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(71) Applicant: Yu Hsieh Industrial Co., Ltd. Taichung City 408 (TW)	(74) Representative: Cabinet Chaillot 16/20, avenue de l'Agent Sarre B.P. 74 92703 Colombes Cedex (FR)

(54)

SHOE BODY WITH ARCH SUSPENDED SUPPORT

(57)

A shoe body comprises an outsole (10), a midsole (20), a vamp (30), a first girdle (40) and a second girdle (50). A lower edge of the vamp (30) extends from a periphery to a bottom surface of the midsole (20), and is connected between the midsole (20) and the outsole (10). The first girdle (40) has a bottom end formed with two fork pieces (41) so that end portions of the fork pieces (41) are fixed to a side edge of the midsole (20), and a top end going from one side of an arch portion (71) of a foot bottom, passing under the arch portion (71) to a location above an instep. The second girdle (50) has a bottom end fixed to the other side edge of the midsole (20), and a top end of the second girdle (50) passing through the two fork pieces (41) of the first girdle (40) and then going from the other side of the arch portion (71) of the foot bottom to a location above the instep.

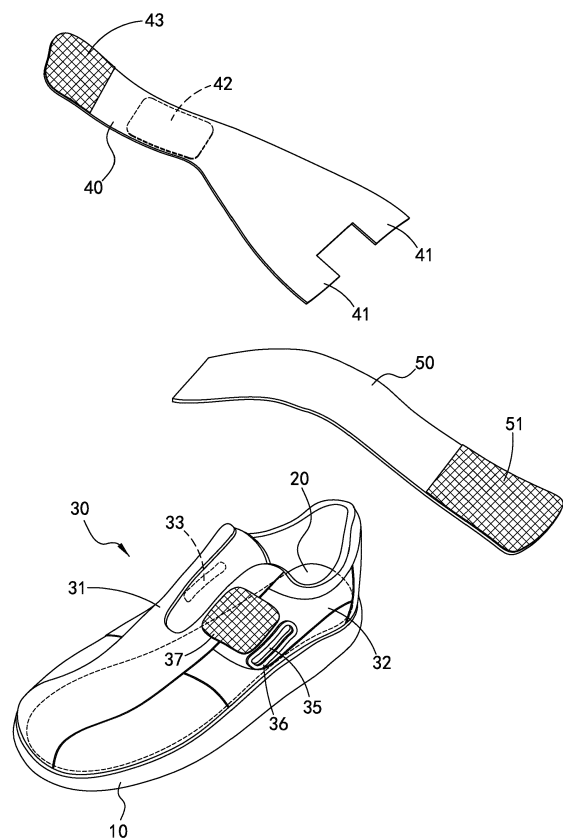


FIG.1

Description

BACKGROUND OF THE INVENTION

(1) FIELD OF THE INVENTION

[0001] The invention relates to the technical field of a shoe body structure for supporting an arch, and more particularly to a shoe body with an arch suspended support, in which two girdles are used to form a large-area support of an X-shaped frame formed on a portion of the arch of the foot bottom, and top ends of the two girdles go from two sides of the foot to the instep and then are overlapped with and connected to each other, so that the top portion of the X-shaped frame forms a suspended covering state. Thus, when a force is exerted on the sole, it is possible to prevent the skeleton of the arch portion from excessively expanding. When no force is exerted on the sole, the skeleton of the arch portion can be indeed restored so that the arch can be effectively protected and the wearing comfort can be enhanced.

(2) DESCRIPTION OF THE PRIOR ART

[0002] The bottom of the human's body sole has a concave arch portion. Thus, when the person is performing activities, such as walking, running, jumping and the like, and the sole steps on the ground, the buffer effect is achieved using the arc change of the arch portion. However, if the sole withstands the pressure for a long period of time or withstands the higher pressure, then the arch portion tends to excessively expand to cause shifting of the sole skeleton, which cannot be recovered. Thus, the subsequent buffer effect of the arch portion is affected, and the pain of the sole is caused. Furthermore, other portions of the body may even be incidentally affected to cause the uncomfortable feeling, such as aches.

[0003] To solve the above-mentioned problems, some manufacturers have developed a shoe pad structure, in which a plastic material is mainly used to integrally form jointly with a shoe pad with a little resilience, wherein the shoe pad may be placed at an arch of a foot bottom, and a top surface of the shoe pad is configured to match with the curved camber of the arch portion. Thus, when the shoe pad is placed in the shoe, the shoe pad can support the arch portion. When the sole is withstanding the pressure, the resilient deformation force of the shoe pad can be utilized to provide the buffer effect, so that the skeleton structure of the sole is held at the normal position. However, the shoe pad structure only can let the arch portion of the bottom of the sole naturally press against the top surface thereof, and cannot cover the foot. Thus, when various activities are being performed, the lateral force of the foot tends to separate the arch portion of the bottom surface of the sole from the shoe pad, thereby affecting the effect of providing the buffering to restore the sole skeleton. More particularly, the top surface of the shoe pad has the fixed arc, and the shoe pad is not applicable

to all users. In addition, the shoe pad integrally formed by the plastic material has the considerable hardness, which tends to make the user's foot bottom feel uncomfortable.

SUMMARY OF THE INVENTION

[0004] The conventional shoe pad for supporting the arch has many drawbacks that the shoe pad tends to be separated from the arch portion and affects the buffer supporting effect, that the shoe pad has the high hardness and poor comfort, and that the shoe pad has the fixed shape and is not applicable to various users.

