



(11)

EP 3 714 723 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
30.09.2020 Bulletin 2020/40

(51) Int Cl.:
A43B 7/14 (2006.01) A43B 17/00 (2006.01)

(21) Application number: **20166335.8**

(22) Date of filing: **27.03.2020**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
KH MA MD TN

(71) Applicant: **Crown Orthotic Laboratory Pty Ltd**
Kirrawee, New South Wales 2232 (AU)

(72) Inventors:
• **Najjarine, Abdul Rahman**
New South Wales 2232 (AU)
• **Najjarine, Adam**
New South Wales 2213 (AU)

(30) Priority: **29.03.2019 TW 108203887 U**
01.04.2019 CN 201920431738 U

(74) Representative: **Cross, James Peter Archibald**
Maucher Jenkins
26 Caxton Street
London SW1H 0RJ (GB)

(54) **INSOLE CAPABLE OF ASSISTING CORRECTIONS OF VARIOUS FOOT PROBLEMS**

(57) An insole capable of assisting corrections of various foot problems includes first, second, and third placing areas defined on the bottom of the insole for attaching a pad to improve inward/outward splayed feet and uneven leg length. The first and second placing areas are on left and right sides of the insole bottom surface respectively, the third placing area is at a position of the insole bottom corresponding to a user's heel, and the position of the second placing area is higher than that of the first placing area, so that the pad attaching position can be varied to improve or correct the foot deformity problem. The special design of the position and size of the first and second placing areas after being attached with the pads make a standing posture or walking posture more ergonomic to further improve or correct the foot deformity problem.



FIG.1

EP 3 714 723 A1

Description

BACKGROUND

Technical Field

[0001] The present disclosure generally relates to the field of insoles. More particularly, the present disclosure relates to an insole capable of assisting corrections of various foot problems.

Description of Related Art

[0002] Humans are prone to become fatigued or injured under the pressure of standing or walking repeatedly for a long time. Particularly in the case of wearing a pair of poor shoes, one may sprain the ankle ligaments easily. Therefore, various insoles are developed to provide proper softness and comfort for users while wearing shoes. Most conventional insoles are pads in a shape corresponding to the shape of a user's foot and manufactured by a flexible material foaming technology, and these insoles provide a basic shock absorbing function while walking or standing and have the features of high softness and timely resilience.

[0003] However, there are many structural abnormalities in human feet, such as flat feet, outward splayed feet, inward splayed feet, splayed toes, etc., and the conventional insole generally provides no solution or corresponding protection structure to these problems, so that users having the aforementioned troubles cannot soothe or improve the pain or discomfort of their feet.

[0004] Therefore, the inventor of the present disclosure based on years of experience in the related industry to conduct extensive research and experiment, and finally developed an insole capable of assisting corrections of various foot problems in hope of overcoming the aforementioned drawbacks of the prior art.

SUMMARY

[0005] Therefore, it is a primary objective of the present disclosure to provide an insole capable of assisting corrections of various foot problems, so that a user having a foot deformity problem can walk more comfortably, and the user's foot deformity problem can be improved by the correction given by the insole.

[0006] To achieve the aforementioned and other objectives, the present disclosure discloses an insole capable of assisting corrections of various foot problems, characterized in that the insole comprises a first placing area, a second placing area and a third placing area defined on an insole bottom and provided for attaching a pad to improve inward/outward splayed feet and uneven leg length, and the first placing area and the second placing area are disposed on left and right sides of an insole bottom surface respectively, and the third placing area is disposed at a position of the insole bottom correspond-

ing to a user's heel, and the position of the second placing area is higher than the position of the first placing area. The foot deformity problem can be improved or corrected by varying the pad attaching position.

[0007] Preferably, the third placing area is comprised of a plurality of grid areas, and each grid area is provided for placing the pad to further distinguish the placing position of the pad.

[0008] Preferably, the first placing area has a boundary formed by a first arc, a first straight line, a second straight line and an edge of the insole, and the first arc has an end coupled to the edge of the insole and the other end coupled to an end of the first straight line to form an included angle of 70° to 80°, and the second straight line also has an end coupled to the edge of the insole to form an included angle of 85° to 90° and the other end coupled to the other end of the first straight line to define an included angle of approximately 60° to optimize the effect after placing the pads.

