

Nov. 1, 1966

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3,281,971

BUILT-IN ELEMENTS IN SHOES

Filed April 26, 1965

4 Sheets-Sheet 1

Fig. 1.

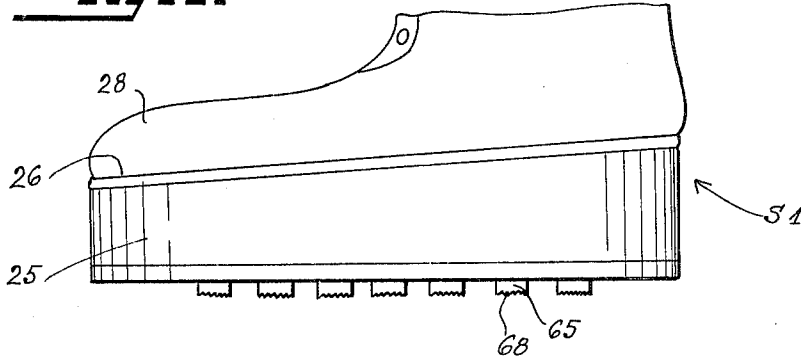


Fig. 2.

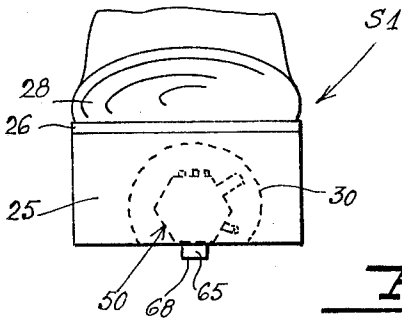


Fig. 4.

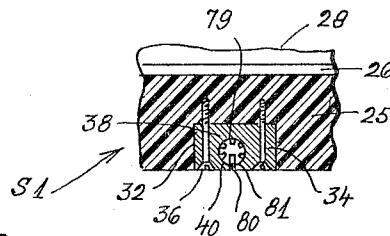


Fig. 3.

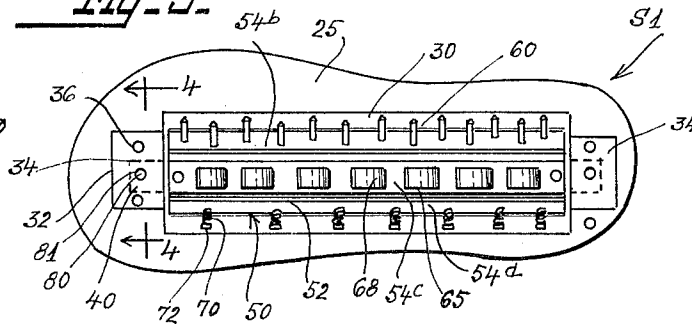


Fig. 7.

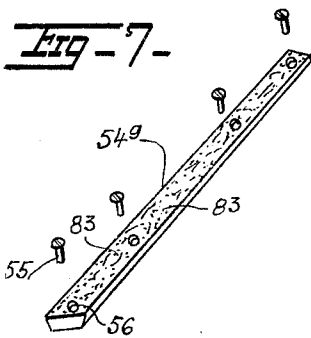
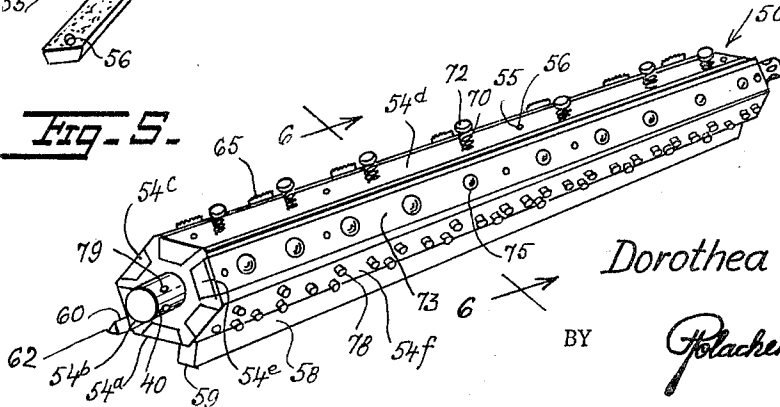


Fig. 5.



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Fig. 6.

