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Simjian

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[11] **3,915,159**

[45] **Oct. 28, 1975**

[54] **EXERCISE AND MASSAGING APPARATUS**

[76] Inventor: **Luther G. Simjian,** 7 Laurel Lane, Greenwich, Conn. 06830

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[21] Appl. No.: **508,511**

[52] **U.S. Cl.** **128/58;** 128/51

[51] **Int. Cl.²** **A61H 11/00**

[58] **Field of Search** ..... 128/24 R, 25 R, 58, 63, 128/51, 52

[56] **References Cited**

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Primary Examiner—Lawrence W. Trapp

[57] **ABSTRACT**

An exercise and massaging apparatus comprises a support structure for accommodating a person and operable means, such as pedal means. Massaging means for engaging a body portion of the operator are provided and are caused to undergo reciprocating motion along a generally vertical axis responsive to the operation of the operable means. A typical massaging means includes an adjustable collar having a plurality of roller means.

6 Claims, 10 Drawing Figures

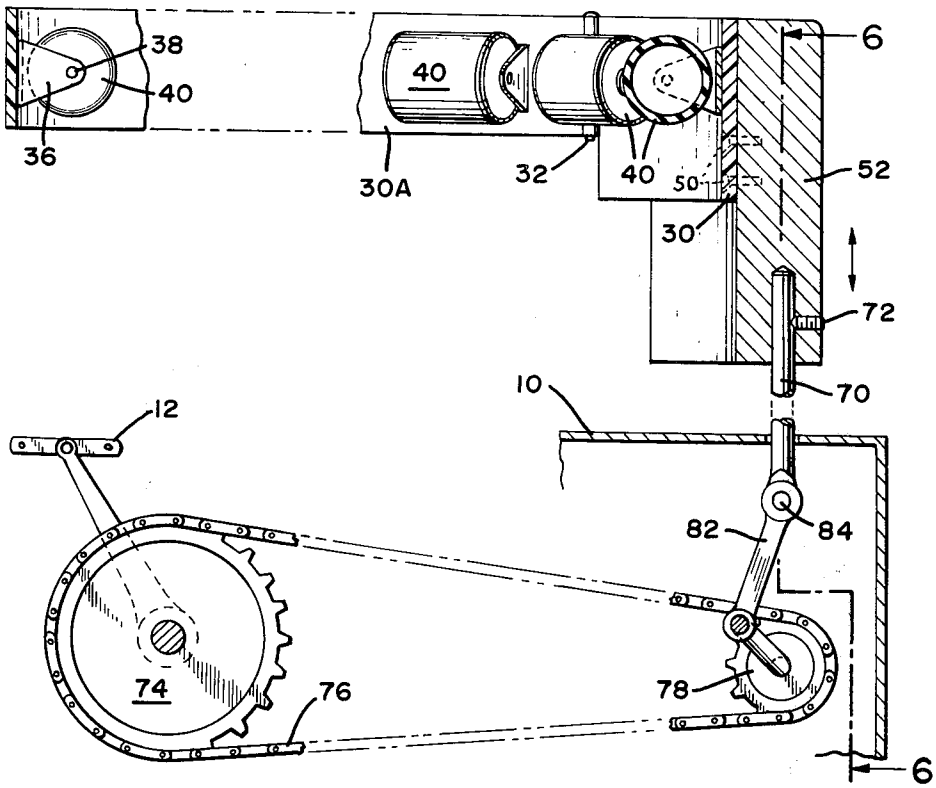


FIG. 1

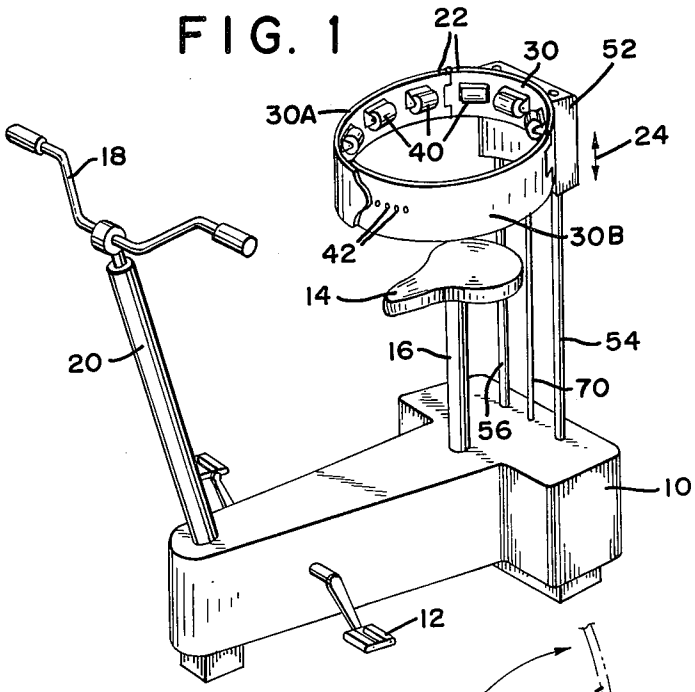


FIG. 2

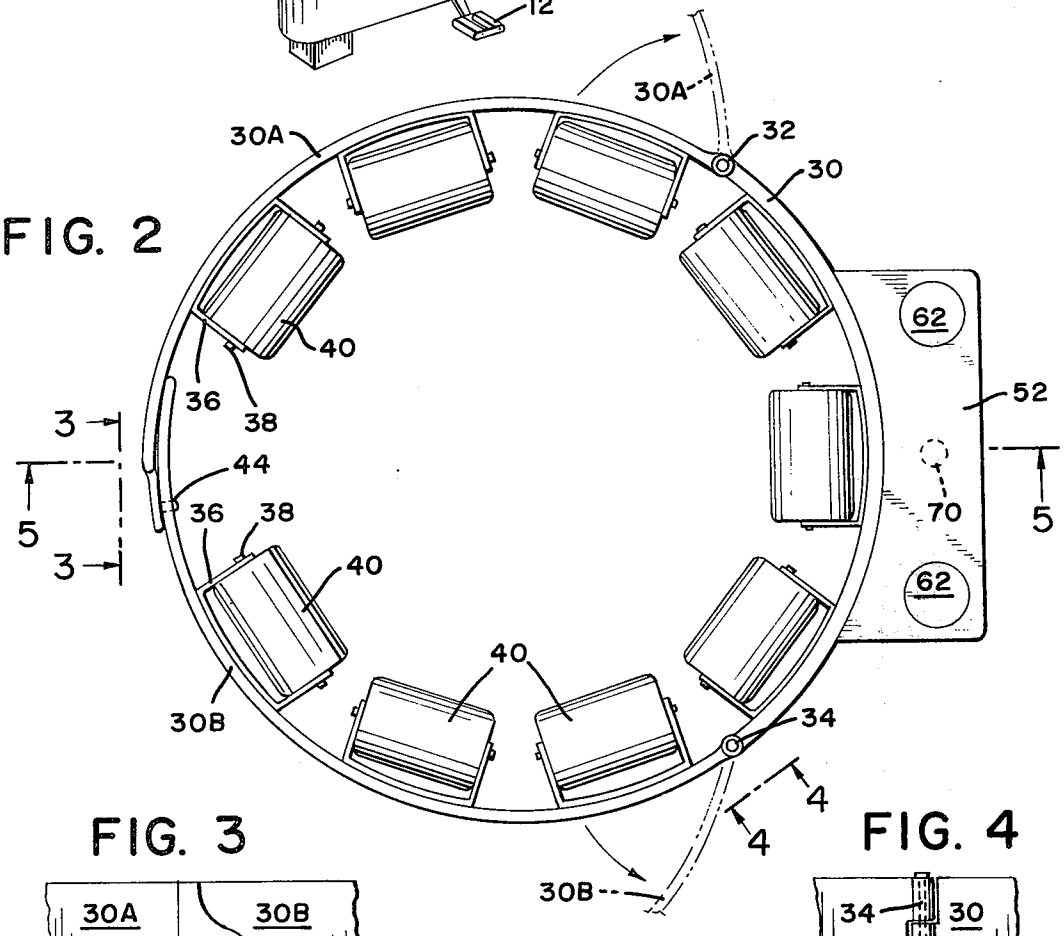


FIG. 3

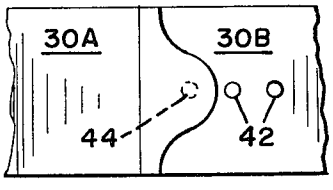
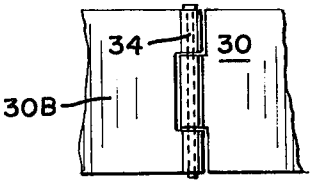


