ARTICLE OF MANUFACTURE FOR BALLET SHOES AND SHANKS

Inventor: Craig Steven Walker, Macomb, MI (US)

Correspondence Address:
Craig S. Walker
16054 Acorn Drive
Macomb, MI 48042 (US)

Appl. No.: 11/324,440
Filed: Jan. 3, 2006

Related U.S. Application Data

Provisional application No. 60/641,583, filed on Jan. 4, 2005.

Publication Classification

(51) Int. Cl.
A43B 5/12 (2006.01)

(52) U.S. Cl. ....................................................... 36/8.3

(57) ABSTRACT

An article of manufacture for ballet shoes and shank, with a shank for a ballet shoe, with improved durability, that is formed of flexible thermoplastic material and is adapted to be located in the sole of the ballet shoe between an inner liner and an outer sole. The flexibility and support characteristics of the shank may be tailored to a particular dancer by varying the type, and/or thickness of material, or by varying the thickness of material along the shank.
Fig. 1
PRIOR ART

Fig. 2
PRIOR ART

Fig. 3
FIG. 4
PRIOR ART

FIG. 5
ARTICLE OF MANUFACTURE FOR BALLET SHOES AND SHANKS

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application is based on provisional application Ser. No. 60/641,583, filed on Jan. 4, 2005.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] Not Applicable

DESCRIPTION OF ATTACHED APPENDIX

[0003] Not Applicable

BACKGROUND OF THE INVENTION

[0004] This invention relates generally to the field of footwear and more specifically to an article of manufacture for ballet shoes and shanks.

[0005] The present invention relates to ballet shoes and, more particularly, to the shanks employed with ballet shoes.

[0006] FIGS. 1, 2 and 4 illustrate the typical ballet shoe's construction. A typical ballet shoe (also sometimes referred to as a ballet Pointe, ballet slipper, or toe shoe) 17 has a upper 16 that is formed from a soft fabric of layers of generally soft materials, and a layered sole 18. The sole 18 of the ballet shoe 17 typically includes an inner liner layer 14, made of soft leather, that comes in contact with the foot (or stocking), and an outer sole layer 11, made of relatively soft leather or canvas, that contacts the floor. Between the inner and outer layers 14, 11 are a shank 13 and optional stiffeners 12 and 12a. The shank 13 is conventionally made of leather or a leather board material (a laminated leather-like cardboard material). The stiffeners 12 and 12a are smaller in surface area than the shank 13, and are affixed to the shank 13 to provide increased stiffness in the localized area it covers. These four or five layers are typically held together by adhesives, and sometimes nails or stitching.

[0007] The stiffener and the shank of a ballet shoe need to flex in order to conform to the foot of the dancer, but also need to provide a small amount of stiffness in order to provide support for the foot. The foot support is needed to help dancers “roll-up into toe” and other dance moves typical to a ballet routine. A concern with the durability of ballet shoes arises because the shank portion of the sole typically wears out in a very short period of time. That is, the shank weakens (or breaks) such that it no longer provides the support required by the dancer. Once this occurs, the ballet shoes are worthless. This is compounded by the fact that the shanks must be broken-in for some period before the shoes have the flexible characteristics desired by the dancer. For example, a dancer may require three hours to break-in a new pair of ballet shoes, but only be able to use the shoes for about eight hours before the shank breaks. Consequently, a ballet dancer ends up spending a great deal of time and money purchasing and breaking-in new ballet shoes.

[0008] One attempt to overcome this concern with the durability of the shank is disclosed in U.S. Pat. Nos. 4,901,453 and 5,055,069. In these patents, integral toe boxes and shanks made of particular thermoplastic elastomer materials are disclosed. However, while attempting to increase durability with these integral toe boxes and shanks, undesirable characteristics are created. Namely, some dancers find the integral plastic toe boxes and pre-shaped shank uncomfortable and unacceptable. Also, since the toe box and shank are integral, this must be formed in a mold, which may be more expensive than desirable. Moreover, the particular thermoplastic elastomer materials (a thermoplastic polymeric material with a softening point between 120 and 220 degrees Fahrenheit) employed for the integral toe box and shank are relatively stiff, which is undesirable unless the shank is actually formed to accommodate the foot of the particular dancer wearing the shoe. The forming process requires heating of the shank to between 120 and 220 degrees Fahrenheit, in order to soften the material, and then bending it to try to more closely match the shape of the foot before the material cools. This has proven to be a generally undesirable process, and, in reality, amounts to the dancer still having to “break-in” the shoes.

