An apparatus comprises: a first cylindrical handle rotatable about a first cylindrical axis; a second cylindrical handle rotatable about a second cylindrical axis disposed such that the first handle and the second handle form an angle of less than 180 degrees; and a resistance adjuster operable to adjust a rotational resistance of the first handle about the first cylindrical axis and the second handle about the second cylindrical axis.
FOREARM, WRIST AND HAND STRENGTHENER

RELATED APPLICATIONS


BACKGROUND OF THE INVENTION

[0002] The present invention generally relates to an exercise device and, more specifically, relates to an exercise device that works to strengthen the forearms, wrists, and hands of a user.

SUMMARY OF THE INVENTION

[0003] In one aspect of the present invention, an apparatus comprises: a first cylindrical handle rotatable about a first cylindrical axis; a second cylindrical handle rotatable about a second cylindrical axis disposed such that the first handle and the second handle form an angle of less than 180 degrees; and a resistance adjuster operable to adjust a rotational resistance of the first handle about the first cylindrical axis and the second handle about the second cylindrical axis.

[0004] These and other features, aspects and advantages of the present invention will become better understood with reference to the following drawings, description and claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] FIG. 1 shows a perspective view of an exercise device in accordance with an embodiment of the present invention;

[0006] FIG. 2 shows an exploded view of the exercise device in accordance with an embodiment of the present invention;

[0007] FIG. 3 shows an internal view of the exercise device in accordance with an embodiment of the present invention;

[0008] FIG. 4 shows a cross-sectional view of the exercise device taken on line 4-4 of FIG. 3 in accordance with an embodiment of the present invention; and

[0009] FIG. 5 shows another cross-sectional view of the exercise device taken on line 5-5 of FIG. 3 in accordance with an embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0010] The following detailed description is of the best currently contemplated modes of carrying out exemplary embodiments of the invention. The description is not to be taken in a limiting sense, but is made merely for the purpose of illustrating the general principles of the invention, since the scope of the invention is best defined by the appended claims.

[0011] Various inventive features are described below that can each be used independently of one another or in combination with other features.

[0012] Broadly, embodiments of the present invention generally provide an exercise device for strengthening the forearms, wrists, and hands of a user that may be used by having the user grip and twist a pair of handles of the device to rotate the handles about its axis, thus exercising the user’s forearms, wrists, and hands. Further, the resistance of the handles to being twisted and rotated may be adjusted, thereby enabling a user to increase or decrease the resistance of the handles to being twisted in order to adjust to the level of difficulty desired.

[0013] Referring now to the figures, an exemplary embodiment of the exercise device 16 may comprise a pair of handles 26, such as cylindrical rods, that may be partially enclosed in a housing. The two handles 16 may be situated such that they form an angle of less than 180 degrees between the two handles 16. In one exemplary embodiment, the two handles 16 may be situated such that they form an angle of approximately 90 degrees between the two handles 16 in order to better optimize the ergonomics of the exercise device 16.

[0014] A user may use one hand to grip one handle 16 of the exercise device 10 and may use another hand to grip the other handle 16 of the exercise device 10, and may exercise his body by twisting the handles 16 of the device 10 so that the handles 16 rotate about its axis. To adjust the resistance of the handles 16 to rotating about its axis, the user may adjust a tension handle 18 that may be part of a resistance adjuster of the exercise device 10. In one exemplary embodiment, the user may rotate the tension handle 18 in one direction in order to equally increase the resistance of both handles 16 and may rotate the tension handle 18 in an opposite direction in order to equally decrease the resistance of the handles 16. In another exemplary embodiment, the tension handle 18 may be connected to the housing and may be situated so that it juts out of the housing and bisects the angle formed by the two handles 16.

[0015] Further, the housing may be shaped to allow the two handles 16 to be situated such that the two handles 16 form an angle between them of less than 180 degrees and more typically approximately 90 degrees, such as by situating each handle 16 such that they are each 45 degrees from vertical in opposite directions, in order to provide better ergonomics for a user of the exercise device 10. In one exemplary embodiment, the housing may be molded such that the angle between the handles 16 remains stationary. In another exemplary embodiment, two halves 12 and 14 of the housing may be attached together with six sets of housing nut and bolt pairs 16 that fit into holes 38 on the housing.

