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(54) **SHOE STRUCTURE**

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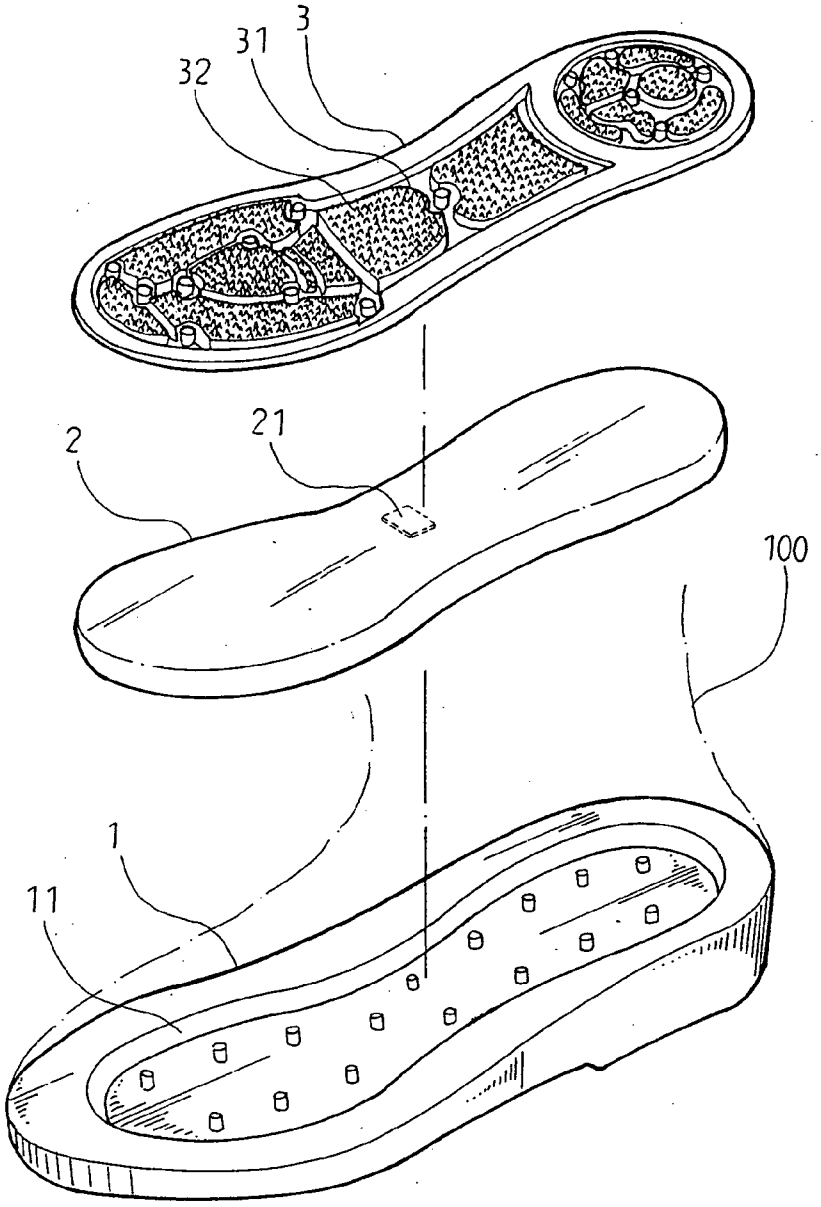
(57) **ABSTRACT**

A shoe structure is disclosed. The structure is characterized in that the lateral side of the shoe sole is provided with a through hole, and a bag body containing chemical solution and a metal plate or metallic powder, granules are positioned at the recess, the top portion of the shoe sole is a surface with a shoe pad with recesses or protrusions or granules.



