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(54) **PROTECTIVE SAFETY SHOE INSERT**

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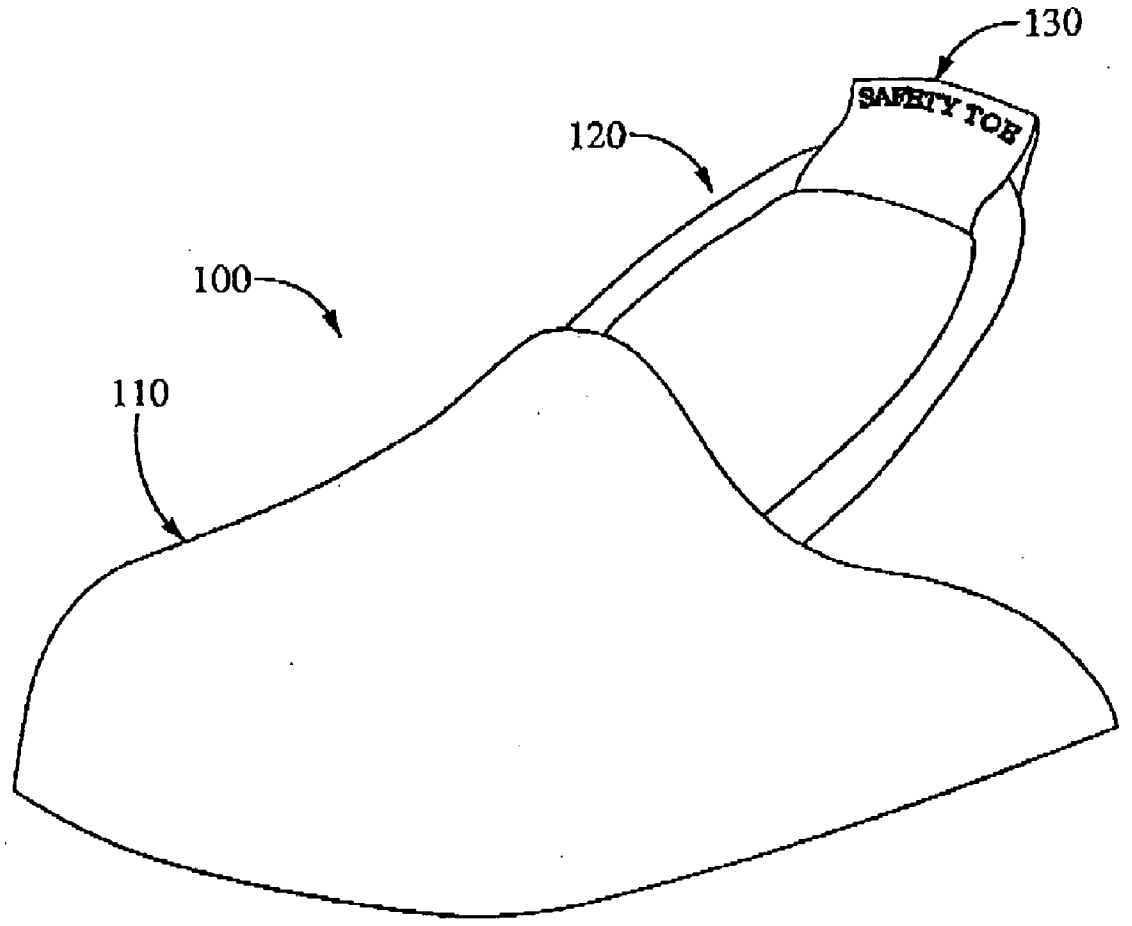
(57) **ABSTRACT**

The shoe insert can be inserted into any shoe and placed between a toe area of a foot and an inner surface of a shoe upper. The shoe insert includes an insert body to cover and protect the toe area of the foot. The insert body is removably coupled to an inner surface of a shoe upper. An adhesive surface is disposed on an upper surface of the insert body to secure the insert body to the inner surface of the shoe upper. The insert body also includes an inner lining for providing comfort to the toe area. A looped band, coupled to the insert body, is placed over a tongue of the shoe for displaying that the insert body is being worn by a user.



