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(54) ADJUSTABLE ORTHOTIC INSOLE AND A METHOD OF APPLICATION THE SAME

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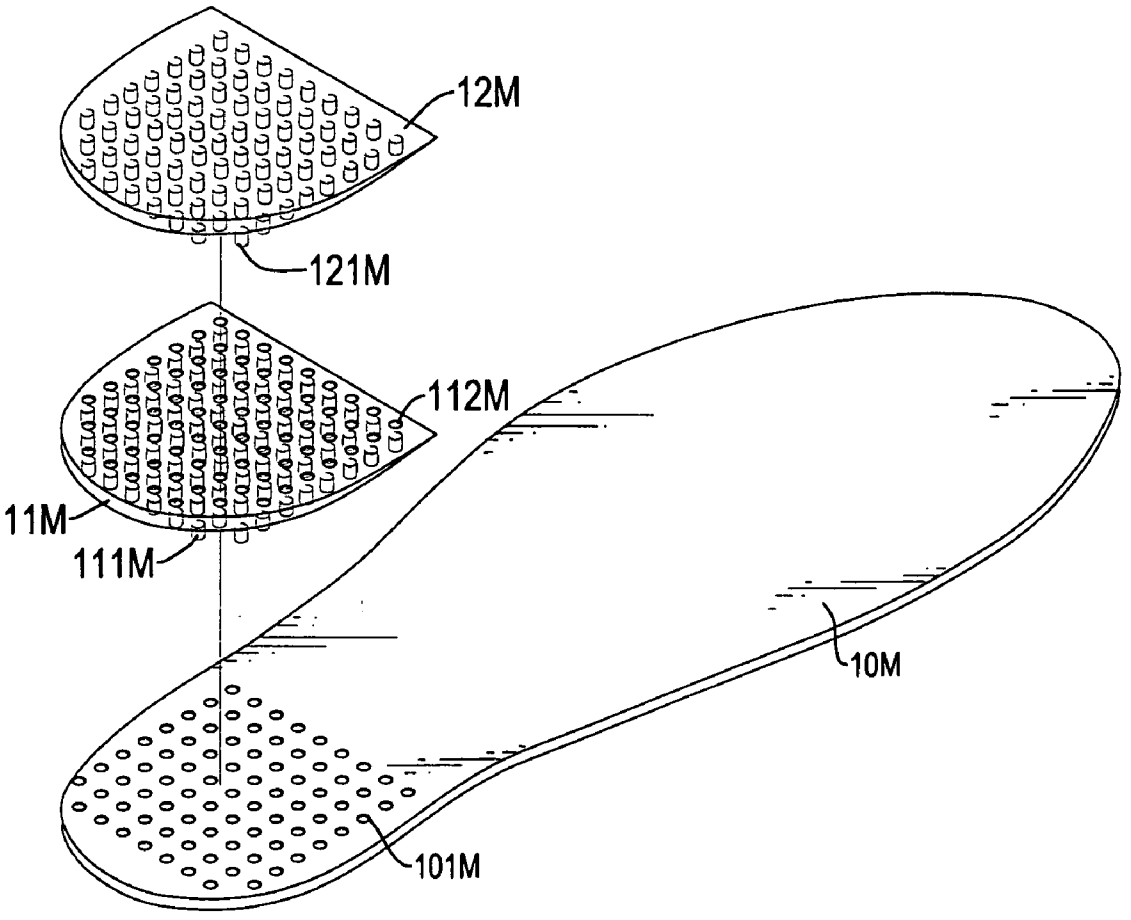
(57) ABSTRACT

An adjustable orthotic insole and a unique method of implementation has a shell and a sole lifter that is to correct malalignment of lower extremities and other functions such as cushioning, massage, etc are not anticipated. The distribution of ground reaction force is changed due to the orthotic effect of the sole lifter. A user adjusts position and thickness of the sole lifter incessantly until malalignment of lower extremities is restored to optimal alignment symmetrically. The present invention employs a unique method that the sole lifter is always opposite to rear foot lifter. Once the malalignment of lower extremities is corrected by the orthotic insole, the user would be able to maintain good posture and ambulate in ideal gait. Therefore, symmetric and coordinated movements are harmonious with balanced muscle function. The musculoskeletal system would be protected from overuse injury.



