



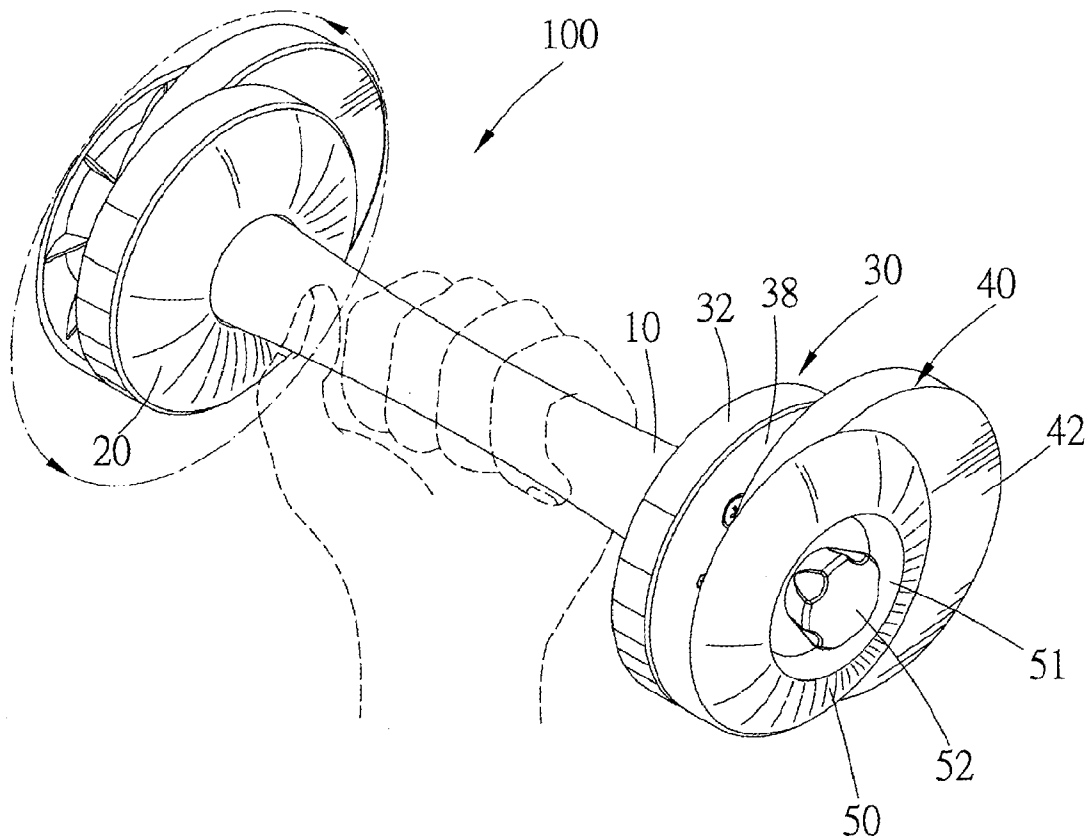
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(19) **United States**(12) **Patent Application Publication**
Shaw(10) **Pub. No.: US 2012/0225758 A1**(43) **Pub. Date: Sep. 6, 2012**(54) **ROTARY DUMBBELL**(52) **U.S. Cl. 482/110**(75) **Inventor: Anthony Shaw, Taichung (TW)**(73) **Assignee: SPORTS-ACE
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Taichung (TW)**(21) **Appl. No.: 13/166,515**(22) **Filed: Jun. 22, 2011**(30) **Foreign Application Priority Data**

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A63B 21/22 (2006.01)(57) **ABSTRACT**

A rotary dumbbell of the present invention includes a handle, and two pairs of wheels and weight devices pivoted on opposite ends of the handle for rotation. Each of the wheels has a center pivoted on the handle and is unadjustable in a radial direction thereof that the wheels centrally rotate. Each of the weight devices is adjustable in a radial direction thereof that the weight devices may eccentrically rotate. The dumbbell further includes two pairs of covers to hold the weight devices and the wheels respectively. Therefore, user may get an extra loading because of the eccentric rotation of the weight devices when he/she shakes the dumbbell. The dumbbell may be used as a roller to train abdominal muscles while the wheels serve the function of rollers.



