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## **Massaging and Cushioning Shoe Insole**

### **Field of the Invention**

5 The present invention relates to an improved shoe insole, which having massaging  
protuberances on the insole top surface and hollow formed strips incorporated at the  
bottom surface of the insole and when in worn it will massage the user's feet when  
walking or running and also providing cushioning effect to reduce the pressure of the  
user's feet. Such arrangement can absorb different pressure of various zone and able to  
10 contribute the massaging action.

### **Background of the Invention**

Reflexology or acupressure is an ancient technique involving massage of strategic points  
15 on the soles of the feet. An essential or underlying principle of reflexology is that various  
organs or muscles of the body are connected by a network or nerves to certain spots or  
zones on the sole of the feet. Massage applied to these spots or areas promotes circulation  
of blood flow to the target organ. Additionally, it is theorized that there are channels of  
energy flowing through the body and that this energy terminates at these strategic spots in  
20 the feet.

Accordingly, it is believed that massaging these various strategic zones of the feet results  
in a revitalization of energy of the person and reflex theory suggests that massaging action  
unobstructed the flow of energy through these energy channels or passageways. Whether  
25 or not one accepts reflexology theory, it is known that massage applied to specific  
locations of the feet does result in relaxation of the body and that cushioning insoles  
placed in footwear will reduce fatigue, increase comfort and give the wearer greater  
endurance.

30 With these consideration in mind, for some time now molded insoles have been available  
which are called self-massaging and which are able to carry out massaging action on the



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whole sole of the feet, due to the fact that they have a tightly-packed strip jutting out from a profiled plate of uniform thickness; it is being often provided that said strips are of different heights in order to be able to create a resting surface in conformity with ergonomics requirements.

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The massaging action is guaranteed by the elastic spring-back of said hollow form strips, which are continually flexed in a non-uniform casual manner, according to the distribution of pressure when walking or when at rest.

- 10 However, it is true to say that not all the hollow form strips on these insoles are able to flex under the weight of the body, in as much as most of them, as a result of their reduced height are practically rigid and consequently, unable to undergo any deformation of note under pressure. Therefore, in actual fact, they are not able to contribute at all to the massaging action effected by the remaining hollow form strips, those that are taller and
- 15 thinner.

Furthermore, most of the available shoe insole cannot offer absorption capabilities of step shock. This is due the effect that when we walked, 100 % of the body weight went down on the heel and continues to the outer border, crosses the ball of the foot to the big toe

20 joint and moves forward to spring off the toes. While stand still, 50% of body weight is on the heel, 25% weight concentrated at the base of the big toe joint and 25% spread across the ball of the foot. In long term, the weight pressure on to the foot will cause the risk of damage to our body joints and spinal column.

## 25 **Summary of the Invention**

It is an object of the invention to provide a molded insole, in which the insole is formed with protuberances on the insole top surface and hollow formed strips incorporating underneath. When in used, the insole will not only massage the wearer's feet but also

30 providing shock absorbents to the foot. The location and arrangement of the protuberances

although corresponding to the reflex zone, may be varied in accordance with the requirement of the user.

A further aim of this invention is to provide an insole, which has a therapeutic effect  
5 beyond stimulating the blood circulation in the foot tissue.

The insole is designed in such that it will have clusters of first set of hollow formed strips alternating with the second set of hollow formed strips. The second set of hollow formed strips can be from various sizes while the first set of hollow formed strips are preferably in  
10 smaller size and structure. Sizes of the second set of hollow formed strips can be varied accordance with various reflex zone of the foot. The heights of the hollow formed strips are gradually increasing from the front part to the rear part of the insole as to absorb the increasing of the feet pressure. In other means that the thickness of the insole will also gradually increasing from the front part to the rear part of the insole.

15 The distinctive feature of the hollow formed strips consist in the fact that arrangement of first set of hollow formed strips alternating with second set of hollow formed strips, can absorb different pressure of various zone and able to reduce the shock absorption of the foot.

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#### **Brief Description of the Drawings**

The invention, in the form of embodiment examples, is explained in more detail in the following drawings.

