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(54) **SLIPPERS STRUCTURE**

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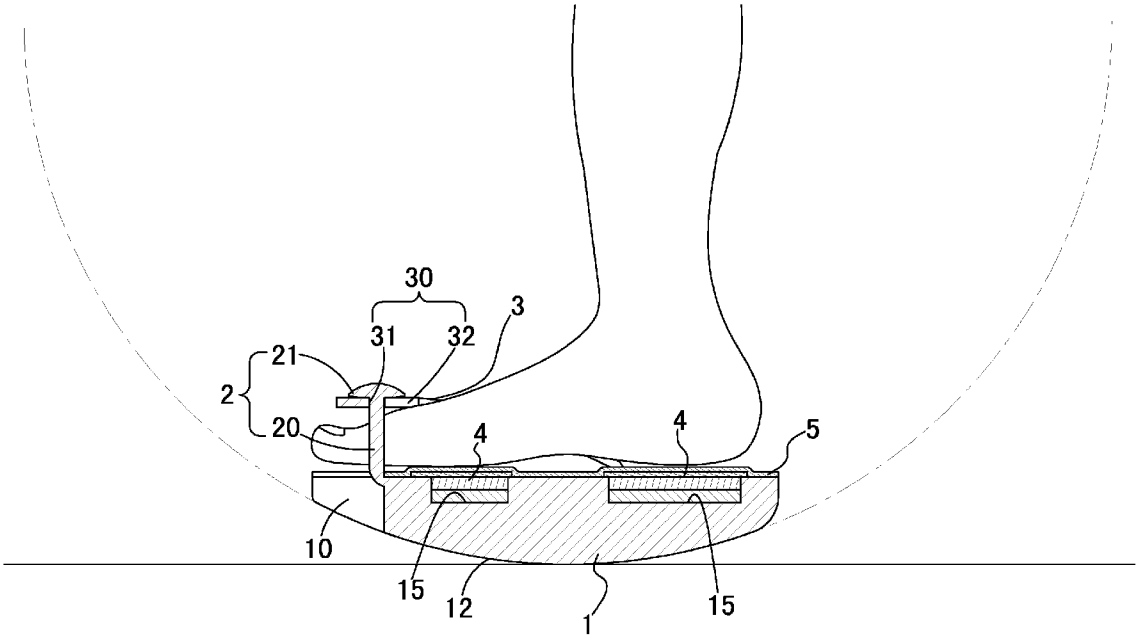
(57) **ABSTRACT**

A slippers structure comprises: a sole, a toe post and a vamp. The sole is defined with a concave, and close to a middle of both lateral edges of the sole is formed a protruding portion, respectively, a bottom of the sole is an arc-shaped surface. The toe post has one end integrally formed with the concave, and a head portion at the other end of the toe post has a larger diameter than the post portion. The vamp has two ends integral with the protruding portions of the sole and is located around an outer periphery of a rear half of the sole, an engaging portion extends from the inner edge to near a center of the vamp, the vamp can be folded upward over the sole from its two ends connected to the two protruding portions so as to make the toe post engage in the engaging portion.