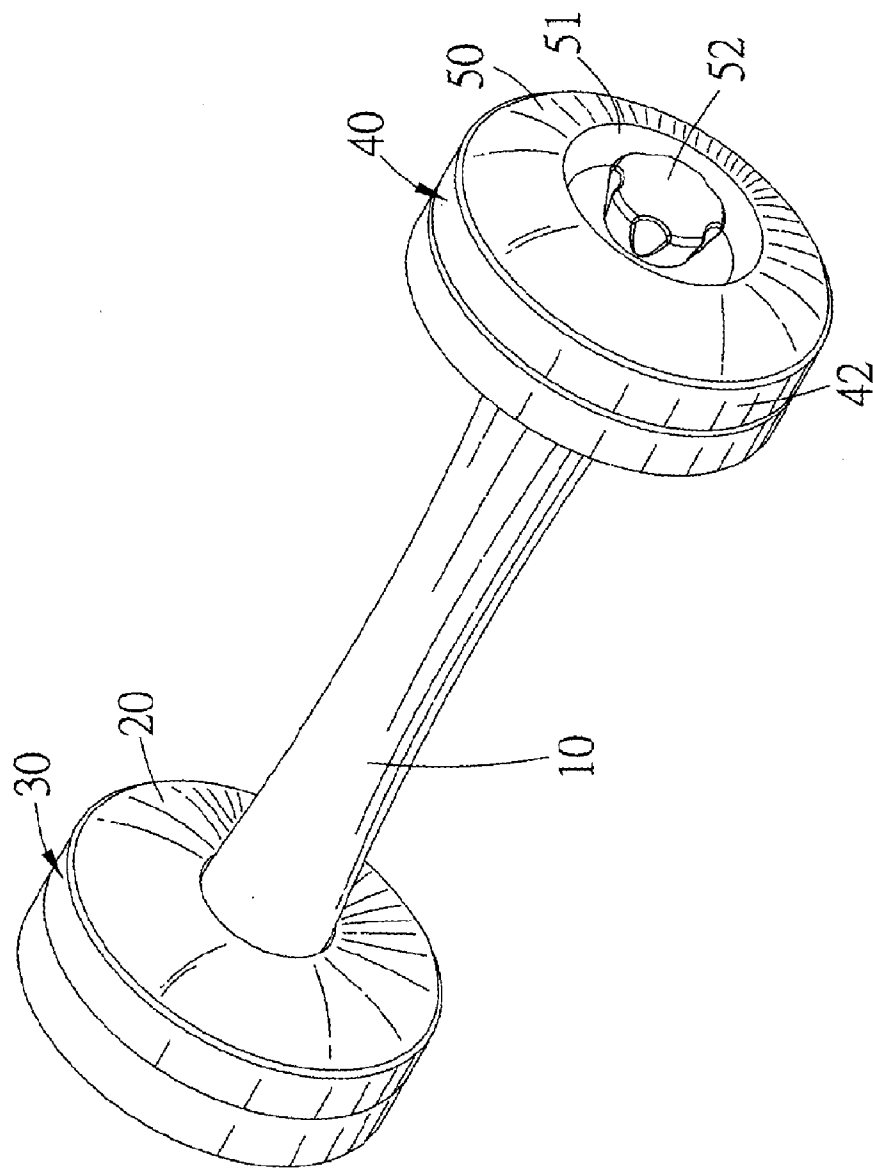


FIG. 1

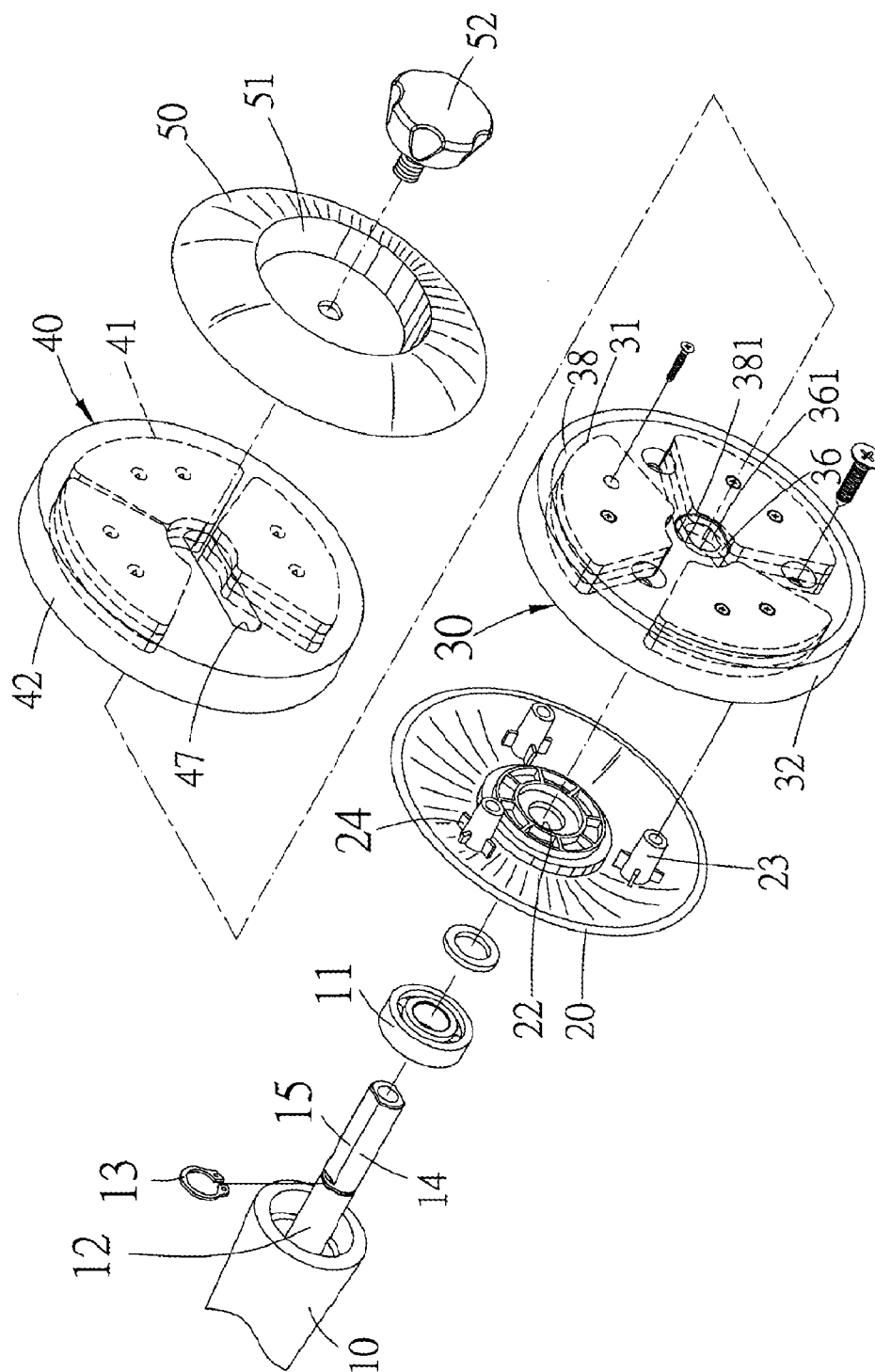


FIG. 2

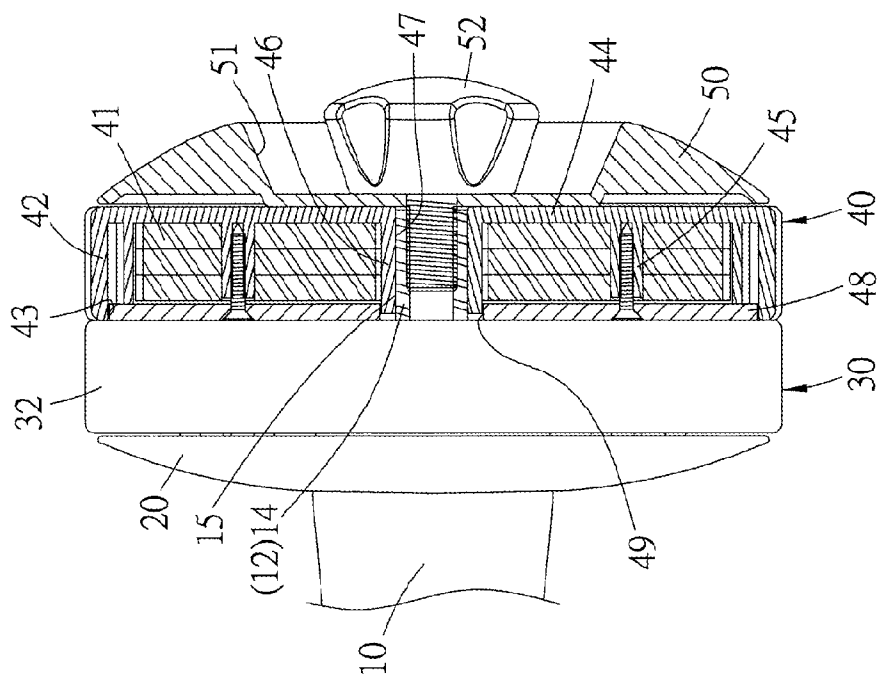


FIG. 4

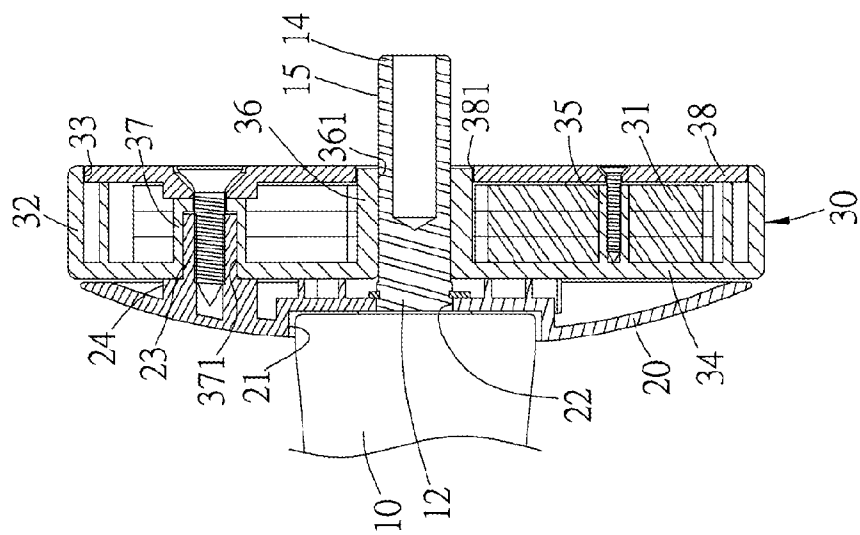


FIG. 3

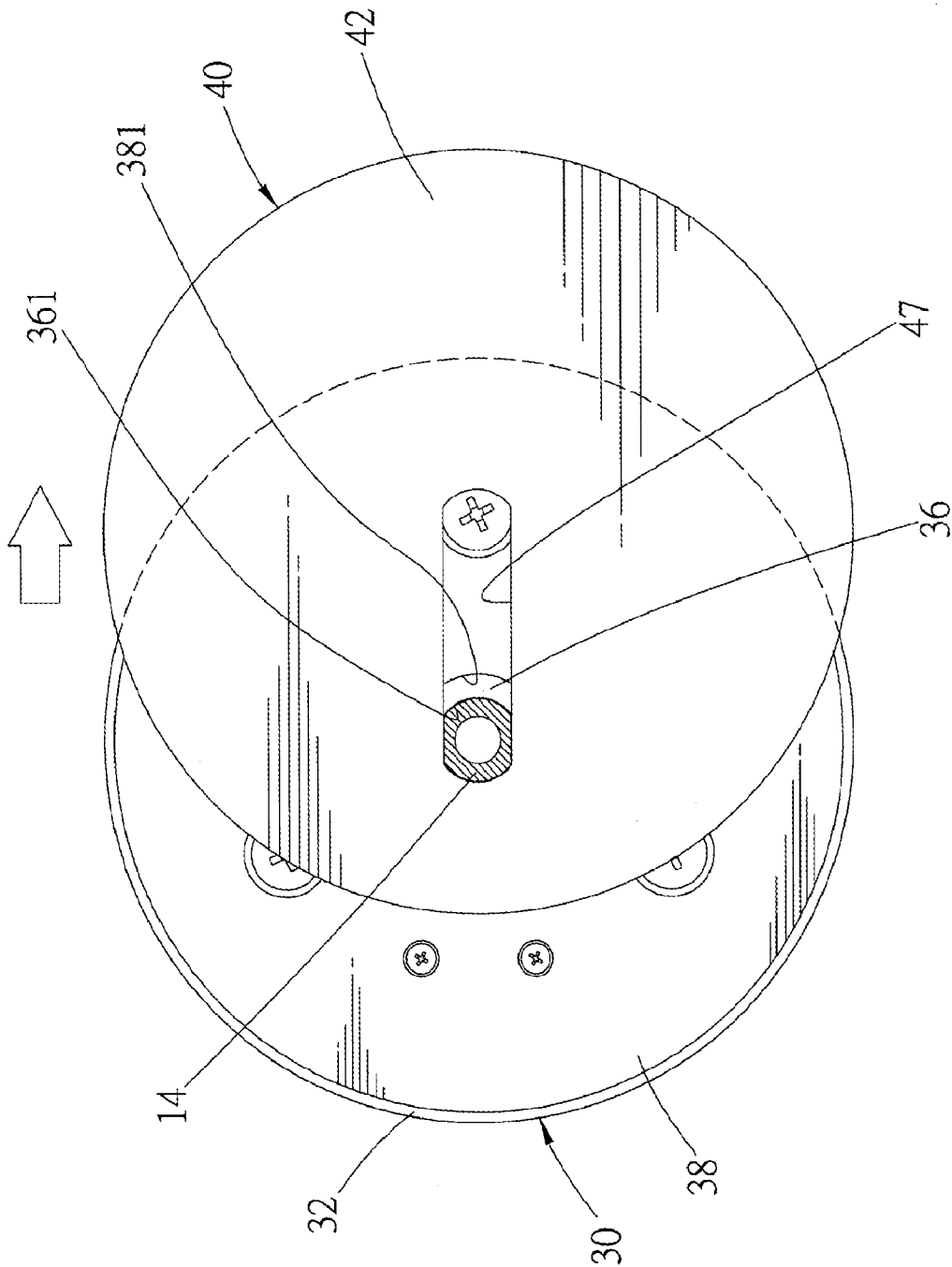


FIG. 5

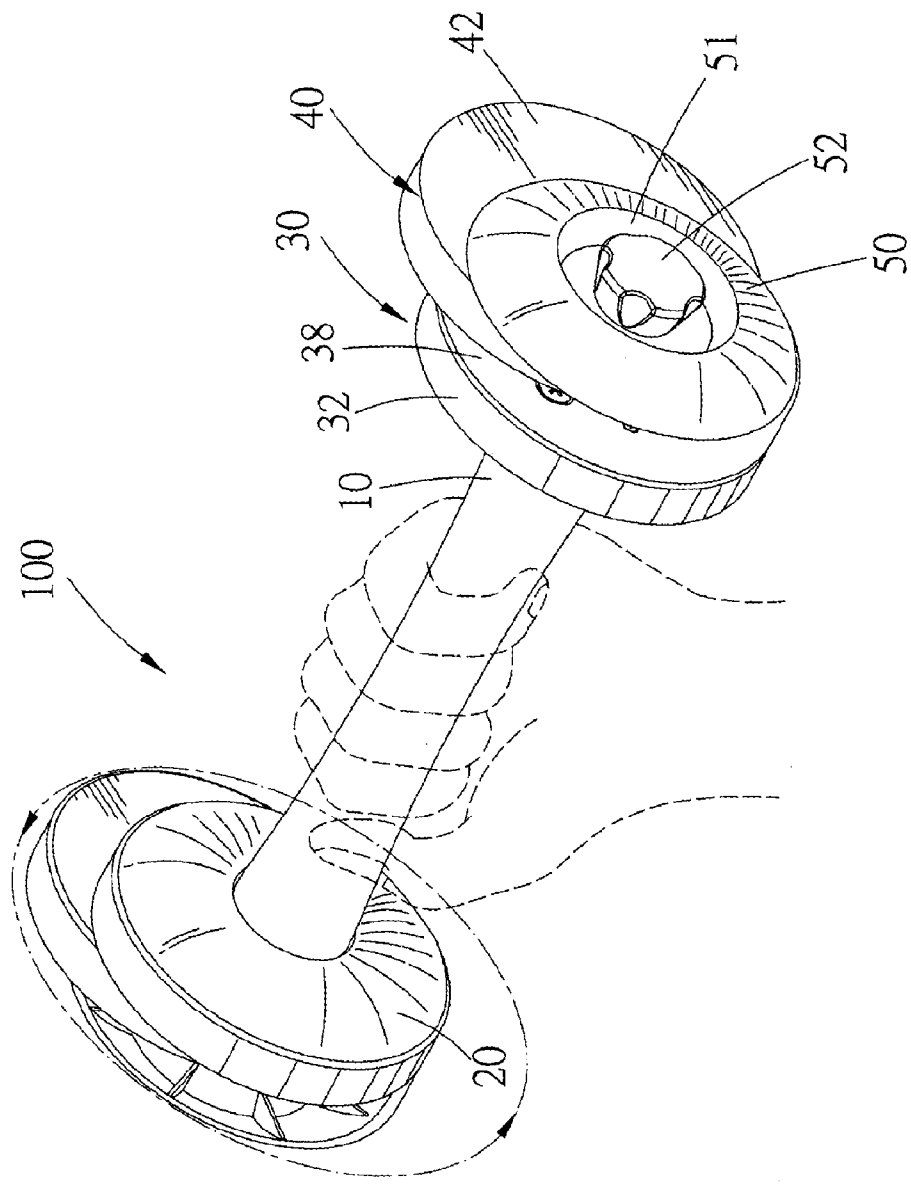


FIG. 6

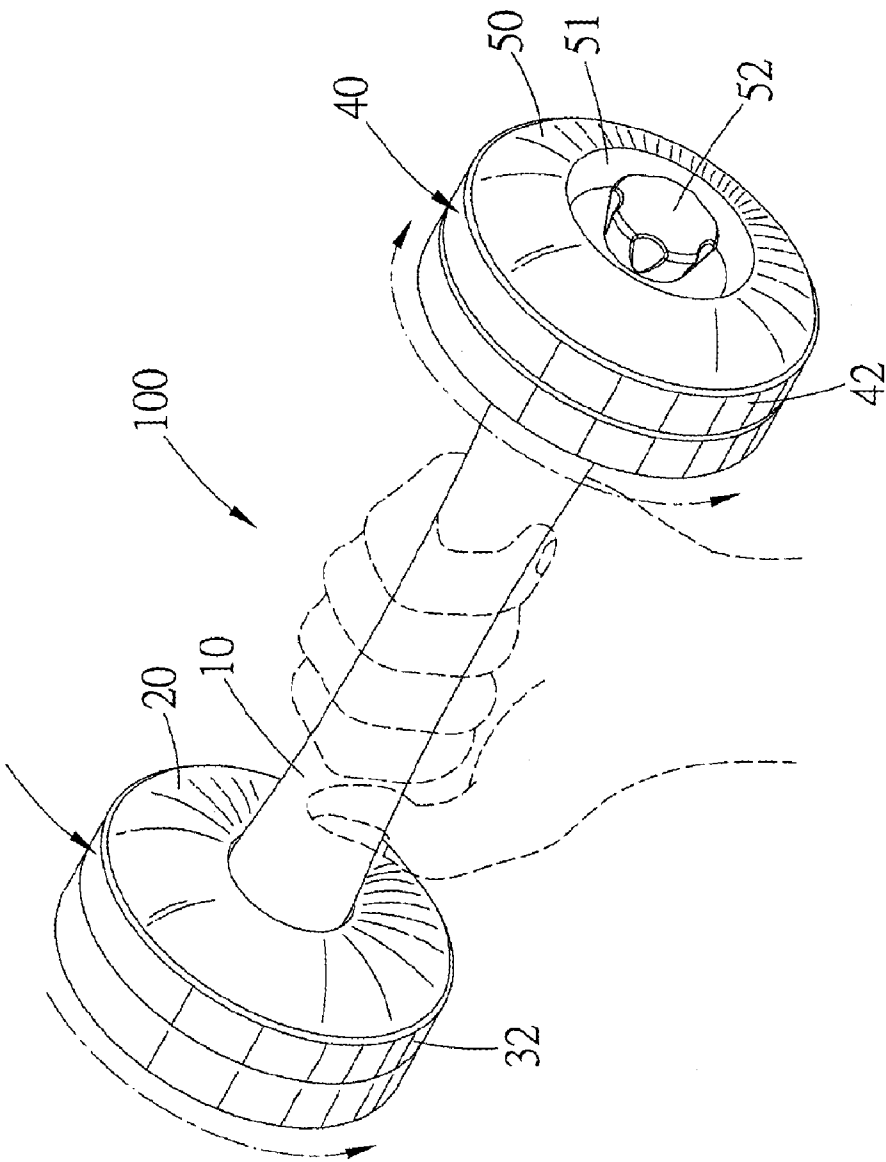


FIG. 7

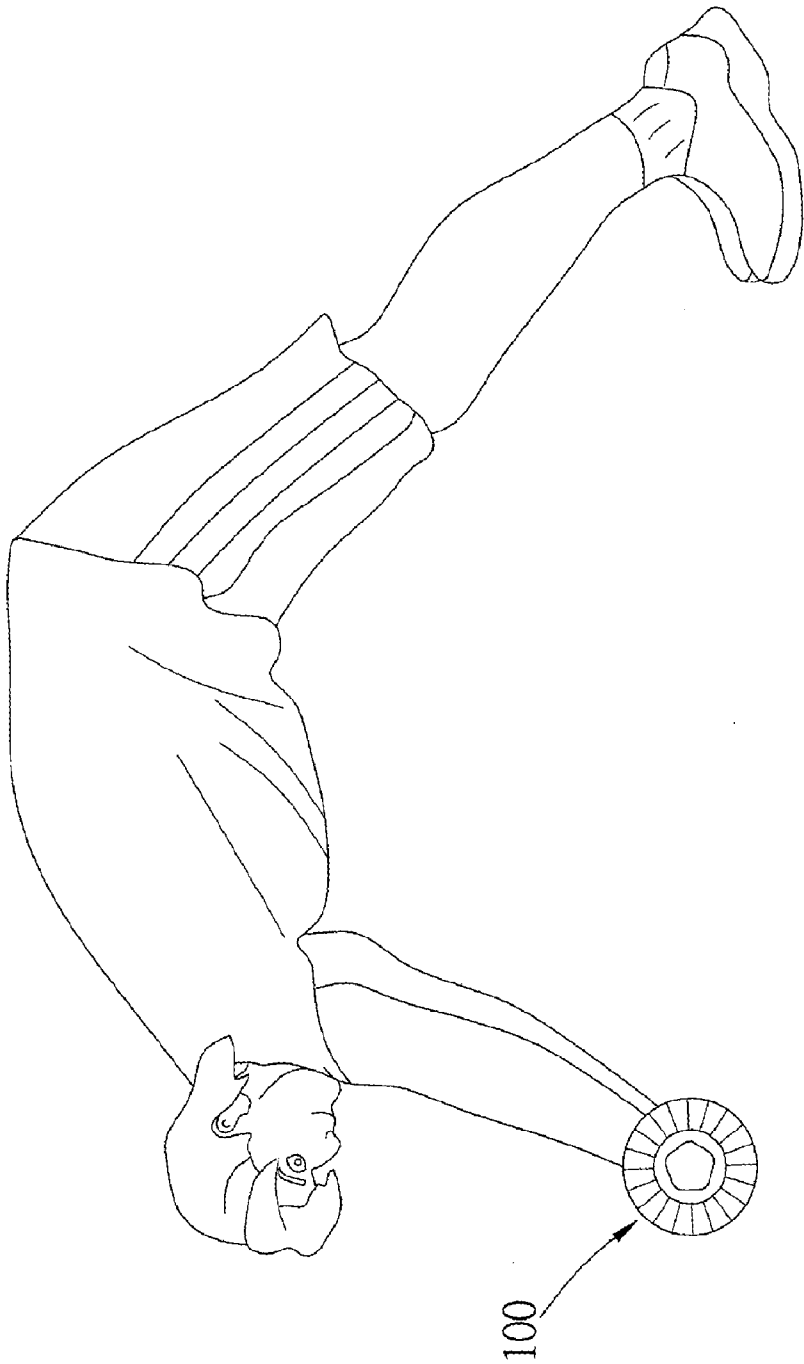


FIG. 8

ROTARY DUMBBELL

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates generally to a training apparatus, and more particularly to a rotary dumbbell.

[0003] 2. Description of the Related Art