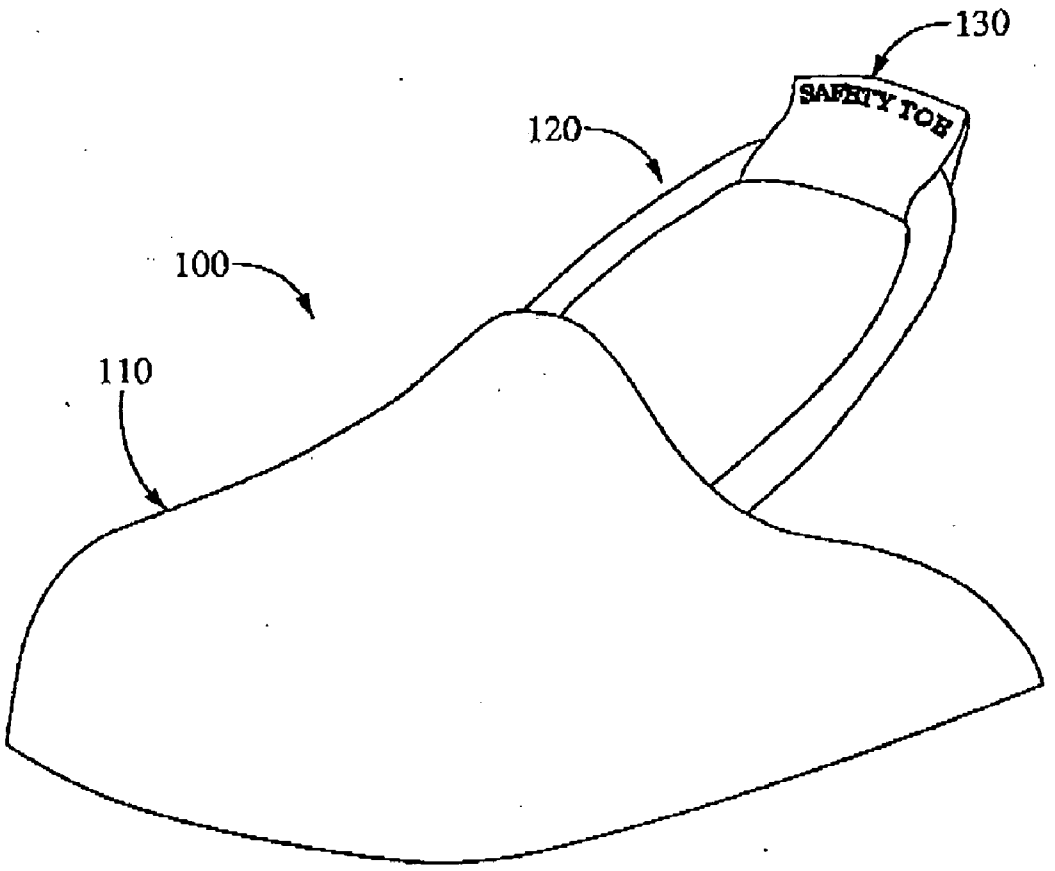


Fig. 1

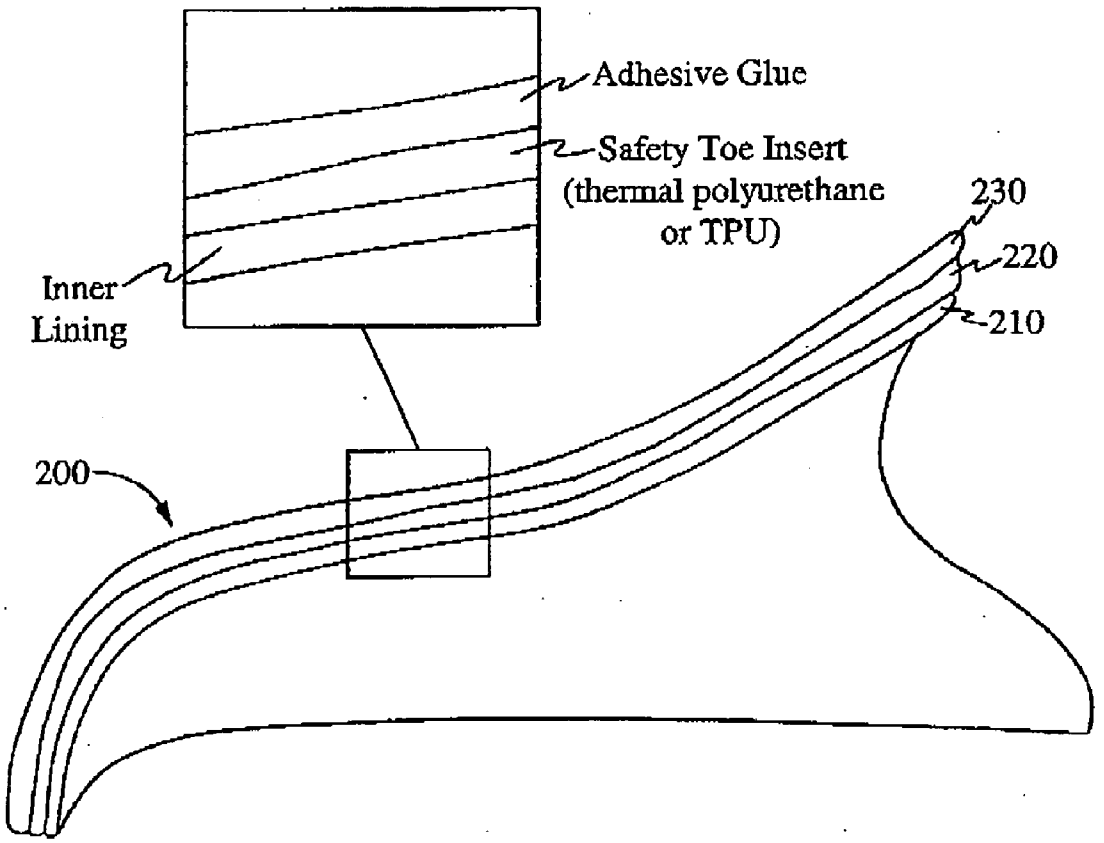

Adhesive Glue
Safety Toe Insert
(thermal polyurethane
or TPU)
230
220
210
Inner
Lining
200

