

- 1 -

A SHOE SOLE STRENGTHENER**FIELD OF THE INVENTION**

The present invention relates to a shoe sole strengthener adapted to strengthen the connection between a shoe sole and a main body of a shoe. More particularly, the present invention
5 relates to a connecting means extending lengthwise at toe region of the shoe to cover the connection area between the shoe sole and the shoe main body, a fastening means to attach the connecting means to the shoe sole and the shoe main body. The connecting means acts to hold the shoe sole and the shoe main body together and strengthens the existing bond between them. The present invention can be applied to heel region of the shoe.

10 BACKGROUND ART

The sole of the convention safety shoe is sewn to the body of the boot with a protective toe cap inside the shoe.

In a harsh working environment such as a construction site where steel bars and other sharp objects are lying on the floor. The regular activities of most construction workers involve
15 task during which the boots of the worker are subject to impact of various type of objects.

The toe region of the shoe is far more susceptible of being impacted upon or to impact then any other area. This area is susceptible of receiving objects which are dropped, of impacting objects lying on the ground during walking motion, etc. The consequence of this is the detachment of the sole at toe region of the shoe which results in the wearer tripping over and
20 fall on heavy or sharp object. The detachment of the sole at the toe region of the shoe further poses a hazard to those working in a chemical environment where the liquid chemical seeps thru the opening from the detachment.

- 2 -

The erosion of the leather or leather like material of the boot is significant at the toe region of if the objects are relatively abrasives, as is often the case in the construction area. Erosion of the leather not only impaires the esthetical aspect of the shoe and its thermal properties buit it also destroy the waterproofing capacity of the shoe thus creating a serious potential health
5 hazard.

Indeed, workers wearing shoe which are not watertight are susceptible of being electrocuted since the liquid on the ground of the construction sites often carry electrrical charges emanating from surrounding electrical tools and apparatus.

The heel portion is also subjected to the wear and sharp objects. The detachment of the heel
10 region of the shoe poses a hazard to those working in a chemical environment where the liquid chemical seeps thru from the opening of the heel region. In addition, the strength of the sole at the heel reduces when detachment occurs at the heel region. Users may have difficulty to free themselves if the heel is stuck in the sharp object.

For those involve in the material handling such as driving a fork lift and truck, wear and tear
15 occurs on the heel of the shoe which provides the support to the leg for pressing and depressing the pedal. Over a period of time, the heel wear off which results in users having difficulties controlling the pedal, keeping balance while standing and walk steadily.

- 3 -

SUMMARY OF THE INVENTION

Accordingly, it is a principal object of the invention to strengthen the connection between a shoe sole and a main body of a shoe. The present invention comprises first connecting means and a fastening means. The first connecting means extends lengthwise at toe region of the shoe to cover the connection area between the shoe sole and the shoe main body at toe region of the shoe. The fastening means attaching the first connecting means to the shoe sole. The first connecting means acts to hold the shoe sole and the shoe main body together and strengthens the existing bond between them.

- 10 It is another object of the invention to provide the first protecting member extending upwardly from the first connecting means to enclose the toe upper region to protect the shoe against wear and user against impact loads.

- 15 It is further object of the invention to provide the first protecting member extending downwardly from the first connecting means to enclose the toe lower region to protect the shoe against wear and user against sharp objects.

Still another object of the invention is provide the first protecting member extending upwardly and downwardly from the first connecting means to enclose the toe region completely.

- 20 An additional object of the invention is comprises a second connecting means and a fastening means. The second connecting means extends lengthwise at heel region of the shoe to cover the connection area between the shoe sole and the shoe main body at heel region of the shoe. The fastening means attaching the second connecting means to the shoe sole. The second connecting means acts to hold the shoe sole and the shoe main body together and strengthens the existing bond between them.

- 25 It is an object of the invention to provide the second protecting member extending upwardly

- 4 -

from the second connecting means to enclose the heel upper region to protect the shoe against wear and user against sharp objects.

It is further object of the invention to provide the second protecting member extending downwardly from the second connecting means to enclose the heel lower region to protect the
5 shoe against wear and user against sharp objects.

Still another object of the invention is provide the second protecting member extending upwardly and downwardly from the second connecting means to enclose the heel region completely.

It is further object of the invention to provide the first protecting member with integrally
10 bulging cushioning bars for thickening an area most susceptible of being impacted upon.

The present invention allow a user to decide on the scope of protection against wear and impact loads for the shoe based on working environment of the user.