[0009] Preferably, the second placing area has a boundary formed by a second arc, a third straight line, a fourth straight line and the edge of the insole, and the second arc has an end coupled to the edge of the insole and the other end coupled to an end of the third straight line to define an included angle of 70° to 80°, and the fourth straight line has an end coupled to the edge of the insole to define an included angle of 85° to 90° and the other end coupled to the other end of the third straight line to define an included angle of 60° to 65° to optimize the effect after placing the pads.

[0010] Preferably, the fourth straight line has a length greater than the length of the second straight line to further distinguish the difference between the first placing area and the second placing area.

[0011] Preferably, the insole has an arc wall protruding and extending from the second half edge of the top of the insole and a recess formed at the second half portion of the top of the insole and corresponding to the arc wall, and a portion of the arc wall corresponding to the user's arch position has a height greater than the height of the remaining portions to improve the supportability of a user's arch.

[0012] The special design of the position and size of the first placing area and the second placing area after being attached with the pads makes a user's standing posture or walking posture more ergonomic and further improves or corrects the user's foot deformity problem to provide a more comfortable life to the user, and medical professionals including doctors can determine the thickness of the attached pads to avoid the failure of improving the foot deformity problem or even the deterioration of the foot deformity problem caused by freely attaching the pads of any thickness.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] The accompanying drawings are included to provide a further understanding of the disclosure, and

are incorporated in and constitute a part of this specification. The drawings illustrate embodiments of the disclosure, and together with the description, serve to explain the principles of the disclosure.

FIG. 1 is a schematic view of an insole of a preferred embodiment of this disclosure; and

FIG. 2 is a schematic view of an insole bottom surface of a preferred embodiment of this disclosure.

DESCRIPTION OF THE EMBODIMENTS

[0014] Reference will now be made in detail to the present embodiments of the disclosure, examples of which are illustrated in the accompanying drawings. Wherever possible, the same reference numbers are used in the drawings and the description to refer to the same or like parts.

[0015] With reference to FIGS. 1 and 2 for schematic views of an insole and an insole bottom surface in accordance with a preferred embodiment of the present disclosure respectively, the present disclosure discloses an insole capable of assisting corrections of various foot problems 1, characterized in that the insole 1 comprises a first placing area 11, a second placing area 12 and a third placing area 13 defined on an insole bottom and provided for attaching a pad (not shown in the figure) to improve inward/outward splayed feet and uneven leg length, and the first placing area 11 and the second placing area 12 are disposed on left and right sides of a bottom surface of the insole 1, and the third placing area 13 is disposed at a position of the bottom of the insole 1 corresponding to a user's heel, and the position of the second placing area 12 is higher than the position of the first placing area 11.

[0016] In an application, the user may request a doctor to determine the thickness of the attached pad and the position where the pad is attached to the first placing area 11, the second placing area 12, the third placing area 13, or any combination of the above according to the conditions of the inward/outward splayed feet or uneven leg length. The advantage resides on that the user does not have to worry about an insufficient thickness of the pad that may cause discomfort to the user when the user is walking or standing, and the doctor can design the first placing area 11, the second placing area 12 and the third placing area 13 on the insole 1 without the need of worrying about the position to where the pad should be attached to provide the corrective effect while making the patient feel comfortable.

[0017] In addition, the position and size of the first placing area 11 and the second placing area 12 are well designed to meet the ergonomic requirements. In this design, the first placing area 11 has a boundary comprised of a first arc 111, a first straight line 112, a second straight line 113 and an edge of the insole 1, and the first arc 111 has an end coupled to the edge of the insole 1 and the other end coupled to an end of the first straight line 112

to form an included angle of 70° to 80° , and the second straight line 113 has an end coupled to the edge of the insole 1 to form an included angle of 85° to 90° and the other end coupled to the other end of the first straight line 112 to form an included angle of approximately 60° . In addition, the second placing area 12 has a boundary comprised of a second arc 121, a third straight line 122, a fourth straight line 123 and an edge of the insole 1, and the second arc 121 has an end coupled to the edge of the insole 1 and the other end coupled to an end of the third straight line 122 to form an included angle of 70° to 80° , and the fourth straight line 123 has an end coupled to the edge of the insole 1 to form an included angle of 85° to 90° and the other end coupled to the other end of the third straight line 122 to form an included angle of 60° to 65° . In addition, the length of the fourth straight line 123 is slightly greater than the length of the second straight line 113, so that the relative position and size of the first placing area 11 and the second placing area 12 can be shown clearly. After the pad is attached to a placing area of such position and size the ergonomic design of the insole can improve the comfortability of the user and the practicality of the insole.

