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(54) **SANDAL HAVING GROOVES FOR DRAINAGE**

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(57) **ABSTRACT**

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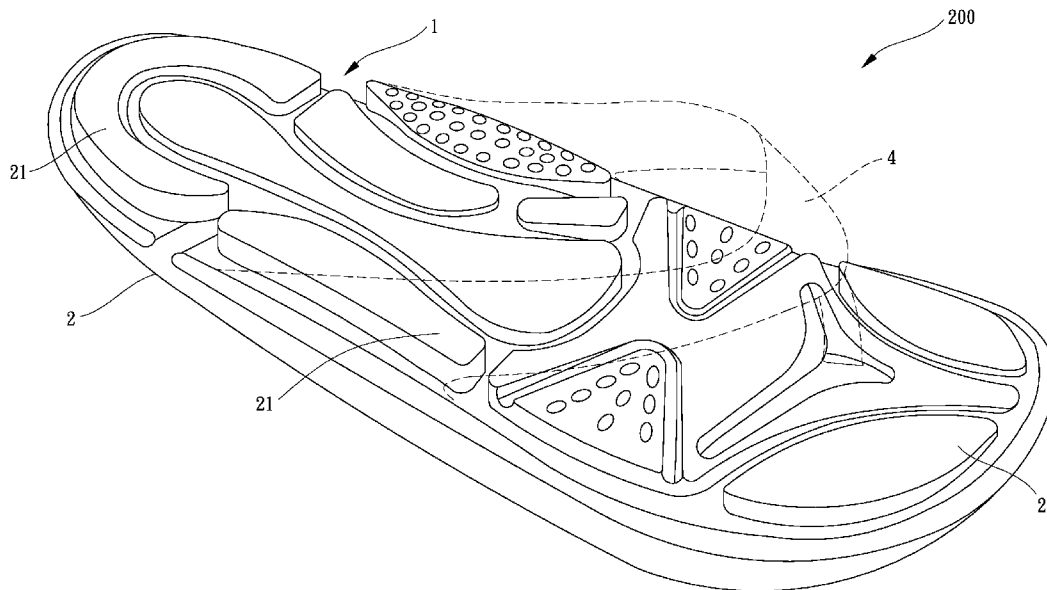
A sandal includes a sole and a drainage system. The sole is molded from a resilient material and has a top surface for supporting a human foot, and a bottom surface for contacting a walking surface. Further, the sole defines on the top surface a forwardmost toe region, an intermediate ball region, an intermediate arch region and a rearmost heel region that are of different heights to follow an anatomical contour of an under-surface of the human foot. The drainage system has a plurality of grooves defined throughout the top surface of the sole to define a plurality of islands of different heights on the toe, ball, arch and heel regions of the sole. The grooves have different slopes and extend over the toe, ball, arch and heel regions in a manner which guides liquid to flow laterally out of the sole.