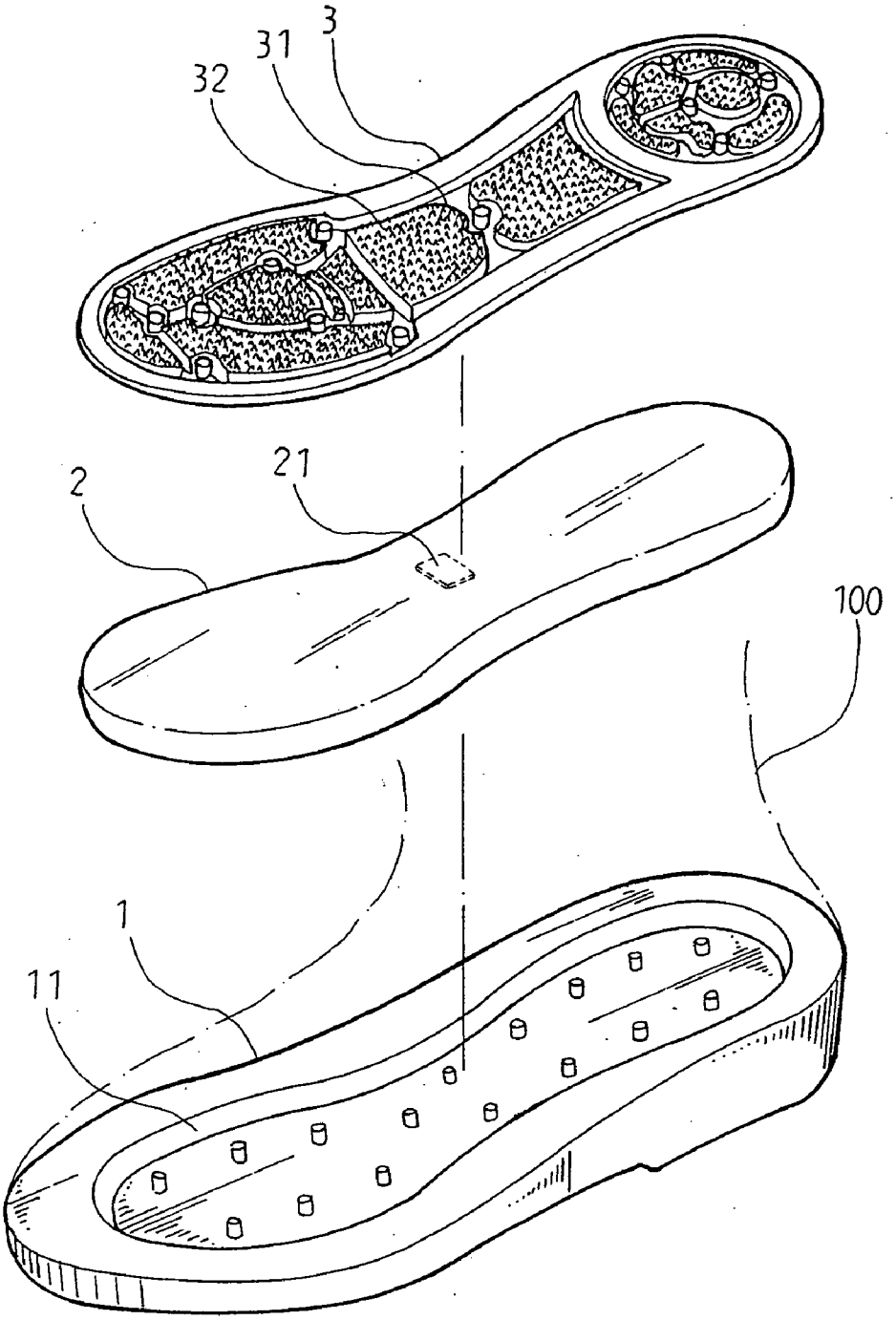


FIG. 1

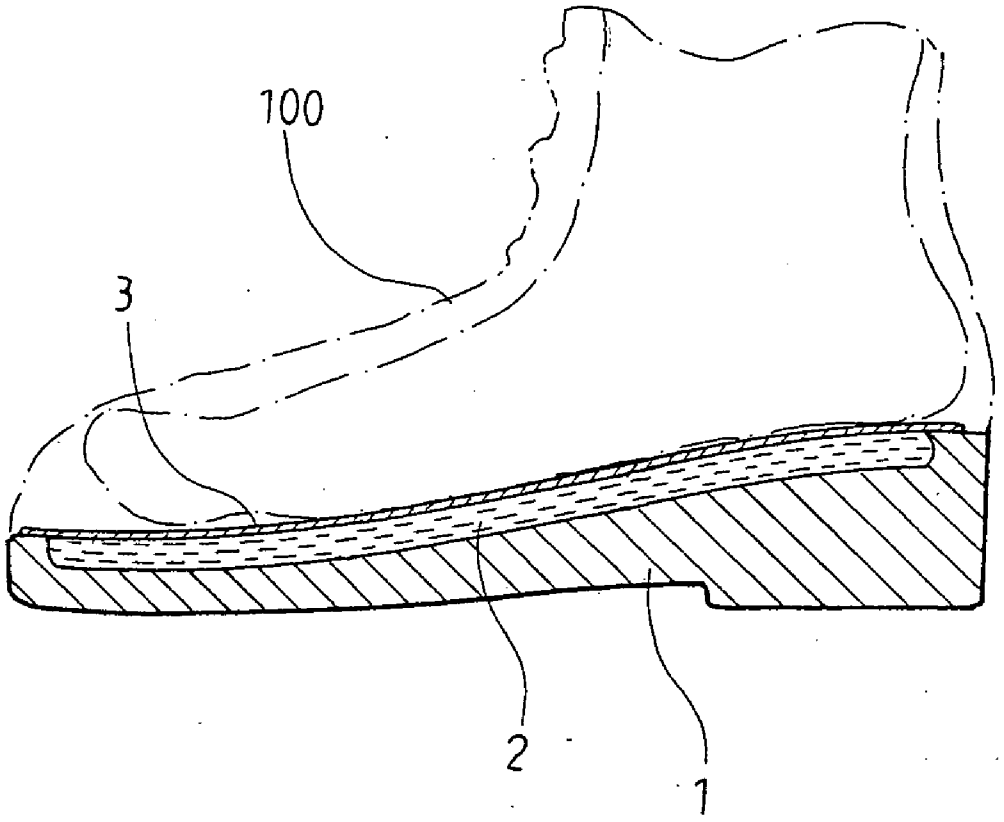


FIG. 2

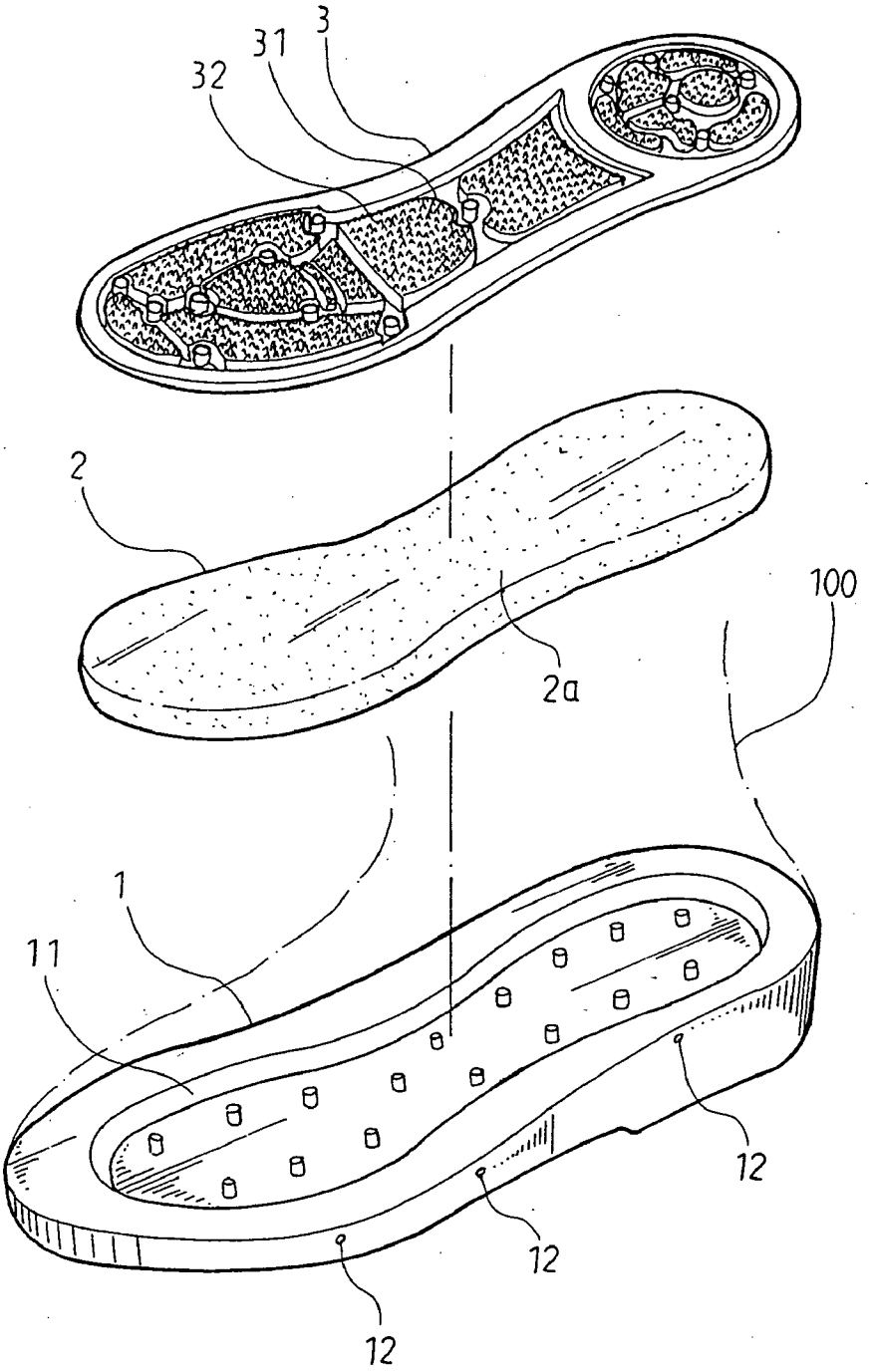


FIG. 3

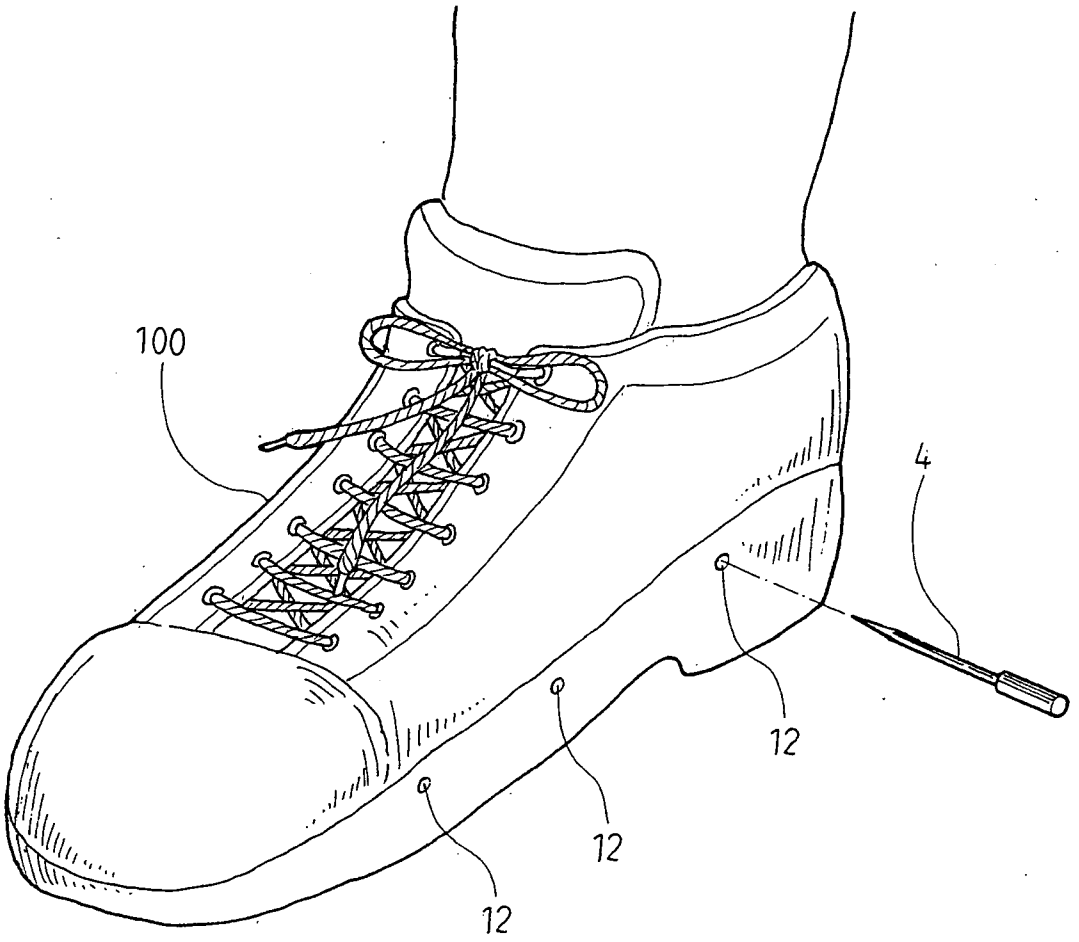


FIG. 4

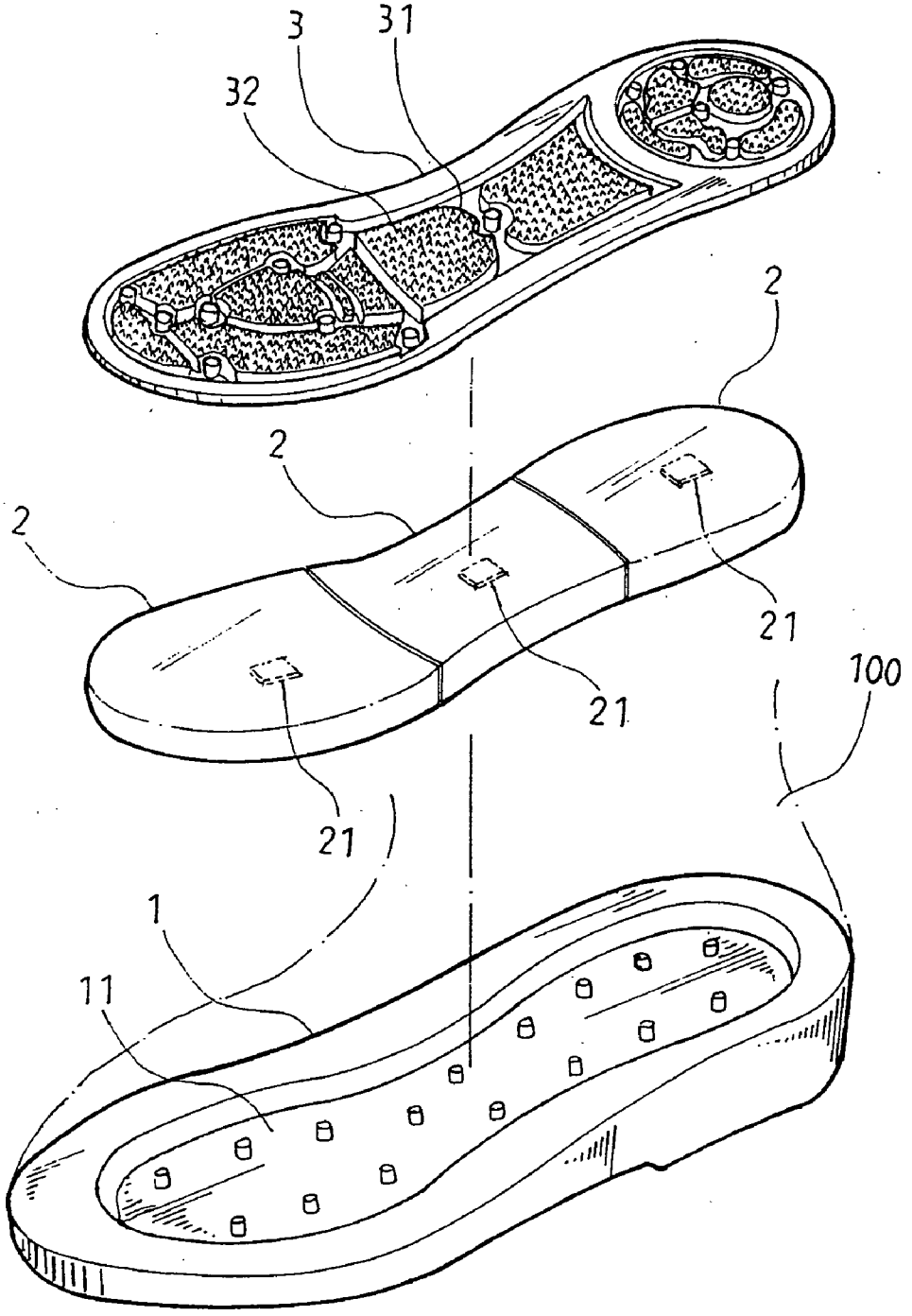


FIG. 5

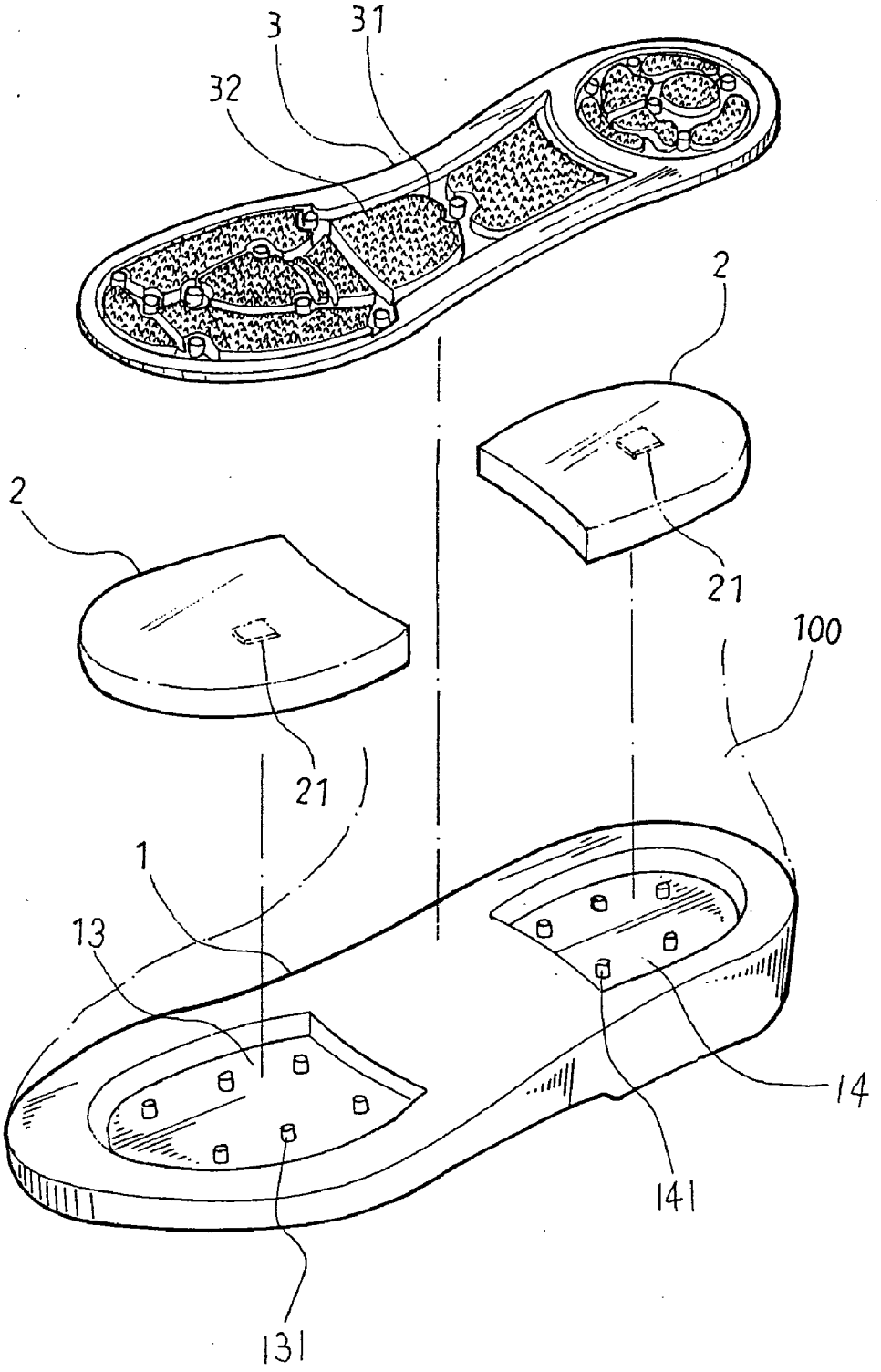


FIG. 6

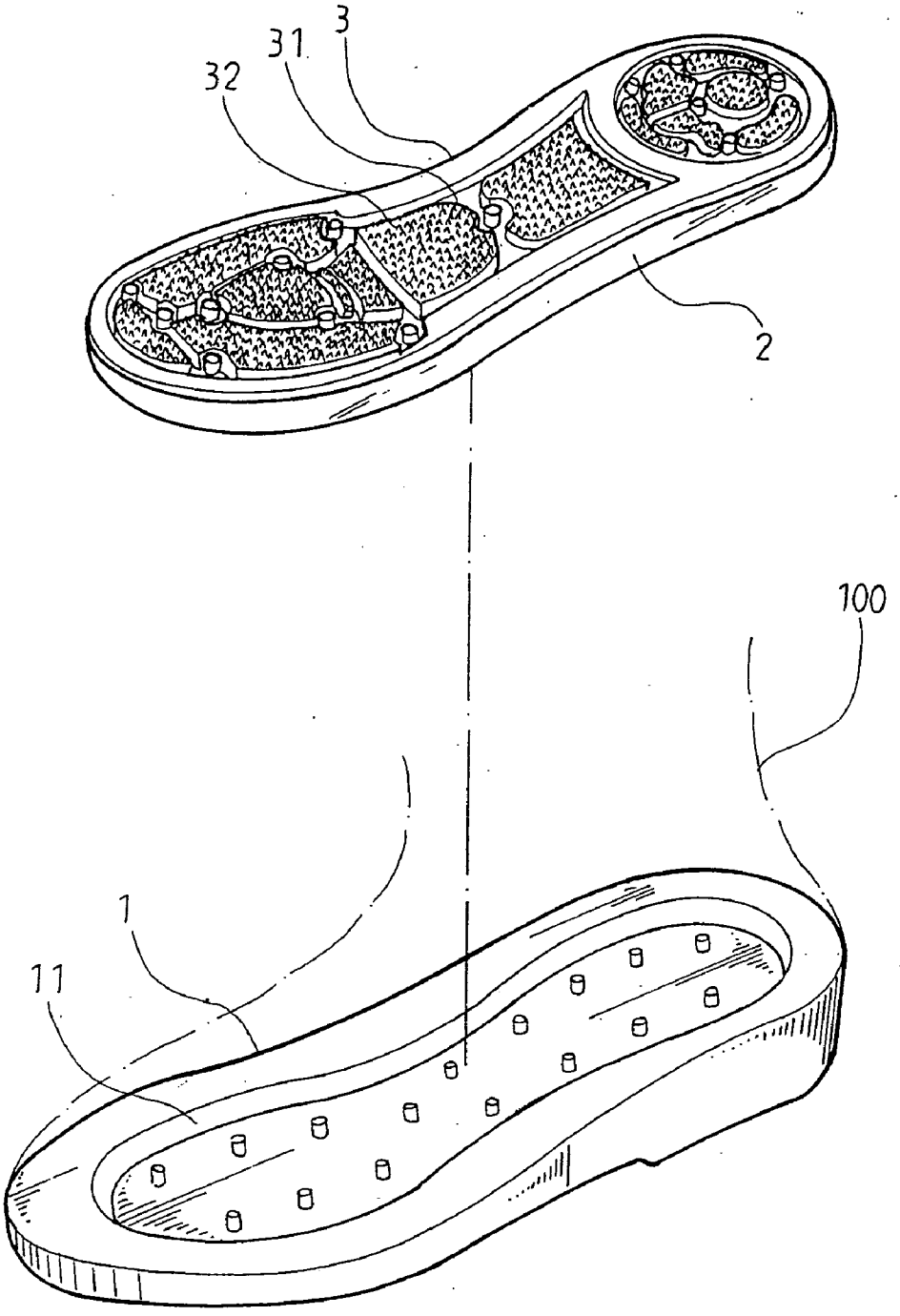


FIG. 7

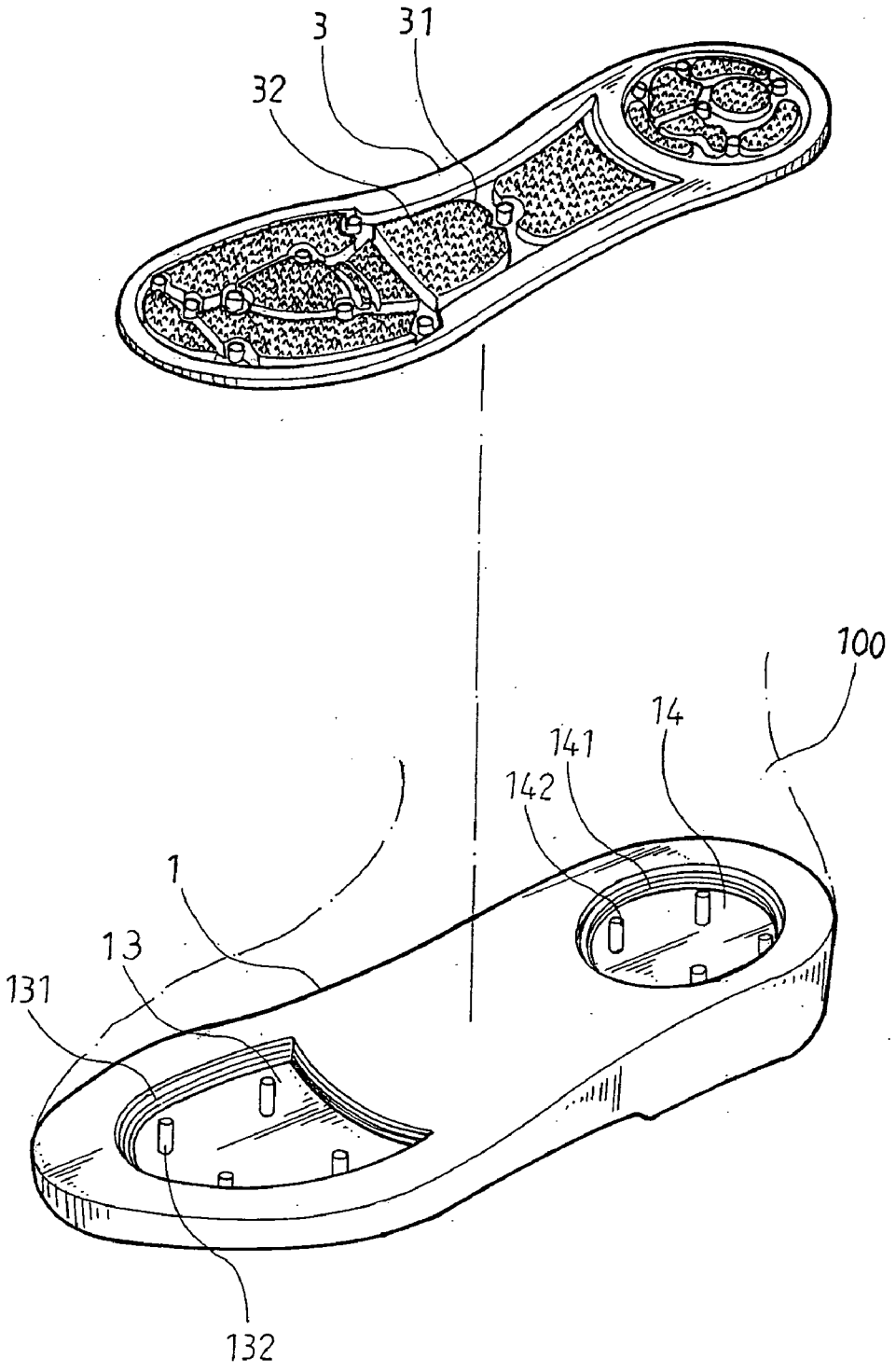


FIG. 8

SHOE STRUCTURE

BACKGROUND OF THE INVENTION

[0001] (a) Technical Field of the Invention

[0002] The present invention relates to a shoe structure, and in particular, a shoe structure which provides warmth to the soles of the feet and reduces the reaction force while walking so as to achieve the objective of massaging the soles of the feet.

[0003] (b) Description of the Prior Art