Fig. 2

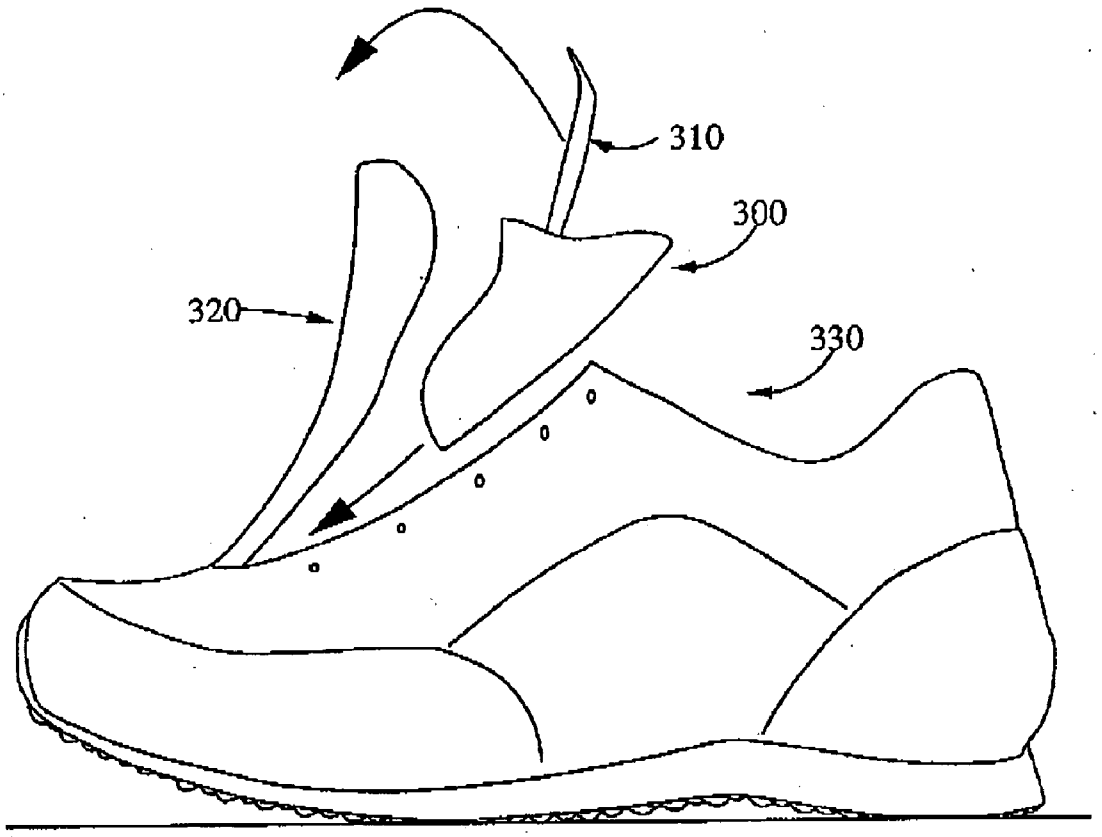


Fig. 3

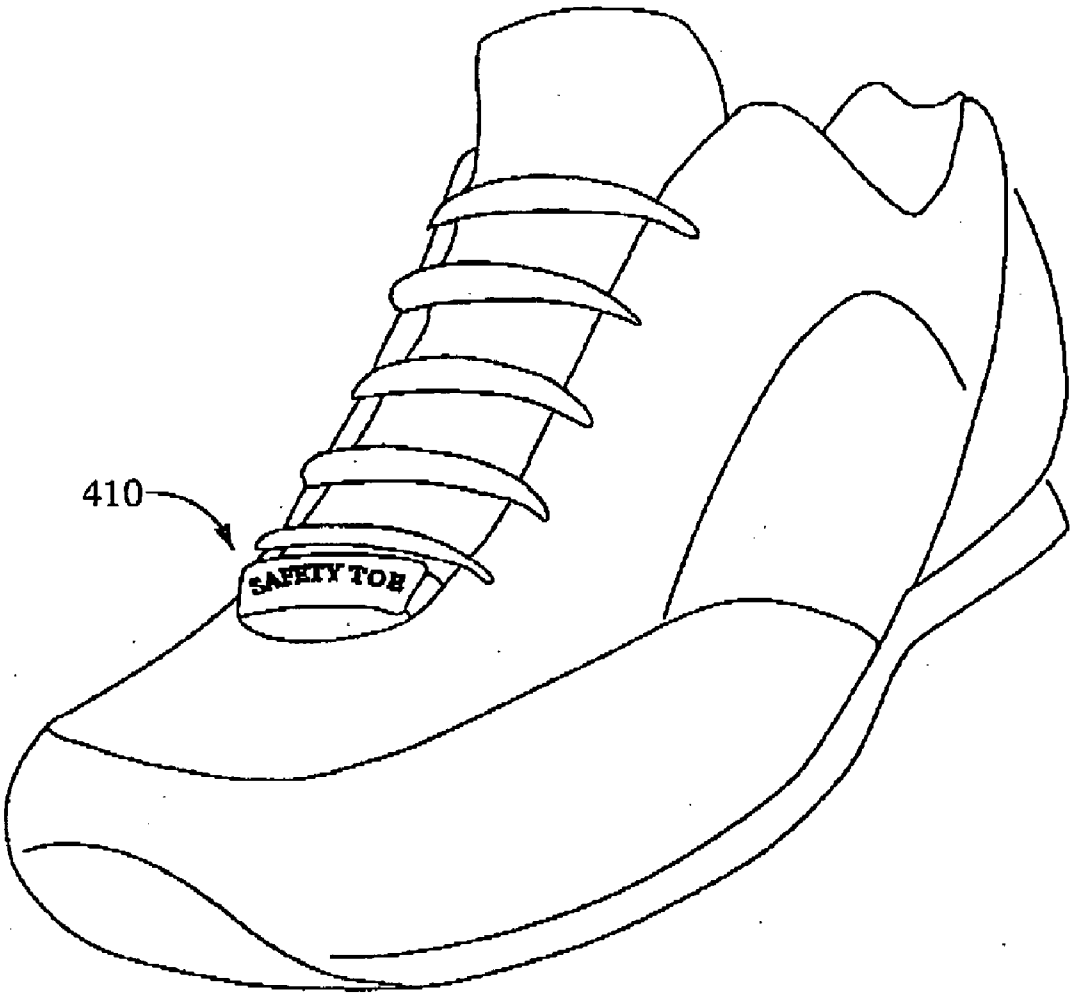


Fig. 4

