United States Patent

[11] 3,575,412

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[54] **SKIING PRACTICE EXERCISING DEVICE**
8 Claims, 5 Drawing Figs.

[52] **U.S. Cl.** **272/57**
[51] **Int. Cl.** **A63b 23/04**
[50] **Field of Search** ..... 272/57 (B)

[56] **References Cited**

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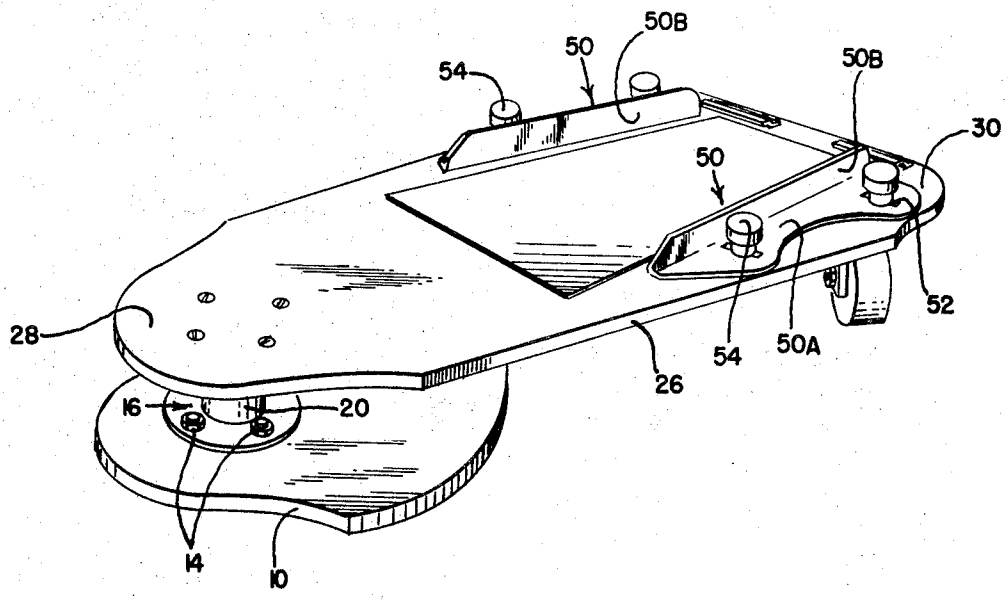
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ABSTRACT: An exerciser having a base, a rigid supporting platform with forward and rear end portions, the forward end portion of the supporting platform pivotally mounted on the base. Antifriction means are secured to the underside of the base to prevent slipping. The rear end portion of the rigid exerciser platform is mounted on a pair of floor-engaging rollers fixed to roll about an arc around the pivot axis. A braking means is associated with the rollers to regulate the body force required to rotate the rollers and the amount of brake resistance is adjustably controlled. Upstanding spaced-apart foot-retaining guides are adjustably secured to the platform and foot stops are secured to the platform adjacent the rear ends of the retaining guides.