FIG. 4



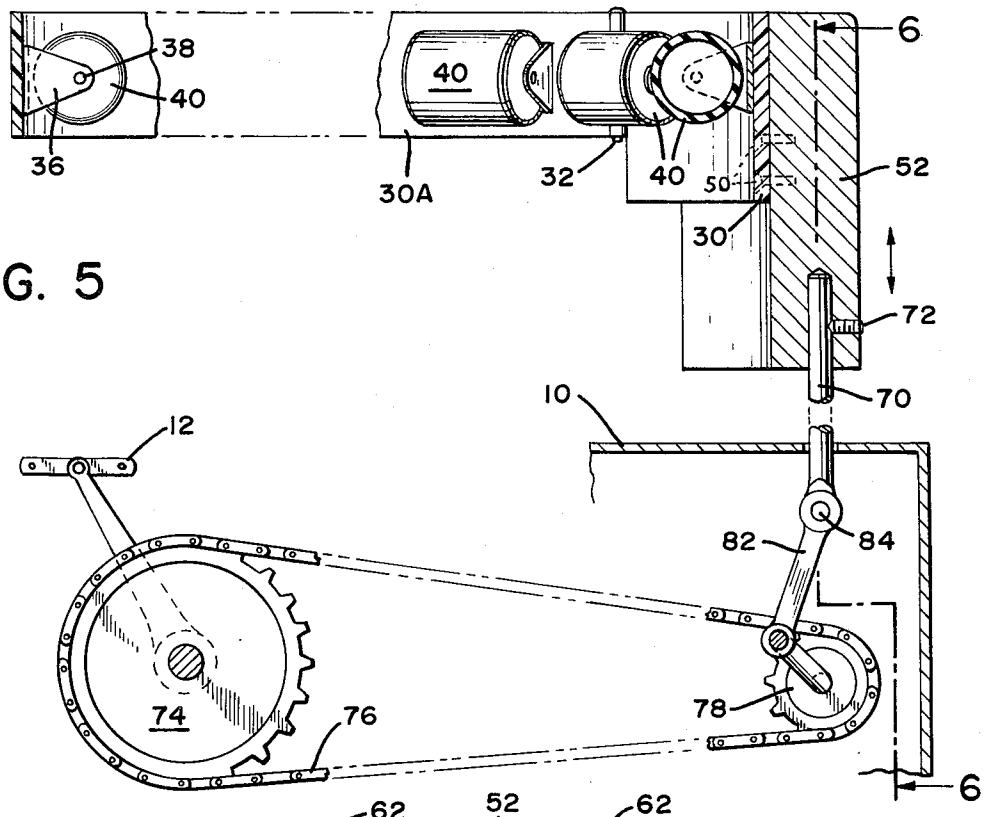

38
40
36
30A
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FIG. 5

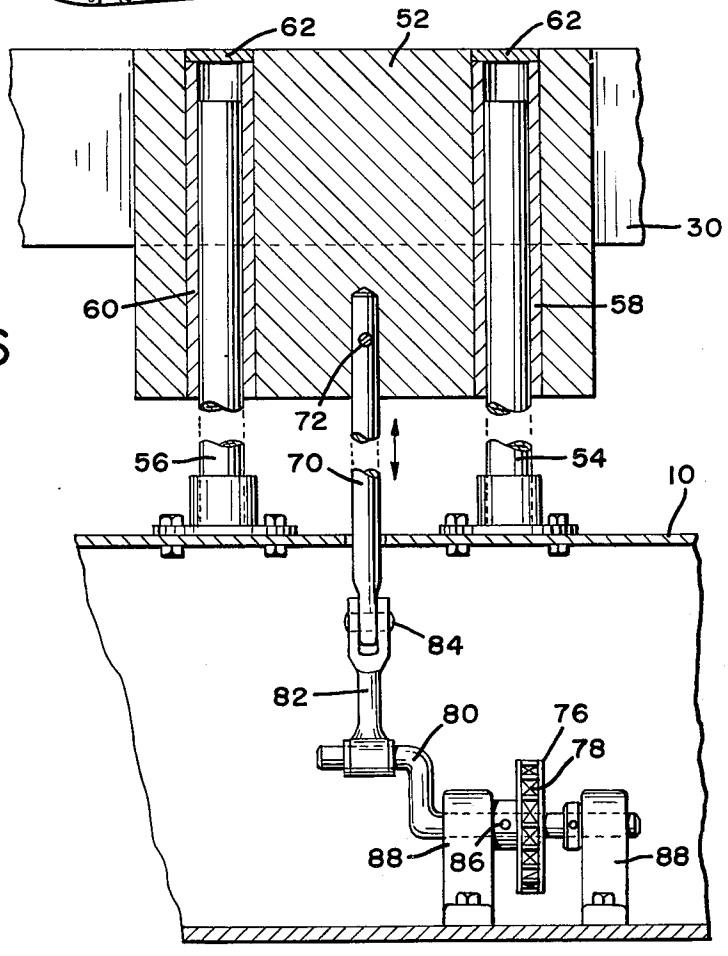
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FIG. 6