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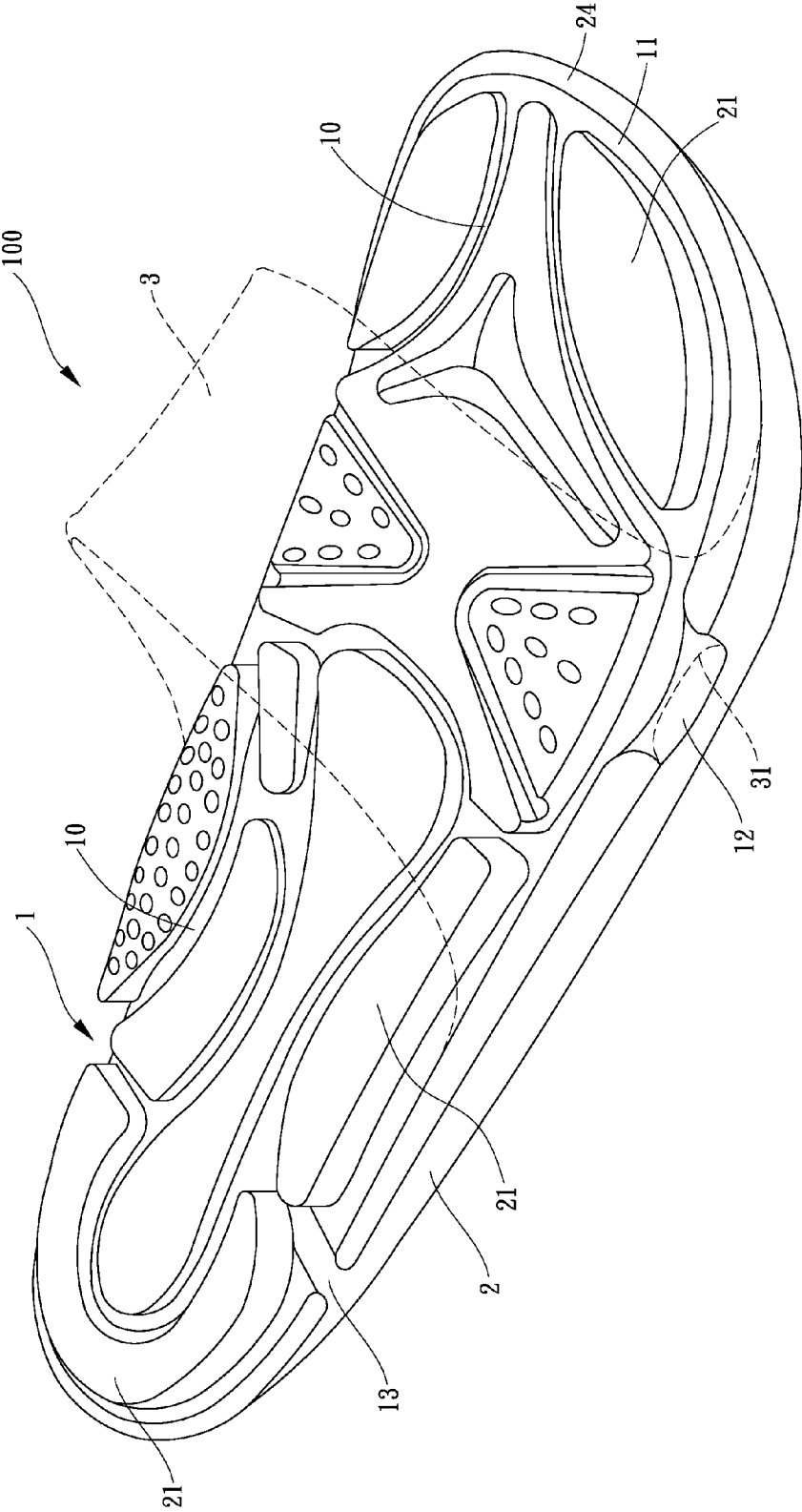


