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(54) **SOLE AND SHOE COMPRISING SAID SOLE**

SOHLE UND SCHUH, DIE SOHLE UMFASSEND

SEMELLE ET CHAUSSURE COMPRENANT LADITE SEMELLE

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Description

[0001] The present invention refers, in general, to a sole and a shoe comprising said sole. More particularly, the present invention refers to a sole suitable for improving walking, and a shoe comprising said sole, so that the shoe is made more comfortable and allows a better performance.

[0002] As it is known, in the footwear sector there is a tendency on one side to make shoes that are more and more comfortable and, at the same time, offer a better performance, **as disclosed bv** US 2007/199213 A1.

[0003] However, said requirement must take into account the request of the market to have cheap footwear, to the detriment of the quality of the final product.

[0004] In an attempt to combine economic needs and footwear quality, products have been placed on the market which do not fully satisfy the user.

[0005] In fact, there are shoes which include particularly rigid soles which make the various stages of walking uncomfortable.

[0006] On one side, these shoes seem to give correct support to the foot, at least when the foot is still, but on the other side, these shoes make the flexion phase of the foot even more difficult, which causes considerable foot fatigue during walking.

[0007] In order to solve the above problems, soles can be produced by using softer materials but these materials give less support to the foot.

[0008] Alternatively, finest materials are used which on one side guarantee excellent performance but on the other side involve an increase of the final costs of the shoe.

[0009] The object of the invention is to remove the above-mentioned drawbacks and still others by providing a sole and consequently a shoe comprising said sole that act on the foot both with a support action and a foot flexion aid.

[0010] Another object of the invention is to provide a sole and a shoe that do not tire the foot when walking.

[0011] A further object of the invention is to provide a sole and a shoe with a low cost while guaranteeing comfort and high performance.

[0012] All the above mentioned objects and advantages are reached according to the invention with a sole for shoes, comprising a tip, a middle part, and a back edge, so as to define a front portion between the tip and the middle part, and a back portion between the middle part and the back edge. The sole has a contact surface to come into contact with the ground.

[0013] In particular, a first longitudinal groove and a second longitudinal groove are formed on the contact surface and develop from the tip to the middle part of the sole.

[0014] In this way, in addition to the back portion, it is possible to identify also a right front portion, a central front portion and a left front portion on the contact surface of the sole.

[0015] Through this solution, it is possible to improve the flexibility of the front part of the sole; in particular, said flexibility is assured in the longitudinal direction.

[0016] At the same time, the rear portion of the sole is not affected by longitudinal grooves and ensures, therefore, full support to the heel.

[0017] Advantageously, the first longitudinal groove and the second longitudinal groove have an arched profile and are arranged symmetrically to each other so that these grooves assist any rotational movements of the foot in the longitudinal direction.

[0018] Besides, in order to obtain an optimal flexibility also in the transverse direction, a first transverse front groove and a first transverse back groove are formed in the front portion on the contact surface, so as to identify a front part, a central part and a back part in the front portion of the sole.

[0019] Advantageously, in addition to the first transverse front groove and the first transverse back groove, also a second transverse front groove and a second transverse back groove **are** formed in the front portion on the contact surface.

[0020] In particular, the first transverse front groove and the second transverse front groove have an arched profile, being symmetric to each other and being arranged adjacent, so as to coincide in correspondence of the central front portion.

[0021] Likewise, also the first transverse back groove and the second transverse back groove have an arched profile, being symmetric to each other and being arranged adjacent, so as to coincide in correspondence of the central front portion.

[0022] Through said configuration in which the transverse grooves are substantially doubled but configured arched and inverted, the characteristics of transversal flexibility of the shoe are improved.

[0023] In other words, the sole can flex naturally and similarly to the foot roll during walking.

[0024] Advantageously, a central element having a rough surface may be comprised so as to improve the adherence of the sole itself.

[0025] In order to ensure adherence precisely in the position in which the foot needs support, namely in the phase of its lifting, the central element may be arranged in the central part of the sole.

[0026] The central element may have a substantially oval shape so as to extend in the longitudinal direction and increase the adherence surface.

[0027] The central element may be made of a different material than that of the remaining part of the sole in order to obtain sole parts with peculiar characteristics according to the respective different functions.

[0028] With the same purpose, the back portion, the right front portion, the central front portion and the left front portion may be made of at least two different materials.