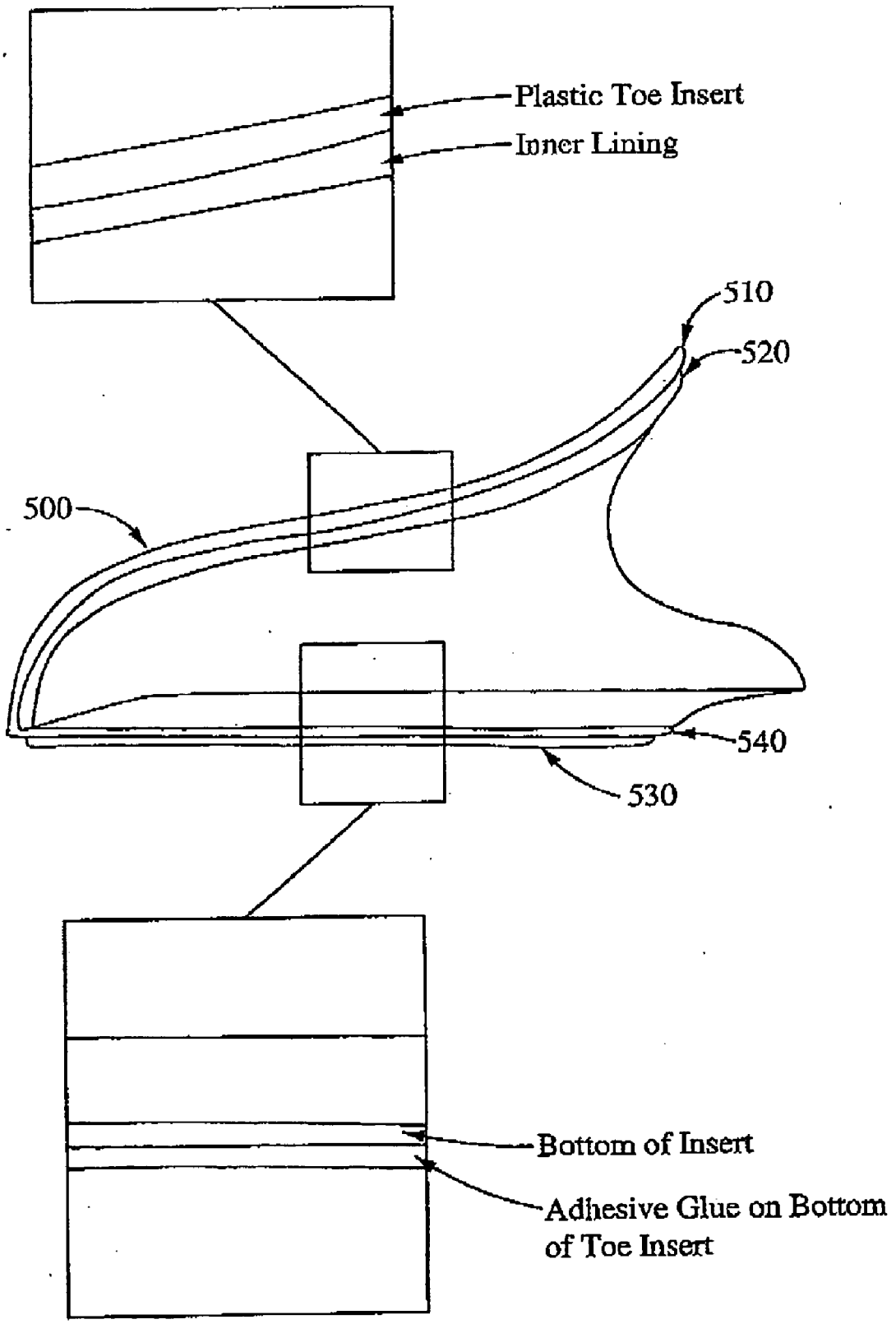

Plastic Toe Insert
Inner Lining
510
520
500
540
530
Bottom of Insert
Adhesive Glue on Bottom of Toe Insert

