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(54) **FITNESS TRAINING APPARATUS WITH WEIGHT AND RESISTANCE FEATURES**

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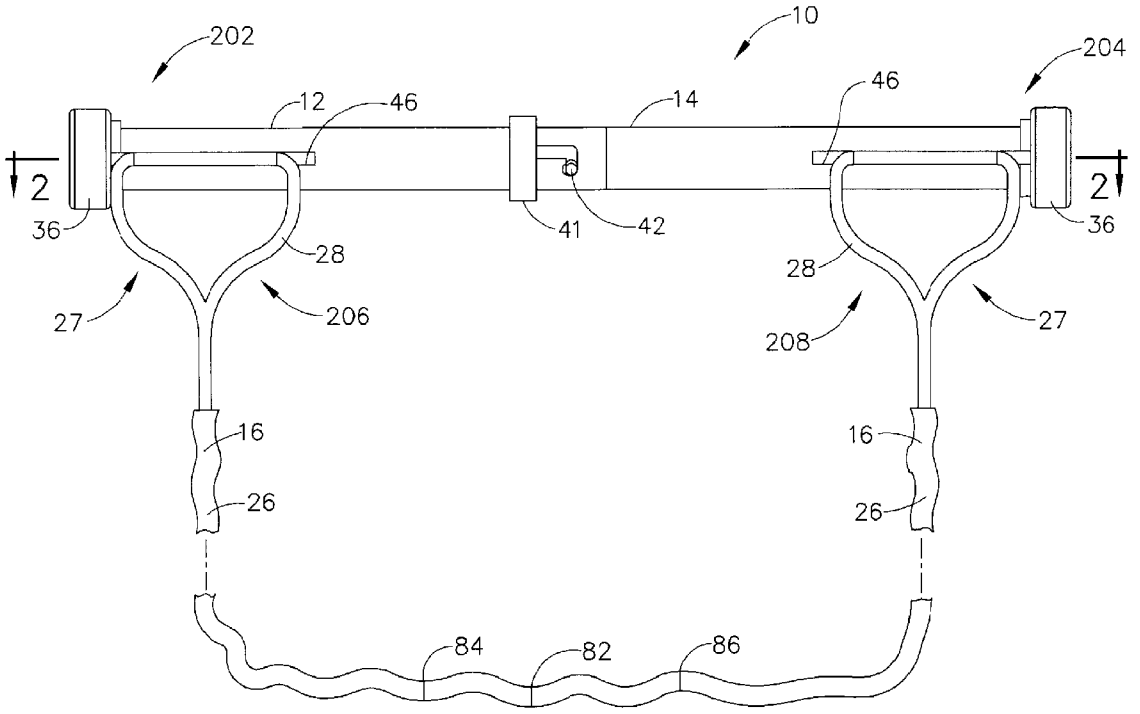
(57) **ABSTRACT**

This invention relates to an exercise device comprising a baton having a first end, a second end, and a chamber, at least one elastic member having a first end and a second end, whereas said first end is affixed to said baton and said second end is affixed to said baton, and at least one weight disposed in said baton member chamber.