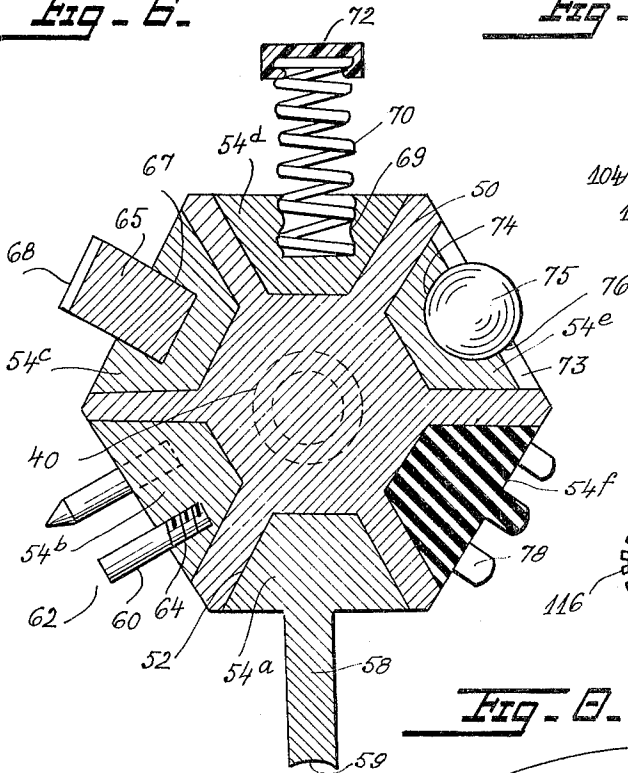


Fig. 9.

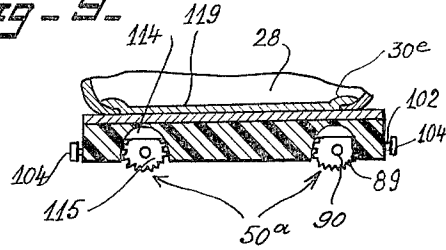


Fig. 12.

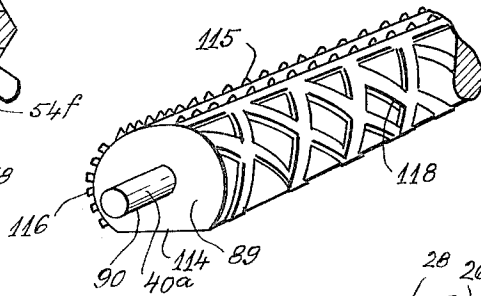


Fig. 13.

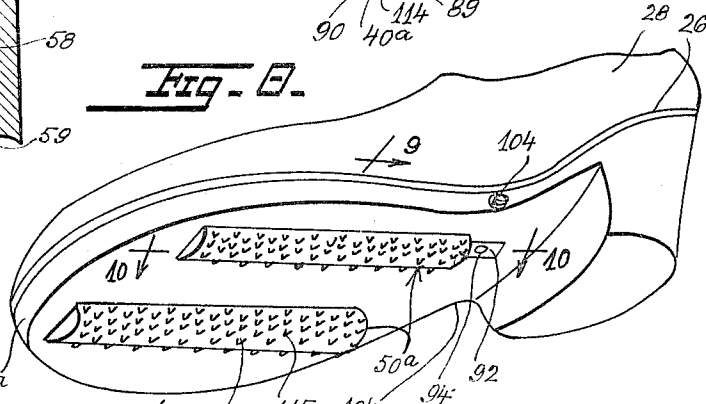
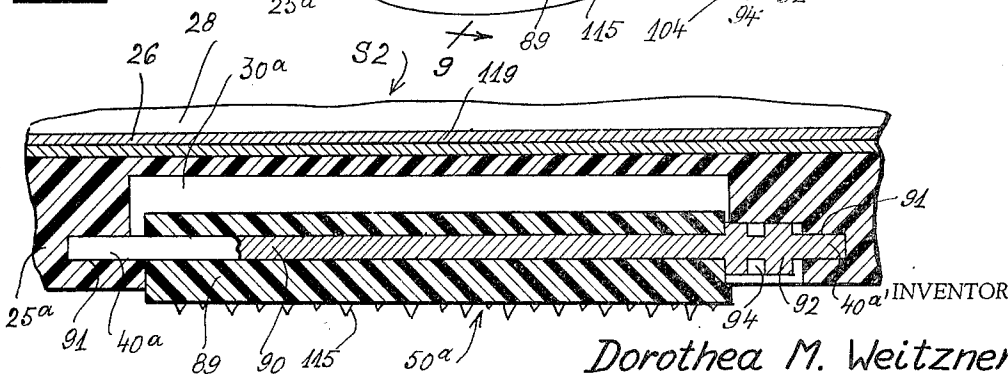


Fig. 10.



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Fig. 14.

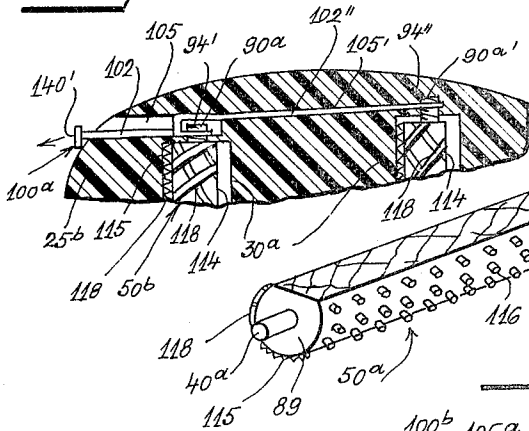


Fig. 17.

