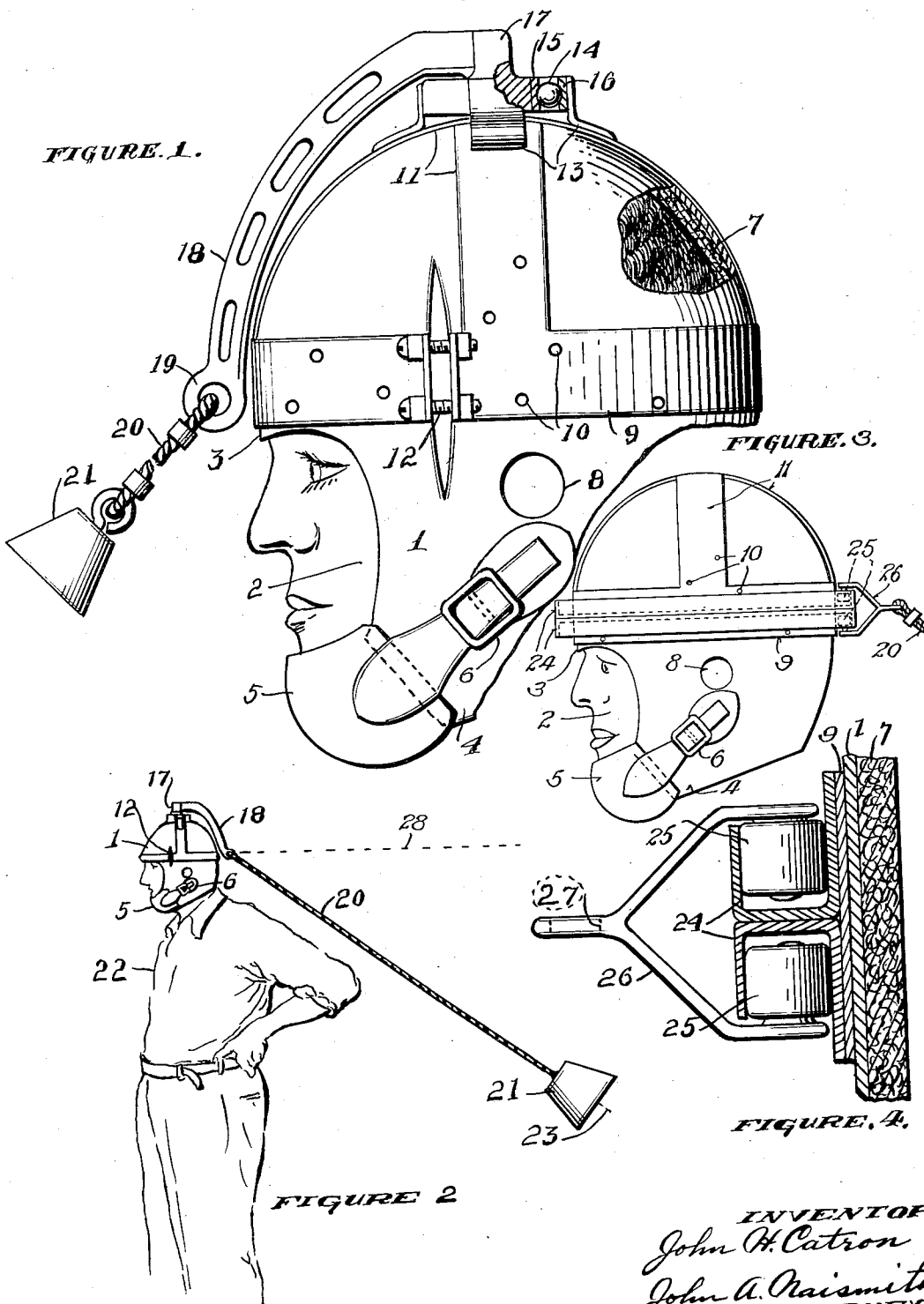


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EXERCISING APPARATUS

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4 Claims. (Cl. 272-80)

It is one object of the invention to provide exercising apparatus for the several muscles of the body, particularly those of the head, neck and back.

It is also an object of the invention to provide an apparatus of the character indicated that is mountable on the head of the user and rendered operable by movement thereof.

Another object of the invention is to provide an exerciser of the character indicated so constructed and arranged that no material friction may develop between the head of the user and the apparatus when the same is in use.

Still another object of the invention is to provide an exerciser of the character indicated wherein the reaction forces developed between the exerciser and the head of the user are applied to the head on a plane normal to the vertical axis of rotation of the head and a substantial distance below the top of the head.

Finally, it is an object of the invention to provide an exerciser of the character indicated that will be economical to manufacture, simple in form and construction, that may be quickly and easily applied to and removed from the head, that consists of few parts, and that is strong, durable, and highly efficient in its practical application.

In the drawing:

Figure 1 is a side view partly broken away of a device embodying my invention in position for use and with parts broken away.

Fig. 2 is an illustration showing the exerciser in use.

Fig. 3 is a side elevation of a modified form of the invention.

Fig. 4 is a sectional view through the modified form of the invention as disclosed in Fig. 3.