[0004] Conventional sports shoes or shoes for casual wear are normally provided with a soft sponge for the shoe sole which are in contact with the soles of the feet in order to reduce injury to the foot. Another type of sport shoe is provided with air sacs where air is injected into the air sacs to provide elasticity and provide instaneous force while exercising. However, the volume of air within the air sacs is fixed and it may not be appropriate to some wearer or in some locations. Accordingly these conventional shoe structures do not provide extra function.

SUMMARY OF THE INVENTION

[0005] Accordingly, it is an object of the present invention to provide a shoe structure in which the shoe body is maintained at a temperature to provide extended hours of standing and to reduce the pressure while exercising. This is due to the massaging design at the rear section of the shoe body, which reduces tiredness. Further, the air bag design absorbs shock which allows the wearer to be able to stand for extended hours. The shoe structure provides sufficient air ventilation and dryness of the sole.

[0006] The surface of the shoe bottom is provided with one or more recesses and the lateral side of the shoe bottom has a through hole in communication with the recess, allowing chemical solution, granules, metallic powder to be placed thereon. The top portion of the shoe bottom is adhered with a shoe pad. When wearing the shoe, a pin pierces the bag body so that the metallic powder is oxidized or the metal plate is bent to provide wave so that the chemical solution crystal releases heat to keep the sole of the foot warm.