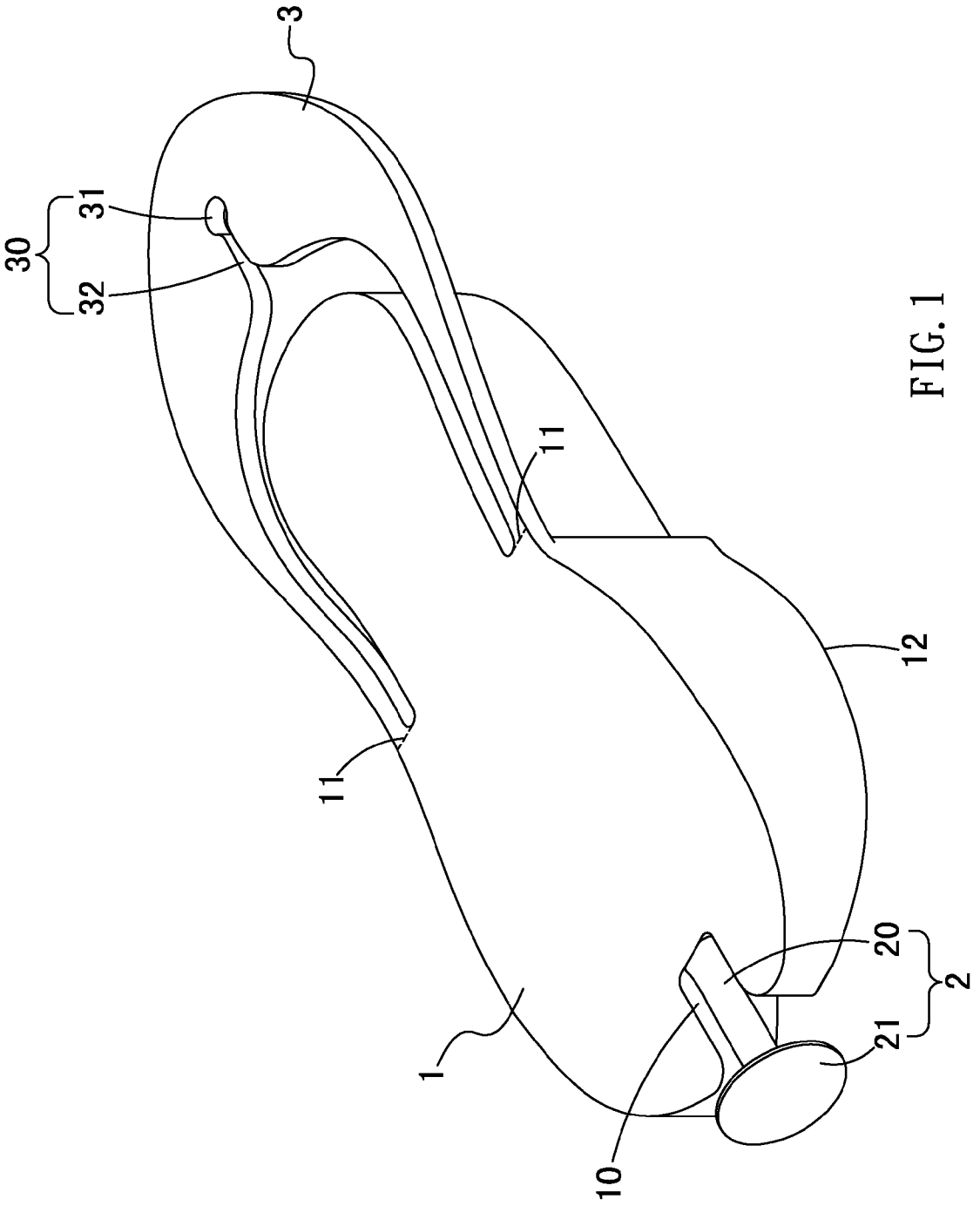


FIG. 1

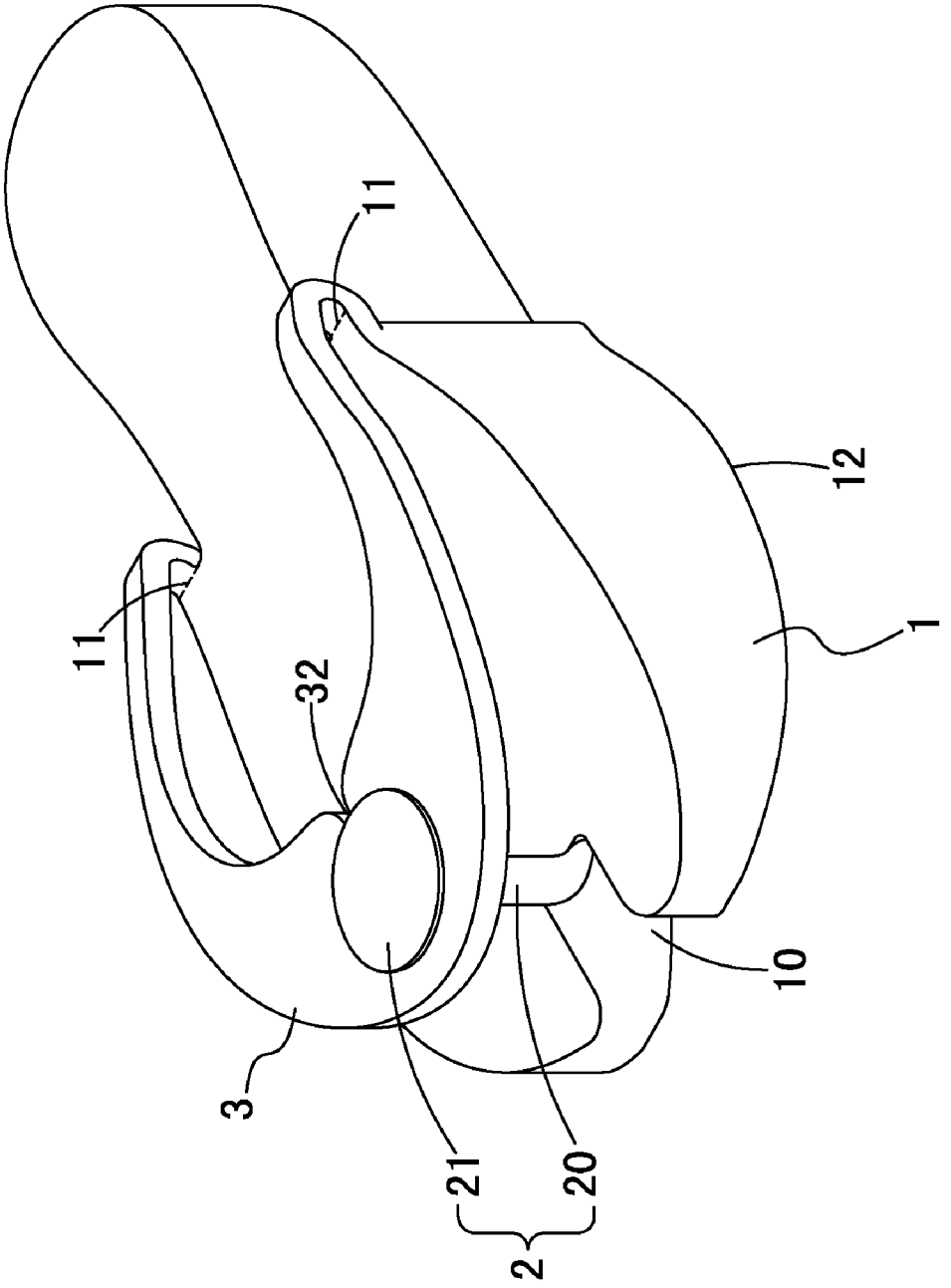


FIG. 2

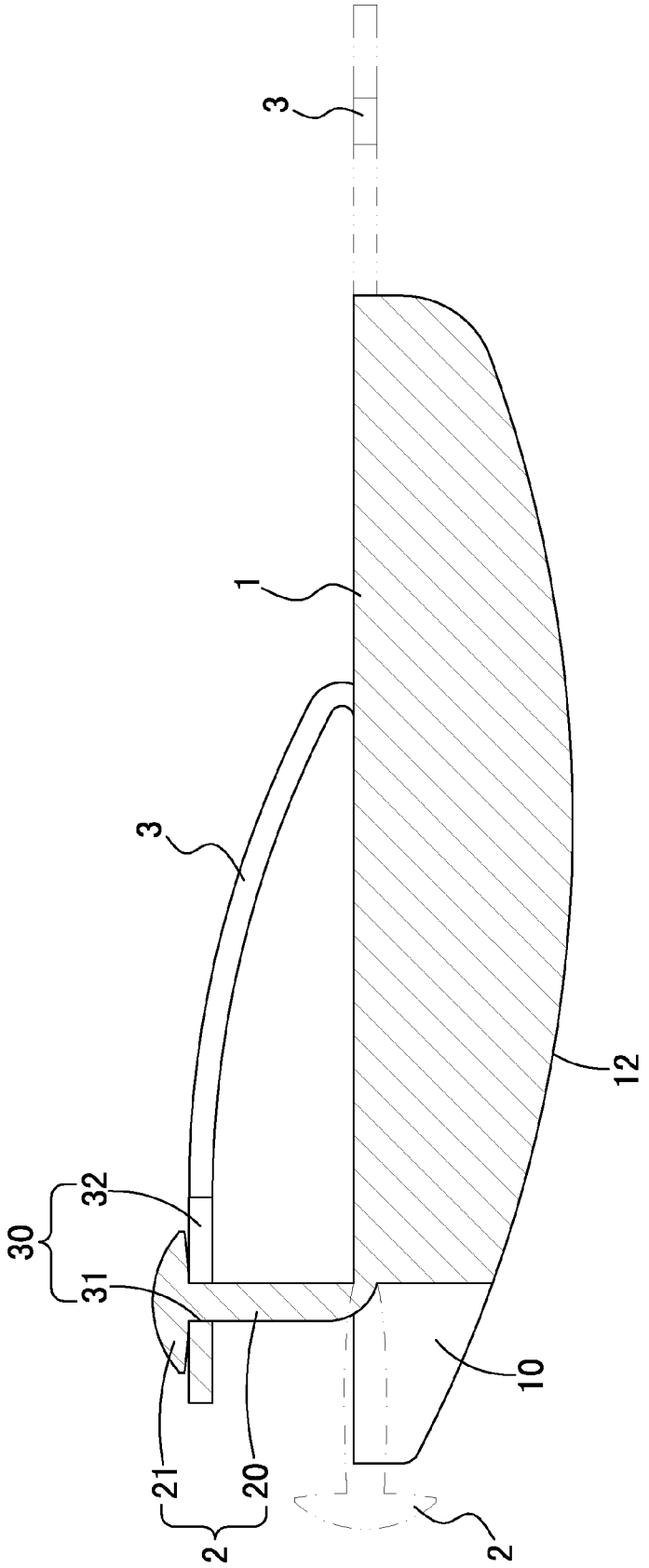


FIG. 3