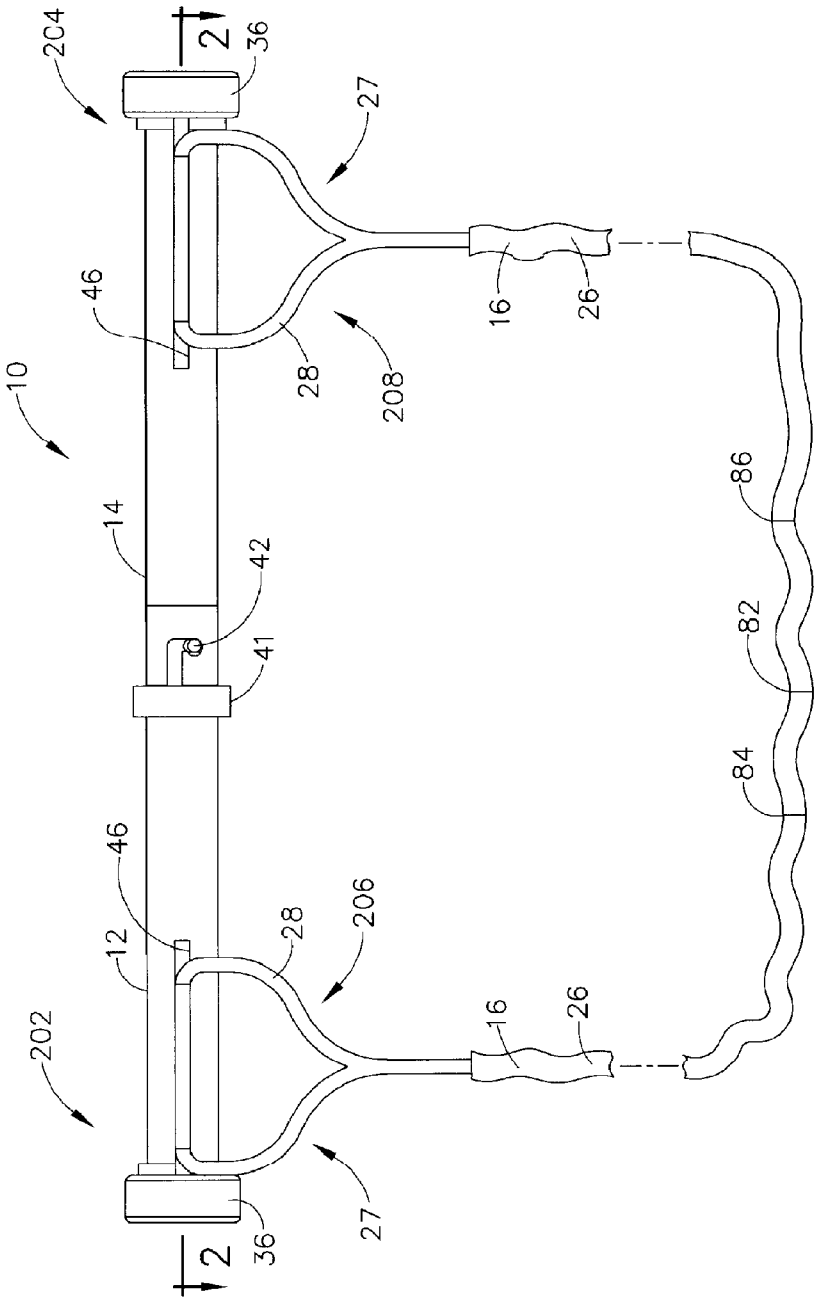

204
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FIG. 1

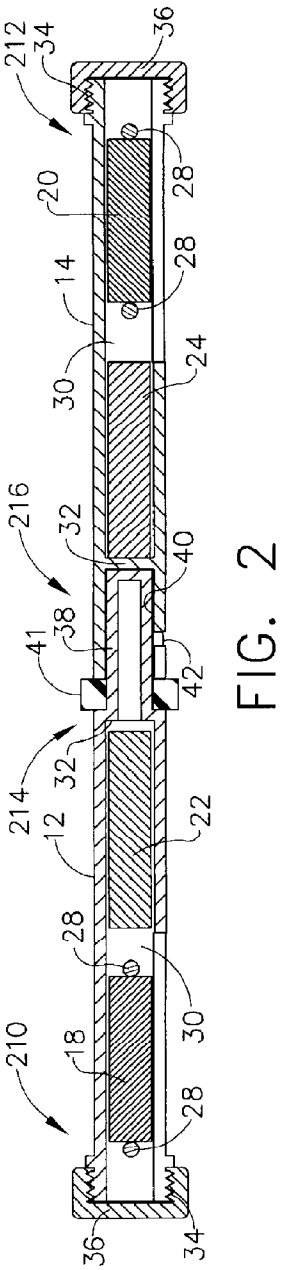


