⑲ Japan Patent Office (JP)

⑪ Japanese Unexamined Utility Model Application Publication

⑫ Japanese Unexamined Utility Model Application Publication (U)

H03-003203

⑤①Int. Cl.[5]	Identification codes	JPO file number	㊸ Publication date January 14, 1991
A 43 B 23/02	101 A	6617-4F	

Request for examination Not yet requested Number of claims 2 (Total of 2 pages)

⑤④Title of the Invention Shoes

㉑ Japanese Utility Model Application H01-064786

㉒ Date of Application June 1, 1989

⑦②Inventor Toshihiro Horii c/o Mizuno Corporation, 4-1-23 Kitahama, Chuo-ku, Osaka-shi, Osaka

⑦①Applicant Mizuno Corporation 4-1-23 Kitahama, Chuo-ku, Osaka-shi, Osaka

⑤⑦Scope of Utility Model Claims

1. Shoes that are characterized by the use of fabric made through weft knitting or multi-layer knit fabric made through circular knitting.
2. The shoes according to Claim 1, wherein the entire upper part of the shoes is constructed of a single upper member of a weft knit or circular knit.

Brief Description of the Drawings

Figure 1 is a perspective view showing one example of embodiment of the shoes according to the present invention. Figure 2 is a schematic diagram showing the multi-layer knit made through circular knitting according to the present invention. Figure 3 through Figure 6 are plan views showing an example of embodiment of the knitting of the upper member according to the present invention. Figure 7 through Figure 8 are perspective views showing the conventional well-known upper members.

1 ••••••Shoes, 2 ••••••Upper member, 3 ••••••Sole, 4•••••• Line member, 5 ••••••Multi-layer knit, 6•••••• Knit fabric, 7 ••••••Purl fabric, 8 ••••••Wale, 9 ••••••Course, 10 ••••••Rib-stitch fabric, 11 ••••••Purl-stitch fabric, 12 ••••••Taffeta fabric, 13 ••••••Sponge, 14 ••••••Upper member

Figure 1

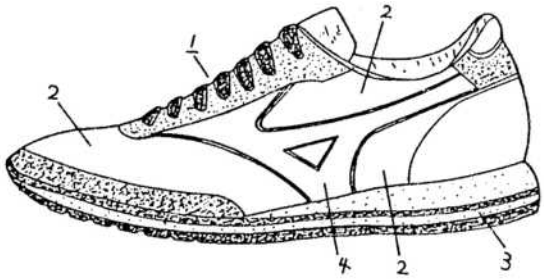
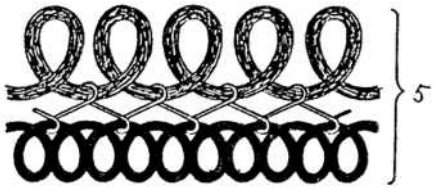


Figure 2



Skechers EX1042-p.1
Skechers v Nike

Figure 3

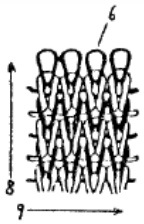


Figure 4

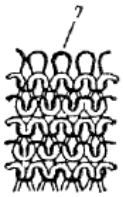


Figure 5

Figure 6

1: Shoes
2: Upper member
3: Sole
4: Line member
5: Multi-layer knit
6: Knit fabric
7: Purl fabric
8: Wale
9: Course
10: Rib-stitch fabric
11: Purl-stitch fabric
12: Taffeta fabric
13: Sponge
14: Upper member

Figure 7

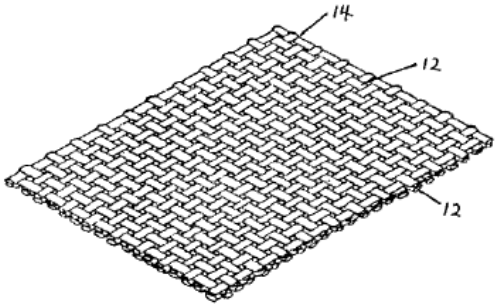
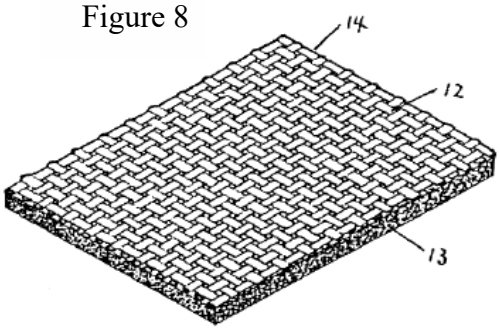


Figure 8



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Specification

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1. Title of the Invention

Shoes

2. Scope of Utility Model Claims

1. Shoes that are characterized by the use of fabric made through weft knitting or multi-layer knit fabric made through circular knitting.