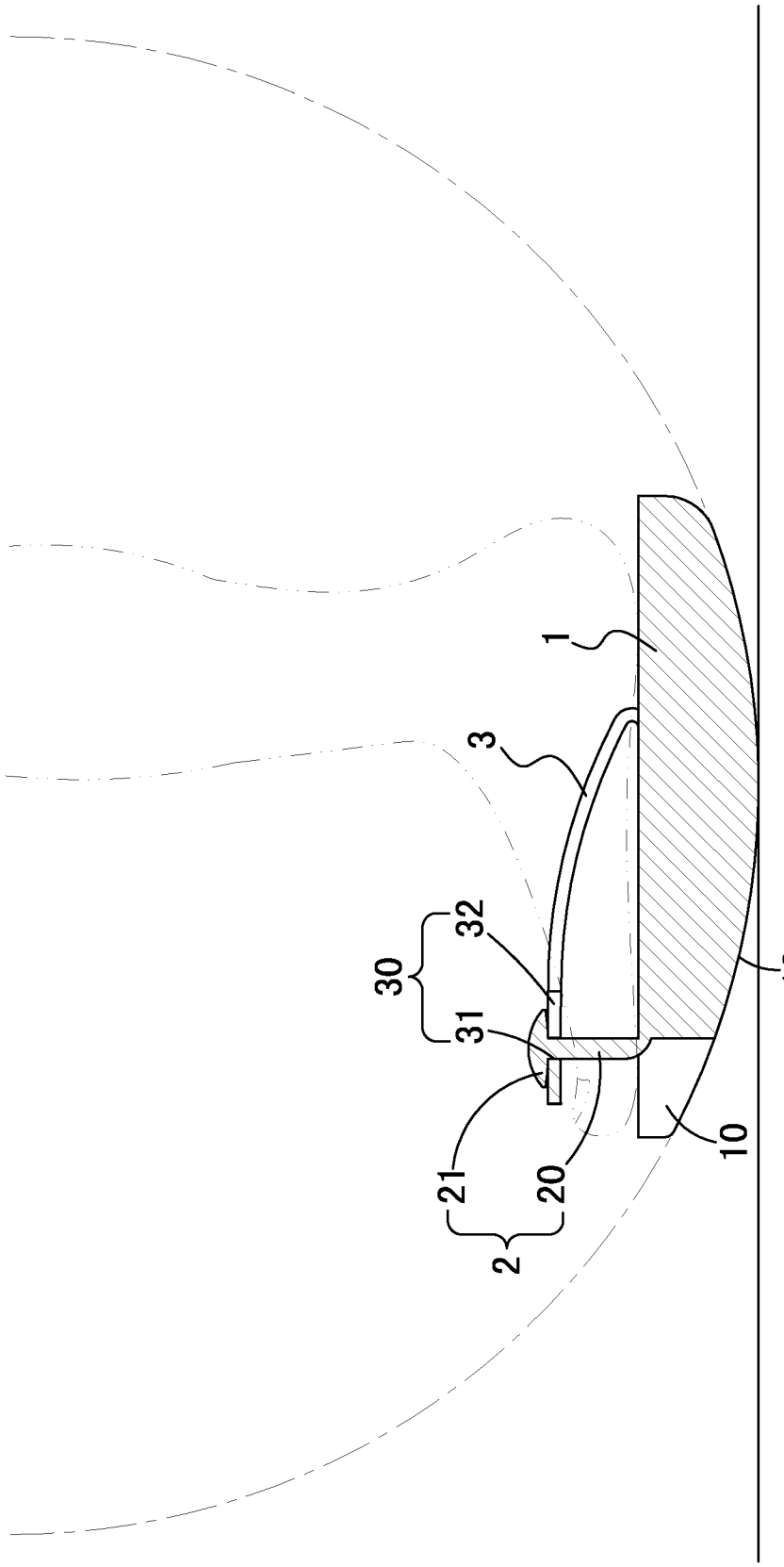


FIG. 4

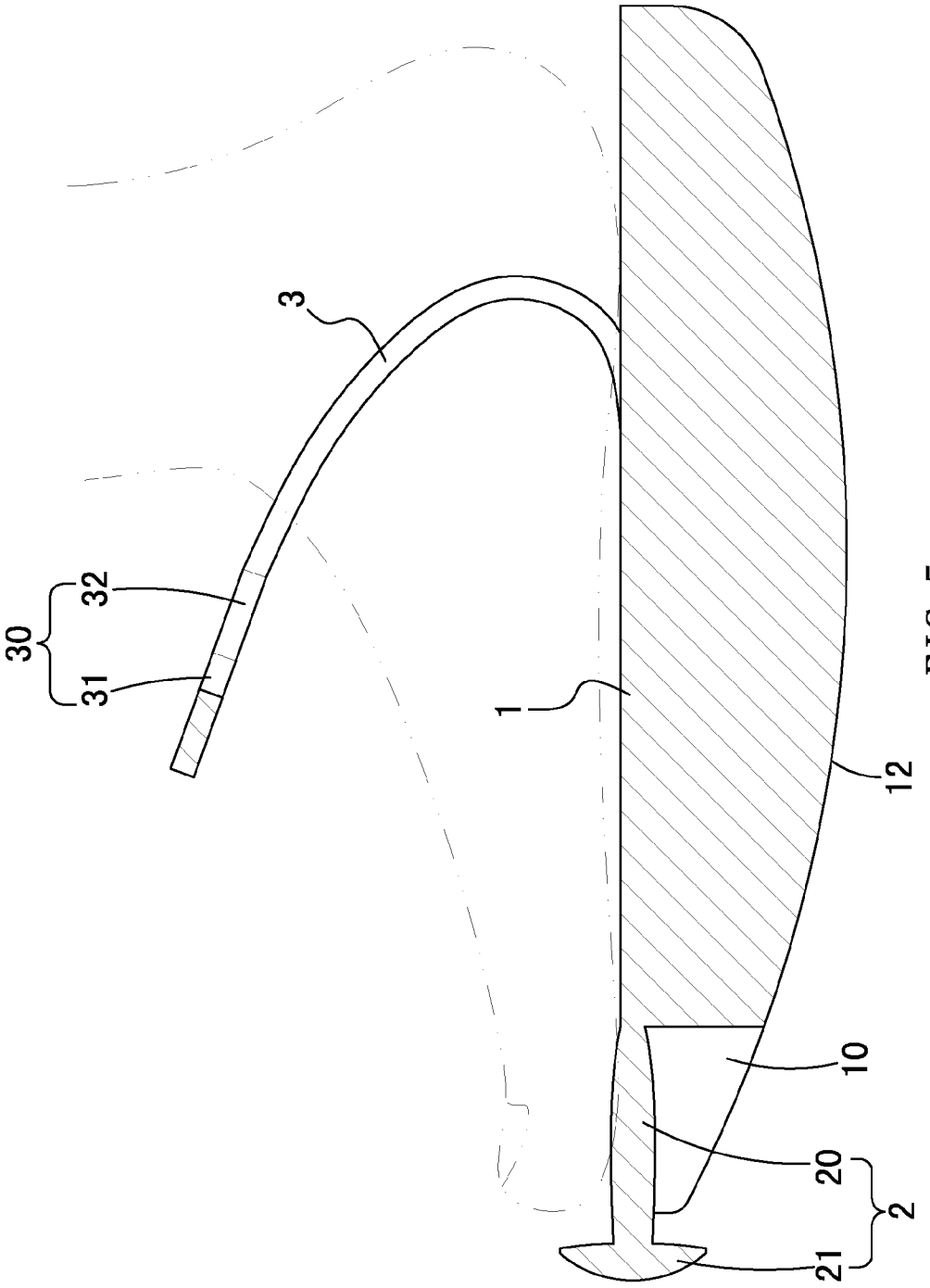


FIG. 5

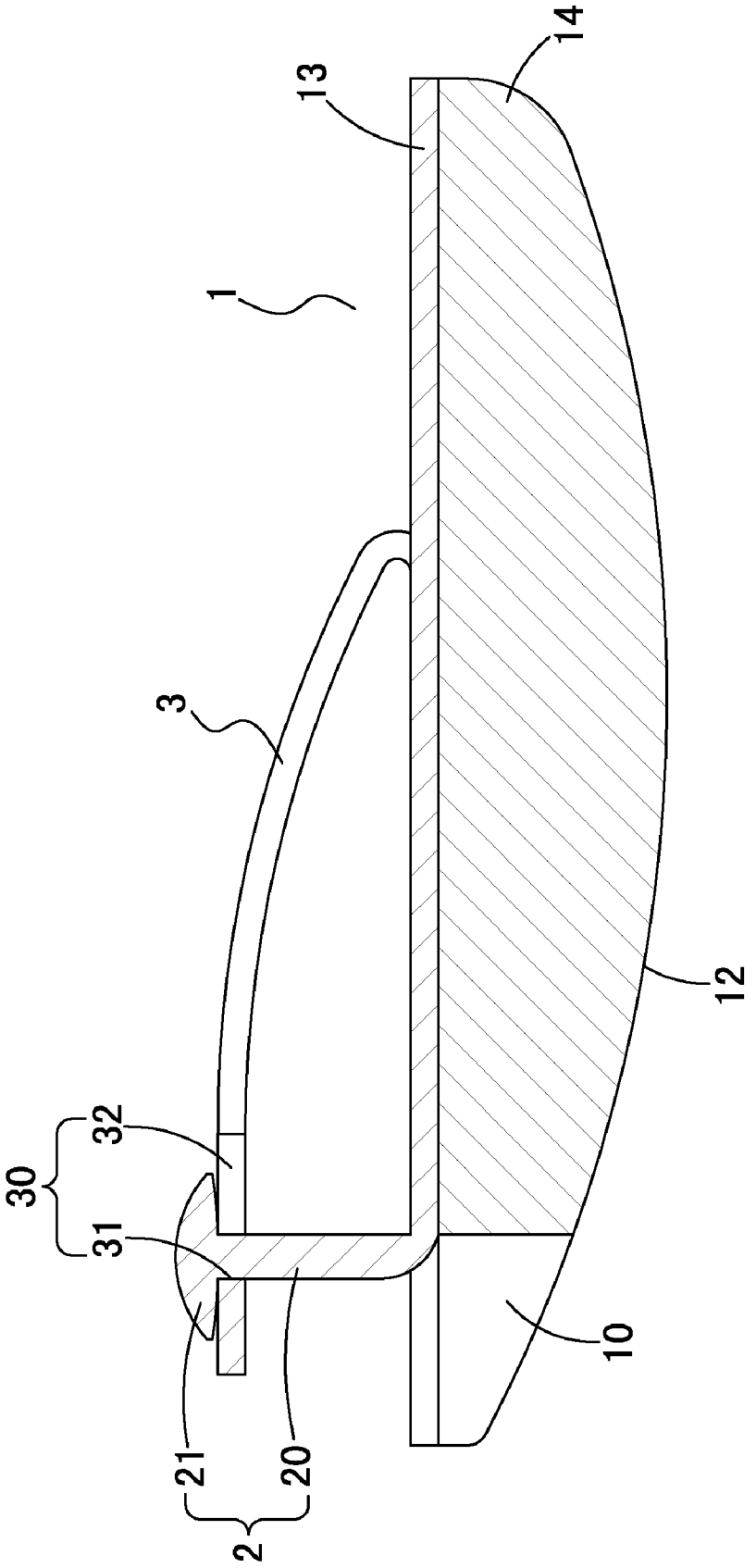


FIG. 6

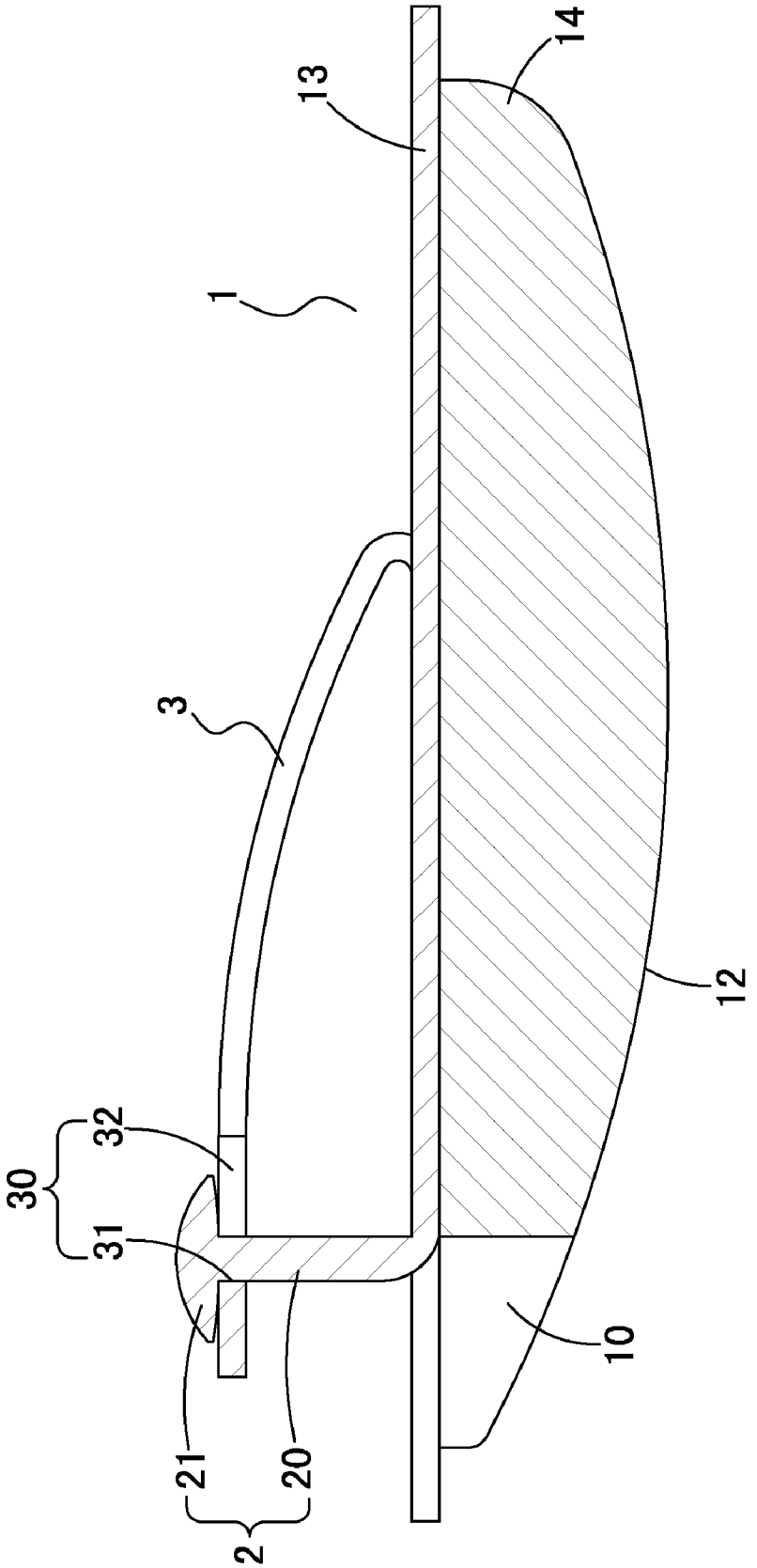


