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(54) **NECK STRENGTHENING APPARATUS
UTILIZING ISOMETRICS**

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(57) **ABSTRACT**

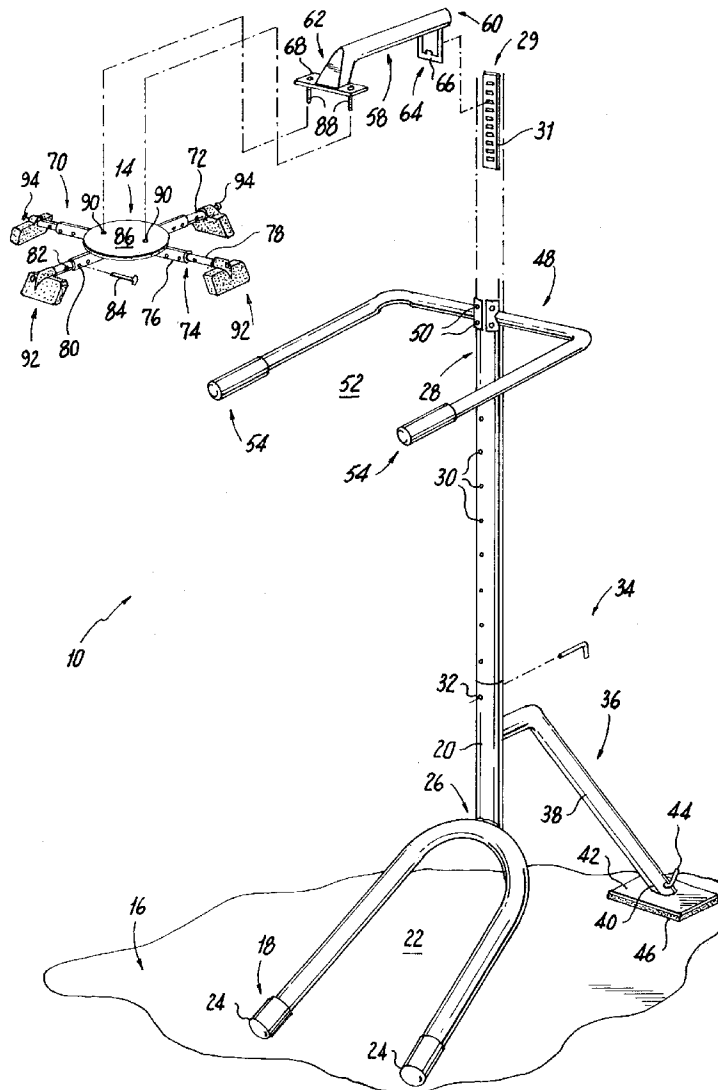
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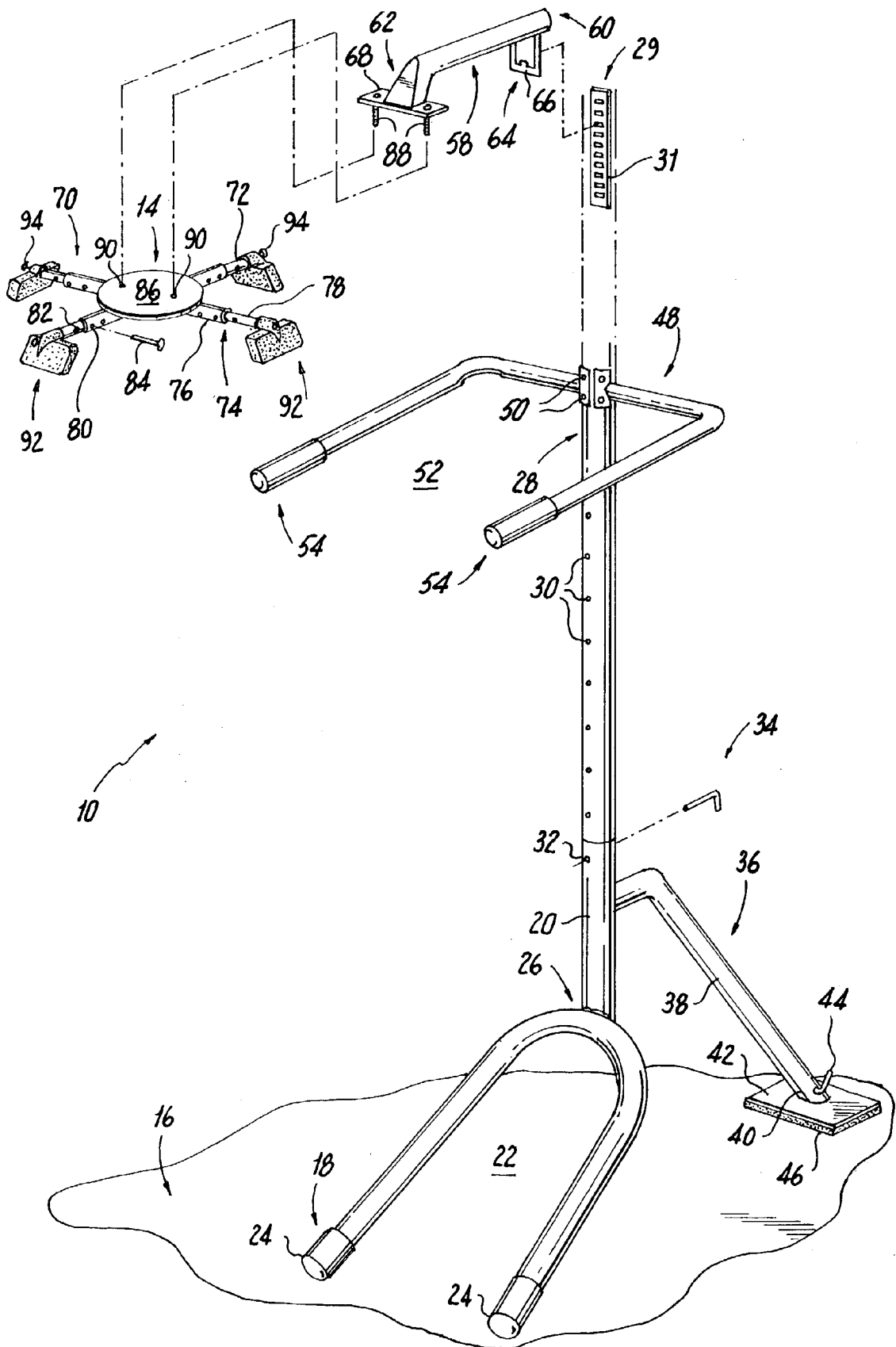
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Related U.S. Application Data