[0016] Further, each of the handles 16 may have a portion exterior to the housing and a portion inside the housing. The portion of the handles 16 exterior to the housing may be wrapped with a handle grip. The portion of the handles 16 inside the housing may each be in contact with a friction block 34. Retaining washers may be used to secure the handles 16 and prevent the handles 16 from slipping out of the housing. The retaining washers may be slid over the handles 16 and secured via retaining roll pins driven through each of the handles 16. In one exemplary embodiment, the retaining roll pins may be driven through holes drilled approximately 1% inch from the ends of the handles 16 situated within the housing.

[0017] Each of the two friction blocks 34 may be situated parallel to one of the two handles 16 and may comprise a concave shape on the side of the friction blocks 34 that contact the handles 16, in order to provide a better fit between the friction blocks 34 and the handles 16. Further, the surface of the friction blocks 34 may be abrasive, in order to create a level of resistance as the handles 16 rotate against the sides of the friction blocks 34. A tension block 32 may be situated between the friction blocks 34 and may contact both of the friction blocks 34 at the same time. In an exemplary embodiment, the resistance of the handles 16 rotating about its axis...
may be determined by the level of pressure put on the handles 16 by the friction blocks 34, such as how tightly the friction blocks 34 contact the handles 16.

[0018] A tension handle 18 may be connected to a threaded cylindrical rod 20. The threaded cylindrical rod 20 may thread through a flange weld nut 24 having a threaded interior so that a portion of the threaded cylindrical rod 20 may be situated within the housing of the device past the flange weld nut 24. In an exemplary embodiment, the flange weld nut 24 may be inserted into a slot in the housing at a position that bisects the angle created by the handles 16. A tension roll pin 22 may be inserted perpendicularly through a drilled hole in the threaded cylindrical rod 20 and may stick out of both sides of the threaded cylindrical rod 20. The tension roll pin 22 may be positioned such that the flange weld nut 24 may be situated between the tension roll pin 22 and the portion of the threaded cylindrical rod 20 outside of the housing. In an exemplary embodiment, the drilled hole may be approximately ½ inch from an end of the threaded cylindrical rod 20 enclosed within the housing. The threaded cylindrical rod 20 may be threaded through the tension washer 26 so that the tension washer 26 may be supported by the threaded cylindrical rod 20 and the tension roll pin 22.

[0019] A tension spring 30 may be placed around the threaded cylindrical rod 20 so that the tension washer 26 may support the tension spring 30. The tension spring 30 may contact and press into a hole in the tension block 32, thus causing the tension block 32 to more tightly contact the friction blocks 34 such that an equal amount of resistance may be applied to both of the handles 16 by the tension block 32.

[0020] As a user rotates the tension handle 18, such as by turning the tension handle 18 clockwise, the threaded cylindrical rod 20 may rotate and move towards the tension block 32, thus causing the tension spring 30 to put more pressure onto the tension block 32, thus causing the tension block 32 to even move more tightly contact the friction blocks 34, thus causing the friction blocks 34 to even more tightly contact the handles 16, and thus increasing the resistance of the handles 16 by making it harder for the handles 16 to rotate about their axes.

[0021] As the user then rotates the tension handle 18 in another direction, such as by turning the tension handle 18 counter-clockwise, the threaded cylindrical rod 20 may then rotate and move away from the tension block 32, thus causing the tension spring 30 to lessen its pressure onto the tension block 32, thus causing the tension block 32 to lessen its pressure on the friction blocks 34, thus causing the friction blocks 34 to lessen its pressure on the handles 16, and thus decreasing the resistance of the handles 16 by making it easier for the handles 16 to rotate about their axes.