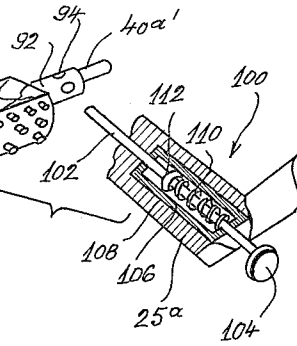


Fig. 15.

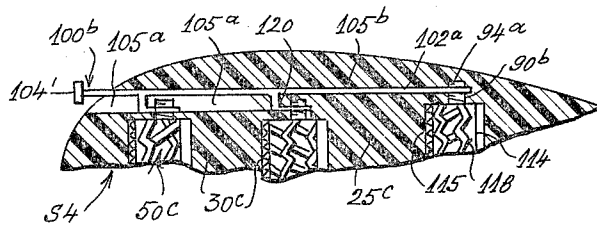


Fig. 13.

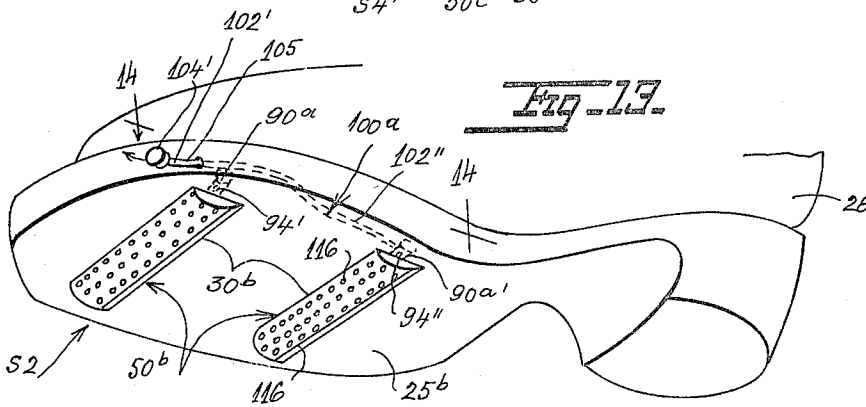
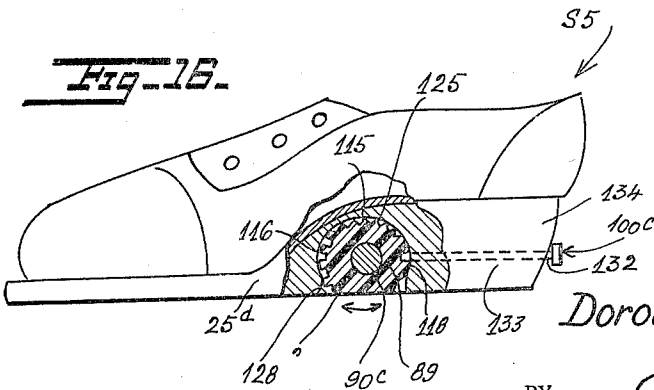


Fig. 16.



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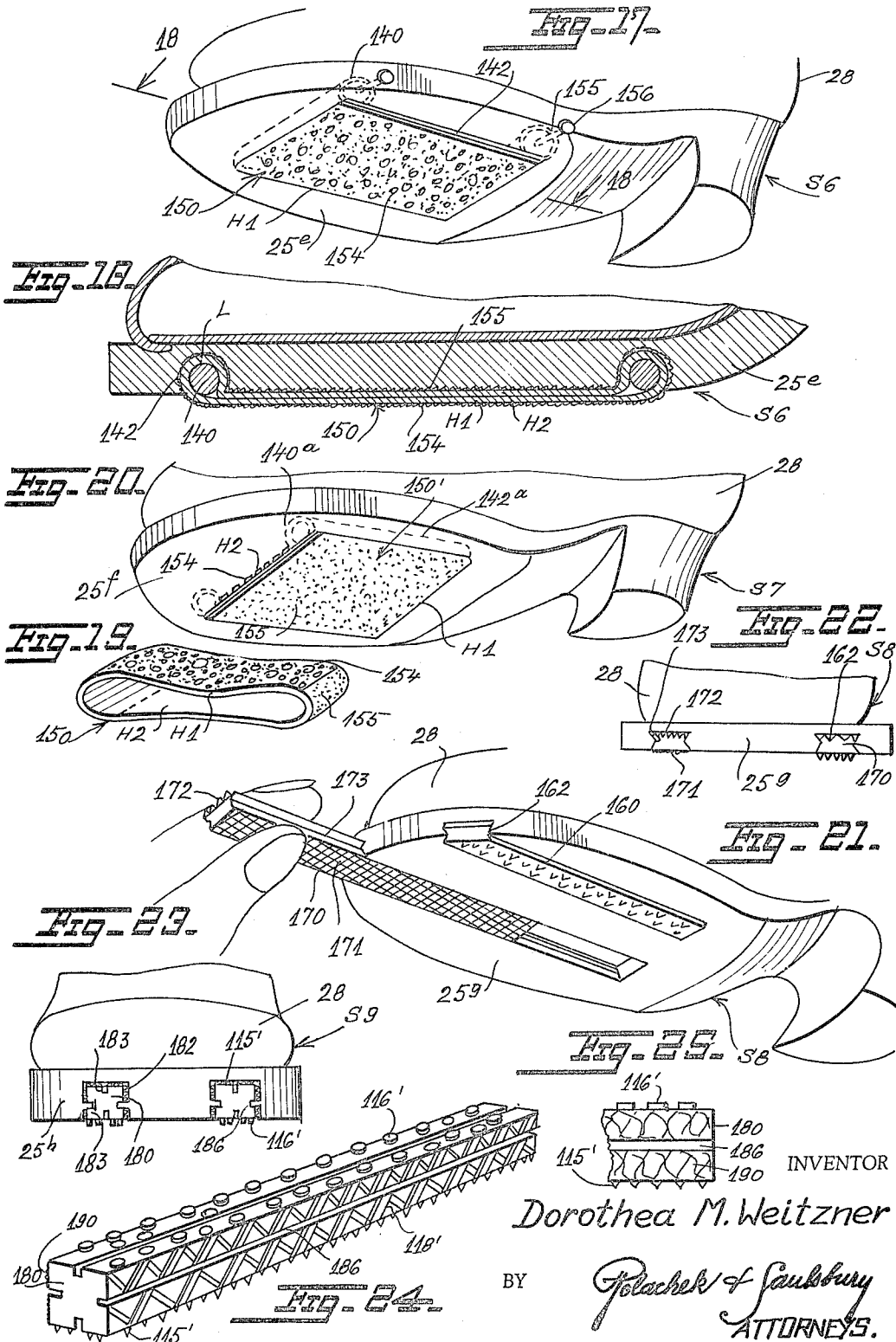
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4 Sheets-Sheet 4