[0009] Thus, it is desirable to have a ballet shoe with a shank that provides the right combination of stiffness, flexibility and support, while overcoming the drawbacks of the prior art.

BRIEF SUMMARY OF THE INVENTION

[0010] The primary object of the invention is to increase the useful life of the ballet shoe by improving the durability of the ballet shoe shank.

[0011] Another object of the invention is to improve the desired flexibility and support of the ballet shoe shank.

[0012] A further object of the invention is to provide a ballet shoe shank that requires little or no “break-in” before use.

[0013] Yet another object of the invention is to provide a ballet shoe shank that delivers consistent and dependable support throughout the life of the ballet shoes.

[0014] Still yet another object of the invention is to provide a ballet shoe shank that will not fail (break) during a performance.

[0015] Another object of the invention is to provide a one piece ballet shoe shank to replace the current laminated shank and stiffeners.

[0016] A further object of the invention is to provide a ballet shoe shank that can be assembled into the shoe using conventional methods of manufacture.

[0017] In accordance with a preferred embodiment of the invention, there is disclosed an article of manufacture for ballet shoes and shanks. The ballet shoe, comprising of a shank for a ballet shoe that is formed of flexible thermoplastic material and is adapted to be located in the sole of the ballet shoe between an inner liner and an outer sole, and a way to control the desired flexibility and support using various types and thickness of thermoplastic materials.

[0018] An advantage of an embodiment of the present invention is that the ballet shoe shank has greater durability than a conventional shank, thus increasing the useful life of the ballet shoe. Moreover, with this increased durability, the shank is much less likely to fail during any given performance, thus possibly giving a dancer more confidence while performing.
Another advantage of an embodiment of the present invention is that the ballet shoe, with the improved durability shoe shank, can be assembled in a similar manner to the conventional manufacturing method of ballet shoes. Thus, major changes to the manufacture of ballet shoes would not have to be undertaken to employ the improved durability shank. Moreover, some embodiments of the shank may allow it to be cut from sheets of thermoplastic materials rather than requiring a mold, thus minimizing the cost of the shank and, consequently, the shoe.

A further advantage of an embodiment of the present invention is that the improved durability shoe shank is formed with the desired flexibility, thus greatly reducing or eliminating the need to break-in a new pair of ballet shoes before they are comfortable during use.

An additional advantage of an embodiment of the present invention is that the improved durability shoe shank can be fabricated with a variety of materials and thicknesses, as well as a variable thickness along its length and/or width, in order to allow a dancer to choose desired flexibility and support characteristics of the ballet shoe.

Yet another advantage of an embodiment of the present invention is that the improved durability shoe shank can be fabricated to replace both the shank and stiffeners in a conventional ballet shoe, thus eliminating one or more layers of material in the sole of the ballet shoe.

Other objects and advantages of the present invention will become apparent from the following descriptions, taken in connection with the accompanying drawings, wherein, by way of illustration and example, an embodiment of the present invention is disclosed.

BRIEF DESCRIPTION OF THE DRAWINGS

The drawings constitute a part of this specification and include exemplary embodiments to the invention, which may be embodied in various forms. It is to be understood that in some instances various aspects of the invention may be shown exaggerated or enlarged to facilitate an understanding of the invention.

FIG. 1 is a cross sectional view of the ballet shoe according to the prior art.

FIG. 2 is a cross sectional view of a portion of the ballet shoe according to the prior art.

FIG. 3 is a cross sectional view of a portion of the ballet shoe in accordance with the present invention.

