July 5, 1955 F. J. CORRIGAN 2,712,185

SAFETY PROTECTOR FOR SHOES

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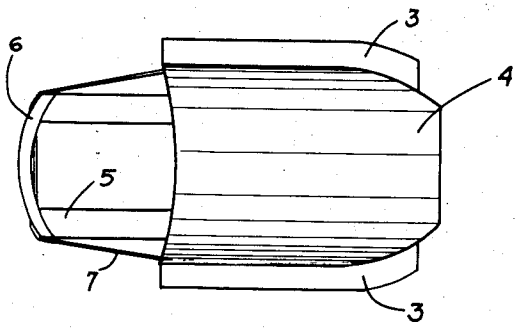


FIG. 2

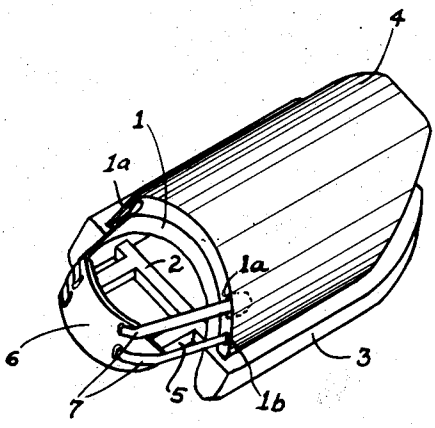


FIG. 1

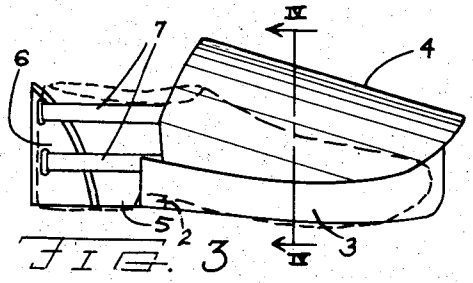


FIG. 3

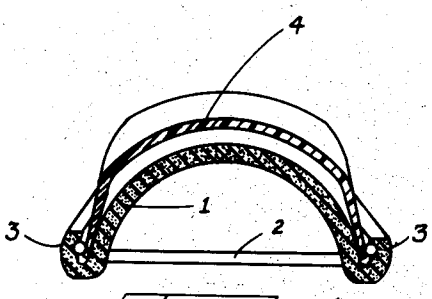


FIG. 4

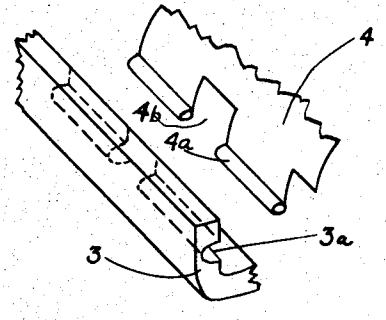


FIG. 5

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SAFETY PROTECTOR FOR SHOES

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5 Claims. (Cl. 36—72)

This invention relates to a safety protector for shoes and, more particularly, to a protector that is detachably secured to the shoes of the wearer to protect his feet from injury as the result of falling objects and the like in industrial plants.

An outstanding disadvantage of common types of safety protectors for shoes is that they are complicated and cumbersome in construction and are heavy and stiff, therefore exceedingly uncomfortable to wear and do not permit freedom of movement of the foot in stooping, climbing etc. by the wearer.

Another outstanding disadvantage of common types of safety protectors for shoes is that they do not fully and adequately protect the arch, toe and sides of the foot against injury, furthermore the shock from falling objects is usually felt to some degree on the foot of the wearer.

An object of my invention is to provide a novel safety shoe protector of the readily detachable type which is devoid of the above named disadvantages of commonly used shoe protectors.

A more specific object of my invention is to provide a safety protector for shoes which fully protects the instep, toe and sides of the foot against injury from falling objects without transferring any of the shock to the foot and, instead, by transferring the shock to the floor or ground surface.

A further object of my invention is to provide a relatively simple, inexpensive and extremely comfortable safety protector for shoes which provides a cushion-like primary shield and a rigid and spaced secondary shield so as to provide extreme comfort and permit freedom of movement of the feet in bending and climbing etc. and at the same time provide absolute protection, even against the heaviest of falling objects, in a manner so that the shock is not felt by the foot.

A still further object of my invention is to provide a shoe protector which is of relatively light weight and which may be worn either with ordinary shoes or with shoes having a steel cap toe shield and which is so comfortable that workers will not shun its use and otherwise subject themselves to dangers of falling objects and resultant foot injury.

Other objects and advantages of the present invention will become apparent from a study of the following description taken with the accompanying drawing, wherein:

Figure 1 is a perspective view of a safety protector for shoes and embodying the principles of my invention;

Figure 2 is a top view of the safety protector shown in Figure 1;

Figure 3 is a side view of the safety protector shown in Figures 1 and 2 with the shoes of the wearer shown in dotted outline;

Figure 4 is a transverse cross-sectional view taken along line IV—IV of Figure 3; and

Figure 5 is an enlarged, fragmentary, perspective view showing a part of the top or secondary protector and the manner in which it is supported in grooved portions of the side shields 3.

Referring more particularly to the drawings, numeral 1 denotes a curved, substantially trough shaped protector or guard adapted to snugly embrace the instep and toe portion of the foot and preferably made of live or spongy material, such as crepe or foam rubber, plastic vinyl, or the like, and serving as a primary guard or protector for the foot. Guard 1 has attached to its side extremities a bridging element 2, which may also be made of similar material, with ends integrally secured to opposite lower portions of guard 2, and which is adapted to serve as a stop which will engage the front vertical portion of the heel of the wearer's shoe.

