FOOTWEAR OUTER SOLE

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ABSTRACT

A footwear outer sole comprising a body having an end and a bottom surface, and a revolver provided at the end of the sole body and protruding slightly from its bottom surface. The revolver comprises a lower member supported for rotation relative to the sole body about a substantially vertical axis.
FIG. 1

FIG. 2
FOOTWEAR OUTER SOLE

[0001] The present invention relates to an outer sole for a footwear item, such as a shoe or boot.

BACKGROUND OF THE INVENTION

[0002] Shoes or boots can have wheels, i.e. roller skates, for roller-skating as a sport activity or a game for fun. The wheels are invariably arranged either at the four corners or centrally in-line.

[0003] The subject invention seeks to provide an outer sole for a footwear item that can perform a different action.

SUMMARY OF THE INVENTION

[0004] According to the invention, there is provided a footwear outer sole comprising a body having an end and a bottom surface, and a revolver provided at the end of the sole body and protruding slightly from its bottom surface. The revolver comprises a lower member supported for rotation relative to the sole body about a substantially vertical axis.

[0005] Preferably, the end of the sole body includes a recess which opens downwards and in which the revolver is partially located.

[0006] It is preferred that the lower member comprises a substantially horizontal disc.

[0007] In a preferred embodiment, the revolver includes an upper member supporting the lower member for rotation, the upper member being fixed to the sole body.

[0008] More preferably, the upper member comprises a substantially horizontal disc.

[0009] Further more preferably, the lower member comprises a substantially horizontal disc.

[0010] In the preferred embodiment, the two members specifically are connected together by a substantially vertical shaft, the shaft having an upper end secured to the bottom wall of the sole body.

[0011] More preferably, the shaft comprises a bolt and nut.

[0012] It is preferred that the two discs have opposing peripheries overlapping with each other to enclose the interior between the two discs.

[0013] In the preferred embodiment, the revolver advantageously includes a low friction bearing provided between the two members to permit free rotation of the lower member relative to the upper member.

[0014] More preferably, the low friction bearing comprises an annular ball race.

[0015] Further more preferably, the ball race comprises a plurality of spheres and an annular spacer positioning the spheres, and at least one of the two members includes a recessed annular track for the spheres.

[0016] As one example, the revolver is provided at a front end of the sole body.

[0017] As another example, the revolver is provided at a rear end of the sole body.

[0018] The invention also provides a footwear item that incorporates the aforesaid footwear outer sole.

BRIEF DESCRIPTION OF DRAWINGS

[0019] The invention will now be more particularly described, by way of example only, with reference to the accompanying drawings, in which:

[0020] FIG. 1 is a bottom plan view of an embodiment of a footwear outer sole in accordance with the invention, the sole including a revolver;

[0021] FIG. 2 is a side elevational view of the sole and revolver of FIG. 1;

[0022] FIG. 3 is a cross-sectional side view of the revolver of FIG. 1;

[0023] FIG. 4 is a top plan view of a lower member of the revolver of FIG. 3; and

[0024] FIG. 5 is a bottom plan view of the revolver member of FIG. 4.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENT

[0025] Referring to the drawings, there is shown a rubber outer sole 100 of a footwear item, such as a shoe, embodying the invention, which sole 100 comprises a flat elongate body 110 and a revolver 200 provided at a front end 112 of the sole body 110. The sole body 110 has a relatively thick bottom wall 114 formed, at the front end 112, with a circular recess 116 which opens downwards and in which the revolver 200 is partially located.

[0026] The revolver 200 has a slightly smaller diameter than the recess 116, but a slightly larger thickness such that its bottom surface protrudes slightly beyond that of the sole body 110 for engaging the ground when the sole 100 is in use. The revolver 200 comprises a horizontal plastic upper disc 210, a horizontal plastic lower disc 220 of the same diameter, and a vertical metal bolt 230 connecting the lower disc 220 co-axially to the upper disc 210 through their centers, acting as a shaft.

[0027] The upper disc 210 is generally flat and includes a short depending peripheral wall 212, whereas the lower disc 220 is considerably thicker and includes an upstanding peripheral wall 222 and an upstanding hollow central boss 224. The upper peripheral wall 212 has an annular outer step 213 that mates with a complementary annular inner step 223 of the lower peripheral wall 222. The two peripheral walls 212 and 222 overlap with each other by their steps 213 and 223 to enclose the interior of and between the two discs 210 and 220, which is thus practically sealed against the ingress of dirt. The interior of the two discs 210 and 220, as defined between the peripheral walls 212 and 222 and the central boss 240, is annular and flat.

