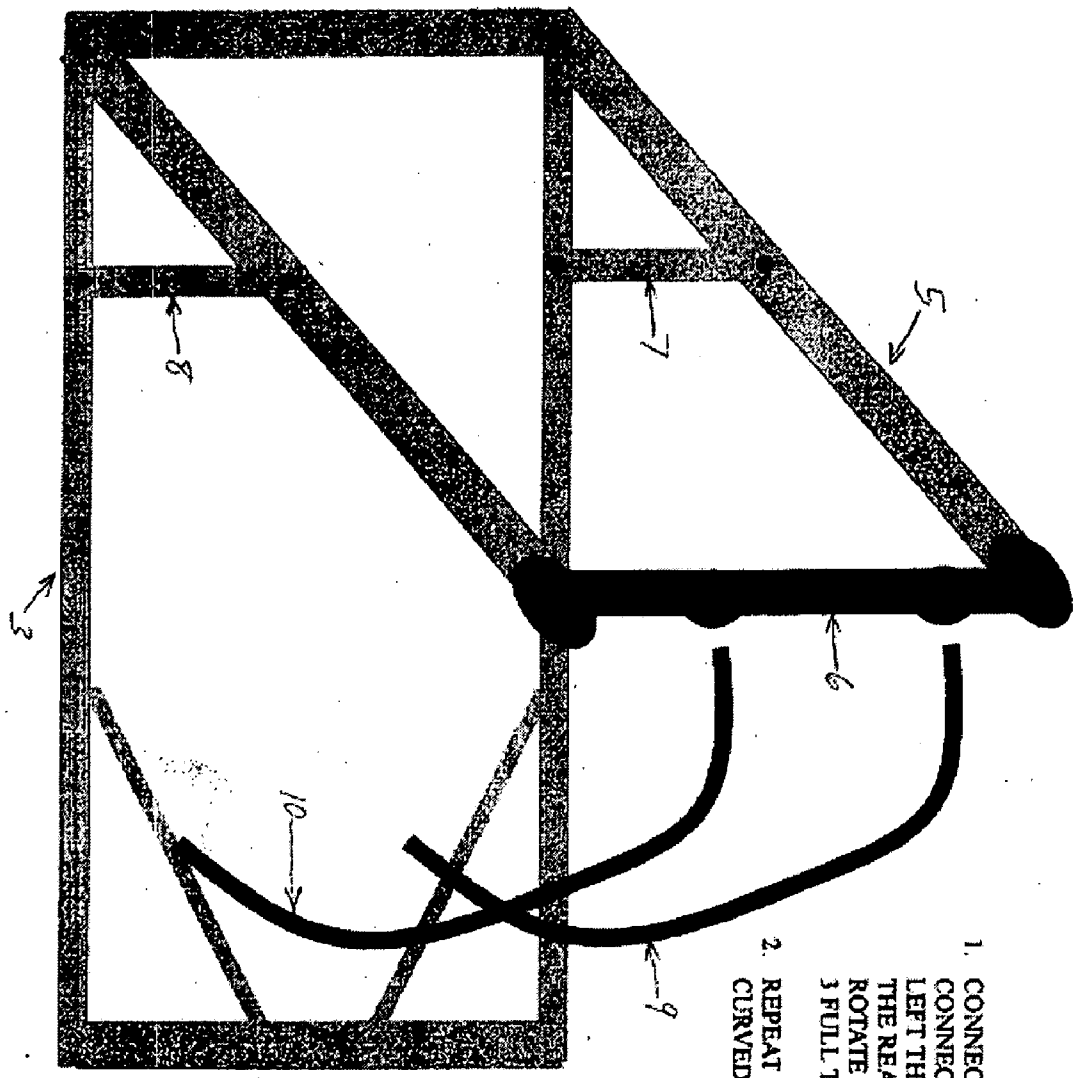
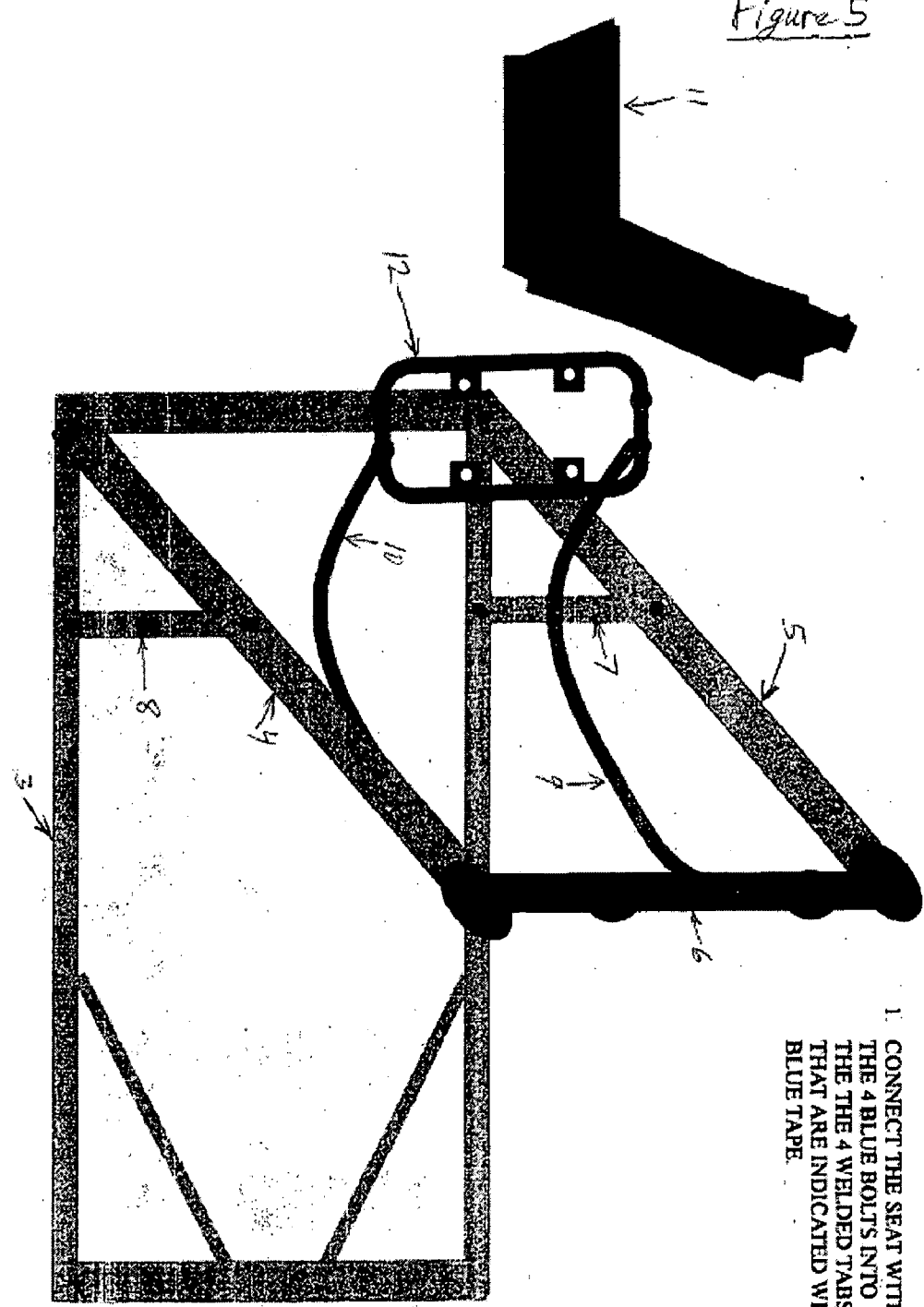