Patented April 20, 1971 3,575,412

2 Sheets-Sheet 1

FIG. 1

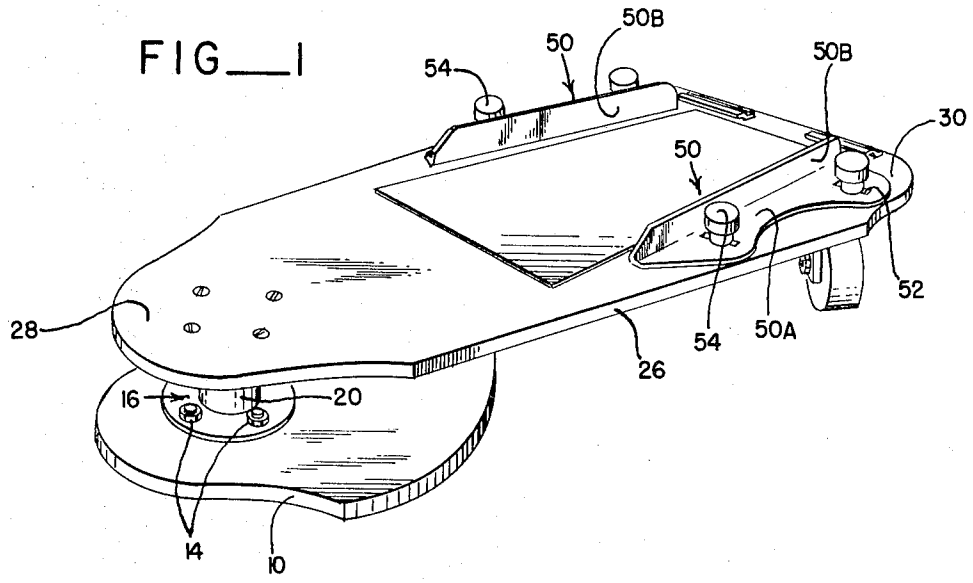
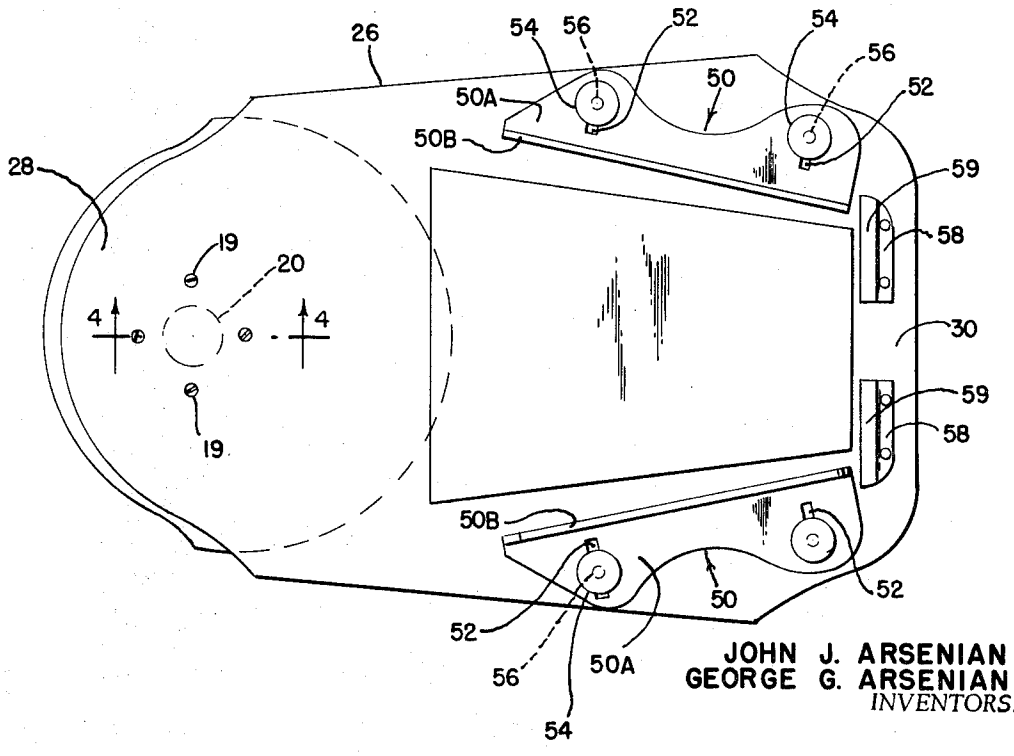


