Jan. 15, 1946. N. F. STONER ET AL 2,392,867

SAFETY PROTECTOR FOR SHOES

Filed Aug. 11, 1944

FIG. 1

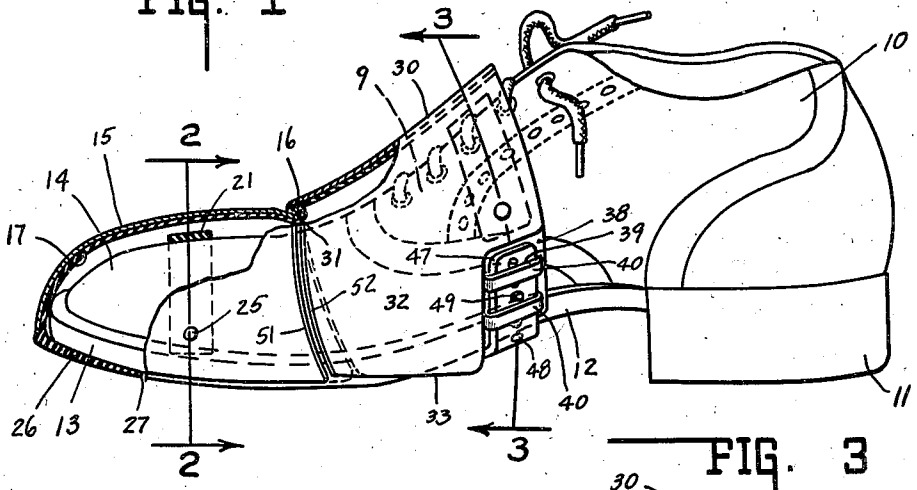


FIG. 2

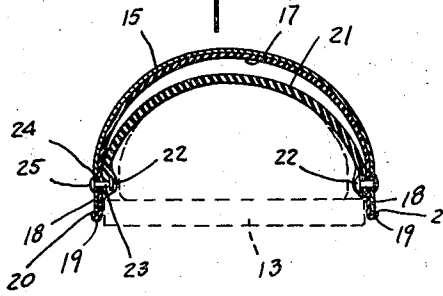


FIG. 3

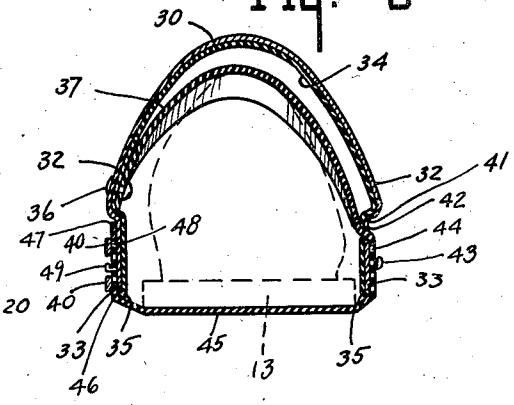
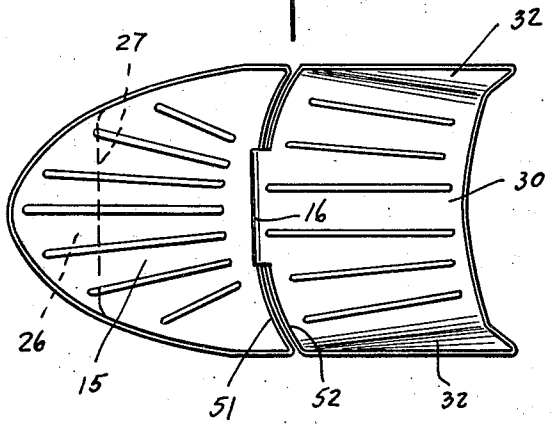


FIG. 4



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SAFETY PROTECTOR FOR SHOES

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24 Claims. (Cl. 36—72)

This invention relates to a detachable protector for use with shoes which protector is of the so-called safety type.

Heretofore, so-called safety shoes have had built into them a metal toe cap which resists crushing when a load is applied thereto, thereby preventing mashing of toes. However, shoes of this type are both clumsy, heavy, and unnecessarily expensive.

Women employees in heavy industries strenuously object to wearing such shoes and compulsory wearing requirements are a cause of discontent.

The present invention is directed to a device which will not only comply with such requirements but which are not subject to the aforesaid objections and cause no discontent.