(60) Provisional application No. 60/310,739, filed on Aug. 9, 2001.

A neck strengthening apparatus utilizing isometrics that includes a frame and a headgear. The frame stands freely and extends upwardly from a floor. The headgear is adjustably mounted to the frame and encircles a head of a user to isometrically exercise and strengthen the muscles supporting the head of the user as the user presses the head thereof against any portion of the headgear through exertion of a resistive force on the head of the wearer isometrically.





NECK STRENGTHENING APPARATUS UTILIZING ISOMETRICS

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] The instant application is a regular application of provisional application No. 60/310,739, filed on Aug. 9, 2001, entitled ISOLATOR NECK STRENGTHENER, and for which priority is claimed.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention:

[0003] The present invention relates to neck strengthening apparatus. More particularly, the present invention relates to a neck strengthening apparatus utilizing isometrics.

[0004] 2. Description of the Prior Art:

[0005] Every chiropractor knows that neck pain is often due to intersegmental joint disfunction. One of the most common disfunctions which involves the C2/C3 joint. As every student of rehabilitation knows the key to facilitating a weak muscle such as the longus colli or capitus is adjustment of the key spinal fixation.

[0006] Most of the rotation of the neck which occurs takes place in the upper cervical spine above C2. Most of the flexion/extension of the neck occurs below C2. Therefore, the C2/C3 joint is a transitional joint which must accommodate varying demands of the neck above and below it.

[0007] The C2/C3 joint can be assessed for hypomobility by tucking the chin (upper cervical flexion) and rotating the occiput to its end range. If C2/C3 disfunction is found it can be treated easily with either a thrust or post-isometric relaxation technique.

[0008] The importance of C2/C3 in treating neck pain or headache cannot be overvalued. Following manipulation of C2/C3 one can expect that the improvement in mobility and relaxation of tension will be accompanied by decreased neck pain or headaches.

[0009] The most common muscular imbalance in the neck involves over activity or tightness of muscles having primarily a postural function and inhibition or weakness of muscles having more of a dynamic or phasic function. This typically occurs because in the modern sedentary society where individuals work long hours in constrained postures, the muscles with a postural function become overworked while the phasic muscles become inhibited from disuse. The most important phasic muscles in this area are the deep neck flexors (longus colli and capitus) and lower fixators of the scapulae (lower and middle trapezium, and serratus anterior).

[0010] Specific exercises aimed at relaxing/stretching the neck muscles prone to hypertonicity and facilitating/strengthening the neck muscles prone to weakness will usually be necessary. These exercises include post-isometric relaxation techniques and self-stretches for the tight/overactive muscles.

[0011] Numerous innovations for neck exercising apparatus have been provided in the prior art that will be described infra. Even though these innovations may be suitable for the

specific individual purposes to which they address, they each differ in structure and/or operation and/or purpose from the present invention.

[0012] FOR EXAMPLE, U.S. Pat. No. 4,655,450 to Rogers, Jr. et al. teaches an apparatus for gripping a human head for use in a neck musculature exercising machine. The apparatus includes a pair of side pads adapted to engage the opposing sides of a human head near the ear portions thereof. The side pads are mounted on respective movable cross members, each of which includes a toothed side portion. A control arm is provided for rotating a gear which is engaged on opposite sides thereof with both of the toothed portions of the cross members. Rotation of the control arm causes the cross members and the side pads to be moved simultaneously by equal distances in opposite directions, either both inwardly toward the head or outwardly away from the head. A locking mechanism is provided to maintain the control arm and side pads in a desired position. Chin pads may also be provided in order to more securely grip the enclosed head. Threaded fasteners can be provided to individually adjust any of the side pads or the chin pads to accommodate all shapes and sizes of the enclosed head. The apparatus is connected to a rotatable arm of the neck musculature exercising machine.