FIG. 7

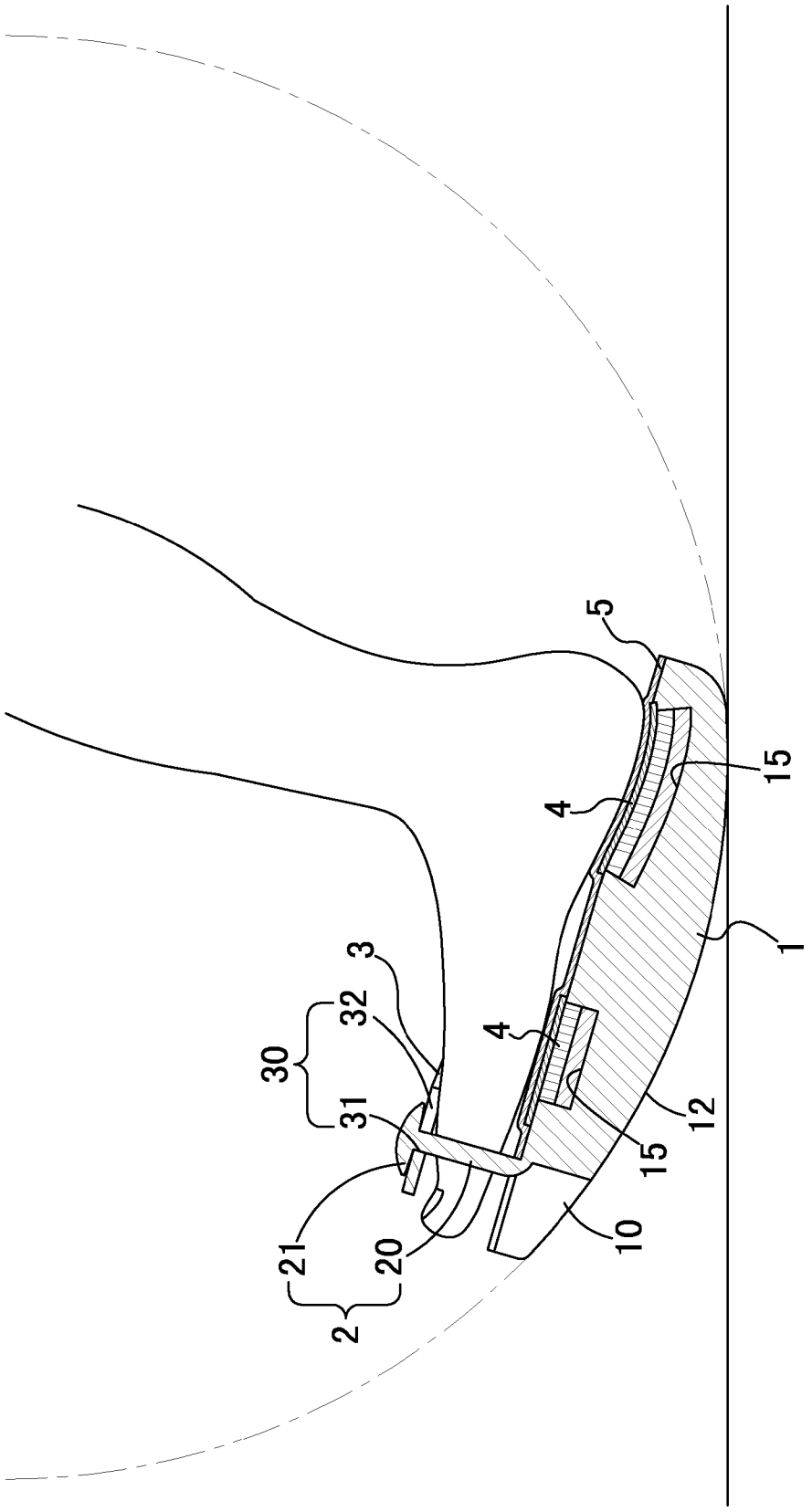


FIG. 8

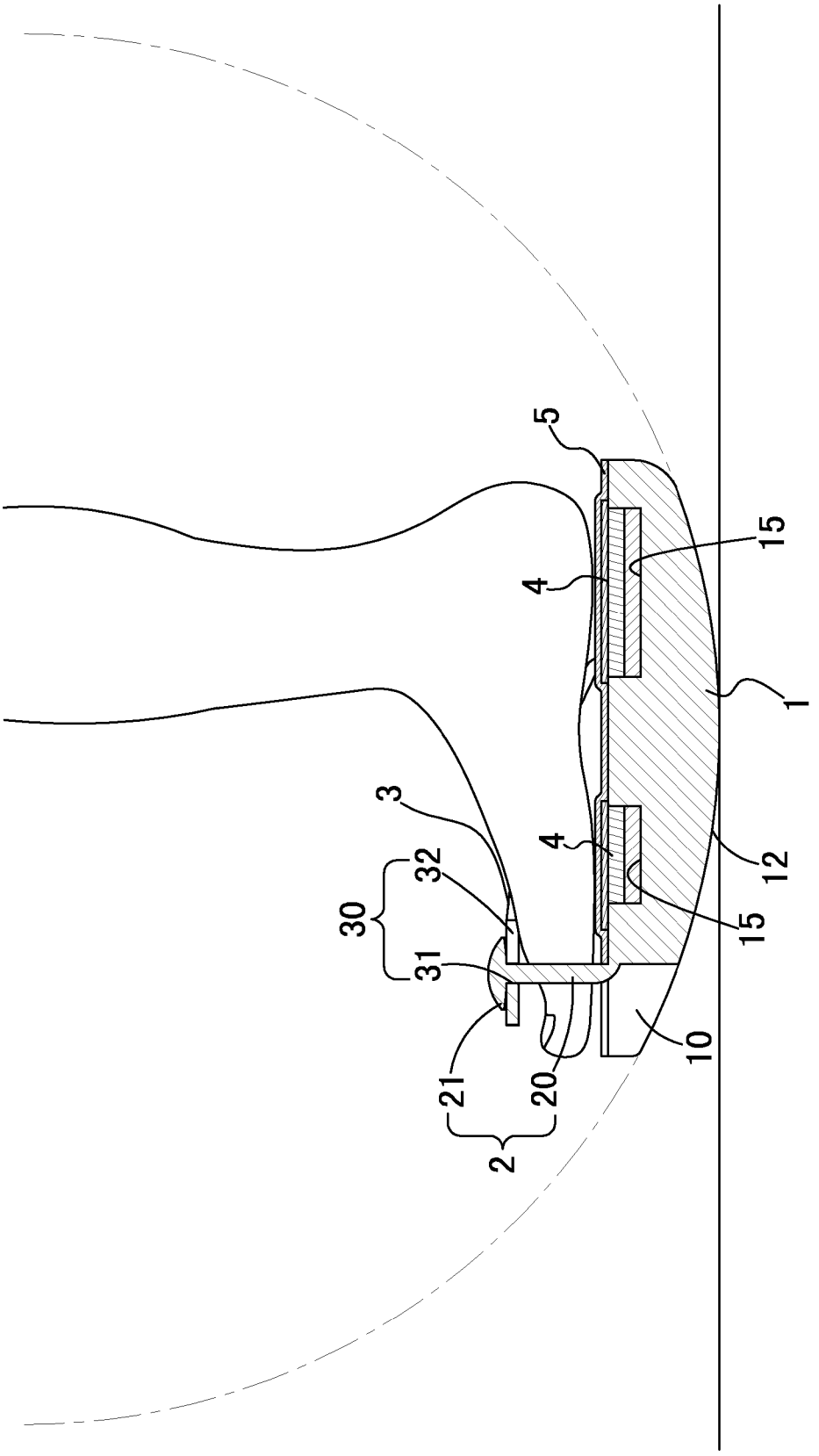


FIG. 9

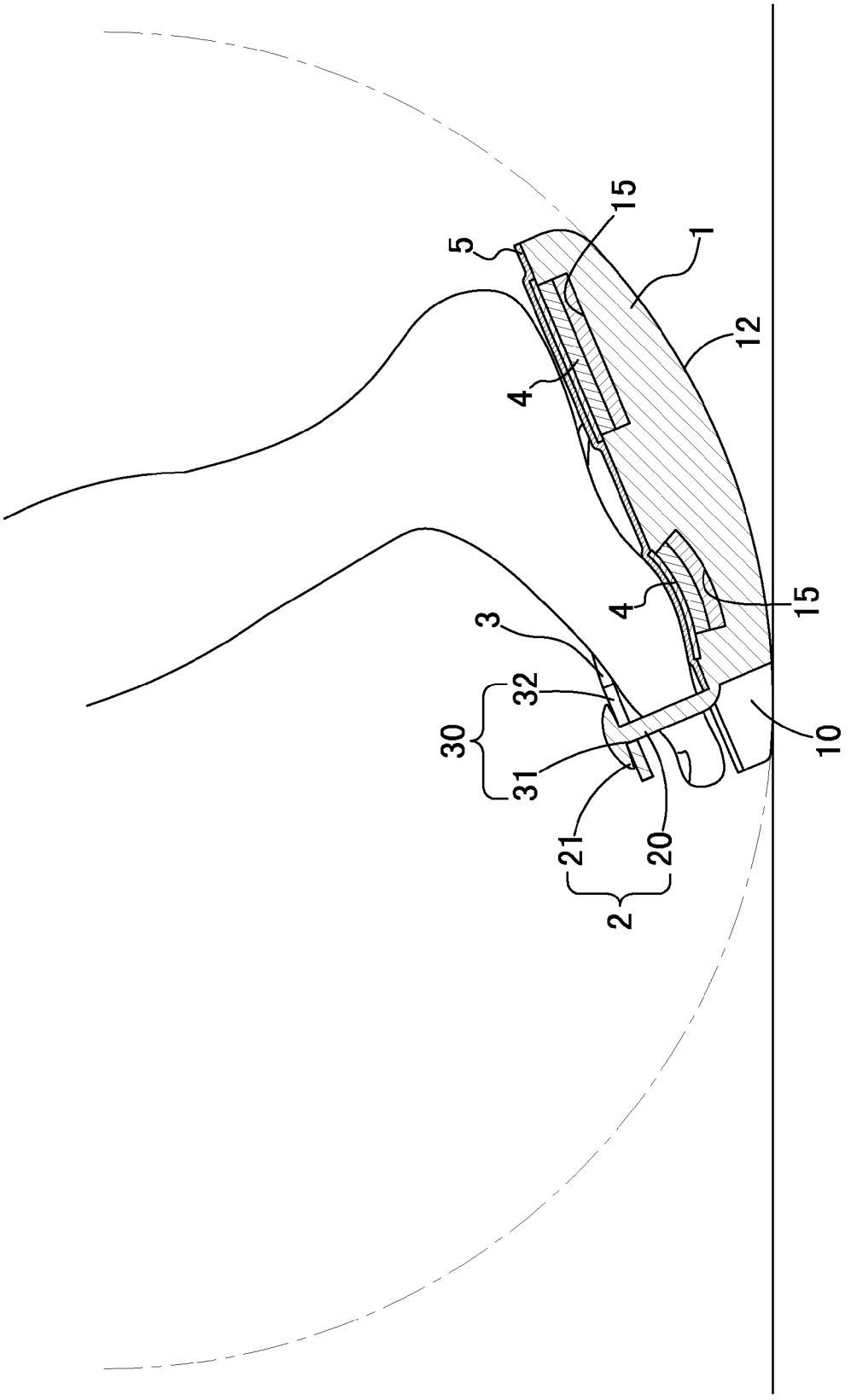


FIG. 10

SLIPPERS STRUCTURE

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to a slippers structure, and more particularly to a low cost, simply-structured and foldable slippers structure which can enhance the propulsion power, help the wearer achieve a better walking and standing posture and modulate the lower limb and body muscles.

