July 11, 1939. C. SCHROEDER 2,165,581

TOE CAP FOR TOE DANCING SHOES

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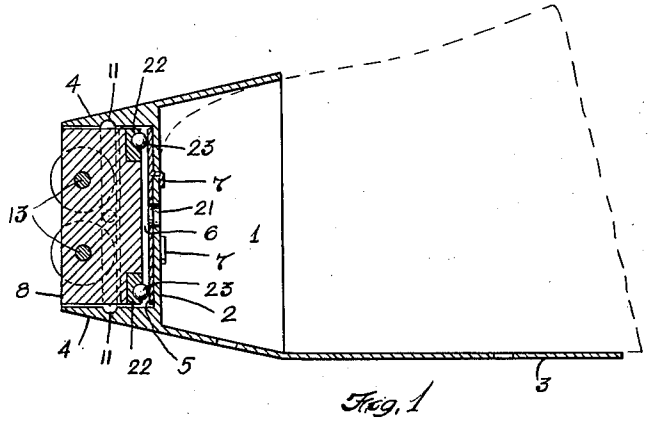


Fig. 1

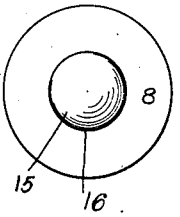


Fig. 10

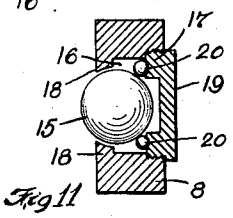


Fig. 11

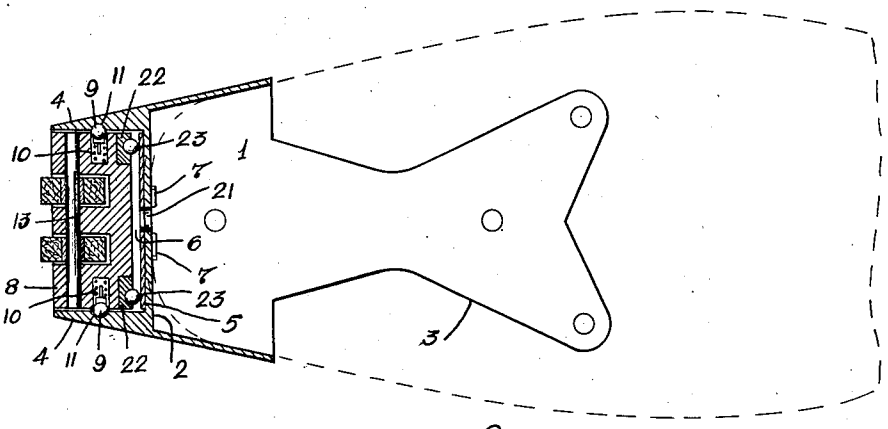


Fig. 2

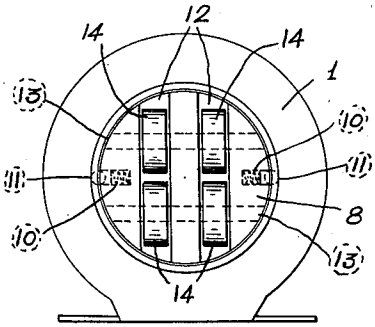


Fig. 3

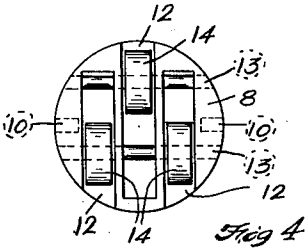


Fig. 4

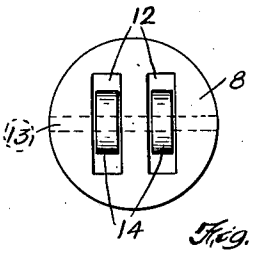


Fig. 6

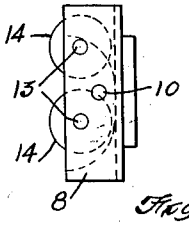


Fig. 5

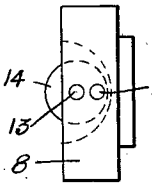


Fig. 7

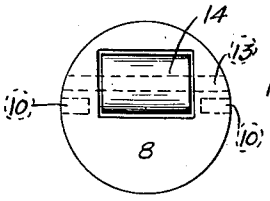


Fig. 8

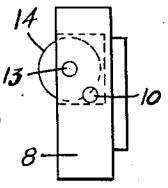


Fig. 9

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TOECAP FOR TOE DANCING SHOES