FIG. 4 is an exploded view of the inner sole assembly according to the prior art.

FIG. 5 is an exploded view of the inner sole assembly of the present invention.

FIG. 6 is a plan view of the shank of the present invention with optional holes.

FIG. 7 is a cross sectional view of the shank of the present invention with optional variable thickness.

FIG. 8 is a cross sectional view of the shank of the present invention with optional variable thickness.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Detailed descriptions of the preferred embodiment are provided herein. It is to be understood, however, that the present invention may be embodied in various forms. Therefore, specific details disclosed herein are not to be interpreted as limiting, but rather as a basis for the claims and as a representative basis for teaching one skilled in the art to employ the present invention in virtually any appropriately detailed system, structure or manner.

In accordance with the present invention, FIG. 3 illustrates a side, sectional view of a portion of a ballet shoe 107, having an upper 106 and a sole 108. The upper 106 and sole 108 may be secured to each other by sewing, adhesives, and/or by other suitable means. The upper 106 of the shoe 107 may be formed of the same materials and layers as a conventional ballet shoe and so will not be described in detail herein.

The sole 108 preferably includes an outer sole layer 101, which is made to contact the floor and may be made of the same or a similar material as an outer sole layer in a conventional ballet shoe, if so desired. The sole 108 also preferably includes an inner liner layer 104, which is made to contact the foot (or stocking) of the dancer and may be made of a similar material as an inner liner layer in a conventional ballet shoe, if so desired.

Located between the outer sole 101 and the inner liner 104 is a shank 105. The shank may be sized to cover roughly between three-quarters and the entire bottom of a foot, and may be formed flat or may be formed with a predetermined initial curvature or thickness variations as illustrated in FIGS. 6, 7, and 8. The shank 105 may be affixed to each of the other layers 101, 104 by an adhesive or, if so desired, it may be affixed to the other layers by some other means, such as stitching, nails, or a combination thereof. The shank 105 is preferably formed from various types of relatively flexible thermoplastic materials, such as, for example, but not all inclusive, nylon, acetal, polyethylene or high density polyethylene (HDPE), polypropylene or high crystalline polypropylene (HCPP), TPO, thermoplastic polyester, polyestrene, polycarbonate, or PPE alloys. The particular choice of material may be made based on the desired feel of the dancer. Thus, the shanks 105 may be formed of particular materials based on a desired feel of the dancer, for example, soft, moderate, or stiff. However, typical elastomeric materials, such as rubber, are not as desirable since these materials are likely too stiff to provide the desired combination of flexibility and support.

The fabrication and assembly of the ballet shoe shank 105 and ballet shoe 107 can be similar to the conventional ballet shoe. For shank 105 with a constant thickness, the shank 105 may simply be cut from sheet stock, thus eliminating the need for a mold to form the shank. Adhesives may be applied to the shank 105, the outer sole 101 and the inner liner 104, with the parts assembled and held in place until the adhesive cures. The upper 106 is affixed to the sole 108, preferably in a conventional manner, to complete the assembly of the ballet shoe 107.

While the invention has been described in connection with a preferred embodiment, it is not intended to limit the scope of the invention to the particular form set forth, but on the contrary, it is intended to cover such alternatives, modifications, and equivalents as may be included within the spirit and scope of the invention as defined by the appended claims.
What is claimed is:

1. An article of manufacture for ballet shoes and shanks, comprising:

   a shank for a ballet shoe that is formed of flexible thermoplastic material and is adapted to be located in the sole of the ballet shoe between an inner liner and an outer sole; and

   a way to control the desired flexibility and support using various types of flexible thermoplastic materials.

   a way to control the desired flexibility and support by varying the thickness of said flexible thermoplastic materials.

2. A ballet shoe and shank in accordance with claim 1, further comprising:

   a method of controlling the flexibility and flex points of said shank by varying the thickness in select areas.

   a method of controlling the flexibility and flex points of said shank by adding lightening holes in select areas.

* * * * *