Fig. 5

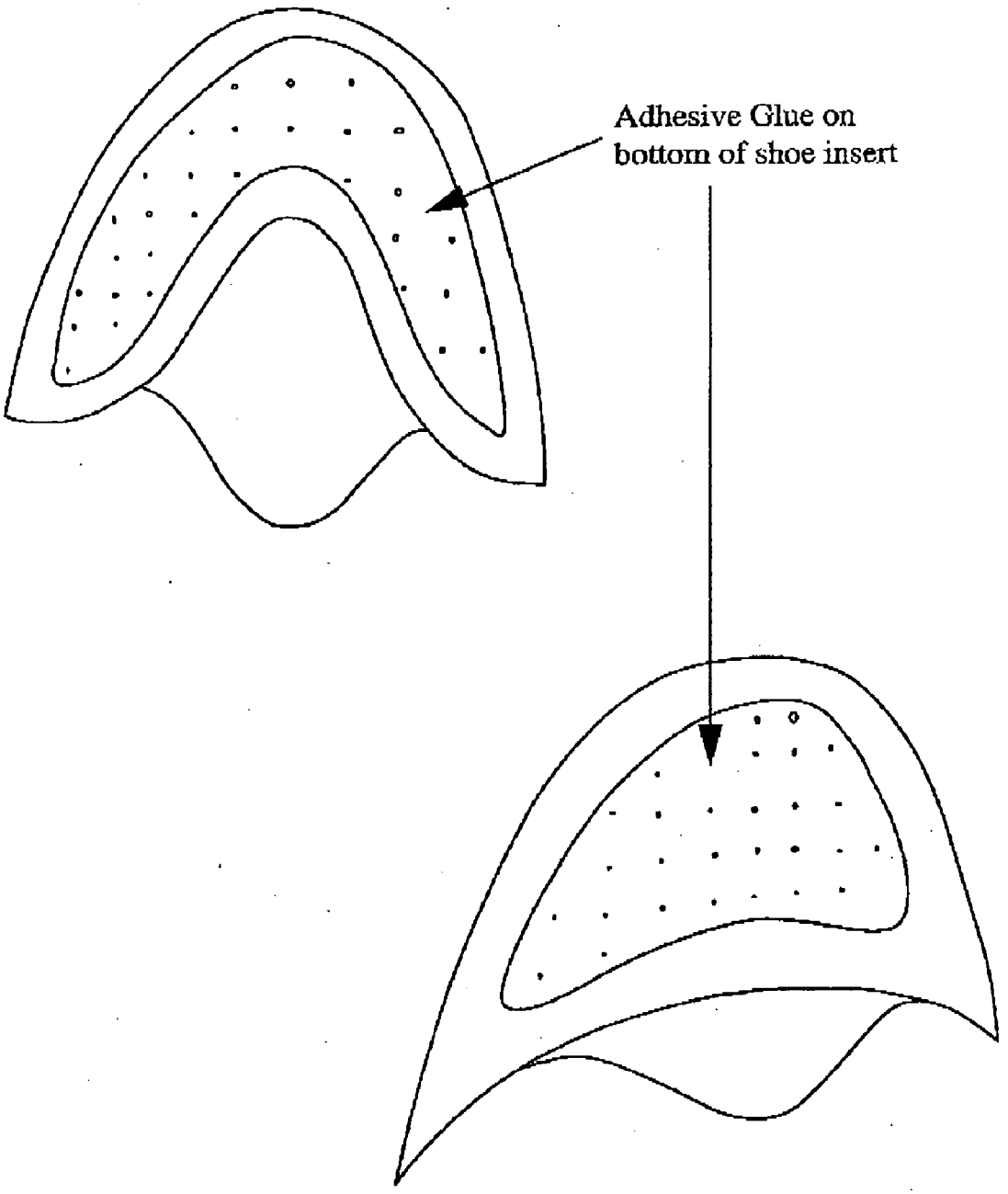


Fig. 6

PROTECTIVE SAFETY SHOE INSERT

FIELD OF THE INVENTION

[0001] This invention relates to shoe inserts. More specifically, this invention relates to a shoe insert that protects a toe area of a foot and is removably coupled to an inner surface of a shoe upper.

BACKGROUND OF THE INVENTION

[0002] Construction workers, technicians, movers, landscapers, mechanics and other professionals in industrial, service and construction industries often work in hazardous settings. As such, falling or rolling objects, shreds of metal and other rigid construction materials pose a continuing threat of injury to the feet and toes of workers in these environments. Even non-professionals, such as the so-called "do-it-yourselfers", are not always safe in the home, the woodshop, or the garage from falling objects.