[0013] ANOTHER EXAMPLE, U.S. Pat. No. 4,989,859 to Jones teaches a method for testing and/or exercising the rotary neck muscles which are used to twist or turn the neck from side-to-side about a generally vertical pivot axis passing through the cervical vertebrae. The head is held by and between a pair of pads mounted on a rotatable frame fixed to a movement arm in the form of a vertical pivot shaft rotatable about the pivot axis. The movement arm is connectable to a resistance weight stack to oppose pivotal movement of the movement arm in one direction. During exercise, the subject is seated against a backrest with a front pad assembly immobilizing the chest and shoulder areas of the subject. Additionally, the head pads prevent forward and rearward movement of the neck in extension and flexion so that only the rotary torsion muscles of the neck are exercised.

[0014] STILL ANOTHER EXAMPLE, U.S. Pat. No. 5,092,584 to Jones teaches apparatus for testing and/or exercising the rotary neck muscles which are used to twist or turn the neck from side-to-side about a generally vertical pivot axis passing through the cervical vertebrae. The head is held by and between a pair of pads mounted on a rotatable frame fixed to a movement arm in the form of a vertical pivot shaft rotatable about the pivot axis. The movement arm is connectable to a resistance weight stack to oppose pivotal movement of the movement arm in one direction. During exercise, the subject is seated against a backrest with a front pad assembly immobilizing the chest and shoulder areas of the subject. Additionally, the head pads prevent forward and rearward movement of the neck in extension and flexion so that only the rotary torsion muscles of the neck are exercised. The front pad assembly includes a frame holding a plurality of pads for movement into and out of an operative position in which the pads engage the chest and shoulder areas. These pads are also moveable relative to the frame.

[0015] YET ANOTHER EXAMPLE, U.S. Pat. No. 5,116,359 to Moore teaches head, neck and shoulder therapeutic exercise device which mechanically assists the human head

and neck with intermittent rearward/forward movement in order to help correct or attenuate by means of muscular conditioning the cervical misalignment associated with forward head and flexible cervical lordosis. Mounted on a chair, an adjustable frame supports above the patient's head a motor assembly in fixed position and a motion-assist assembly which is horizontally moveable. The latter comprises in part a roller block with affixed roller bearing plate extending down behind the patient's head. The motor shaft, also behind the patient's head, has a cam which rides against a roller bearing in the roller bearing plate. As the cam's high side rotates against the bearing, the bearing plate moves away from the patient, thereby transferring rearward tension to the head by means of stretchable straps attached to the bearing plate and placed around the patient's forehead and chin. Each rotation of the cam is briefly halted by a timer when the head is in retracted position. After a holding phase, the rotation resumes, returning everything to original position. The head displacement distance is controlled by variously sized interchangeable cams. During therapy, the patient tries to do chin tuck exercises to accompany the cyclic mechanical movement.

[0016] STILL YET ANOTHER EXAMPLE, U.S. Pat. No. 5,118,098 to Jones teaches a method and apparatus for testing and/or exercising the rotary neck muscles which are used to twist or turn the neck from side-to-side about a generally vertical pivot axis passing through the cervical vertebrae. The head is held by and between a pair of pads mounted on a rotatable frame fixed to a movement arm in the form of a vertical pivot shaft rotatable about the pivot axis. The movement arm is connectable to resistance weight stack to oppose pivotal movement of the movement arm in one direction. During exercise, the subject is seated against a backrest with a front pad assembly immobilizing the chest and shoulder areas of the subject. Additionally, the head pads prevent forward and rearward movement of the neck in extension and flexion so that only the rotary torsion muscles of the neck are exercised.

[0017] YET STILL ANOTHER EXAMPLE, U.S. Pat. No. 5,135,445 to Christensen et al. teaches a neck exercising apparatus (10) including an elongated support member (14) adapted to be suspended from a door (100) and operatively connected to a generally U-shaped leaf spring member (20) having a head rest member (30) movably attached to the outboard leg (22) of the spring member (20); wherein, the position of the head rest member (30) on the spring member (20) determines the amount of resistance provided by the spring member (20).

[0018] STILL YET ANOTHER EXAMPLE, U.S. Pat. No. 5,336,138 to Arjawat teaches an improved head, neck and shoulder apparatus which can be utilized for exercise and/or therapy of the cervical spine and/or muscles associated with the cervical spine. The machine includes a head frame which receives a person's head, and a main frame which can receive a person in a seated position. A ball joint is provided for allowing relative movement of the head frame with respect to the main frame, with the ball joint positionable such that it can be located adjacent a desired location along the person's cervical spine, preferably at the cervico thoracic junction. Various aspects of the invention are also applicable to exercise machines designed for conditioning other muscles and/or muscle groups.