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BUILT-IN ELEMENTS IN SHOES

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19 Claims. (Cl. 36-2.5)

This invention concerns a shoe adapted for multiple uses, and more particularly is directed at a shoe having a sole with a rotatable member mounted in the sole and arranged to project or present selectively elements of different types of textures at the bottom of the sole.

It is one object of the invention to provide a shoe in which a rotatable member in the sole of the shoe selectively presents one or more elements adapting the shoe for ice skating, roller skating, jump skating and/or non-skid walking on ice, snow, turf or pavement.

A further object is to provide a shoe as described with means for locking the rotatable member in a fixed position in the sole to position, expose or present any selected one of a group of weight bearing or traction elements at the bottom of the sole.

Another object is to provide a shoe as described, having two or more cooperating rotatable members in the sole of the shoe, adapting the shoe for different selected uses.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

FIG. 1 is a side view of part of a first shoe embodying the invention.

FIG. 2 is a front end view of part of the shoe of FIG. 1.

FIG. 3 is a bottom plan view of the shoe of FIG. 1.

FIG. 4 is a fragmentary vertical sectional view taken on line 4-4 of FIG. 3.

FIG. 5 is an enlarged perspective view of a rotatable member employed in the shoe of FIGS. 1-4.

FIG. 6 is a further enlarged cross sectional view taken on line 6-6 of FIG. 5.

FIG. 7 is a reduced perspective view of an insert element which may be mounted in the rotatable member of FIGS. 5, 6.

FIG. 8 is a perspective view of part of a second shoe, showing the bottom thereof with other rotatable members mounted therein.

FIG. 9 is a fragmentary sectional view taken on line 9-9 of FIG. 8.

FIG. 10 is an enlarged fragmentary sectional view taken on line 10-10 of FIG. 9.

FIG. 11 is an enlarged exploded perspective view of a rotatable member and locking device employed in the shoe of FIG. 8.

FIG. 12 is an enlarged perspective view of part of the rotatable member of FIG. 11.

FIG. 13 is a perspective view of part of a third shoe, showing the bottom thereof with other rotatable members mounted therein.

FIG. 14 is a fragmentary perspective view taken on line 14-14 of FIG. 13.

FIG. 15 is a sectional view similar to FIG. 14 of a fourth shoe illustrating another embodiment of the invention.

FIG. 16 is a side view partially in section of a fifth shoe illustrating a further embodiment of the invention.

FIG. 17 is a perspective view of part of a sixth shoe, showing the bottom thereof and illustrating another form of the invention.

FIG. 18 is an enlarged fragmentary sectional view taken on line 18-18 of FIG. 1.

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FIG. 19 is a reduced perspective view of an endless traction band employed in the shoe of FIGS. 17, 18.

FIG. 20 is a perspective view of part of a seventh shoe, showing the bottom thereof and illustrating a further form of the invention.

FIG. 21 is a perspective view of part of an eighth shoe embodying another form of the invention.

FIG. 22 is a front end view of part of the shoe of FIG. 21.

FIG. 23 is a front end view of part of a ninth shoe embodying a further form of the invention.

FIG. 24 is an enlarged perspective view of a traction bar employed in the shoe of FIG. 23.