FIG. 2



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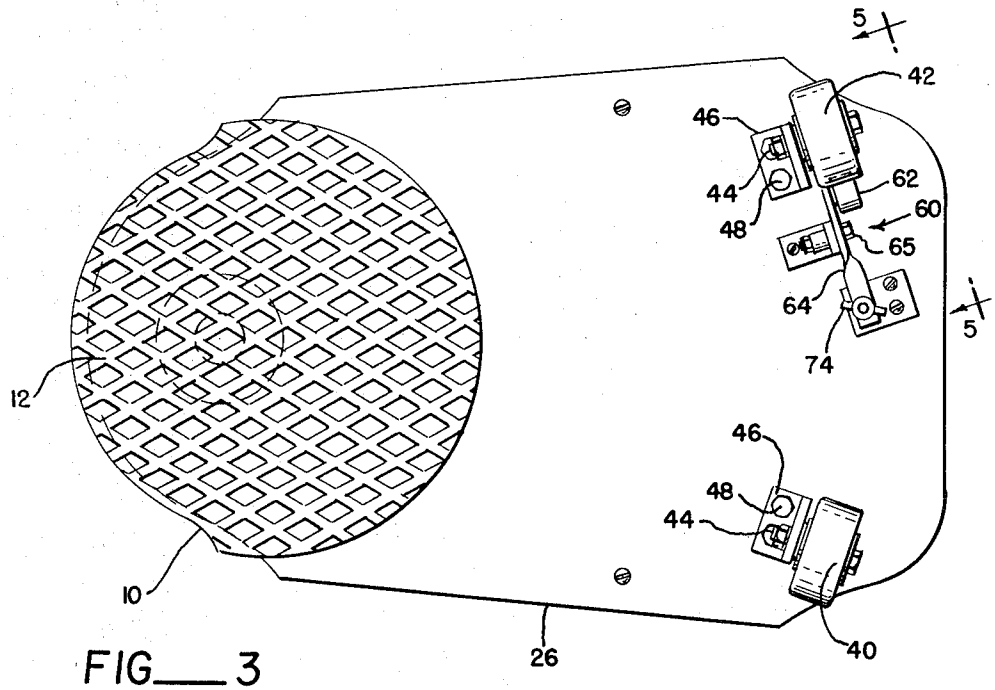


FIG. 3

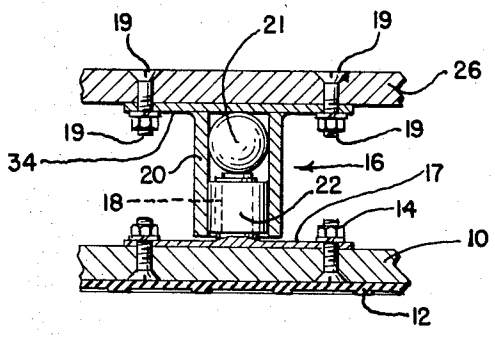


FIG. 4

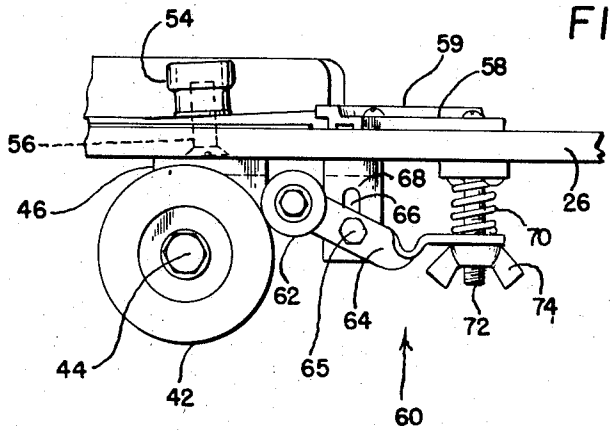


FIG. 5

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SKIING PRACTICE EXERCISING DEVICE

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention pertains to exercising devices and more particularly to devices for exercising and practicing skiing turns in a manner that simulates actual body and leg movement for a ski turn.

2. Description of the Prior Art

Various devices for exercising and for practicing turning movements employed while skiing have been heretofore utilized. For example, some of these devices are shown in the U.S. Pat. to Mautin No. 2,274,081, Denham No. 2,657,055, Palmer No. 3,021,137 and Canadian Pat. No. 632,029. Generally the prior art devices are expensive to manufacture since they require elaborate structures to simulate actual skiing conditions. Additionally they are heavy and accordingly not easily moved or transported. At least one of such heretofore known devices requires ski boots which would make it undesirable for many people to take the time to put them on.

SUMMARY OF THE INVENTION

This invention is directed to a device for exercising and practicing the turning movements employed while skiing. It embodies an exerciser platform freely, pivotally supported at its forward end portion on a floor-engaging base. The rear end portion of the platform is supported on rollers that move along an arc about the pivot. Foot-retaining guides transfer the thrust of body movement by the skier standing on the platform into movement of the platform about the pivot and base. The device has the advantage of being simple, compact and light enough so that it can be readily carried by a skier. However, the construction in no way limits its versatility for simulating actual skiing turns and, in fact, can simulate bodily turning movements not heretofore possible with such a uniquely simple and compact structure. An additional feature is the provision of a braking member acting on one of the rollers for regulating the amount of force required to pivot the platform and thus is useful in simulating snow depth or other conditions tending to increase resistance to ski movement.

