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(54) Pivotal abdominal exercise apparatus

(57) The invention comprises an abdominal exercise apparatus comprising a base frame, a pair of connecting tubes, a substantially U-shaped frame, elbow tubes, and pivoting means, for example a pair of stands comprising a base and two opposing walls, each opposing wall having an opening therein on a common horizontal axis relative to said base; wherein each of said stands is connected to one elbow tube by means of a pin, said pin extending horizontally through an opening in one opposing wall of said stand, through said elbow tube, and through the other opening in the other opposing wall of said stand, such that said apparatus may move about the axis formed by said pins.

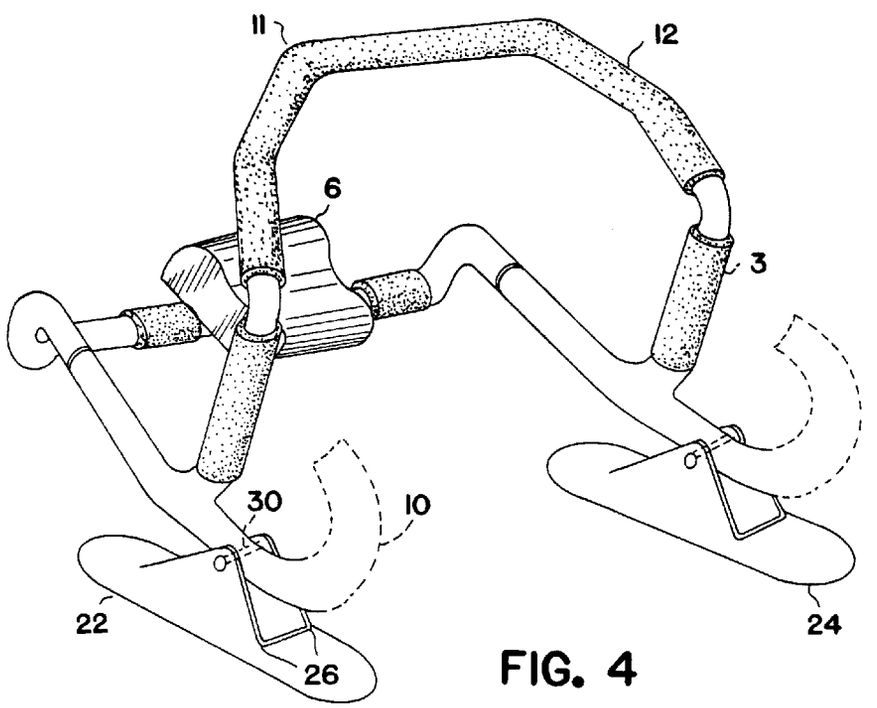

FIG. 4

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Description

BACKGROUND OF THE INVENTION

The present invention relates to exercise apparatus, and relates more particularly to an abdominal exercise apparatus for exercising the muscles of the abdomen which apparatus is supported on pivoting means, such as stands on which the apparatus moves in a pivoting motion about the pins in said stands.

Various exercising apparatus have been disclosed for exercising different parts of the body, and have appeared on the market. Figure 1 shows an exercising apparatus specifically designed for exercising the muscles of the abdomen, which comprises a base frame 2' for supporting on the ground, a substantially U-shaped frame 1' fastened to two opposite ends of the base frame 2', and two elbow cushions 3 mounted on two opposite ends of the U-shaped frame 1' for supporting the operator's elbows. As the U-shaped frame 1' is fixedly fastened to the base frame 2' for allowing the operator's head and upper body to pass, the exercising apparatus needs much storage space when not in use.

SUMMARY OF THE INVENTION

The present invention provides a collapsible abdominal exercise apparatus which eliminates the aforesaid problem. According to one aspect of the present invention, the U-shaped frame is comprised of a plurality of tubes respectively and detachably connected together by detachable connecting means, such as plug joints or the like, and removable fixing means, such as screws, bolts, pins or the like.

