May 28, 1963 J. D. McCORKLE 3,091,043

SPINNER ATTACHMENT FOR SHOES

Filed Nov. 23, 1962

FIG. 1.

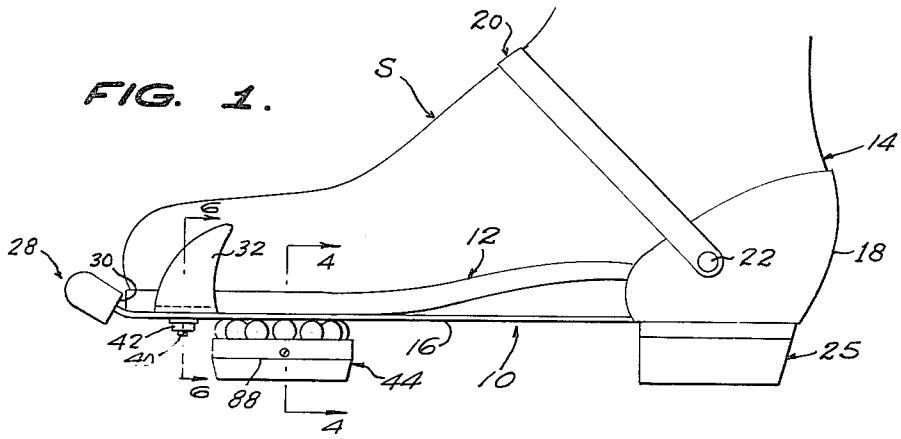


FIG. 2.

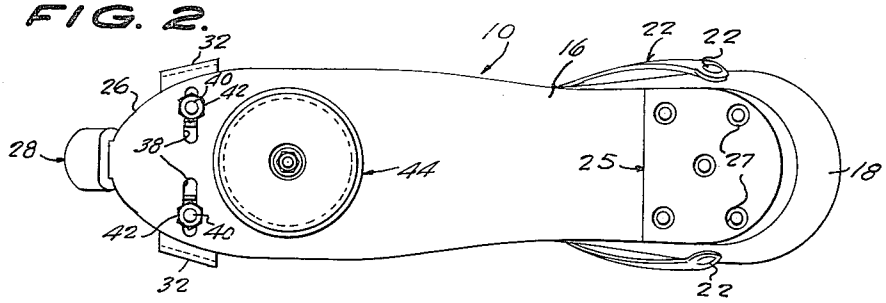


FIG. 3.

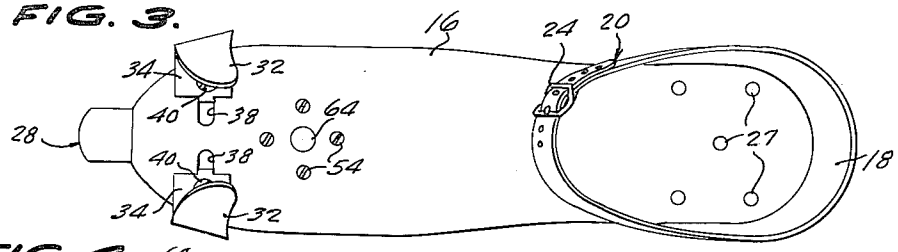


FIG. 4.

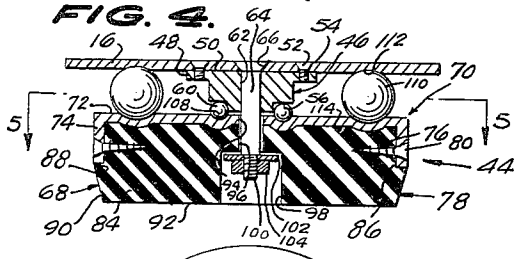


FIG. 5.