Figure 4



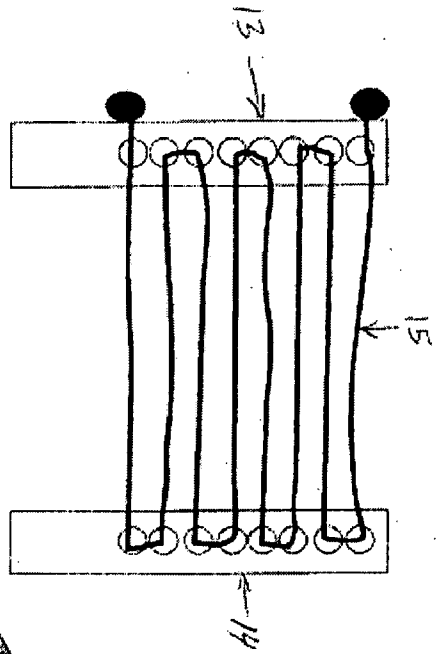
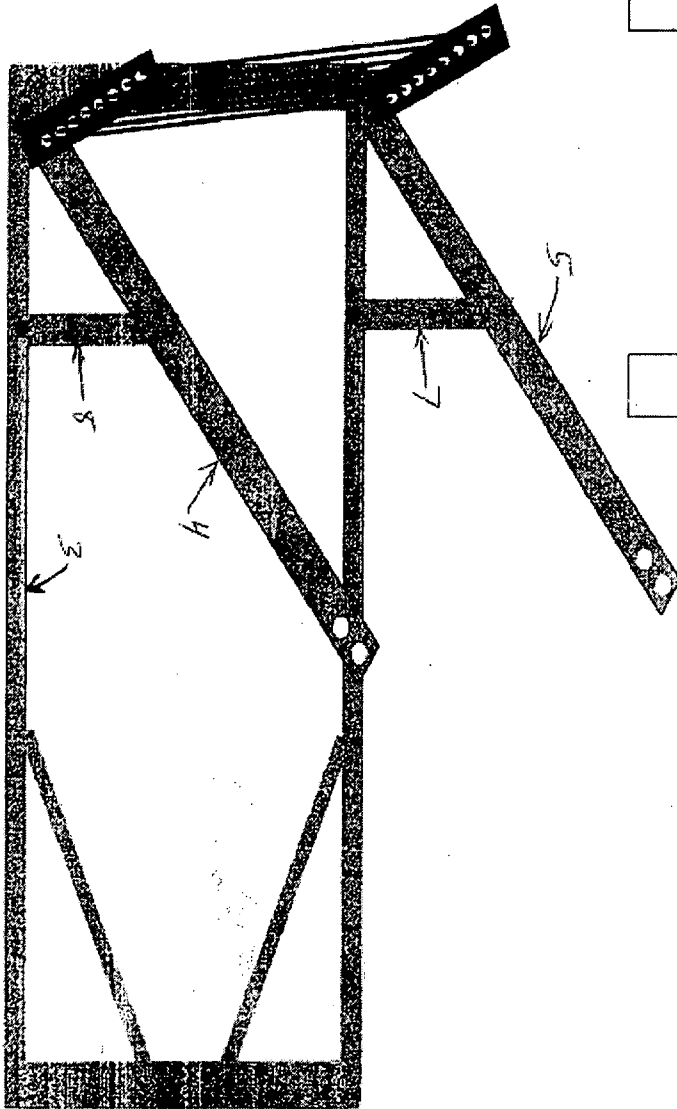
1. CONNECT LEFT CURVED CONNECTOR ROD TO THE LEFT THREADED "T" ON THE REAR CROSS BAR AND ROTATE CLOCKWISE APPROX 3 FULL TURNS.
2. REPEAT WITH THE RIGHT CURVED CONNECTOR ROD.