According to another aspect of the present invention, the U-shaped frame is comprised of a transverse, tube, two parallel connecting tubes, and two elbow tubes respectively connected to two opposite ends of the base tube by the connecting tubes to hold the elbow cushions, wherein the elbow tubes are respectively turned about a respective pivot bolt at one end of each connecting tube, and then fixed in the operative position by a respective fixing means.

According to another aspect of the present invention, the exercise device or apparatus is movably connected to, and supported on, pivoting means, such as a pair of stands or feet by means of a pin, bolt or similar device such that the elbow tube of the exercise apparatus pivots freely about said pin. According to this aspect of the invention, the apparatus moves in a fixed arc of a circle wherein said pin serves as the center of said circle. In use, the apparatus does not move through a rocking motion along the floor or the support surface. Rather it moves through a pivoting motion about the connecting means comprising the pivoting means, such as a pin in a support stand.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is an elevational view of an abdominal exercising apparatus according to the prior art;

Figure 2 shows an abdominal exercising apparatus according to the present invention; and

Figure 3 is an exploded view of the abdominal exercising apparatus shown in Figure 2.

Figure 4 shows an elevational view of an embodiment of the invention showing the abdominal exercise apparatus supported on pivoting means.

Figure 5 shows an angled, side view of an embodiment of pivoting means as connected to an elbow tube.

Figure 6 shows an end view of an embodiment of pivoting means as connected to an elbow tube (in cross-section).

DETAILED DESCRIPTION OF THE INVENTION

Referring to Figures 2 and 3, an abdominal exercising apparatus in accordance with the present invention is generally comprised of a base frame 2, a substantially U-shaped frame 1 fastened to two opposite ends of the base frame 2, a back cushion 6 fixedly secured to the base flame 2, and two elbow cushions 3 mounted on two opposite ends of the U-shaped frame 1. The U-shaped frame 1 is comprised of a transverse tube 12, two parallel connecting tubes 11; and two elbow tubes 10 respectively connected to two opposite ends of the base tube 12 by the connecting tubes 11 to hold the elbow cushions 3. The connecting tubes 11 are respectively and detachably connected to the two opposite ends of the transverse tube 12 by detachable connecting means, such as plug joints or the like and then fixed by a removable fixing means, such as a screw, bolt, pin or the like. The elbow tubes 10 are respectively turned about a respective pivot bolt 5 at one end of each connecting tube 11, and then fixed in the operative position by a removable fixing means 4, such as a screw, bolt, pin or the like. Therefore, when the removable fixing means 4, such as a screw, bolt, pin or the like are removed from the connecting tubes, the elbow tubes 10 can be turned about the respective pivot bolts 5 from the operative position to the collapsed position closely attached to the connecting tubes 11 to minimize the storage space.

In one embodiment of the invention, the exercise device or apparatus comprises pivoting means, such as a pair a pair of stands or feet which may be connected to the elbow tubes of the apparatus by means of a pin, bolt, pin-like devise, or similar device, such that the elbow tube of the exercise apparatus pivots freely on or

about said pivoting means. In this embodiment of the invention, the apparatus moves in a fixed are of a circle wherein said pin serves as the center of said circle. This embodiment may be described by reference to Figures 4, 5 and 6.

In this embodiment, the pivoting means 22 comprises a base 24 and support means 26 mounted on said base 24 and comprising two opposing walls on said base 24. The support means 26 are distanced from each other sufficiently to receive and be pivotably connected to the elbow tube 10, such that elbow tube 10 may pivot freely between the two opposing walls of support means 26. Each opposing wall on said base 24 contains an opening 28 for receiving the pin 30, the respective openings being on a common horizontal axis relative to the base. Each of the two pivoting means 22 is connected to one elbow tube 10 of the apparatus by means of a pin or pin-like device 30 which extends horizontally through an opening 28 in one opposing wall 26 of the pivoting means, through the diameter of the elbow tube, and through an opening 28 in the other opposing wall of the support means 26 of the pivoting means 22.

