US 20240081484A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2024/0081484 A1**

GIRARDI (43) **Pub. Date: Mar. 14, 2024**

(54) **FOOTWEAR WITH A TWO-PART SOLE HAVING GUIDE ELEMENTS FOR PASSING A NYLON CABLE**

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(21) Appl. No.: **18/262,950**

(22) PCT Filed: **Jan. 18, 2022**

(86) PCT No.: **PCT/IT2022/000001**

§ 371 (c)(1),
(2) Date: **Jul. 26, 2023**

(30) **Foreign Application Priority Data**

Feb. 1, 2021 (IT) 102021000001976

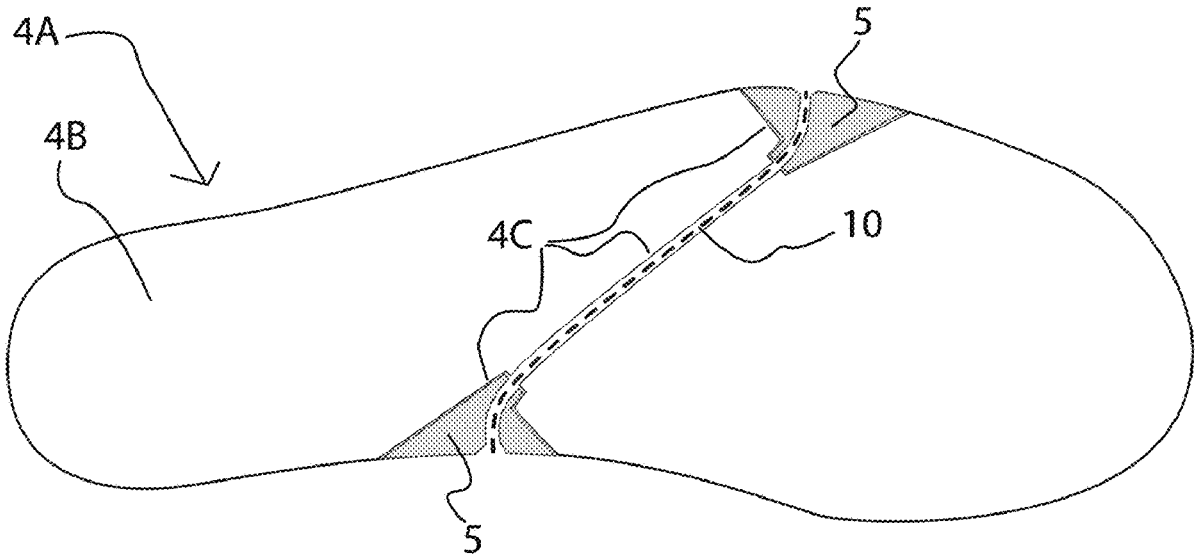
Publication Classification

(51) **Int. Cl.**
A43C 11/16 (2006.01)
A43B 13/14 (2006.01)

(52) **U.S. Cl.**
CPC ***A43C 11/165*** (2013.01); ***A43B 13/14*** (2013.01); *A43B 13/04* (2013.01)

(57) **ABSTRACT**

Footwear including an upper, a sole, and a lacing system which involves the use of a nylon cable tensioned by a rotor placed on the upper. The sole is composed of two separate portions, of which a first portion or midsole is made of plastic and possibly recycled or recyclable polymers, for example TPU or rubber or other non-rigid polymers; the midsole has a lower portion on which lowered seats are made and said lowered seats are suitable for housing two lateral guide elements, which are made of rigid plastic polymers and which are suitable for passing and guiding said nylon cable.