[0018] In this embodiment, the third placing area 13 is comprised of a plurality of grid areas 131, and each grid area 131 is provided for placing a pad, so that the attachable areas can be distinguished to allow a doctor to determine whether or not it is necessary to attach the pad completely onto the grid areas 131 or it just needs to attach the pad to one or two grid areas 131, so as to improve the applicability.

[0019] To improve the overall supportability of the insole 1 and consider the patient with high arched feet, an arc wall 14 protrudes and extends from the second half edge of the top of the insole 1, and a recess 15 is formed at the second half of the top of the insole 1 corresponding to the arc wall 14, and the height of the arc wall 14 at the portion corresponding to the user's arch position is greater than the height of the remaining portions of the arc wall 14, and such feature improves the supportability of the user's arch, and the wrapping feeling of the heel situated at the recess 15 gives a more comfortable feeling to the user and further improves the practicality of the present disclosure.

[0020] In summation of the description above, the insole 1 of the present disclosure makes use of the specially designed position and size of the first placing area 11, the second placing area 12 and the third placing area 13 for attaching the pads to correct a patient's foot deformity problem, while making the patient's walking or standing posture more ergonomic after using the insole 1, so as to achieve both practical and comfortable functions.

[0021] While the invention has been described by means of specific embodiments, numerous modifications and variations could be made thereto by those skilled in the art without departing from the scope and spirit of the invention set forth in the claims.

Claims

1. An insole capable of assisting corrections of various foot problems, **characterized in that** the insole comprises a first placing area, a second placing area and a third placing area defined on an insole bottom and provided for attaching a pad to improve inward/outward splayed feet and uneven leg length, and the first placing area and the second placing area are disposed on left and right sides of an insole bottom surface respectively, and the third placing area is disposed at a position of the insole bottom corresponding to a user's heel, and the position of the second placing area is higher than the position of the first placing area.

5
10
15
2. The insole of claim 1, wherein the third placing area is comprised of a plurality of grid areas, and each grid area is provided for placing the pad.

20
3. The insole of claim 2, wherein the first placing area has a boundary formed by a first arc, a first straight line, a second straight line and an edge of the insole, and the first arc has an end coupled to the edge of the insole and the other end coupled to an end of the first straight line to form an included angle of 70° to 80°, and the second straight line also has an end coupled to the edge of the insole to form an included angle of 85° to 90° and the other end coupled to the other end of the first straight line to define an included angle of approximately 60°.

25
30
4. The insole of claim 3, wherein the second placing area has a boundary formed by a second arc, a third straight line, a fourth straight line and the edge of the insole, and the second arc has an end coupled to the edge of the insole and the other end coupled to an end of the third straight line to define an included angle of 70° to 80°, and the fourth straight line has an end coupled to the edge of the insole to define an included angle of 85° to 90° and the other end coupled to the other end of the third straight line to define an included angle of 60° to 65°.

35
40
5. The insole of claim 4, wherein the fourth straight line has a length greater than the length of the second straight line.

45
6. The insole according to any one of claims 1 to 5, wherein the insole has an arc wall protruding and extending from the second half edge of the top of the insole and a recess formed at the second half portion of the top of the insole and corresponding to the arc wall, and a portion of the arc wall corresponding to the user's arch position has a height greater than the height of the remaining portions.