Though not an essential element of this embodiment, it is apparent in Figure 4 that the base frame 2 and the U-shaped tube 1 may be attached or positioned differently than shown in the embodiments described in Figures 2 and 3. In particular, the base frame 2 may be connected to the upper ends of the connecting tubes 11, with the elbow tubes 10 connected to the lower end of said connecting tubes. A back cushion 6 for supporting the neck and/or head may be affixed to the base frame. In such a configuration, the opposing ends of the U-shaped tube 1 may be connected to the connecting tubes 11 between said base frame and said elbow tubes. In such a configuration, the elbow cushions 3 are placed on or around the U-shaped tube near the opposing ends of said U-shaped tube.

The under side of the base 24 of the pivoting means may comprise a friction enhancing surface to decrease the degree of undesirable motion of the apparatus when in use, such as shifting or sliding. Said surface may comprise a separate textured material applied to the base or it may comprise a feature of the structure of the base, or a combination thereof.

By whatever means formed, the pin 30 comprises a shaft 32 of lesser diameter communicating between two ends 34 of larger diameter. Said ends 34 are of sufficiently larger diameter than the openings 28 such that the pin 30, after insertion, cannot be readily dislodged from the opposing walls 26 of the pivoting means 22 by the normal motion of the apparatus in use.

Claims

1. An abdominal exercise apparatus comprising a base frame, a pair of connecting tubes each comprising an upper end and a lower end, elbow tubes, a substantially U-shaped frame, and pivoting means; wherein each opposing end of said base frame is connected to an upper end of said connecting tubes, said elbow tubes are connected to the lower end of said connecting tubes and each opposing end of said substantially U-shaped tube is connected to said connecting tubes between said opposing ends of said base frame and said elbow tubes, and wherein each of said elbow tubes is movably connected to said pivoting means, such that said apparatus may move in a pivoting motion on said pivoting means.

2. The apparatus of Claim 1 wherein said pivoting means comprise a pair of stands.

3. The apparatus of Claim 2 wherein said stands comprise a base and support means for pivotably connecting said elbow tubes to said stands.

4. The apparatus of Claim 3 wherein said support means comprise two opposing walls on said base, each opposing wall having an opening therein on a common horizontal axis relative to said base.

5. The apparatus of Claim 4 wherein said elbow tubes are pivotably connected to said support means by means of a pin or pin-like device extending horizontally through an opening in one opposing wall of said support means, through said elbow tube, and through the opening in the other opposing wall of said support means.

6. The apparatus of Claim 1 further comprising a back cushion fixed securely to said base frame.

7. The apparatus of Claim 1 further comprising elbow cushions mounted on opposite ends of said U-shaped frame.

8. An abdominal exercise apparatus comprising a base frame, a pair of connecting tubes each comprising an upper end and a lower end, elbow, tubes, a substantially U-shaped frame, and a pair of stands comprising a base and two opposing walls, each opposing wall having an opening therein on a common horizontal axis relative to said base; wherein each opposing end of said base frame is connected to an upper end of said connecting tubes, said elbow tubes are connected to the lower end of said connecting tubes and each opposing end of said substantially U-shaped tube is connected to said connecting tubes between said opposing ends of said base frame and said elbow tubes, and wherein each of said stands is connected to one elbow tube by means of a pin, said pin extending horizontally through an opening in one opposing wall of said stand, through said elbow tuhe, and through the

other opening in the other opposing wall of said stand, such that said apparatus may move about the axis formed by said pins.

9. An abdominal exercising apparatus comprising a base frame, a substantially U-shaped frame fastened to two opposite ends of said base frame, a pair of elbow tubes fastened to opposite ends of said U-shaped frame, and pivoting means; wherein each of said elbow tubes is movably connected to said pivoting means, such that said apparatus may move in a pivoting motion on said pivoting means.

10. The apparatus of Claim 9 wherein said pivoting means comprise a pair of stands.

11. The apparatus of Claim 10 wherein said stands comprise a base and support means for pivotably connecting said elbow tubes to said stands.

12. The apparatus of Claim 11 wherein said support means comprise two opposing walls on said base, each opposing wall having an opening therein on a common horizontal axis relative to said base.

