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1,564,676

E. HOPKINS

DANCING SLIPPER

Filed Oct. 3, 1919

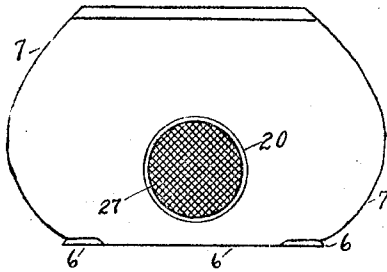


Fig. 1.

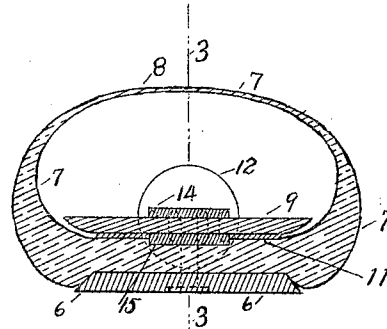


Fig. 2.

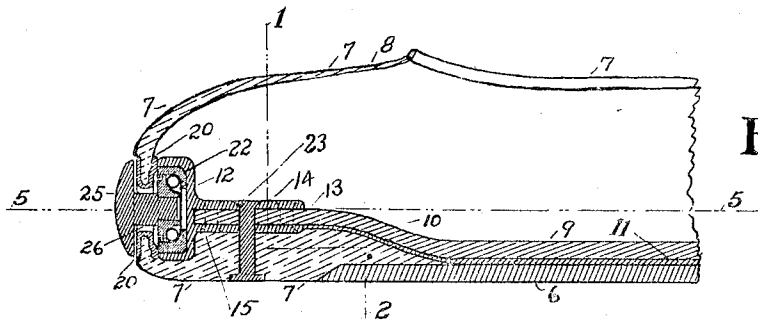


Fig. 3.

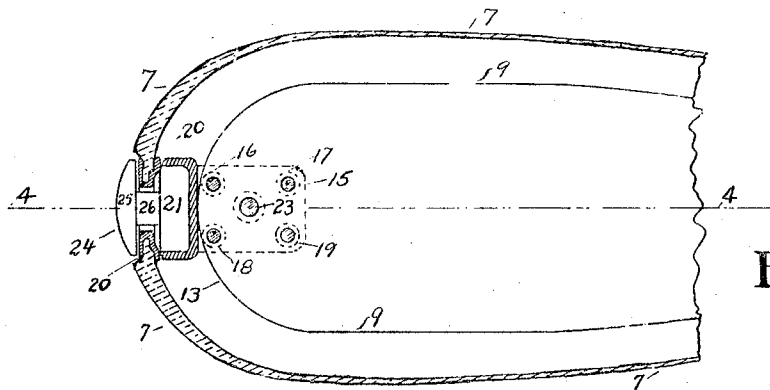


Fig. 4.

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UNITED STATES PATENT OFFICE.

EDWIN HOPKINS, OF NEW YORK, N. Y.

DANCING SLIPPER.

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To all whom it may concern:

Be it known that I, EDWIN HOPKINS, a citizen of New York, residing in New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Dancing Slippers, of which the following is a specification.

The main purpose of my invention is to provide a means whereby a toe dancer may pirouette with greater ease and speed than heretofore.

The main principle of the invention is to fit the dancing slipper with a rotatable fixture, adapted to remain at rest on the floor while the dancer gyrates with the fixture as a pivot.

In the preferred form of my invention a ball bearing unit is mounted on the toe end of the insole inside the toe. The ball bearing unit carries a short shaft or pin protruding through an aperture in the toe. The external end of the shaft is enlarged to provide a resting surface which will not sink into the floor. The axis of the shaft is parallel to the bottom of the main sole of the slipper, and parallel to the toe and heel line of the slipper. Thus when the toe dancer rises on the toe of one slipper, her weight is supported on the flared end of the shaft, whose axis then becomes vertical. The dancer thereupon gyrates rapidly from momentum or otherwise, as the end of the shaft remains in contact with the floor and does not rotate thereon, the shaft and ball bearing unit serving as a pivot of rotation.

In carrying out my invention I find it generally desirable to employ the following apparatus, but it is to be understood in carrying out the objects of the invention, less than all of the different means herein described may be employed for some uses, or parts only may be employed, or other mechanisms or manufactures similar may be substituted, and while the preferred forms embodying my invention are shown, it is to be understood that many of the structural details may be varied and many changes in details resorted to without departing from the scope and spirit of my invention, nor do

I limit myself to the particular devices shown, although I believe them to be especially suited to the ends to be attained by my invention.

In the accompanying drawings, forming a part hereof, and in which the same reference letters and numerals indicate the same or corresponding parts:

Fig. 1 is an end elevation of the toe end of the slipper.

Fig. 2 is a transverse cross section on the line 1 of Fig. 3, except that the cross section of the main sole is taken on line 2. The view is looking towards the toe from the heel.

Fig. 3 is a longitudinal cross section of the toe end of the slipper on line 3—3 of Fig. 2 and line 4—4 of Fig. 4.

Fig. 4 is a sectional plan of the toe end of the slipper on line 5—5 of Fig. 3, except that the ball bearing unit and shaft is not shown in section.

The drawings show a slipper of the customary construction of toe dancing slippers, except for the introduction of the ball bearing unit and its communicating parts as contemplated in my invention.