FIG. 7

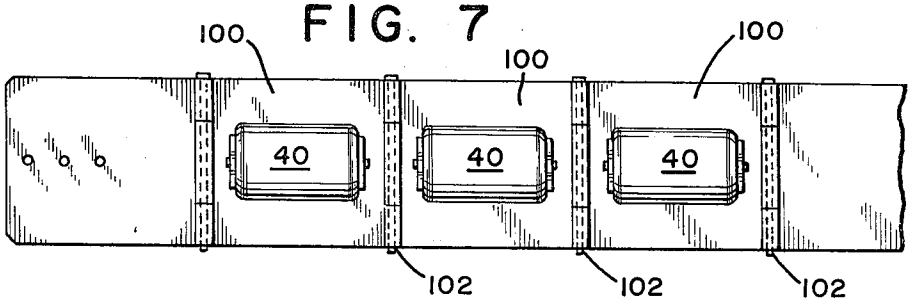


FIG. 8

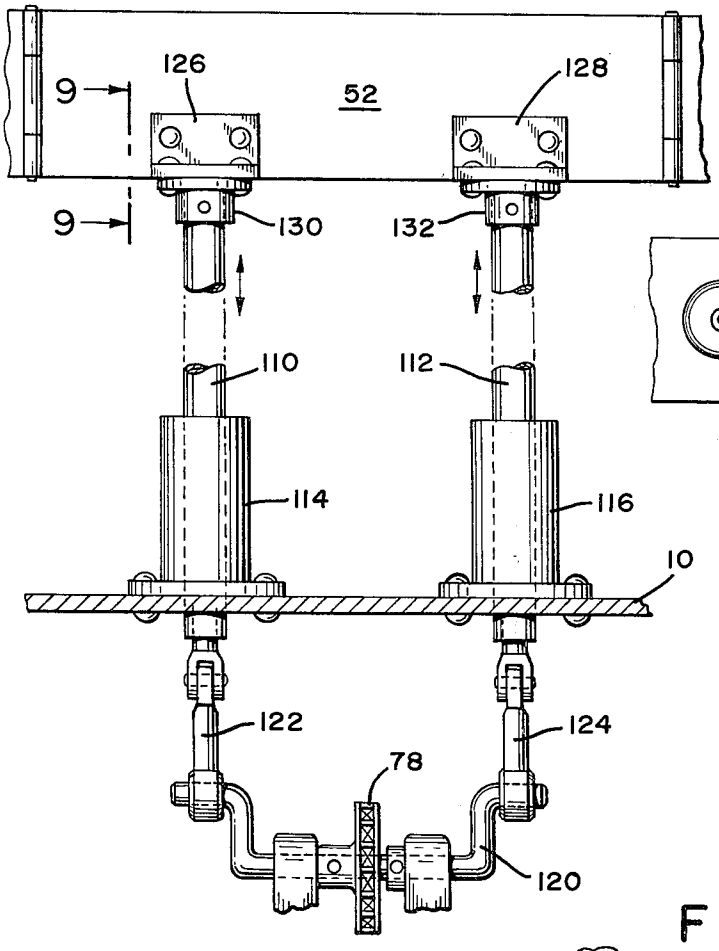


FIG. 9

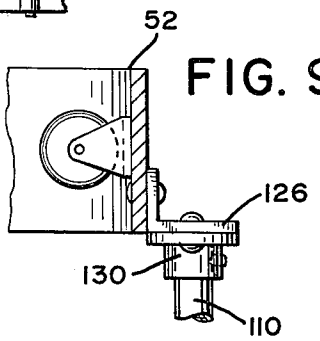
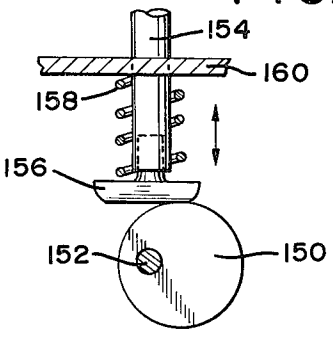


FIG. 10



EXERCISE AND MASSAGING APPARATUS

SUMMARY OF THE INVENTION

This invention is related to exercise and massaging apparatus as previously disclosed by me in U.S. Pat. Nos. 3,670,723; 3,727,608; 3,777,745; pending applications for U.S. Pat. Ser. No. 405,406 filed Oct. 11, 1973, now U.S. Pat. No. 3,861,382 issued Jan. 21, 1975, Ser. No. 487,050 filed July 10, 1974, and Ser. No. 496,307 filed Aug. 9, 1974.

