An integral shoe with a roller assembly. The integral shoe has an upper and a sole, which are integrally formed. At least one cavity is formed on the sole so that the roller assembly can be mounted in the cavity. Thus, the shoe with the roller function is integrally formed more quickly, and the roller assembly may also be replaced so that multiple functions can be achieved.
INTEGRAL SHOE WITH ROLLER ASSEMBLY

BACKGROUND OF THE INVENTION

[0001] (1) Field of the Invention
[0002] The invention relates to a shoe, and more particularly to an integral shoe with the roller function.
[0003] (2) Description of the Prior Art
[0004] A shoe is manufactured by adhering a sole and an upper, which are individually manufactured, together with an adhesive agent, or by sewing the sole and the upper at the corresponding contact surfaces so that the sole and the upper are combined together to form the shoe. A skate shoe is also manufactured in the same manner except that a roller assembly has to be mounted on the sole of the skate shoe.
[0005] However, this manufacturing method adopts the adhesive agent, which has the material aging problem, so that the upper and the sole tend to be separated. In addition, the used adhesive agent causes the air pollution, which becomes a great load on the environment protection issue. Also, the workers who work in the workshop where the adhesive agent is placed always breathe the odor of the adhesive agent so that the health of the workers tends to be influenced. Thus, it is an important subject to improve these problems in the shoe manufacturing industry.

SUMMARY OF THE INVENTION

[0006] In view of the above-mentioned problems, it is therefore an object of the invention to provide an integral shoe with a roller assembly; wherein the shoe is integrally formed, and the roller assembly is mounted on a sole of the shoe to possess the function of the skate shoe and to avoid the consideration induced by adhering an upper and the sole together.
[0007] To achieve the above-identified object, the invention provides an integral shoe having an upper and a sole, which is characterized in that: the upper and the sole are integrally formed, the sole is formed with one concave cavity or a plurality of concave cavities, in which one roller assembly or roller assemblies are mounted, wherein the roller assembly has a rotatable roller.
[0008] Therefore, the invention has the following advantages according to the technological means of the invention.
[0009] First, the upper and the sole of the shoe are integrally formed so that the cost of the adhesive agent can be saved and the environmental pollution caused by the adhesive agent can be avoided. In addition, the upper and the sole cannot be easily separated from each other.
[0010] Second, the integral shoe of the invention has the novel structure and function. Because the shoe is integrally formed, the sole is formed with the cavity so that the roller assembly can be mounted therein. There are many types of the roller assemblies, or even the roller base of the roller assembly can be inserted into the cavity so that the exterior is beautiful and the roller assembly can be replaced in a novel and fun manner.
[0011] Further aspects, objects, and desirable features of the invention will be better understood from the detailed description and drawings that follow in which various embodiments of the disclosed invention are illustrated by way of examples.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] FIG. 1 is a pictorially exploded view showing an integral shoe according to a first embodiment of the invention.
[0013] FIG. 2 is a cross-sectional view showing the integral shoe according to the first embodiment of the invention.
[0014] FIG. 3 is a pictorially exploded view showing an integral shoe according to a second embodiment of the invention.
[0015] FIG. 4 is a cross-sectional view showing an integral shoe according to a third embodiment of the invention.
[0016] FIG. 5 is a pictorially exploded view showing an integral shoe according to a fourth embodiment of the invention.
[0017] FIG. 6 is a cross-sectional view showing the assembled integral shoe according to the fourth embodiment of the invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0018] The invention provides an integral shoe with a roller assembly. In the preferred embodiment as shown in FIG. 1, a shoe 10 includes an upper 11, a sole 12 and a roller assembly 20, which is additionally combined.
[0019] As shown in FIGS. 1 and 2, the upper 11 and the sole 12 of the shoe 10 are integrally formed, and no seam is formed between the upper 11 and the sole 12. Convex non-circular cavities 13 are respectively formed on the sole 12 at positions close to the toe and the heel. A slot 131 for communicating the cavities 13 together is also formed on the sole 12. The slot 131 and the cavities 13 have openings facing in a direction toward the bottom side of the sole 12.
[0020] The roller assembly 20 is correspondingly mounted in the cavities 13 and the slot 131. The roller assembly 20 includes two roller bases 21 and a link 22 connecting the roller bases 21 together. The roller base 21 is formed with an inner slot 211 having an opening facing the opening of the cavity 13. The outer profile of the roller base 21 corresponds to the cross-sectional area of the cavity 13 and the roller base 21 is slightly tightly pressed against the cavity 13 so that the roller bases 21 and the link 22 are arranged in the cavities 13 and the slot 131. The sole 12 is made of a plastic material and has the elasticity. So, the roller base 21 and the link 22 cannot easily fall out after they are mounted into the cavity and the slot. One roller 23 is mounted in each of the roller bases 21, and bearings are mounted at the center portion of the roller 23 so that a shaft 231 may be mounted in the bearings. Thus, when the roller 23 is mounted in the inner slot 211, two ends of the shaft 231 are fixed to the inner sidewalls of the inner slot 211 so that the roller 23 may be rotated relatively to the shaft 231. The radial surface of the roller 23 faces the side surface of the shoe 10.
[0021] Consequently, the roller assembly 20 is formed after the roller 23 is mounted on the roller base 21, and can be fully inserted into the cavities 13 and the slot 131, as shown in FIG. 2. One portion of the roller 23 protrudes from the sole 12. Consequently, a user may wear the shoe 10 and then apply a force to the roller assembly 20 to make the roller 23 roll on the ground so that the shoe may serve as a skate shoe.
[0022] Consequently, the shoe 10 of the invention has the upper 11 and the sole 12, which are integrally formed. So, the upper 11 and the sole 12 need not to be adhered together by the adhesive agent so that the problem of the poor adhesive intensity of the adhesive agent and the problem of the environment protection can be avoided. That is, the shoe of the invention may be easily manufactured and satisfy the environment protection effect.
In addition, the sole 12 has the cavities 13 and the slot 131 corresponding to the roller assembly 20 and the two rollers 23 thereof. Thus, the roller assembly 20 can be fully and directly inserted into the cavities 13 and the slot 131 in a simple and quick manner without any screwing element, which deteriorates the exterior of the shoe. In addition, different types or colors of roller assemblies 20 may be used according to the user's requirements so that the variations in the visual feeling and the novel feeling of the shoe can be added. Because the roller assembly 20 has the roller bases 21 and the link 22, which are tightly pressed against the cavities 13 and the slot 131, the roller assembly 20 can be forced out easily.