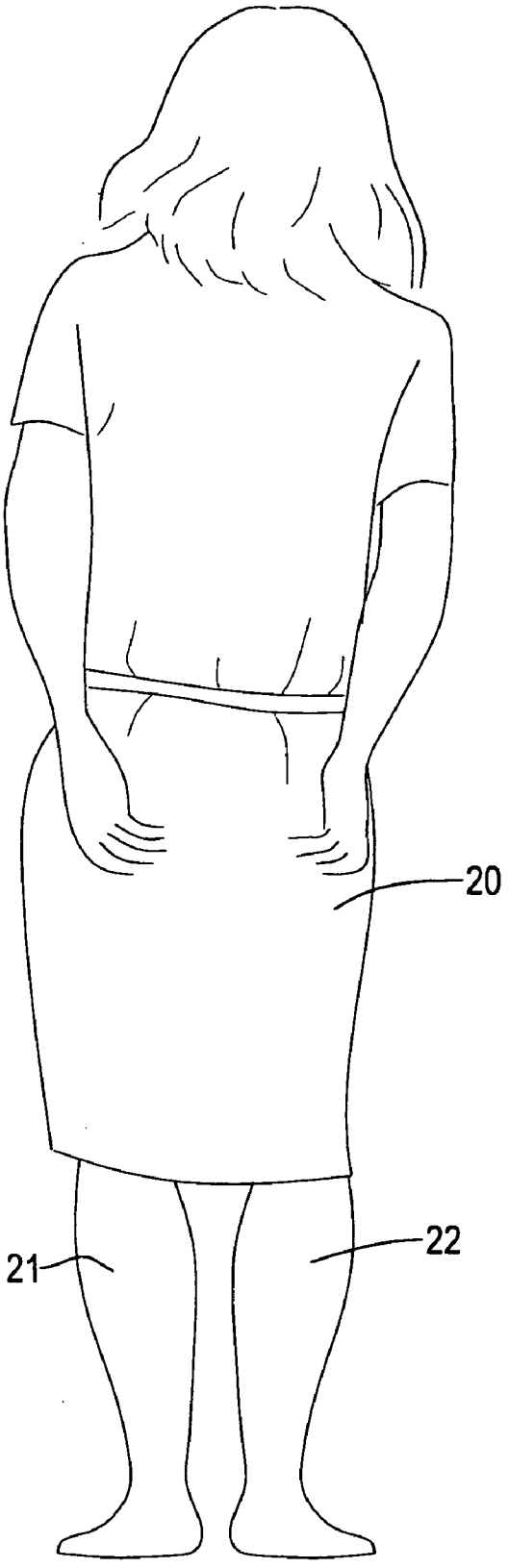



FIG. 1

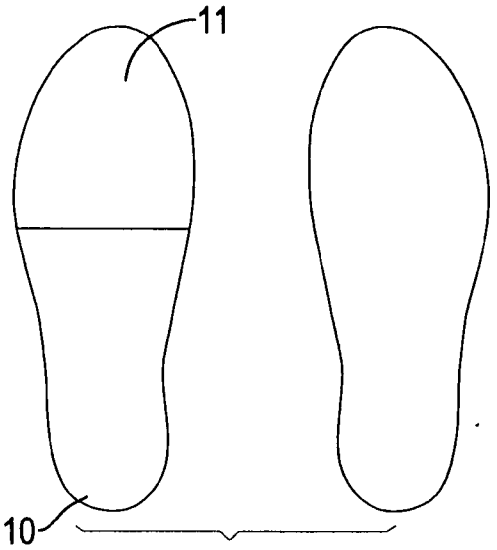



FIG. 2

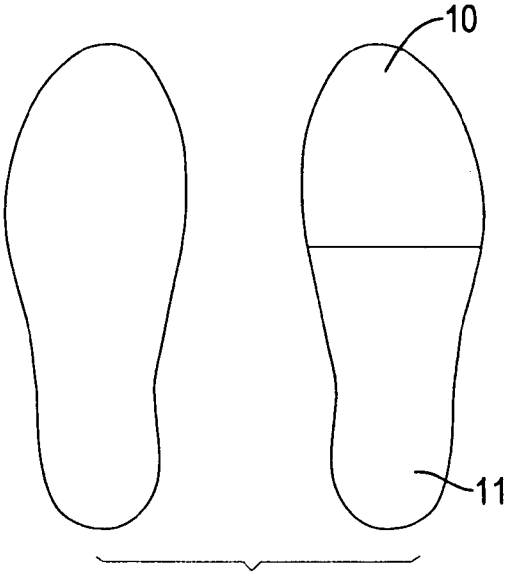



FIG. 3

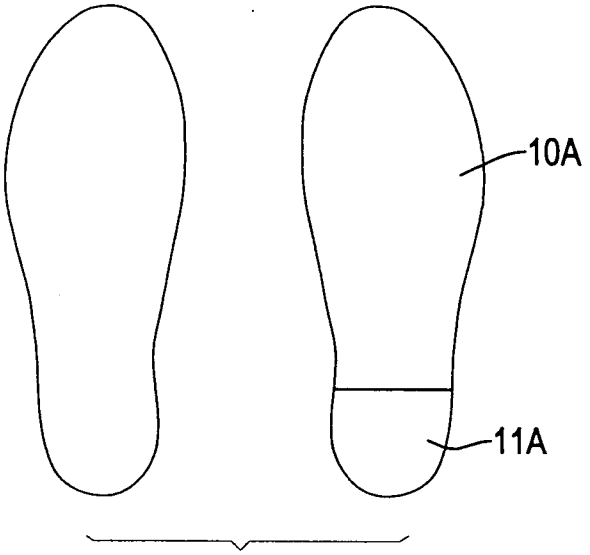



FIG.4

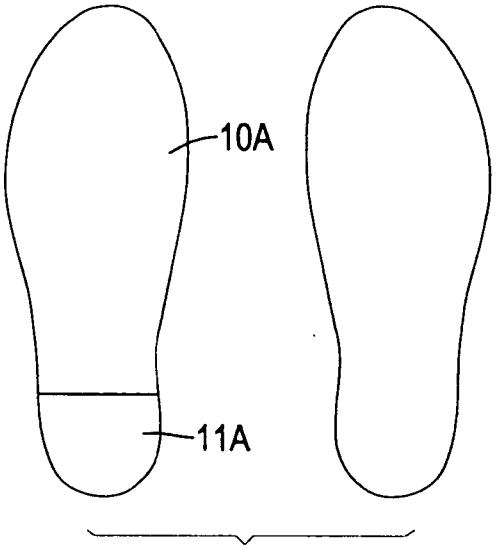



FIG.5

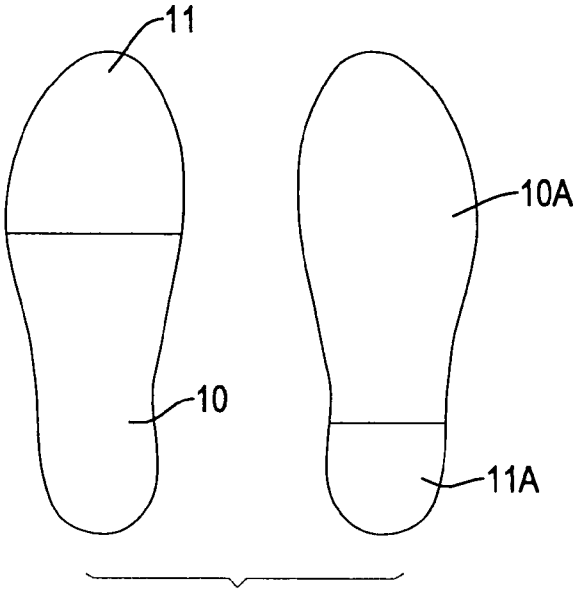



FIG.6

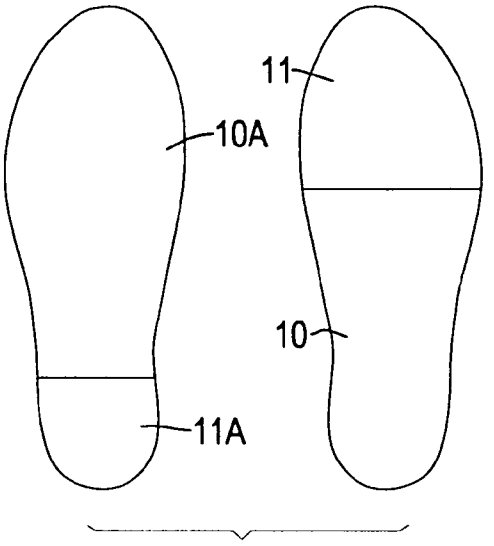



FIG.7

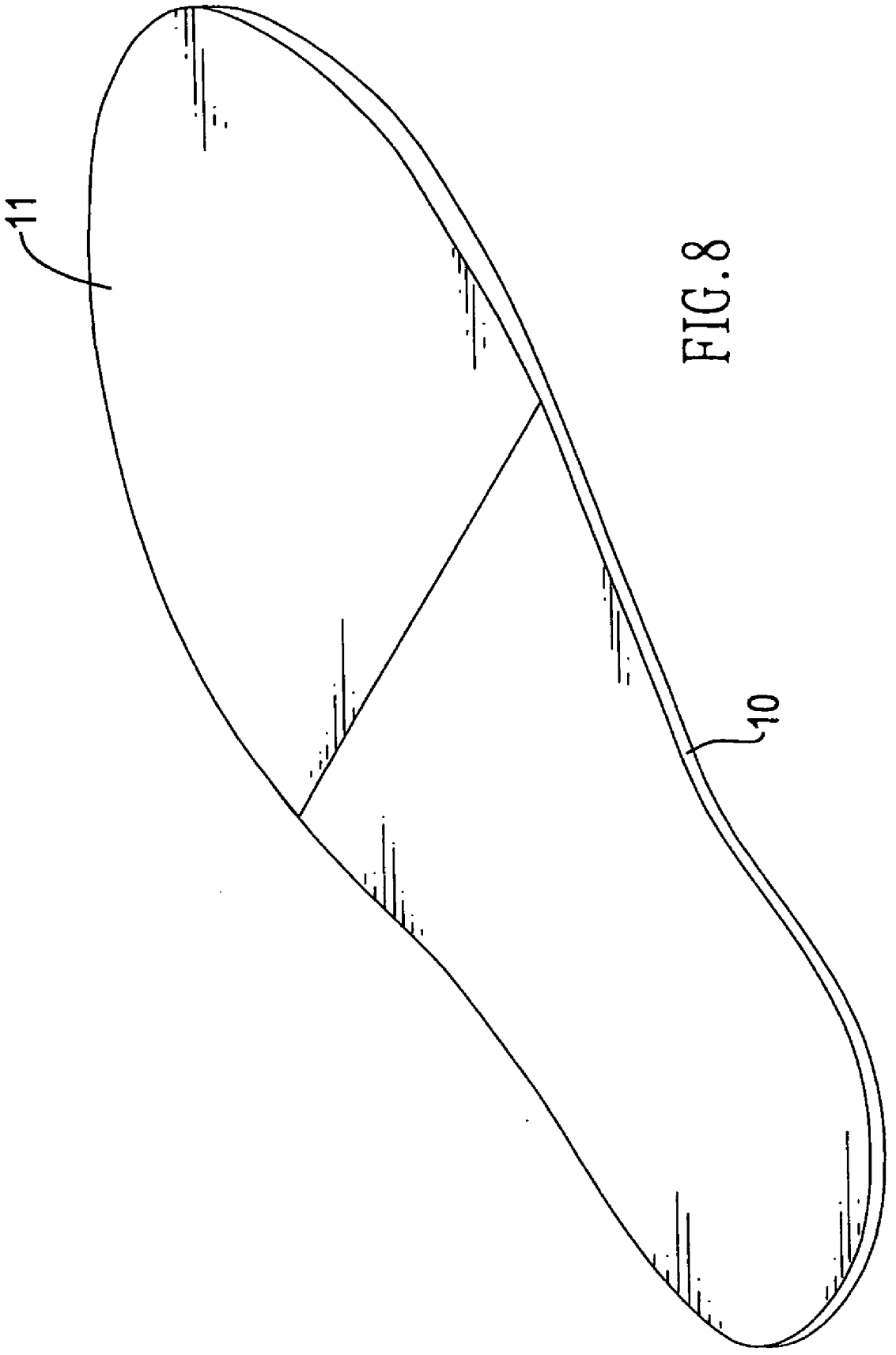



FIG. 8

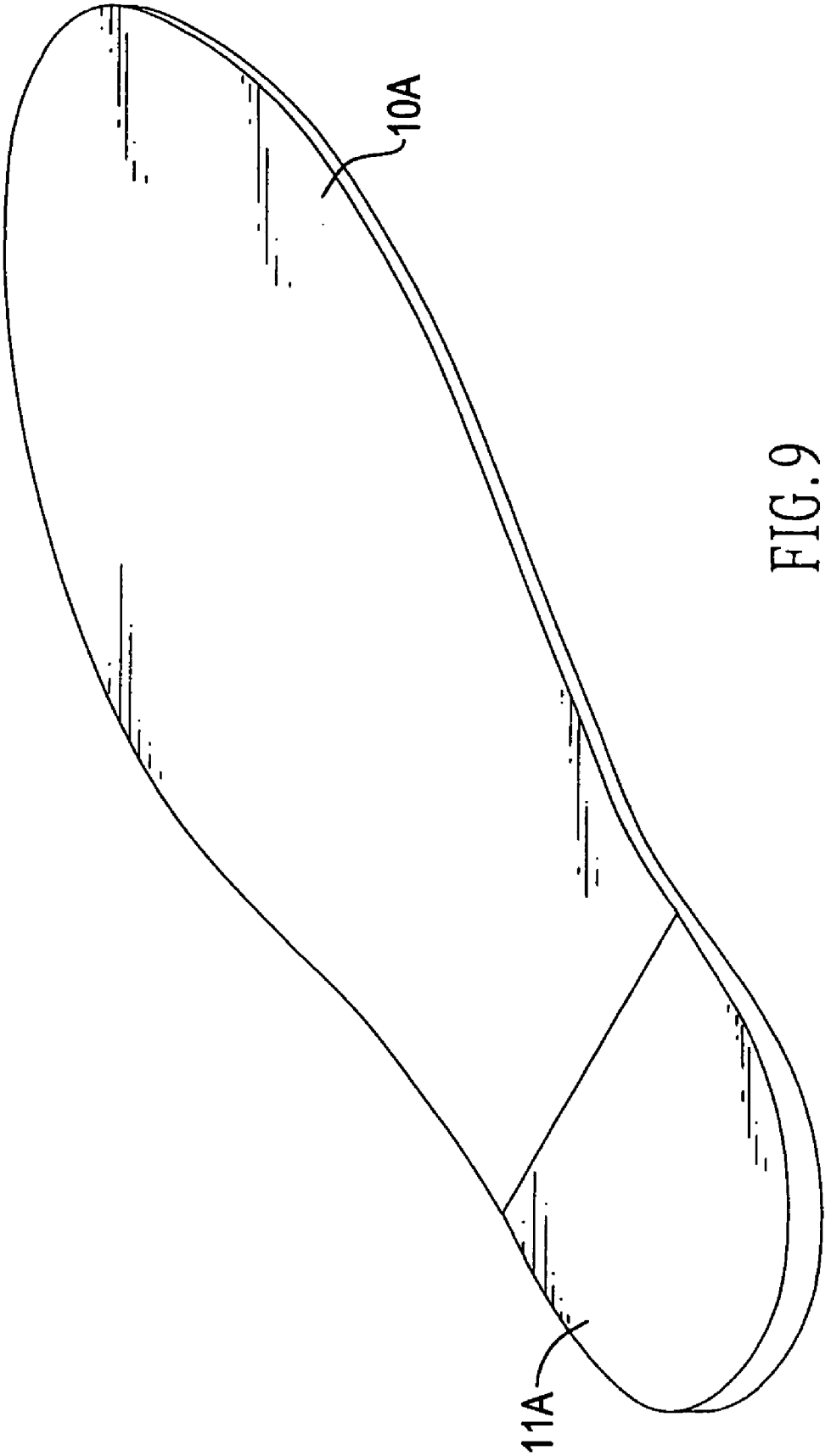



FIG. 9

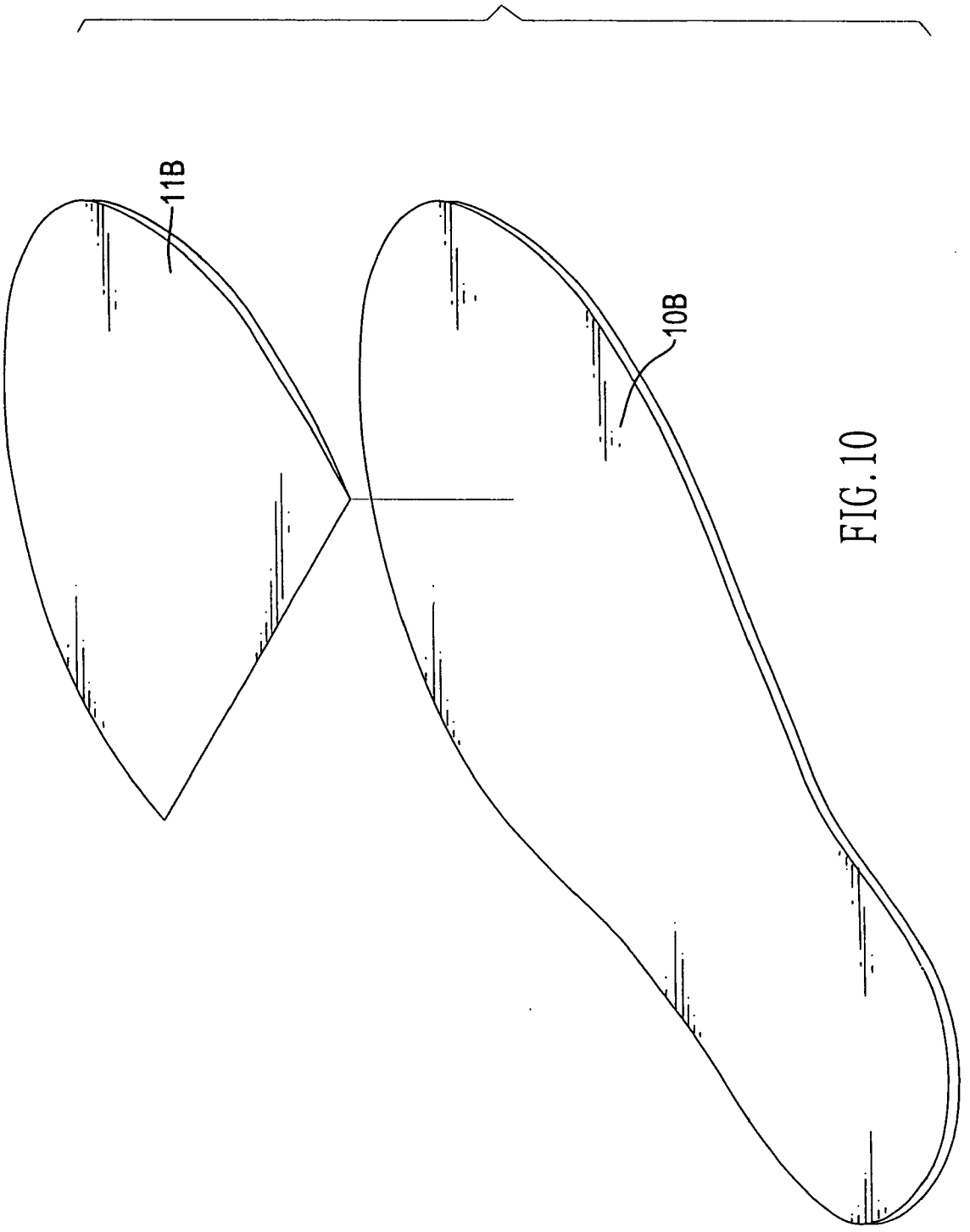



FIG. 10

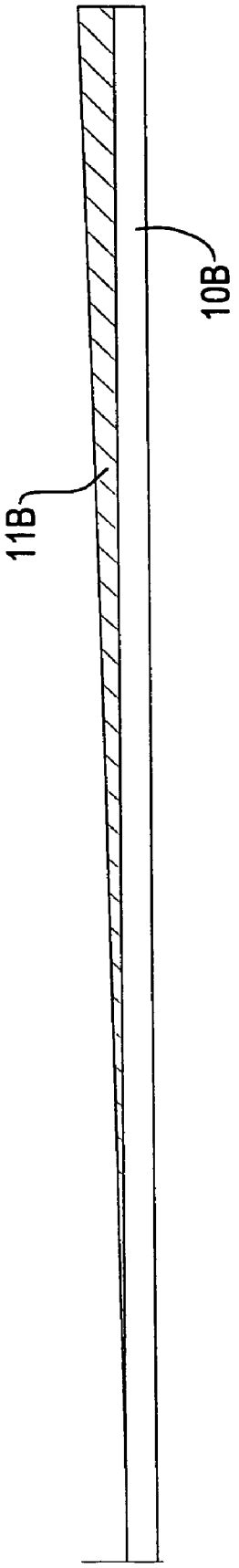



FIG. 11

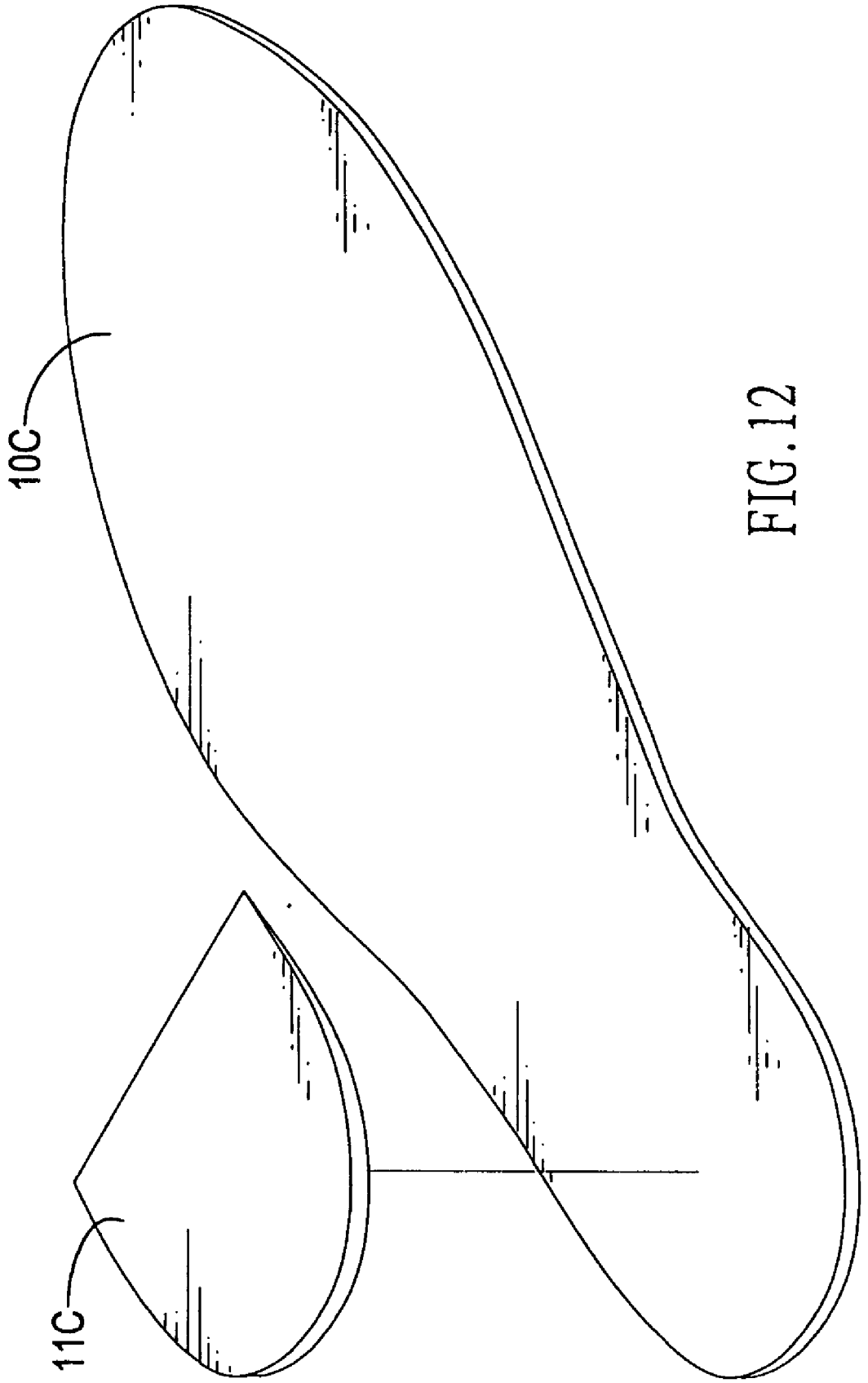



FIG. 12

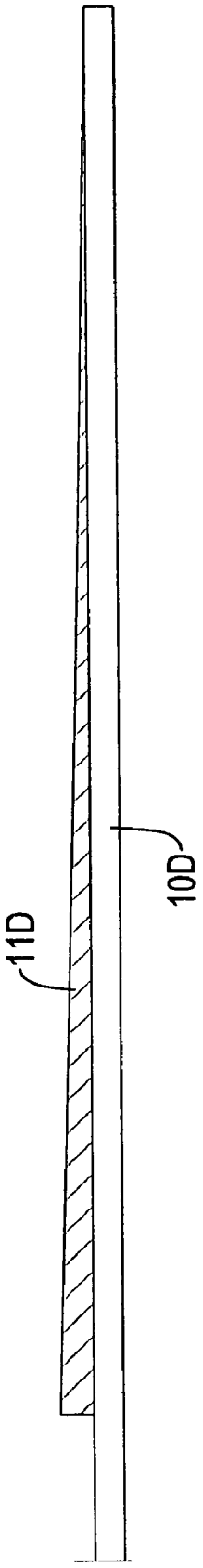



FIG. 13

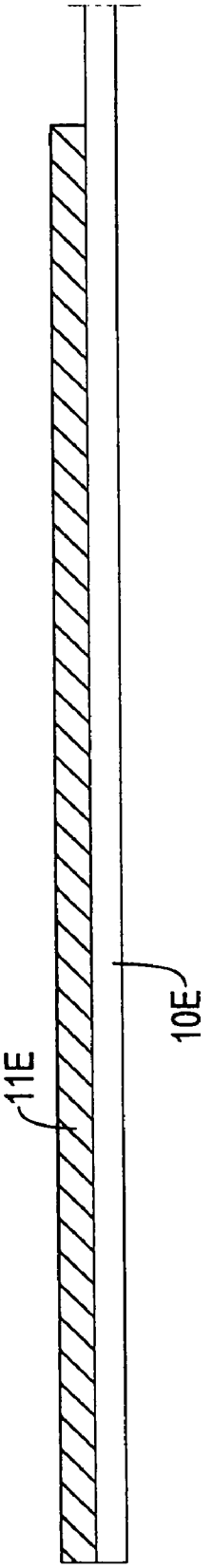



FIG. 14

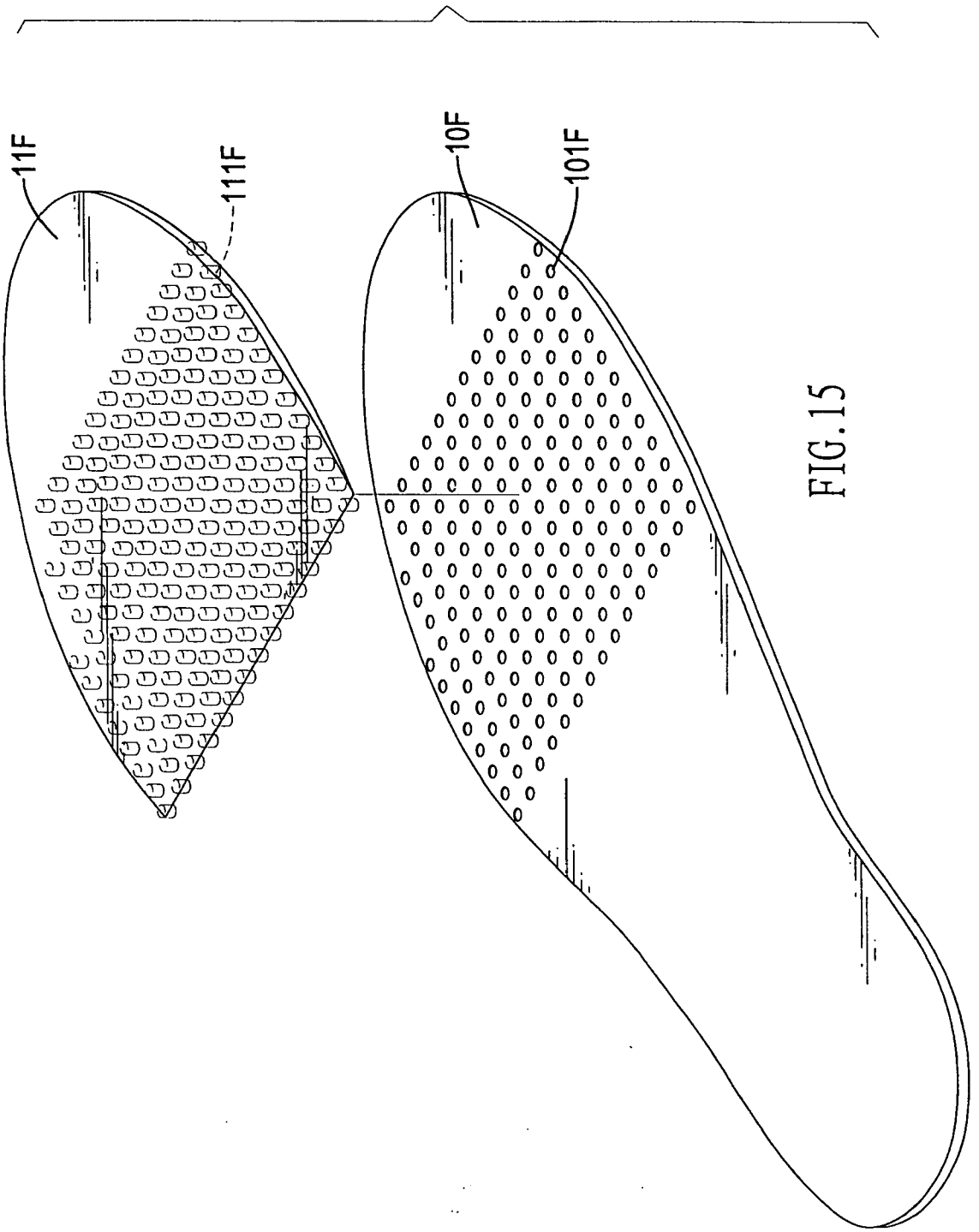



FIG. 15

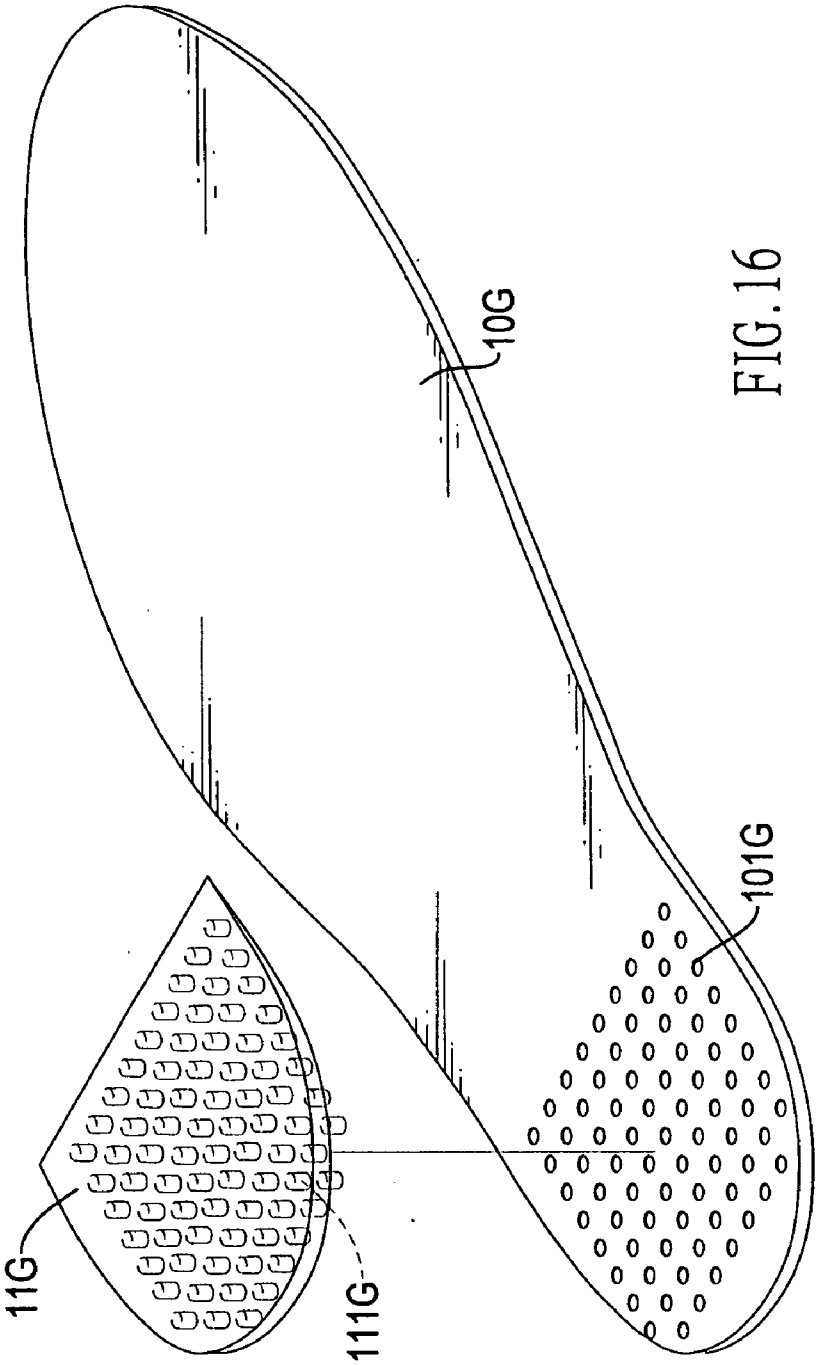



FIG. 16

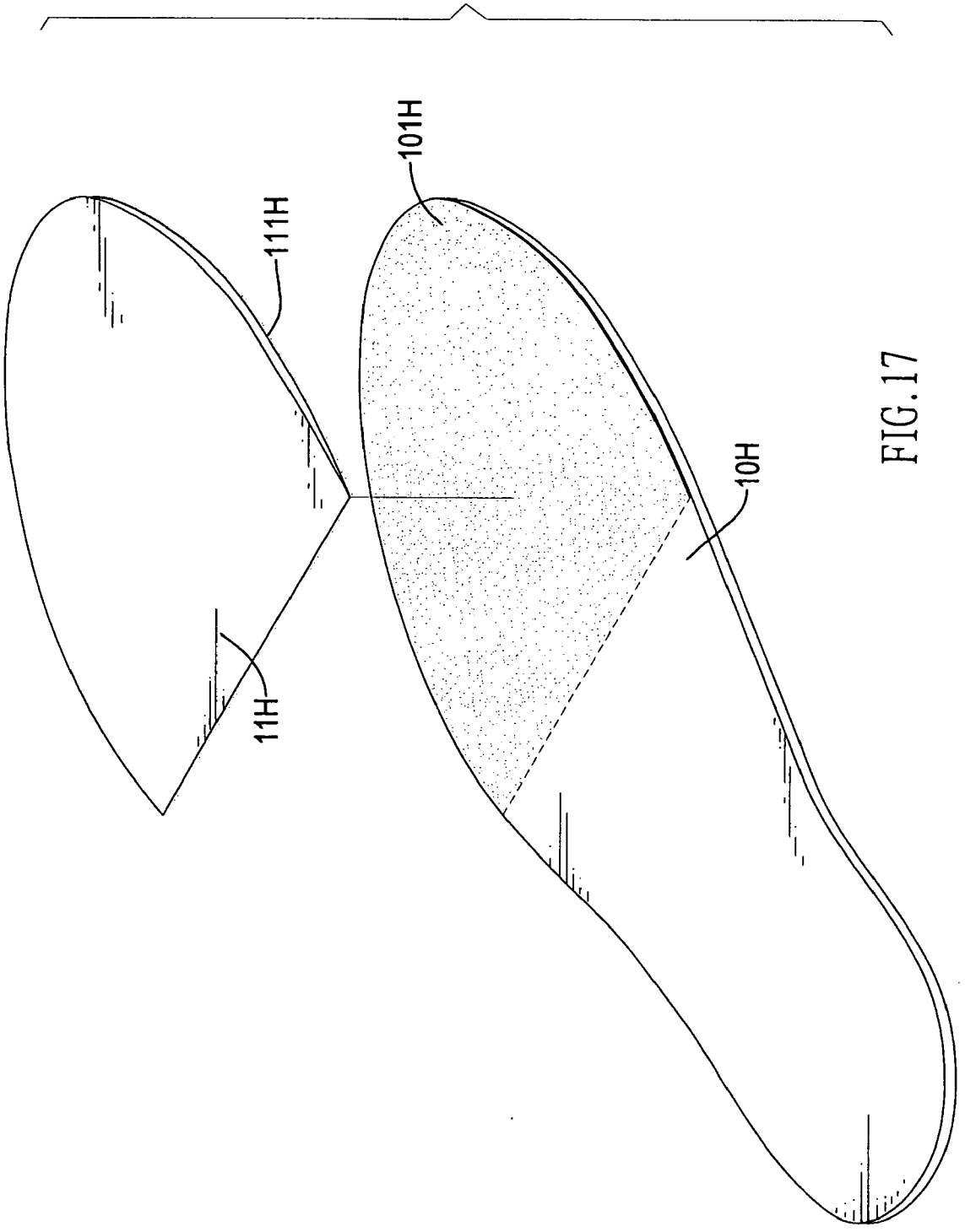



FIG. 17

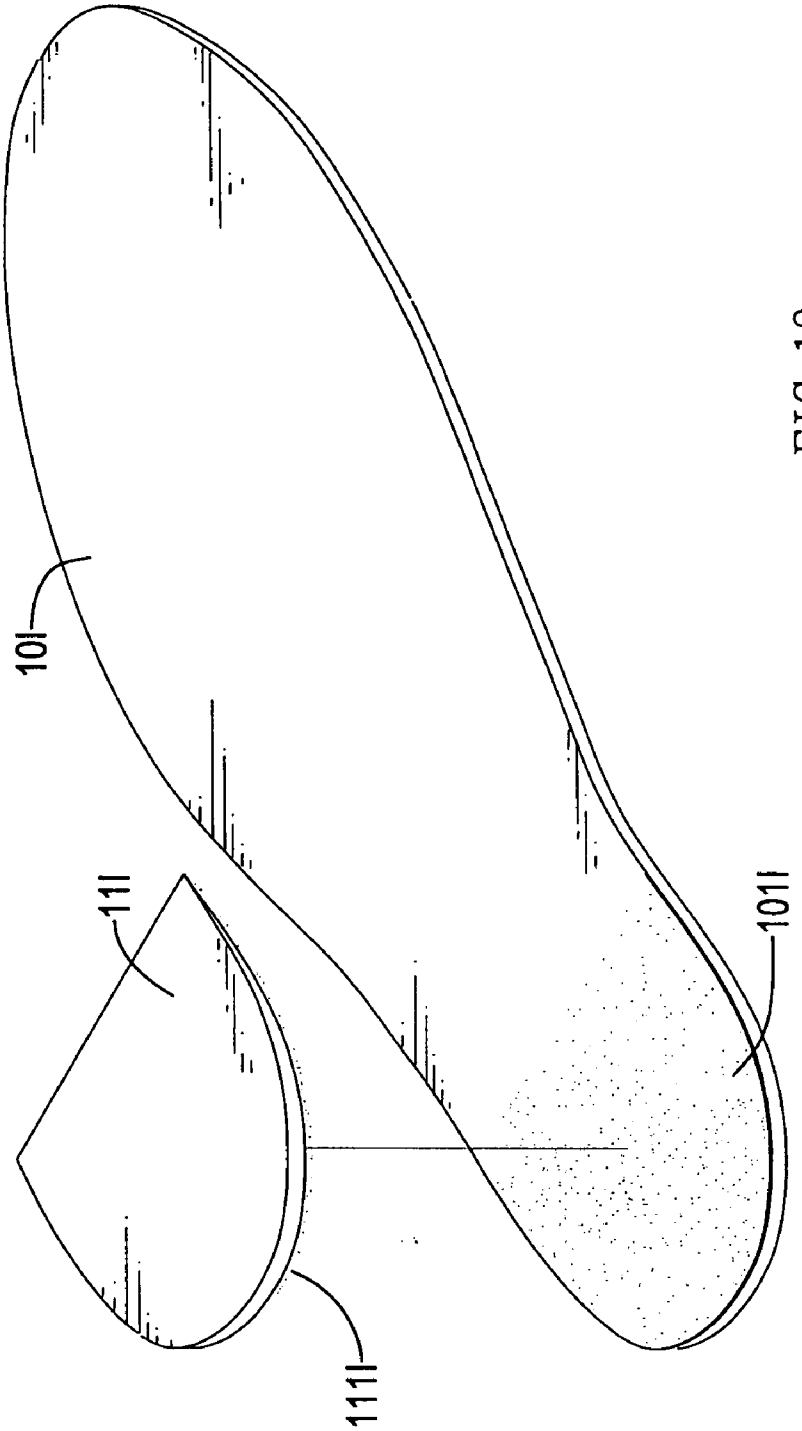



FIG. 18