[0019] YET STILL ANOTHER EXAMPLE, U.S. Pat. No. 5,662,554 to Schaefer teaches an exercise device for use in exercising the neck of a user that includes a mouthpiece to be received by the mouth of a user and held in the user's mouth. The mouthpiece includes first and second sides. The device includes a first elastomeric band having first and second ends. The first end of the first elastomeric band is attached to the first side of the mouthpiece. A second elastomeric band includes first and second ends. The first end of the second elastomeric band is attached to the second side of the mouthpiece. The second ends of the first and second elastomeric bands are held in the hands of the user doing neck exercises.

[0020] STILL YET ANOTHER EXAMPLE, U.S. Pat. No. 5,713,816 to Glover teaches an isometric neck exerciser that includes a main platform that houses three separate cushioned supports. A first of the supports is contoured and positioned to maintain firm pressure on the mid cervical spine. The second support is contoured to form a notch which is positioned to maintain firm pressure on the upper cervical vertebra and to contact a plurality of acupressure points. The third support is positioned to provide generally positive support for the base of the skull. Each support reliably achieves constant support for the particular portion of the cervical system as the neck is moved through three primary axes of motion, (flexion/extension, lateral flexion and rotation). One or more stepping platforms can be added to selectively elevate the main platform to tailor the exerciser for different sized individuals.

[0021] YET STILL ANOTHER EXAMPLE, U.S. Pat. No. 5,984,836 to Casali teaches an exercise device that includes a support member disposed in a predetermined position by a mounting unit. A resistive ring secured to the support member, wherein the resistive ring includes a first ring and a plurality of resistive members connected to the first ring. A head harness connected to the other ends of the plurality of resistive members. The resistive ring further includes a second ring for attaching the head harness to the resistive members.

[0022] STILL YET ANOTHER EXAMPLE, U.S. Pat. No. 6,106,437 to Brooks teaches a neck therapy exercise apparatus that comprises a resistance frame in the form of a circular ring at head level of the user. The resistance frame carries pulleys thereon. The user wears a helmet with attachment eyes thereon. Weights are attached to cords which pass through the pulleys and are hooked to selected eyes on the helmet so that cervical spine muscle exercises are done against resistance which is in the plane of the head to prevent downward loading on the spine. More than one weight and cord can be needed at the same time to provide torque resistance about a vertical axis. Hand grips are provided to maintain position of the torso.

[0023] YET STILL ANOTHER EXAMPLE, U.S. Pat. No. 6,179,747 to Kelley teaches a one piece face and neck exerciser (10), specifically configured to tone the muscles of the forehead, face, chin and neck, comprising a head band (12) to which two elongated beginners head resistance bands (88) are attached into head grooves (26) extending outwardly and down to be permanently attached to the lateral rails of the chin cup (38). Also comprising a neck band (57) to which two elongated beginners neck resistance bands (104) are attached into neck grooves (64) extending out-

wardly and up to be permanently attached to the lateral sides of the chin cup (42). The frontal head band (14), and lateral head band (16), the frontal neck band (58) and lateral neck band (60) are made of a strong, durable, lightweight material, the posterior head band (32), and posterior neck band (76) are made of velcro fasteners (34) (36), (78), and (80). The one piece exerciser (10) is secured to the users face by first placing the head band (12) on the forehead and connecting the posterior velcro ends (34) and (36) on top of each other, secondly placing the chin cap (38) on and under the chin, and lastly, placing the neck band (57) around the neck and connecting the posterior velcro ends (78) and (80) on top of each other. Increased resistance is provided by the use of additional resistance bands (86) and (102).

[0024] STILL YET ANOTHER EXAMPLE, U.S. Pat. No. 6,203,470 to Lundin et al. teaches a chin and neck exercising device made from foam and which may be in the shape of a ball. One half of the ball may be made from one type of foam and the other half of the ball may be made from another type of foam. In this way, different resistance is provided to the person using the device. The device also has a side which is cut-out so that the device is contoured to fit under the person's chin and rest on his or her neck and clavicle. The cut-out area is covered with fabric so as to provide a better grip and to prevent perspiration from contacting the ball. Various exercises may performed by the person in order to tone and strengthen his or her chin and neck muscles. While the device has been described as being formed in the shape of a ball, other sizes and shapes may be used. In an alternative embodiment, the exerciser may include a vibrator located therein.

[0025] It is apparent that numerous innovations for neck exercising apparatuses have been provided in the prior art that are adapted to be used. Furthermore, even though these innovations may be suitable for the specific individual purposes to which they address, they would not be suitable for the purposes of the present invention as heretofore described.

SUMMARY OF THE INVENTION

[0026] ACCORDINGLY, AN OBJECT of the present invention is to provide a neck strengthening apparatus utilizing isometrics that avoids the disadvantages of the prior art.