13. The apparatus of Claim 12 wherein said elbow tubes are pivotably connected to said support means by means of a pin or pin-like device extending and horizontally through an opening in one opposing wall of said support means, through said elbow tube, and through the opening in the other opposing wall of said support means.

14. The apparatus of Claim 9 further comprising a back cushion fixed securely to said base frame.

15. The apparatus of Claim 9 further comprising elbow cushions mounted on opposite ends of said U-shaped frame.

16. The apparatus of Claim 9 wherein said U-shape frame is comprised of a plurality of tubes respectively and detachably connected together by detachable connecting means and removable fixing means.

17. The apparatus of Claim 16 wherein said detachable connecting means comprise plug joints.

18. The apparatus of Claim 16 wherein said removable fixing means comprise screws, bolts or pins.

19. The apparatus of Claim 18 wherein said removable fixing means comprise screws.

20. An abdominal exercise apparatus wherein said U-shaped frame is comprised of a tranverse tube, two parallel connecting tubes, and two elbow tubes respectively connected to two opposite ends of said base tube by said connecting tubes to hold said elbow cushions, said elbow tubes being respectively turned about a respective pivot bolt at one end of each connecting tube, and then fixed in the operative position by respective detachable connecting means and removable fixing means.

21. The apparatus of claim 20 wherein said detachable connecting means comprise plug joints.