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Figure 1 is a schematic bottom view showing an insole with extended flange according to the present invention.

Figure 2 is a schematic top view showing the insole with protuberances on top surface of  
30 the insole.

Figure 3 is a schematic bottom view showing the insole with hollow formed strips on the bottom surface of the insole.

Figure 4 is a cross section view showing an insole with the second set of hollow formed strips having the depth of the hollow area higher than the depth of the hollow area of the first set of hollow formed strips.

Figure 5 is a cross section view showing an insole with the second set of hollow formed strips having the depth of the hollow area same as the depth of the hollow area of the first set of hollow formed strips.

Figure 6 is a cross section view showing an insole with the protuberances located on certain zones on the top surface, with the different structure of hollow formed strips.

Figure 7 is a similar view to Figure 6 but with protuberances scattered on the entire top surface of insole.

Figure 8 is a cross section view showing an insole with the second set of hollow formed strips having the depth of the hollow area higher than the depth of the hollow area of the first set of hollow formed strips and the protuberances scattered on the entire top surface of insole.

Figure 9 is a similar view to figure 8 but with protuberances scattered on the entire top surface of insole.

Figure 10 is a similar view to figure 6 but with protuberances of different shape on the same surface.

Figure 11 is a similar view to figure 8 but with protuberances of different shape on the same surface.

### Detailed Description of the Invention

As view in figure 1, the insole (1) has the shape of a human foot and typically, the insole (1) would be sized corresponding to shoe sizes and provided in sized pairs.

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The insole (1) consists of a top surface (21) and a bottom surface (22) at the opposing side of the top surface (21) as shown in figures 2 and 3. The design of the insole (1) has a plurality of hollow formed strips (4) which includes a first set of hollow formed strips (4a) and a second set of hollow formed strips (4b) alternatively incorporated surrounding the first set of hollow formed strips (4a) at the bottom surface (22) of the insole (1) as shown in figure 3. In a preferred embodiment, the first set of hollow formed strips (4a) has a smaller hollow area (5) than the hollow area (6) of the second set of hollow formed strips (4b) as shown in figures 4 and 5. In other embodiments, the hollow area (5) of the first set of hollow formed strips (4a) can be the same structure with the hollow area (6) of the second set of hollow formed strips (4b).

The layout of hollow formed strips (4) is designed in such that it will have clusters of first set of hollow formed strips (4a) alternating with the second set of hollow formed strips (4b). The hollow formed strips (4) can be formed from various sizes and height. The sizes of the hollow formed strips (4) can be varied in accordance with various reflex zone of the foot of an user. The hollow formed strips (4) may also have variable height, depending on the density and support required by the user.

Various different pressures absorbing area can be created on the insole (1). In a preferred embodiment, the depth of the hollow areas (5) of the first set of hollow formed strips (4a) can be lesser than the depth of the hollow areas (6) of the second set of hollow formed strips (4b) as shown in figure 4. In other embodiment, the depth of the hollow areas (5) of the first set of hollow formed strips (4a) can be same as the depth of the hollow areas (6) of the second set of hollow formed strips (4b) as shown in figure 5. The hollow formed strips (4) of the insole (1) can be formed with its height gradually increasing from the front part (23) of the insole (1) to the rear part (24) of the insole as shown in figure 6. With the

different structures of hollow formed strips (4) at the different areas of the bottom surface (22) of the insole (1), this could provide different absorbing power of the weight pressure which is at the most at heel portion from the user during walking or standing while the cushioning power of the insole (1) at the front part (23) is lesser at this area.

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With reference to figures 6, 7 and 10, it can be seen that the first set of hollow formed strips (4a) having the hollow area (5) same height with hollow area (6) of the second set of hollow formed strips (4b). Both the height of first set hollow formed strips (4a) and the second set of hollow formed strips (4b) gradually increased from front part (23) to the rear part (24) of the insole (1) as seen in figures 6 and 7. In other means that the thickness of the insole (1) will also gradually increasing from front part (23) to the rear part (24) as to absorb the increasing pressure of the feet. These are shown in figures 6 to 11. The hollow formed strips can be formed jutted out from the bottom surface (21) of the insole (1) and embedded in the bottom surface (22) of the insole. (1).