2. The shoes according to Claim 1, wherein the entire upper part of the shoes is constructed of a single upper member of a weft knit or circular knit.

3. Detailed Description of the Invention

(Field of Industrial Application)

The present invention relates to the improvement of the upper member of shoes.

(Prior Art)

Traditionally, taffeta and other woven fabrics or warp knit fabrics such as tricot using synthetic fibers such as nylon or polyester, or woven fabrics using cotton, have been commonly used as the fabric used for upper members of shoes such as sports shoes and casual shoes.

In order to ensure moderate hardness and fabric thickness, it was common to use these upper members as upper members formed by affixing another fabric to the taffeta fabric, etc., or to affix a sponge to the taffeta fabric, etc., as shown in Figure 7 and Figure 8.

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(Problem to be Solved by the Invention)

However, these conventional upper members suffered the following types of problems.

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In the case of the conventional upper member for shoes, the thickness of a single woven fabric was thin, resulting in the disadvantage of being unable to achieve hardness as the upper member. Therefore, there was also the problem that, when attempting to ensure greater thickness with a single piece of fabric, it would conversely become too hard and the cost of manufacturing would be high. The same was true when using a warp-knit fabric such as tricot.

As a result, traditionally, fabrics such as textiles and warp-knit fabrics were rarely used as a single piece.

Therefore, in order to ensure the thickness of the upper member, as shown in Figure 7 and Figure 8, means such as laminating other fabrics onto fabric 12 such as taffeta, or laminating sponge 13 onto fabric 12 such as taffeta, etc., have been employed. However, with this type of upper member 14, first upper member 14 would lose the required breathability as a result of the adhesive used for this lamination or as a result of fabric 12 such as taffeta or sponge 13, causing the temperature inside the shoe to be too high, and because sweat absorbed by the upper member cannot evaporate to the outside, there was the problem that the foot would be susceptible to sweating.

Furthermore, there was a problem with the lamination process, in which the manufacturing cost would be higher due to excessive hardening of the upper member more than necessary and the man-hours required for this labor.

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In addition, with the conventional textiles, the production volume of one lot of fabric must necessarily be large, and with the production of a small volume of a wide variety of products such as shoes, there was the disadvantage in that losses would increase, making the production uneconomical.

(Means for Solving the Problem)

The present invention is intended to provide shoes constructed with an upper made of an upper member that has good breathability, moderate hardness, and cushioning for the shoe in light of these disadvantages with the prior art.

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In other words, these shoes are characterized by the use of fabric made through weft knitting formed using a flat knitting machine or multi-layer knit fabric made through circular knitting formed using a circular knitting machine as the upper member. Further, shoes constructed of an upper member made of a single piece of fabric such as these fabrics made through weft knitting or multi-layer knit fabrics made through circular knitting are also possible.

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(Operation)

The following operation will occur as a result of the above-noted configuration.

In the present invention, the shoes are made of fabric made through weft knitting formed using a flat knitting machine or multi-layer knit fabric made through circular knitting formed using a circular knitting machine as the upper member. Therefore, as shown in Figure 2, there will be extremely good breathability through the gaps in the multi-layer knit, so not only will it be possible to prevent the temperature within the shoes from becoming too high, it will also be possible to prevent the foot from becoming sweaty because the sweat absorbed into the upper member will be promptly released thanks to the improved breathability.

In addition, the multi-layer knit makes it possible to form a voluminous and moderate thickness, which improves cushioning.

Furthermore, by selecting the type of multi-layer structure, it will be possible to ensure the appropriate hardness required in the upper member.

In addition, it will also be possible to construct shoes with an upper that is made of an upper member of a single piece of circular knitting constructed of a multi-layer knit.

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By doing this, it will be possible to maximally utilize the characteristics of the circular knitting fabric.

In other words, with circular knitting, the amount of fabric that is knitted can be manufactured as the minimum required number of lots, making it possible to improve the poor economic properties of the conventional material, in which the fabric losses would increase during small volume production of a wide variety of products due to an increase in one-lot volumes such as taffeta.

In addition, when using weft knitted fabric or circular knitted fabric according to the present invention, for instance, by preparing a cylindrical knit with the length of the upper portion and the required thickness using a circular knitted fabric and then cutting one part of the cylindrical knit, it will be possible to form a single piece of fabric with the required size, which is beneficial during small volume production of a wide variety of products, as described above.

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In addition, with the upper member according to the present invention, it will be possible to eliminate the problem of the increased manufacturing costs due to excessive hardening of the upper member as a result of the lamination process such as that used in the conventional upper member.