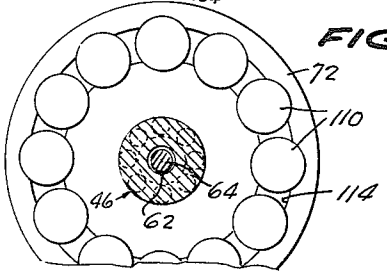
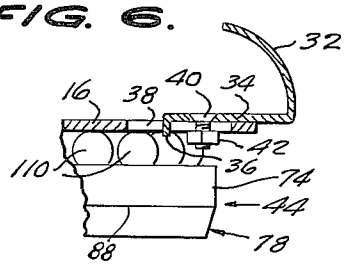


FIG. 6.



INVENTOR.
JIMMIE D. McCORKLE,
BY
McMorrow, Berman & Davidson
ATTORNEYS.

United States Patent Office

3,091,043

Patented May 28, 1963

3,091,043

SPINNER ATTACHMENT FOR SHOES

Jimmie D. McCorkle, Amarillo, Tex.
(72nd CDS, APO 845, Box 1251, New York 11, N.Y.)

Filed Nov. 23, 1962, Ser. No. 239,690
4 Claims. (Cl. 36—8.3)

This invention relates to a novel spinner attachment for shoes.

The primary object of the invention is the provision of an efficient, practical, and easily worn device of the kind indicated, which substantially facilitates the execution of the foot-spinning steps of the dance known as the "twist," and which susbtantially reduces the amount of wear on shoe soles and on floor surfaces otherwise incurred, and the danger of sliding on or skidding on the floor.

Another object of the invention is the provision of a device of the character indicated above which involves a sole plate, akin to and adapted to be worn like the sole plate of a skate, having toe and heel clamping means, and wherein a spinner rotor is mounted to the underside of the sole plate, in the region of the ball of the foot.

Other important objects and advantageous features of the invention will be apparent from the following description and the accompanying drawings, wherein, for purposes of illustration only, a specific form of the invention is set forth in detail.

In the drawings:

FIGURE 1 is a side elevation of a "twist" dancer's shoe, showing a device of the present invention secured to the shoe;

FIGURE 2 is a bottom plan view of FIGURE 1;

FIGURE 3 is a top plan view of the device, with the shoe removed;

FIGURE 4 is an enlarged fragmentary vertical transverse section taken on the line 4—4 of FIGURE 1;

FIGURE 5 is a horizontal section taken on the line 5—5 of FIGURE 4; and,

FIGURE 6 is a fragmentary vertical transverse section taken on the line 6—6 of FIGURE 1.

Referring in detail to the drawings, wherein like numerals designate like parts throughout the several views, the illustrated device, generally designated 10, is shown applied to the sole 12 and the heel 14 of a dancer's shoe S.

The device 10 comprises a rigid metal sole plate 16, slightly longer than the combined lengths of the shoe sole 12 and the heel 14, and shaped to the contours thereof. In the area of the heel 14, the sole plate 16 has formed thereon, integrally or otherwise, an upstanding heel cup 18, which conformably receives the shoe heel 14, and is preferably of the same material as the sole plate 16. Sections of a strap 20 are fixed, at their lower ends, as indicated at 22, to the outer sides of the sidewalls of the cup 18, and extend upwardly and forwardly from the cup, and are adapted to be adjustably secured together, at their upper ends, as indiacted at 24, so as to embrace the instep of the shoe S, for holding the heel cup 18 to the heel 14. A heel form 25 is secured, as indicated at 27, to the underside of the sole plate 16.

The forward end of the sole plate 16 is forwardly tapered, as indicated at 26, to a toe stop 28, which is angled forwardly and upwardly, out of the plane of the sole plate 16, and projects thereabove so as to provide a rearwardly enclosed rear stop surface 30, with which the forward end of the shoe sole 12 is engaged, as shown in FIGURE 1. The stop 28 can be of resilient material, if desired, to minimize the danger of kicking injuries.