[0027] ANOTHER OBJECT of the present invention is to provide a neck strengthening apparatus utilizing isometrics that is simple to use.

[0028] BRIEFLY STATED, STILL ANOTHER OBJECT of the present invention is to provide a neck strengthening apparatus utilizing isometrics that includes a frame and a headgear. The frame stands freely and extends upwardly from the floor. The headgear is adjustably mounted to the frame. The headgear is designed to adjust to the dimensions of the head of a user. The user presses his or her head against any portion of the headgear without the headgear and the frame moving, to isometrically exercise his or her neck muscles by exerting a resistive force on his or her head.

[0029] The novel features which are considered characteristic of the present invention are set forth in the appended claims. The invention itself, however, both as to its construction and its method of operation, together with addi-

tional objects and advantages thereof, will be best understood from the following description of the specific embodiments both in the present application and the provisional application to which this application relates and which is hereby incorporated as more fully set forth herein when read and understood in connection with the accompanying drawing.

BRIEF DESCRIPTION OF THE DRAWING

[0030] The sole figure of the drawing is an exploded perspective view of the neck strengthening apparatus utilizing isometrics of the present invention.

LIST OF REFERENCE NUMERALS UTILIZED IN THE DRAWING

- [0031] 10 neck strengthening apparatus utilizing isometrics of present invention
- [0032] 12 free standing frame extending upwardly from floor 16
- [0033] 14 headgear for surrounding head of user
- [0034] 16 floor
- [0035] 18 base of frame 12 for resting on floor 16
- [0036] 20 upright of frame 12
- [0037] 22 standing space in base 18 of frame 12
- [0038] 24 pair of rubber covers of base 18 of frame 12 for preventing damage to floor 16
- [0039] 26 lower portion of upright 20 of frame 12
- [0040] 28 upper portion of upright 20 of frame 12
- [0041] 29 uppermost terminal end of upper portion 28 of upright 20 of frame 12
- [0042] 30 plurality of through bores in upper portion 28 of upright 20 of frame 12
- [0043] 31 adjustment lip latch on uppermost terminal end 29 of upper portion 28 of upright 20 of frame 12
- [0044] 32 through bore in lower portion 26 of upright 20 of frame 12
- [0045] 34 adjustment pin of frame 12
- [0046] 36 rear stabilizer of frame 12
- [0047] 38 bar of rear stabilizer 36 of frame 12 for depending skewly to floor 16
- [0048] 40 end of bar 38 of rear stabilizer 36 of frame 12
- [0049] 42 plate of rear stabilizer 36 of frame 12
- [0050] 44 locking screw of rear stabilizer 36 of frame 12 for engaging rubber pad 46 of rear stabilizer 36 of frame 12
- [0051] 46 rubber pad of rear stabilizer 36 of frame 12 for preventing damage to floor 16
- [0052] 48 support handle bar of frame 12
- [0053] 50 screws of support handle bar 48 of frame 12
- [0054] 52 body space in support handle bar 48 of frame 12

- [0055] 54 pair of rubber handgrips of support handle bar 48 of frame 12
- [0056] 58 arm of frame 12
- [0057] 60 rearmost end of arm 58 of frame 12
- [0058] 62 foremost end of arm 58 of frame 12
- [0059] 64 loop of arm 58 of frame 12
- [0060] 66 adjustment lip of loop 64 of arm 58 of frame 12
- [0061] 68 clamp of arm 58 of frame 12
- [0062] 70 pair of rods of headgear 14
- [0063] 72 pair of ends of each rod of pair of rods 70 of headgear 14
- [0064] 74 midpoint of each rod of pair of rods 70 of headgear 14
- [0065] 76 inner portion of each rod of pair of rods 70 of headgear 14
- [0066] 78 outer portion of each rod of pair of rods 70 of headgear 14
- [0067] 80 plurality of through bores in inner portion 76 of each rod of pair of rods 70 of headgear 14
- [0068] 82 through bore in outer portion 78 of each rod or pair of rods 70 of headgear 14
- [0069] 84 butterfly adjustment screw of headgear 14
- [0070] 86 disc of headgear 14
- [0071] 88 pair of screws of headgear 14
- [0072] 90 pair of bores 90 in disc 86 of headgear 14
- [0073] 92 pads of headgear 14 for capturing head of user and preventing movement of head of user as user presses head thereof thereagainst by virtue of no part of headgear and frame moving, but rather only exerting resistive force on head of wearer isometrically
- [0074] 94 screws of headgear 14

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0075] Referring now to the sole figure, which is an exploded perspective view of the neck strengthening apparatus utilizing isometrics of the present invention, and in which like numerals indicate like parts, the neck strengthening apparatus utilizing isometrics of the present invention is shown generally at 10.

[0076] The neck strengthening apparatus utilizing isometrics 10 comprises a frame 12 and a headgear 14. The frame 12 stands freely on the floor 16 and extends upwardly therefrom. The headgear 14 is adjustably mounted to the frame 12. It is designed to adjust to the dimensions of the head of a user so that as the user presses his or her head against any portion of the headgear 14 without either the headgear 14 or the frame 12 moving, a resistive force is isometrically exerted on the head of the user to exercise and strengthen the user's neck muscles.