[0004] Recently, physical fitness has already become one of the common leisure activities. People usually go to gym to exercise because some huge and expensive fitness apparatuses are equipped in the gym only. However, not every person has the time and the money to spend at a gym, so that people buy some simple and inexpensive fitness apparatuses for use at home.

[0005] Dumbbell is one of the most popular fitness apparatus to provide a wide variety of exercises such as biceps curls, triceps extensions, and the like. Dumbbells are commonly found in gyms, as well as for sale to private users because they are small, simple and cheap for ordinary people to exercise.

[0006] Typically, the conventional dumbbell usually has two weight-heads attached to opposite ends of a handle bar. A full set of such dumbbells includes various pairs of dumbbells with different weights that user may choose the specific dumbbells according to his/her particular physical condition and exercise needs.

[0007] Taiwan utility patent no. M385377 taught an improved dumbbell, which has a handle tube, an axle inserted into the handle tube, two bearings fixed in the handle tube to support the axle that the axle may rotate freely, and two weight devices fixed to opposite ends of the axle. The weight devices will rotate when user holds the handle tube and shakes the dumbbell. The most important thing is that the weight devices are eccentric that the eccentric rotation of the weight devices will provide an extra loading when user shakes the dumbbell. However, this eccentric dumbbell always provides eccentric rotation. The eccentric rotation of the weight devices of the dumbbell is uncontrollable and may hurt user when the user takes the eccentric dumbbell as the ordinary dumbbell to exercise.

SUMMARY OF THE INVENTION

[0008] The primary objective of the present invention is to provide a rotary dumbbell, which is adjustable to have different eccentric loadings.

[0009] The secondary objective of the present invention is to provide a rotary dumbbell, which has another function to exercise except for the normal training mode of dumbbell.

[0010] To meet the objectives, a rotary dumbbell of the present invention includes a handle and two pairs of wheels and weight devices pivoted on opposite ends of the handle for rotation. Each of the wheels has a center pivoted on the handle and is unadjustable in a radial direction thereof that the wheels centrally rotate. Each of the weight devices is adjustable in a radial direction thereof that the weight devices may rotate eccentrically.