[0005] The invention provides a shoe body with an arch suspended support comprising an outsole, a midsole, a vamp, a first girdle and a second girdle. The midsole is connected to a top surface of the outsole. A user's foot is placed into the vamp. A lower edge of the vamp extends from a periphery of the midsole to a bottom surface of the midsole, and is connected between the midsole and the outsole. A bottom end of the first girdle is formed with two fork pieces so that an overall structure has a substantial Y-shape, end portions of the two fork pieces are fixed to a side edge of the midsole, a top end of the first girdle may go from one side of an arch portion of a foot bottom to a location above an instep, and a third sticky piece is disposed on an outer surface of the first girdle. The second girdle is in a form of a long sheet. A bottom end of the second girdle is fixed to the other side edge of the midsole, a top end of the second girdle passes through the two fork pieces of the first girdle and then goes from the other side of the arch portion of the foot bottom to a location above the instep, and a fourth sticky piece to be stuck with the third sticky piece is disposed on an inner surface of a top end portion of the second girdle.

[0006] The shoe body with an arch suspended support of the invention can make the first and second girdles form the X-shaped frame on the portion of the arch of the foot bottom to form the good support. In addition, the top ends of the first and second girdles go to the location above the instep from two sides and then are overlapped with each other, so that the top portion of the X-shaped frame forms the state of suspending and covering the foot. Thus, when the force is exerted on the sole, it is possible to prevent the skeleton of the arch portion from excessively expanding. When no force is exerted on the sole, the skeleton of the arch portion can indeed restore, thereby achieving the effects of effectively protecting the arch and enhancing the comfort upon wearing. In addition, the top ends of the first and second girdles go from two sides of the foot to the location above the instep and are then overlapped with and stuck with each other, so that the foot forms the suspended covering state, and the arch portion of the bottom of the sole cannot leave the support of the X-shaped frame no matter which lateral force is exerted in activities. More particularly, the bottom end of the first girdle is formed with two fork pieces so

that the overall structure is in the form of a Y-shape, and the second girdle passes through the location between the two fork pieces of the first girdle to form the overlapped shape. This further makes the X-shaped frame have the larger supporting surface area and the larger supporting force, and can further enhance the supporting effect thereof. In addition, the structure formed when the top ends of the first and second girdles go to the location above the instep and are then overlapped with and stuck to each other further makes the X-shaped frame have the sufficient suspension force. In addition, the support height and tightness thereof may also be adjusted by different users.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007]

FIG. 1 is a pictorially decomposed schematic view showing the invention.

FIG. 2 is a schematic view showing a fixed state between first and second girdles and a midsole of the invention.

FIG. 3 is a pictorially assembled schematic view showing the invention, wherein the first and second girdles are not stuck together.

FIG. 4 is a pictorially assembled schematic view showing the invention, wherein first and second girdles are stuck together.

FIG. 5 is a transversally schematic cross-sectional view showing a used state of the invention.

FIG. 6 is a longitudinally partial schematic view showing the used state of the invention.

FIG. 7 shows another embodiment of the invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0008] Referring to FIGS. 1 to 6, a shoe body with an arch suspended support according to the invention comprises an outsole 10, a midsole 20, a vamp 30, a first girdle 40 and a second girdle 50.

[0009] The outsole 10 has a bottom surface formed with front and rear ends, which are low, and a high middle to form a convex arc shape.

[0010] The midsole 20 is connected to a top surface of the outsole 10.

[0011] A user's foot 70 may be placed into the vamp 30. A lower edge of the vamp 30 extends from a periphery of the midsole 20 to a bottom surface of the midsole 20 and is connected between the midsole 20 and the outsole 10. The vamp 30 comprises a first sidewall 31 and a second sidewall 32 covering two sides of the foot 70. The first sidewall 31 has a first through hole 33 penetrating therethrough. A hole edge of the first through hole 33 is connected to a first reinforcement member 34 to strengthen the structural strength of the hole wall of the first through hole 33. The second sidewall 32 has a second

through hole 35 penetrating therethrough. A hole edge of the second through hole 35 is connected to a second reinforcement member 36 to strengthen the structural strength of the hole wall of the second through hole 35. An outer surface of the second sidewall 32 is connected to a first sticky piece 37.

[0012] A bottom end of the first girdle 40 is formed with two fork pieces 41 so that the overall structure has a substantial Y-shape. End portions of the two fork pieces 41 are fixed to a side edge of a top surface of the midsole 20 close to the second sidewall 32 by way of sewing. The top end of the first girdle 40 may also pass through one side of an arch portion 71 of the foot bottom and then extends outside the first sidewall 31 from the first through hole 33. An inner surface of a top end portion of the first girdle 40 is sewed with a second sticky piece 42 to be stuck with the first sticky piece 37. The outer surface of the portion of the first girdle 40 extending outside the first sidewall 31 is sewed with a third sticky piece 43.

[0013] The second girdle 50 is in a form of a long sheet and has a bottom end fixed to a side edge of a top surface of the midsole 20 close to the first sidewall 31 by way of sewing. The top end of the second girdle 50 passes through a location between two fork pieces 41 of the first girdle 40 and then extends outside the second sidewall 32 from the other side of the arch portion 71 of the foot bottom through the second through hole 35, wherein an inner surface of the top end portion of the second girdle 50 is sewed with a fourth sticky piece 51 to be stuck with the third sticky piece 43.