[0077] The frame 12 comprises a base 18 and an upright 20. The base 18 of the frame 12 rests on the floor 16, and the upright 20 of the frame 12 extends vertically upwardly from the base 18 of the frame 12.

[0078] The base 18 of the frame 12 is U-shaped so as to provide a standing space 22 therein, and terminates in a pair of rubber covers 24 to prevent damage to the floor 16.

[0079] The upright 20 of the frame 12 comprises a lower portion 26 and an upper portion 28. The lower portion 26 of the upright 20 of the frame 12 and the upper portion 28 of the upright 20 of the frame 12 are each tubular, with the upper portion 28 of the upright 20 of the frame 12 having an uppermost terminal end 29 formed into an adjustment lip latch 31, and telescoping in and out of the lower portion 26 of the upright 20 of the frame 12 so as to provide height adjustment of the upright 20 of the frame 12.

[0080] The upper portion 28 of the upright 20 of the frame 12 has a plurality of through bores 30 that extend laterally therethrough and are longitudinally spaced-apart, while the lower portion 26 of the upright 20 of the frame 12 has a through bore 32 that extends laterally therethrough and which is alignable with a selected one of the plurality of through bores 30 in the upper portion 28 of the upright 20 of the frame 12 so as to form an aligned through bore 30, and when aligned therewith, is maintained thereat, by an adjustment pin 34 that extends into the through bore 32 in the lower portion 26 of the upright 20 of the frame 12 and into the aligned through bore 30 in the upper portion 28 of the upright 20 of the frame 12.

[0081] The frame 12 further has a rear stabilizer 36. The rear stabilizer 36 of the frame 12 comprises a bar 38 that depends skewly from the lower portion 26 of the upright 20 of the frame 12 to the floor 16 where it terminates in an end 40, opposite the base 18 of the frame 12. The rear stabilizer 36 of the frame 12 further comprises a plate 42 that is affixed to the end 40 of the bar 38 of the rear stabilizer 36 of the frame 12, and which has a rubber pad 46 thereunder that by way of a locking screw 44 grips, and prevents damage to, the floor 16.

[0082] The frame 12 further has a support handle bar 48. The support handle bar 48 of the frame 12 extends outwardly and dependingly skewly from the upper portion 28 of the upright 20 of the frame 12, between the uppermost terminal end 29 thereof and the plurality of through bores 30 therein, and is affixed thereto by screws 50.

[0083] The support handle bar 48 of the frame 12 is generally U-shaped so as to provide a body space 52 therein and extends in a direction of the base 18 of the frame 12 so as to allow the body space 52 in the support handle bar 48 of the frame 12 to be vertically aligned with the standing space 22 in the base 18 of the frame 12, and terminates in a pair of rubber handgrips 54.

[0084] The frame 12 further comprises an arm 58 with a rearmost end 60 and a foremost end 62. The arm 58 of the frame 12 has a loop 64 that depends from the rearmost end 60 thereof which receives the uppermost terminal end 29 of the upper portion 28 of the upright 20 of the frame 12 and which has an adjustment lip 66 that selectively engages with the lip latch 31 thereon. The arm 58 of the frame 12 further has a clamp 68. The clamp 68 of the arm 58 of the frame 12 depends from the foremost end 62 of the arm 58 of the frame 12.

[0085] The headgear 14 comprises at least one pair of rods 70. Each rod 70 of the headgear 14 has a pair of ends 72 and a midpoint 74 that is disposed midway between the pair of ends 72 thereof. The pair of rods 70 of the headgear 14 criss-cross each other perpendicularly at the midpoints 74 thereof. If more than one pair of rods 70 is used to form the head gear then the rods must be criss-crossed at their midpoint so that the angles formed by the criss-crossing are equal.

[0086] Each rod 70 of the head gear 14 comprises an inner portion 76 and an outer portion 78. The inner portion 76 of each rod 70 of the headgear 14 and the outer portion 78 of each rod 70 of the headgear 14 are each tubular, with the inner portion 76 of an associated rod 70 of the headgear 14 telescoping in and out of the outer portion 78 of the associated rod 70 of the headgear 14 so as to provide width adjustment of the headgear 14.

[0087] The inner portion 76 of each rod 70 of the headgear 14 has a plurality of through bores 80 that extend laterally therethrough and are longitudinally spaced-apart, while the outer portion 78 of each rod 70 of the headgear 14 has a through bore 82 that extends laterally therethrough and which is alignable with a selected one of the plurality of through bores 80 in the inner portion 76 of an associated rod 70 of the headgear 14 so as to form an aligned through bore 80, and when aligned therewith, is maintained thereat, by a butterfly adjustment screw 84 that extends into the through bore 82 in the outer portion 78 of the associated rod 70 of the headgear 14 and into the aligned through bore 80 in the inner portion 76 of the associated rod 70 of the headgear 14. It is noted that while the present embodiment is being described so that the inner portion 76 telescopes in and out of the outer portion 78, the headgear could also be designed with minor modifications such as the location of the throughbores 80 and 82, respectively, so that the outer portion 78 becomes the inner portion and telescopes in and out of the inner portion 76, which in turn will become the outer portion.