[0011] Therefore, user may get an extra loading because of the eccentric rotation of the weight devices when he/she

shakes the dumbbell. The dumbbell may be used as roller also to train abdominal muscles while the wheels serve the function of rollers.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] FIG. 1 is a perspective view of a preferred embodiment of the present invention;

[0013] FIG. 2 is an exploded view in a part of the preferred embodiment of the present invention;

[0014] FIG. 3 is a sectional view of the wheel of the preferred embodiment of the present invention;

[0015] FIG. 4 is a sectional view of the weight device of the preferred embodiment of the present invention;

[0016] FIG. 5 is a sketch diagram of the preferred embodiment of the present invention, showing the weight device moving to an eccentric position;

[0017] FIG. 6 is a perspective view of the preferred embodiment of the present invention, showing user training with the dumbbell in an eccentric mode;

[0018] FIG. 7 is perspective view of the preferred embodiment of the present invention, showing user training with the dumbbell in a normal mode;

[0019] FIG. 8 is a sketch diagram, showing the user using the dumbbell of the present invention for abdominal training.

DETAILED DESCRIPTION OF THE INVENTION

[0020] As shown in FIG. 1, a rotary dumbbell 100 of the preferred embodiment of the present invention includes a handle 10, on opposite ends of which two wheels 30 and two weight devices 40 are pivoted.

[0021] As shown in FIG. 2, the handle 10 is a tubular member with an axle 12 passing there through. Two bearings 11, only one of which is shown in FIG. 2, are mounted in the opposite ends of the handle 10 to support the axle 12 that the axle 12 may rotate freely relative to the handle 10. The axle 12 has two connecting portions 14 at opposite ends, each of which has two flat surfaces 15. The connecting portions 14 of the axle 12 extend out of the handle 10 to connect the wheels 30 and the weight devices 40. In other words, the wheels 30 and the weight devices 40 have the same rotation axis which is the axle 12.

[0022] Two pairs of first covers 20 and second covers 50 are respectively fitted to the opposite ends of the axle 12 in sequence. Between each pair of the first cover 20 and the second cover 50, the wheel 30 and the weight device 40 are provided. The first cover 20 has a cavity 21 at a center of an outer side and a hole 22 at a bottom of the cavity 21. The first cover 20 further has three posts 23 projected from an inner side thereof with plural of ribs 24 at bottoms respectively. The axle 12 passes through the hole 22 of the first cover 20, and an end of the handle 10 is received in the cavity 21. A C-ring 13 engages the axle 12 at the inner side of the first cover 20 that the first cover is coupled to the axle 12. The second cover 50 is a disc-like member, and has a cavity 51 at a center thereof and a hole at a bottom of the cavity 51.

[0023] As shown in FIG. 2 and FIG. 3, the wheel 30 has a case 32, in which weight members 31 are received. The case 32 consists of a box 34 and a lid 38. The box 34 has an open end 33, and the lid 38 seals the open end 33. Three pairs of posts 35 are projected from a bottom of the box 34, and the lid 38 has six bores associated with the posts 35 respectively. Each of the weight members 31 has two holes to be fitted to the posts 35 respectively. The lid 38 covers the box 34 with

screws screwing into the posts 35 through the bores of the lid 38 that the weight members 31 are fixed in the case 30. A hub 36 is provided at a center of the box 34, and the lid 38 has an opening 381 at a center in association with the hub 38. The hub 36 has a connecting hole 361 which is complementary to the connecting portion 14 of the axle 12. The box 34 further has three tubes 37 between each pair of the posts 35, and the lid 38 has holes in association with the tube 37 respectively. Each tube 37 has a hole 371 to be engaged with the post 23 on the first cover 20. Screws are screwed into the lid 38 to fasten the posts 23 received in the holes 371 of the tubes 37 that wheel 30 is fixed to the first cover 20 and is engaged with axle 12, therefore the wheel 30 and the first cover 20 rotate along with the axle 12.

[0024] It is noted that the weight members 31 are divided into three stacks, and the connecting hole 361 of the case 30 is located at a center of gravity of the weight members 31. That is, the wheels 30 will centrally rotate.

[0025] As shown in FIG. 2 and FIG. 4, the weight device 40 has a case 42, consisting of a box 44 and a lid 48, and plural of weight members 41 received in the case 42. The case 42 is the same as the case 32 of the wheel 30 in diameter and thickness. Same as above, the box 44 has an open end 43, and the lid 48 seals the open end 43. The box 44 has three pairs of posts 45 projected from a bottom thereof, and each weight members 41 has two holes to be fitted to the posts 45. Screws are screwed into the posts 45 through the lid 48 to fix the box 44, the lid 48 and the weight members 41 together. The box 44 has an elliptical tube 46 with an elongated adjusting slot 47, and the lid 48 has an elliptical fitted to the elliptical tube 46. The adjusting slot 47 extends in a radial direction of the case 42, wherein an end of the adjusting slot 47 is at a center of the case 42 (central end) and the other end is off the center (eccentric end). The weight device 40 is fitted to the axle 12 by passing the connecting portion 14 through the adjusting slot 47. The second cover 50 is put on the weight device 40, and a fastener 52 is inserted into the hole on the second cover 50 and screwed into a threaded hole of the connecting portion 14 of the axle 12.

[0026] The weight device 40 is able to be moved in a radial direction when the fastener 52 is loosed, and the fastener 52 should be fastened again to fix the weight device 40. When the weight device 40 is moved to a central position, where the connecting portion 14 of the axle 12 is located at the central end of the adjusting slot 47, the weight device 40 will rotate centrally. When the weight device 40 is moved in the radial direction to have the connecting portion 14 of the axle 12 off the central end, the weight device 40 will rotate eccentrically. When the connecting portion 14 of the axle 12 reaches the eccentric end of the adjusting slot 47, as shown in FIG. 5, the weight device 40 has a maximum eccentric rotation.