[0003] To overcome such hazards, personal protective equipment is often used in many occupations. Safety shoes (also known as steel-toe boots, steel-capped boots or safety boots) having a steel toe box for protecting the wearer's toes are well known. Such shoes have a protective reinforcement in the toe, commonly combined with a sole plate, which protects the foot from falling objects and punctures from below. Traditionally made of steel—often the entire toe box and insole are reinforced with steel—the reinforcement can also be made of a composite material, or a plastic such as thermal polyurethane (TRU). Thus, safety shoes and boots protect the feet, help prevent injuries to them, and reduce the severity of injuries that do occur in the workplace.

[0004] According to the Occupational Safety and Health Administration (OSHA), safety shoes should be sturdy and have an impact resistant toe, and may be required in certain settings. However, workers often complain that safety shoes are uncomfortable, very expensive, and too bulky and heavy on their feet. Indeed, some individuals have foot problems that compel them to wear special shoes. Workers also complain that the safety shoes are not aesthetically pleasing and that the available styles are limited. As a result, many workers in hazardous occupations simply choose not wear safety shoes at all, which is serious safety violation that could lead to termination of employment and result in huge liability and fines in the way of tort suits and OSHA Recordable Accidents and Worker's Compensation Claims.

[0005] In today's economy, companies, especially those in the automotive and manufacturing industries, are looking for ways to cut costs, but at the same time, providing a safe working environment or employees. What is needed is a protective, comfortable, stylish and cost-effective insert that offers protection to the toes and the bottom of the foot.

SUMMARY OF THE INVENTION

[0006] The present invention is directed to a shoe insert that can be inserted into any shoe and placed between a toe area of a foot and an inner surface of a shoe upper. In one embodiment of the present invention, a shoe insert is disclosed. The insert includes an insert body to cover and protect the toe area of a foot. The insert body is removably coupled to an inner surface of a shoe upper.

[0007] In accordance with one embodiment of the present invention, the insert includes an adhesive surface disposed on an upper surface of the insert body. The adhesive surface is configured to removably secure the insert body to the inner surface of the shoe upper. The adhesive surface is comprised of one or a combination of adhesive glue, adhesive tape, Velcro, gel, and a press sensitive adhesive. The insert can also include a looped band, coupled to the insert body, for placement over a tongue of a shoe for displaying that the insert body is being worn by a user. The looped band can be a strap. The insert further includes an inner lining for providing comfort to the toe area. The inner lining is comprised of one or a combination of any of the following: organic fibers, inorganic fibers, and textile materials.

[0008] In accordance with one embodiment of the present invention, the insert body is situated between a sock of the foot and the inner surface of the shoe upper. The insert body is comprised of a puncture resistant material. The puncture resistant material is selected from the group consisting of steel, plastic, synthetic and ceramic. The plastic material is a thermoplastic material selected from the group consisting of thermoplastic polyurethane, thermoplastic polyurea. Thermoplastic polyimide, thermoplastic polyamide, thermoplastic polyamideimide, thermoplastic polyester, thermoplastic carbonate, thermoplastic polysulfone, thermoplastic polyketone, thermoplastic polyolefin, and combinations thereof.

[0009] In accordance with one embodiment of the present invention, the insert body further comprises a bottom protective layer securable to a sole of the shoe. The bottom protective layer includes one or more layers to provide cushioning. The bottom protective layer also includes a puncture resistant material.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] FIG. **1** is a perspective view of a shoe insert according to one embodiment of the present invention.

[0011] FIG. **2** is a cross-sectional view of a shoe insert according to one embodiment of the present invention.

[0012] FIG. **3** is a perspective view of a shoe insert, shown being inserted into a shoe, according to one embodiment of the present invention.

[0013] FIG. **4** is a perspective view of a shoe with the insert inside and an exposed safety tab situated over the tongue portion of the shoe, in accordance with one embodiment of the present invention.

[0014] FIG. **5** is a cross-sectional view of a shoe insert for protecting both the toes and the bottom of the foot, in accordance with one embodiment of the present invention.

[0015] FIG. **6** is a bottom view of a shoe insert for protecting both the toes and the bottom of the foot, in accordance with one embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0016] The current inventor recognized that a number of benefits may be provided by a safety shoe insert for footwear of the present invention. For example, the insert of the present invention provides a low cost alternative to purchasing safety shoes for employees with no reduction in safety and at a fraction of the cost. By providing a shoe insert which is comfortable and stylish—wearers will be able to place the safety shoe insert in any shoe, including Air Jordan®, Nike®, Steve Madden®, Timberland®, etc.—workplace injuries and OSHA (and other safety) violations for non-compliance will decrease. That will also reduce both the number of Worker's Compensation claims filed due to foot injury and tort lawsuits

filed by individuals ("do-it-yourselfers") working at home. The insert of the present invention will also be easy to identify during OSHA safety audits and routine safety inspections by the inclusion of a safety strip, coupled to the insert as one embodiment, which will be visible on the front of the shoe. Further, people with foot problems will also enjoy the comfort of wearing their own shoes, such as orthopedic shoes, with the insert of the present invention, rather than the conventional and uncomfortable steel-toe boots.