The above referenced patents and pending applications disclose exercise apparatus which are combined with a massaging means so that a person operating the particular apparatus for the purpose of subjecting himself to exercise receives simultaneously a massage. The intensity of the massaging action is directly related to the muscular effort expended by the person during such exercise. The exercise apparatus of the type indicated comprise bicycle or rowing-type apparatus and massaging means which, as disclosed, preferably include resilient roller means mounted to a massaging belt.

In the described arrangements the roller means provide a massage by generally reciprocating or rolling in a substantially horizontal direction, the roller means being mounted about vertically disposed axes. The present invention discloses an arrangement wherein the roller means are mounted for rolling contact along a generally vertical direction, the axes which mount the rollers being disposed in a substantially horizontal plane. Thus, if the massaging means encircle a portion of the torso of the operator, the massaging action obtained comprises an up and down oscillating motion.

Specific features of the present invention will be more clearly apparent from the following description when taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view showing a preferred embodiment of the present invention;

FIG. 2 is a top plan view of the massaging means;

FIG. 3 is a side elevational view along line 3—3 in FIG. 2;

FIG. 4 is a side elevational view along line 4—4 in FIG. 2;

FIG. 5 is a sectional view along line 5—5 in FIG. 2;

FIG. 6 is a sectional view along section line 6—6 in FIG. 5;

FIG. 7 is an elevational view of an alternative embodiment of the massaging means;

FIG. 8 is a partial view illustrating an alternative embodiment of the drive mechanism;

FIG. 9 is an elevational view along line 9—9 in FIG. 8, and

FIG. 10 is a partial view illustrating a still further alternative embodiment of the drive mechanism for the massaging means.

DETAILED DESCRIPTION OF THE INVENTION

Referring now to the figures and FIGS. 1 through 6 in particular, there is shown a stationary support structure 10 resting on a floor or other support surface. The support structure mounts a pedal means 12 for operation by the person sitting on a seat 14 which is elevated from the support structure 10 by means of a tubular support 16. There is provided also a handle bar 18 elevated from the support structure 10 by a further tubular support 20. The described components form essentially a stationary bicycle type exercise apparatus in which a person sitting on the seat 14 and supporting himself at the handle bar 18 rotates the foot pedals 12 in a known manner. The massaging means 22 mounted above the seat 14 are disposed for encircling, in the present example, the torso of the person and, as will be more clearly evident from the description hereinbelow, the massaging means 22 are subjected to vertical reciprocating motion responsive to the operation of the pedal means 12 as is indicated by the arrow 24.

The massaging means 22, shown more clearly in FIG. 2, comprise a collar or belt 30 of rigid, yet flexible material such as thermoplastic material, spring steel or similar structural material which is adapted to yield to the extent of conforming to the torso of the person, thereby adjusting its girth. In order to provide a more flexible adjustment and permit the wearer to get into and out of this collar with greater ease, there are provided hinges 32 and 34 so that the portions 30A and 30B can be opened as is indicated by the dashed positions shown in FIG. 2 The collar 30 is provided with a plurality of U-shaped brackets 36, each supporting a respective horizontally disposed shaft 38 which, in turn, provides a support for a massaging element in the shape of a roller 40. The massaging element 40, in a preferred embodiment, is made of rubber of sufficient hardness to roll up and down against the body of the wearer to provide a firm massaging action without causing injury however. The front end of the collar is equipped with a closure comprising a plurality of holes 42 in the underlying portion 30B and a pin 44 in the overlapping portion 30A to maintain the collar closed after its girth has been adjusted.