Adjustable clamp means for the toe region of the sole plate 16, can comprise a pair of arcuate clamping arms 32,

extending upwardly and laterally inwardly from the outer ends of horizontal flat slides 34, which bear upon the upper surface of the sole plate 16, adjacent the side edges thereof. The slides 34 have downwardly extending stop lugs 36, on their laterally inward ends, which engage in transversely spaced, transversely elongated slot 38, formed in the sole plate 16, which are longitudinally spaced from the toe stop 28. Screws 40 are fixed centrally to and extend downwardly from the slides 34 and extend through the slots 38, and have nuts 42 threaded on their lower ends, against the underside of the sole plate 16. The clamping arms are adjustable, with the nuts 42 backed off, toward and away from each other, for clamping them against the side edges of the shoe sole 12, and for freeing the same from the sole. As shown in FIGURE 1, the clamping arms 32 are preferably upwardly tapered and inclined rearwardly, out of the plane of the sole plate 16.

A spinner assembly 44 is mounted to the underside of the sole plate 16, at a location behind the clamping means, corresponding to the region of the ball of the foot of the wearer of the shoe S, or slightly forwardly therefrom, as indicated in FIGURE 1. The spinner rotor assembly 44, as shown in FIGURE 4, comprises a cylindrical stator 46 having a lateral annular flange 48, at its upper end, flush therewith. The upper end 50 and the flange 48 are secured to the undersurface of the sole plate 16, as by means of screws 52, extending through the sole plate and threaded into the flange 48, as indicated at 54. The stator 46 has a peripheral annular groove 56 around its lower end 58, which serves as a race for relatively small inner ball bearings 60. The stator is formed with a vertical axial bore 62, through which is fitted a smooth cylindrical shaft 64, which is fixed to the sole plate 16, in suitable manner, as indicated at 66, and extends downwardly below the stator.

The assembly 44 further comprises a rotor 68, which comprises a circular inverted pan-shaped rigid metal cap 70 having a flat horizontal top wall 72, and a pendant peripheral flange 74. The cap 70 conformably receives the upper end portion 76 of a circular pad 78 of resilient and compressible material, such as rubber or rubber-like material, including plastic. The pad 78 is secured in the cap 70, as by means of circumferentially spaced screws 80 extending through the flange 74 and threaded into the upper portion of the pad. The upper portion 76 of the pad 78 is reduced in diameter, relative to the lower end portion 84 of the pad, so as to define a shoulder 86, upon which the lower edge 88 of the flange 74 is seated. The lower end portion 84 has a slight downward taper, as indicated at 90, to a flat horizontal lower end or bottom surface 92.

The cap top wall 72 and the pad 78 are formed with registered holes 94 and 96, respectively, through which the shaft 64 is rotatably received. The hole 96 of the pad opens, at its lower end to a socket 98, which opens to the bottom surface 92. The shaft 64 has a reduced diameter, threaded stud 100, on its lower end, within the socket 98, on which is circumposed a washer 102 with a nut 104 beneath the washer, which holds the washer against the bottom of the socket 98.

The upper surface of the cap top wall 72 is formed with an annular groove 108, concentric with the shaft 64, which receives and serves as a lower race for the inner ball bearings 60.

Outer ball bearings 110, substantially larger in diameter than the inner bearings, are engaged in annular grooves 112 and 114, provided in the facing surfaces of the sole plate 16 and the top wall 72 of the cap 70, and concentrically spaced outwardly from the inner bearings.

In operation, the dancer, in order to execute a spinning step, characteristic of the "twist," puts the pad 78

of the rotor assembly **44** upon the floor, with the heel form **25** slightly elevated out of contact with the floor. The non-skid character of the undersurface or lower end of the pad **78**, when in contact with the floor, prevents slippage of the device, and enables the dancer to safely, efficiently, and easily rotate the foot.

Although there has been shown and described a preferred form of the invention, it is to be understood that the invention is not necessarily confined thereto, and that any change or changes in the structure of and in the relative arrangements of components thereof are contemplated as being within the scope of the invention as defined by the claims appended hereto.