[0007] The chemical solution in the bag body includes sodium acetate, acetic acid, sodium sulphate, sulfuric acid, sodium nitrate, nitric acid, sodium carbonate, sodium chloride, sodium hydroxide and glyceride, pure water and IPA.

[0008] The lateral side of the shoe body is provided with a through hole in communication with the recess, allowing a pin to pierce the bag body and the powder or granules to be oxidized to generate heat source.

[0009] The recess allows gas to enter therein to for air sac so that the sole of the shoe is soft and with a specific elasticity and to provide instantaneous reaction in exercise to reduce reaction force.

[0010] The surface of the shoe pad is provided with different recesses and protrusions and provided with granules to massage the sole of the foot.

[0011] The foregoing object and summary provide only a brief introduction to the present invention. To fully appreciate these and other objects of the present invention as well as the invention itself, all of which will become apparent to those skilled in the art, the following detailed description of the invention and the claims should be read in conjunction with the accompanying drawings. Throughout the specification and drawings identical reference numerals refer to identical or similar parts.

[0012] Many other advantages and features of the present invention will become manifest to those versed in the art upon making reference to the detailed description and the accompanying sheets of drawings in which a preferred structural embodiment incorporating the principles of the present invention is shown by way of illustrative example.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] **FIG. 1** is a perspective exploded view of the present invention.

[0014] **FIG. 2** is a sectional view of the present invention.

[0015] **FIG. 3** is a schematic view showing the bag body containing metallic powder.

[0016] **FIG. 4** is a schematic view showing the pin in accordance with the present invention.

[0017] **FIG. 5** is an exploded perspective view of another preferred embodiment of the present invention.

[0018] **FIG. 6** shows another preferred embodiment of the present invention.

[0019] **FIG. 7** is a schematic view showing the combination of the bag body with the shoes pad of the present invention.