[0014] In FIGS. 2, 5 and 6, after the user places the foot 70 into the vamp 30, the user can pull the first girdle 40 and the second girdle 50 outwards, then stick the second sticky piece 42 of the first girdle 40 to the first sticky piece 37 of the second sidewall 32, and then stick the fourth sticky piece 51 of the second girdle 50 to the third sticky piece 43 of the first girdle 40. Thus, the first and second girdles 40, 50 form an X-shaped frame below the arch portion 71 of the foot bottom to form a good support. The top ends of the first and second girdles 40, 50 go to the top of the instep from two sides of the foot 70 and are then overlapped with and stuck with each other to form a state where a top portion of the X-shaped frame is suspended to cover the foot 70. Thus, when a force is exerted on the sole, it is possible to prevent the skeleton of the arch portion 71 from excessively expanding. When no force is exerted on the sole, it is also possible to make the skeleton of the arch portion 71 be indeed restored, thereby achieving the effect of effectively protecting the arch and enhancing the wearing comfort. In addition, the top ends of the first and second girdles 40, 50 go to the location above the instep from two sides of the foot 70 and are then overlapped with and stuck to each other to form a state where the foot 70 is covered. Thus, when the foot moves, the arch portion 71 on the bottom of the sole will not leave the support of the X-shaped frame no matter which lateral force is exerted on the foot. More particularly, two fork pieces 41 are formed on the bottom

end of the first girdle 40 so that the overall structure has the Y shape, and the second girdle 50 passes through the location between the two fork pieces 41 of the first girdle 40 to form the overlapping structure design. This also makes the X-shaped frame have the larger supporting surface area and the larger supporting force, thereby further providing the supporting effect. In addition, the top ends of the first and second girdles 40, 50 go to the location above the instep and are then overlapped with each other. This structure further makes the X-shaped frame have the sufficient suspension force. The supporting height and tightness thereof may also be easily adjusted for different users. In addition, the tightening of the first and second girdles 40, 50 eliminates the use of the shoelaces.

[0015] In FIG. 6, when the user wears the shoe body with an arch suspended support according to the invention to walk and the heel touches the ground at the beginning of walking, the design of the convex arc shape of the bottom surface of the outsole 10 makes the tiptoe uptilt, so that the muscles between the calf and the thigh are relatively unfolded, and the body-building effect, such as stretching and weight loss, can be obtained. When the user keeps walking forwards with the center of gravity moving frontward, the outsole 10 swings along the bottom surface of the convex arc shape thereof. Before the outsole 10 leaves the ground, the contact point between the outsole 10 and the ground moves frontward to the tiptoe. Correspondingly, the design of the convex arc shape of the bottom surface of the outsole 10 makes the heel be lifted naturally, so that the effect of stretching the muscles of the calf is obtained. Therefore, the shoe body with an arch suspended support according to the invention makes the walking wearer enter a naturally unstable state according to the design of the convex arc shape of the bottom surface of the outsole 10, and the human body unconsciously generates the action of balancing the rhythm in the unstable state, so the more force exerting effects can be generated. Thus, the dormant muscles are imperceptibly pulled to activate the long-term ignored muscle group, the body can naturally enter the straight state, and the gait thus satisfies the biomechanics to achieve the objects of chest out, stomach in and hip up. Furthermore, the portions, which cannot be easily and often used, can be pulled and lifted, so that the posture becomes firmer, and the body curve can be sculptured.

[0016] The vamp 30 of the shoe body with an arch suspended support according to the invention may also be a hollow vamp composed of a plurality of strips of sheet bodies, so that the shoe body as a whole is in the state of a sandal. In this manner, the first and second through holes 33, 35 need not to be formed on the vamp 30, and the first and second girdles 40, 50 are directly overlapped and stuck with each other above the instep.

[0017] Referring to FIG. 7, the structure of another embodiment of the invention is substantially the same as that of the above-mentioned embodiment except for the difference that the shoe body with an arch suspended

support according to this embodiment further comprises a shoe pad 60. The shoe pad 60 is disposed in the vamp 30 and above the overlapped portion between the first and second girdles 40, 50, so that the sole upon wearing feels more comfortable.

Claims

1. A shoe body with an arch suspended support, the shoe body comprising:
 - an outsole (10);
 - a midsole (20) connected to a top surface of the outsole (10);
 - a vamp (30), into which a user's foot (70) is placed, wherein a lower edge of the vamp (30) extends from a periphery of the midsole (20) to a bottom surface of the midsole (20), and is connected between the midsole (20) and the outsole (10);
 - a first girdle (40), wherein a bottom end of the first girdle (40) is formed with two fork pieces (41) so that an overall structure has a substantial Y-shape, end portions of the two fork pieces (41) are fixed to a side edge of the midsole (20), a top end of the first girdle (40) may go from one side of an arch portion (71) of a foot bottom to a location above an instep, and a third sticky piece (43) is disposed on an outer surface of the first girdle (40); and
 - a second girdle (50), which is in a form of a long sheet, wherein a bottom end of the second girdle (50) is fixed to the other side edge of the midsole (20), a top end of the second girdle (50) passes through the two fork pieces (41) of the first girdle (40) and then goes from the other side of the arch portion (71) of the foot bottom to a location above the instep, and a fourth sticky piece (51) to be stuck with the third sticky piece (43) is disposed on an inner surface of a top end portion of the second girdle (50).
2. The shoe body according to claim 1, wherein the vamp (30) comprises a first sidewall (31) and a second sidewall (32) covering two sides of the foot (70), the first sidewall (31) has a first through hole (33) penetrating through the first sidewall (31), the second sidewall (32) has a second through hole (35) penetrating through the second sidewall (32), an outer surface of the second sidewall (32) is connected to a first sticky piece (37), the end portions of the two fork pieces (41) of the first girdle (40) are fixed to the side edge of the midsole (20) close to the second sidewall (32), the top end of the first girdle (40) extends outside the first sidewall (31) from the first through hole (33), an inner surface of a top end portion of the first girdle (40) is sewed with a second

sticky piece (42) to be stuck with the first sticky piece (37), the third sticky piece (43) is disposed on an outer surface of a portion of the first girdle (40) extending outside the first sidewall (31), the bottom end of the second girdle (50) is fixed to a side edge of the midsole (20) close to the first sidewall (31), and the top end of the second girdle (50) extends outside the second sidewall (32) from the second through hole (35).