Referring now more particularly to the drawing, I show at 1 a leather helmet encompassing the major portion of the head 2, extending well down over the forehead of the wearer as at 3 and having extensions as 4 directed toward the chin. A chin pad 5 forms a portion of the helmet and is adjustable relative thereto through the medium of strap and buckle connections as 6. The helmet is lined throughout with suitable padding as 7, and is provided with openings as 8 opposite the wearer's ears.

At 9 is shown a metal strap structure secured to the helmet by means of rivets 10, portions of the structure crossing at the top of the helmet as at 11, and a portion encircling the head at the forehead and provided with an adjustment 12.

Mounted upon the strap structure 9 by means of legs 13 is the outer race of a ball bearing, the

balls being indicated at 14 and the inner race at 15. This outer race 16 is mounted as a unitary part of the strap structure and is disposed in axial alignment with the axis of rotation of the helmet, the inner race rotating freely about said axis.

At 17 is shown a post formed as a unitary part of the inner race 15 and rotating therewith. Mounted upon the post 17 as a unitary part thereof is an arcuate arm 18 extending outwardly and downwardly and terminating in an eye 19 disposed on approximately the level of the lower portion of the strap structure 9 and adjacent thereto. Connected to the eye 19 by means of a cord or cable 20 is a weight 21.

In the practical application of the exerciser the operator 22 stands erect and adjusts the helmet to his head by means of the adjustment 12 and the strap and buckle 6 so that it is held immovably in place. By imparting a rotary swinging movement to the head the weight 21 is caused to travel in a circle about the operator, first in a relatively low position as shown at 23 and then in more elevated annular paths as the force applied is increased until it may finally approach or reach the horizontal plane in which the eye 19 travels.

The cable 20 may of course be of any desired length, and the weight 21 increased or diminished as desired to adapt the device to the physical needs of the operator.

When the weight 21 is travelling in annular path about the body of the operator the centrifugal force developed is applied to the lower end of the arm 18 and conveyed to the helmet 1 through the medium of the ball bearing 14, 15, 16 and parts 13 and 9 and the pull is resisted by the muscles of the body, particularly those of the neck and back.

Since the weight 21 travels in a complete circle about the body of the operator it follows that the body muscles are placed under tension and relaxed in rapid succession, the tensional strain exerted depending upon the length of the cable 20, the weight of the mass 21, and the speed with which the mass is rotated about the body.

An important feature of the structure described is that the arm 18 also functions as a lever in which the force is applied at 19 and in which the fulcrum and weight are embodied in the ball bearing structure. The result of this is that while the rotating mass 21 tends to pull the helmet sideways on the head and set up a constant friction between the two the downward pressure exerted through the ball bearing fulcrum tends to hold

the helmet against movement relative to the head.

In the embodiment shown in Figure 3 a double track 24 is mounted to encircle the head on strap portion 9, and rollers 25 on a yoke 26 are mounted to travel on the track as shown. The yoke is provided with an eye 26 for the attachment of a cable.

It will be noted that in either of the forms of the invention herein disclosed the mass 21 swings freely from the rotating carrier 18 or 26. When the centrifugal force developed in the mass by the rotation of the carrier increases due to increase in its speed of rotation it moves upwardly toward a horizontal plane of rotation as indicated at 28, at which time its virtual point of suspension lies in substantially the center of mass of the helmet. The virtual point of suspension of the rotating mass is a movable point and moves up and down the axis of rotation of the head as the mass falls and rises.

The portion of the helmet in which the chin of the operator is seated is also an important part of the structure because through this some of the forces developed as described are brought to play upon the jaw muscles whereby they are likewise developed.

It is to be understood, of course, that while I have herein shown and described but two embodiments of the invention, changes in form, construction, and method of application and operation may be made within the scope of the appended claims.

I claim:

1. An exerciser comprising, a helmet mountable on the head of the operator and in substantially fixed relation thereto, a rigid arm having one end rotatably secured to the top of said helmet and having its lower free end terminating at a point below the top of said helmet, and a weight member connected to said lower free end of the arm, to cause the arm to exert downward pressure on the helmet and thereby the head of the operator under the influence of centrifugal

force resultant from movement of the weight member by the head of the operator.

2. An exerciser comprising, a helmet mountable on the head of the operator and in substantially fixed relation thereto, an endless track connected to the helmet and encircling the latter at a point above the eyes of the operator, a traveler member associated with said track and movable thereon, and a reaction mass having movable connection with said traveler member, to cause the traveling member to exert downward pressure on the helmet and thereby the head of the operator under the influence of centrifugal force resultant from movement of the reaction mass by the head of the operator.

3. An exerciser comprising, a helmet mountable on the head of the operator and in substantially fixed relation thereto, an arm of arcuate formation having one end rotatably connected with the helmet and extending downwardly over the side thereof and terminating intermediate the top and bottom of the helmet, and a reaction mass connected to the free end of the arm, to cause the arm to exert downward pressure on the helmet and thereby the head of the operator under the influence of centrifugal force resultant from movement of the reaction mass by the head of the operator.

4. An exerciser including, a supporting structure mountable on the head of the operator and in substantially fixed relation thereto, a rigid member rotatable in operative position with respect to said supporting structure, means to connect said member to the supporting structure for movement completely about the head of the operator, and a reaction mass connected to said member for movement therewith and to cause the member to exert downward pressure on the supporting structure and thereby the head of the operator under the influence of centrifugal force resultant from movement of the reaction mass by the head of the operator.

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