FIG. 2

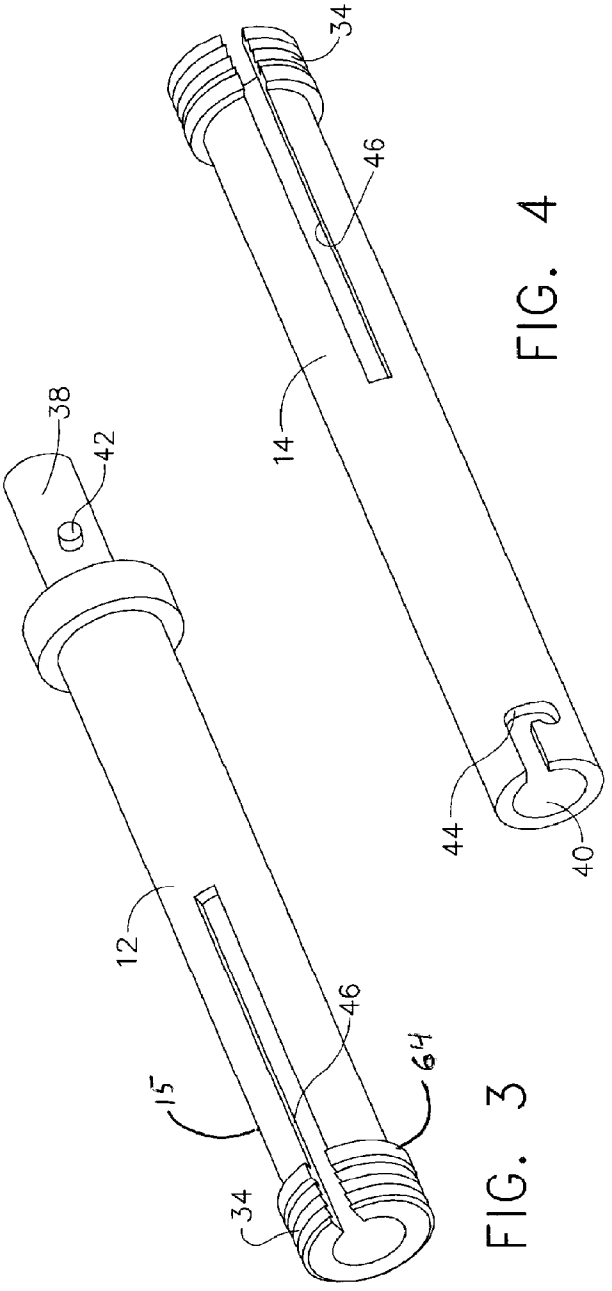


FIG. 3

FIG. 4

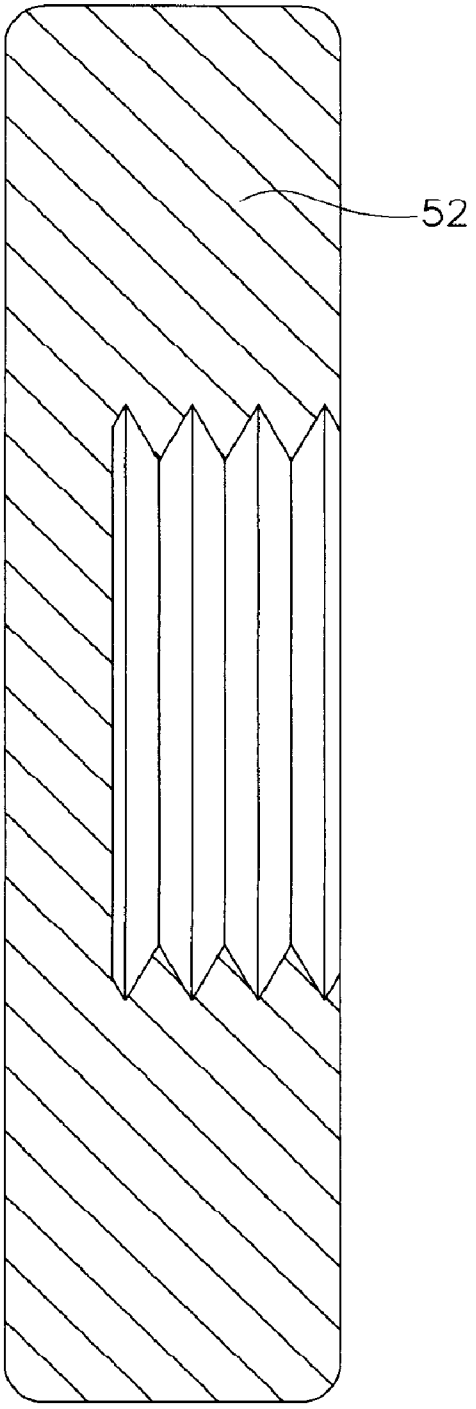
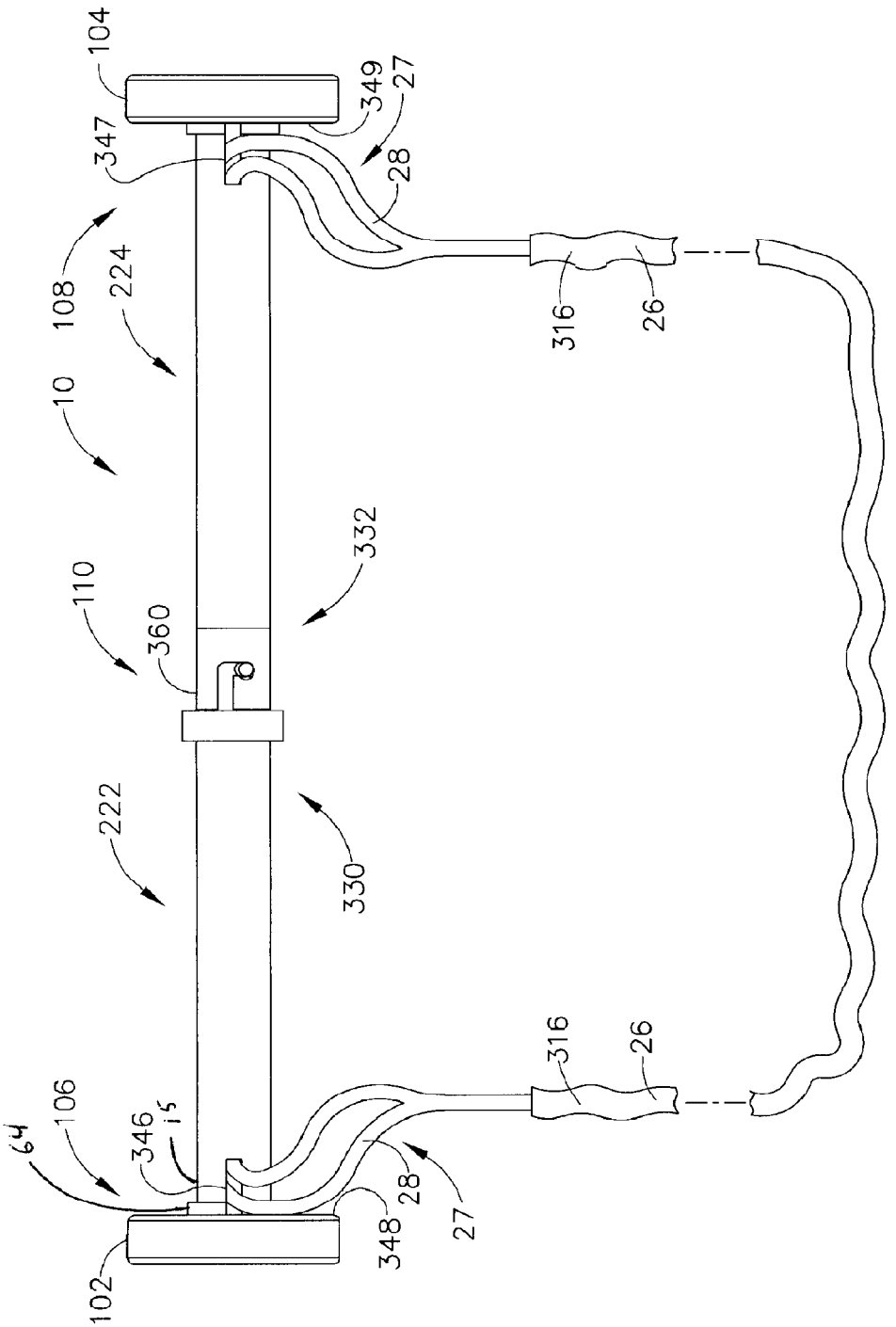