[0029] All the objects and advantages are reached according to the invention also with a shoe comprising a sole as previously defined.

[0030] Further features and details of the invention will be better understood from the following specification, supplied by way of a non-restricting embodiment, as well as from the annexed drawing, wherein:

Fig. 1 is a schematic top view of a sole according to the invention.

[0031] With reference to the annexed figure, reference number 10 denotes a sole to be positioned in a shoe in order to ensure comfort and high performance. The sole 10 is made of rubber but it can be made, alternatively, of other plastic or natural materials, such as leather.

[0032] In the sole 10, in particular on the surface that comes into contact with the ground, a first longitudinal groove 12 and a second longitudinal groove 14 are formed and develop substantially from the tip of the sole 10 to its middle part. The first longitudinal groove 12 and the second longitudinal groove 14 have an arched profile and are arranged symmetrically to each other.

[0033] Thus, in the sole 10 it is possible to identify an only back portion 16 on which the heel of the foot rests while in the front part the sole is divided by the first longitudinal groove 12 and the second longitudinal groove 14 into a right front portion 18, a central front portion 20 and a left front portion 22.

[0034] The first longitudinal groove 12 and the second longitudinal groove 14 ensure a certain flexibility for the front part of the sole; in particular, said flexibility is guaranteed in the longitudinal direction.

[0035] In other words, in addition to the flexibility connected to the intrinsic characteristics of the material used to make the sole 10, the right front portion 18, the central front portion 20 and the left front portion 22 can be flexed more easily with respect to each other thanks to the presence of the longitudinal grooves 12, 14.

[0036] This flexibility in the longitudinal direction allows the foot to rest more comfortably and naturally on the ground and allows the foot to make a kind of minimum rotation around a longitudinal axis of the shoe.

[0037] The support of the sole, and therefore of the foot, on the ground can therefore take place in a homogeneous manner from left to right or from right to left, respecting the normal roll of the foot during walking.

[0038] Besides, due to the fact that the back portion 16 of the sole is not affected by the first longitudinal groove 12 and second longitudinal groove 14, the back portion 16 of the sole ensures full heel support both when the foot is moving and when the foot is resting on the ground.

[0039] In the front portion of the sole 10, in particular on the surface that comes into contact with the ground, a first transverse front groove 24, a second transverse front groove 26, a first transverse back groove 28 and a second transverse back groove 30 are formed which lead from the right edge to the left edge of the sole 10.

[0040] The first transverse front groove 24 and the second transverse front groove 26 have an arched profile, are symmetrical to each other and are arranged adjacent so as to coincide in correspondence with the central front portion 20 of the sole.

[0041] Likewise, also the first transverse back groove 28 and the second transverse back groove 30 have an arched profile, are symmetrical to each other and are arranged adjacent so as to coincide in correspondence of the central front portion 20 the sole.

[0042] The front portion of the sole 10 is thus divided by the four transverse grooves 24, 26, 28, 30 also in a transversal direction.

[0043] In particular, in the front portion of the sole 10 it is possible to identify the following parts:

- a front part 32, placed in front of the first transverse front groove 24 and second transverse front groove 26;
- a central part 34, placed between the pair of transverse front grooves 24, 26 and the pair of transverse back grooves 28, 30;
- a back part 36, placed behind the first transverse back groove 28 and the second transverse back groove 30.

[0044] The transversal arrangement of the four transverse grooves 24, 26, 28, 30 gives the sole excellent flexibility properties also in a transverse direction. Besides, the central part 34, which is placed between the two pairs of transverse grooves, is recreated just in correspondence of the forefoot, specifically the foot part supporting the foot itself in its lifting during the walk.

[0045] In this way, forefoot flexion is facilitated and a kind of natural pushing action is created so as to improve the blood circulation of the foot. This prevents the foot from getting tired during walking and getting tired further to counteract the unnecessary rigidity of the sole as it happens in the footwear according to prior art.

[0046] Moreover, in the central part between the two pairs of transverse grooves, a central element 38 having a substantially oval shape is defined and is circumscribed laterally by a right arc 40 and a left arc 42.

[0047] The central element 38 has a rough surface that gives the sole a particular adherence to the ground. In particular, also in this case, the central element 38 is placed just in correspondence with the part of the foot (forefoot) that must provide a support during the lifting and rushing phase of the entire foot.

