March 26, 1963 H. B. FORESMAN 3,082,550

ICE CREEPER

Filed Oct. 12, 1961

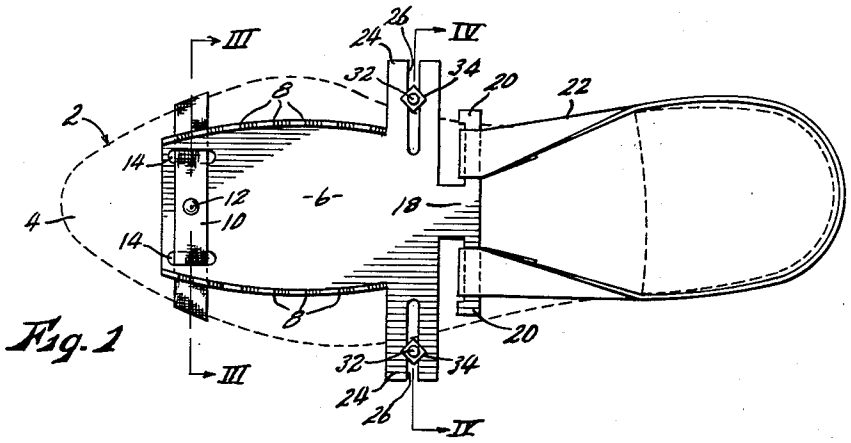


Fig. 1

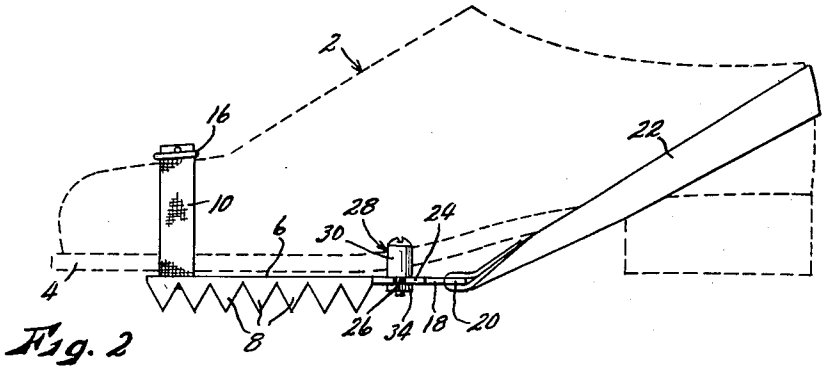


Fig. 2

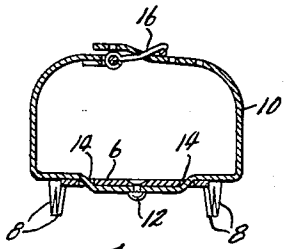


Fig. 3

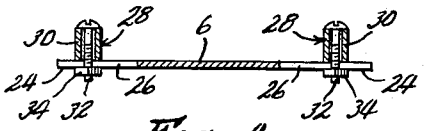


Fig. 4

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ICE CREEPER

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This invention relates to new and useful improvements in ice creepers, and more specifically to devices to be attached to the shoes to prevent slipping on icy or otherwise slippery surfaces, so as to prevent falls and possible resultant injuries.

An important object of the present invention is the provision of an ice creeper which may be attached to the shoe quickly and easily without requiring, each time said creeper is applied, the use or operation of tedious and time-consuming fasteners such as buckles, ties, snap fasteners or the like. The sole fastener which must be operated each time the creeper is applied is an elastic rubber band.

Another object is the provision of an ice creeper of the character described provided with means whereby, despite the fact that said creeper is secured in place partially by an elastic band, it is nevertheless held in place immovably, so that it cannot move or shift relative to the shoe under any normal stress.

Other objects are simplicity and economy of construction, efficiency and dependability of operation, and adjustability to fit shoes of a wide range of sizes.