The present invention furthermore is of non-sparking type.

The present invention provides instep protection as well as toe protection and without walking interference.

The present invention also is readily adjusted to any of the wearer's shoes and furthermore can be quickly attached to and detached therefrom.

Whenever desired or required the upper exposed surface of the device may be fabric or rubber covered and the device furthermore may be ribbed or suitably corrugated for reinforcement purposes.

Other objects and features of the invention will be set forth more fully hereinafter.

The full nature of the invention will be understood from the accompanying drawing and the following description and claims.

In the drawing

Fig. 1 is a side elevation of a shoe (oxford type) with the invention applied thereto, a portion of the same being broken away to show certain parts thereof in longitudinal central section.

Fig. 2 is a central transverse sectional view taken on line 2—2 of Fig. 1.

Fig. 3 is a similar view taken on line 3—3 of Fig. 1.

Fig. 4 is a top plan view of the device.

In Fig. 1 of the drawing 10 indicates the shoe, herein of oxford type having heel 11, shank 12, sole 13, toe 14 and upper instep portion 9. The readily detachable and attachable device embodying the invention comprises a toe covering metal shield member 15 terminating at its upper edge in the curled portion 16 which constitutes a part of a hinge. Member 15 may, if desired, be suitably covered with fabric, fabricoid, rubber or the like and suitably secured. For reinforcement purposes this member may be longitudinally ribbed, the ribbing having any desired arrangement such as of a radiating character and diverging from hinge 16.

The interior of the member 15 is, however, provided with a rubber-like surface portion 17 and this is extended outwardly at the side edges 18 as at 19 and turned upwardly as at 20. A strap 21 of resilient material at each end includes an imbedded head 22 mounting rivet stem 23 that extends through aperture 24 in member 15 near the lower side edge of same. Herein the stem is enlarged as at 25 to anchor the strap. These anchorages preferably lie above the shoe sole 13 as illustrated. It will be understood that strap 21 yields to accommodate different heights of toe boxes.

The lower forward edge of the toe portion 15 interior covering 17 is returned rearwardly as at 26 and same terminates at edge 27 which lies just below the toe portion of the sole 13. The result is a pocket that nests the toe 14 and toe end of sole 13.

In view of the rubber-like character of portion 26 and edges 19 and 20, the device will not contact the floor so that sparks cannot be generated in walking.

Rearwardly of the aforesaid toe portion is the instep protecting portion 30 with central forwardly projecting curved hinge forming portion 31 interlockingly and hingedly associated with portion 16 whereby the toe portions 15 and 30 are hingedly connected together for articulation. Portion 30 has two side wings 32, see Figs. 1 and 3, which have lower edges 33 terminating above the shoe contacting plane.

This instep protecting portion also may be exteriorly covered and be longitudinally ribbed for reinforcement. It is, however, interiorly covered by lining material 34 which terminates in portions 35. This material may be of the character mentioned with respect to portion 15.

In a manner similar to the anchorage of strap 21, there is anchored to one side of member 30 as at 36 a strap 37. Adjacent said anchorage 36 is an inset portion 38 which is slit at 39 to form bands 40 spaced from portion 38. The opposite side of the member 30 is correspondingly inset as at 41 and is provided with slot 42 therein. Secured to the inset portion 41 and adjacent slot 42 is headed anchor 43.

Strap 37 passes over the shoe above the instep and outwardly from member 30 through slot 42. This strap has a longitudinal series of holes 44 therein, one of which is associated with headed

anchor pin 43. This adjusts the length of strap 37 to the instep of the wearer, and when once made need never be changed as long as the device is worn by that wearer.

Strap 37, after being so anchored, is passed across member 30 below the same as at 45 and at the other side is turned upwardly at indented portion 38 as at 46. Its free end 47 is also provided with a longitudinal series of openings 48. This end is passed into lower band 40 as illustrated and a headed anchor 49, suitably secured to indented portion 38 is engaged in one of said openings 48. Then the strap free end 47 is passed through upper band 40. This is the connection which is closed and opened for device attachment and detachment. This strap preferably is of elastic material.

The foregoing device comprises two articulated toe and instep protecting members of great strength which have complementary adjacent curved rearward and forward edges 51 and 56 respectively, see Figs. 1 and 4. This device, as to the toe portion is self adjustable to the wearer's shoe and is normally adjustable thereto as to the instep portion. This device is readily attached to and detached from the wearer's shoe.