Figure 5



1. CONNECT THE SEAT WITH THE 4 BLUE BOLTS INTO THE THE 4 WELDED TABS THAT ARE INDICATED WITH BLUE TAPE.

Figure 6



1. THREAD THE RED TIPPED END OF THE BUNGEE THROUGH THE BOTTOM LEFT HOLE OF THE FRONT POSTS, PULL THROUGH UNTIL THE KNOT IS STOPPED. THREAD THROUGH THE BOTTOM RIGHT HOLE AND PULL WITH ENOUGH FORCE SO THAT THE TENSION WILL BE ROUGHLY EVENLY DISTRIBUTED. THREAD THROUGH THE NEXT HOLE UP ON THE RIGHT AND PULL THROUGH TO THE LEFT AND CONTINUE.

**FIGURE 7**

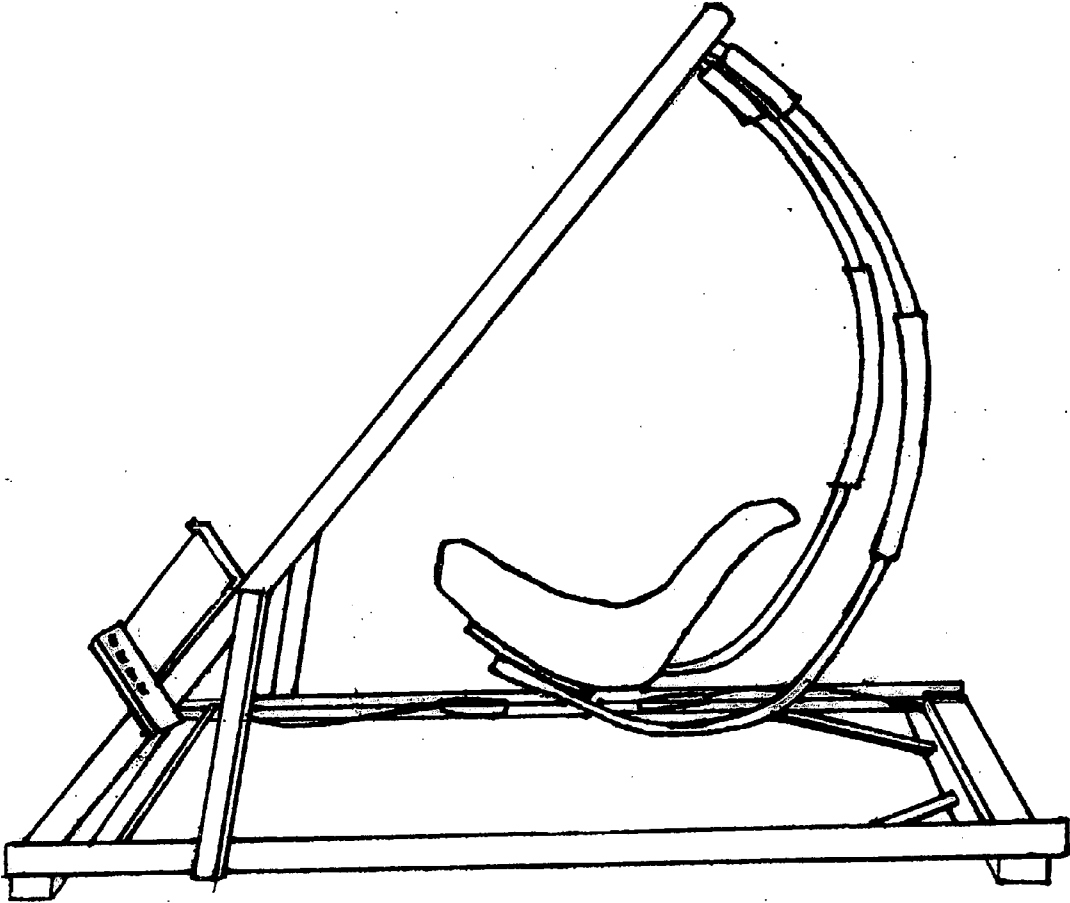
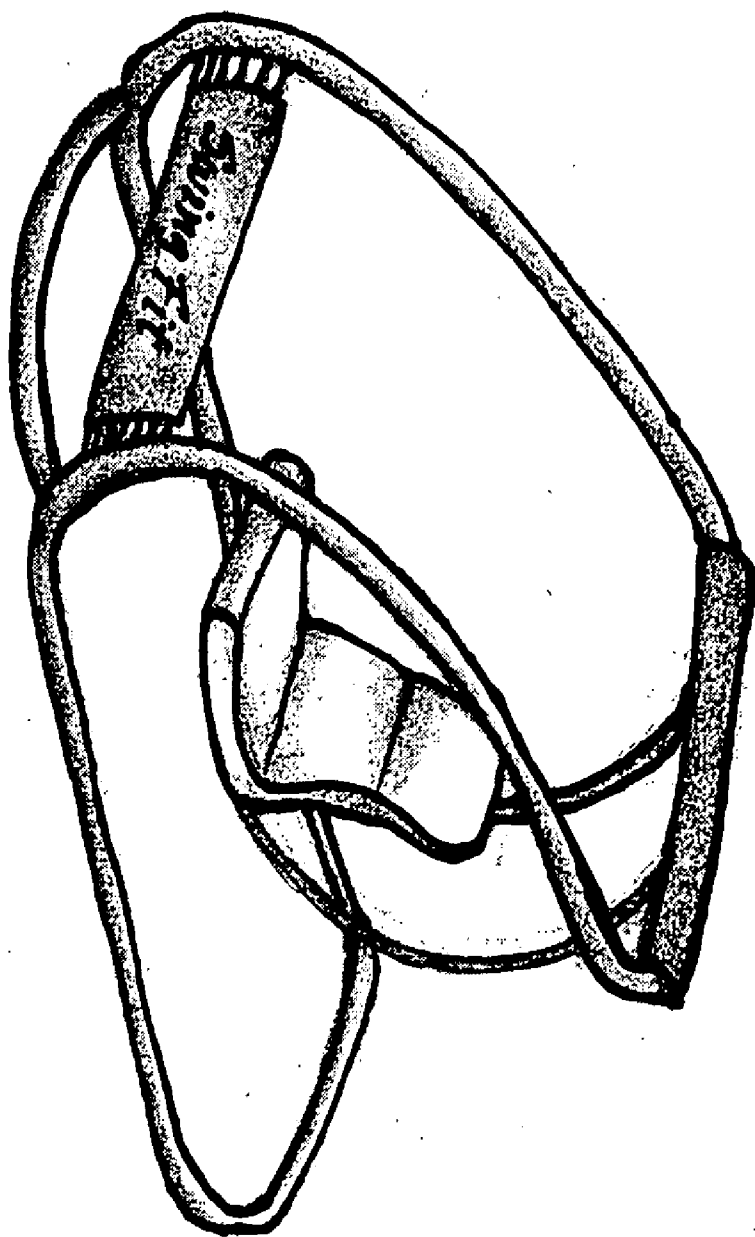
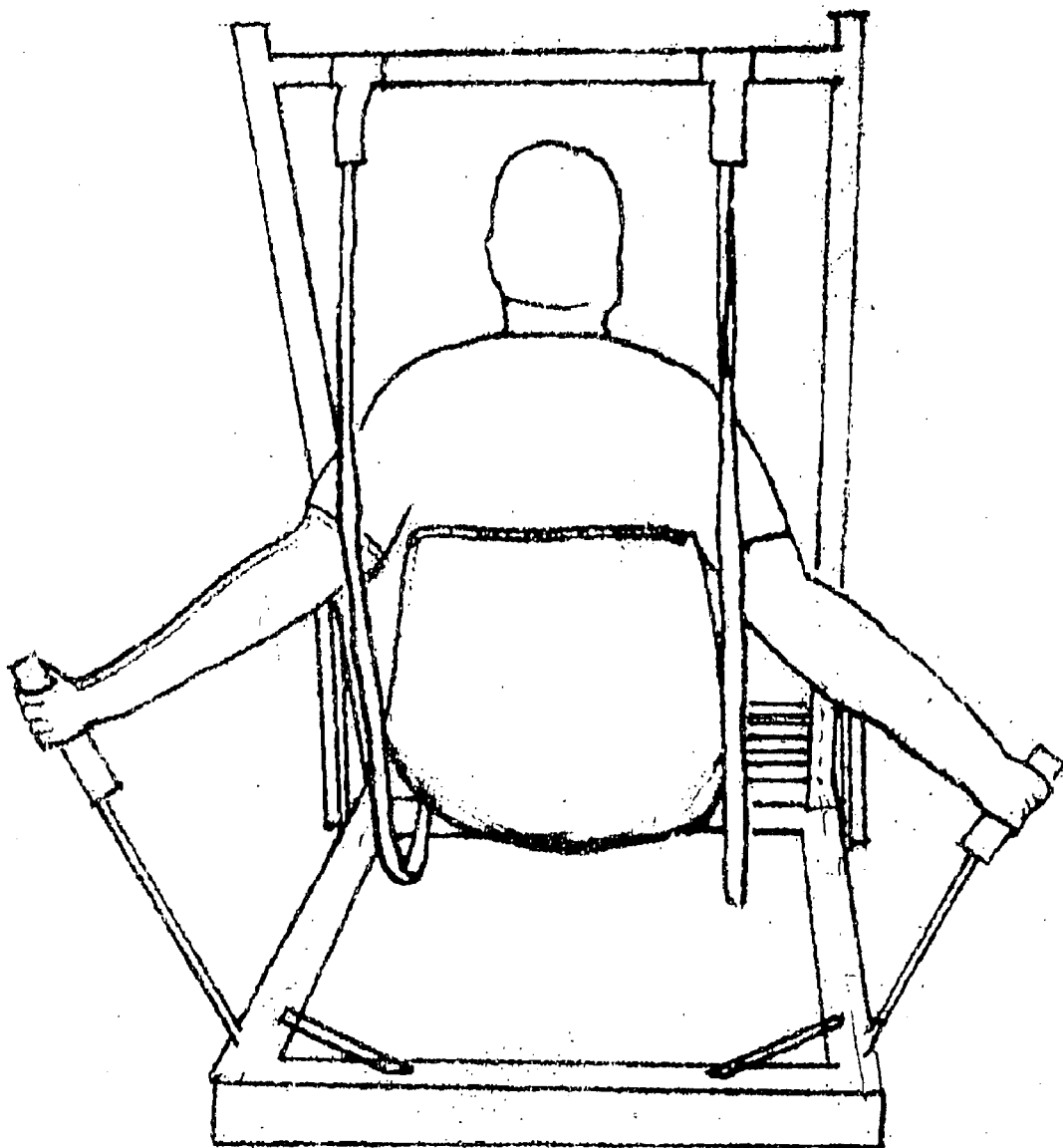


