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ROTATABLY MOUNTED FOOT ENGAGING EXERCISING DEVICE

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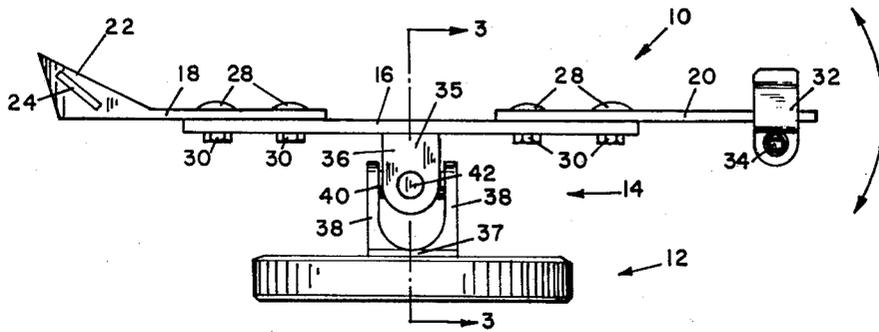


FIG. 1

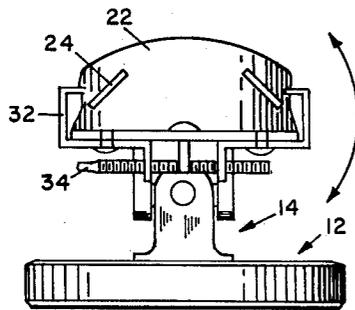


FIG. 2

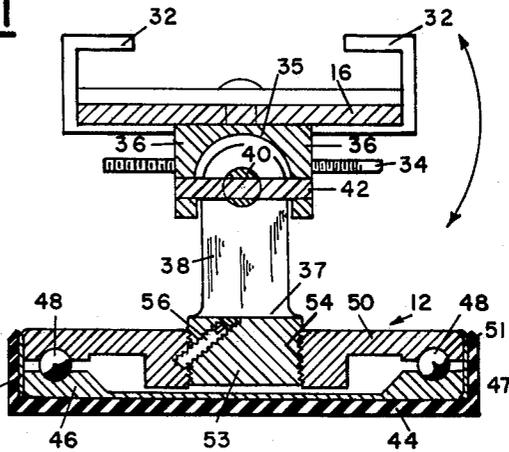


FIG. 3

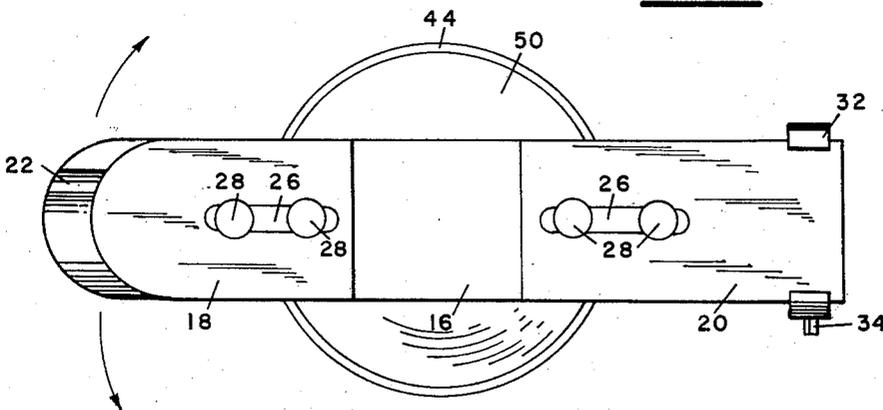


FIG. 4

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**ROTATABLY MOUNTED FOOT ENGAGING
EXERCISING DEVICE**

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2 Claims. (Cl. 272-57)

This invention relates to a sporting equipment item. More particularly, the invention relates to a novel device for use to reduce amusement, exercise, and as a training means for developing physical coordination.

It is an object of this invention to provide a device adaptable for use singularly or in pairs, designed to be affixed to the shoe or shoes of the user providing means whereby the user may pivot on the device to spin around freely.

Another object of this invention is to provide a device useful for teaching coordination in that the device is adaptable for fixing to shoes of the user permitting the user to spin around freely and at the same time pivot the foot relative to a floor surface in any direction.

Another object of this invention is to provide lightweight devices, adaptable for affixing to the shoes of a user, including bearing arrangements whereby the user may lift the spinning device affixed to one foot while doing gymnastics and freely spinning around on the other foot.

These and other objects and a better understanding of the invention may be had by referring to the following description and claims taken in conjunction with the attached drawings, in which:

FIGURE 1 is a side view of the device of this invention.

FIGURE 2 is an end view of the device of this invention.

FIGURE 3 is a cross-sectional view taken along the line 3-3 of FIGURE 1 showing the construction of the base of the invention.

FIGURE 4 is a top view of the device of this invention.