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3. The shoe body according to claim 2, wherein the end portions of the two fork pieces (41) of the first girdle (40) are fixed to a side edge of a top surface of the midsole (20) by way of sewing, and the bottom end of the second girdle (50) is fixed to the other side edge of the top surface of the midsole (20) by way of sewing.
4. The shoe body according to claim 2, wherein a hole edge of the first through hole (33) of the first sidewall (31) is connected to a first reinforcement member (34) to strengthen a structural strength of a hole wall of the first through hole (33), and a hole edge of the second through hole (35) of the second sidewall (32) is connected to a second reinforcement member (36) to strengthen a structural strength of a hole wall of the second through hole (35).
5. The shoe body according to claim 1, wherein the vamp (30) is a hollow vamp composed of a plurality of strips of sheet bodies so that the shoe body as a whole is in a state of a sandal.
6. The shoe body according to claim 2, further comprising a shoe pad (60) disposed in the vamp (30) and above an overlapped portion between the first and second girdles (40, 50), so that the shoe pad (60) is attached to a surface of the foot bottom upon wearing and a sole becomes more comfortable.
7. The shoe body according to claim 1, wherein a bottom surface of the outsole (10) is formed with front and rear ends, which are low, and a high middle (20) to form a convex arc shape.

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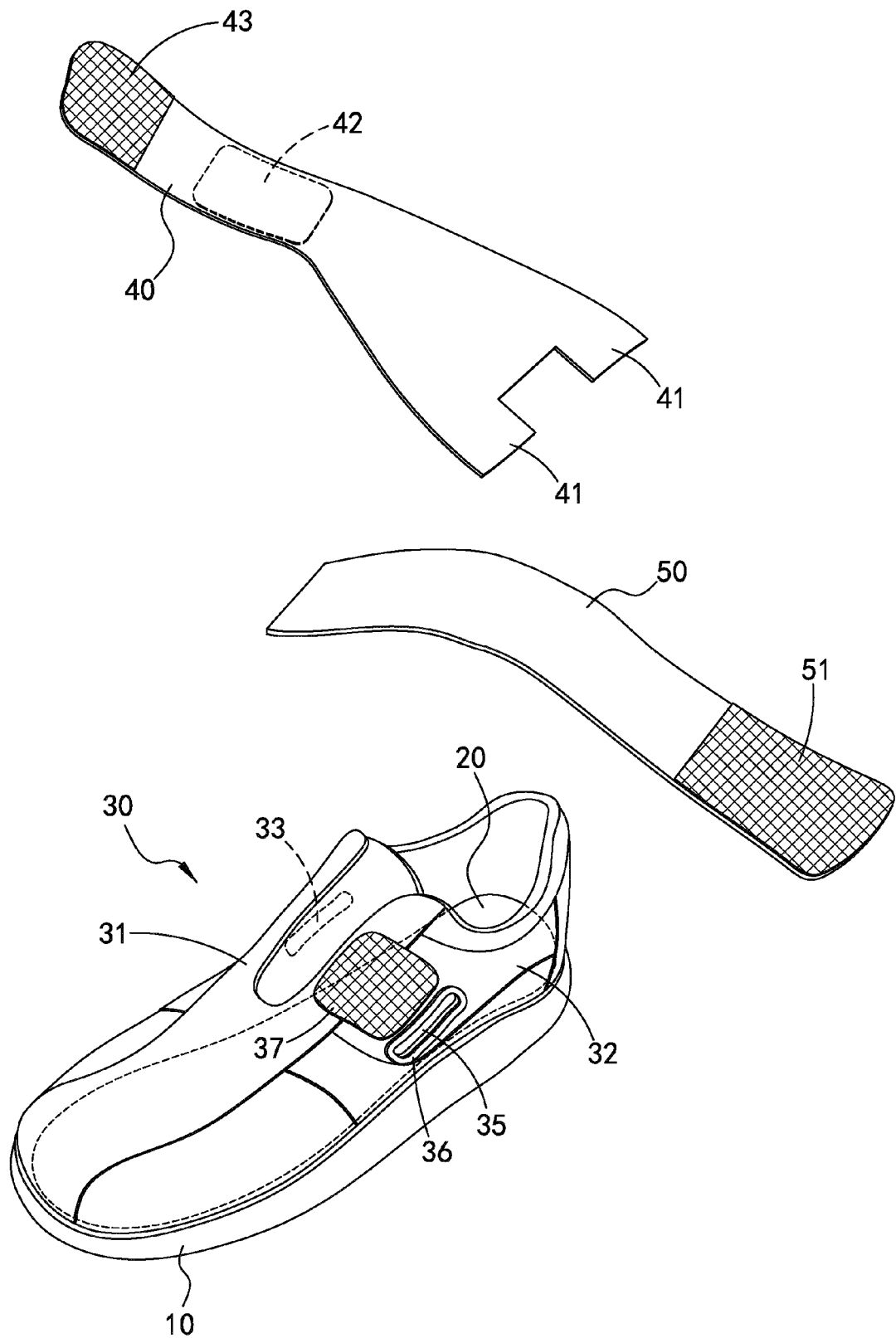