22. The apparatus of Claim 20 wherein said removable fixing means comprise screws, bolts or pins.

23. The apparatus of Claim 22 wherein said removable fixing means comprise screws.

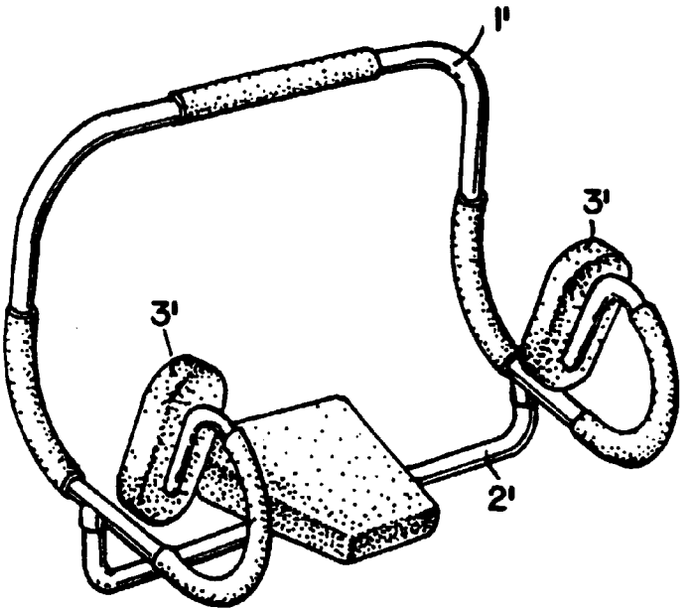

FIG. 1
PRIOR ART

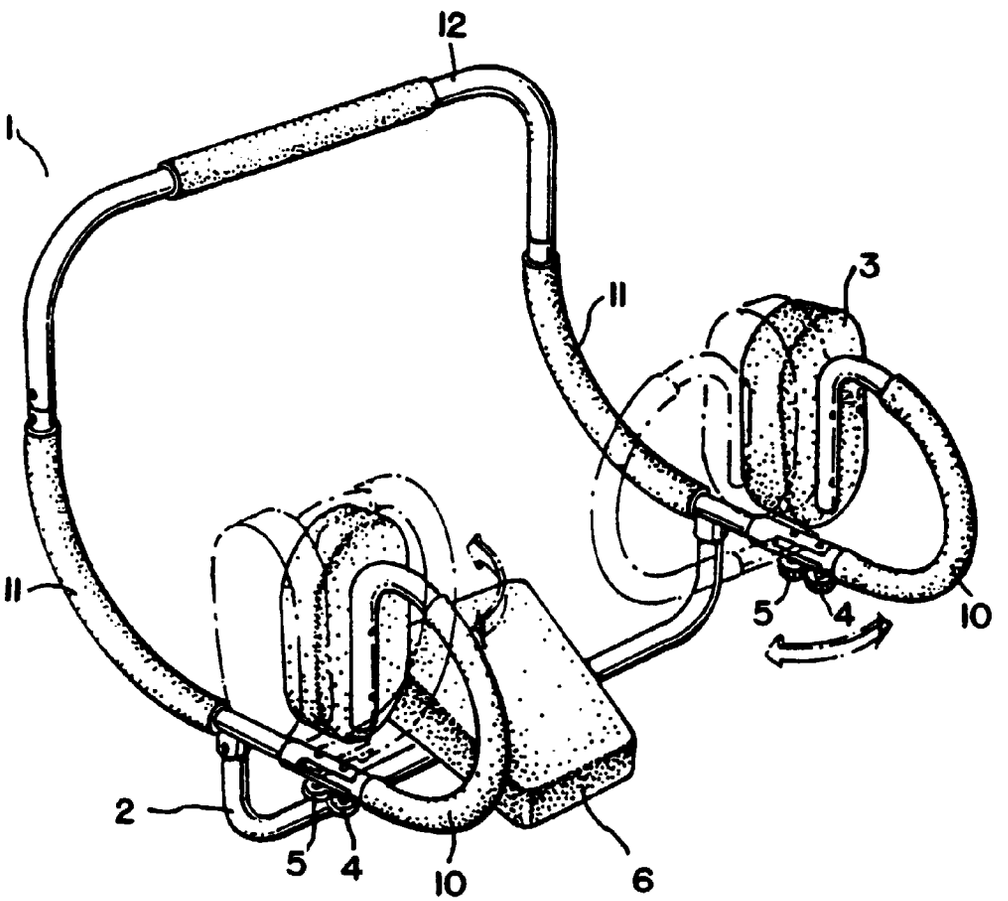

FIG. 2

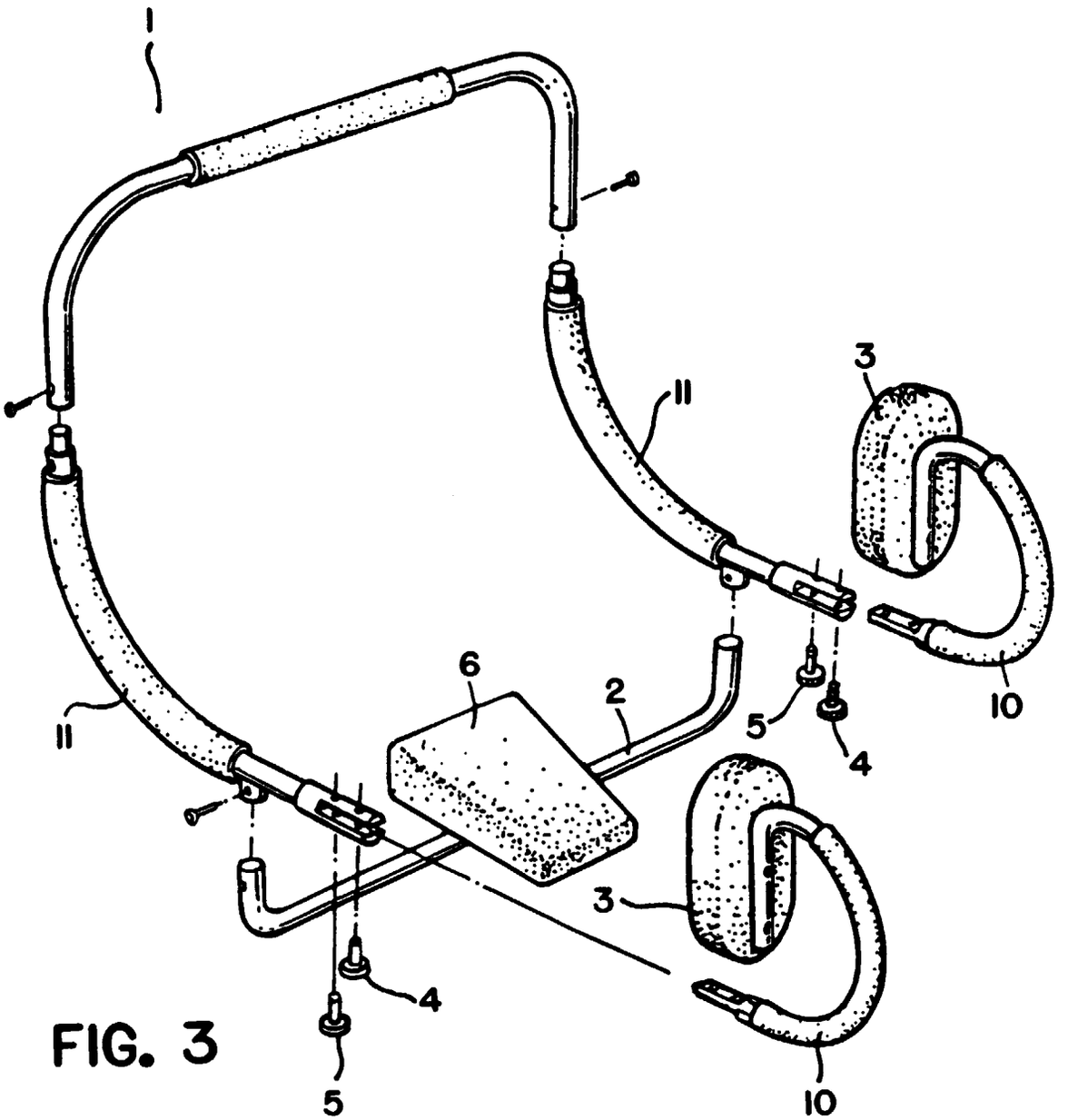

FIG. 3

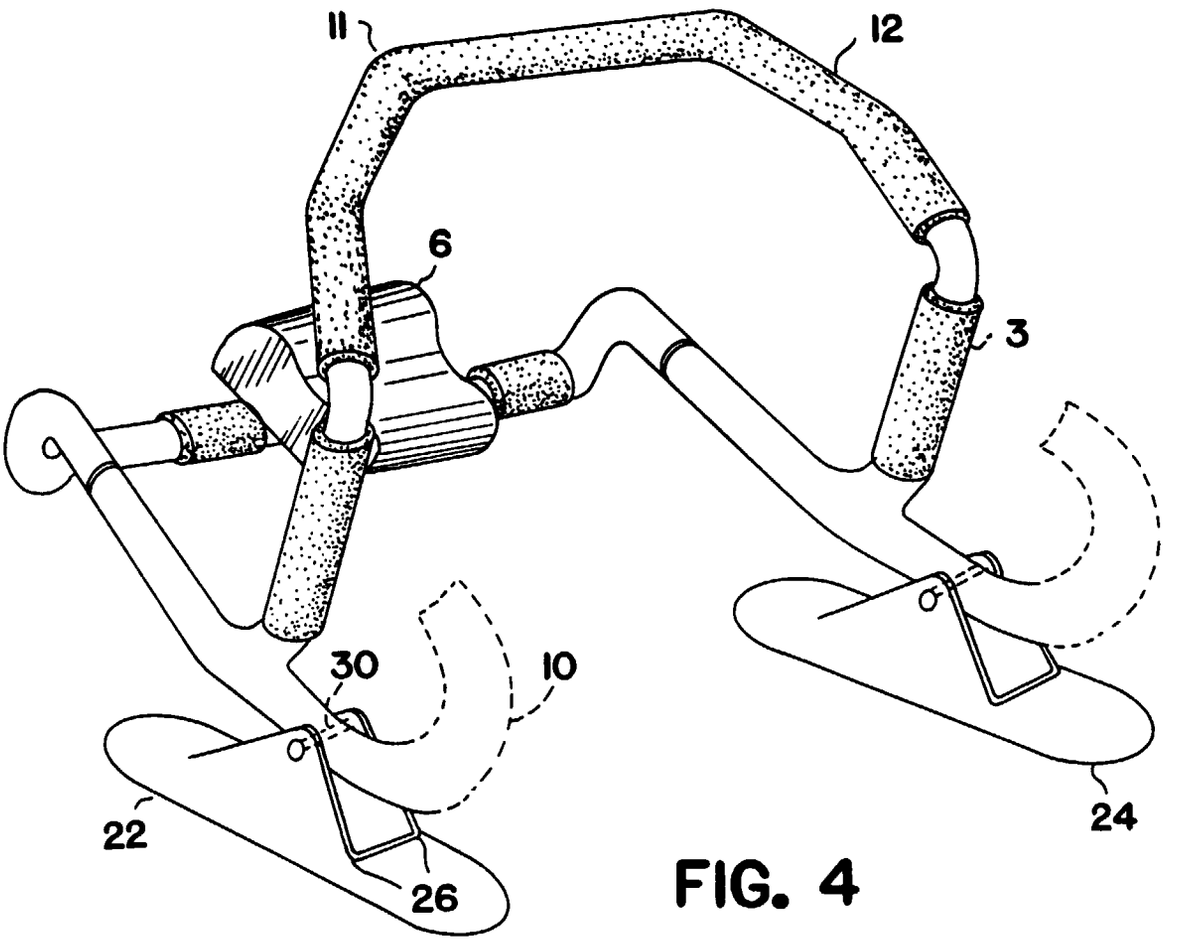

FIG. 4

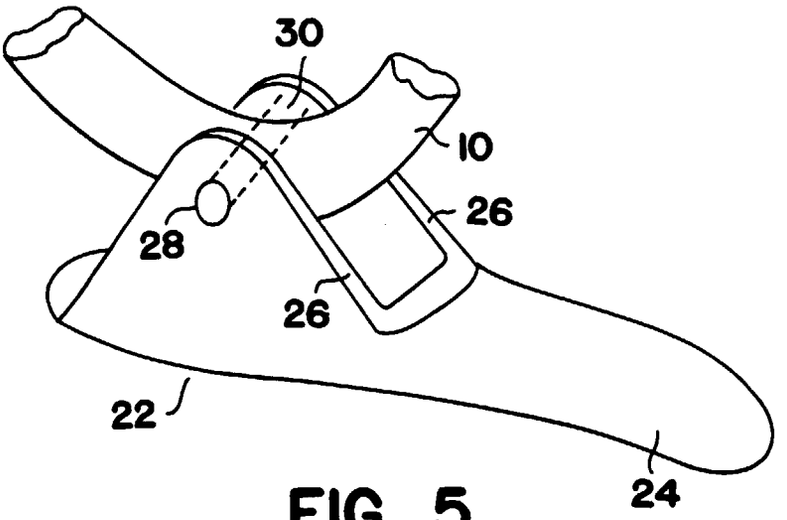

FIG. 5

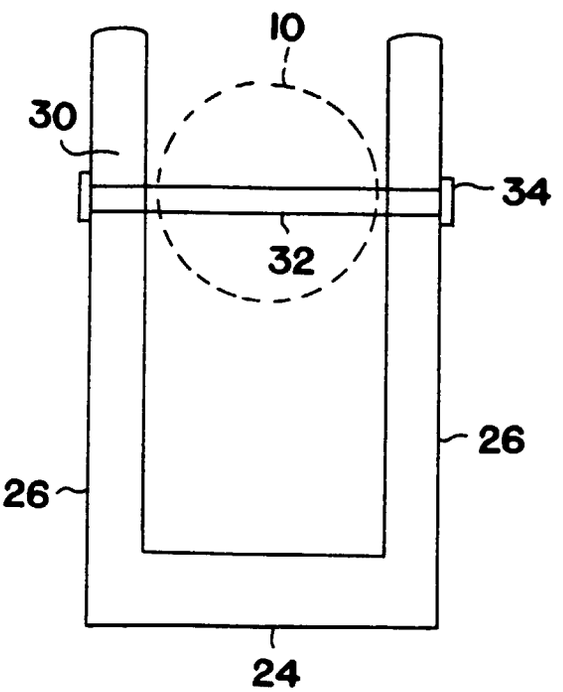

FIG. 6