Attached to the sides of guard 1, and preferably integrally molded therewith in one piece, is a side guard 3 made of the same material as guard 1, preferably foam rubber material or the like. Guard 3 provides a cushioned side protective barrier and is in the form of a vertical side wall substantially surrounding the sole of the shoe. Formed along the inner wall surface of guard 3 are horizontally extending grooves 3*a*, as shown more clearly in Figure 5, for receiving laterally extending projections 4*a* integrally secured to a secondary guard 4, preferably of rigid plastic material. An important feature of the secondary or outer guard 4 is that it is disposed in spaced relationship with respect to the primary guard 1, as shown more clearly in Figure 4, and that it is supported solely by side guard 3 through the support bearings provided by projections 4*a*. Therefore in the event an object falls on secondary guard 4, the shock is not transferred to the instep or toe portion, but instead is transferred to and distributed along the side guards 3 and thence to the floor or ground surface on which the wearer walks. Since secondary guard 4 is of rigid but somewhat flexible plastic material, it will yield to some extent as the result of blows thereon, but not sufficiently under ordinary conditions to press against the primary guard 1. Of course, if greater strength is desired, the secondary guard 4 may be made of plastic reinforced with glass fibers or other suitable reinforcing material, or may be made of metal, such as aluminum or steel for certain industrial work.

It will be noted that the secondary or outer guard 4 has spaced notched out parts 4*b* throughout its perimeter which increase the yieldability of the side portions of the guard. It should be noted that the secondary guard 4 may be extended so as to cover the toe portion as shown in the drawing, such as in the case wherein ordinary shoes are worn by the wearer, or they may be shortened so as not to cover the toe portion in situations wherein the shoe is of the safety type and includes a metal cap toe protector. Of course, the forward portion 4 may be more downwardly arched than shown in order to conform more nearly to the shape of the toe portion of the shoe if so desired.

Integrally secured to and extending rearwardly from the bridging element 2 are heel surrounding bridging elements 5 whose rear ends are integrally secured to a heel protector 6. Elements 5, and heel protector 6 may be integrally molded of the same material as the primary guard 1, such as foam rubber, so as to provide a cushioned protective barrier for the heel of the wearer's foot. Heel protector 6 may be firmly bound and held against the heel by means of shoe strings 7 or bindings of strong material which are laced to inner guard 1 by passing through elongated slots such as 1*a* at the right and left of the instep, and through slots 1*b* adjacent the bottom edge of guard 1, and by passing through slots formed in the heel protector 6 at corresponding levels.

Thus it will be apparent that only spongy material closely engages the shoe of the wearer throughout, pro-

viding protection against blows and providing extreme comfort by allowing the foot to bend freely for various working operations. It will be noted that the secondary guard 4 of rigid plastic material is spaced sufficiently from the primary protector or guard 1 so as not to stiffen the primary guard or detract from its flexibility, and at the same time without the sacrifice of complete protection for the instep and toe of the wearer.

Thus it will be seen that I have provided an efficient safety protector for shoes which is readily detachable, extremely comfortable to wear and which provides a cushioned primary flexible guard and a secondary stiff guard spaced from the primary guard and supported only by the side portions of the primary guard so as to give maximum protection to the foot and so as to transfer all of the shock from a blow to the floor rather than to the instep or toe of the wearer; furthermore I have provided a safety protector for shoes in which side guards are provided for protecting the foot of the wearer against falling objects regardless of the position of the wearer's foot and for protecting against sliding objects on a floor; furthermore I have provided a safety protector for shoes which is extremely light and easy to attach or detach and which may be worn either with ordinary shoes or with safety shoes having steel toe caps.

While I have illustrated and described one embodiment of my invention, it will be understood that this is by way of illustration only, and that various changes and modifications may be made within the contemplation of my invention and within the scope of the following claims.

I claim:

1. A safety protector for shoes, comprising a side guard of yieldable material for snugly embracing the perimeter of the sole of the shoe, said guard having horizontal grooves extending along the inner side wall thereof, and a curved secondary guard of rigid material for overhanging the instep of the shoe and having laterally extending projections along the perimeter thereof which fit into said grooves and serve as the sole bearing means to support said secondary guard, whereby shocks from objects falling on said secondary guard will be transferred directly to said outer guard and onto the walking surface.

2. A detachable safety protector for a shoe comprising a substantially inverted trough shaped guard of flexible material adapted to be detachably embraced about the instep of the shoe and having an integral upstanding perimetrical wall portion for partly surrounding the sole of the shoe and made of yieldable material, said perimetrical wall portion having horizontally extending grooves extending along the inner wall thereof substantially surrounding the sole of the shoe, an outer guard of corresponding inverted trough-like shape for overhanging the instep and having, at its extremities, lateral projections which fit into said grooves for supporting said outer guard in spaced relationship with respect to said first mentioned guard, whereby shocks from falling objects on said outer guard will be transferred directly to said perimetrical wall portion.

3. A safety protector as recited in claim 2 wherein said first mentioned guard is of spongy material and is integral with said perimetrical wall portion which is also of spongy material.

4. A safety protector of the detachable type for shoes, comprising an instep protector and a heel protector, both of sponge rubber material, strap means for interconnecting said protectors, said instep protector having an integral side guard disposed along the outer portion thereof for surrounding the sole of the wearer's shoes, said side guard being in the form of a vertical wall having horizontal grooves along the inner side walls thereof, and a rigid outer guard element having projections on the perimeter thereof supported in said grooves for mounting said outer guard in spaced relationship with said instep protector, whereby shocks from objects falling on said outer guard will be transferred only to said side guard.

5. A safety protector as recited in claim 4 wherein said outer guard is made of rigid plastic material and is provided with notched out portions formed between said projections to provide greater yieldability.

No references cited.