The present invention consists of certain novel features and a combination of parts hereinafter fully described and illustrated in the accompanying drawings and particularly pointed out in
15 the appended claims; it being understood that various changes in the details may be without departing from the scope of the invention or sacrificing any of the advantages of the present invention.

- 5 -

BRIEF DESCRIPTION OF THE DRAWINGS

For the purpose of facilitating an understanding of the invention, there is illustrated in the accompanying drawings the preferred embodiments from an inspection of which when considered in connection with the following description, the invention, its construction and
5 operation and many of its advantages would be readily understood and appreciated.

Fig. 1 is the perspective view of the shoe sole strengthener of the invention, showing a first connecting means attached by a fastener means at toe region of the shoe.

Fig. 2 is a cross sectional view taken along line A-A of Fig. 1.

Fig. 3 is the perspective view of the shoe sole strengthener of the invention, showing the first
10 protecting member extending upwardly from the first connecting means to enclose toe upper region of the shoe.

Fig. 4 is a cross sectional view taken along line B-B of Fig. 3.

Fig. 5 is the perspective view of the shoe sole strengthener of the invention, showing the first
15 protecting member extending downwardly from the first connecting means to enclose the toe lower region of the shoe.

Fig. 6 is a cross sectional view taken along line C-C of Fig. 5.

Fig. 7 is the perspective view of the shoe sole strengthener of the invention, showing the first protecting member extending upwardly and downwardly from the first protecting member to enclose the toe region of the shoe completely.

20 Fig. 8 is a cross sectional view taken along line D-D of Fig. 7.

- 6 -

Fig. 9 is the perspective view of the shoe sole strengthener of the invention, showing the second connecting means attached by a fastening means at heel region of the shoe.

Fig. 10 is a cross sectional view taken along line E-E of Fig. 9.

Fig. 11 is the perspective view of the shoe sole strengthener of the invention, showing the second protecting member extending upwardly from the second connecting member to
5 enclose the heel upper region of the shoe.

Fig. 12 is a cross sectional view taken along line F-F of Fig. 11.

Fig. 13 is the perspective view of the shoe sole strengthener of the invention, showing the second protecting member extending downwardly from the second connecting member to
10 enclose heel lower region of the shoe.

Fig. 14 is a cross sectional view taken along line G-G of Fig. 13.

Fig. 15 is the perspective view of the shoe sole strengthener of the invention, showing the second protecting member extending upwardly and downwardly from the second connecting member to enclose the heel region of the shoe completely.

15 Fig. 16 is a cross sectional view taken along line H-H of Fig. 15.

Fig. 17 is the perspective view of the shoe sole strengthener of the invention, showing first protecting member encloses the toe region of the shoe completely and second protecting member encloses heel region of the shoe completely.

Fig. 18 is a cross sectional view taken along line I-I of Fig. 17.

- 7 -

Fig. 19 is perspective view of the shoe sole strengthener of the invention, showing the first protecting member is provided with integrally bulging cushioning bars for thickening an area most susceptible of being impacted upon.

Fig. 20 is a cross-section view taken along line J-J of Fig. 19.

- 5 Fig. 21 is a perspective view of the shoe sole strengthener of the invention, showing a plurality of connecting means attached by fastening means at toe region of the shoe.

- 8 -

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention relates to a shoe sole strenghtener to strengthen the connection between a shoe sole and a main body of a shoe. More particularly, the present invention relates to first connecting means extending lengthwise at the toe region of the shoe to cover the connection area between the shoe sole and shoe main body at toe region of the shoe, and a fastening means to attach the first connecting means to the shoe sole and the shoe main body. The first connecting means acts to hold the shoe sole and the shoe main body together and strengthens the existing bond between them. Hereinafter, the shoe sole strenghtener shall be described according to the preferred embodiments of the present invention and by referring to the accompanying description and drawings. However, it is to be understood that limiting the description to the preferred embodiments of the invention and to the drawings is merely to facilitate discussion of the present invention and it is envisioned that those skilled in the art may devise various modifications without departing from the scope of the appended claim.

Fig. 1 and Fig. 2 show a basic embodiment of the invention. The first connecting means (10) extending lengthwise at toe region of the shoe. The fastening means is inserted into the first connecting means (10), the shoe sole, the shoe main body and the toe cap to join them together. The first connecting means (10) acts to hold the shoe sole and the shoe main body together and strengthens the existing bond between them.