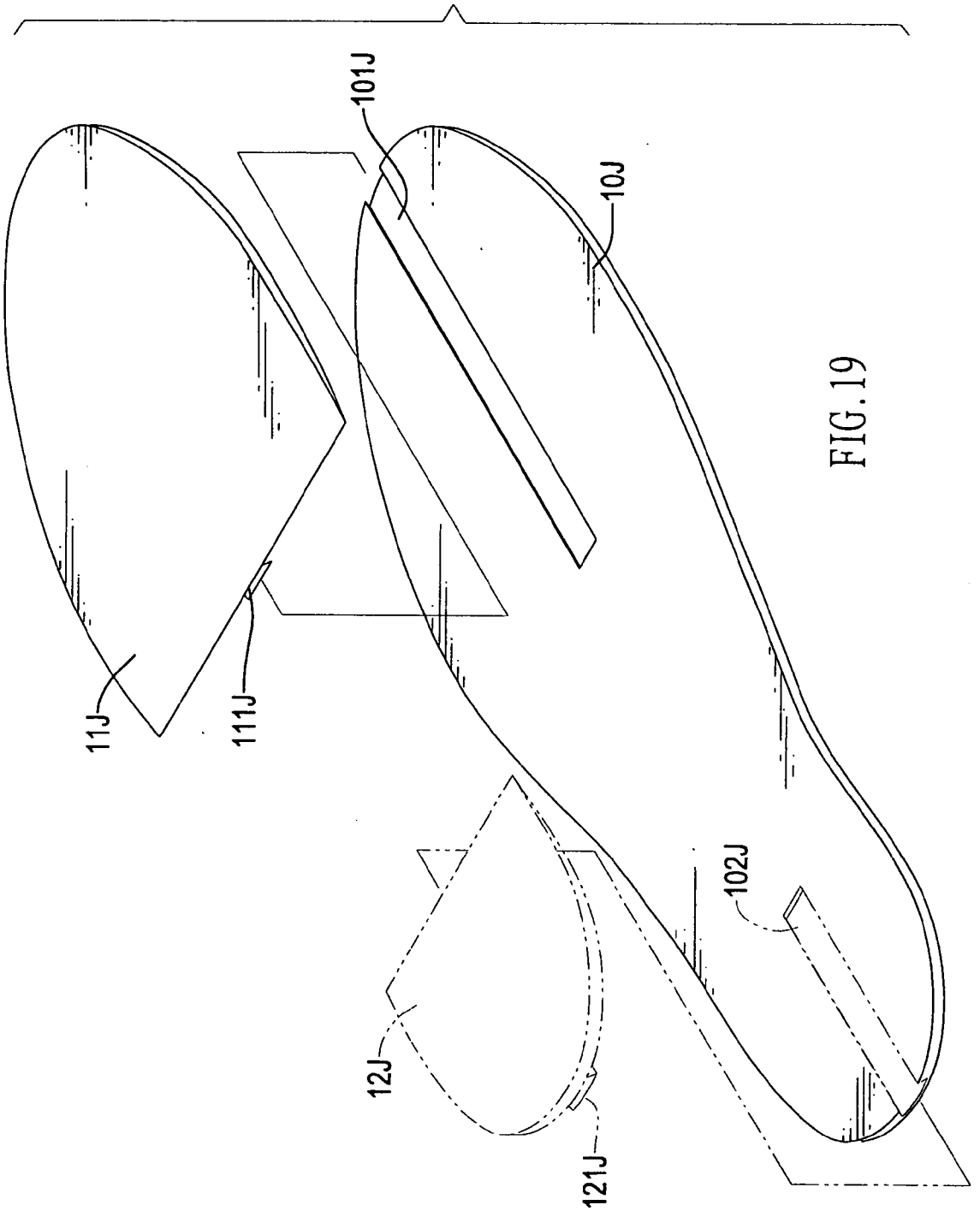



FIG. 19

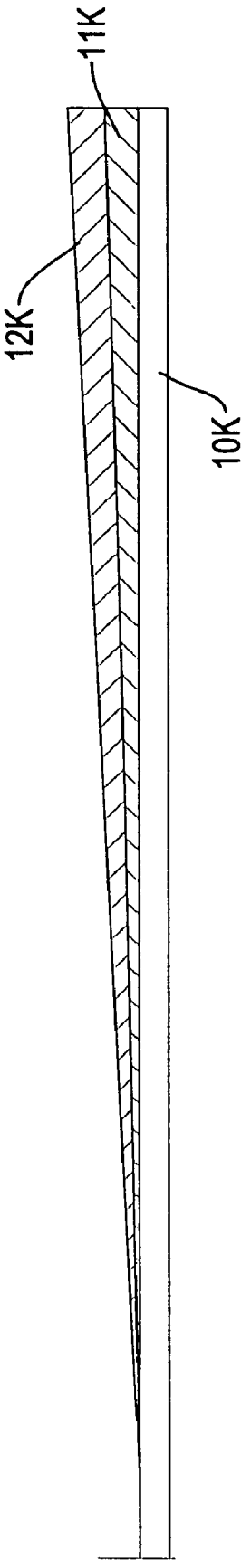



FIG. 20

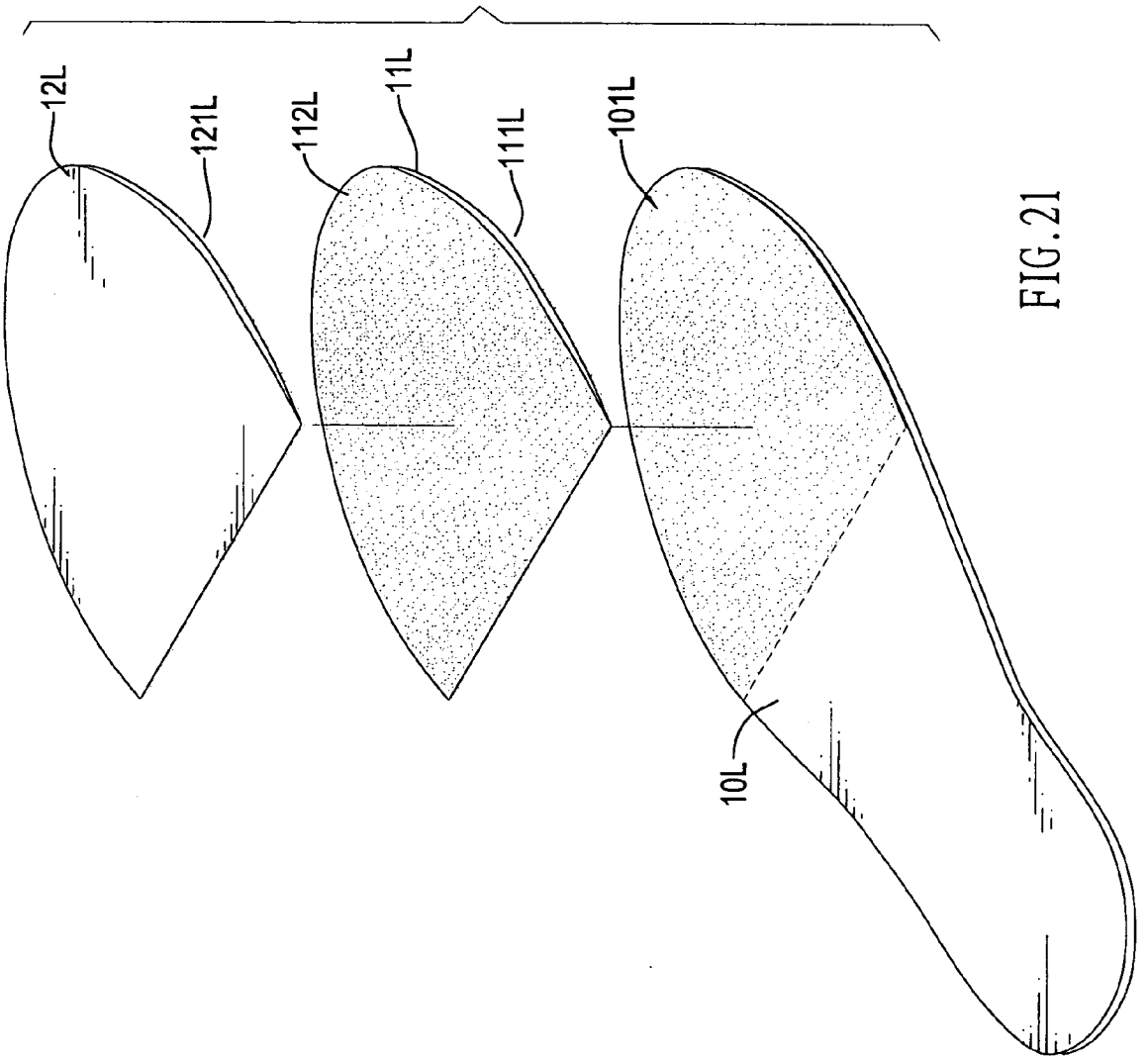



FIG. 21

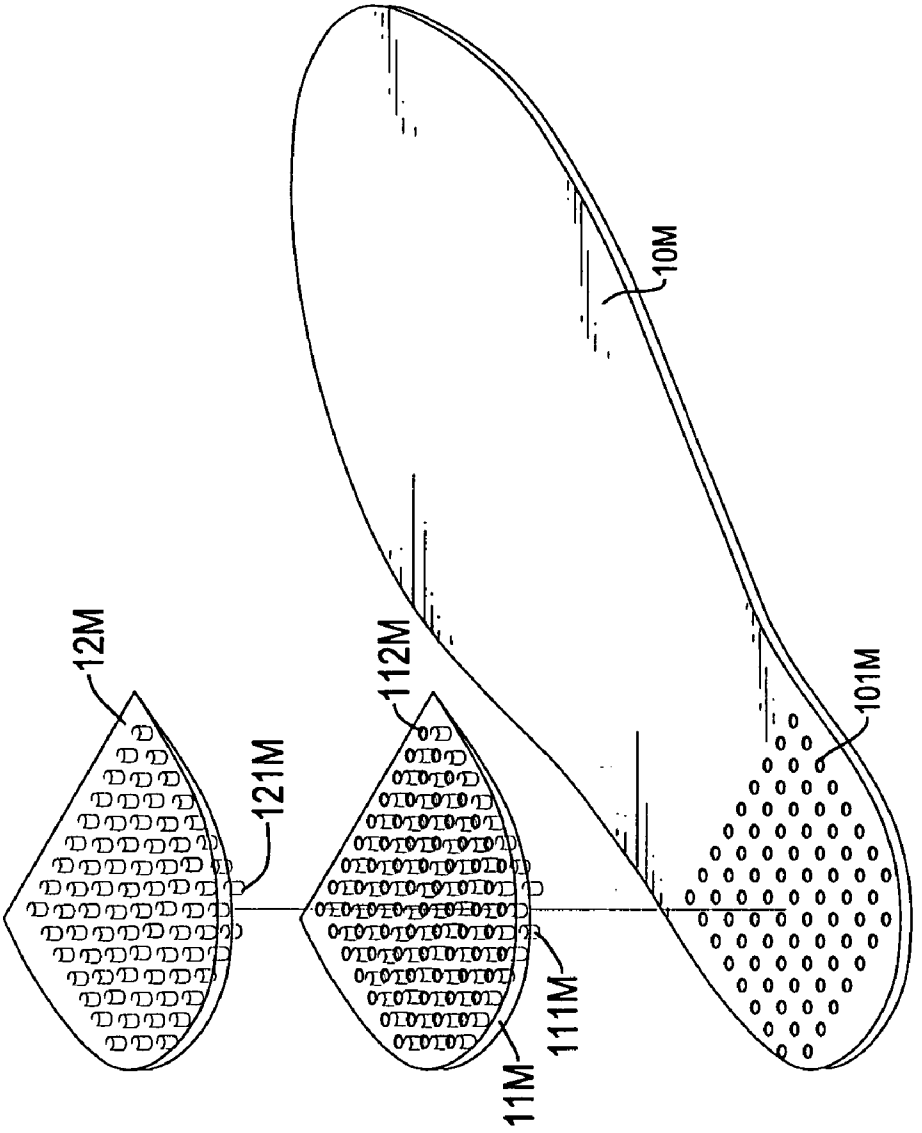



FIG. 22

# ADJUSTABLE ORTHOTIC INSOLE AND A METHOD OF APPLICATION THE SAME

## BACKGROUND OF THE INVENTION

**[0001]** 1. Field of the Invention

**[0002]** The present invention is an adjustable orthotic insole and a unique method of application, which is used to correct malalignment of lower extremities. Malaligned structures of lower extremities are predisposed to overuse injury. Therefore, a speculation is provided to prevent musculoskeletal system from overuse injuries that may be achieved through the correaction of malaligned lower extremities.

**[0003]** 2. Description of Related Art

**[0004]** Defective structures of lower extremities are common in general population. These structural deformities include, but not limited to, lower limb