FIG. 25 is a side view of part of the traction bar of FIG. 24.

Referring first to FIGS. 1-7, there is shown shoe S1 having a thick sole, plastic sole 25, on the upper side of which is attached an intermediate sole 26. Attached to sole 26 is an upper 28 of any suitable type. According to the invention the sole is provided with a cylindrical cavity 30 open at the bottom of the sole. The cavity extends axially longitudinally of the shoe with its axis on the central vertical plane of the shoe.

At opposite ends of cavity 30 are two rectangular cavities 32 in which are inserted bearing blocks 34 held by screws 36. The blocks have cylindrical bores 38 in which are rotatably disposed stub shafts 40, extending axially outward of opposite ends of a rotatable bar 50. Bar 50 is hexagonal in cross section and is formed with tapered grooves 52 extending longitudinally of its six sides. Removably fitted in the grooves are generally wedge shaped flat plates 54a-54f. The plates are held by screws 55 inserted in two or more holes 56 at ends of the plates and at intermediate points thereof. These screws are seated in threaded holes in the inner sides of the grooves 52.

Each of the plates 54a-54f has different forms or types of projections. Plate 54a has a single long blade 58 formed with a hollow ground edge 59 and is useful for ice skating. Plate 54b has a plurality of prongs 60 with sharp points 62 which can penetrate turf, sand or snow. Inner ends of the prongs are threaded and the prongs are screwed into threaded holes 64 in the plate. Plate 54c has narrow blades 65 seated in rectangular recesses 67 in the plate. These blades have serrated edges 68 which can engage an icy or other slippery surface. Seated in threaded holes 69 in plate 54d are coil springs 70 having plastic caps 72 at their outer ends. These are jump springs used to convert the shoe S1 to a jump skate. Plate 54e has spherically curved recesses, semispherical recesses 74, in which are rotatable balls 75. A bearing plate 73 covers and is secured to plate 54e. Plate 73 has tapered holes 76 with tapered edges which hold the balls rotatably in plate 54e. The balls 75 serve to convert the shoe S1 to a roller skate. Plate 54f is made of rubber or plastic material with resilient projecting studs 78. These studs provide an effective anti-friction, non-slipping grip upon smooth or rough, soft or hard surfaces.

The stub shafts 40 are provided with blind holes 79 into which screws 80 are removably inserted for holding the bar 50 in any one of six selected positions so that the projecting elements 58, 60, 65, 70, 75 and 78 of any one of plates 54a-54f may be exposed at the bottom of the shoe. Screws 80 are seated in threaded holes 81 in blocks 34. An eighth plate 54g having a rough surface 83 may be substituted in place of any one of the plates 54a-54g if the shoe is to be used for walking on a flat surface and none of the projecting elements of plates 54a-54f are to be exposed.

It will be apparent from an inspection of the drawing that the wearer can select any one of the plates 54a-54g for exposure at the bottom of the shoe. The creeper blades 65 are shown exposed in FIGS. 1-3, so that the

shoe may be worn for walking safely upon ice, snow, slippery rocks, and other slippery surfaces. Where flexible grippers are desired the bar 50 will be rotatably repositioned and to expose studs 78. The shoe can be converted at will to an ice skate, roller skate or jump skate by selectively exposing blade 58, springs 70 or balls 75. For use in walking on turf such as a golf course, baseball field and the like, the prongs 60 can be exposed.

It is of course possible to remove easily any one of plates 54a-54g and substitute others of similar or different types. In any case, the unused projecting elements will be concealed within cavity 30 when not required for immediate use.

Shoe S2 shown in FIGS. 8-10 employs two rotatable traction bars 50a mounted in two parallel, laterally spaced cylindrically curved cavities 30a in sole 25a. The bars have resilient sleeve-like bodies 89 with shafts 90 extending axially therethrough. Shaft ends 40a, 40a' project outwardly of opposite ends of the body 89. These shaft ends are rotatably mounted in blind bores 91 formed at opposite ends of cavities 30a. Each of the shafts 90 has an enlarged section 92 at end 40a' provided with four holes 94 spaced circumferentially around section 92.

Locking or holding devices 100 best shown in FIG. 11 are respectively associated with each of bars 50a. Each holding device includes an axially movable rod or pin 102 having a knob 104 at its outer end which can be manually grasped. The rod extends axially through a cylindrical casing 106 seated in a recess 108 in the sole 25a of the shoe. A spring 110 is mounted on the rod in the casing and bears on an annular flange 112 attached to the rod. The rod can be withdrawn axially against spring tension so that a bar 50a can be rotated to any one of four circumferential positions. Release of the knob enables the free inner end of the rod to engage in one of the four holes 94.