[0020] **FIG. 8** is a schematic view showing a fixed air sac structure of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0021] The following descriptions are of exemplary embodiments only, and are not intended to limit the scope, applicability or configuration of the invention in any way. Rather, the following description provides a convenient illustration for implementing exemplary embodiments of the invention. Various changes to the described embodiments may be made in the function and arrangement of the elements described without departing from the scope of the invention as set forth in the appended claims.

[0022] Referring to **FIGS. 1, 2, 3** and **4**, there is shown a sole **1** of a shoe body **100** provided with a recess **11** (based on the shape of the shoe body **100**). The recess **11** contains a plurality of supports **110** to increase the elasticity for the mounting of one or more than one bag body **2**. The bag body **2** contains chemical solution or metal powder **2***a* (granules). The solution contains a metal plate **21** and the lateral side of the shoe sole is provided with through hole in communication with the recess **11** so that after the bag body **2** is inserted into the recess **11**, the top of the bag body **2** is covered with a shoe pad **3**. The surface of the shoe pad **3** is provided with a plurality of protruded threads **31** disposed with protruded granules **32**.

[0023] When the shoe body **100** is used, the metal plate **21** within the bag body **2** is folded to provide a shock wave so that the chemical solution releases heat to be entered into the

recess **11** so that the feet are kept warm, or, a pin **4** is pierced through the bag body **2** via the through hole **12** so that the granules, powdery chemical material will be oxidized to produce a heat source. This will similarly provide warmth. The pierced bag body **2** is disposed. The bag body **2** can be injected with a cooling solution to provide a cooling effect for the sole. The different bag body **2** can be changed based on the requirement of keeping warm or cold. The bag body **2** contains chemical solution can be heated at 80° C. to 100° C. after use so as to reduce the chemical solution for the next application.

[**0024**] When the shoe body **100** is used, the sole of the foot steps onto the shoe pad **3** and therefore the sole can be kept warm (or cool) and the threads **31** of the shoe pad **3** and the protruded granules **32** massage the sole of the foot to promote blood circulation.

[**0025**] Referring to **FIG. 5**, the recess **11** can contain a plurality of bag bodies **2** and the metal plate **21** is disposed in a flat position. In application, the metal plate is folded to generate wave so as to provide warmth. The bag bodies **2** can be substituted so that the shoe body **100** is maintained at the optimum cold and warm temperature.

[**0026**] Referring to **FIG. 6**, the front and rear section of the sole **1** are respectively provided with recesses **13**, **14** mounted with supports **131**, **141**, so that the bag body **2** containing chemical solution and metal plate can be placed on the two recesses **13**, **14** to provide warm.

[**0027**] Referring to **FIG. 7**, the bag body **2** and the shoe pad **3** are formed as a unit, and the shoe pad **3** and the bag body **2** can be heated simultaneously.

[**0028**] As shown in **FIG. 8**, the shoe body **1** is provided with recesses **13**, **14** so that after the shoe pad **3** is mounted, a corresponding air sac is formed.

[**0029**] The side wall of the two recesses **13**, **14** are provided with rim-like threads **131**, **141** so as to form into a retractable structure with appropriate elasticity. The recesses **13**, **14** are mounted with a plurality of supports **132**, **142** to support the top and bottom surface, so that upon pressure being exerted, the shape can be restored instantaneously. Even when the recesses **13**, **14** are not inflated with air, it can support heavy pressure.

[**0030**] It will be understood that each of the elements described above, or two or more together may also find a useful application in other types of methods differing from the type described above.

[**0031**] While certain novel features of this invention have been shown and described and are pointed out in the annexed claim, it is not intended to be limited to the details above, since it will be understood that various omissions, modifications, substitutions and changes in the forms and details of the device illustrated and in its operation can be made by those skilled in the art without departing in any way from the spirit of the present invention.

I claim:

1. A shoe structure having a shoe body with a shoe sole which is provided with a recess or more than one recesses, characterized in that the lateral side of the shoe sole is provided with through hole, and a bag body containing chemical solution and metal plate or metallic powder, granules is positioned at the recess, the top portion of the shoe sole is a surface with a shoe pad with recesses or protrusions or granules.

2. The shoe structure of claim 1, wherein the chemical solution includes sodium acetate, acetic acid, sodium sulfate, sulfuric acid, sodium nitrate, nitric acid, carbonic acid, sodium chloride, sodium hydroxide or the like, and glyceride pure water and IPA solution.

3. The shoe structure of claim 1, wherein the bag body contains metal powder, granules and Fe, H_2O, NaCl, C, MgCax, $(MgFeAl)y[(AlSi)_2O_w](OH_4H_2O)$.

4. The shoe structure of claim 1, wherein the bag body at the recess is a monomer or more than one unit having the shape of the recess.

5. The shoe structure of claim 1, wherein one side of the shoe body is a recess with through hole in communication with the recess and one side of the shoe body is a through hole in communication with the recess for a pin to pierce the bag body.

6. The shoe structure of claim 4, wherein the side wall of the front and rear recess is threaded rims allowing retractable and the recess is provided with a plurality of supports for supporting the top and bottom surface, allowing instantaneous restoration to original shape of the shoe body.

7. The shoe structure of claim 1, wherein the combination of the bag body and the shoe pad is formed as a unit.

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