The leather outer sole 6 is bevelled inwardly and upwardly and the cloth upper 7 is sewed to the beveled surface. The toe is a mass of layers of cloth which terminate one by one until there are but three at the upper edge 8 of the upper 7 of the slipper. The insole 9 is a piece of hard, stiff red fibre board curved at 10 to accommodate the gathered layers of cloth, and together with the mass of layers of cloth in the toe serves to support the toes of the dancer. In addition, when in use, though not illustrated in the drawings, the interior of the toe is stuffed with loose cotton to further protect the dancer's toes. Between the fibre insole and the leather main sole is a layer of brown cardboard 11.

In the process of manufacture the insole is last inserted in the slipper and is tacked in place with two or three brads. The outer side of the upper is usually of silk cloth.

In the form of my invention shown I pro-

vide a receptacle 12, preferably of composition aluminum metal of exceptional strength, which straddles the toe end 13 of the insole 9 with prongs 14 and 15, the receptacle thus being attached to the insole by means of rivets 16, 17, 18 and 19.

An aperture is cut in the toe and a channeled washer or guard 20 serves to hold the layers of cloth in place, by riveting or compression, or the guard may be two washers riveted together through the cloth.

A ball bearing unit 21 is forced with a driving fit into the receptacle, so that the external race 22 of the unit becomes integral with the receptacle, while the internal cone or race is free to turn. The insole with the receptacle and ball bearing unit is then placed in the slipper, and rivet 23 serves to hold the mass of cloth more firmly to the insole and prongs 14 and 15 of the receptacle.

Pivot 24, comprising a head or enlarged shaft end 25 and shaft or shank 26 is then forced with a driving fit into the bore of the internal race of the ball bearing unit, up to the shoulder on shank 26. Pivot 24 and the internal race are thus made integral and rotate together. Exterior surface 27 of head 25 of the pivot 24 is corrugated as seen in Fig. 1 to enable it to grip the floor. It may be fitted with rubber, or prongs or other means to prevent its turning on the floor.

When the dancer rises on the toe of the slipper and shank 26 assumes a vertical position head 25 will rest on the floor and remain stationary as regards rotation. The dancer then pirouettes or gyrates with pivot 24 and the internal race as a base for the slipper, the receptacle and external race rotating as a unit thereon. The momentum of the dancer will carry her around much more rapidly and for a much greater number of rotations than is possible when she pirouettes on the silk toe of the slipper, without the pivot as provided by my invention.

As noted Fig. 4 is in section except for the ball bearing unit; the receptacle and channel washer being shown in section. The channel on the inside has a shoulder to keep it free of contact with the pivot.

The pivot on the exterior is preferable painted or otherwise colored the same color as the silk exterior upper.

It is possible in my invention, but not preferable, to dispense with the ball bearing and cause the pivot to rotate in a simple mechanical bearing.

Although the pivot is shown parallel to the sole and front and rear axis of the slipper, it may be placed at any desired or useful angle. The pivot may be also placed in the heel at right angles to the bottom of the sole and to the toe and heel axis of the slipper, and thus the dancer may turn on her heel with greater ease and rapidity than

at present, rendering possible the production of new effects not now possible both of a terpsichorical and dramatical nature.

The slipper may be fitted with pivots both at toe and heel if desired, within this invention.

Customarily a pair of toe dancing slippers are worn out within a week or ten days of performances. The abrasion at the toe rapidly wears the silk away. The substitution of the pivot in this invention will have the advantage of making the slippers much more durable.

What I claim is:

1. In a toe dancing slipper, a pivot adapted to remain at rest upon the floor, and means mounted for rotation upon said pivot including a ball bearing affixed to the slipper at the toe end thereof and arranged to receive said pivot in such a manner that the axis of the pivot is disposed in substantially parallel relation to the bottom of the slipper and with the toe and heel axis thereof.

2. In a toe dancing slipper having an insole, a receptacle or holder attached to the toe end of the insole adapted to contain a ball bearing in such position that its axis of rotation is substantially parallel to the bottom of the slipper and with the toe and heel axis thereof, and a pivot mounted in said bearing and having a portion extending outside of the slipper.

3. In a toe dancing slipper having an insole, a ball bearing unit carried in a receptacle affixed to said insole and having its axis of rotation parallel to the toe and heel axis of the slipper, the external race of said ball bearing being fast in said receptacle and the internal race being free to rotate, and a pivot carried by said internal race and adapted for contact with the floor.

4. In a toe dancing slipper, a bearing mounted in the toe end thereof having its axis of rotation substantially parallel with the bottom of the slipper and with the toe and heel axis thereof, said bearing including a free member, and a pivot carried by the free member of said bearing having a flared portion for contact with the floor.

5. In a toe dancing slipper, a ball bearing placed inside the slipper at the toe end thereof, and a pivot mounted in said bearing and adapted for contact with the floor when the wearer of the slipper supports herself on the toes of her foot within the slipper.

6. In a toe dancing slipper having an insole, a ball bearing placed inside the slipper at the toe end thereof and affixed to the toe end of the insole, and a pivot mounted in said bearing and adapted for contact with the floor when the wearer of the slipper supports herself on the toes of her foot within the slipper.

7. A toe dancing slipper having an insole and a toe portion which is provided with an aperture, a receptacle affixed to the insole of the slipper, a ball bearing unit carried
5 by said receptacle and having its external race fast therewith, the internal race of said ball bearing unit being free to rotate, and a pivot adapted for contact with the floor having its shank portion passing through the aperture in the toe portion of the slip- 10 per and fast in the internal race of the ball bearing unit, the axis of said pivot being substantially parallel to the bottom of the slipper and to the toe and heel axis thereof.

EDWIN HOPKINS.