50
55

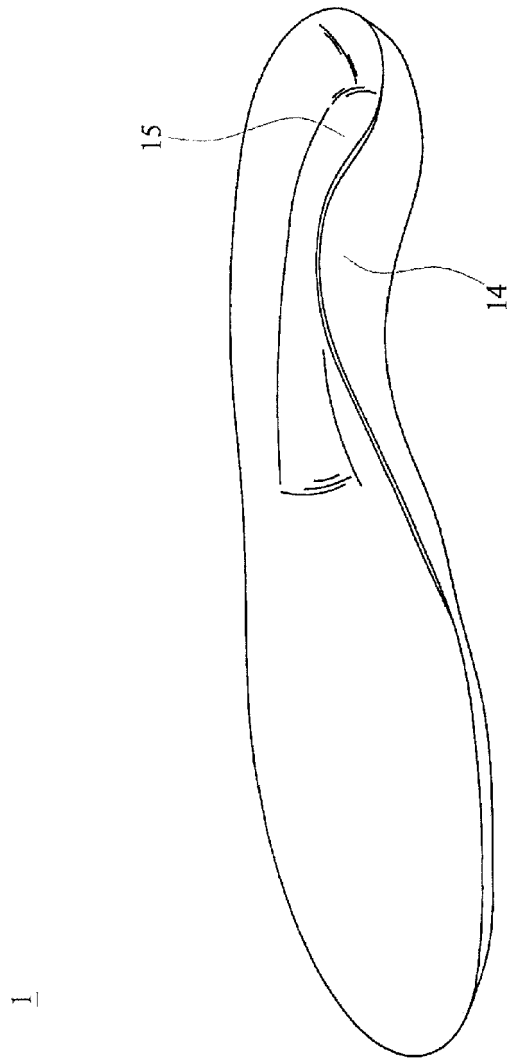


FIG.1

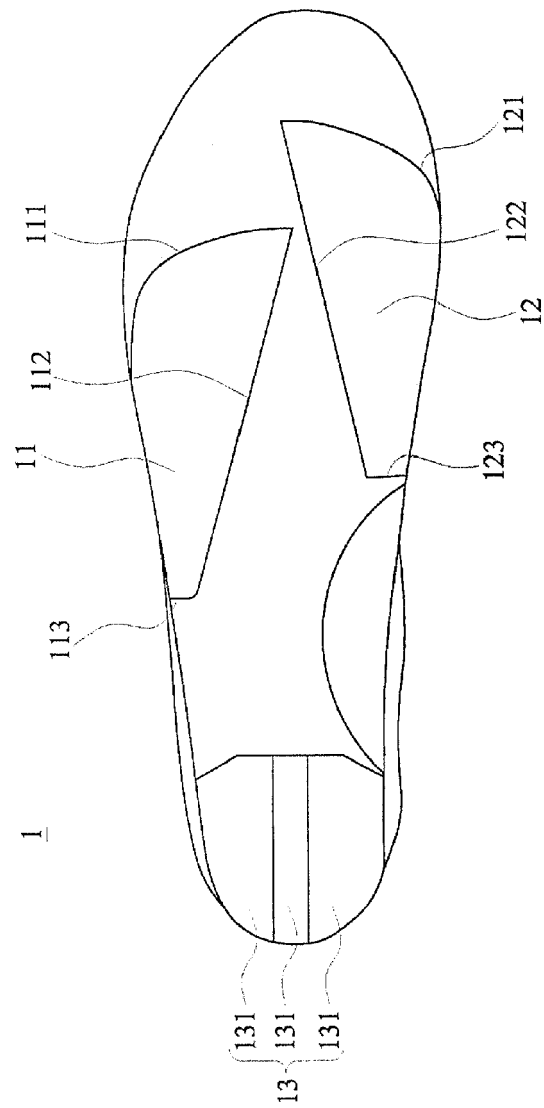


FIG.2



EUROPEAN SEARCH REPORT

 Application Number
 EP 20 16 6335

5

10

15

20

25

30

35

40

45

50

55

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	WO 2006/068513 A1 (FOOT SCIENCE INTERNAT LTD [NZ]; BAYCROFT CHARLES MAXWELL [NZ]) 29 June 2006 (2006-06-29) * page 13, line 24 - line 34; figures 2,3, 7B,25 *	1-6	INV. A43B7/14 A43B17/00
X	DE 20 2009 015388 U1 (KUEHNREICH HEINZ PETER [DE]) 23 December 2010 (2010-12-23) * paragraphs [0024], [0025]; figures 1,3,6 *	1	
A		2-6	
X	US 5 170 572 A (KANTRO SCOTT R [US]) 15 December 1992 (1992-12-15) * column 4, line 3 - line 13; figures 2,3,5 *	1,6	
A		2-5	
			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 2 July 2020	Examiner Baysal, Kudret
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			

 1
 EPO FORM 1503 03.82 (P04C01)

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

EP 20 16 6335

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
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

02-07-2020

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2006068513 A1	29-06-2006	AU 2005319806 A1	29-06-2006
		WO 2006068513 A1	29-06-2006
DE 202009015388 U1	23-12-2010	DE 102010060419 A1	19-05-2011
		DE 202009015388 U1	23-12-2010
US 5170572 A	15-12-1992	CA 2088243 A1	01-12-1992
		CN 1067567 A	06-01-1993
		EP 0541732 A1	19-05-1993
		JP H06501184 A	10-02-1994
		US 5170572 A	15-12-1992
		WO 9221258 A1	10-12-1992