[0003] 2. Description of the Prior Art

[0004] The flip flops often seen in the market, such as disclosed in TW Publication No. M289599 and Pat. No. M318938, mostly comprise a sole and a v-shaped vamp. One end of the vamp is integrally formed with a toe post which is permanently fixed to the sole together with another two ends of the vamp. Hence, the arched vamp has a relatively large size and makes it inconvenient to store. It will take a lot of space during transportation when the flip flops are packed into boxes. Furthermore, the enamel is likely to contaminate the vamp when a foot with freshly polished nails steps in the small space defined between the vamp and the sole. Therefore, it causes inconveniences since the user whose toenails are freshly polished cannot wear the flip flops until the enamel is dry. On the other hand, the three ends of the vamp are fixed to the sole, which makes the manufacturing process complicated. Besides, the vamp and the sole have to be formed differently by two different modules, resulting in an increase in manufacturing cost. Specially, the bottom of the sole is mostly flat, when walking, the heel and the metatarsus which support most of the body weight are unable to touch the ground smoothly because of the flat bottom of the sole, making walking uncomfortable and laborsome. Furthermore, the portion of the bottom of the sole corresponding to the heel is most likely to wear off, and more specially, the flat bottom surface of the sole has an influence on wearer's walking posture and might cause damage to the wearer's lower limb muscle and body muscle.

[0005] The present invention has arisen to mitigate and/or obviate the afore-described disadvantages.

SUMMARY OF THE INVENTION

[0006] The primary object of the present invention is to provide a low cost, simply-structured and foldable slippers structure which can enhance the propulsion power, help the wearer achieve a better walking and standing posture and modulate the lower limb and body muscles.

[0007] A slippers structure in accordance with the present invention comprises: a sole, a toe post and a vamp. The sole is defined at its front end with a concave, and close to a middle of both lateral edges of the sole is formed a protruding portion, respectively, a bottom of the sole is formed with an arc-shaped surface extending from a front end to a rear end thereof. The toe post includes a post portion and a head portion, the post portion has one end integrally formed with an inner side of the concave and is capable of being folded upwards at an angle, the head portion is located at the other end of the post portion and has a larger diameter than the post portion. The vamp has two ends integral with the protruding portions of the sole and is located around an outer periphery of a rear half of the sole in such a manner that an interval is left between the rear half of the sole and an inner edge of the vamp, an engaging portion extends from the inner edge to near a center of the vamp, the vamp is capable of being folded upward over the sole from its two ends connected to the two protruding portions, and the toe post is engaged in the engaging portion.

[0008] With the design that the vamp and the toe post can be upward folded and engaged with and disengaged from each other, when the slippers are not worn or during transportation, the vamp can be released from the toe post and unfolded to its original non-use position, which facilitates packing and transport. Furthermore, the arc-shaped surface of the bottom of the sole can enhance the propulsion power, help the wearer achieve a better walking and standing posture and modulate the lower limb and body muscles.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] FIG. **1** shows a non-use unfolded state of slippers in accordance with a first embodiment of the present invention;

[0010] FIG. **2** shows a use folded state of the slippers in accordance with the first embodiment of the present invention;

[0011] FIG. **3** is a cross sectional view of the slippers in accordance with the first embodiment of the present invention;

[0012] FIG. **4** is an illustrative view showing the use state of the slippers in accordance with the first embodiment of the present invention;

[0013] FIG. **5** is another illustrative view showing the use state of the slippers in accordance with the first embodiment of the present invention;

[0014] FIG. **6** is a cross sectional view of slippers in accordance with a second embodiment of the present invention;

[0015] FIG. **7** is a cross sectional view of slippers in accordance with a third embodiment of the present invention;

[0016] FIG. **8** is an illustrative view showing the use state of slippers in accordance with a fourth embodiment of the present invention;

[0017] FIG. **9** is a second illustrative view showing the use state of the slippers in accordance with the fourth embodiment of the present invention; and

[0018] FIG. **10** is a third illustrative view showing the use state of the slippers in accordance with the fourth embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0019] The present invention will be clearer from the following description when viewed together with the accompanying drawings, which show, for purpose of illustrations only, the preferred embodiment in accordance with the present invention.

[0020] Referring to FIGS. **1-5**, slippers in accordance with a first embodiment of the present invention comprises: a sole **1**, a toe post **2** and a vamp **3**.

[0021] The sole **1** is defined at the front end thereof with a concave **10**, and close to the middle of both lateral edges of the sole **1** is formed a protruding portion **11**, respectively. The bottom of the sole **1** is formed with an arc-shaped surface **12** extending from the front end to the rear end thereof in such a manner that the center of the arc-shaped surface **12** is located close to a corresponding one of the wearer's knees. On the bottom of the sole **1** are formed a plurality of anti-skid ribs.

[0022] The toe post **2** includes a post portion **20** and a head portion **21**. The post portion **20** has one end integrally formed with the inner side of the concave **10** and can be folded

upwards at an arbitrary angle. The head portion **21** is located at the other end of the post portion **20** and has a larger diameter than the post portion **20**. The head portion **21** can be made into various forms to improve the appearance of the slippers.

[0023] The vamp **3** has two ends integral with the two protruding portions **11** of the sole **1** and is located around the outer periphery of the rear half of the sole **1** in such a manner that an interval is left between the rear half of the sole **1** and the inner edge of the vamp **3**. An engaging portion **30** extends from the inner edge to near the center of the vamp **3** and includes an engaging hole **31** and a slot **32**. The engaging hole **31** is located close to the center of the vamp **3** for engaging with the toe post **2**. The slot **32** extends from the engaging hole **31** to the inner edge of the vamp **3** and has a width smaller than the inner diameter of the engaging hole **31**.

[0024] As shown in FIGS. **2** and **3**, when the post portion **20** of the toe post **2** is folded upward over the sole **1**, and the vamp **3** is folded upward over the sole **1** from its two ends connected to the two protruding portions **11**, the post portion **20** of the toe post **2** can be moved through the slot **32** and engaged in the engaging hole **31** of the engaging portion **30** in such a manner that the head portion **21** is stopped against the top surface of the vamp **3**, so that the vamp **3** and the toe post **2** are fixed together to form wearable slippers. When the slippers is not worn or during transportation, the vamp **3** can be released from the toe post **2** and unfolded to its original non-use position, which facilitates packing and transport.

[0025] As shown in FIG. **4**, when the wearer walks, the slippers swings smoothly back and forth along the curvature of the arc-shaped surface **12** of the sole **1**, adding to the propulsion power while reducing the wear and tear of the sole **1**. Furthermore, it helps the wearer achieve a better walking and standing posture and modulate the lower limb and body muscles.