As shown in FIG. 3, only one single cavity 13 is formed on a sole 12 of a shoe 101 at the heel position. Thus, a roller assembly 201 only includes one roller base 21 and one roller 23, and the skate shoe with one single roller may be formed after the roller assembly 201 is inserted into the cavity 13.

As shown in FIG. 4, a currently popular crocs shoe 102 may also have two roller assemblies 201 of FIG. 3 each having only one single roller. The roller assemblies 201 are mounted in the heel and toe regions. So, there are many types of the shoes suitable for the invention.

As shown in FIGS. 5 and 6, a roller assembly 202 may be modified in many ways. That is, one cavity or two cavities 14 may be formed on a sole 12 of a shoe 103, and notched slots 141 are formed on the opposite inner sidewalls of each cavity 14. The roller assembly 202 has a shaft 241, which is movably mounted to and penetrates through the center of a roller 24. Thus, after the roller assembly 202 is mounted in the cavity 14, two ends of the shaft 241 exposed out of the roller 24 are inserted into the notched slots 141 so that the roller 24 is partially accommodated in the cavity 14 and partially exposed out of the sole 12 and the simpler skate shoe can be formed.

New characteristics and advantages of the invention covered by this document have been set forth in the foregoing description. It is to be expressly understood, however, that the drawings are for the purpose of illustration only and are not intended as a definition of the limits of the invention. Changes in methods, shapes, structures or devices may be made in details without exceeding the scope of the invention by those who are skilled in the art. The scope of the invention is, of course, defined in the language in which the appended claims are expressed.

What is claimed is:
1. An integral shoe having an upper and a sole, characterized in that:
the upper and the sole are integrally formed, the sole is formed with one concave cavity or a plurality of concave cavities, in which one roller assembly or roller assemblies are mounted, wherein the roller assembly has a rotatable roller.
2. The integral shoe according to claim 1, wherein the cavity has a non-circular cross-sectional area.
3. The integral shoe according to claim 1, wherein the roller assembly comprises a roller base formed with an inner slot, an opening of the inner slot faces an opening of the cavity, the roller base has an outer profile corresponding to a cross-sectional area of the cavity, the roller base and a link are slightly tightly pressed against the cavity, and the rotatable roller is mounted in the inner slot of the roller base.
4. The integral shoe according to claim 1, wherein the cavity of the sole of the shoe is formed with two opposite notched slots on opposite inner sidewalls of the cavity, a shaft is movably mounted to and penetrates through a center of the roller, the roller assembly is mounted in the cavity, two ends of the shaft exposed out of the roller are mounted in the notched slots, and the roller is partially accommodated within the cavity and partially exposed out of the sole.
5. The integral shoe according to claim 3, wherein the integral shoe has two roller assemblies, two cavities and the link for connecting two roller bases of the two roller assemblies together, the cavities correspond to the link, and a slot having an opening facing in a direction toward the roller assemblies and communicating the two cavities with each other is formed between the cavities.
6. The integral shoe according to claim 3, wherein the integral shoe has two roller assemblies, the sole is formed with two cavities corresponding to the roller assemblies, and the roller assemblies are respectively mounted in the corresponding cavities.

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