[0027] As shown in FIG. 2, the weight members 41 are separated into three stacks, and the stacks of the weight members 41 are unevenly distributed in the case 42. Therefore, there is a region in the case 42 without the weight members 41, and the adjusting slot 47 extends in the region. Because of the uneven distribution of the weight members 41 in the case 42, the weight device 40 rotates a little eccentrically when the axle 12 is located at the central end of the adjusting slot 47. It is obvious that the eccentric end of the adjusting slot 47 is distal to a center of gravity of the weight members 41 that the weight device 40 will have an eccentric rotation when the weight device 40 is moved to the eccentric position.

[0028] FIG. 7 shows the dumbbell 100 of the present invention with the weight devices 40 located at the central positions. The weight devices 40 and the wheels 30 centrally rotate together when user holds the handle 10 and shakes it. In this circumstance, the dumbbell 100 of the present invention is similar to an ordinary dumbbell that user may do the ordinary exercises, such as biceps curls and triceps extensions.

[0029] FIG. 6 shows the weight devices 40 being moved to eccentric positions. The weight devices 40 have eccentric rotations when user shakes the dumbbell 100 of the present invention. In comparison with FIG. 7, in which the weight devices 40 rotate centrally, the eccentric rotations of the weight devices 40 will provide an extra loading.

[0030] FIG. 8 shows another training mode of the dumbbell 100 of the present invention, in which the weight devices 40 have to be moved back to the central positions. The dumbbell 100 is put on the ground, and user holds the dumbbell 100 and stands on the ground by feet or knees to roll out and roll in. In this situation, the dumbbell 100 of the present invention functions as a roller (or wheel) for abdominal training. The wheels 30 are the main to serve the rolling function in abdominal training.

[0031] The description above is a few preferred embodiments of the present invention and the equivalence of the present invention is still in the scope of claim construction of the present invention.

What is claimed is:

1. A rotary dumbbell, comprising:

a handle;

two wheels pivoted on opposite ends of the handle for free rotation; and

two weight devices pivoted on the opposite ends of the handle for free rotation;

wherein each of the wheels has a center pivoted on the handle and is unadjustable in a radial direction thereof to have a central rotation;

wherein each of the weight devices is adjustable in a radial direction thereof to have an eccentric rotation.

2. The rotary dumbbell as defined in claim 1, further comprising an axle pivoted on the handle for free rotation, wherein the axle has two connecting portions at opposite ends, and the connecting portions extend out of the opposite ends of the handle to connect the wheels and the weight devices respectively.

3. The rotary dumbbell as defined in claim 2, wherein the weight device has an elongated adjusting slot extending in the radial direction, and the axle passes through the adjusting slot of the weight device that the weight device is moved along the adjusting slot.

4. The rotary dumbbell as defined in claim 1, further comprising two pairs of first covers and second covers, between each pair of which the wheel and the weight device are provided.

5. The rotary dumbbell as defined in claim 4, wherein the first cover has a plurality of posts to be inserted into holes on the wheel that the first cover rotates along with the wheel.

6. The rotary dumbbell as defined in claim 4, wherein the first cover has a cavity to receive the end of the handle therein.

7. The rotary dumbbell as defined in claim 4, wherein the second cover has a cavity with a hole at a bottom thereof, and a fastener is inserted into the hole of the second cover to be connected to the handle.

8. The rotary dumbbell as defined in claim 1, wherein the wheel has a case and at least a weight member received in the case, and the weight member is evenly distributed in the case.

9. The rotary dumbbell as defined in claim 8, wherein the case has a box and a lid, and the box has posts to be inserted into holes of the weight member when the weight member is put in the box, and the lid covers the box with screws screwed into the posts of the box through the lid.

10. The rotary dumbbell as defined in claim 1, wherein the weight device has a case and at least a weight member received in the case, and the weight member is unevenly distributed in the case.

11. The rotary dumbbell as defined in claim 10, wherein the case has a region without the weight member, and an elongated adjusting slot is provided on the region.

12. The rotary dumbbell as defined in claim 11, wherein the adjusting slot extends in the radial direction with an end at a center of the case.

13. The rotary dumbbell as defined in claim 11, wherein the adjusting slot extends in the radial direction with an end distal to a center of gravity of the weight member.

14. The rotary dumbbell as defined in claim 1, wherein the wheel has a diameter the same as that of the weight device.

15. A rotary dumbbell, comprising:

a handle; and

two weight devices pivoted on opposite ends of the handle for free rotation;

wherein each of the weight devices has a case and at least a weight member received in the case, and the weight member is unevenly distributed in the case.

16. The rotary dumbbell as defined in claim 15, wherein the case has a region without the weight member, and an elongated adjusting slot is provided on the region and extends in a radial direction, and the handle has an connecting portion engaged with the adjusting slot that the weight device is adjustable in the adjusting slot.

17. The rotary dumbbell as defined in claim 16, wherein the adjusting slot has an end at a center of the case.

18. The rotary dumbbell as defined in claim 16, wherein the adjusting slot has an end distal to a center of gravity of the weight member.

19. The rotary dumbbell as defined in claim 15, further comprising a pair of wheels pivoted on the opposite end of the handle, and the wheels and the weight devices have the same rotation axis.

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