FIG.1

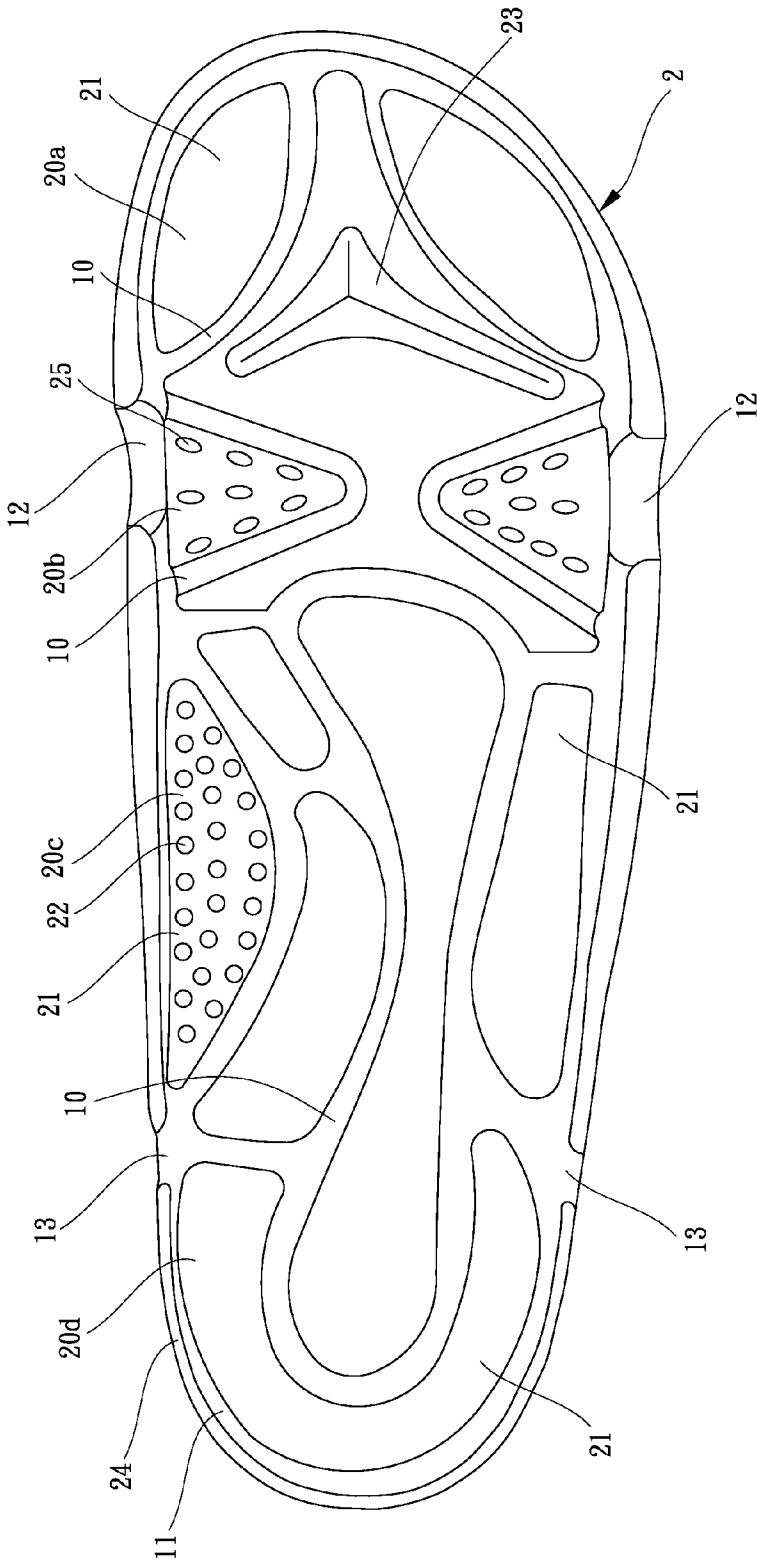


FIG.2

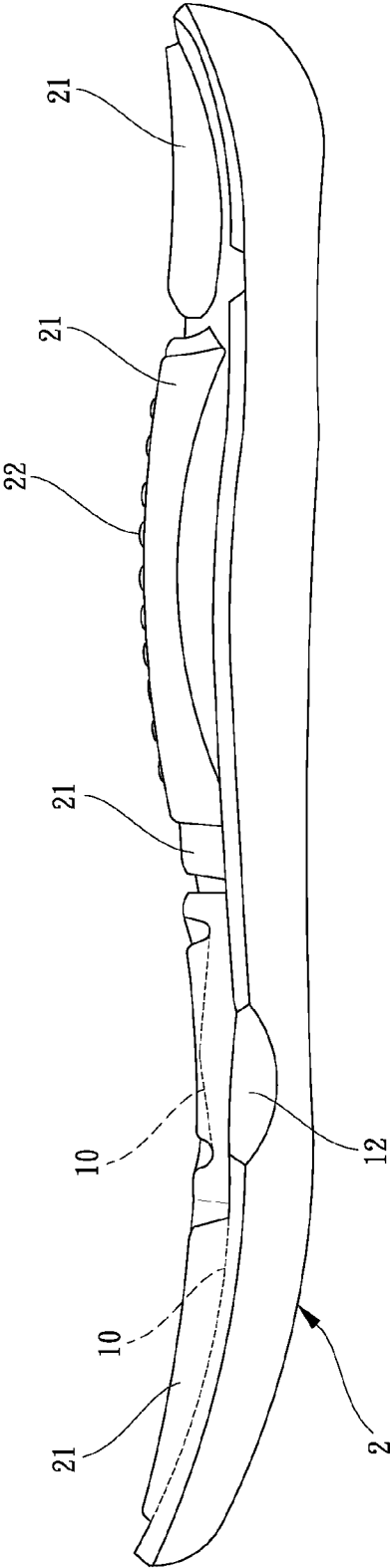


FIG.3

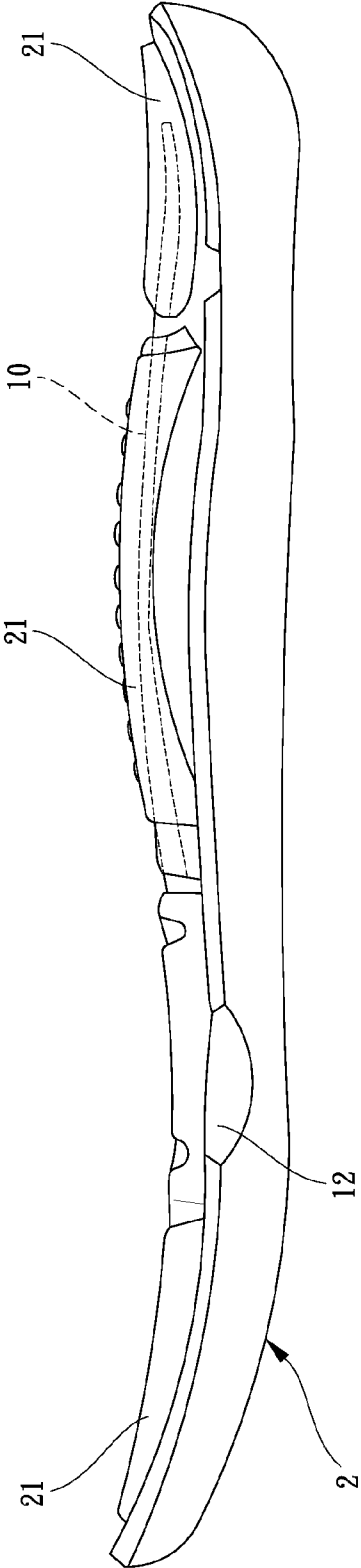


FIG.4

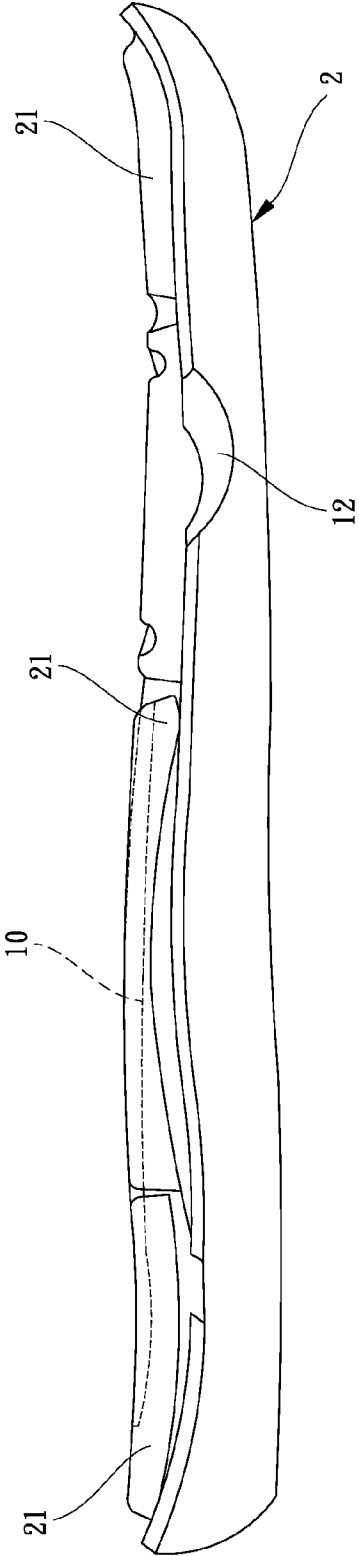


FIG.5

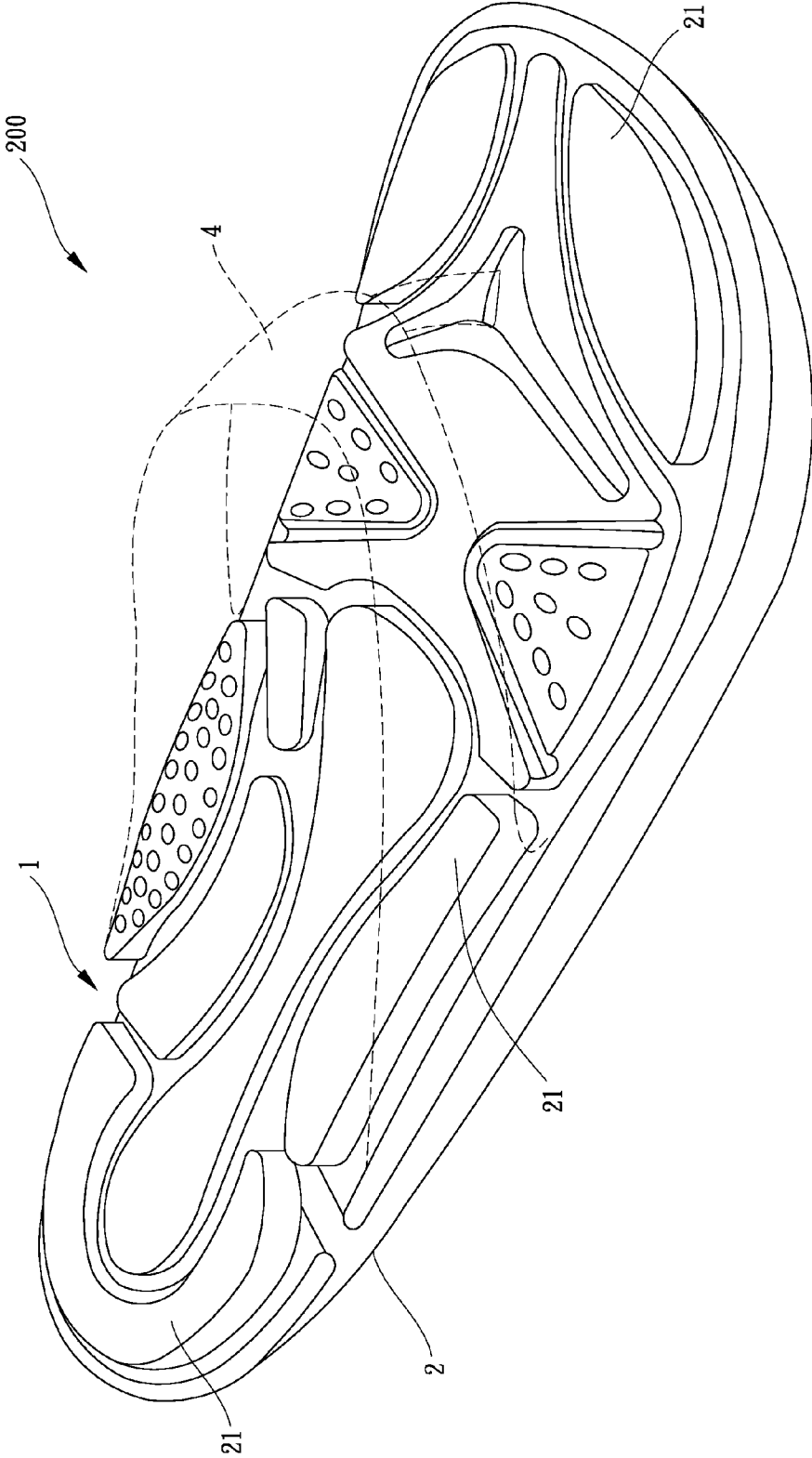


FIG.6

SANDAL HAVING GROOVES FOR DRAINAGE

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to a sandal or open shoe and, in particular, to a sandal which employs a drainage system to aid in ventilation and drainage of liquid on the sandal.

[0003] 2. Description of the Related Art

[0004] Since man has begun wearing shoes to protect his feet, he has continually strived for increased comfort. His efforts have been continually directed toward improvements in the sole of the shoe. Efforts to improve the sole of the shoe have included softer materials, anatomical shapes, and means for aerating the feet. However for the most part, these efforts have remained isolated from one another.