[0017] FIG. **1** shows a shoe insert **100**, in accordance with one embodiment of the present invention. The shoe insert **100** includes an insert body **110** to cover and protect the toe area of a foot. The insert body **110** can be removably coupled to an inner surface of a shoe upper. Alternatively, the insert body **110** can be permanently attached to the inner surface of the shoe upper. In certain embodiments, the insert body **110** is situated between a sock of the foot and the inner surface of the shoe upper. In one embodiment, the insert body **110** can include a looped band **120** coupled to the insert body **110**. The looped band **120** can be placed over a tongue of a shoe for displaying that the shoe insert **100** is being worn by a user. In the FIG. **1**, a display tab **130** labeled "SAFETY TOE" is attached to the insert body **110** via the looped band **120**. By making the tab **130** visible on the shoe, safety auditors, inspectors and/or supervisors will be able to easily verify if the shoe insert **100** is being worn by an employee. The looped band **120** can be a strap.

[0018] FIG. **2** shows a cross-sectional view of an insert body **200** of a shoe insert, according to one embodiment of the present invention. The insert body **200**, which covers and protects the toe area of a foot and is removably coupled to an inner surface of a shoe upper, includes an inner lining **210**, a puncture resistant material **220**, and an adhesive surface **230**. Alternatively, the insert body **200** is permanently attached to the inner surface of the shoe upper.

[0019] The inner lining **210**, which provides comfort to the toe area, can be made of one or a combination of any of the following: organic fibers, inorganic fibers, dyes, and textile materials. The inner lining can be made of organic fibers and dyes that are environmentally friendly.

[0020] The puncture resistant material **220** can be at least one of the following: steel, plastic, synthetic and ceramic. In one embodiment, the plastic material is a thermoplastic material selected from the group consisting of: thermoplastic polyurethane, thermoplastic polyurea. Thermoplastic polyimide, thermoplastic polyamide, thermoplastic polyamideimide, thermoplastic polyester, thermoplastic carbonate, thermoplastic polysulfone, thermoplastic polyketone, thermoplastic polyolefin, and combinations thereof. The puncture resistant material should meet or exceed all applicable safety standards—national or international—such as the American Society for Testing and Materials (ASTM) standards for steel and non-metallic toe safety requirements. In the case of plastic inserts, thermoplastic polyurethane is lightweight and durable compared to steel. Also, plastic, unlike steel, does not conduct electricity which makes it safer around electricity.

[0021] The adhesive surface **230** is disposed on an upper surface of the insert body **200** and configured to removably secure the insert body **200** to the inner surface of the shoe upper. The adhesive surface **230** can be one or combination of any of the following: adhesive glue, adhesive tape, Velcro, gel and a press sensitive adhesive. In certain embodiments, depending on the type of adhesive surface used, the insert body **200** will be made permanent to the shoe.

[0022] FIG. **3** shows a perspective view of a shoe insert comprising an insert body **300** being inserted into a shoe **330**, according to one embodiment of the present invention. In one embodiment, the insole of the shoe **330** is removed and the shoe insert is placed in an inner surface of a shoe upper (or the front bottom of the shoe **330**), as shown in the FIG. **3**. The insole is then placed back and the foot is positioned between the insert and the insole. As shown in the FIG. **3**, the insert body **300** is coupled to a strap or band **310**, which is placed over the tongue **320** of the shoe **330**. The band **310** includes a tab for displaying that the insert is being worn by a user. Prior to placement of the band **310** over the tongue **320**, the lace of the shoe **330** shall be removed and then, after the band **310** is placed over the tongue **320**, re-laced.

[0023] FIG. **4** shows a perspective view of a shoe with a shoe insert inside and an exposed display tab **410** situated over the tongue portion of the shoe, in accordance with one embodiment of the present invention. Once the shoe insert is inserted and the shoes laced, the tab **410** is exposed at the front of the shoe, which allows for easy verification of safety regulation compliance during an audit or safety check.

[0024] FIG. **5** shows a cross-sectional view of a shoe insert comprising an insert body **500** for protecting both the toes and the bottom of the foot, in accordance with one embodiment of the present invention. In the FIG. **5**, the insert body **500** comprises a top section for covering and protecting the toes and a bottom section for covering and protecting against sharp objects injuring the bottom of the foot. The top section includes a puncture resistant material **510** and an inner lining **520**. The top section can also include an optional adhesive surface if the bottom section does not include one. Alternatively, the top section and the bottom section can each include an adhesive surface. The bottom section includes a bottom protective layer **540** and an adhesive surface **530**. The bottom section can also include one or more layers to provide cushioning, similar to the inner lining **520** of the top section. The bottom protective layer **540** comprises a puncture resistant material, similar to the puncture resistant material **510** of the top section. The adhesive surface **530** of the bottom section can be comprised of one or a combination of any of the following: adhesive glue, adhesive tape, Velcro, gel, and press sensitive adhesive. In one embodiment, the bottom section is securable to a sole of the shoe.