Each of the bars 50a has one flat, chordally disposed land or face 114 which extends the full length of the bar. This face can be exposed so that it is substantially coplanar with the bottom surface of the sole 25a. Opposite from face 114 and integrally formed with the bar are short sharp, prongs or teeth 115 which extend circumferentially about 90° around the bar and for the full length of the bar. Between teeth 115 and face 114 are short projecting studs 116 which are round or rectangular in cross section. They also extend circumferentially about 90° around the bar and for the full length of the bar. Between teeth 115 and face 114 and opposite from studs 116 are crossed ribs or corrugations 118 extending the full length of the bar and about 90° circumferentially thereof; see FIG. 12. The teeth 115 are shown exposed in both bars 50a but any one or both bars can be rotated to expose any of the other projections such as studs 116 or ribs 118, or the flat faces 114. If desired the faces 114 can be roughened or knurled to provide non-slip traction surfaces which will facilitate walking on slippery surfaces. The bars 50a will be rotated to expose any desired surface and then will be in locked position by use of the locking devices 100. Other parts of the shoe S2 corresponding to those of shoe S1 are identically numbered. Shoe S2 has an inner sole 119 on intermediate sole 26.

In FIGS. 13 and 14 is shown shoe S3 having a sole 25b in which are two cylindrically curved cavities 30b extending axially transversely of the shoe. Two identical rotatable traction bars 50b are rotatably mounted in the cavities and are selectively held in place by locking device 100a. The bars are arranged like bars 50a with flat lands or faces 114, circumferential sections formed with teeth 115, studs 116 and ribs 118. One end of each of shafts 90a, 90a' has diametral holes 94', 94'' extending therethrough in which fit free ends of rods 102', 102''. The two rods are secured together parallel to each other so that they can be simultaneously withdrawn from or inserted in the holes 94', 94'' to lock the rotatable bars 50b in any one of four selected positions. Knob 104' at the outer free

end of rod 102' is exposed near the front end of sole 26b, for manually operating the coupled rods. The rods slide in bores 105, 105' in the sole.

In FIG. 15, shoe S4 is similar to shoe S3 and corresponding parts are identically numbered. Sole 25c in shoe S4 has three cylindrically curved cavities 30c extending axially transversely of the shoe. Three rotatable traction bars 50c arranged like bars 50b are rotatable as in the cavities and are selectively held in place by locking device 100b. This device includes a rod 102a with three hooks 120 which extend laterally of the rod and are inserted into diametral holes 94a in one end of each of two shafts 90b in the bars 50c. By withdrawing rod 102a which has knob 104a at its end, the shaft hooks are disengaged allowing free rotation of the traction bars. Any one of three curved surfaces having different projections thereon, or the flat faces 114 can be exposed. Rod 102a and hooks 120 slide in slot 105a and bore 105b.

Shoe S5 shown in FIG. 16 has a traction bar 50d inserted in a cylindrical cavity 125 formed sole 25d at the arch of the shoe near the heel end. Shaft 90c is rotatably journaled in end walls 128 of cavity 125. Locking device 100c for holding the bar 50d includes a rod 132 extending axially through the heel 134. The rod is frictionally engaged in a bore 133 in the heel, and its inner end engages in one of two crossed diametral holes arranged like holes 94' or 94'' in shafts 90a, 90a'. Any one of three different type of projections 115, 116 or 118 or the flat face 114 can be exposed by selectively positioning the bar to one of four circumferential positions, and then locking the bar in place.

Shoe S6 shown in FIGS. 17, 18 has two rollers or bars 140 rotatably disposed in transverse cylindrically curved cavities 142 formed in flexible sole 25e. Engaged on these bars is an endless band 150 having coarse projections 154 covering one half 42 of the band; see FIG. 19. Shafts 155 are provided for each of the bars. Each shaft extends axially outward laterally of the sole and has a knob 156 on its end to facilitate turning the associated roller 140.

One half H1 of the exterior surface of the band is shown exposed at the bottom of the sole 25e with the adjacent half H2 juxtaposed to the exterior half H2 as clearly shown in FIGS. 17 and 18. The band can be advanced longitudinally of the sole 25e so that a traction surface of desired degree of roughness is exposed. The traction surface can be consisted only of coarse projections 154, only of fine projections 155 or partly of fine and partly of coarse projections.

Shoe S7 of FIG. 20 is similar to shoe S6, except that the turning shafts are omitted from rollers 140a. Endless band 150' moves transversely across the underside of sole 25f rather than longitudinally thereof because the rollers extend longitudinally of the sole in cylindrically curved longitudinally extending cavities 142a. The band can be advanced by manually pushing its exposed rough surface.

It will be noted that in both shoes S6 and S7 the rough surface of the upper or inner half H2 of the band is pressed against the underside of the sole of the shoe. This operation serves to effect a frictional grip of the band to hold it in place so that no supplementary locking device is needed. In addition the looped ends L of the bands fit frictionally inside the cavities 142, 142a so that the bands are prevented from advancing in the direction of their lengths unless they are manually moved while no weight is placed on the shoe.