[0005] One type of sandal is illustrated in U.S. Pat. No. 4,051,610. In this case, a flat sole member with a constant thickness is provided for supporting and protecting the sandal wearer's foot. On the flat sole is a thong member attached to the sole member for fitting over the wearer's instep. This typical type of sandal has another name called flip-flop, which can be mass-produced at relatively low cost. However, there are still rooms to improve the sole for increased comfort.

SUMMARY OF THE INVENTION

[0006] Accordingly, it is an object of the present invention to provide a sandal with a softer material, an anatomical shape, and means for aerating the feet to satisfy the aforementioned need.

[0007] Specifically, the sandal includes a sole and a drainage system. The sole is molded from a resilient material. The sole has a top surface for supporting a human foot, and a bottom surface for contacting a walking surface. The sole defines on the top surface a forwardmost toe region, an intermediate ball region, an intermediate arch region and a rearmost heel region. These regions are of different heights to follow an anatomical contour of an undersurface of the human foot. Moreover, the drainage system has a plurality of grooves defined throughout the top surface of the sole to define a plurality of islands of different heights on the toe, ball, arch and heel regions of the sole. And the grooves have different slopes and extend over the toe, ball, arch and heel regions in a manner which guides liquid to flow laterally out of the sole.

[0008] Preferred embodiments of the invention may have the following additional characteristics, either alone or in combination:

[0009] A partition rib is employed by the sole at a junction between the toe region and the ball region.

[0010] A peripheral wall is employed by the sole to enclose the islands of the sole. The drainage system includes an outer trench extending along the peripheral wall of the sole and in communication with the grooves, and a plurality of cutouts defined in the peripheral wall to aid in draining the liquid outside the sole.

[0011] A vamp is attached to the sole for fitting over an instep of a wearer. And, the vamp defines a pair of notches incorporating with the first pair of the cutouts of the drainage system to aid in the drainage. Alternatively, a thong member attached to the sole for fitting over the instep of the wearer.

[0012] A plurality of bumps are provided on at least one of the islands of the sole to become resistant to skidding.

[0013] Further benefits and advantages of the present invention will become apparent after a careful reading of the detailed description with appropriate reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] FIG. 1 is a perspective view of a sandal with a ramp in phantom in accordance with a first embodiment of the present invention;

[0015] FIG. 2 is a top view of a sole of the sandal shown in FIG. 1;

[0016] FIG. 3 is a left side view of the sole of the sandal shown in FIG. 2;

[0017] FIG. 4 is another left side view of the sole of the sandal shown in FIG. 2;

[0018] FIG. 5 is a right side view of the sole of the sandal shown in FIG. 2; and

[0019] FIG. 6 is a perspective view of a sandal with a thong member in phantom in accordance with a second embodiment of the present invention.

DETAILED DESCRIPTION OF EMBODIMENTS

[0020] Referring to FIG. 1, there is shown a sandal **100** according to one embodiment of the present invention. The sandal **100** comprises a sole **2**, a drainage system **1** having a plurality of grooves **10** defined in a top surface of the sole **2**, and a ramp **3** attached to the sole **2** for fitting over an instep of a wearer.

[0021] The sole **2** is molded from a resilient material such as EVA foam and has the top surface for supporting a human foot and a bottom surface for contacting a walking surface. Referring to FIG. 2, the sole **2** defines on the top surface a forwardmost toe region **20a**, an intermediate ball region **20b**, an intermediate arch region **20c** and a rearmost heel region **20d**. These regions **20a-20d** are of different heights to follow an anatomical contour of an undersurface of the human foot. Preferably, a three-arm star-shaped partition rib **23** is provided at a junction between the toe region **20a** and the ball region **20b** of the sole **2**.

[0022] The grooves **10** of the drainage system **1** are provided throughout the top surface of the sole **2** to define a plurality of islands **21** of different shapes and heights on the toe, ball, arch and heel regions **20a-20d** of the sole **2**. Moreover, the grooves **10** have different slopes, as shown in FIGS. 3-5 and extend over the toe, ball, arch and heel regions **20a-20d** in a manner which guides liquid to flow laterally in various directions to left and right sides of the sole **2** to aid in draining the liquid out of the sole **2**. Thus, the sandal **100** may be kept dry at all times.