[0025] FIG. **6** shows a bottom view of a shoe insert for protecting both the toes and the bottom of the foot, in accordance with one embodiment of the present invention. In the FIG. **6**, an adhesive surface is disposed on a bottom section of the shoe insert.

[0026] The present invention has been described in terms of specific embodiments incorporating details to facilitate the understanding of principles of construction and operation of the invention. Such reference herein to specific embodiments and details thereof is not intended to limit the scope of the claims appended hereto. It will be apparent to those skilled in the art that modification may be made in the embodiments chosen for illustration without departing from the spirit and scope of the invention.

What is claimed is:

1. A shoe insert comprising: an insert body to cover and protect the toe area of a foot; wherein the insert body is removably coupled to an inner surface of a shoe upper.

2. The shoe insert of claim **1** further including an adhesive surface disposed on an upper surface of the insert body, the

adhesive surface configured to removably secure the insert body to the inner surface of the shoe upper.

3. The shoe insert of claim **1** wherein the insert body includes an inner lining for providing comfort to the toe area.

4. The shoe insert of claim **1** further including a looped band, coupled to the insert body, for placement over a tongue of a shoe for displaying that the shoe insert is being worn by a user.

5. The shoe insert of claim **4** wherein the looped band is a strap.

6. The shoe insert of claim **1** wherein the insert body is situated between a sock of the foot and the inner surface of the shoe upper.

7. The shoe insert of claim **1** wherein the insert body is comprised of a puncture resistant material.

8. The shoe insert of claim **7** wherein the puncture resistant material is selected from the group consisting of: steel, plastic, synthetic and ceramic.

9. The shoe insert of claim **8** wherein the plastic material is a thermoplastic material selected from the group consisting of: thermoplastic polyurethane, thermoplastic polyurea. Thermoplastic polyimide, thermoplastic polyamide, thermoplastic polyamideimide, thermoplastic polyester, thermoplastic carbonate, thermoplastic polysulfone, thermoplastic polyketone, thermoplastic polyolefin, and combinations thereof.

10. The shoe insert of claim **2** wherein the adhesive surface is comprised of one or a combination of any of the following: adhesive glue, adhesive tape, Velcro, gel, and press sensitive adhesive.

11. The shoe insert of claim **1** wherein the insert body further comprises a bottom protective layer being securable to a sole of the shoe.

12. The shoe insert of claim **11** wherein the bottom protective layer includes one or more layers to provide cushioning.

13. The shoe insert of claim **11** wherein the bottom protective layer comprises a puncture resistant material.

14. The shoe insert of claim **3** wherein the inner lining is comprised of one or a combination of any of the following: organic fibers, inorganic fibers, dyes, and textile materials.

15. The shoe insert of claim **1** wherein the insert body is permanently attached to the inner surface of the shoe upper.

16. A shoe insert comprising: an insert body to cover and protect the toe area of a foot; wherein the insert body is removably coupled to an inner surface of a shoe upper; and an adhesive surface disposed on an upper surface of the insert body, the adhesive surface configured to removably secure the insert body to the inner surface of the shoe upper.

17. The shoe insert of claim **16** wherein the insert body includes an inner lining for providing comfort to the toe area.

18. The shoe insert of claim **16** further including a looped band, coupled to the insert body, for placement over a tongue of a shoe for displaying that the shoe insert is being worn by a user.

19. The shoe insert of claim **18** wherein the looped band is a strap.

20. The shoe insert of claim **16** wherein the insert body is situated between a sock of the foot and the inner surface of the shoe upper.

21. The shoe insert of claim **16** wherein the insert body is comprised of a puncture resistant material.

22. The shoe insert of claim **21** wherein the puncture resistant material is selected from the group consisting of: steel, plastic, synthetic and ceramic.

23. The shoe insert of claim **22** wherein the plastic material is a thermoplastic material selected from the group consisting of: thermoplastic polyurethane, thermoplastic polyurea. Thermoplastic polyimide, thermoplastic polyamide, thermoplastic polyamideimide, thermoplastic polyester, thermoplastic carbonate, thermoplastic polysulfone, thermoplastic polyketone, thermoplastic polyolefin, and combinations thereof.

24. The shoe insert of claim **16** wherein the adhesive surface is comprised of one or a combination of any of the following: adhesive glue, adhesive tape, Velcro, gel, and press sensitive adhesive.

25. The shoe insert of claim **16** wherein the insert body further comprises a bottom protective layer being securable to a sole of the shoe.

26. The shoe insert of claim **25** wherein the bottom protective layer includes one or more layers to provide cushioning.

27. The shoe insert of claim **25** wherein the bottom protective layer comprises a puncture resistant material.

28. The shoe insert of claim **17** wherein the inner lining is comprised of one or a combination of any of the following: organic fibers, inorganic fibers, dyes and textile materials.

29. A shoe insert comprising: an insert body to cover and protect the toe area of a foot; wherein the insert body is removably coupled to an inner surface of a shoe upper; an adhesive surface disposed on an upper surface of the insert body, the adhesive surface configured to removably secure the insert body to the inner surface of the shoe upper, wherein the insert body further includes a bottom protective layer of the shoe.

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