FIG. 5


104
347
349
27
28
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224
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26
110
360
332
222
330
64
106
346
15
348
102

FIG. 6

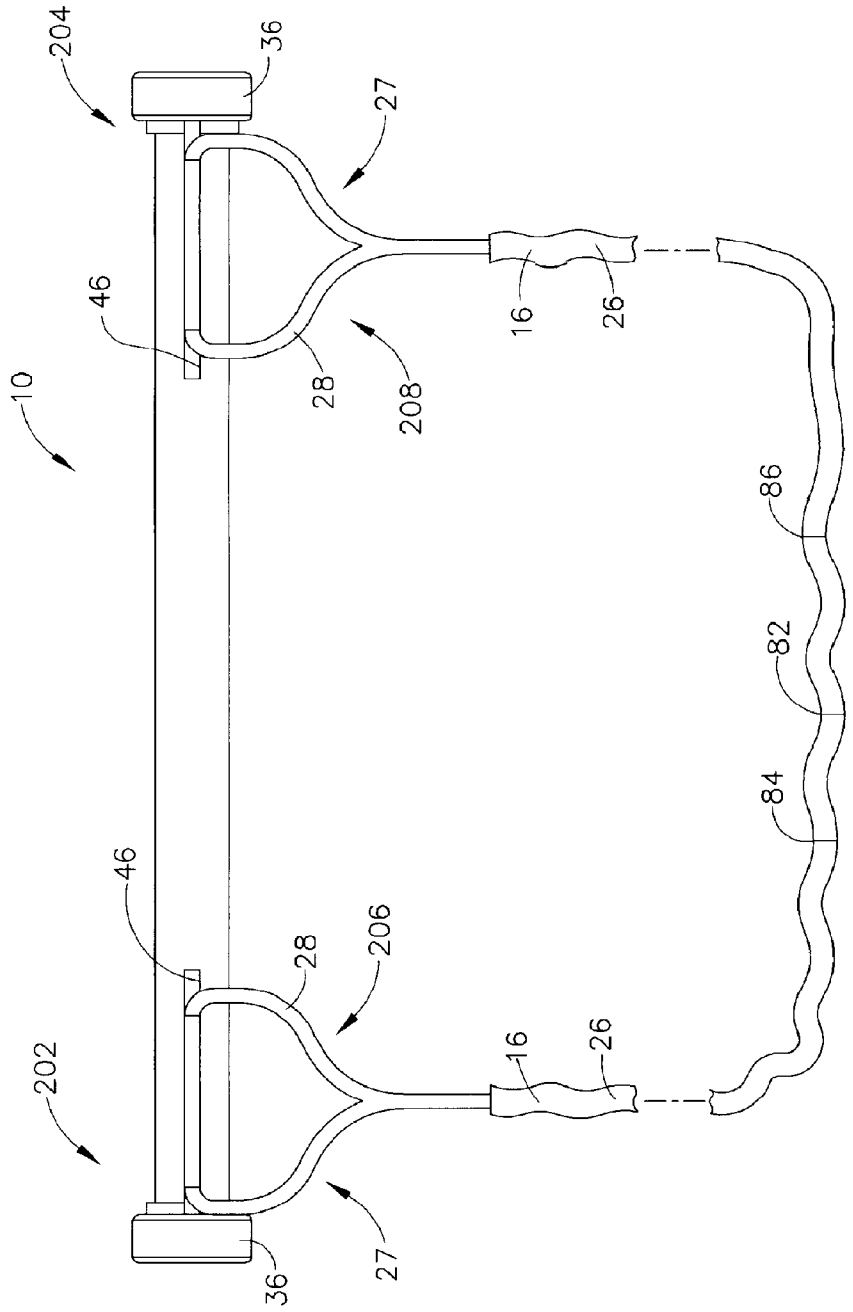

FIG. 7

FITNESS TRAINING APPARATUS WITH WEIGHT AND RESISTANCE FEATURES

CROSS REFERENCE TO RELATED APPLICATION

[0001] This application claims the benefit of U.S. Provisional Application No. 61/121,851, filed on Dec. 11, 2008 the disclosure of which is incorporated herein by reference.

BACKGROUND OF THE INVENTION

[0002] The present invention relates to fitness equipment and more particularly to an apparatus which combines free weight and elastic resistance features.