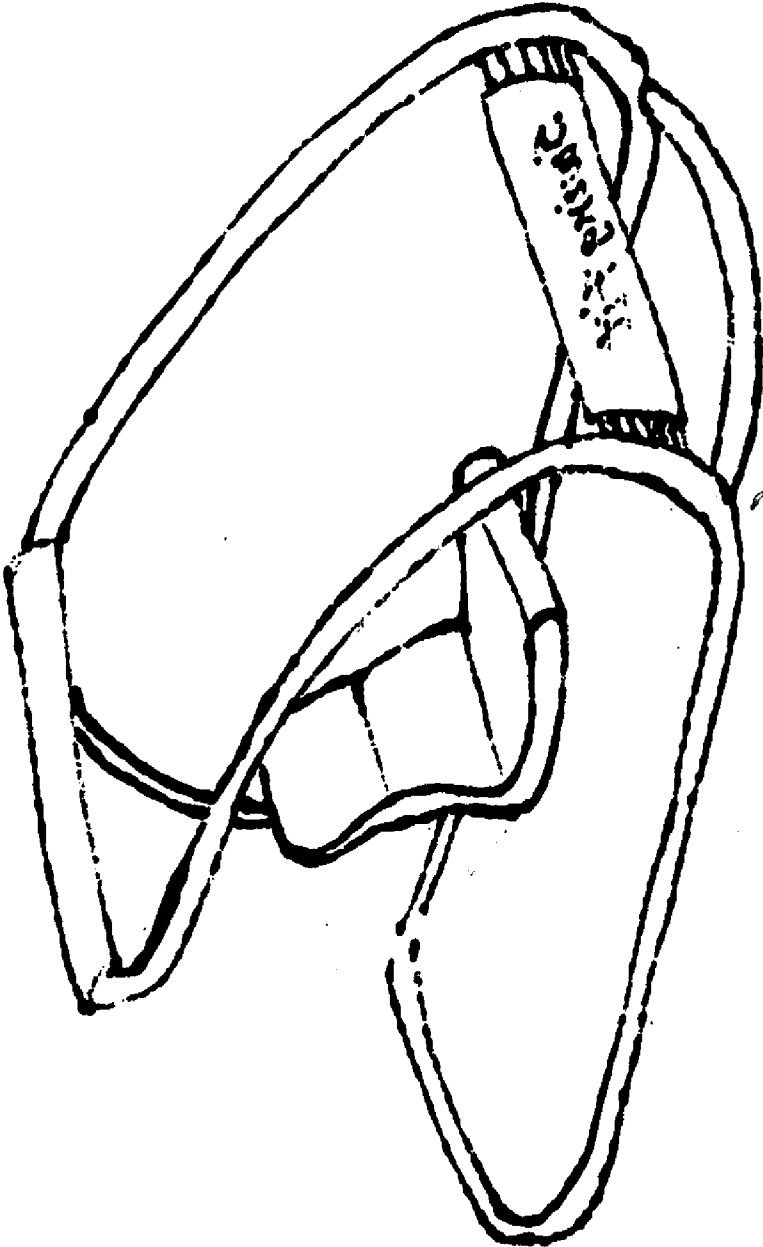


Figure 8



**FIGURE 9**





**SWING FIT AEROBIC AND STRENGTH TRAINING EXERCISE MACHINE**

**CROSS REFERENCE TO RELATED APPLICATIONS**

[0001] This application is based on provisional application Ser. No. 60/812707, filed on Jun. 9, 2006.

**STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT**

[0002] Not Applicable

**DESCRIPTION OF ATTACHED APPENDIX**

[0003] Not Applicable

**BACKGROUND OF THE INVENTION**

[0004] This invention relates generally to the field of exercise devices and more specifically to a machine for aerobic and strength training. There have been a plethora of exercise machines developed to facilitate aerobic or strength training. Most exercise machines are designed with a specific function to train a particular part or set of parts of the body and are largely limited to those functions in the specific set of exercises and their associated range of motions. And most machines generally focus on either being an aerobic training device or a strength training machine which needs to allow for a full range of motion for the strength training exercises to be effective. Additionally, adding to their weight, cost and complexity, most exercise machines rely on weights, spring devices or hydraulic or pneumatic devices to provide the resistance needed to facilitate a physiological benefit. These devices need to be adjustable to account for different goals and/or capabilities of the user or for different sized users. There have been some instances of prior art that rely on the user's own weight to provide said resistance as is the case with the present invention. However, in those cases the range of motion supported and thus the overall physiological benefit is limited.

[0005] Prior Art for the invention can be seen in the following U.S. patents. In the White U.S. Pat. No. 281,216 which shows an elaborate swing device which could be used for exercise yet the White device does not provide an open frame to allow the arms to articulate perpendicular to the body. The Mahnke U.S. Pat. No. 4,101,124 shows a device which uses the user's own weight as resistance. The Schaff U.S. Pat. No. 1,996,350 shows a device where the user pushes with the feet to exercise the legs. The Kelly U.S. Pat. No. 4,508,335 shows a device which helps the user exercise the abdominal muscles. The Moon U.S. Pat. No. 5,595,558 show a device for a rowing exercise. The Olschansky et al. U.S. Pat. No. 5,722,917 is a device where the user is seated and pushes off a stationary foot support assembly to raise a seat which is attached to the bottom of the frame. The Van Den Heever U.S. Pat. No. 7,066,868 is a device which uses body weight for resistance.

[0006] In contrast to these devices, the present invention offers the user a one hundred percent range of motion which is critical for the effective development of muscle tissue. Also, the open design of the device allows for an unrestricted movement of the arms which allows for a greatly extended range of strength training exercises that can be effectively performed. In addition, this allows the user to

swing forward and backward similar to a cross-country skiing motion for a greatly increased cardiovascular benefit, this swinging motion of the arms also provides for a rhythmic movement which increases the comfort and enjoyment of using the machine.

**BRIEF SUMMARY OF THE INVENTION**

[0007] The primary object of the invention is to provide a machine that combines a dynamic free-swinging movement coupled with a 100% range of motion which allows the extremities, torso and legs to fully stretch and articulate. Another object of the invention is to provide an exercise machine which allows the user to fully extend the arms and legs for maximum comfort and muscle engagement. A further object of the invention is to provide a workout that is fun, comfortable and effective. Still yet another object of the invention is to provide an unobstructed area to allow the arms to swing in a manner similar to a cross-country skiing motion for a greatly increased cardiovascular benefit. Another object of the invention is to provide an effective workout for the muscles of the back by providing 100% range of motion to effectively work these muscle groups. A further object of the invention is to provide a machine which uses a combination of unobstructed range of motion and body weight to raise the user against gravity to provide resistance. Yet another object of the invention is to provide a very low impact exercise by using a wide area for the feet to contact the impact absorbing pad and provide a degree of resilience for the feet to press off to accomplish leg and abdominal exercises. Still yet another object of the invention is to provide a machine with the seat placed close to the ground for ease of ingress and egress. Another object of the invention is to provide a stable machine with a low center of gravity to increase safety and stability and is effective for injury recovery.

[0008] Other objects and advantages of the present invention will become apparent from the following descriptions, taken in connection with the accompanying drawings, wherein, by way of illustration and example, an embodiment of the present invention is disclosed. In accordance with a preferred embodiment of the invention, there is disclosed a machine for aerobic and strength training comprising: An open-framed design allowing for a 100 percent range of motion, a low center of gravity for increased stability and safety, ergonomically correct power cords (resistance bands) providing for unlimited range of motion for the user and full articulation of the arms to the front, to the rear and perpendicular to the body while using the machine. A design allowing the user to exercise the muscles of the back, chest and shoulders through a full 100 percent range of motion, wide impact absorbing foot pad to reduce impact and increase comfort and effectiveness of the machine, and an integral bar which increases the structural integrity of the frame and allows for the user's hands to be variably spaced to exercise specific muscle groups of the back. A design with a foot pad which is ergonomically placed and angled relative to the seat to provide numerous distinct benefits including; creating a constant and beneficial stress on the abdominal muscles, impact absorption for low impact exercise, and an amount of deflection and spring-back resilience which increases the effort of the exercise and allows for the maximum extension of the muscles of the legs.