Fig. 3 and Fig. 4 show the first protecting member (10) extending upwardly from the first connecting means (10) to enclose the toe upper region of the shoe to protect the shoe against wear and user against impact loads

Fig. 5 and Fig. 6 show the first protecting member (30) extending downwardly from the first connecting menas (10) to encloses the toe lower region to protect the boot against wear.

Fig. 7 and Fig. 8 show the first protecting member (30) extending upwardly and downwardly

- 9 -

from the first connecting member (10) to enclose the toe region of the shoe completely.

Fig. 9 and Fig. 10 show the second embodiment of the invention. The second connecting means (40) extending lengthwise at heel region of the shoe. The fastening means is inserted into the second connecting means (40), the shoe sole and the shoe main body to join them together. The second connecting means (40) acts to hold the shoe sole and the shoe main body together and strengthens the existing bond between them.

Fig. 11 and Fig. 12 show the second protecting member (50) extending upwardly from the second connecting means (40) to enclose the heel upper region of the shoe to protect the shoe against wear and user against sharp objects.

10 Fig. 13 and Fig. 14 show the second protecting member (50) extending downwardly from the second connecting means (40) to enclose the heel lower region of the shoe to protect the shoe against wear and user against sharp loads.

Fig. 15 and Fig. 16 show the second protecting member (50) extending upwardly and downwardly from the second connecting means (40) to enclose the heel region of the shoe completely.

Fig. 17 and Fig. 18 show the first protecting member (10) encloses the toe region of the shoe completely and second protecting member (40) encloses heel region of the shoe completely.

Fig. 19 and Fig. 20 show the first protecting member (10) is provided with integrally bulging cushioning bars (60) for thickening an area most susceptible of being impacted upon.

20 Fig. 21 shows the third embodiment of the invention. A plurality of connecting means (70) is attached by the fastening means (20) at the toe region of the shoe.

- 10 -

The present invention allow a user to decide on the scope of protection for the boot based on working environment of the user.

While in the foregoing specification this invention has been described in relation to certain preferred embodiments thereof and many details have been set forth for purpose of
5 illustration, it will be apparent to those skilled in the art that the invention is susceptible to additional embodiments and that certain of the details described herein can be varied considerably without departing from the basic principles of the invention.

- 11 -

CLAIMS

1. A shoe sole strengthener adapted to strengthen the connection between a shoe sole and a main body of a shoe comprising:

5 first connecting means (10) extending lengthwise at toe region of the shoe to cover the connection area between the shoe sole and the shoe main body at toe region of the shoe; and

fastening means (20) to attach the first connecting means (10) to the shoe sole and the shoe main body;

10 whereby the first connecting means (10) acts to hold the shoe sole and the shoe main body together and strengthens the existing bond between them.

2. A shoe sole strengthener protector according to claim 1 further comprising a first protecting member (30) extending upwardly and downwardly from the first connecting means (10) to enclose the toe region of the shoe, whereby the first protecting member (30) protects the toe region against impact loads and sharp objects.

3. A shoe sole strengthener protector according to claim 1 further comprising:

15 second connecting means (40) extending lengthwise at heel region of the shoe to cover the connection area between the shoe sole and the shoe main body at heel region of the shoe; and

20 fastening means (20) to attach the second connecting means to the shoe sole and the shoe main body;

- 12 -

whereby the second connecting means (40) acts to hold the shoe sole and the shoe main body together and strengthens the existing bond between them.

- 5 4. A shoe sole strengthener protector according to claim 3 further comprising a
a second protecting member (50) extending upwardly and downwardly from the
second connecting means (40) to enclose the heel region of the shoe, whereby the
second protecting member (50) protects the heel region against sharp objects.
- 10 5. A shoe sole strengthener according to claim 1, wherein the first connecting means
(10) is made of material selected from the group consisting of metal, thermoplastic
material or fibre.
6. A shoe sole strengthener according to claim 3, wherein the second connecting means
(40) is made of material selected from the group consisting of metal, thermoplastic
material or fibre.
- 15 7. A shoe sole strengthener according to claim 1 or claim 3, wherein the fastening
means (20) is selected from the group consisting of a rivet, a clasp, a screw and a
stud.
8. A shoe sole strengthener according to claim 2, wherein the first protecting member
(10) is provided with integrally bulging cushioning bars (60) for thickening an area
most susceptible of being impacted upon.