All of the advantages hereinbefore described are obtained therefrom and all of the before described objections are eliminated herefrom.

While the invention has been illustrated and described in great detail in the drawing and foregoing description, the same is to be considered as illustrative and not restrictive in character.

The several modifications described herein as well as others which will readily suggest themselves to persons skilled in this art, all are considered to be within the broad scope of the invention, reference being had to the appended claims.

The invention claimed is:

1. A safety device for shoes including a metallic, trough shaped shoe toe nesting portion, a metallic trough shaped shoe instep nesting portion, hinge means connecting the adjacent upper edges thereof together, means extending across the toe portion for shoe toe retention, and means extending across the instep portion for device retention upon a shoe.

2. A device as defined by claim 1, wherein the second mentioned means comprises a closure for the forward end of the toe portion, which closure is adapted to underlie the forward end of the shoe sole.

3. A device as defined by claim 1, wherein the second mentioned means comprises a closure for the forward end of the toe portion, which closure is adapted to underlie the forward end of the shoe sole, and a transverse elastic member intermediate the ends of the toe portion and having a general direction conforming to the trough shape thereof and positioned adjacent said portion and secured at opposite ends to the sides of said portion.

4. A device as defined by claim 1 wherein the third mentioned means comprises a transverse strap at the rear end of the instep portion and secured at opposite ends to the sides of said portion and of adjustable length.

5. A device as defined by claim 1 wherein the third mentioned means comprises a transverse strap at the rear end of the instep portion and secured at opposite ends to the sides of said portion and of adjustable length, and a transverse strap secured at opposite ends to the sides of the instep portion and adapted to underlie the shoe instep for device retention.

6. A device as defined by claim 1 wherein the third mentioned means comprises a transverse strap at the rear end of the instep portion and secured at opposite ends to the sides of said portion and of adjustable length, and a transverse strap secured at opposite ends to the sides of the instep portion and adapted to underlie the shoe shank for device retention, the two straps being continuous.

7. A device as defined by claim 1 wherein the third mentioned means comprises a transverse strap at the rear end of the instep portion and secured at opposite ends to the sides of said portion and of adjustable length, and a transverse strap secured at opposite ends to the sides of the instep portion and adapted to underlie the shoe shank for device retention, and means having selective anchoring connection with the second strap.

8. A device as defined by claim 1 wherein the third mentioned means comprises a transverse strap at the rear end of the instep portion and secured at opposite ends to the sides of said portion and of adjustable length, and a transverse strap secured at opposite ends to the sides of the instep portion and adapted to underlie the shoe shank for device retention, the two straps being continuous, one end of the first strap having an adjustable connection to the instep portion, and one end of the second strap having adjustable connection to the instep portion.

9. A device as defined by claim 1 wherein the third mentioned means comprises a transverse strap at the rear end of the instep portion and secured at opposite ends to the sides of said portion and of adjustable length, and a transverse strap secured at opposite ends to the sides of the instep portion and adapted to underlie the shoe shank for device retention, the two straps being continuous, one end of the first strap having an adjustable connection to the instep portion, and one end of the second strap having adjustable connection to the instep portion, the first mentioned adjustable connection being between the two straps, the other end of the first strap having a fixed anchorage.

10. A device as defined by claim 1, wherein the second mentioned means comprises a closure for the forward end of the toe portion, which closure is adapted to underlie the forward end of the shoe sole, the third mentioned means comprises a transverse strap at the rear end of the instep portion and secured at opposite ends to the sides of said portion and of adjustable length.

11. A device as defined by claim 1, wherein the second mentioned means comprises a closure for the forward end of the toe portion, which closure is adapted to underlie the forward end of the shoe sole, and a transverse elastic member intermediate the ends of the toe portion and having a general direction conforming to the trough shape thereof and positioned adjacent said portion and secured at opposite ends to the sides of said portion, the third mentioned means comprises a transverse strap at the rear end of the instep portion and secured at opposite ends to the sides of said portion and of adjustable length.

12. A device as defined by claim 1, wherein the second mentioned means comprises a closure for the forward end of the toe portion, which closure is adapted to underlie the forward end of the shoe sole, the third mentioned means com-

prises a transverse strap at the rear end of the instep portion and secured at opposite ends to the sides of said portion and of adjustable length, and a transverse strap secured at opposite ends to the sides of the instep portion and adapted to underlie the shoe shank for device retention.