[0048] The so-shaped sole solves the problems of the soles according to the prior art and has several advantages including:

- improving all the phases of the walk;
- supporting a natural "rolling" in the intermediate phase of the step;
- giving support and, at the same time, naturalness to the movement;
- facilitating the flexion phase of the forefoot;
- creating a natural thrust action that improves the

blood circulation of the foot;
- the foot is not tired during walking.

[0049] Variants are possible which are to be considered as included in the scope of the invention according to the appended claims. According to a variant of the invention, the central element 38 can be made of a material different from that of the remaining part of the sole, for example it is possible to use a more rigid material that provides a further support to the central part of the foot.
[0050] Besides, according to a further variant of the invention, the back portion 16, the right front portion 18, the central front portion 20 and the left front portion 22 can be made of two or more different materials so as to have different elastic properties according to the functions of the different areas of the sole.

Claims

1. Sole (10) for shoes, comprising a tip, a middle part, and a back edge so as to define a front portion between the tip and the middle part, and a back portion (16) between the middle part and the back edge, said sole having a contact surface to come into contact with the ground, wherein a first longitudinal groove (12) and a second longitudinal groove (14) are formed on the contact surface and develop from the tip to the middle part of the sole (10), so as to identify the back portion (16), a right front portion (18), a central front portion (20) and a left front portion (22) on the contact surface of the sole (10);
wherein a first transverse front groove (24) and a first transverse back groove (28) are formed in the front portion on the contact surface, so as to identify a front part (32), a central part (34) and a back part (36) in the front portion of the sole (10); wherein the first transverse front groove (24), a second transverse front groove (26), the first transverse back groove (28) and a second transverse back groove (30) are formed in the front portion on the contact surface; **characterized in that** the first transverse front groove (24) and the second transverse front groove (26) having an arched profile, being symmetric to each other and being arranged adjacent, so as to coincide in correspondence of the central front portion (20); the first transverse back groove (28) and the second transverse back groove (30) having an arched profile, being symmetric to each other and being arranged adjacent, so as to coincide in correspondence of the central front portion (20).

2. Sole (10) according to the preceding claim, wherein the first longitudinal groove (12) and the second longitudinal groove (14) have an arched profile and are arranged symmetrically to each other.

3. Sole (10) according to one of the preceding claims, wherein a central element (38) having a rough surface is comprised.

4. Sole (10) according to the preceding claim, when depending on claims 1 or 3, wherein the central element (38) is arranged in the central part (34).

5. Sole (10) according to claim 3 or 4, wherein the central element (38) has a substantially oval shape.

6. Sole (10) according to one of claims 3 to 5, wherein the central element (38) is made of a different material than that of the remaining part of the sole (10).

7. Sole (10) according to one of the preceding claims, wherein the back portion (16), the right front portion (18), the central front portion (20) and the left front portion (22) are made of at least two different materials.

8. Shoe comprising a sole (10) according to one of the preceding claims.

Patentansprüche

1. Sohle (10) für Schuhe, umfassend eine Spitze, einen Mittelteil und einen hinteren Rand, um einen vorderen Abschnitt zwischen der Spitze und dem Mittelteil und einen hinteren Abschnitt (16) zwischen dem Mittelteil und dem hinteren Rand zu definieren, wobei die Sohle eine Kontaktfläche aufweist, um mit dem Boden in Kontakt zu kommen, wobei eine erste Längsnut (12) und eine zweite Längsnut (14) auf der Kontaktfläche ausgebildet sind und sich von der Spitze zum Mittelteil der Sohle (10) erstrecken, um so den hinteren Abschnitt (16), einen rechten vorderen Abschnitt (18), einen mittleren vorderen Abschnitt (20) und einen linken vorderen Abschnitt (22) auf der Kontaktfläche der Sohle (10) zu identifizieren;
wobei eine erste vordere Querrille (24) und eine erste hintere Querrille (28) in dem vorderen Abschnitt auf der Kontaktfläche ausgebildet sind, um so einen vorderen Teil (32), einen mittleren Teil (34) und einen hinteren Teil (36) in dem vorderen Abschnitt der Sohle (10) zu identifizieren; wobei die erste vordere Querrille (24), eine zweite vordere Querrille (26), die erste hintere Querrille (28) und eine zweite hintere Querrille (30) in dem vorderen Abschnitt auf der Kontaktfläche ausgebildet sind; **dadurch gekennzeichnet, dass** die erste vordere Querrille (24) und die zweite vordere Querrille (26) ein bogenförmiges Profil aufweisen, symmetrisch zueinander sind und benachbart angeordnet sind, so dass sie bei dem zentralen vorderen Abschnitt (20) zusammenfallen; die erste hintere Querrille (28) und die zweite hintere Querrille (30) ein bogenförmiges Profil aufweisen, symmetrisch zueinander sind und benachbart ange-

ordnet sind, so dass sie bei dem zentralen vorderen Abschnitt (20) zusammenfallen.