With these objects in view, as well as other objects which will appear in the course of the specification, reference will be had to the drawing, wherein:

FIG. 1 is an inverted plan view of an ice creeper embodying the present invention, shown in operative relationship to a shoe illustrated in dotted lines,

FIG. 2 is a side elevational view of the ice creeper and shoe shown in FIG. 1, and

FIGS. 3 and 4 are sectional views of the ice creeper only, taken respectively on lines III—III and IV—IV of FIG. 1.

Like reference numerals apply to similar parts throughout the several views, and the numeral 2 applies generally to a man's shoe shown in dotted lines. As is virtually universally true, the sole portion 4 of the shoe narrows taperingly both forwardly and rearwardly from its widest portion, which of course is disposed beneath the ball of the foot. The ice creeper forming the subject matter of the present invention includes a generally planar plate 6 of steel, aluminum, or other suitable material and adapted to overlie the bottom of shoe sole 6 as shown. Said plate is somewhat narrower than the sole, and is elongated longitudinally of the sole, being of sufficient length to extend both forwardly and rearwardly from the widest portion of said sole. Said plate is also preferably formed of material which is sufficiently flexible to accommodate flexure of the sole as the wearer walks. Said plate is provided along its longitudinal edges with downturned sharpened teeth 8. If desired, other teeth could be struck from or affixed to the plate, although the edge teeth shown have been found to be satisfactory.

A strap 10 of flexible but tough and inelastic material, such as a stout web belting, extends transversely to the plate adjacent its forward end. The central portion of the belt is disposed beneath the plate, and is secured thereto as by a rivet 12. The oppositely extending end portions of said belt are led upwardly through slots 14 formed in said plate respectively adjacent the opposite lateral edges thereof, and are thence brought together above the toe portion of shoe 2 and secured together by buckle 16 or other suitable means. Once said strap has been properly adjusted to the wearer's shoe, the buckle need not thereafter be released when the creeper is attached to or removed from the shoe, as will presently appear.

At its rearward end, plate 6 is provided with a rearward extension 18, at the rearward end of which are disposed a pair of oppositely and laterally extending horns 20, said extension and horns being integral with and normally coplanar with the plate. A band 22 of rubber or other elastic material has its opposite ends secured respectively to said horns, as by being folded on itself around said horns and cemented or otherwise joined in their overlapping portions. Said band thus forms an elastic loop which is adapted to be passed around the heel portion of shoe 2 as best shown in FIGS. 1 and 2. Said loop is preferably disposed as high as possible on the shoe heel, both to exert an upward force on plate 6 tending to hold it against the sole of the shoe, and to minimize any possible wearing contact of band 22 with the ground.

Just forwardly of horns 20, plate 6 is provided with a pair of integral, oppositely extending ears 24 normally coplanar therewith and extending transversely to a width greater than that of shoe sole 6. Said ears are disposed well to the rear of the widest portion of the sole, as clearly shown in FIG. 1. Each of said ears has a slot 26 formed longitudinally therein, and a vertical, upwardly extending post 28 is secured in each of said slots. As best shown in FIG. 4, each of said posts may comprise a tubular sleeve 30 resting on the upper surface of ear 24, a bolt 32 passing downwardly through said sleeve and through slot 26, and a nut 34 threaded on said bolt below said ear. By loosening nuts 34, the posts 28 may be adjusted along slots 26 to a position in which they respectively abut the opposite edges of shoe sole 4. This adjustment also need only be made when the creeper is originally fitted to the shoe, and not thereafter. Posts 28 should be of sufficient height to engage securely the vertical edges of the shoe sole, but not so tall that they impinge against the shoe upper, which may slightly overhang the edges of the sole at these points. Such impinging would cause discomfort to the wearer.