Shoe S8 shown in FIGS. 21 and 22 has two longitudinally extending grooves 160 formed in the bottom of shoe sole 25g. Opposing sides of these grooves have dovetail ridges 162 formed thereon. Traction bars 170 are slidably fitted in the grooves which are open at the toe end of the sole. One side 171 of each bar is roughened or knurled while the other side is formed with teeth 172. The teeth or the knurled portions can be exposed by removing the bars from the grooves and inverting

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them, as illustrated in FIG. 21. The bars have dovetail grooves 173 formed in their lateral edges which engage with ridges 162.

Shoe S9 shown in FIG. 23 has traction bars 180 slidably fitted in deep grooves 182 of sole 25h. Longitudinal centrally located ribs 183 extend inwardly of the grooves 182 from the opposing sides and top of each groove. These ribs interfit with mating central slots 186 formed in sides of the bars. Each bar is rectangular in cross section and has a different type of projection or roughness, such as teeth 115', studs 116', cross ribs 118' or knurling 190 as best shown in FIGS. 24 and 25. The bars can be removed and turned to any one of four positions and reinserted in the grooves 182.

In each form of the invention described, there is provided a shoe having axially rotatable traction bars or traction rollers with parts of their surfaces treated in different ways so that the shoe can be used for different purposes depending on the setting of the bars or rollers in the shoe soles.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and that various changes and modifications may be made within the scope of the invention as defined in the appended claims.

What is claimed is:

1. A multiple purpose shoe, comprising a thick sole having a cylindrical cavity therein open laterally at the bottom of the sole, a bar rotatably mounted in said cavity with a side of the bar exposed at the bottom of the sole, means for selectively locking the bar in each of a plurality of fixed circumferential positions so that a different side of the bar is exposed in each of said positions, and different radially outwardly projecting elements on the respective sides of the bar for selective projection of the elements beyond the sole of the shoe, said projecting elements being shaped and adapted to provide traction for the shoe on slippery surfaces.

2. A multiple purpose shoe, comprising a thick sole having a cylindrical cavity therein open laterally at the bottom of the sole, a bar rotatably mounted in said cavity with a side of the bar exposed at the bottom of the sole, means for selectively locking the bar in each of a plurality of fixed circumferential positions so that a different side of the bar is exposed in each of said positions, and different outwardly projecting elements on the respective sides of the bar, said bar being polygonal in cross section with multiple flat sides, the projecting elements on one side of the bar including a series of sharp pointed prongs, the projecting elements on another side including short studs, and the projecting elements on a further side including blades having serrated edges.

3. A multiple purpose shoe, comprising a thick sole having a cylindrical cavity therein open laterally at the bottom of the sole, a bar rotatably mounted in said cavity with a side of the bar exposed at the bottom of the sole, means for selectively locking the bar in each of a plurality of fixed circumferential positions so that a different side of the bar is exposed in each of said positions, and different outwardly projecting elements on the respective sides of the bar, said bar being polygonal in cross section with multiple flat sides, the projecting elements on one side of the bar including a series of rollers for use of the shoe as a roller skate, the projecting elements on another side of the bar including a series of springs for use of the shoe as a jump skate, the projecting element on a further side of the bar comprising a long blade with sharp outer edge for use of the shoe as an ice skate.

4. A multiple purpose shoe, comprising a thick sole having a cylindrical cavity therein open laterally at the bottom of the sole, a bar rotatably mounted in said cavity with a side of the bar exposed at the bottom of the sole,

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means for selectively locking the bar in each of a plurality of fixed circumferential positions so that a different side of the bar is exposed in each of said positions, and different outwardly projecting elements on the respective sides of the bar, said bar being polygonal in cross section with multiple flat sides, the projecting element on a first side of the bar including a long blade with sharp outer edge for use of the shoe as an ice skate, the projecting elements on a second side of the blade including a series of rollers for the use of the shoe as a roller skate, the projecting elements on a third side including a series of springs for use of the shoe as a jump skate, the projecting elements on a fourth side including prongs for increasing traction in use of the shoe on soft sand, soil and turf, the projecting elements on a fifth side of the bar including a series of blades with serrated teeth for increasing traction in use of the shoe on ice and snow, the projecting elements on a sixth side of the bar being shaped to increase traction in use of the shoe on slippery surfaces.

5. A multiple purpose shoe, comprising a thick sole having a cylindrical cavity therein open laterally at the bottom of the sole, a bar rotatably mounted in said cavity with a side of the bar exposed at the bottom of the sole, means for selectively locking the bar in each of a plurality of fixed circumferential positions so that a different side of the bar is exposed in each of said positions, and different outwardly projecting elements on the respective sides of the bar, said bar being polygonal in cross section with multiple flat sides, said projecting elements being shaped and adapted to provide traction for the shoe on slippery surfaces, the projecting elements on each of the sides of the bar being secured to a different long narrow plate, said bar having a groove in each side thereof, and means removably securing one of the plates in each of the grooves in the sides of the bar.