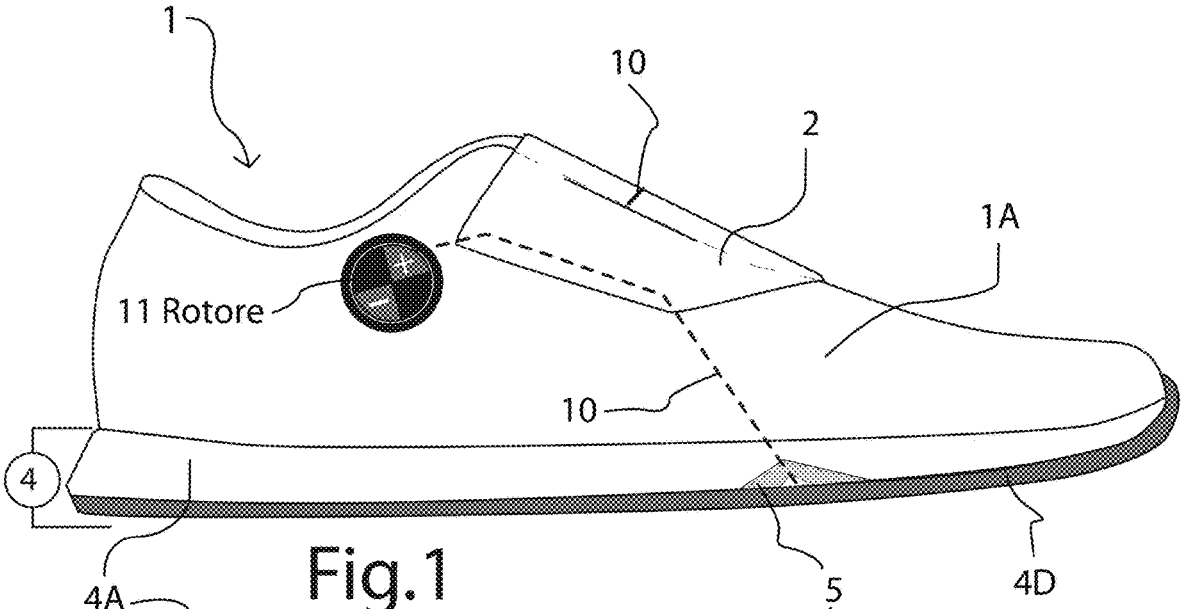


Fig.1

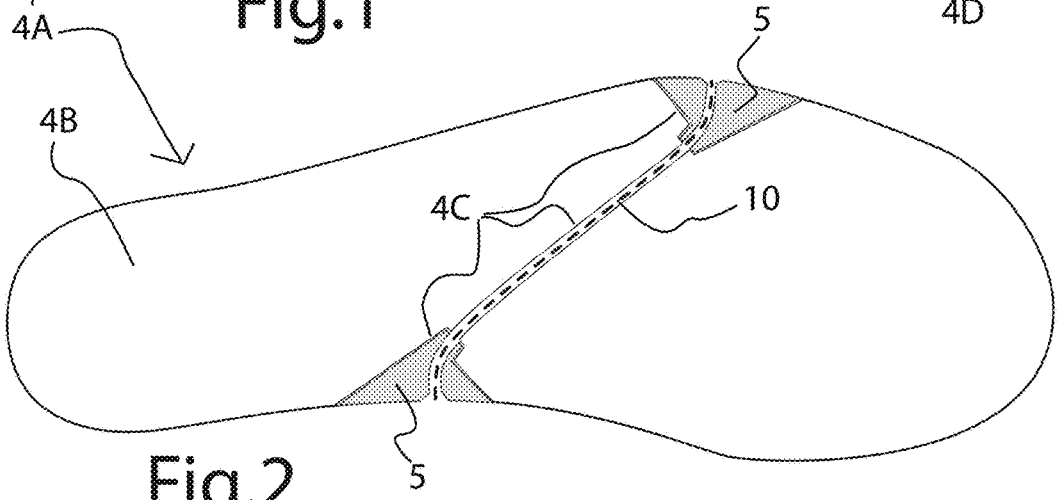


Fig.2

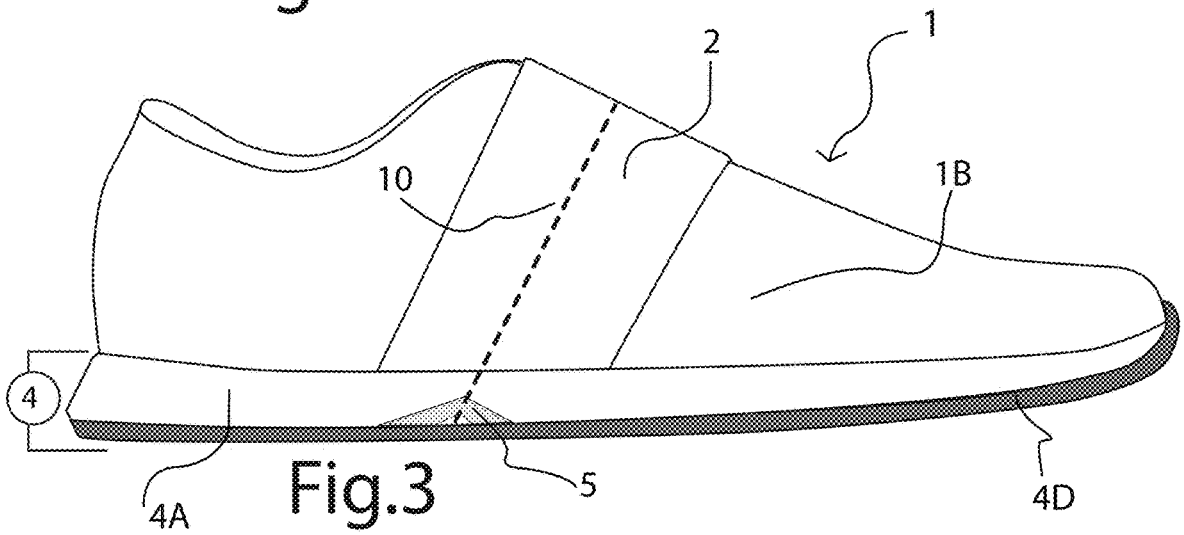


Fig.3

FOOTWEAR WITH A TWO-PART SOLE HAVING GUIDE ELEMENTS FOR PASSING A NYLON CABLE

FIELD

[0001] The embodiments relate to footwear and soles for footwear.