[0088] The headgear 14 further comprises a disc 86. The disc 86 of the headgear 14 is affixed to the midpoints 74 of the pair of rods 70 of the head gear for strength, and is dependently attached to the clamp 68 of the arm 58 of the frame 12 by a pair of screws 88 that enter the clamp 68 of the arm 58 of the frame 12 and engage in a pair of bores 90 in the disc 86 of the headgear 14. Alternatively, the headgear 14 is formed so that instead of being dependently attached to the clamp 68 by a pair of screws, the entire piece, i.e., arm 58 and headgear 14 are both formed or molded as a single unitary piece.

[0089] The headgear 14 further comprises pads 92. The pads 92 of the headgear 14 depend from the pair of ends 72 of each rod 70 of the headgear 14, respectively, and are replaceably retained thereat by either screws 94, glue or frictionally held at the ends of the rods 72.

[0090] The method of use of the headgear comprises the following steps:

[0091] (a) standing the user between the arms of the base 18 of the frame 12;

[0092] (b) telescoping the upper portion 28 and the lower portion 26 of the upright 20 of the frame 12 in

or out of the lower portion 26 of the upright 20 of frame 12 to adjust for the height of the user;

[0093] (c) securing the upper portion 28 and the lower portion 26 with the adjustment pin 34;

[0094] (d) placing the head of the user into the headgear 14, so that the pads 92 of the headgear 14 surround the head of the user;

[0095] (e) telescoping the inner portion 76 of each rod of pair of rods 70, of the headgear 14 in or out of the outer portion 78 of each rod of pair of rods 70 of headgear 14 to adjust for the circumference of the head of the user and to bring all of the pads 92 to within touching distance of the head of the user;

[0096] (f) securing the inner portion 76 to the outer portion 78 with the butterfly adjustment screw 84 of the headgear 14; and

[0097] (g) alternately slightly bending and pressing the user's head up against each of the pads 92 for a fixed period of time, without any movement by either the headgear or the frame, whereby a resistive force is exerted on the user's head to exercise and strengthen the user's neck muscles isometrically.

[0098] It will be understood that each of the elements described above, or two or more together, may also find a useful application in other types of constructions differing from the types described above.

[0099] While the invention has been illustrated and described as embodied in a neck strengthening apparatus utilizing isometrics, it is not limited to the details shown, since it will be understood that various omissions, modifications, substitutions and changes in the forms and details of the device illustrated and its operation can be made by those skilled in the art without departing in any way from the spirit of the present invention.

[0100] Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can, by applying current knowledge, readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute characteristics of the generic or specific aspects of this invention.

The invention claimed is:

1. A neck strengthening apparatus utilizing isometrics, comprising:

h) a frame; and

i) a headgear;

wherein said frame is freely standing and extending upwardly from a floor;

wherein said headgear is mounted to said frame; and

wherein said headgear is for encircling a head of a user and isometrically exercising and strengthening the muscles supporting the head of the user through the exertion of a resistive force, as the user alternately presses the head against any portion of said headgear by virtue of no part of said headgear and said frame moving.

2. The apparatus as defined in claim 1, wherein said frame comprises a base;

wherein said frame comprises an upright;
 wherein said base of said frame is for resting on a floor;
 and

wherein said upright of said frame extends vertically upwardly from said base of said frame.

3. The apparatus as defined in claim 2, wherein said base of said frame is U-shaped so as to provide a standing space therein.

4. The apparatus as defined in claim 3, wherein said upright of said frame comprises a lower portion;

wherein said upright of said frame comprises an upper portion;

wherein said lower portion of said upright of said frame is tubular;

wherein said upper portion of said upright of said frame is tubular;

wherein said upper portion of said upright of said frame has an uppermost terminal end;

wherein said uppermost terminal end of said upper portion of said upright of said frame is formed into an adjustment lip latch; and

wherein said upper portion of said upright of said frame telescopes in said lower portion of said upright of said frame so as to provide height adjustment of said upright of said frame.

5. The apparatus as defined in claim 4, wherein said upper portion of said upright of said frame has a plurality of through bores;

wherein said plurality of through bores extend laterally through said upper portion of said upright of said frame;

wherein said plurality of through bores are longitudinally spaced-apart along said upper portion of said upright of said frame;

wherein said lower portion of said upright of said frame has a through bore;

wherein said through bore extends laterally through said lower portion of said upright of said frame;

wherein said through bore in said lower portion of said upright of said frame is alignable with a selected one of said plurality of through bores in said upper portion of said upright of said frame so as to form an aligned through bore, and when aligned therewith, is maintained thereat, by an adjustment pin; and

wherein said adjustment pin of said frame extends into said through bore in said lower portion of said upright of said frame and into said aligned through bore in said upper portion of said upright of said frame.