[0028] The revolver 200 includes a low friction bearing in the form of an annular ball race 240 provided co-axially in the interior between the two discs 210 and 220, thereby permitting smooth or free relative rotation therebetween. The ball race 240 is formed by six metal spheres 242 and a plastic annular spacer 244 that locates the spheres 242 equi-annularly by respective holes 246. The spheres 242 run between and against the confronting inner surfaces of the two discs 210 and 220. The inner surface of the lower disc 220 includes co-axially a raised circular track 226 for the spheres 242, which has a recessed cross-section locating the
spheres 242 and hence the overall ball race 240. In addition, the inner surface of the upper disc 210 may include coaxially a circular grooved track 216 likewise for the spheres 242.

[0029] The bolt 230 extends upwardly through the lower disc 220 and then the upper disc 210, with its bolt head 232 retained and accommodated within the hollow of the central boss 224. Free end 234 of the bolt 230 projects out of the upper disc 210 and then through the bottom wall 114 of the sole body 110 centrally at the base of the recess 116. A nut 236 fastens the bolt end 234 tight, thereby securing the revolver 200 in the recess 116.

[0030] More specifically, the upper disc 210 is fastened tight against the sole bottom wall 114 such that it is fixed against rotation. On the other hand, the lower disc 220 remains freely rotatable by reason of the ball race 240 relative to the upper disc 210.

[0031] A wearer of the aforesaid shoes may stand on one leg and tiptoe on the associated revolver 200 to spin or turn about a substantially vertical axis using the revolver 200 for fun or playing or as an exercise to twist the waist in opposite directions. In this regard, the lower disc 220 may have small protruding knobs 228 over its bottom surface to hence gripping on the ground. Given that the front end 112 of the sole body 110 normally curves slightly upwards and the revolver 200 is only slightly protruding, the wearer can walk or run with his soles 100 flat on the ground.

[0032] It is envisaged that the same revolver 200 can of course be provided at the opposite, rear end of the sole body 110, such that the wearer can turn on his/her ankle. As a further variation, the sole 100 may include two revolvers 200 at its both front and rear ends.

[0033] The subject outer sole 100 may be used on any other types of footwear, such as boots and sneakers.

[0034] The invention has been given by way of example only, and various other modifications and/or variations to the described embodiment may be made by persons skilled in the art without departing from the scope of the invention as specified in the accompanying claims.

What is claimed is:

1. A footwear outer sole comprising a body having an end and a bottom surface, and a revolver provided at the end of the sole body and protruding slightly from its bottom surface, the revolver comprising a lower member supported for rotation relative to the sole body about a substantially vertical axis.

2. The footwear outer sole as claimed in claim 1, wherein the end of the sole body includes a recess which opens downwards and in which the revolver is partially located.

3. The footwear outer sole as claimed in claim 1, wherein the lower member comprises a substantially horizontal disc.

4. The footwear outer sole as claimed in claim 1, wherein the revolver includes an upper member supporting the lower member for rotation, the upper member being fixed to the sole body.

5. The footwear outer sole as claimed in claim 4, wherein the upper member comprises a substantially horizontal disc.

6. The footwear outer sole as claimed in claim 5, wherein the lower member comprises a substantially horizontal disc.

7. The footwear outer sole as claimed in claim 4, wherein the two members are connected together by a substantially vertical shaft, the shaft having an upper end secured to the bottom wall of the sole body.

8. The footwear outer sole as claimed in claim 7, wherein the shaft comprises a bolt and nut.

9. The footwear outer sole as claimed in claim 6, wherein the two discs have opposing peripheries overlapping with each other to enclose the interior between the two discs.

10. The footwear outer sole as claimed in claim 4, wherein the revolver includes a low friction bearing provided between the two members to permit free rotation of the lower member relative to the upper member.

11. The footwear outer sole as claimed in claim 10, wherein the low friction bearing comprises an annular ball race.

12. The footwear outer sole as claimed in claim 11, wherein the ball race comprises a plurality of spheres and an annular spacer positioning the spheres, and at least one of the two members includes a recessed annular track for the spheres.

13. The footwear outer sole as claimed in claim 1, wherein the revolver is provided at a front end of the sole body.

14. The footwear outer sole as claimed in claim 1, wherein the revolver is provided at a rear end of the sole body.

15. A footwear item incorporating the footwear outer sole as claimed in claim 1.

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