BACKGROUND

[0002] Footwear having the technical features known in the art is provided, for example, from US2016/353833A1 and US2017/055626A1.

SUMMARY

[0003] The present invention refers to a footwear sole, which is composed of two portions made separately and subsequently assembled; a first portion has an upper structure which entirely covers the area of the insole and a lower structure which is configured to house, in its lower part, a plurality of elements able to allow passing and guiding a nylon cable. A second portion of the sole has a lower element, which is designed in different tread lines depending on the type of footwear to which the sole is coupled, for example a sole for a cycle or an e-bike or a MTB shoe or a sole for sneakers or a sole for golf shoes or a sole for working shoes, etc.

[0004] The first portion of the sole, preferably made of TPU (thermoplastic polymers) or rubber or other non-rigid compounds, has lowered seats in its lower part to house at least two lateral plastic elements, so as to allow the passage of a nylon cable, and a lowered central seat configured for passing said nylon cable, which is also advantageously placed inside a plastic tube.

[0005] The second portion of the sole, preferably made of TPU (thermoplastic polymers) or rubber or other compounds, has an upper part having the same perimeter and area as the lower part of the first portion and a lower part having a tread designed with a geometry related to the type of footwear to which the sole is dedicated, for example a sole for a cycle or an e-bike or a MTB shoe or a sole for sneakers or a sole for golf shoes or a sole for working shoes, etc.

[0006] The method for assembling said sole provides for fixing and/or gluing said two lateral plastic elements—which are advantageously connected to each other—onto the lowered seats of the lower part of said first portion by means of a plastic tube, which is inserted in a suitable lowered seat; subsequently, the upper part of the second portion of the sole, which has the tread pattern in the lower portion, is fixed and/or glued onto the lower part of the first portion of the sole.

[0007] The sole thus assembled and made is able to be fixed and/or glued to an upper, thus creating a complete footwear.

[0008] The sole according to the present invention is usable for different types of footwear and allows the use of a shoe lacing system having a single nylon cable moved by a rotor (as disclosed for example in the Italian patent IT2019000001397), in order to use a shoe lacing system which is very simple and practical for the user.

[0009] The object of the invention is to make different types of footwear having said lacing system which is very simple and practical for the user.

[0010] Furthermore, the possibility of using the first upper portion of the sole for different types of footwear allows to reduce the costs of the technical equipment for assembling the sole, because it is only necessary to make, ex novo, only the lower portion of the sole with the different patterns of the tread.

[0011] The sole, which comprises two portions made separately and subsequently assembled, according to the present invention, also allows the use of different plastic polymers, including those deriving from recycling, thus allowing substantial savings in producing starting materials, according to the world policies of environmental protection and good practice, so as to consolidate a real circular economy.

[0012] Currently, there are no footwear on the market such as the one disclosed in the present invention, which allows the use of a shoe lacing system having a single nylon cable moved by a rotor and configured to completely envelops the central perimeter of the foot; moreover, the sole according to the invention is totally different from the known soles that include single metal inserts or other non-structural components for obtaining the above mentioned purpose.

[0013] These and other objects, which will appear more clearly in the following, are achieved by a sole for footwear having two portions made separately and subsequently assembled, according to the attached claim **1**; further detailed technical features are reported in the subsequent dependent claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] The characteristics and advantages of the new sole having two portions made separately and subsequently assembled, according to the present invention, will become more clear from the description of a preferred, but not limiting, embodiment and from the enclosed tables of drawings, where:

[0015] FIG. **1** shows a side view and more precisely a view of the external part of a footwear with a lacing system having a single nylon cable and a rotor, wherein the two separate and assembled portions of the sole are highlighted and wherein said sole includes, in its upper portion, one of the two lateral plastic elements suitable for passing and guiding the nylon cable, according to the present invention;

[0016] FIG. **2** shows a top plan view of the lower part of the first portion of the sole, wherein lowered seats—where the two lateral plastic elements are fixed and/or glued—are obtained, so as to allow passing and guiding the nylon cable; moreover, a central lowered seat is provided for passing and guiding the nylon cable, according to the present invention;