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Hollow formed strips (4) can also arrange in a layout where the first set of hollow formed strips (4a) having the depth of the hollow area (5) shallower than the depth of the hollow area (6) of the second set of hollow formed strips (4b) as shown in figures 8, 9 and 11. Both the height of first set hollow formed strips (4a) and the second set of hollow formed strips (4b) gradually increased from front part (23) to the rear part (24) of the insole (1) as seen in figures 8, 9 and 11.

The arrangement according to the present invention of the hollow formed strips (4) incorporating at the bottom surface (22) of the insole (1) will automatically absorb the pressure from the foot and effects a massage on the foot when the wearer is walking. So as to intensity blood circulation in the tissue of the foot and reduced the pressure of the foot that need to support the whole body weight.

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The top surface (21) of the insole (1) is provided with a plurality of protuberances (3). The protuberances (3) may be variously arranged on the top surface (21) so as to correspond to selected areas corresponding to the desired reflex area or zone of the foot. For example in figure 6, the top surface (21) of the insole (1) only contains protuberances (3) on selected

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zones whereas in figure 7, the protuberances (3) is scattered around the entire surface of top surface (21) of the insole (1). Alternatively, the protuberances (3) can be flattened on the top surface (21) of the insole (1) in accordance to the user desired. The protuberances (3) are convex shape protuberances (3) which maybe in variable shapes such as bullet shape (3a) or pallet shapes (3b) as shown in figure 10.

The protuberances (3) which located on the top surface (21) of the insole (1) will help in massaging the foot when in used. According to the reflex theory, massage of the foot will relax the body and will have a beneficial effect and the well being of certain organs.

Design of various sizes of the first set of hollow formed strips (4a) and second set of hollow formed strips (4b) on the insole (1) could help to control the cushioning effect of the insole (1) when in used. And with the combination of the protuberances (3), the insole (1) could provide a massaging effect to the foot resemble as human massaging effect.

The insole (1) can be added with extended flange (28) at the rear part (22) of the insole so that the insole (1) can be easily fixed in place when the insole is places into a shoe as shown in figure 1.

It is to be understood that the present invention may be embodied in other specific forms and is not limited to the sole embodiment described above. However modification and equivalents of the disclosed concepts such as those which readily occur to one skilled in the art are intended to be included within the scope of the claims which are appended thereto.

**Claims**

1. A massaging and cushioning insole comprising:  
a foot-shaped insole having a top surface and a bottom surface;  
5 a plurality of protuberances formed at said top surface of the insole to provide massaging effect to a foot;  
a web of hollow cells at said bottom surface of the insole for rebounding effect, whereby said web is formed by alternating a first set of hollow cells and a second set of hollow cells;  
10 wherein said first set of hollow cells have a structure different from the structure of said second set of hollow cells.
2. A massaging and cushioning insole as claimed in claim 1, wherein said protuberances are convex shaped.  
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3. A massaging and cushioning insole as claimed in claim 1, wherein said protuberances are formed at the locations which are equally spaced apart at the entire top surface of said insole.
- 20 4. A massaging and cushioning insole as claimed in claim 2, wherein said protuberances are formed at predetermined areas at the top surface to provide different massaging points and reflex zones.
5. A massaging and cushioning insole as claimed in claim 1, wherein said each of said  
25 hollow cells includes at least one hole penetrated from said bottom surface to the top surface of said insole.
6. A massaging and cushioning insole as claimed in claim 1, wherein said first set of hollow cells have a depth and size which is different from the depth and size of said  
30 second set of hollow cells.

7. A massaging and cushioning insole as claimed in claim 1, wherein said depth of the hollow areas of said first set hollow cells is different at predetermined portions of the bottom surface of said insole.

5 8. A massaging and cushioning insole as claimed in claim 1, wherein said hollow cells are formed with its height gradually increasing from the front part of said insole towards the rear part of said insole.

9. A massaging and cushioning insole as claimed in claim 1, wherein said hollow cells are  
10 jutted out from the bottom surface of said insole.