length Inequality, flat foot, cavus foot, knock-knee, bow-leg, just name a few. The afflicted people are vulnerable to muscle fatigue, joint pain, as well as poor posture. It has been well documented that poor posture is closely associated with musculoskeletal pain. There is a general consensus among medical professions that it is highly unlikely to develop musculoskeletal pains if someone has ideal posture. Based on contemporary studies of anatomy and biomechanics, criteria of ideal posture are established. However, almost none of ideal posture has ever been found in one person. Good posture can not be maintained without good support, which are lower extremities. For instance, lower limb length inequality has been recognized as a major contributing factor to scoliosis (side-bending spine).

**[0005]** In order to relieve musculoskeletal pains, medical professions have tried various methods to correct faulty posture. Physical and manual therapies are usually utilized as primary conservative means. Custom-made and prefabricated foot orthosis are also frequently used. In addition, ankle-foot orthosis, knee joint orthosis, as well as pelvic orthosis are also available devices. If all of conservative means fail to relieve pain symptoms, the final therapeutic means is usually resorted to surgical intervention. Surgery is potentially risky, and inevitably, costly. All of the available therapeutic means have limited success and long term outcome is unsatisfactory.

**[0006]** To overcome the shortcomings, the present invention provides an adjustable orthotic insole and a method of application to obviate or mitigate the aforementioned problems.

## SUMMARY OF THE INVENTION

**[0007]** The rationale behind present invention employs a sole lifter to redistribute ground reaction force. To be advised that ground reaction force is always present, no matter whatever means employed. However, when traumatic ground reaction force is redistributed or eliminated by the sole lifter, malalignment of lower extremities would be corrected. A good posture ensues.

**[0008]** The present invention consists of a shell, which houses front a sole lifter. Various thickness of the sole lifter is available. The unique feature of present invention is the sole lifters are always opposite to each other. The implementation of present invention employs neurobiofeed-back principle to achieve optimum correaction. A good posture would be maintained and long term outcome is very satisfactory.

**[0009]** Based on the inconvenience of prior art, a present invention is designed as an adjustable orthotic insole and an unique method of application, which is used to correct asymmetry and malalignment of lower extremities. If the lower extremities are well aligned and function symmetrically, the incidences of overuse injury are greatly reduced.