[0026] Referring to FIG. **5**, before polishing the toenails, the wear can pull the vamp **3** upward without engaging the toe post **2** in the vamp **3** and then insert his/her foot therethrough, so that the vamp **3** won't cover the toenails and nail polishing can be carried out in an unhindered manner. When nail polishing is finished, the vamp **3** can be engaged with the toe post **2**, so that the vamp **3** can be prevented from being dirtied by the enamel, and the wearer can put on the slippers right after the nail polishing is finished without waiting until the paint dries.

[0027] Referring then to FIG. **6**, a second embodiment of the present invention is shown and identical to the first embodiment except that: the sole **1** of the second embodiment includes an upper layer **13** and a lower layer **14** fixed to the bottom of the upper layer **13**. The material of the upper layer **13** is soft than that of the lower layer **14**.

[0028] Referring to FIG. **7**, a third embodiment of the present invention is shown and identical to the second embodiment except that: the lower layer **14** of the sole **1** of the third embodiment is slightly smaller than the upper layer **13**.

[0029] Referring to FIGS. **8-10**, a fourth embodiment of the present invention is shown and identical to the first embodiment except that: the fourth embodiment further comprises two buffering members **4** and an insole **5**.

[0030] The top surface of the sole **1** is formed with two cavities **15** located correspondingly to the heel and metatarsus portion of the foot, respectively.

[0031] The two buffering members **4** are engaged in the two cavities **15** and each include three layers of materials with different elasticity in such a manner that the top layer of each of the buffering members **4** is thinner than the other two layers and protrudes out of the top surface of the sole **1**. In this embodiment, the materials of different layers of the buffering members **4** can be PU, silicon or GEL, and the combination and selection of the materials of the layers can be made differently according to personal demands.

[0032] The insole **5** is disposed at the top surface of the sole **1** and covers the two buffering members **4**.

[0033] As shown in FIG. **8**, when the heel touches the ground at the beginning of walking, the contacting portion of the bottom of the sole **1** touching the ground is located at the rear end of the arc-shaped surface **12**. At this moment, the center of gravity of the wearer's body is located at the heel, and thus the buffering member **4** located corresponding to the heel will counteract the downward pressure applied by the heel through elastic deformation, providing a buffering effect.

[0034] As shown in FIG. **9**, when the wear continues walking, the sole **1** will swing back and forth along the curvature of the arc-shaped surface **12** until the contacting portion of the bottom of the sole **1** touching the ground moves forward to the center of the arc-shaped surface **12**. At this moment, the sole of the foot is parallel to the ground, and the center of gravity of the wearer is located between the heel and the metatarsus, so that the downward weight of the wearer's body will be shared and supported by the two buffering members **4** of the sole **1**, thus providing a conformable buffering effect.

[0035] Referring then to FIG. **10**, as walking continues, the sole **1** will continue swinging back and forth along the curvature of the arc-shaped surface **12**, and before the sole **1** gets off the ground, the contacting portion of the bottom of the sole **1** touching the ground will move gradually forward to the front end of the arc-shaped surface **12**. At this moment, the center of gravity of the wearer will also move to the metatarsus, so that the buffering member **4** located corresponding to the heel will restore its original shape because the wearer's center of gravity moves away, and the buffering member **4** located corresponding to the metatarsus will counteract the downward pressure applied by the metatarsus through elastic deformation, providing a comfortable buffering effect.

[0036] While we have shown and described various embodiments in accordance with the present invention, it is clear to those skilled in the art that further embodiments may be made without departing from the scope of the present invention.

What is claimed is:

1. A slippers structure comprising:

a sole defined at its front end with a concave, and close to a middle of both lateral edges of the sole being formed a protruding portion, respectively, a bottom of the sole being formed with an arc-shaped surface extending from a front end to a rear end thereof;

a toe post including a post portion and a head portion, the post portion having one end integrally formed with an inner side of the concave and capable of being folded upwards at an angle, the head portion being located at the other end of the post portion and having a larger diameter than the post portion;

a vamp having two ends integral with the protruding portions of the sole and being located around an outer periphery of a rear half of the sole in such a manner that an interval is left between the rear half of the sole and an inner edge of the vamp, an engaging portion extends from the inner edge to near a center of the vamp, the

vamp is capable of being folded upward over the sole from its two ends connected to the two protruding portions, and the toe post is engaged in the engaging portion.

2. The slippers structure as claimed in claim **1**, wherein the engaging portion includes an engaging hole and a slot, the engaging hole is located close to the center of the vamp for engaging with the toe post, the slot extends from the engaging hole to the inner edge of the vamp and has a width smaller than an inner diameter of the engaging hole.

3. The slippers structure as claimed in claim **1**, wherein the sole includes an upper layer and a lower layer fixed to a bottom of the upper layer, the upper layer is soft than the lower layer.

4. The slippers structure as claimed in claim **3**, wherein the lower layer of the sole is slightly smaller than the upper layer.

5. The slippers structure as claimed in claim **1** further comprising two buffering members and an insole, wherein a top surface of the sole is formed with two cavities located corresponding to the heel and metatarsus portion of the foot, respectively, the two buffering members are engaged in the two cavities and each include a plurality of layers of materials with different elasticity in such a manner that the top layer of each of the buffering members, the insole is disposed at the top surface of the sole and covers the two buffering members.

6. The slippers structure as claimed in claim **5**, wherein a top layer of each of the buffering members protrudes out of the top surface of the sole.

7. The slippers structure as claimed in claim **6**, wherein the top layer of each of the buffering members is thinner than the other layers.

8. The slippers structure as claimed in claim **7**, wherein a material of the layers of the buffering members is selected from a group consisting of PU, silicon and GEL.

9. The slippers structure as claimed in claims **1**, wherein a center of the arc-shaped surface is located close to a corresponding one of wearer's knees.

10. The slippers structure as claimed in claims **2**, wherein a center of the arc-shaped surface is located close to a corresponding one of wearer's knees.

11. The slippers structure as claimed in claims **3**, wherein a center of the arc-shaped surface is located close to a corresponding one of wearer's knees.

12. The slippers structure as claimed in claims **4**, wherein a center of the arc-shaped surface is located close to a corresponding one of wearer's knees.

13. The slippers structure as claimed in claims **5**, wherein a center of the arc-shaped surface is located close to a corresponding one of wearer's knees.

14. The slippers structure as claimed in claims **1**, wherein a plurality of anti-skid ribs are formed at the bottom of the sole.

15. The slippers structure as claimed in claims **2**, wherein a plurality of anti-skid ribs are formed at the bottom of the sole.

16. The slippers structure as claimed in claims **3**, wherein a plurality of anti-skid ribs are formed at the bottom of the sole.

17. The slippers structure as claimed in claims **4**, wherein a plurality of anti-skid ribs are formed at the bottom of the sole.

18. The slippers structure as claimed in claims **5**, wherein a plurality of anti-skid ribs are formed at the bottom of the sole.

* * * * *