In applying the creeper, the user first inserts the toe of his shoe through the loop formed by strap 10, which has previously been adjusted to his shoe size as described above. Then, with the rearward edge of plate 6 pivoted downwardly from the shoe sole so that posts 28 may pass beneath said sole, plate 6 and strap 10 are moved rearwardly on the shoe until strap 10 becomes tight and posts 28 have reached a sufficiently narrow portion of the sole, rearwardly from the widest portion thereof, that they may move upwardly to engage the vertical edges of the sole. When both strap 10 and posts 28 are properly adjusted, the strap 10 will be tight, and posts 28 will engage the edges of the sole snugly to resist forward movement of the plate relative to the shoe, at the same time. The downward pivotal movement of the rearward end of plate 6, as described above, may be accomplished either by pivoting the plate bodily about its point of support by strap 10, or by flexure of the plate itself. The rubber band 22 is then passed about the heel of the shoe, as shown, to secure the creeper in place.

In use it has been found that the device is quite satisfactory even without posts 28 where the wearer engages only in normal activities such as walking on reasonably level surfaces. Strap 10 engages a forwardly tapering portion of the shoe, and therefore prevents rearward movement of the plate relative to the shoe, while rubber band 22, which may be quite stout, strongly resists any forward movement of the plate. Rivet 12 prevents lateral movement of the plate along strap 10. However, when the wearer engages in more strenuous or athletic activities, so that the forces tending to displace the plate are correspondingly greater, posts 28 are very valuable in that they eliminate any direct reliance on the yieldable rubber band as a means for maintaining plate 6 in proper position on the shoe. Firstly, since said posts engage opposite edges of sole 4, they positively prevent the rear-

ward portion of the plate from shifting laterally relative to the shoe, which might otherwise occur due to yieldability of rubber band **22**. Secondly, since the posts engage a rearwardly tapering portion of the sole, they positively prevent forward movement of the plate **6** relative to the shoe, which might otherwise occur due to stretching of band **22**. This latter function is especially valuable, for example, when the wearer is climbing a steep incline, and there is a correspondingly strong tendency for the shoe to slip rearwardly on plate **6**.

While I have shown and described a specific embodiment of my invention, it will be readily apparent that many minor changes of structure and operation could be made without departing from the spirit of the invention as defined by the scope of the appended claims.

What I claim as new and desire to protect by Letters Patent is:

1. An ice creeper comprising a flexible plate adapted to overlie the sole of a shoe and being elongated to extend both forwardly and rearwardly of the widest portion of said sole, depending teeth carried by said plate, a pliable band secured to the forwardly extended portion of said plate and forming a loop adapted to be passed over the toe portion of said shoe, an elastic band secured at its ends to the rearwardly extended portion of said plate to form a loop adapted to be passed about the heel portion of said shoe, a pair of oppositely and laterally extending ears secured to said plate and extending to a width greater than that of the sole of the shoe, and a straight upstanding vertical post fixed in each of said ears, whereby to engage the vertical edges of said sole, and thereby prevent movement of said plate laterally relative to said sole, said ears extending transversely from the rearwardly extending portion of said plate whereby said posts engage the edges of said sole rearwardly from the widest portion thereof, thereby to prevent forward movement of said plate relative to said sole.

2. An ice creeper comprising a flexible plate adapted

to overlie the sole of a shoe and being elongated to extend both forwardly and rearwardly of the widest portion of said sole, depending teeth carried by said plate, a pliable band secured to the forwardly extended portion of said plate and forming a loop adapted to be passed over the toe portion of said shoe, an elastic band secured at its ends to the rearwardly extended portion of said plate to form a loop adapted to be passed about the heel portion of said shoe, a pair of oppositely and laterally extending ears secured to said plate and extending to a width greater than that of the sole of the shoe, and a straight upstanding vertical post fixed in each of said ears, whereby to engage the vertical edges of said sole and thereby prevent movement of said plate laterally relative to said sole, said ears extending transversely from the rearwardly extended portion of said plate whereby said posts engage the edges of said sole rearwardly from the widest portion thereof, thereby to prevent forward movement of said plate relative to said sole, said pliable band being formed of inelastic material, said band by virtue of its attachment to the forwardly extended portion of said plate encircling said shoe forwardly of the widest portion of said sole, whereby to prevent rearward movement of said plate relative to said sole.

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