**[0010]** In order to meet the above demand, the technical means employed by present invention is to design a novel orthotic insole, which is composed of a shell and one or more sole lifter. Sole lifter corresponds to front foot or rear foot. The user applies at least one sole lifter to fulfill his/her specific demand. For instance, one foot or two feet may be applied. While the user stands on the insole, the insole provides joints optimal support, which ensues balanced muscle function. In particular, when structural asymmetry of lower extremities is present, the orthotic insole can correct the structural asymmetry. Through the corrective effect of present invention, the user may ambulate in ideal gait. Therefore, injuries associated with malalignment and asymmetry of lower extremities are prevented.

**[0011]** Other objectives, advantages and novel features of the invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings.

## BRIEF DESCRIPTION OF THE DRAWINGS

**[0012]** FIG. **1** is a perspective view of a user afflicted with lower limb length inequality;

**[0013]** FIG. **2** through FIG. **7** are top views of several embodiments of an adjustable orthotic insole when the user is testing;

**[0014]** FIG. **8** is a perspective view of a first embodiment of an adjustable orthotic insole in accordance with the present invention;

**[0015]** FIG. **9** is a perspective view of a second embodiment of an adjustable orthotic insole in accordance with the present invention;

**[0016]** FIG. **10** is an exploded perspective view of a third embodiment of an orthotic insole in accordance with the present invention;

**[0017]** FIG. **11** is a cross-section view in a partial section of the adjustable orthotic insole in FIG. **10**;

**[0018]** FIG. **12** is an exploded perspective view of a fourth embodiment of an adjustable orthotic insole in accordance with the present invention; **1** FIG. **13** is a cross-section view in a partial section of a fifth embodiment of an adjustable orthotic insole in accordance with the present invention;

**[0019]** FIG. **14** is a cross-section view in a partial section of a sixth embodiment of an adjustable orthotic insole in accordance with the present invention;

**[0020]** FIG. **15** is cm exploded perspective view of a seventh embodiment of an adjustable orthotic insole in accordance with the present invention;

**[0021]** FIG. **16** is an exploded perspective view of a eighth embodiment of an adjustable orthotic insole in accordance with the present invention;

**[0022]** FIG. **17** is an exploded perspective view of a ninth embodiment of an adjustable orthotic insole in accordance with the present invention;

**[0023]** FIG. **18** is an exploded perspective view of a tenth embodiment of an adjustable orthotic insole in accordance with the present invention;

**[0024]** FIG. **19** is an exploded perspective view of a eleventh embodiment of an adjustable orthotic insole in accordance with the present invention;

**[0025]** FIG. **20** is a cross-section view in a partial section of a twelfth embodiment of an adjustable orthotic insole in accordance with the present invention;

**[0026]** FIG. **21** is an exploded perspective view of a thirteenth embodiment of an adjustable orthotic insole in accordance with the present invention; and

**[0027]** FIG. **22** is an exploded perspective view of a fourteenth embodiment of an adjustable orthotic insole in accordance with the present invention.

## DESCRIPTION OF COMPONENT DESIGNATION

**[0028]**

| | | | |
|---|---|---|---|
| (10) | shell | (11) | sole lifter |
| (10A) | shell | (11A) | sole lifter |
| (10B) | shell | (11B) | sole lifter |
| (10C) | shell | (11C) | sole lifter |
| (10D) | shell | (11D) | sole lifter |
| (10E) | shell | (11E) | sole lifter |
| (10F) | shell | (101F) | receptive holes |
| (11F) | sole lifter | (111F) | protrusive pins |
| (10G) | shell | (101G) | receptive holes |
| (11G) | sole lifter | (111G) | protrusive pins |
| (10H) | shell | (101H) | hook-and-loop |
| (11h) | sole lifter | (111h) | hook-and-loop |
| (10i) | shell | (101i) | hook-and-loop |
| (11i) | sole lifter | (111i) | hook-and-loop |
| (10j) | shell | (101j) | keyway |
| (102J) | keyway | (11J) | sole lifter |
| (111J) | key | (12J) | accessory sole lifter |
| (121J) | key | (10k) | shell |
| (11k) | sole lifter | (12K) | accessory sole lifter |
| (10L) | shell | (101L) | hook-and-loop |
| (11K) | sole lifter | (111L) | hook-and-loop |
| (112L) | hook-and loop | (12L) | accessory sole lifter |
| (121L) | hoop-and-loop | (10M) | shell |
| (101M) | receptive holes | (11M) | sole lifter |
| (111L) | protrusive pins | (112L) | receptive holes |
| (12L) | accessory sole lifter | (121L) | protrusive pins |
| (20) | user | (21) | left lower extremity |
| (22) | right lower extremity | | |

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

**[0029]** With reference to FIG. **8**, a first embodiment of an adjustable orthotic insole in accordance with the present invention for a forefoot having a plantar surface comprises a shell (**10**) and a sole lifter (**11**). The shell (**10**) has a top forefoot surface. The sole lifter (**11**) is positioned on the top forefoot surface of shell (**10**) and in contact with the plantar surface of the forefoot. The sole lifter (**11**) and the shell (**10**) are produced as one solid piece, i.e. non-separable. In addition, the sole lifter (**11**) may be wedge-shaped, tapering from toes toward heel. The thickness of thickest end of the sole lifter (**11**) may varie between 0.1 cm and 1.6 cm.

**[0030]** With further reference to FIG. **9**, a second embodiment of an adjustable orthotic insole in accordance with the present invention for a rear feet near a heel having a plantar surface comprises a shell (**10**A) and a sole lifter (**11**A). The shell (**10**A) has a top rear foot surface. The sole lifter (**11**A) is positioned on the top rear foot surface of shell (**10**A) and in contact with the plantar surface of the rear foot near the heel. The sole lifter (**11**A) and the shell (**10**A) are produced as one solid piece, i.e. non-separable. The sole lifter (**11**A) may be wedge-shaped and tapering from heel toward toes. The thickness of thickest end of the sole lifter (**11**A) varies from 0.1 cm to 1.6 cm.

**[0031]** With further reference to FIGS. **10** and **11**, a third embodiment of an adjustable orthotic insole in accordance with the present invention for a forefoot having a plantar surface has a shell (**10**B) and a sole lifter (**11**B). The sole lifter (**11**B) is attached to the shell (**10**B) via adhesive cement and corresponds to plantar surface of the forefoot. The sole lifter (**11**B) may be wedge-shaped and tapering toward heel.

**[0032]** With further reference to FIG. **12**, a fourth embodiment of an adjustable orthotic insole in accordance with the present invention for a rear feet near a heel having a plantar surface has a shell (**10**C) and a sole lifter (**11**C). The sole lifter (**11**C) is attached to the shell (**10**C) via adhesive cement and corresponds to the plantar surface of the rear feet near the heel. The sole lifter (**11**C) is wedge-shaped and tapering from heel toward toes.

**[0033]** With further reference to FIG. **13**, a fifth embodiment of an adjustable orthotic insole in accordance with the present invention for a forefoot/a rear foot having a plantar surface has a shell (**10**D) and a foot lifter (**11**D). The foot lifter (**11**D) is attached to shell (**10**D) via adhesive cement and corresponds to the plantar surface of the forefoot/the rear foot. The foot lifter (**11**D) is wedge-shaped and tapering from heel.

**[0034]** With further reference to FIG. **14**, a sixth embodiment of an adjustable orthotic insole in accordance with the present invention for a forefoot/a rear foot having a plantar surface has a shell (**10**E) and a sole lifter (**11**E). The sole lifter (**11**E) is attached to either the forefoot or the rear foot position of shell (**10**E) via adhesive cement and corresponds to the plantar surface of the forefoot/the rear foot. The sole lifter (**11**E) is even thickness.

**[0035]** With further reference to FIG. **15**, a seventh embodiment of an adjustable orthotic insole in accordance with the present invention for a forefeet has a shell (**10**F) and a sole lifter (**11**F). The shell (**10**F) has a forefoot area and receptive holes (**101**F). The receptive holes (**101**F) are formed in forefoot area of the shell (**10**F). The sole lifter has a surface and protrusive pins (**111**F). The protrusive pins (**111**F) are formed on the surface of the sole lifter (**11**F) and secretively engage to the receptive holes (**101**F) of the sole lifter (**11**F) to securely bond the sole lifter (**11**F) and the shell (**10**F) together.

**[0036]** With further reference to FIG. **16**, an eighth embodiment of an adjustable orthotic insole in accordance with the present invention for a rear foot has a shell (**10**G) and a sole lifter (**11**G). The shell (**10**G) has a rear foot area and receptive holes (**101**G). The receptive holes (**101**G) are formed on the rear foot area of the shell (**10**G). The sole lifter (**11**G) has a surface and protrusive pins (**111**G). The protrusive pins (**111**G) are formed on the surface of the sole lifter (**11**G) and selectively engage to the receptive holes (**101**G) of the sole lifter (**111**G) to securely bond the sole lifter (**11**G) and the shell (**10**G) together.

**[0037]** With further reference to FIG. **17**, a ninth embodiment of an adjustable orthotic insole in accordance with the

present invention for a forefoot has a shell (**10**H) and a sole lifter (**11**H). The shell (**10**H) has a forefoot area and a hook-and-loop (**101**H). The hook-and-loop (**101**H) is mounted on the forefoot area of the shell (**10**H). The foot lifter (**11**H) has a surface and a hook-and-loop (**111**H). The hook-and-loop (**111**H) is mounted on the surface of the foot lifter (**11**H) and selectively fastens the hook-and-loop (**101**H) of the shell (**10**H) to securely bond the shell (**10**H) and the sole lifter (**11**H) together.

**[0038]** With further reference to FIG. **18**, a tenth embodiment of an adjustable orthotic insole in accordance with the present invention for a rear foot has a shell (**10**I) and a sole lifter (**11**I). The shell (**10**I) has a rear foot area and a hook-and-loop (**101**I). The hook-and-loop (**101**I) is mounted on the rear foot area of the shell (**10**I). The sole lifter (**11**I) has a surface and a hook-and-loop (**111**I). The hook-and-loop (**111**I) is mounted on the surface of sole lifter (**11**I) and selectively fastens the hook-and-loop (**101**I) of the shell (**10**I) to bond the shell (**10**I) and the sole lifter (**11**I) together.