As seen more clearly in FIGS. 2, 5 and 6, the collar 30 is secured by means of screws 50, FIG. 5, to a block 52 which moves up and down in a vertical direction along a pair of stationary guide rods 54 and 56 extending from the support structure 10, see FIG. 6. In order to accomplish such sliding motion, the block 52 is equipped with a set of sleeve bearings 58 and 60 the upper end of which is plugged by means of a respective circular disk 62. Reciprocating vertical motion is imparted to the block 52 by a drive shaft 70 secured to the block 52 by a set screw 72 and driven from the pedal means 12 via a sprocket gear 74, chain 76, sprocket gear 78, crank shaft 80, link 82 and wrist pin 84. The sprocket gear 78 is affixed to the crank shaft 80 by a pin 86. A pair of stationary supports 88 journal the crank shaft 80. Therefore, as the pedal means 12 is rotated, the crank shaft 80 undergoes rotation and causes the connecting link 82 to impart reciprocating vertical motion to the drive shaft 70, causing the block 52 to slide up and down along stationary guide rods 54 and 56. As the block 52 undergoes such reciprocating motion, the collar 30 and rollers 40 undergo also such substantially vertical motion, thereby causing the rollers 40 to roll up and down along the torso of the wearer, the reciprocating vertical motion being directly related to the speed with which the pedal means are rotated.

FIG. 7 shows a modification of the massaging means. Specifically, the collar comprises a plurality of individual links 100, each link being separated from an adjacent link by a hinge 102 and each link 100 carrying its own roller 40. In this manner, each massaging element in the form of a roller is adapted to more closely con-

form to the curvature of the particular person by being able to be mounted to an articulated portion of the collar.

FIGS. **8** and **9** disclose an alternative drive arrangement for the massaging means **22** using only two vertical shafts. The shafts **110** and **112** are mounted for sliding motion in supports **114** and **116** respectively, the latter being affixed by flanges to the support structure **10.** A double ended crank shaft **120** supports a pair of links **122** and **124** which, in turn, are connected to the shafts **110** and **112,** causing the shafts **110** and **112** to undergo reciprocating vertical motion in response to the rotation of the sprocket gear **78.** The upper ends of the shafts **110** and **112** are coupled to the block **52** by means of L-shaped brackets **126** and **128** which are secured to a set of flanges **130** and **132** in which the upper ends of shafts **110** and **112** terminate.

A further alternative drive means for providing vertical reciprocating motion is indicated in FIG. **10** wherein an eccentric cam **150** is mounted to the shaft **152** to which the sprocket gear **78,** FIG. **5,** is secured. The drive shaft **154** is provided with a cam follower **156** which is urged against the periphery of the eccentric cam **150** by means of a spring **158** which is confined in the space between the cam follower **156** and a stationary plate **160.** As the cam **150** rotates responsive to the rotation of shaft **152,** the drive shaft **154** undergoes reciprocating vertical motion and by fastening the upper end of the shaft **154** to the block **52** as shown in FIG. **6,** the massaging means, once again, is subjected to vertical reciprocating motion, causing the rollers **40** to roll up and down along the engaged body portion of the person using the foregoing exercise apparatus.

While there have been described and illustrated certain preferred embodiments of the present invention and several modifications thereof, it will be apparent to those skilled in the art that various further changes and modifications may be made without deviating from the broad principle of the present invention which shall be limited only by the scope of the appended claims.

What is claimed is:

1. An exercise and massaging apparatus for use by a person comprising:

a support structure in the form of a stationary bicycle which includes a stationary support, a seat and a handle means elevated from said support structure, and foot pedal means disposed for operation by the person seated on said seat;

collar means supported by said support structure and disposed for encircling a body portion of the person sitting on said seat, said collar means including a plurality of massaging elements to engage the encircled portion, and

means coupling said foot pedal means to said collar means for causing said collar means and massaging elements to undergo reciprocating motion along a substantially vertical axis relative to said encircled portion responsive to the operation of said pedal means.

2. An exercise and massaging apparatus as set forth in claim **1,** said massaging elements comprising rollers mounted for rotation about substantially horizontally disposed axes.

3. An exercise and massaging apparatus as set forth in claim **1,** said collar means being coupled to means disposed for sliding motion along guide means upstanding from said support structure.

4. An exercise and massaging apparatus as set forth in claim **3,** said means coupling including crank means coupled to said means disposed for sliding motion.

5. An exercise and massaging apparatus as set forth in claim **3,** said collar means comprising a plurality of interconnected links.

6. An exercise and massaging apparatus as set forth in claim **3,** said means coupling including an eccentric cam and a cam follower, the latter being urged against said cam, and said cam follower being coupled for causing said collar means to undergo said reciprocating motion.

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