[0003] While the use of elastic bands or resistance tubing for strength training will cause muscles to become stronger and leaner, the exclusive use of elastic resistance devices does not appear to add much muscle mass. It is believed that resistance tubing overloads the eccentric phase, or lengthening, of muscle tissue, at the expense of the concentric phase, or shortening, of muscle tissue. Overloading the concentric phase through the use of weight equipment, on the other hand, stimulates an increase in muscle mass. It is an increase in muscle mass that causes one's resting metabolic rate to increase, thereby stimulating the metabolism of fat and, over time, a reduction in one's risk of heart disease, diabetes and other weight related illnesses. Therefore, to add muscle mass, increase metabolism, and change one's physique, weight resistance equipment such as machines, barbells, weighted balls, bars, and the like, is needed.

[0004] However, if only weight resistance equipment is used, one is less likely to build the kind of longitudinal strength that reduces the risk of joint injury. In addition to not reducing the risk of joint injury, exclusive use of weight resistance equipment requires longer workouts because the both of the concentric and eccentric phases of the muscle are not being overloaded. When one uses a combination of weights and resistance tubes at the same time and receives proper instruction on form and pace, one will burn more calories per minute, create even strength to protect the joints, and increase muscle mass to establish and maintain a healthier weight.

[0005] U.S. Pat. No. 6,402,668 describes a rigid bar configured with an interior cavity and apertures on the ends of the bar. The bar is further configured with two slots with each slot in communication with a corresponding aperture and the cavity. It also discloses handles which are attached to the ends of the elastic member. Each handle may be configured generally in a stirrup configuration and has an engaging portion which is insertable into an aperture and the cavity of the bar. The handle further has an extending portion which, as the engaging portion is inserted into the cavity, is feed into the corresponding slot. The extending portion extends from the cavity and through the slot and attaches to an end of the elastic member. The bar may further be disassembled into two or more portions to facilitate compact storage.

[0006] There remains a need for improved fitness training devices, including a fitness training device that combines the advantages of weight resistance and elastic resistance.

SUMMARY OF THE INVENTION

[0007] This invention relates to an exercise device comprising a baton having a first end, a second end, and a chamber, at least one elastic member having a first end and a second end, whereas said first end is removably affixed to the baton and said second end to the baton, and at least one weight disposed in said baton chamber.

[0008] This invention also relates to an exercise device comprising a baton having a first baton member, a second baton member, whereas said first baton member has a coupling end, an outboard end, and a chamber, whereas said second baton member has a coupling end, an outboard end, and a chamber, and a locking mechanism for engaging and disengaging said coupling ends of said first and second baton members and at least one elastic member having a first end and a second end, whereas said first end is affixed proximal the outboard end of said first baton member and said second end is affixed proximal the outboard end of said second baton member, and at least one weight disposed in said first baton member chamber.

[0009] This invention also relates to an exercise device comprising a baton having a first baton member, a second baton member, whereas said first baton member has a coupling end, an outboard end, and a chamber, whereas said second baton member has a coupling end, an outboard end, and a chamber, and a locking mechanism for engaging and disengaging said coupling ends of said first and second baton members and at least one elastic member having a first end and a second end, whereas said first end is affixed proximal the outboard end of said first baton member and said second end is affixed proximal the outboard end of said second baton member, at least one weight disposed in said first baton member chamber, and at least one weight disposed in said second baton member chamber.

[0010] This invention also relates to an exercise device comprising a baton having a first end and a second end, at least one elastic member having a first end and a second end, whereas said first end is affixed proximate said first end of the baton and said second end is affixed proximate said second end of the baton, and at least one first end weight affixed to said first end of said baton.

[0011] This invention also relates to an exercise device comprising a baton having a first baton member, a second baton member, whereas said first baton member has a coupling end and an outboard end, whereas said second baton member has a coupling end and an outboard end, at least one elastic member having a first end and a second end, whereas said first end is affixed proximate said first baton member and said second end is affixed proximate said second baton member; and a locking mechanism for engaging and disengaging said coupling ends of said first and second baton members and at least one weight affixed proximate said outboard end of said first baton member.

[0012] This invention also relates to an exercise device comprising a baton having a first baton member, a second baton member, whereas said first baton member has a coupling end and an outboard end, whereas said second baton member has a coupling end and an outboard end, and a locking mechanism for engaging and disengaging said coupling ends of said first and second baton members and at least one elastic member having a first end and a second end, whereas said first end is affixed to said first baton member and said second end is affixed to said second baton member, at least one weight affixed to said first baton member outboard end, and at least one weight affixed to said second baton member outboard end.

[0013] The invention also relates to one or two batons with one or two internal weights, and one or two outboard weights.

[0014] The invention also relates to elastic bands with indicia along its length, to identify position along its length, between the ends.

[0015] The invention also relates to a set of bands for use with an exercise device, the set including at least a first and second band having different resistance strengths.

[0016] The invention also relates to a kit comprising an exercise device and instructions for their use.

[0017] The invention also relates to an exercise device with one or two batons having slots sized to receive two tube ends.

BRIEF DESCRIPTION OF DRAWINGS

[0018] FIG. **1** is an embodiment of the invention.