Carl Schroeder, Cleveland, Ohio

Application October 22, 1938, Serial No. 236,505

5 Claims. (Cl. 36—8.3)

This invention relates to a device for use in the art of toe dancing, and its object is to provide means whereby a toe dancer may add to her repertoire of steps a gliding or skating movement. A further object is to provide a device which will permit such gliding steps and will also facilitate a revolving or spinning effect on the part of such a toe dancer.

It is old to provide a shoe for a toe dancer with a rotatable block mounted in the toe, upon which block a dancer may spin or revolve, but no shoe has been made which provides means whereby one dancing on her toes may glide or skate. The combining of such novel skating means with spinning means places a wide and valuable addition of new steps and movements within the range of such dancers.

In providing means making such new steps possible, I provide in the floor bearing surface of the toe of a shoe for toe dancing a roller or ball which is rotatably mounted on a bearing in an opening in such surface. When special facilities for spinning are desired such a roller is mounted in the same manner in a lug which is mounted rotatably on ball bearings in a recess of such floor bearing surface of a shoe. When it is desirable to use varying multiples of such rollers, I provide removable plugs having rollers in the desired number.

To the accomplishment of the foregoing and related ends, said invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims.

The annexed drawing and the following description set forth in detail certain structure embodying the invention, such disclosed means constituting, however, but one of various structural forms in which the principle of the invention may be used.

In said annexed drawing:

Fig. 1 is a side view in cross-section of a preferred embodiment using four rollers;

Fig. 2 is a top view in cross-section of the same;

Fig. 3 is an elevational front view of same;

Fig. 4 is a view of a plug carrying three rollers;

Fig. 5 is a side view of Fig. 4;

Fig. 6 is a view of a plug carrying two rollers;

Fig. 7 is a side view of Fig. 6;

Fig. 8 is a view of a plug carrying one roller;

Fig. 9 is a side view of Fig. 8;

Fig. 10 is a view of a plug showing an alternate type of roller mounted therein;

Fig. 11 is a side view of Fig. 10 in cross-section.

In a preferred embodiment of my invention shown in Figs. 1, 2 and 3, I mount rotatable elements in a plug which is removably inserted in an opening in the floor facing portion of the toe cap of a dancing shoe. In such preferred form the said plug is made round and mounted on roller bearings that the dancer may spin on her toe as well as skate.

Referring to the drawing, the toe cap indicated generally as 1 has the form of a truncated hollow cone of metal with a division wall 2 transverse of the cone. A strap-like extension 3 of a side of the cone provides means whereby it may be attached to a dancing shoe. The walls 4 of the smaller end of the cone shaped cap 1 are so formed that their inside faces are normal to the division wall 2. I have used aluminum in forming the cone shaped toe cap 1, and have found it desirable to insert a steel bearing plate 5 in the bottom of the cylindrical opening 6 formed by the walls 4 of the smaller end of the cone shaped cap for a purpose hereinafter explained. This plate 5 is held in place by clips 7 which pass through openings in the division wall 2 and are bent down.

A skating plug indicated generally as 8 is inserted in the cylindrical opening 6 and is held by balls 9 supported by springs 10 in oppositely disposed holes 10 bored radially in the curved surface of the plug 8. That the plug 8 may be held free to rotate, the balls 9 engage a groove 11 located circumferentially on the inside of the walls 4.

A preferred structure of a plug 8 is shown in Fig. 3. Slots 12 are cut in the outside surface of the plug 8 which is held in the cylindrical opening 6 by balls 9. Pins 13 inserted in openings through the plug 8 and across the slots 12, have rollers 14, preferably of fiber, mounted thereon. In Figs. 1, 2 and 3 four rollers 14 are mounted in two slots 12, in Figs. 4 and 5 three rollers 14 are mounted in two slots 12, in Figs. 6 and 7 two rollers 14 are mounted in two slots 12 and in Figs. 8 and 9 a single roller 14 is mounted in a single slot 12. It will be understood that the choice of plugs will be determined in some measure by the skill of the dancer.