Referring now to the drawings, and first to FIGURE 1, the device is made up of three basic components, namely, a shoe plate indicated generally by the numeral 10, a base indicated generally by the numeral 12, and a pivot member indicated generally by the numeral 14. The shoe plate 10 is made of a shoe base plate 16, a heel plate 18 slideably affixed to one end of the shoe base plate 16, and a toe plate 20 slideably affixed to the other end of shoe base plate 16. Heel plate 18 has integrally formed therewith a heel support 22 which is adapted to fit the heel of a shoe to assist in holding the shoe in contact with the shoe plate 10. Slots 24 are formed in heel support 22 adaptable to receive flexible straps which may be placed around the instep or ankle of the user to hold the shoe plate 10 in contact with his shoe.

Heel plate 18 is provided with a slot 26 (see FIGURE 4) which receives bolts 28. Bolts 28 extend through slot 26 to secure the heel plate 18 to the shoe base plate 16. Nuts 30 threadably engage bolts 28 to support the heel plate 18 to the shoe base plate 16.

Toe plate 20 includes a toe vise 32 which is adapted to receive the toe of the shoe of the user to clamp the toe to the shoe plate 10. A toe clamp screw 34 adjusts the width of toe vise 32 to receive varying sizes of shoes. Toe plate 20 (see FIGURE 4) has a slot 26 formed therein to receive bolts 28 to support the toe plate 20 to the shoe base plate 16, permitting slideable positioning of the toe plate 20 relative to shoe base plate 16 to facilitate adjustment for different lengths of shoes.

The shoe plate 10 is fabricated in a similar manner to serve a similar purpose as the shoe plate of a typical roller skate or clamp-on type ice skate. The configuration of the shoe plate is by way of example only and any configuration which will allow the plate to be affixed to

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the bottom of a shoe is within purview of this invention. In a more refined embodiment of the invention, shoe plate 10 may be formed integrally with a shoe. In another embodiment the pivot member 14 may be affixed directly to the bottom of a shoe. The configuration as shown in this invention is considered to be an exemplary embodiment of the invention most adaptable for general and typical use for entertainment, exercise and coordination building purposes by the average user, but is not intended as a limitation.

Affixed to the bottom of shoe base plate 16 is a shoe pivot member 35 which terminates in a pair of integrally formed shoe plate flanges 36 extending substantially perpendicularly and downwardly from shoe base plate 16 and in a parallel spaced relationship with each other. In a similar manner, a base pivot member 37 extends upwardly from base 12 and terminates in a pair of integrally formed base flanges 38. Flanges 36 and 38 are connected together in the manner of a typical universal joint to provide flexibility between the base 12 and the shoe plate 10. In a more simplified arrangement, but one which limits the gymnastic variations in the use of the invention, shoe pivot member 35 and base pivot member 37 may be replaced with a simple pivot member uprightly and rotatably supported at the bottom end thereof by the base 12 and affixed at the upper end thereof to the shoe base plate 16. Thus, the pivot member, as generally indicated by the numeral 14, may vary from a simple straight pivot member or pivot post to a universal joint type arrangement as is shown in the drawings.

Extending between base flanges 38 is a base pivot bearing rod 40, and in like manner, extending between shoe plate flanges 36 is a shoe pivot bearing rod 42. Shoe pivot bearing rod 42 intersects base pivot bearing rod 40 intermediate the ends thereof as is shown in FIGURE 3. Base pivot bearing rod 40 and shoe pivot bearing rod 42 may be integrally formed in which case pivotation will take place at flanges 36 and 38 about the rods 40 and 42, or shoe pivot bearing rod 42 may pivot within base pivot bearing rod 40. A multitude of different arrangements may be provided to furnish a universal coupling support of shoe plate 10 with respect to base 12.

In this optimum embodiment an arrangement is provided whereby the pivot member 14 provides pivotal movement of shoe plate 10 in any plane relative to base 12. In other embodiments, it can be seen that shoe plate 10 may be rotatably affixed to base 12 in any manner which provides pivotation in only certain directions relative to the base 12. As an example, the pivot member 14 may be designed to permit shoe plate 10 to pivot in a plane of the length of shoe plate 10, but not in a plane perpendicular to the length of shoe plate 10. In a different embodiment, the pivot member 14 may be so arranged that the shoe plate 10 can pivot in a plane perpendicular to the length of shoe plate 10 but not in a plane parallel with the length of shoe plate 10. Various arrangements to produce varying effects will be suggested according to the type of use to which the device is put.

One embodiment of the construction of base 12 is shown in greater detail in the cross-sectional view of FIGURE 3. In this embodiment, base 12 is formed of a base cover 44, which may be made of some plastic material or some material such as rubber, with rubber being preferred as it provides a non-slip type surface to engage the floor surface on which the device will be used. A stationary bearing plate 46, having a bearing race 47, rotatably supports movable bearing plate 50 which has a matching bearing race 51. Bearings 48 disposed in bearing races 47 and 51 provide a bearing relationship between movable bearing plate 50 and stationary bearing plate 46. A bearing retainer 52 is provided to retain the

movable bearing plate 50 in rotatable relationship with the stationary bearing plate 46.