FIG.1

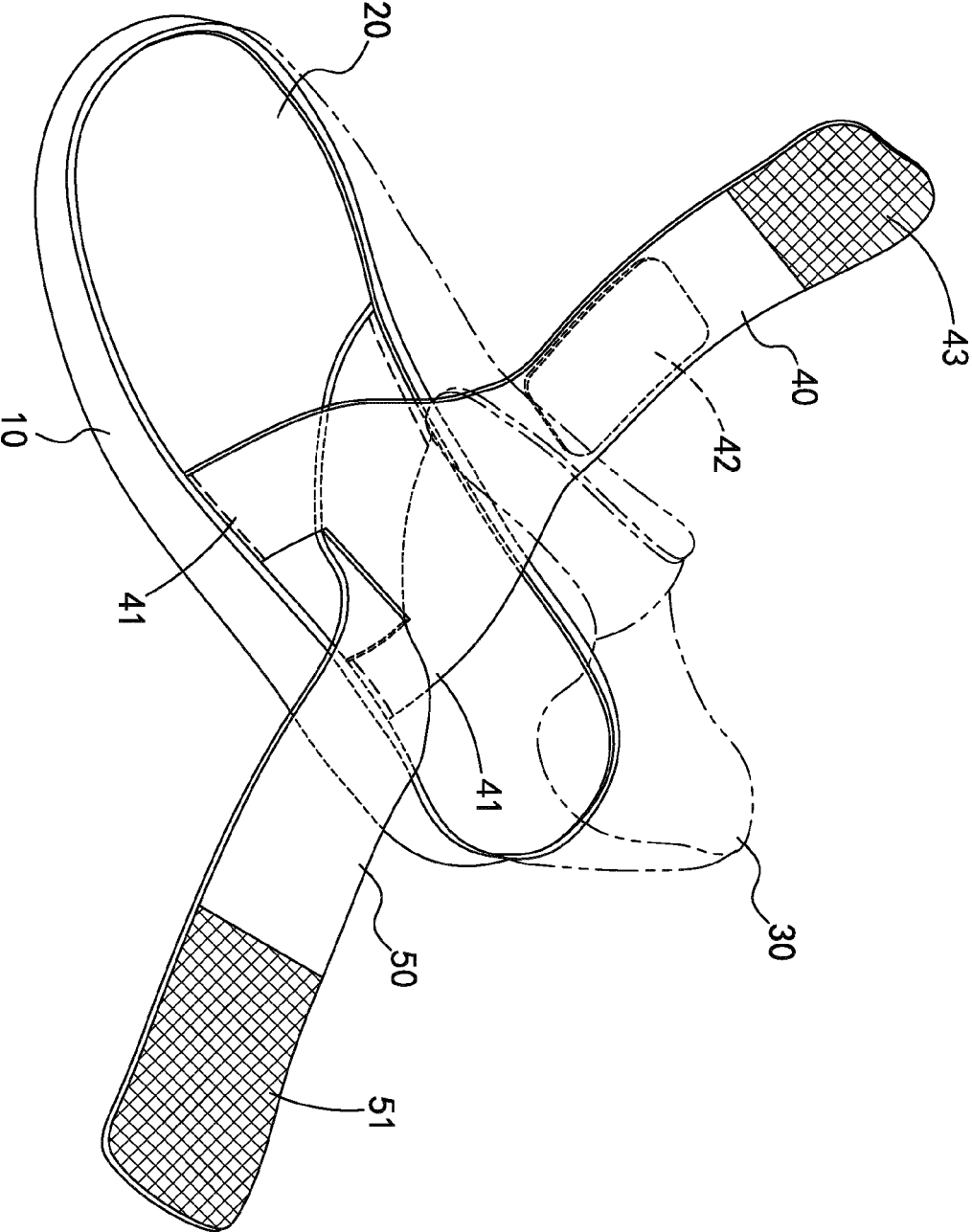


FIG.2

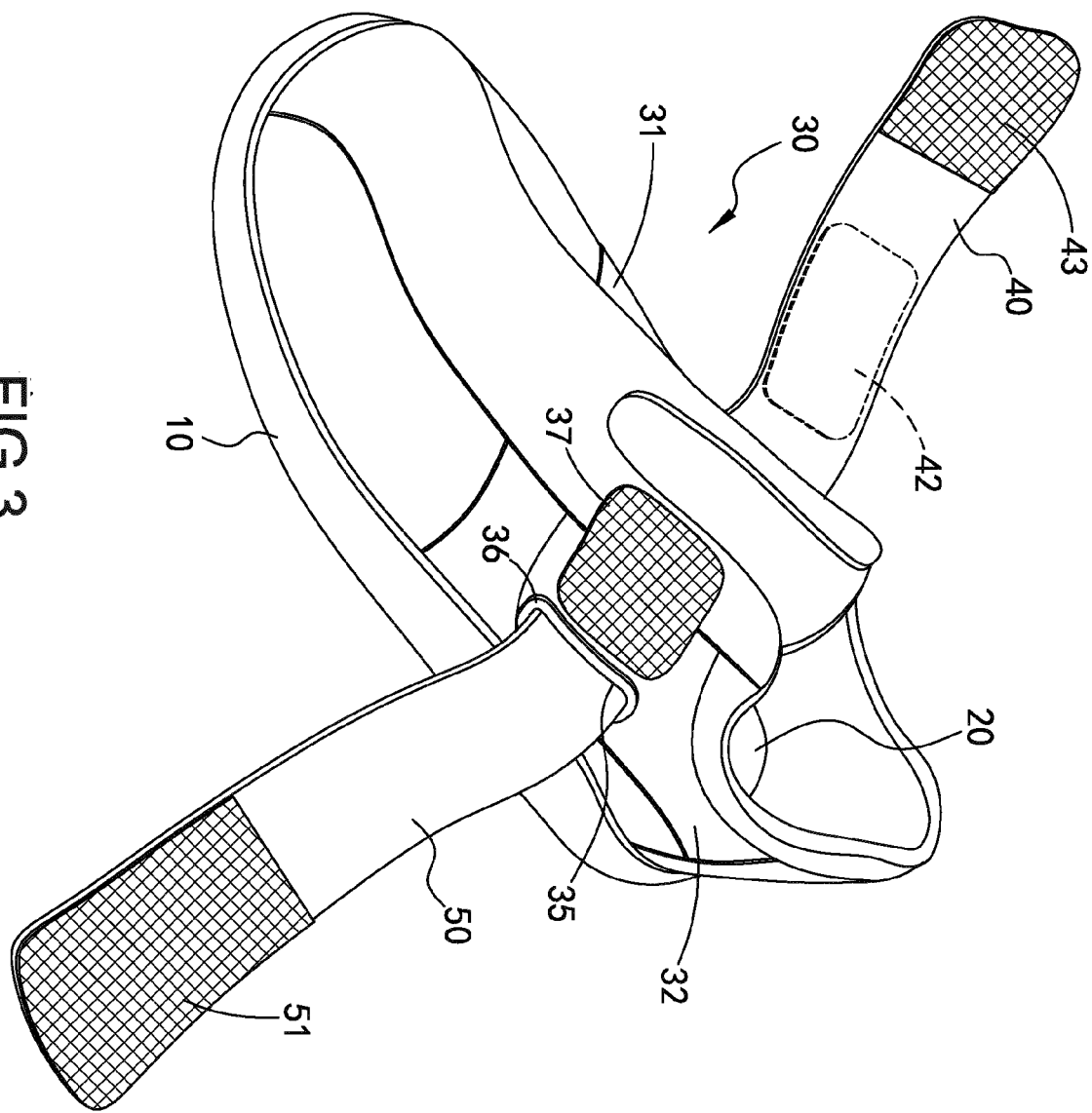


FIG. 3

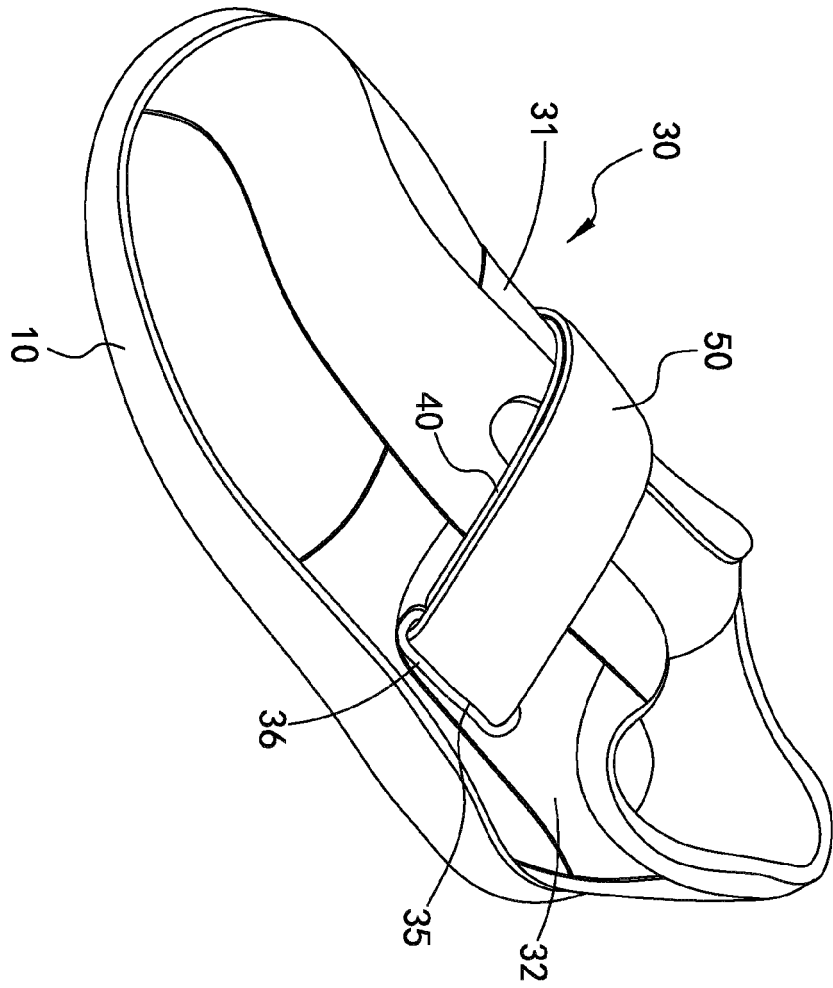


FIG. 4

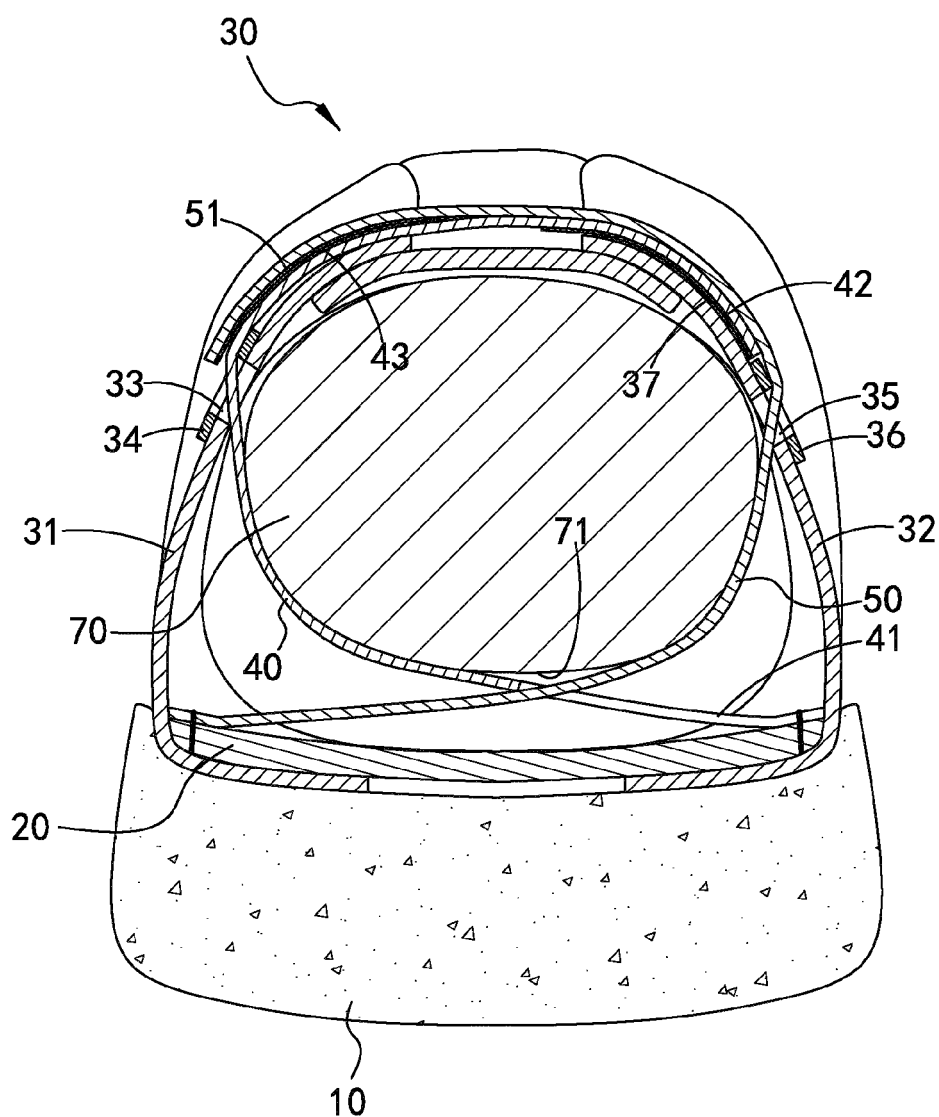


FIG.5

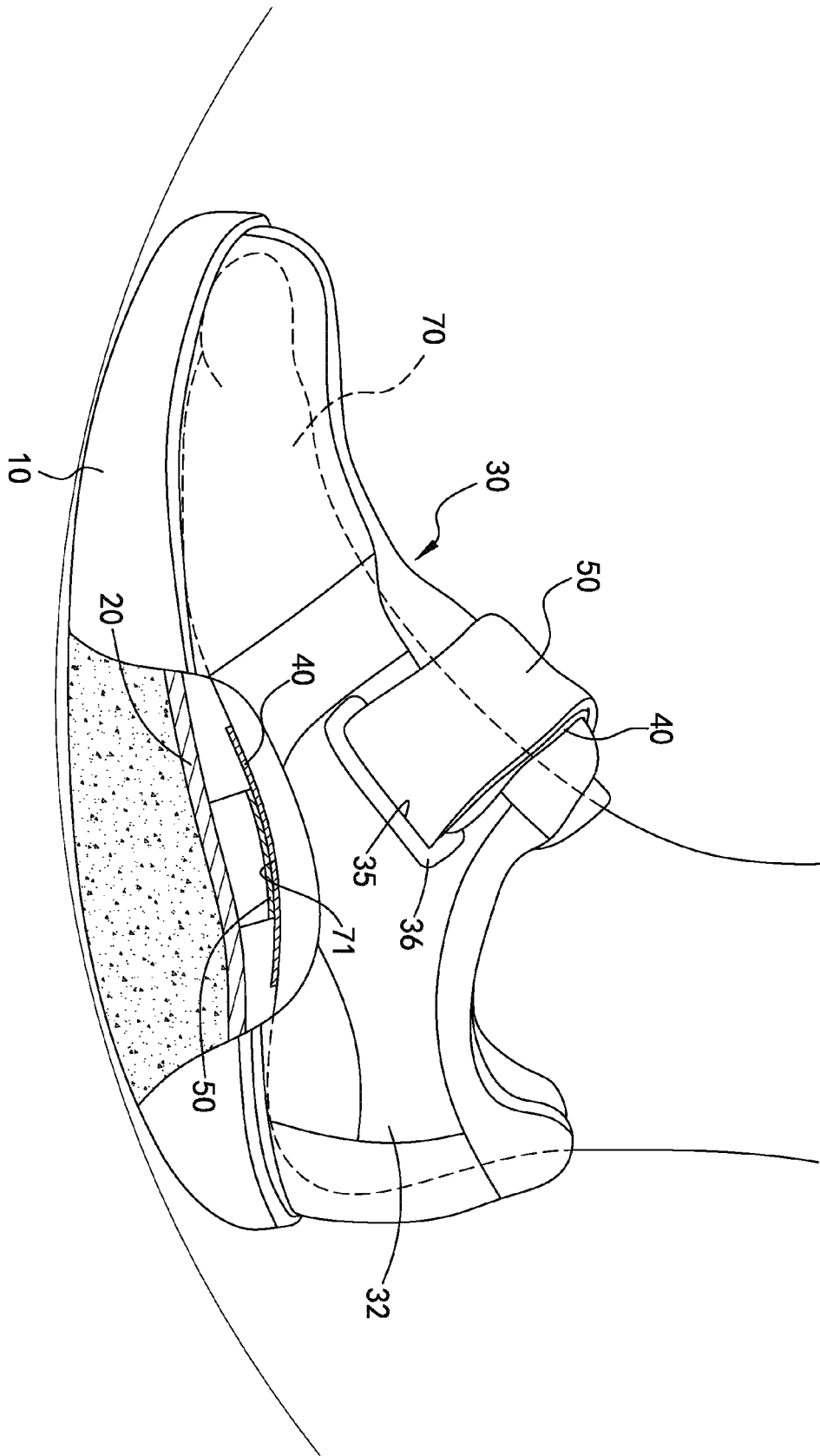


Fig. 6