6. The apparatus as defined in claim 4, wherein said frame has a rear stabilizer;

wherein said rear stabilizer of said frame comprises a bar; and

wherein said bar of said rear stabilizer of said frame is for depending skewly from said lower portion of said upright of said frame to the floor, where it terminates in an end, opposite said base of said frame.

7. The apparatus as defined in claim 6, wherein said rear stabilizer of said frame comprises a plate; and

wherein said plate of said rear stabilizer of said frame is affixed to said end of said bar of said rear stabilizer of said frame.

8. The apparatus as defined in claim 5, wherein said frame has a support handle bar;

wherein said support handle bar of said frame extends outwardly and dependingly skewly from said upper portion of said upright of said frame; and

wherein said support handle bar of said frame is disposed between said uppermost terminal end of said upper portion of said upright of said frame and said plurality of through bores in said upper portion of said upright of said frame.

9. The apparatus as defined in claim 8, wherein said support handle bar of said frame is affixed to said upper portion of said upright of said frame by screws.

10. The apparatus as defined in claim 8, wherein said support handle bar of said frame is U-shaped so as to provide a body space therein; and

wherein said support handle bar of said frame extends in a direction of said base of said frame so as to allow said body space in said support handle bar of said frame to be vertically aligned with said standing space in said base of said frame.

11. The apparatus as defined in claim 4, wherein said frame has an arm;

wherein said arm of said frame has a rearmost end;

wherein said arm of said frame has a foremost end;

wherein said arm of said frame has a loop;

wherein said loop of said arm of said frame depends from said rearmost end of said arm of said frame;

wherein said loop of said arm of said frame receives said uppermost terminal end of said upper portion of said upright of said frame;

wherein said loop of said arm of said frame has an adjustment lip;

wherein said adjustment lip of said loop of said arm of said frame selectively engages with said lip latch on said uppermost terminal end of said upper portion of said upright of said frame;

wherein said arm of said frame has a clamp; and

wherein said clamp of said arm of said frame depends from said foremost end of said arm of said frame.

12. The apparatus as defined in claim 11, wherein said headgear comprises a pair of rods;

wherein each rod of said headgear has a pair of ends;

wherein each rod of said headgear has a midpoint;

wherein said midpoint of each rod of said headgear is disposed midway between said pair of ends thereof; and

wherein said pair of rods of said headgear criss-cross each other perpendicularly at said midpoints thereof.

13. The apparatus as defined in claim 12, wherein each rod of said head gear comprises an inner portion;

wherein each rod of said head gear comprises an outer portion;

wherein said inner portion of each rod of said headgear is tubular;

wherein said outer portion of each rod of said headgear is tubular; and

wherein said inner portion of an associated rod of said headgear telescopes in said outer portion of the associated rod of said headgear so as to provide width adjustment of said headgear.

14. The apparatus as defined in claim 13, wherein said inner portion of each rod of said headgear has a plurality of through bores;

wherein said plurality of through bores in said inner portion of each rod of said headgear extend laterally therethrough;

wherein said plurality of through bores are longitudinally spaced-apart along said inner portion of each rod of said headgear;

wherein said outer portion of each rod of said headgear has a through bore;

wherein said through bore in said outer portion of each rod of said headgear extends laterally therethrough;

wherein said through bore in said outer portion of each rod of said headgear is alignable with a selected one of said plurality of through bores in said inner portion of an associated rod of said headgear so as to form an aligned through bore, and when aligned therewith, is maintained thereat, by a butterfly adjustment screw; and

wherein said butterfly screw of said headgear extends into said through bore in said outer portion of said associated rod of said headgear and into said aligned through bore in said inner portion of said associated rod of said headgear.

15. The apparatus as defined in claim 12, wherein said headgear comprises a disc; and

wherein said disc of said headgear is affixed to said midpoints of said pair of rods of said head gear for strength.

16. The apparatus as defined in claim 12, wherein said headgear comprises pads;

wherein said pads of said headgear are for capturing the head of the user therebetween and prevent movement of the head of the user as the user presses the head thereof thereagainst by virtue of no part of said headgear and said frame moving, but rather only exerting a resistive force on the head of the wearer isometrically; and

wherein said pads of said headgear depend from said pair of ends of each rod of said headgear, respectively, and are replaceably retained thereat by screws.

17. The apparatus as defined in claim 3, wherein said base of said frame terminates in a pair of rubber covers for preventing damage to the floor.

18. The apparatus as defined in claim 10, wherein said support handle bar of said frame terminates in a pair of rubber handgrips.

19. The apparatus as defined in claim 7, wherein said plate of said rear stabilizer of said frame has a rubber pad thereunder that by way of a locking screw grips, and prevents damage to, the floor.

20. The apparatus as defined in claim 15, wherein said disc of said headgear is dependently attached to said clamp of said arm of said frame by a pair of screws; and

wherein said pair of screws of said headgear enter said clamp of said arm of said frame and engage in a pair of bores in said disc of said headgear.

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