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Also, as a result of the use of the upper member according to the present invention, it will be possible to perform small-lot production with a product subject to small volume manufacturing of a wide variety of products, such as shoes, and therefore, by using various types of knitted fabric, it will be possible to prepare upper members with a variety of colors, enabling marked improvement in the degree of freedom in the design of the shoes themselves compared to the prior art.

(Example of Embodiment)

An example of embodiment of the present invention is described based on the drawings. As shown in Figure 1, shoes 1 are characterized by the fact that a multi-layer knit fabric constructed through weft knitting or circular knitting is used as upper member 2.

Also, it is possible to construct shoes 1 that are characterized by the fact that the entire upper is constructed of a single piece of upper member 2 that is made through weft knitting or circular knitting.

In addition, if multi-layer knit 5 in Figure 2 is used, it will be possible to provide upper member 2 for which it is comparatively easy to form the thickness, and that also boasts good breathability and cushioning.

Further, as shown in Figures 3 through 4, the design of the shoes itself can be changed because it will be possible to use fabric known as plain knitting amongst weft knitted fabrics in the state of knit fabric 6 or purl fabric 7 as upper member 2.

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In order to ensure a thick knit, by using thick thread to form wale 8 that is the vertical line of the knitted stitch and course 9 that is the horizontal line of the knitted stitch, it will be possible to create upper member 2 with even better cushioning.

Furthermore, as shown in Figure 5, by using rib-knit fabric 10, it will be possible to provide shoes that fit well without any tightness even for people with wide feet.

In addition, as shown in Figure 6, the vertical stretch can be increased by using purl-knit fabric 11 as the upper member, resulting in shoes that are optimal for people with high arches.

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Additionally, although not shown in the figures, it will be possible to supply shoes that are interesting in design because the use of a tuck stitch upper member will enable the creation of patterns or surface irregularities. In addition, because it is possible to appropriately select and use an upper member made of float-stitch fabric made of float yarn, lace fabric to enable a transparent pattern, or pile-stitch fabric with looped pile, etc., it will be possible to further improve the degree of freedom in the design of the shoes. Although shoes with a pile-stitch fabric inner member affixed to the interior of the shoes are well-known conventionally, according to the present invention, the upper member may be constructed of the pile-stitch fabric itself, and therefore, it will be possible to ensure breathability that was not present in the conventional shoes, and the cushioning of the thick pile fabric will result in further improvement of the comfort when wearing the shoes.

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It should be noted that as an example of the material of the upper member according to this invention, it is preferable to use nylon and polyester water-absorbing products on the front and back to achieve both strength and sweat-wicking properties, and to use strong nylon and polyester yarns for the threads.

In addition, in shoe 1 according to this invention, fabric constructed of weft knitting or circular knitting is used as the upper member, so it is suitable for sports shoes and casual shoes, but it is also useful as slippers or portable shoes that can be carried around after folding the upper part of the shoes.

(Effect of the Invention)

Because the present invention has the above-described type of structure, it can bring about the following types of effects.

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In the present invention, the shoe is constructed of an upper member made of a fabric such as circular knitting fabric consisting of a multi-layer knit that has been formed using a knitting machine such as a circular knitter or the like. Therefore, it not only has the appropriate thickness and cushioning in only a single piece of fabric, the breathability will also be extremely good, so there will be no instance in which the temperature within the shoe becomes too hot during wearing, and any sweat absorbed into the upper member will be promptly released due to the good breathability, so there is the effect of preventing the feet becoming sweaty within the shoe.

Furthermore, by selecting the type of multi-layer structure as desired, it will be possible to ensure the appropriate thickness, cushioning, and hardness required in the upper member.

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In addition, a single piece of circular knitting fabric constructed of a multi-layer knit or weft knitting fabric can be used as the fabric of the upper member according to the present invention. Therefore, unlike the conventional plain stitch or twill fabric in which there are many production lots and it is easy to suffer losses in a small volume production of a wide variety of products, it is possible to perform manufacture in weft knitting or circular knitting for the minimum required number of lots to produce the knit fabric, making it possible to prevent fabric losses and ensure economical production.

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In addition, with the upper member according to the present invention, it will be possible to eliminate the problem of the increased manufacturing costs due to excessive hardening of the upper member as a result of the lamination process such as that used in the conventional upper member, generating the effect of being able to supply inexpensive upper members.