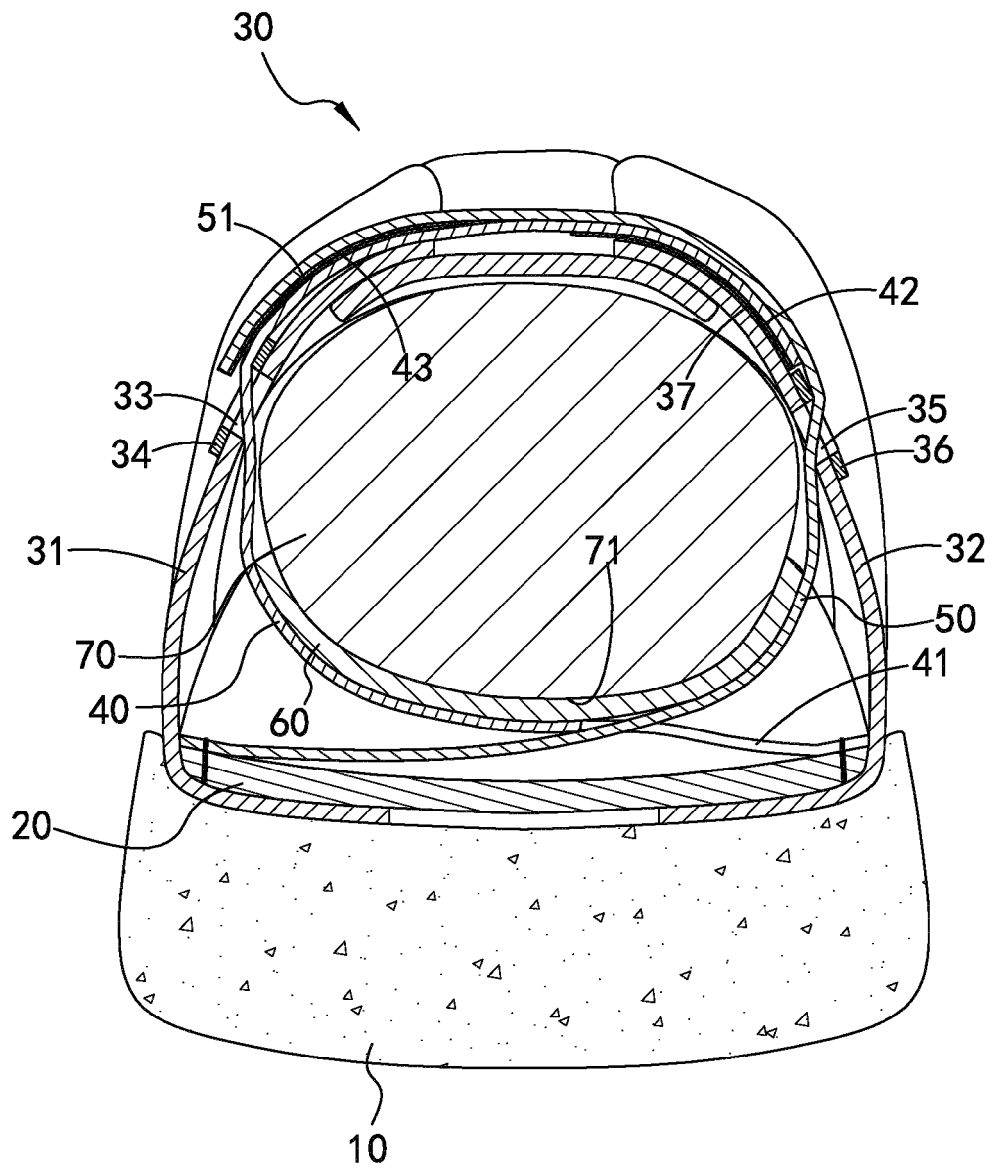


FIG.7



EUROPEAN SEARCH REPORT

Application Number
EP 15 17 0856

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A	DE 441 042 C (SCHUHFABRIK EUGEN WALLERSTEIN) 23 February 1927 (1927-02-23) * page 2, lines 19-70; figures *	1	
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A	WO 99/39599 A1 (HADASIT MED RES SERVICE [IL]; LONDON ELIYAHU [IL]; BRODY SHMUEL [IL]) 12 August 1999 (1999-08-12) * abstract; figures *	1	
			TECHNICAL FIELDS SEARCHED (IPC)
			A43B
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 24 November 2015	Examiner Jones, Mark
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 15 17 0856

5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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