The invention includes among its many objects, features and advantages an ability to require the same type of bodily movement demanded in short turns or "Wedels" on ski slopes. In order to move the exerciser platform correctly it is necessary to raise from a forward bent-knees position and turn or thrust the knees, feet and hips in one direction in counterrotational movement to the shoulders. This bodily action simulates the movements required for altering direction on skis. While the exerciser cannot give the sensation of forward motion it develops and exercises the proper muscles and improves balance and coordination. If a skier is absent from the slopes for a few weeks he or she can use the board for a few minutes each day and upon returning to the slopes can get back on the skis without feeling out of practice. The invention will not make a skier an expert but it will improve his or her skiing and keep the proper muscles in condition.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the exercising device embodying the invention;

FIG. 2 is a top plan view of the exercising device shown in FIG. 1;

FIG. 3 is a bottom plan view of the exercising device shown in FIG. 1;

FIG. 4 is a fragmentary vertical cross section taken along the line 4–4 of FIG. 2 showing the pivot structure; and

FIG. 5 is a fragmentary elevational view taken generally in the direction of the arrows 5–5 in FIG. 3 and showing the brake features in greater detail.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The exercising device includes a generally circular floor engaging base **10** having secured to its underside a mat **12** (FIG. 3) of rubber or other friction material. The base is preferably of wood although other materials having suitable strength may be employed. Secured to the upper surface of the base by bolts **14** or other suitable fasteners is a pivot structure generally designated as **16**. The pivot structure or bearing **16** includes a circular bottom support plate **17** having an upwardly extending bearing pin member **18**. Bearing **16** also has an upper plate member **34** attached to the underside of platform **26** (to be more fully described hereinafter) by bolts or other appropriate means **19**. Depending from plate **34** is tubular bearing housing **20** which receives ball bearing **21** and confines the ball between plate **34** and the upper end of pin **18**. A bearing guide **22** is mounted on pin **18** to engage the inside surface of tubular housing **20**. Thus a pivot structure for the platform relative to the base **10** is provided. Note that the housing **20** does not engage lower plate **17**. The bearing or pivot structure shown and described is merely illustrative since those skilled in the art will recognize that a wide variety of pivot means could be successfully incorporated. The pivot means described provides both vertical and horizontal thrust bearing surfaces to bear the user's weight and to allow for smooth pivotal action around the vertical axis of the bearing.

To confine the movement of the platform **26** to a generally horizontal plane and to permit free rotation about pivot structure **16**, the rear end portion **30** of the platform is supported by rollers **40** and **42**. As is best shown in FIGS. **3** and **5**, each roller includes an axle or shaft **44** which is secured to the downwardly extending leg of an angle bracket **46**. The angle bracket is secured to the underside of the rear end portion of the platform by flush bolts **48** or other suitable fasteners. As is best shown in FIG. **3**, the brackets are secured to platform **26** so that the rollers rotate on a fixed axis and on an arc around pivot **16**. Preferably, the rollers are a conventional free rolling type having internal bearings.

For securing the skier's feet on the platform **26** a set of spaced-apart, adjustable, foot-retaining guides **50** each in the form of an angle having a flat base let **50***a* and an upstanding leg **50***b* are secured to the upper surface of the rear end portion **30**. The base leg of each guide is provided with parallel slots **52** that are angularly disposed with respect to the transverse centerline of the platform to permit guides **50** to be moved relative to one another. Clamping nuts **54** are suitably threaded on upstanding studs **56** which in turn are secured to the platform and are positioned in the slots. Foot stops or abutments **58** are rigidly secured to the rear end portion of the platform adjacent the rear ends of the foot-retaining guides **50**. Preferably each stop is in the form of a short strip having a forwardly directed flange (FIG. **5**) **59** spaced above the upper surface of the platform. When in use it is preferable that the foot-retaining guides be adjusted such that they diverge and the skier's shoes are wedged tightly together and against the guides. In this manner the shoes will be contacting each other and thus will not necessarily contact the stops **58**. In the event, however, that a child or an adult having smaller shoes is using the exercising device and there is insufficient lateral adjustment to wedge the shoes between the guides, the heels of the shoes will abut the stops to insure that the shoes are positioned properly between the guides.