Further, by using the upper member according to the present invention, it will be possible to perform production of small lots, and by appropriately selecting and combining the knitting method such as weft knitting or circular knitting, it will be possible to prepare upper members with a wide variety of patterns or colors. Therefore, this brings about the effect of being able to markedly improve the degree of freedom in the design of the shoe itself in comparison to the prior art.

As described above, the shoes according to the present invention are suitable for sports shoes or casual shoes based on their characteristics, but they are also advantageous for indoor shoes as well, and because the shoes can also be folded, they are useful as portable shoes.

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4. Brief Description of the Drawings

Figure 1 is a perspective view showing one example of embodiment of the shoes according to the present invention. Figure 2 is a schematic diagram showing the multi-layer knit made through circular knitting according to the present invention. Figure 3 through Figure 6 are plan views showing an example of embodiment of the knitting of the upper member according to the present invention. Figure 7 through Figure 8 are perspective views showing the conventional well-known upper members.

1: Shoes, 2: Upper member, 3: Sole, 4: Line member, 5: Multi-layer knit, 6: Knit fabric, 7: Purl fabric, 8: Wale, 9: Course, 10: Rib-stitch fabric, 11: Purl-stitch fabric, 12: Taffeta fabric, 13: Sponge, 14: Upper member

Japanese Utility Model registration applicant
Mizuno Corporation [stamp:] [illegible]
Representative Masato Mizuno [stamp:] [illegible]

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Sponge
Upper member

Figure 1

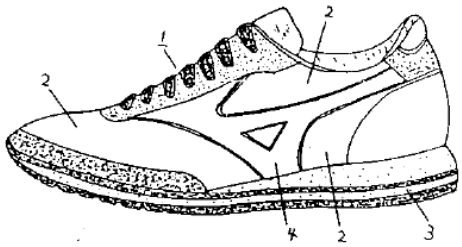

Figure 2

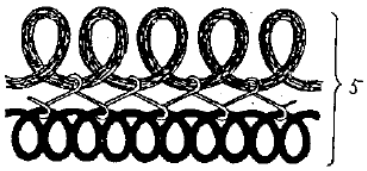

Figure 3 Figure 4 Figure 5 Figure 6

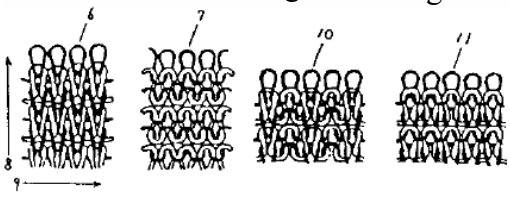

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Figure 7

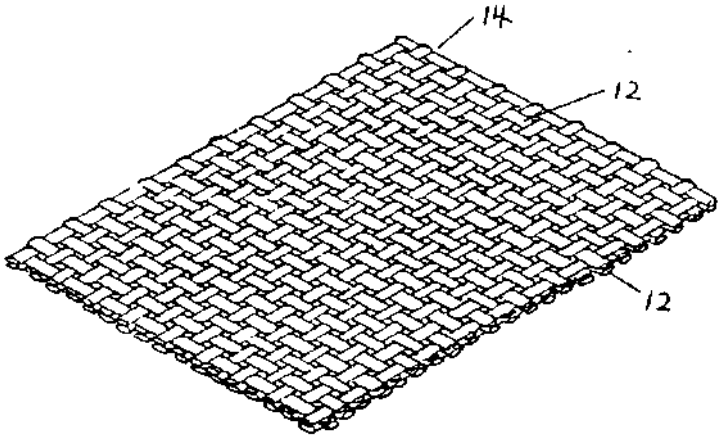
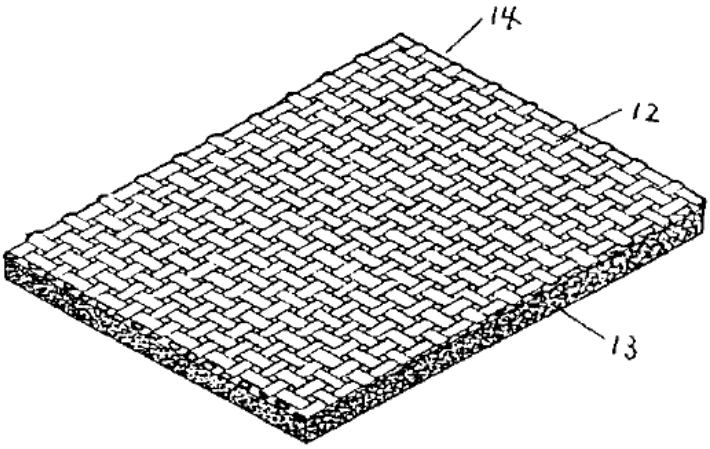


Figure 8



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