[0017] FIG. **3** shows a side view of a footwear and more precisely a view of the inner part of a footwear having a lacing system with a single nylon cable and a rotor, wherein the two separate and assembled portions of the sole are highlighted and wherein the sole also includes, in its upper portion, one of the two lateral plastic elements suitable for passing and guiding the nylon cable, according to the present invention.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0018] With reference to the attached figures, the sole (**4**), which is the object of the present invention, comprises two separate portions (**4**A, **4**D) which are assembled at a later

time; said sole (**4**) allows for obtaining different types of footwear (**1**) depending on the design of the tread provided on the lower part of a second portion (**4**D) of the sole (**4**); said footwear (**1**) is equipped with a lacing system which includes a single nylon cable (**10**) starting from a point underneath the closing flap (**2**) placed on the upper (**1**A, **1**B) of the footwear (**1**) and passing over the instep and the inner part of the footwear (**1**), so as to enter the first portion (**4**A) of the sole (**4**), thanks to the presence of two guide elements (**5**), made of rigid plastic; the nylon cable (**10**) is also connected to the end part of the flap (**2**) and to the rotor (**11**), which is provided for tensioning the cable (**10**).

[0019] The first portion (**4**A) of the sole (**4**), also known as midsole, is made of plastic polymers, also recycled or recyclable, such as for example TPU or rubber or other non-rigid polymers. Said first portion (**4**A) of the sole (**4**) has a lower part (**4**B) on which lowered seats (**4**C) are made; said seats (**4**C) are configured to house two lateral elements (**5**); moreover, said lateral elements (**5**) are made of rigid plastic polymers and are configured for passing and guiding the nylon cable (**10**), which also passes centrally inside the lowered seats (**4**C); advantageously, the nylon cable (**10**) passing centrally inside the lowered seats (**4**C) is contained in a plastic tube which is inserted in one of said lowered seats (**4**C) and which is able to connect to each other said guide elements (**5**).

[0020] The second portion (**4**D) of the sole (**4**) is made of plastic polymers, also recycled or recyclable, such as for example TPU or rubber or other plastic polymers, which are consistent with the type of tread suitable for the type of footwear (**1**) to which is destined. Advantageously, said second portion (**4**D) internally has plastic or metal elements, in order to couple technical elements, such as for example studs or nails for golf.

[0021] The invention thus conceived and illustrated herein is susceptible of numerous modifications and variations, all falling within the scope of the inventive concept as defined in the attached claims.

[0022] Furthermore, all the details can be replaced by other technically equivalent elements.

[0023] Finally, the components used, as long as they are compatible with the specific use, as well as the dimensions, may be any according to the needs and the state of the art.

[0024] Where the features and techniques mentioned in any claim are followed by reference marks, such reference marks have been included for the sole purpose of increasing the intelligibility of the claims and, consequently, have no limiting effect on the interpretation of each element which is identified, by way of example, by them.

1-8. (canceled)

9. Footwear comprising:

an upper, a sole, and a lacing system having a nylon cable tensioned by a rotor placed on the upper, wherein said sole comprises two separate portions of which a first portion or midsole is made of plastic polymers, and said midsole has a lower portion (on which lowered seats are made, said lowered seats configured to house lateral guide elements made of rigid plastic polymers which are provided for passing and guiding said nylon cable, wherein a first end of said nylon cable is attached below a closing flap of the footwear while a second end of said nylon cable passes inside the footwear and in said first portion of the sole through said guide elements, said second end of said nylon cable also being connected to said rotor.

10. The footwear as in claim **9**, wherein said nylon cable is housed in said lowered seats.

11. The footwear as in claim **10**, wherein said guide elements are connected to each other by a plastic tube, which is inserted in one of said lowered seats.

12. The footwear as in claim **9**, wherein a second portion of said sole is assembled with said first portion and has a lower part with a tread having a predefined design, so as to obtain different types of footwear.

13. The footwear as in claim **12**, wherein said second portion of the sole is made of plastic polymers.

14. The footwear as in claim **12**, wherein said second portion of the sole internally has plastic or metal elements, so as to combine technical elements.

15. A method for assembling a footwear, the footwear comprising an upper, a sole and a lacing system having a nylon cable tensioned by a rotor placed on the upper, wherein said sole comprises two separate portions of which a first portion or midsole is made of plastic polymers, and said midsole has a lower portion on which lowered seats (are made, said lowered seats configured to house lateral guide elements made of rigid plastic polymers which are provided for passing and guiding said nylon cable, wherein a first end of said nylon cable is attached below a closing flap of the footwear while a second end of said nylon cable passes inside the footwear and in said first portion of the sole through said guide elements, said second end of said nylon cable also being connected to said rotor, the method comprising:

fixing and/or gluing said guide elements to said lowered seats;

fixing and/or gluing said second portion of the sole to said first portion of the sole;

fixing and/or gluing said sole so assembled to an upper in order to obtain the footwear.

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