[0019] FIG. **2** is a sectional view of FIG. **1**.

[0020] FIG. **3** is a perspective view of one of the relatively inter-connectable batons of the invention.

[0021] FIG. **4** is a perspective view of the other relatively inter-connectable baton of the invention.

[0022] FIG. **5** is a weighted end cap of another embodiment of the invention.

[0023] FIG. **6** is another embodiment of the invention showing slots sized to accommodate the tube ends.

[0024] FIG. **7** is another embodiment of the invention showing a single baton.

DETAILED DESCRIPTION OF THE INVENTION

[0025] As illustrated in FIG. **1**, the exercise, fitness, or training apparatus, generally designated **10**, may include a pair of inter-connectable batons **12**, **14**, at least one elastic tube or band **16** provided with end pieces **18**, **20** and a pair of weights **22**, **24**. Each of the inter-connectable batons **12**, **14** may be tubular and adapted to house one of the weights **22**, **24** and one of the elastic band end pieces **18**, **20**.

[0026] Each of the batons **12**, **14** may be molded from impact resistant synthetic resin, including polypropylene, to a length of 30-36 inches, a diameter of 1.3-1.7 inches, and a weight of 1.5-2.0 pounds (absent the weights **18**, **20**). The batons **12** and **14** may be longer or shorter and heavier or lighter depending on the needs of the user. The batons **12** and **14** each have outboard ends, **210** and **212** respectively, and coupling ends, **214** and **216** respectively. The combined length of the batons **12**, **14** when connected together may be 55-66 inches. The combined length of the baton may also be the shorter or longer depending upon the user's needs.

[0027] Each of the weights **22**, **24** may be a cast iron or solid steel cylinder 6-10 inches long, 2-3 pounds in weight and possess a diameter that permits the weights to slide in and out of the batons **12**, **14**. Other material may also be used for the weights, and they may also be of varying weight.

[0028] The elastic band or tube **16** may be a single continuous length as shown or a pair or more of separate tubes. The tube or tubes **16** may be provided with outer protective cover **26** and have a modulus of elasticity which permits expansion and contraction over a wide range of motion of the torso, arms and legs of the user. Tubes **16** of various tension gradients or strengths may be provided to accommodate different users or levels of exercise. Additionally, the length of the tubes **16** may be varied to vary the resistance level of the exercise apparatus. The tube ends **27** as illustrated have tubular handles **18**, **20** through which the strap of the end loops **28** on the tube **16** travel and will typically have a first end **206** and a second end **208** as shown in FIG. **7**.

[0029] An example of a pair of interconnectable batons and an elastic band are shown in U.S. Pat. No. 6,402,668, the description, of which is incorporated herein by reference in its entirety.

[0030] While the baton **10** shown in FIG. **1** is made from two baton members, a single baton member with a first end **202** and a second end **204** may also be used as shown in FIG. **7**.

[0031] The elastic tube **16** shown in FIG. **1** may also include a visible or tactile indicia including a colored spot, line or hash mark to allow a user to identify specific locations on the tube **16**. For example, hash mark **82** may identify the midpoint of the tube, and hash marks **84** and **86** may identify points a predetermined distance from the midpoint. The hash marks may be of a bright florescent color to allow easy identification and may be color coded to identify their location.

[0032] As illustrated in FIG. **2**, each of the batons **12**, **14** may be formed with an outwardly opening chamber **30** sized to slidably receive the weight **22**, **24** and the tubular handles **18**, **20**. The weights **22** and **24** may be free-moving, or alternatively, immobilized in the baton so that a user may not remove them during the ordinary use of the baton. A stop wall **32** may be disposed in each chamber **30** to limit the inward movement of the weights **22**, **24**. Outward movement of the weights **22**, **24** and the elastic tube end pieces **18**, **20** may be limited by providing threaded ends **34** on the batons **12**, **14** and cooperatively threaded end caps **36** to close the ends of the chambers **30**. The weights may be sized as to fill the chamber or to partially fill the chamber. If the weights only partially fill the chamber, then a plug of a lightweight material such as plastic, foam, or wood may be used in the chamber to keep the weight from sliding axially while the exercise device is being utilized. Typically, if a removable weight is used, then it will slide out of the baton under its own weight when the end caps are removed and the baton is turned so that its open end is facing downward. Other methods of attaching the end caps **36** to the batons **12** and **14** may also be used; for example, a quick connect coupling, a snap ring, or a pin may be used to attach the end caps **36** to the batons **12** and **14**.

[0033] As illustrated in FIGS. **2-4**, a locking mechanism is shown including a reduced diameter cylindrical coupling **38** opposite the threaded end **34** may be formed on one of the batons **12**, and a coupling-receiving socket **40** may be formed opposite the threaded end **34** of the other baton **14**. The cylindrical coupling may be formed or otherwise provided with a locking stem **42**, and the socket **40** may be formed with a stem-receiving, J-shaped notch **44**. The batons **12**, **14** may be coupled together by aligning the stem **42** with the notch **44**, inserting the coupling **38** into the socket **40** and twisting the batons **12**, **14** relative to one another so that the stem **42** is seated at the closed end of the notch **44**. In this manner, the batons **12**, **14** may serve as a single bar (FIG. **1**). A compressible rubber washer **41** may be used to keep the stem **42** seated at the closed end of the J-shaped notch **44**. Alternatively, the batons **12**, **14** may used separately, depending upon the exercise in which the user engages.