What is claimed is:

1. A spinner attachment for shoes, comprising a rigid sole plate having forward and rear ends, a centered spinner assembly mounted at the underside of the sole plate adjacent the forward end thereof, said spinner assembly comprising a stator fixed to the underside of the sole plate, a rotor disposed below said stator and journaled on said stator, there being cooperating annular grooves formed in the underside of said sole plate and the top side of said rotor, and ball bearings interposed between and engagingly held within said grooves throughout their entire area, said rotor comprising a resilient and compressible pad having a flat bottom surface for engagement with a dance floor.

2. A spinner attachment for shoes, comprising a rigid sole plate having forward and rear ends, a centered spinner assembly mounted at the underside of the sole plate adjacent the forward end thereof, said spinner assembly comprising a stator fixed to the underside of the sole plate, and a rotor axially journalled on the stator, said spinner assembly comprising a vertical cylinder having a vertical axial bore, a shaft fixed to the sole plate and extending downwardly through said bore, on which the rotor is journalled, said stator cylinder having an annular ball bearing race at its lower end, said rotor comprising a cap having a top wall and a pendant peripheral flange, said top wall having a ball bearing race, and inner ball bearings engaged in the races, a resilient and compressible pad having an upper end portion fixed in the cap and a lower end portion extending below the cap, the cap top wall and the pad being formed with registered holes, rotatably receiving said shaft.

3. A spinner attachment for shoes, comprising a rigid sole plate having forward and rear ends, a centered spinner assembly mounted at the underside of the sole plate adjacent the forward end thereof, said spinner assembly comprising a stator fixed to the underside of the sole plate, and a rotor axially journalled on the stator, said spinner assembly comprising a vertical cylinder having a vertical axial bore, a shaft fixed to the sole plate and extending downwardly through said bore, on which the rotor is journalled, said stator cylinder having an annular ball bearing race at its lower end, said rotor comprising a cap having a top wall and a pendant peripheral flange, said top wall having a ball bearing race, and inner ball bearings engaged in the races, a resilient and compressible pad having an upper end portion fixed in the cap and a lower end portion extending below the cap, the cap top wall and the pad being formed with registered holes rotatably receiving said shaft, said sole plate and said top wall having registered outer ball bearing races spaced concentrically and outwardly from the inner ball bearings, and outer ball bearings engaged in the outer races.

4. A spinner attachment for shoes, comprising a rigid sole plate having forward and rear ends, a centered spinner assembly mounted at the underside of the sole plate adjacent the forward end thereof, said spinner assembly comprising a stator fixed to the underside of the sole plate, and a rotor axially journalled on the stator, said spinner assembly comprising a vertical cylinder having a vertical axial bore, a shaft fixed to the sole plate and extending downwardly through said bore, on which the rotor is journalled, said stator cylinder having an annular ball bearing race at its lower end, said rotor comprising a cap having a top wall and a pendant peripheral flange, said top wall having a ball bearing race, and inner ball bearings engaged in the races, a resilient and compressible pad having an upper end portion fixed in the cap and a lower end portion extending below the cap, the cap top wall and the pad being formed with registered holes rotatably receiving said shaft, said sole plate and said top wall having registered outer ball bearing races spaced concentrically and outwardly from the inner ball bearings, and outer ball bearings engaged in the outer races, said pad being formed with an axial enlarged diameter socket opening to the lower end of the pad, with which said bore opens, said shaft having a reduced diameter stud on its lower end located within the socket, a washer circumposed on the stud and engaged with the bottom of the socket, and a nut threaded on the stud against the undersurface of the washer.

References Cited in the file of this patent

UNITED STATES PATENTS

1,204,796	Lockwood	Nov. 14, 1916
1,564,676	Hopkins	Dec. 8, 1925
2,173,969	Klaff	Sept. 26, 1939
2,525,308	McDonnell	Oct. 10, 1950
2,671,971	Garretson	Mar. 16, 1954