[0022] In one exemplary embodiment, the handles may be typically made of aluminum tubing, but may be made of various materials such as, but not limited to wood, plastic, aluminum, steel, or any other metal or metal alloy. The handle grips may typically be made of plastic, but may be made of various materials such as but not limited to rubber, plastic, neoprene, or foam. The housing may be typically made of plastic, but may be made of various materials such as but not limited to cast iron, plastic, or milled aluminum. The tension block may typically be made of plastic, but may be made of various material such as but not limited to wood, aluminum, cast iron, or plastic. The friction blocks may typically made of a polyoxymethylene plastic such as DELRINTM, but may be made of various material such as but not limited to TEFLONTM, DELRIN™, nylon, acrylonitrile butadiene styrene, or polypropylene. The tension spring may typically be made of spring steel, but may be made of any suitable material. The retaining washers may typically be made of plastic, but may be made of various material such as but not limited to steel, aluminum, or plastic. The handle grips may typically be attached to the handles via adhesives, but may be attached via any suitable means.

[0023] It should be understood, of course, that the foregoing relates to exemplary embodiments of the invention and that modifications may be made without departing from the spirit and scope of the invention as set forth in the following claims.

We claim:

1. An apparatus comprising:
   a first cylindrical handle rotatable about a first cylindrical axis;
   a second cylindrical handle rotatable about a second cylindrical axis disposed such that the first handle and the second handle form an angle of less than 180 degrees; and
   a resistance adjuster operable to adjust a rotational resistance of the first handle about the first cylindrical axis and the second handle about the second cylindrical axis.

2. The apparatus of claim 1, further comprising:
   a housing that connects the first cylindrical handle and the second cylindrical handle and encloses a portion of the first cylindrical handle, a portion of the second cylindrical handle, and a portion of the resistance adjuster.

3. The apparatus of claim 2, wherein the resistance adjuster further comprises:
   a tension handle rotatable in a first direction to increase rotational resistance of the first handle about the first cylindrical axis and the second handle about the second cylindrical axis and further rotatable in a second direction opposite of the first direction to decrease rotational resistance of the first handle about the first cylindrical axis and the second handle about the second cylindrical axis.

4. The apparatus of claim 3, wherein the tension adjuster further comprises:
   a first friction block that contacts at a first side and exerts pressure on a portion of the first cylindrical handle; and
   a second friction block that contacts at a second side and exerts pressure on a portion of the second cylindrical handle;
   wherein the first side of the first friction block and the second side of the second friction block are concave in shape to accommodate the first cylindrical handle and the second cylindrical handle;
   wherein the tension handle, when rotated in the first direction, causes the first friction block to increase the pressure exerted on the portion of the first cylindrical handle and causes the second friction block to increase the pressure exerted on the portion of the second cylindrical handle; and
   wherein the tension handle, when rotated in the second direction, causes the first friction block to decrease the pressure exerted on the portion of the first cylindrical handle and causes the second friction block to decrease the pressure exerted on the portion of the second cylindrical handle.

5. The apparatus of claim 4, wherein the tension adjuster further comprises:
a tension block, disposed between the first friction block and the second friction block, that contacts and exerts a pressure on a portion of the first friction block and a portion of the second friction block;
wherein the tension handle, when rotated in the first direction, causes the tension block to increase the pressure exerted on the portion of the first friction block and the portion of the second friction block; and
wherein the tension handle, when rotated in the second direction, causes the tension block to decrease the pressure exerted on the portion of the first friction block and the portion of the second friction block.

6. The apparatus of claim 5, wherein the tension block applies equal pressure to the first friction block and the second friction block.

7. The apparatus of claim 5, wherein the tension adjuster further comprises:
a threaded cylindrical rod connected to the tension handle that, when the tension handle is rotated in the first direction, moves towards to the tension block and that, when the tension handle is rotated in the second direction, moves away from the tension block.

8. The apparatus of claim 7, wherein the tension adjuster further comprises:
a tension spring wrapped around a portion of the threaded cylindrical rod and pressed against the tension block;
wherein the tension handle, when rotated in the first direction, causes the tension spring to increase pressure exerted on tension block; and
wherein the tension handle, when rotated in the second direction, causes the tension spring to decrease pressure exerted on the tension block.

9. The apparatus of claim 7, wherein the housing further comprises:
a flange weld nut situated at an opening of the housing, through which the threaded cylindrical rod threads so that a portion of the threaded cylindrical rod enters the housing.

10. The apparatus of claim 1, wherein the angle of less than 180 degrees comprises an angle of approximately 90 degrees.

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