2. Sohle (10) nach dem vorhergehenden Anspruch, wobei die erste Längsnut (12) und die zweite Längsnut (14) ein bogenförmiges Profil aufweisen und symmetrisch zueinander angeordnet sind.

3. Sohle (10) nach einem der vorhergehenden Ansprüche, wobei ein zentrales Element (38) mit einer rauen Oberfläche enthalten ist.

4. Sohle (10) nach dem vorhergehenden Anspruch, wenn dieser von den Ansprüchen 1 oder 3 abhängt, wobei das zentrale Element (38) im Mittelteil (34) angeordnet ist.

5. Sohle (10) nach den Ansprüchen 3 oder 4, wobei das zentrale Element (38) eine im Wesentlichen ovale Form hat.

6. Sohle (10) nach einem der Ansprüche 3 bis 5, wobei das zentrale Element (38) aus einem anderen Material hergestellt ist als der übrige Teil der Sohle (10).

7. Sohle (10) nach einem der vorhergehenden Ansprüche, wobei der hintere Teil (16), der rechte vordere Teil (18), der mittlere vordere Teil (20) und der linke vordere Teil (22) aus mindestens zwei verschiedenen Materialien hergestellt sind.

8. Schuh mit einer Sohle (10) nach einem der vorhergehenden Ansprüche.

Revendications

1. Semelle (10) pour chaussures, comprenant une pointe, une partie centrale et un bord arrière de manière à définir une partie avant entre la pointe et la partie centrale, et une partie arrière (16) entre la partie centrale et le bord arrière, ladite semelle ayant une surface de contact pour entrer en contact avec le sol, dans laquelle une première rainure longitudinale (12) et une deuxième rainure longitudinale (14) sont formées sur la surface de contact et se développent de la pointe à la partie centrale de la semelle (10), de manière à identifier la partie arrière (16), une partie avant droite (18), une partie avant centrale (20) et une partie avant gauche (22) sur la surface de contact de la semelle (10);
dans laquelle une première rainure avant transversale (24) et une première rainure arrière transversale (28) sont formées dans la partie avant sur la surface de contact, de manière à identifier une partie avant (32), une partie centrale (34) et une partie arrière (36) dans la partie avant de la semelle (10); dans laquelle la première rainure avant transversale (24), une deuxième rainure avant transversale (26), la première rainure arrière transversale (28) et une deuxième rainure arrière transversale (30) sont formées dans la partie avant sur la surface de contact; **caractérisée en ce que** la première rainure avant transversale (24) et la deuxième rainure avant transversale (26) ont un profil arqué, sont symétriques l'une par rapport à l'autre et sont disposées de façon adjacente, de manière à coincider en correspondance avec la partie avant centrale (20); la première rainure arrière transversale (28) et la deuxième rainure arrière transversale (30) ont un profil arqué, sont symétriques l'une par rapport à l'autre et sont disposées de façon adjacente, de manière à coincider en correspondance avec la partie avant centrale (20).

2. Semelle (10) selon la revendication précédente, dans laquelle la première rainure longitudinale (12) et la deuxième rainure longitudinale (14) ont un profil arqué et sont disposées symétriquement l'une par rapport à l'autre.

3. Semelle (10) selon l'une des revendications précédentes, dans laquelle est compris un élément central (38) ayant une surface rugueuse.

4. Semelle (10) selon la revendication précédente, lorsque dépendant de la revendication 4 ou 5, dans laquelle l'élément central (38) est disposé dans la partie centrale (34).

5. Semelle (10) selon la revendication 3 ou 4, dans laquelle l'élément central (38) a une forme sensiblement ovale.

6. Semelle (10) selon l'une des revendications 3 à 5, dans laquelle l'élément central (38) est constitué d'un matériau différent de celui de la partie restante de la semelle (10).