**[0039]** With further reference to FIG. **19**, an eleventh embodiment of an adjustable orthotic insole in accordance with the present invention for a forefoot/a rear foot has a shell (**10**J) and a sole lifter (**11**I, **12**J). The shell (**10**J) has a forefeet area, a rear foot area and two keyways (**101**J, **102**J). The two keyways (**101**J, **102**J) are separately formed on the a forefeet area and a rear foot area of the shell (**101**J). The sole lifer (**11**J, **12**J) has a surface and a key (**111**J, **121**J). The key (**111**J, **121**J) is formed on the surface of the is sole lifer (**11**J, **12**J) and selectively engage, the keyway (**101**J, **102**J) of the shell (**10**J) to securely connect to the shell (**10**J) and sole lifer (**11**J, **12**J) together.

**[0040]** With further reference to FIG. **20**, a twelfth embodiment of an adjustable orthotic insole in accordance with the present invention for a forefoot/a rear foot has a shell (**10**K), a sole lifter (**11**K) and a least one accessory sole lifter (**12**K). The shell (**10**K) has a forefoot area and a rear foot area. The sole lifter (**11**K) is mounted on the shell (**10**K) either on the forefoot area or the rear foot area of the shell (**10**K) and has a surface. The at least one accessory sole lifter (**12**K) is mounted on the surface of the sole lifter (**11**K) to increase thickness of sole lifter (**11**K). If the thickness of the sole lifter (**11**K) needs to fit a desire of a user, the more accessory sole lifter (**12**K) can be added on the sole lifter (**11**K).

**[0041]** With further reference to FIG. **21**, a thirteenth embodiment of an adjustable orthotic insole in accordance with the present invention for a forefoot has a shell (**10**L), a sole lifter (**11**L) and a least one accessory sole lifter (**12**L). The shell (**10**L) has a forefoot area and a hook-and-loop (**101**L). The hook-and-loop (**101**L) is mounted on the forefoot area of the shell (**10**L). The sole lifter (**11**L) has two surfaces and two hook-and-loops (**111**L, **112**L). Each hook-and-loop (**111**L, **112**L) is mounted on each surface of the sole lifter (**11**L). The hook-and-loop (**111**L) is selectively engage to the hook-and-loop (**101**L) of the shell (**10**L) to connect to the sole filter (**11**L) to the shell (**10**L). The least one accessory sole lifter (**12**L) has at least one surface and at least one hook-and-loop (**121**L). The at least one hook-and-loop (**121**L) is mounted on the at least one surface of the least one accessory sole lifter (**12**L) and selectively engage to the hook-and-loop (**112**L) of the sole lifter (**11**L) to combine the least one accessory sole lifter (**12**L) and the sole lifter (**11**L) together.

**[0042]** With further reference to FIG. **21**, a fourteenth embodiment of an adjustable orthotic insole in accordance with the present invention for a rear foot has a shell (**10**M), a sole lifter (**11**M) and a least one accessory sole lifter (**12**M). The shell (**10**M) has a rear foot area and receptive holes (**101**M). The receptive holes (**101**M) are formed on the rear foot area of the shell (**10**M). The sole lifter (**11**M) has a bottom surface, a top surface, protrusive pins (**111**M) and receptive holes (**112**M). The protrusive pins (**111**M) are formed on the bottom surface of the sole lifter (**11**M) and selectively engage to the receptive holes (**101**M) of the shell (**10**M) to combine the shell (**10**M) and the sole lifter (**11**M) together. The receptive holes (**112**M) are formed on the top surface of the sole lifter (**11**M). The at least one accessory sole lifter (**12**M) has a surface and protrusive pins (**121**M). The protrusive pins (**121**M) are formed on the surface of the at least one accessory sole lifter (**12**M) and selectively engage to the receptive holes (**112**M) of the sole lifter (**11**M) to combine the sole lifter (**11**M) and the at least one accessory sole lifter (**12**M) together.

**[0043]** With further reference to FIGS. **1** through **7**, a unique method of applying an adjustable orthotic insole in accordance with the present invention for a user (**20**) having a left lower extremity (**21**) and a right lower extremity (**22**) comprises acts of determining which lower extremities (**21**, **22**) of the user (**20**) needs the shell (**10**) with the sole lifter (**11**, **11**A), comparing sensation of joint and muscle of the left lower extremity (**21**) and the right lower extremity (**22**) of the user (**20**) and optionally adding the accessory sole lifter (**12**J, **12**K) to increase the thickness of the sole lifter (**11**, **11**A).

**[0044]** The act of determining which lower extremities (**21**, **22**) of the user (**20**) needs the shell (**10**) with sole lifter (**11**, **11**A) comprises a testing and a comparing. The testing is the user (**20**) stands on the shell (**10**) with the sole lifter (**11**), one of the user's lower extremities (**21**, **22**) corresponding to the sole lifter (**11**). If the thickness of the sole lifter (**11**) is not enough, the accessory sole lifter (**12**J, **12**K) may be stacked up to increase the thickness of sole lifter (**11**). The comparing is the user (**20**) feels the sensation of joint and muscle of the lower extremities (**21**, **22**). The perception of comfort and relaxation of one lower extremity (**21**, **22**) would indicate that the sole lifter (**11**) needs to be placed on the shell (**10**). When one lower extremity (**21**, **22**) stands on the shell (**10**) with the sole lifter (**11**), both lower extremities (**21**, **22**) would feel comfortable and relaxing simultaneously. If the contralateral lower extremity (**21**, **22**), standing on the shell (**10**) without the sole lifter (**11**), experiences uncomfortable and tight, the sole lifter (**11**A) may be placed in position. The sole lifter (**11**A) may alter the thickness by stacking up accessory lifter (**12**J, **12**K). The thickness of the sole lifter (**11**, **11**A) needs to be adjusted until both lower extremities (**21**, **22**) of the user (**20**) feels comfortable and relaxing simultaneously. At this point, both lower extremities (**21**, **22**) are symmetric, well-aligned, and balanced.

**[0045]** In summary, the decision for optimal placement of the sole lifter (**11**, **11**A) on the shell (**10**, **10**A) is entirely dependent on the feedback sensation of comfort and relaxation of both lower extremities (**21**, **22**).

What is claimed is:

**1**. A method of optimal operation of a novel adjustable orthotic insole comprising:

a user with a right lower extremity and a lift lower extremity, the user standing on an orthotic insole with

a forefoot area, a rear foot area and a sole lifter being placed underneath either the right or the left forefoot area, position and thickness of the sole lifter being adjusted incessantly until malalignment of lower extremities reformed to demonstrate optimal alignment symmetrically.

**2**. The method as claimed in claim **1**, wherein

if the lower extremities is not remedied;

the shell with the sole lifter located at the rear foot area of the shell is placed on the lower extremity opposite to the lower extremity which already has the shell with sole lifter placed underneath;

the user adjusts position and thickness of the sole lifters incessantly until both lower extremities demonstrate optimal alignment symmetrically.

**3**. The method as claim in claim **1**, wherein the sole lifter alters thickness by stacking up with accessory sole lifter.

**4**. The method as claim in claim **2**, wherein the sole lifter alters thickness by stacking up with accessory sole lifter.

**5**. An adjustable orthotic insole comprising

a shell having

a forefoot area; and

a rear foot area; and

a sole lifter be positioned on one of the areas of a shell having

a surface.

**6**. The adjustable orthotic insole as claimed in claim **5**, wherein the surface of sole lifter tapering from heel toward toes.

**7**. The adjustable orthotic insole as claimed in claim **5**, wherein the surface of sole lifter tapering toes toward heel.

**8**. The adjustable orthotic insole as claimed in claim **6** further has at least one accessory sole lifter stacked on the sole lifter to increase thickness of the sole lifter.

**9**. The adjustable orthotic insole as claimed in claim **7** further has at least one accessory sole lifter stacked on the sole lifter to increase thickness of the sole lifter.

**10**. The adjustable orthotic insole as claimed in claim **8**, wherein the sole lifter, the shell and the accessory sole lifter are connected by adhesive cement.

**11**. The adjustable orthotic insole as claimed in claim **8**, wherein the sole lifter and the shell are produced as one solid piece.

**12**. The adjustable orthotic insole as claimed in claim **8**, wherein

the shell has receptive holes formed on the shell;

the sole lifter has protrusive pins formed on the sole lifter and selectively engaging to the receptive holes of the shell and receptive holes formed on the sole lifter;

the accessory sole lifter has protrusive pins formed on the accessory sole lifter and selectively engaging to the receptive holes of the sole lifter.

**13**. The adjustable orthotic insole as claimed in claim **8**, wherein

the shell has a hook-and-loop mounted on the shell;

the sole lifter has two hook-and-loops mounted on the sole lifter, one of the hook-and-loops of the sole lifter fastening to the hook-and-loop of the shell;

the accessory sole lifter has a hook-and-loop mounted on the accessory sole lifter and fastening to the hook-and-loop of the sole filter.

**14**. The adjustable orthotic insole as claimed in claim **8**, wherein

the shell has a key formed on the shell;

the sole lifter has a keyway formed on the sole lifter and engaging to the key of the shell.

**15**. The adjustable orthotic insole as claimed in claim **9**, wherein the sole lifter, the shell and the accessory sole lifter are connected by adhesive cement.

**16**. The adjustable orthotic insole as claimed in claim **9**, wherein the sole lifter and the shell are produced as one solid piece.

**17**. The adjustable orthotic insole as claimed in claim **9**, wherein

the shell has receptive holes formed on the shell;

the sole lifter has protrusive pins formed on the sole lifter and selectively engaging to the receptive holes of the shell and receptive holes formed on the sole lifter;

the accessory sole lifter has protrusive pins formed on the accessory sole lifter and selectively engaging to the receptive holes of the sole lifter.

**18**. The adjustable orthotic insole as claimed in claim **9**, wherein

the shell has a hook-and-loop mounted on the shell;

the sole lifter has two hook-and-loops mounted on the sole lifter, one of the hook-and-loops of the sole lifter fastening to the hook-and-loop of the shell;

the accessory sole lifter has a hook-and-loop mounted on the accessory sole lifter and fastening to the hook-and-loop of the sole filter.

**19**. The adjustable orthotic insole as claimed in claim **9**, wherein

the shell has a key formed on the shell;

the sole lifter has a keyway formed on the sole lifter and engaging to the key of the shell.

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