[0034] For increased connective strength between the batons **12** and **14**, one may use more than one J-shaped notch **44** and locking stem **42**. For example, a second J-shaped notch **45** could be included opposite the first J-shaped notch **44**, and a second stem (not shown) could be included opposite the first stem **42**. An orientation means can be provided, to ensure that the batons **12** and **14** are coupled together in the same orientation so that the end loops **28** of the elastic tube or

band **16** exit the batons **12** and **14** on the same side (and not 180 degrees out of phase). The orientation means can include two J-shaped notches **44** and **45** (note shown) located on the baton **14** at an angle different that 180 degrees, and the two locking stems, **42** (and not shown), would be located on the baton **12** at that same angle different than 180 degrees. Locating the J-shaped notches **44** and **45** and the locking stems **42** and (not shown) at an angle different than 180 degrees would prevent a user from assembling the two batons **12** and **14** 180 degrees out of phase, because it would provide a single orientation in which the batons could be assembled. Alternatively, the two locking stems **42** can be positioned at two different distances from the end of baton, and the two J-shaped notches provided at corresponding two different lengths. Other locking mechanisms can include threaded ends or quick connects.

[0035] In another aspect of the invention, the end caps **36** may also incorporate a weighted portion to increase the weight of the baton. An embodiment of weighted end caps **102** and **104** is shown in FIG. **5**. Typically, weighted end caps would be of a weight greater than that ordinarily required for the end caps to function as closures of the outboard end opening. For example, while a typical end cap made of plastic weighs well less than one pound, the weighted end caps weigh 1, 2 or 3 pounds, or more units and fractions of pounds. The ability to use weighted end caps of varying weight allows the user to use the proper weight for various exercises and allows multiple users of different strengths to utilize the same bar. To increase the weight of the end caps, the end caps can be designed with an excess of material to increase their weight, can include steel or other substantially heavy material, or can have voids or cavities that one or more can be filled with a more dense substance including sand or water. Weighted end caps **52** can be used if one finds that weight in addition to that provided by the weights **22** and **24** is needed to effectively perform an exercise. Alternatively, in another embodiment, the weighted end caps **52** may be used without the internal weights **22** and **24**. Additionally, metal weights can extrend outwards, or inwardly from axis of end caps.

[0036] In another embodiment shown in FIG. **6**, end cap weights **102** and **104**, similar to those depicted in FIG. **5**, are affixed to the outboard ends **106** and **108** of a baton **110**. The weights **102** and **104** may be affixed to the baton so that it is not removable by the user in the ordinary course of exercise. Alternatively the weights **102** and **104** may be removably affixed to the baton so that a user may remove it during the exercising regimen. Alternatively, if one uses a baton **110** made from a first baton member **222** and a second baton member **224**, as shown in FIG. **6**, a first weight **102** may be affixed to the outboard end **106** of the first baton member **222**, and a second weight **104** may be affixed to the outboard end **108** of the second baton member **224**. In the end cap weight embodiments depicted in FIG. **6**, the internal weights such as those shown in FIGS. **1** and **2** may or may not be used with this embodiment. The end cap weights shown in FIG. **6** may be affixed to the batons in a number of ways, including permanently affixing them to the batons or removably affixing them to the batons with a threaded connection, a pin, or a snap ring. Other methods may also be used to affix the weights to the batons. Various weights may be used to satisfy the needs of different uses. For example, the weights may weigh 1, 2, 3, 4 pounds, and other weights may also be used.

[0037] Weights may also be placed at other location on the baton. For example, weights may be placed around the baton at any location between the outboard end **106** and the outboard end **108**.

[0038] The elastic tube **16** may be affixed to the baton so that it is not removable by the user in the ordinary course of exercise. Alternatively the elastic tube **16** may be removably affixed to the baton so that a user may remove it during the exercising regimen. As further illustrated in FIGS. **3** and **4**, an end piece-receiving slot **46** may be formed in each of batons **12**, **14** at the threaded ends **34** thereof. The slots **46** may extend inwardly a distance sufficient to permit the loop portions **28** of the band or tube **16** to extend therethrough. Other methods, such as hooks disposed on the baton, may be used to removably affix the tube **16** to the baton.

[0039] In another aspect of the invention, shown in FIG. **6**, inboard ends of slots **346** and **347** may extend toward the connecting ends **330** and **332** just enough so as to allow the strands **27** of the end loops **28** of the elastic band **316** together and to pass through the slot, with the end cap affixed without creating a handhold cavity **50** as shown in FIG. **1**. Typically, the slots **346** and **347** extend less than about 1 inch past the innermost parts **348** and **349** of the end caps **102** and **104** when the end caps are affixed to the batons **222** and **224**. Alternatively, the shortened slots extend only through the threaded end portions **34** of the baton (shown in FIG. **3**) and flange **64**, to avoid extending the slot into the cylindrical portion **15** of the baton. Weighted or non-weighted end caps may be used, or no end caps may be used in this embodiment. In the embodiment shown in FIG. **6**, a user may slide his or her hands farther out towards the outboard ends **106** and **108** of the baton without having to place his or her hands into the handhold cavity **50** shown in FIG. **1**. Thus, a greater number of hand positions may be permitted by the embodiment shown in FIG. **6**. Additionally, a user may slide his or her hands from the central part **360** of the baton to the outboard ends **106** and **108** of the baton without having to ungrip the baton. Thus, a user may continue to exercise while sliding his or her hands outwardly to change the muscles being utilized by a particular exercise. The embodiment shown in FIG. **6** may alternatively incorporate the slots **46** shown in FIGS. **3** and **4**.