7. Semelle (10) selon l'une des revendications précédentes, dans laquelle la partie arrière (16), la partie avant droite (18), la partie avant centrale (20) et la partie avant gauche (22) sont constituées d'au moins deux matériaux différents.

8. Chaussure comprenant une semelle (10) selon l'une des revendications précédentes.

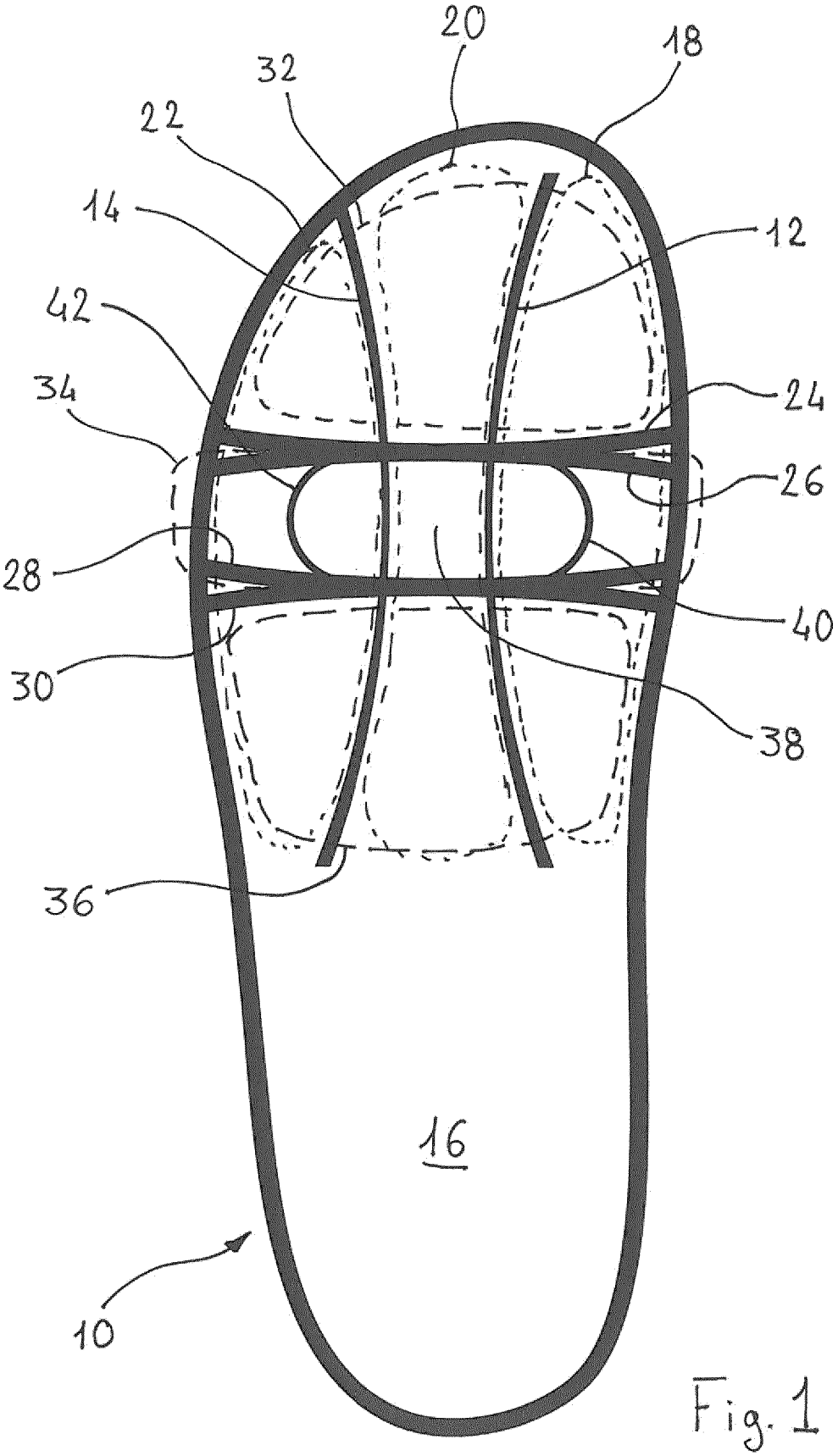

Fig. 1

REFERENCES CITED IN THE DESCRIPTION

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