When using a plug 8 removably and rotatably mounted in the opening 6, I mount a ball bearing race 22 on the inner end of the plug 8 and provide ball bearings 23 which roll therein and contact the steel plate 5.

An alternative form of plug is shown in Figs. 10 and 11 in which, instead of a roller 14 mounted on a pin 13, a ball 15 is mounted in an opening 16 in the face of a plug 8 in bearing contact with balls in a race 17. The opening 16 is formed

axially through the plug 8 and is constricted on the floor-contacting side of the plug to form a circular lip 18 which retains the ball 15 within the opening 16. On the opposite side of the plug 8 the opening 16 is interiorly threaded for the reception of a threaded cup-shaped element 19 which carries on its inner edges a race 17. Balls 20 ride in this race 17 and support the ball 15 rotatably in use. A plurality of such balls 15 may be mounted in the face of a plug 8 as desired.

To facilitate the removal of the plugs 8 an opening 21 is provided in the division wall 2 of the toe cap 1 and steel plate 5. Also when desired the plug 8 may be made integrally with said toe cap instead of being removably mounted in the opening 6.

In use, a dancer will be able to tilt slightly and engage the floor with an edge of the plug 8 and thereby retard her motion. To facilitate this control, it is desirable that the rollers or balls be so mounted that only a small arc of the round surface projects beyond the face of the plug 8.

When using rollers as in Figs. 1 to 9 inclusive, it is desirable that they be mounted in a plug 8 rotatably mounted in the opening 6 with ball bearings 23, since such arrangement greatly facilitates spinning movements. However, such mounting is not necessary and the plug 8 may be fixedly mounted in the opening 6 or the rollers 14 may be mounted in a solid block forming the smaller end of the toe cap 1.

When using balls 15 instead of rollers, a spinning movement may readily be performed, without the expedient of a rotatable plug 8 on ball bearings 23. However, the use of such balls 15 in place of rollers is desirable only when the dancing is done on a hard surface. Otherwise there may be penetration of the balls into a soft floor sufficient to handicap the desired movements.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the structure herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:

1. A device adapted to be worn on the toe of a shoe for toe dancing, comprising an element having a substantially flat surface so positioned as to engage a floor when toe dancing, an opening in such surface, and a round element rotatably mounted in such opening on a bearing with the curved surface of said last named element extending beyond said surface.

2. A device adapted to be worn on the toe of a shoe for toe dancing, comprising an element adapted to receive the toe of a shoe, said element having a portion presenting a substantially flat surface in a position to engage a floor when toe dancing, an opening in such surface, and a roller mounted in such opening on a bearing, with the curved surface of said roller extending beyond said surface.

3. A device adapted to be worn on the toe of a shoe for toe dancing, comprising a member adapted to receive the toe of a shoe, said member having a portion adapted to engage a floor when toe dancing, a recess in said portion, and a plug rotatably mounted in said recess, said plug plug including a round element rotatably mounted on a bearing in an opening in said plug, with the curved surface of said element projected beyond the surface of said floor engaging portion of said member.

4. A device adapted to be worn on the toe of a shoe for toe dancing, comprising a member adapted to receive the toe of a shoe, said member having a portion adapted to engage a floor when toe dancing, a circular recess in said portion, and a plug rotatable mounted in said recess, said plug including a round element rotatably mounted on a bearing in an opening in said plug, with the curved surface of said element projected beyond the surface of said floor engaging portion of said member.

5. A device adapted to be worn on the toe of a shoe for toe dancing, comprising a member adapted to receive the toe of the shoe; a circular plug rotatably and removably mounted in a recess in said member, said plug having a flat face operative when so mounted to engage a floor when toe dancing; and a roller element rotatably mounted in an opening in said plug with the curved surface of said roller projected beyond the floor engaging face of said plug.

CARL SCHROEDER.