## BRIEF DESCRIPTION OF THE DRAWINGS

[0009] These drawings constitute a part of this specification and include exemplary embodiments to the invention, which may be embodied in various forms. It should be understood that in some instances various aspects of the invention may be shown exaggerated or enlarged to facilitate an understanding of the invention.

[0010] FIG. 1 is an isometric view of one possible embodiment of an assembled and deployed Swingfit Aerobic and Strength Training Machine.

[0011] FIG. 2 is a diagram of the assembly of the main “L” frame depicted in FIG. 1.

[0012] FIG. 3 is a diagram of the attachment of the swing-mounting crossbar to the “L” frame depicted in FIG. 1.

[0013] FIG. 4 is a diagram of the attachment of the swing arms depicted in FIG. 1.

[0014] FIG. 5 is a diagram of the attachment of the seat to the swing arms depicted in FIG. 1.

[0015] FIG. 6 is a diagram of the attachment of the “PowerPad” to the “L” frame depicted in FIG. 1.

[0016] FIG. 7 is a picture of an assembled embodiment of the Swing Fit Aerobic and Strength Training Machine, based on the embodiment in FIG. 1.

[0017] FIG. 8 is a variation of the embodiment depicted in FIG. 1, using a tubular frame style.

[0018] FIG. 9 is a picture of an assembled embodiment of the Swing Fit Aerobic and Strength Training Machine based on the embodiment in FIG. 1 shown in use with the user demonstrating a full articulation of the arms perpendicular.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0019] Detailed descriptions of the preferred embodiment are provided herein. It should be understood that the present invention may be embodied in various forms. Therefore, specific details disclosed herein are not to be interpreted as limiting, but rather as a basis for the claims and as a representative basis for teaching one skilled in the art to employ the present invention in virtually any appropriately detailed system, structure or manner.

## Overview

[0020] The Swing Fit Aerobic and Strength Training Machine’s open-framed design does not restrict arm movement and offers the user a 100 percent range of motion while exercising all of the body’s major muscle groups including the back, legs, chest, shoulders and abdomen. To increase effectiveness of the various exercises that can be performed with the device, Swing Fit uses a unique combination of an unobstructed free swinging movement which allows the arms to swing in rhythm with the movement of the seat and the user’s body or to swing opposite of the movement of the seat in a counter motion creating extra resistance to further increase the effectiveness of exercise. The machine’s ability to provide a variable resistance for the various exercises is derived from the increased effort needed to raise the seat and body higher either generally forward and higher or back and

higher. The machine is portable and generally collapsible through various methods. A full range of motion for the arms and chest to facilitate a wider range of beneficial exercises for the upper body and abdominal regions using combinations of the four or more “PowerBands” which in the preferred construction can be elastic resistance cords with some type of handgrip and are attached at various positions both fixed and moveable on the base of the machine with the preferred embodiment having the bands at each corner of the machine to offer the longest possible range of motion for the user.

[0021] Beneficial leg exercises are accomplished via pushing off an elastic or otherwise resilient “PowerPad” (foot pad). The foot pad is ergonomically placed and angled to provide numerous distinct benefits including; a constant and beneficial stress on the abdominal muscles, impact absorption for a very low impact exercise coupled with an amount of resistance and “give” which increases the effort required to raise the seat and allows for a fuller extension of the feet and muscles of the legs. In the preferred construction, additional chest and arm exercises are performed using an integral chin-up bar across the top of the frame. This bar bridges the left and right sides of the frame which greatly increases the structural integrity of the machine.

## One Embodiment—Assembly

[0022] One possible embodiment of the invention is depicted in FIGS. 1 through 7, with one possible variation shown in FIG. 8. The frame in one embodiment is composed of high-strength steel, possibly tubular, with the goal for the device to be relatively compact, stable, and lightweight. The embodiment depicted in FIG. 1 consists of a slanted “L” frame that can be collapsed to a relatively flat position to facilitate moving and storage. When deployed, the machine’s hinged framework 3, 4, 5, is propped open with struts 7 and 8 as shown in FIG. 2. Appropriate fasteners (e.g., bolts, screws, washers, nuts, etc.) are used to connect the frame parts together. Next, the crossbar 6 for supporting the swing 11 is attached to both the left and right sides of the “L” frame using appropriate fasteners as shown in FIG. 3. The two curved connector rods 9, 10 are threaded into the “T” connections on the crossbar 6, as depicted in FIG. 4. The contoured and cushioned swing seat 11 and mounting bracket 12 are attached to the connector rods 9, 10 as shown in FIG. 5. The installed seat ends up relatively close to the ground with a low center of gravity for stability and safety, and at an angle to aid in comfort and effectiveness. Next, FIG. 6 depicts the assembly and attachment of the “PowerPad” by attaching struts 13, 14, to frame parts 4, 5 with appropriate fasteners, then threading a bungee cord 15 through holes in struts 13, 14 or otherwise stretching and attaching an elastic material between struts 13, 14. The positioning of the seat 11 and “PowerPad” 13, 14, 15 create a raised leg position to enhance comfort and exercise efficiency. Finally, the rear and front “PowerBands” 1, 2 are attached in each corner of the bottom frame with appropriate fasteners (or possibly a form of quick disconnect such as a tab on the cord sliding into a slot in the frame) as shown in FIG. 1. These “PowerBands” are made of an elastic or bungee-like cord with a handgrip on the end. “PowerBands” of varying resistance strengths can be changed out from the machine easily. FIG. 7 depicts the completed assembly.