[0040] While the present invention has been illustrated by the description of embodiments thereof, and while the embodiments have been described in considerable detail, it is not intended to restrict or in any way limit the scope of the appended claims to such detail. Additional advantages and modifications will be readily apparent to those skilled in the art. The invention in its broader aspects is therefore not limited to the specific details, representative apparatus and method, and illustrated examples shown and described. Accordingly, departures may be made from such details without departing from the scope or spirit of the invention.

What is claimed is:

1. An exercise device comprising:

a baton having a first end, a second end, and a chamber;

at least one elastic member having a first end and a second end, whereas said first end is affixed to the baton and said second end is affixed to the baton; and

at least one weight inside said baton chamber.

2. An exercise device according to claim **1**, wherein said at least one weight is removable from said baton chamber.

3. An exercise device according to claim **1**, further comprising an end cap removably affixed to said first end of said baton.

4. An exercise device according to claim **3**, whereas said end cap further comprises a weight.

5. An exercise device according to claim **1**, whereas said first and second end of said elastic members are removably affixed to said baton.

6. An exercise device according to claim **1**, whereas said baton member comprises a first baton member, a second baton member, and a locking mechanism for engaging and disengaging said first baton member and said second baton chamber.

7. An exercise device according to claim **1**, further comprising a slot, whereas said first end is open and in communication with the chamber and the slot is disposed adjacent the first end and extends along a surface of the baton from the first open end of the baton to a length intermediate the first open end and the second end and is in communication with the chamber and whereas the slot extends a distance of less than about 1 inch.

8. An exercise device according to claim **1**, further comprising a stop wall disposed in said chamber.

9. An exercise device comprising:

a baton having a first baton member, a second baton member and a locking mechanism for engaging and disengaging said first and second baton members;

whereas said first baton member has a coupling end, an outboard end, and a chamber,

whereas said second baton member has a coupling end, an outboard end, and a chamber,

at least one elastic member having a first end and a second end, whereas said first end is affixed to said first baton member and said second end is affixed to said second baton member; and

at least one weight disposed in said first baton member chamber.

10. An exercise device according to claim **9**, wherein said at least one weight is removable from said first baton member chamber.

11. An exercise device according to claim **9**, further comprising an end cap removably affixed to said outboard end of said first baton member.

12. An exercise device according to claim **11**, whereas said end cap further comprises a weight.

13. An exercise device according to claim **9**, whereas said locking mechanism is adapted to allow only a single orientation of the first baton member and the second baton member relative to each other when said locking mechanism is engaged.

14. An exercise device according to claim **9**, whereas said first end of said elastic member is removably affixed to said first baton member.

15. An exercise device according to claim **9**, further comprising a slot, whereas said first baton member outboard end is open and in communication with the chamber and the slot is disposed adjacent the first baton member outboard end and extends along a surface of the baton from the outboard end of the first baton to a length intermediate the first baton member outboard end and coupling end and is in communication with the chamber and whereas the slot extends a distance of less than about 1 inch.

16. An exercise device according to claim **9**, further comprising a weight stop disposed in said first baton member chamber.

17. An exercise device comprising:

a baton,

at least one elastic member having a first end and a second end, whereas said first end is affixed to said baton and said second end is affixed to said baton, and

at least one weight disposed on said baton.

18. An exercise device according to claim **17**,

whereas said baton comprises having a first baton member, a second baton member and a locking mechanism for engaging and disengaging said first and second baton members;

whereas said first baton member has a coupling end and an outboard end,

whereas said second baton member has a coupling end and an outboard end, and

whereas said first end of said elastic member is affixed to said first baton member and said second end of said elastic member is affixed to said second baton member.

19. An exercise device according to claim **18**, whereas said at least one weight comprises a weighted end cap disposed on the outboard end of said first baton member.

20. An exercise device according to claim **18**, whereas said at least one weight is disposed on said baton between said outboard end of said first baton member and said outboard end of said second baton member.

21. An exercise device according to claim **18**, whereas said at least one weight is removable.

22. An exercise device according to claim **18**, whereas said locking mechanism is adapted to allow only a single orientation of the first baton member and the second baton member relative to each other when said locking mechanism is engaged.

23. An exercise device according to claim **18**, further comprising a chamber disposed in said first baton member, a slot, whereas said first baton outboard end is open and in communication with the chamber and the slot is disposed adjacent the first baton outboard end and extends along a surface of the baton from the first baton outboard end to a length intermediate the first baton outboard end and the first baton coupling end and is in communication with the chamber and whereas the slot extends a distance of less than about 1 inch.

* * * * *