13. A device as defined by claim 1, wherein the second mentioned means comprises a closure for the forward end of the toe portion, which closure is adapted to underlie the forward end of the shoe sole, and a transverse elastic member intermediate the ends of the toe portion and having a general direction conforming to the trough shape thereof and positioned adjacent said portion and secured at opposite ends to the sides of said portion, the third mentioned means comprises a transverse strap at the rear end of the instep portion and secured at opposite ends to the sides of said portion and of adjustable length, and a transverse strap secured at opposite ends to the sides of the instep portion and adapted to underlie the shoe shank for device retention.

14. A device as defined by claim 1, wherein the second mentioned means comprises a closure for the forward end of the toe portion, which closure is adapted to underlie the forward end of the shoe sole, the third mentioned means comprises a transverse strap at the rear end of the instep portion and secured at opposite ends to the sides of said portion and of adjustable length, and a transverse strap secured at opposite ends to the sides of the instep portion and adapted to underlie the shoe shank for device retention, the two straps being continuous.

15. A device as defined by claim 1, wherein the second mentioned means comprises a closure for the forward end of the toe portion, which closure is adapted to underlie the forward end of the shoe sole, and a transverse elastic member intermediate the ends of the toe portion and having a general direction conforming to the trough shape thereof and positioned adjacent said portion and secured at opposite ends to the sides of said portion, the third mentioned means comprises a transverse strap at the rear end of the instep portion and secured at opposite ends to the sides of said portion and of adjustable length, and a transverse strap secured at opposite ends to the sides of the instep portion and adapted to underlie the shoe shank for device retention, the two straps being continuous.

16. A device as defined by claim 1, wherein the second mentioned means comprises a closure for the forward end of the toe portion, which closure is adapted to underlie the forward end of the shoe sole, and a transverse elastic member intermediate the ends of the toe portion and having a general direction conforming to the trough shape thereof and positioned adjacent said portion and secured at opposite ends to the sides of said portion, and a third mentioned means comprises a transverse strap at the rear end of the instep portion and secured at opposite ends to the sides of said portion and of adjustable length, and a transverse strap secured at opposite ends to the sides of the instep portion and adapted to underlie the shoe shank for device retention, the two straps being continuous, one end of the first strap having an adjustable connection to the instep portion, and one end of the second strap having adjustable connection to the instep portion.

17. A safety device for shoes including a metallic trough shaped shoe toe nesting portion, closure means for the forward lower portion thereof, a metallic trough shaped shoe instep nesting portion, and means hingedly connecting said portions together at their adjacent top edges.

18. A device as defined by claim 17 wherein resilient means is provided adjacent the upper portion of the toe portion and interiorly thereof for shoe engagement.

19. A device as defined by claim 17 wherein resilient means is provided adjacent the upper portion of the instep portion for shoe engagement.

20. A device as defined by claim 17 wherein resilient means is provided adjacent the upper portion of the toe portion and interiorly thereof for shoe engagement and resilient means is provided adjacent the upper portion of the instep portion for shoe engagement.

21. A device as defined by claim 17 wherein means is provided at each side of the toe portion and rearwardly of the fore portion and projecting inwardly towards each other and adapted to overlie a shoe sole at the adjacent edge thereof.

22. A device as defined by claim 17 wherein resilient means is provided adjacent the upper portion of the toe portion and interiorly thereof for shoe engagement and means is provided at each side of the toe portion and rearwardly of the fore portion and projecting inwardly towards each other and adapted to overlie a shoe sole at the adjacent edge thereof.

23. A device as defined by claim 17 wherein resilient means is provided adjacent the upper portion of the instep portion for shoe engagement and means is provided at each side of the toe portion and rearwardly of the fore portion and projecting inwardly towards each other and adapted to overlie a shoe sole at the adjacent edge thereof.

24. A device as defined by claim 17 wherein resilient means is provided adjacent the upper portion of the toe portion and interiorly thereof for shoe engagement and resilient means is provided adjacent the upper portion of the instep portion for shoe engagement, and means is provided at each side of the toe portion and rearwardly of the fore portion and projecting inwardly towards each other and adapted to overlie a shoe sole at the adjacent edge thereof.

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