One Embodiment—Design Considerations and Use

[0023] The assembled invention allows the user an unrestricted range of motion while comfortably exercising all of the major muscles of the body. The user sits down into a comfortably angled seat. The seat is placed close to the ground for ease of ingress and egress through the front of the invention. The low seat position also lowers the center of gravity to increase safety and stability. The seat is angled for both maximum comfort and to keep the legs in a position relative to the "PowerPad" (footpad), to exercise the abdominal muscles while using the device. The "PowerPad" is specifically designed to absorb impact by generally deflecting to some degree to absorb impact with the user's feet. It is also designed to provide a spring-back motion to further enhance the effectiveness and comfort of the exercise. To provide comfort and safety, the "PowerPad" in one embodiment may be constructed with shock cord and/or elastic material spanning the width of the device. The tension of this material is specifically preset to give the optimal amount of deflection and spring-back resilience for both comfort and effectiveness.

[0024] The novel design of the invention allows a user to swing their arms in a similar manner to a cross-country skiing motion to work in rhythm with the movement of the machine for enhanced cardiovascular benefits. The invention offers unobstructed range of motion, which is necessary to allow the muscles to fully extend and contract for maximum physiological benefit. The natural, fluid motion is rhythmic, smooth, and very comfortable since users have an unrestricted range of movement while exercising. By allowing both the arms and legs to fully articulate, all of the major muscle groups of the body can be effectively targeted and exercised. The invention provides a low-impact, yet effective and efficient work out. The user controls the intensity of the workout and the level of swinging by pulling on either the front or rear "PowerBands" (see FIG. 1, parts 1, 2) in various directions and magnitudes, depending on the nature of the exercise engaged in. Additionally, the user can swap-out the "PowerBands" for lower or higher resistance "PowerBands".

[0025] While the invention has been described in connection with a preferred embodiment, it is not intended to limit the scope of the invention to the particular form set forth, but on the contrary, it is intended to cover such alternatives, modifications, and equivalents as may be included within the spirit and scope of the invention as defined by the appended claims.

What is claimed is:

1. An exercise device comprising: a base frame for stability which is connected to two or more upright support braces which form an open-framed, unobstructed support structure for a seat of some type which allows a person to move their arms in generally unobstructed movement which is critical for a one hundred percent range of motion; a further element of the invention is the placement of the swing arms which connect the seat to said frame by placing said swing arms in a position that does not restrict a full range of motion of said arms.

2. The exercise device of claim 1, wherein a foot pad is ergonomically placed and angled relative to the seat to provide numerous distinct benefits including; creating a constant and beneficial stress on the abdominal muscles; impact absorption for low impact exercise; and an amount of deflection and spring-back resilience which increases the effort of the exercise and allows for the maximum extension of the muscles of the legs.

3. The exercise device of claim 1, wherein said seat is foldable both forward and backward to a generally flat position, this allows for a greatly increased range for motion for exercise of various muscle groups including the abdominal muscles and muscles of the back; allowing said seat to be foldable also facilitates storage and shipping.

4. The exercise device of claim 1, further comprising an integral chin-up bar which allows the users hands to be placed at various widths to exercise specific muscle groups of the back; said chin-up bar bridges the left and right sides of said frame and increases the structural integrity of the invention.

5. The exercise device of claim 1, further comprising ergonomically placed resistance bands which can be located to provide the greatest range of motion and extension of muscles for the arms and torso and to control the intensity of the exercise by pulling on one or more of said resistance bands in various directions and magnitudes.

6. The exercise device of claim 1, further comprising a seat which is angled and positioned for optimal ergonomic benefit; said seat may be generally foldable; and said seat may be padded and ergonomically contoured for greatest comfort.

7. The exercise device of claim 1, further comprising a stable base and low center of gravity for increased stability and safety.

8. The exercise device of claim 1, further comprising said frame with an open design which allows and does not obstruct or otherwise hinder the lateral articulation of the arms.

9. The exercise device of claim 1, further comprising said frame which can be generally collapsed or folded with generally telescoping frame components; or folded with a pivoting strut which can be conveniently attached or detached to allow the upright portion of said frame to fold generally flat.

10. The exercise device of claim 1, wherein the effective physiological benefit is derived from a movement which raises the seat and user either generally forward and up or generally rearward and up using the pull of gravity against the users body weight for resistance.

11. The exercise device of claim 1, wherein said swing arms are positioned so as not to obstruct the movement of the arms.

12. The exercise device of claim 1, further comprising said frame which is constructed of tubular steel or other suitable material with a non-skid material generally adhered to the part of the frame which contacts the floor to generally prevent sliding or movement of the device.

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