[0023] More specifically, as shown in FIGS. 1 and 2, the sole **2** has a peripheral wall **24** enclosing the various islands **21** of the sole **2**. The drainage system **1** further includes an outer trench **11** extending along the peripheral wall **24** of the sole **2** and in communication with the grooves **10** to collect the liquid from the grooves **10**. Moreover, the drainage system **1** further defines pairs of cutouts **12**, **13** in the peripheral wall **24** to aid in draining the liquid outside the sole **2**. The first pair of the cutouts **12** of the drainage system **1** is defined at opposite sides of the ball region **20b** of the sole **2**. The second pair of the cutouts **13** of the drainage system **1** is defined at the junction between the arch region **20c** and the heel region **20d**

of the sole 2. Preferably, the vamp 3 defines a pair of notches 31 incorporating with the first pair of the cutouts 12 of the drainage system 1 for aiding in the drainage.

[0024] Besides, the sole 2 is further formed with a plurality of elliptical bumps 25 on two of the islands in the ball region 20b of the sole 2 to become resistant to skidding. A plurality of rounded bumps may also be provided on one of the islands in the arch region 20c of the sole 2 corresponding to an arch of the foot.

[0025] It is appreciated that, in this embodiment, the vamp 3 is integrally formed with the sole 2 in one piece. However, in the modification embodiment shown in FIG. 6, the modified sandal 200 is a flip-flop with a thong member 4 in lieu of the vamp 3 of the sandal 100. Similarly, the thong member 4 is attached to the sole 2 and is integrally formed with the sole 2 in one piece.

[0026] It is to be understood that the disclosed embodiments are illustrative in nature and the invention is not to be limited to any one or more embodiments except as set forth in the following claims.

What is claimed is:

1. A sandal comprising:

a sole molded from a resilient material; the sole having a top surface for supporting a human foot, and a bottom surface for contacting a walking surface; the sole defining on the top surface a forwardmost toe region, an intermediate ball region, an intermediate arch region and a rearmost heel region that are of different heights to follow an anatomical contour of an undersurface of the human foot; and

a drainage system having a plurality of grooves defined throughout the top surface of the sole to define a plurality of islands of different heights on the toe, ball, arch and heel regions of the sole, and the grooves having different slopes and extending over the toe, ball, arch and heel regions in a manner which guides liquid to flow laterally out of the sole.

2. A sandal as recited in claim 1, wherein the sole is formed with a partition rib at a junction between the toe region and the ball region.

3. A sandal as recited in claim 1, wherein the sole has a peripheral wall enclosing the islands of the sole; and the drainage system includes an outer trench extending along the peripheral wall of the sole and in communication with the grooves, and a plurality of cutouts defined in the peripheral wall to aid in draining the liquid outside the sole.

4. A sandal as recited in claim 3, wherein a first pair of the cutouts of the drainage system is defined at opposite sides of the ball region of the sole.

5. A sandal as recited in claim 4, wherein a second pair of the cutouts of the drainage system is defined at a junction between the arch region and the heel region of the sole.

6. A sandal as recited in claim 4, further comprising a vamp attached to the sole for fitting over an instep of a wearer.

7. A sandal as recited in claim 6, wherein the vamp defines a pair of notches incorporating with the first pair of the cutouts of the drainage system to aid in the drainage.

8. A sandal as recited in claim 7, wherein the vamp is integrally formed with the sole in one piece.

9. A sandal as recited in claim 5, further comprising a thong member attached to the sole for fitting over an instep of a wearer.

10. A sandal as recited in claim 9, wherein the thong member is integrally formed with the sole in one piece.

11. A sandal as recited in claim 1, wherein the sole is further formed with a plurality of bumps on at least one of the islands in the ball region of the sole.

12. A sandal as recited in claim 1, wherein the sole is further formed with a plurality of bumps on one of the islands in the arch region of the sole corresponding to an arch of the foot.

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