In the embodiment shown, base pivot member 37 is integrally formed to provide a threaded extending base portion 53 adaptable to threadably engage a threaded opening 54 in the movable bearing plate 50. A set screw 56 keeps the threaded base portion 53 of base pivot member 37 in engagement with the movable bearing plate 50. In an alternate embodiment, base flanges 38 may be integrally formed, or welded, to movable bearing plate 50 and many other arrangements to achieve the concepts of the invention will be suggested.

FIGURE 2 is an end view of the device showing the arrangement of the toe vise 32 and showing the typical means whereby toe clamp screw 34 may be used to adjust the toe vise 32 to securely hold the toe of the shoe of the user of the device.

FIGURE 4, a top view showing the mechanism, shows means whereby the device may be easily fitted to the shoe of the user.

As typically constructed the height of the device as measured from the bottom of the base 12 to the top of shoe base plate 16 is approximately two inches, with the diameter of the base 12 being approximately three and one-half inches. These dimensions are illustrative as the size of the device and are not determinative of the novelty of the invention.

Operation

This sporting device may be used basically in one of two ways. In one manner of using the device, only one of the devices is used which is attached to one shoe of the user. The user may then use his free foot to spin himself around at a very high rate on the device, as the bearing 48 provides a minimum restriction to rapid rotational movement of the body. By the flexibility of pivot member 14, the ankle can be flexed in any direction to achieve various effects of the rapid spinning. The tendency of the pivot member 14 to pivot in any direction requires the development of good balance, skill and coordination to maintain erect footing on the device.

In the second general type of use, the person utilizing the invention may affix one of the devices to each foot. The device being optimumly of relatively small size and lightweight, the user can pick one foot up and spin around freely on one foot and may then put down the other foot and spin freely on it. It can be seen that the device offers an unlimited number of different types of gymnastics which cannot be performed on any other type of presently existing equipment.

Although this invention has been described with a certain degree of particularity, it is manifested that many changes may be made in the details of construction and the arrangement of components without departing from the spirit and scope of this disclosure.

What is claimed is:

1. A sporting device of the type described adaptable to be supported to the shoe of the user comprising, a base member; a base pivot member rotatably supported to said base member and extending uprightly therefrom, the upper portion of said base pivot member terminating in a pair of integrally formed base flanges, said flanges spaced apart from each other and in parallel planes; a shoe plate;

a shoe pivot member affixed to the bottom surface of said shoe plate and extending downwardly therefrom, said shoe pivot member terminating in a pair of integrally formed shoe plate flanges, said shoe plate flanges spaced apart from each other and in parallel planes; a base pivot bearing rod rotatably supported between said base flanges; a shoe pivot bearing rod rotatably supported between said shoe plate flanges, said shoe pivot bearing rod intersecting and affixed to said base pivot bearing rod intermediate the length of each of said rods whereby said shoe plate is rotatably and universally pivotably supported on said base member; and means of affixing said shoe plate to the shoe of the user.

2. A sporting device of the type described adaptable to be supported to a shoe of the user comprising, a flat circular stationary bearing plate, said stationary bearing plate having a coaxially formed bearing race in the upper surface thereof adjacent the circumference; a flat circular movable bearing plate of substantially equal diameter to said stationary bearing plate positioned adjacent and above said stationary bearing plate in a plane parallel to said stationary bearing plate, said movable bearing plate having a bearing race formed in the lower surface thereof adjacent the circumference and coaxially of said movable bearing plate, said bearing race being of equal diameter to said bearing race formed in said stationary bearing plate; a multiplicity of bearings disposed between said bearing races of said stationary and said movable bearing plates whereby said movable bearing plate is free to rotate supported by said bearings on said stationary bearing plate; means of retaining said movable bearing plate in rotatable relationship with said stationary bearing plate; a base pivot member integrally formed with said movable bearing plate extending uprightly and coaxially thereto, the upper portion of said base pivot member terminating in a pair of integrally formed base flanges, said flanges spaced apart from each other in parallel planes, a substantially flat elongated shoe plate; a shoe pivot member affixed to the bottom surface of said shoe plate and extending downwardly therefrom, said shoe pivot member terminating in a pair of integrally formed shoe plate flanges, said shoe plate flanges spaced apart from each other and in parallel planes; a base pivot bearing rod rotatably supported between said base flanges; a shoe pivot bearing rod rotatably supported between said shoe plate flanges, said shoe pivot bearing rod intersecting and affixed to said base pivot bearing rod intermediate the length of said rods whereby said shoe plate is rotatably and universally pivotably supported to said shoe base member; and means of affixing said shoe plate to the shoe of the user.

References Cited in the file of this patent

UNITED STATES PATENTS

478,166	Madsen	July 5, 1892
1,509,793	Thompson	Sept. 23, 1924
1,565,484	McWhirter	Dec. 15, 1925
1,671,096	Anderson	May 29, 1928
1,997,139	Gardener et al.	Apr. 9, 1935
2,035,549	Jones	Mar. 31, 1936
2,779,595	Ensley	Jan. 29, 1957
2,835,492	La Londe	May 20, 1958