As thus far described the exercising device is used by placing the base **10** and rollers **40** and **42** on the floor. The nuts **54** are loosened and the retaining guide **50** slid away from one another. The skier then stands on the platform with his feet together and guides **50** are slid against the edges of the shoes and tightened in place by clamping nuts **54**. In the preferred position the heels of the shoes will be just forward of the stops **58**. If there is not sufficient adjustment the shoes may be abutting the stops **58**. By raising from a forward bent-knees position and twisting the shoulders in one direction the skier's knees, feet and hips will rotate in a counterdirection and the

feet will transfer a lateral force to produce rotational movement of the platform about pivot **16** and base **10**. In addition, and in order to maintain balance on the platform, the weight must be placed on the proper foot when exercising the turn, that is, the outside foot in the turn. For instance, a right turn requires that the skier's weight be over the left foot, and conversely. This contributes to improving balance for actual skiing since the weight distribution required in actual skiing conditions is the same.

A particularly advantageous feature of the invention is the provision of a brake means **60** for simulating varying snow conditions. For example, in deep snow there is more resistance to turning the skis than in light snow. This condition can be easily simulated by increasing the resistance of the brake means. The brake means is best shown in FIG. **5** and includes a pressure wheel **62** which is rotatably mounted on one end of a lever **64**. The lever is provided with a pivot bolt or fulcrum **65** that is adjustably secured in a slot **66** provided in a downwardly depending bracket **68**. Bracket **68** is in turn secured to the underside of the rear end portion **30** of the platform **26**. The free end portion of the lever is twisted to be in parallelism with the underside of the platform and is spring biased away from the underside of the platform by a coil spring **70**. The coil spring circumscribes a downwardly depending threaded pin **72** that is secured to the platform and on which is screwed a wing nut **74**. As is readily seen in FIG. **5**, tightening of the wing nut **74** against the spring will pivot the pressure wheel **62** into tighter engagement with the roller **42**.

Although the invention has been described in its preferred form, it is understood that various modifications and changes in the structural detail shown and discussed may be made without departing from the principles thereof and within the scope of the invention as determined by the following claims.

We claim:

1. An exercising device, comprising:

a. a floor engaging base,

b. a substantially flat and rigid exerciser platform having forward and rear end portions,

c. pivot means interconnecting said base and the forward end of said platform is pivotal spaced-apart relationship so that said platform pivots in a generally horizontal plane relative to said base,

d. floor-engaging roller means secured to the underside of the rear end portion of said platform and positioned so as to traverse an arcuate path around said pivot means,

e. spaced-apart foot-retaining guides adjustably secured on said platform generally on the rear end portion thereof for permitting the user to transfer lateral force of the feet to pivotal movement of said platform around said pivot means; and

f. brake means on said roller means to increase lateral force required to pivot said platform.

2. The exercising device of claim **1** and wherein said floor engaging roller means are fixedly secured in position on said platform.

3. The exercising device according to claim **2**, and further including foot stops rigidly secured to the upper surface of the rear end portion of said platform adjacent the rear ends of said foot-retaining guides.

4. The exercising device of claim **3** wherein said brake means include a pressure wheel mounted on a lever arm for engagement with said roller means.

5. An exercising device, comprising:

a. a floor engaging base,

b. a substantially flat and rigid exercise platform having forward and rear end portions,

c. pivot means interconnecting said base and the forward end of said platform,

d. floor-engaging roller means secured to the underside of the rear end portion of said platform,

e. spaced-apart foot-retaining guides adjustably secured on said platform generally on the rear end portion thereof, and

f. brake means on said roller means to increase lateral force required to pivot said platform.

6. The exercising device of claim **5** and wherein said floor-engaging roller means are fixedly secured in position on said platform.

7. The exercising device according to claim **6**, and further including foot stops rigidly secured to the upper surface of the rear end portion of said platform adjacent the rear ends of said foot-retaining guides.

8. The exercising device of claim **7** wherein said brake means include a pressure wheel mounted on a lever arm for engagement with said roller means.