6. A multiple purpose shoe, comprising a thick sole having a plurality of axially parallel laterally spaced cylindrical cavities therein, each cavity being open laterally at the bottom of the sole, a bar rotatably mounted in each of the cavities with a side of the bar exposed at the bottom of the sole, means for selectively locking the bars in each of a plurality of fixed circumferential positions so that a different side of each bar is exposed in each of said positions, and different outwardly projecting elements on the respective sides of the bar, said projecting elements being adapted to provide traction for the shoe on slippery surfaces.

7. A multiple purpose shoe, comprising a thick sole having a plurality of axially parallel laterally spaced cylindrical cavities therein, each cavity being open laterally at the bottom of the sole, a bar rotatably mounted in each of the cavities with a side of the bar exposed at the bottom of the sole, means for selectively locking the bars in each of a plurality of fixed circumferential positions so that a different side of each bar is exposed in each of said positions, and different outwardly projecting elements on the respective sides of the bar, said projecting elements being adapted to provide a traction for the shoe on slippery surfaces, the projecting elements on a first side of each bar including a series of sharp teeth, the projecting elements on a second side of each bar including a series of studs, the projecting elements on a third side including a series of ribs, the projecting elements on a fourth side including knurling on the surface of the fourth side.

8. A multiple purpose shoe, comprising a thick sole having a plurality of axially parallel laterally spaced cylindrical cavities therein, each cavity being open laterally at the bottom of the sole, a bar rotatably mounted in each of the cavities with a side of the bar exposed at the bottom of the sole, means for selectively locking the bars in each of a plurality of fixed circumferential positions so that a different side of each bar is exposed in each of said positions, and different outwardly projecting elements

on the respective sides of the bar, said projecting elements being adapted to provide traction for the shoe on slippery surfaces, each of said bars having an axial shaft rotatably engaged at opposite ends of one of the cavities, each shaft having one end formed with circumferentially spaced holes, said locking means including an axially movable rod having a free end engageable in one of the said spaced holes as the bar is rotated to any one of said circumferential positions for holding the bar in fixed position.

9. A multiple purpose shoe, comprising a thick sole having a plurality of axially parallel laterally spaced cylindrical cavities therein, each cavity being open laterally at the bottom of the sole, a bar rotatably mounted in each of the cavities with a side of the bar exposed at the bottom of the sole, means for selectively locking the bars in each of a plurality of fixed circumferential positions so that a different side of each bar is exposed in each of said positions, and different outwardly projecting elements on the respective sides of the bar, said projecting elements being adapted to provide traction for the shoe on slippery surfaces, the projecting elements on a first side of each bar including a series of sharp teeth, the projecting elements on a second side of each bar including a series of studs, the projecting elements on a third side including a series of ribs, the projecting elements on a fourth side including knurling on the surface of the fourth side, each of said bars having an axial shaft rotatably engaged at opposite ends of one of the cavities, each shaft having one end formed with circumferentially spaced holes, said locking means including an axially movable rod having a free end engageable in one of the said spaced holes as the bar is rotated to any one of said circumferential positions for holding the bar in fixed position.

10. A multiple purpose shoe, comprising a thick sole having a cylindrical cavity therein open laterally at the bottom of the sole, a bar rotatably mounted in said cavity with a side portion of the bar exposed at the bottom of the sole, means for selectively locking the bar in each of a plurality of fixed circumferential positions so that a different side portion of the bar is exposed at the bottom of the sole in each of said positions and different outwardly projecting elements on the respective side portions of the bar, said bar having an axial shaft rotatably engaged at opposite ends in said cavity, one end of the shaft being formed with circumferentially spaced holes, said locking means including an axially movable rod having a free end engageable in any one of said spaced holes as the bar is rotated to any one of said circumferential positions for holding the bar in fixed position.

11. A multiple purpose shoe, comprising a thick sole having a plurality of axially parallel laterally spaced cylindrical cavities therein, each cavity being open laterally at the bottom of the sole, a bar rotatably mounted in each of the cavities with a side of the bar exposed at the bottom of the sole, means for selectively locking the bars in each of a plurality of fixed circumferential positions so that a different side of each bar is exposed in each of said positions, and different outwardly projecting elements on the respective sides of the bar, said projecting elements being adapted to provide traction for the shoe on slippery surfaces, the projecting elements on a first side of each bar including a series of sharp teeth, the projecting elements on a second side of each bar including a series of studs, the projecting elements on a third side including a series of ribs, the projecting elements on a fourth side including knurling on the surface of the fourth side, said cavities and said bars extending axially longitudinally of the sole.

12. A multiple purpose shoe, comprising a thick sole having a plurality of axially parallel laterally spaced cylindrical cavities therein, each cavity being open laterally at the bottom of the sole, a bar rotatably mounted in each of the cavities with a side of the bar exposed at the bottom of the sole, means for selectively locking the bars in each of a plurality of fixed circumferential posi-

tions so that a different side of each bar is exposed in each of said positions, and different outwardly projecting elements on the respective sides of the bar, said projecting elements being adapted to provide traction for the shoe on slippery surfaces, the projecting elements on a first side of each bar including a series of sharp teeth, the projecting elements on a second side of each bar including a series of studs, the projecting elements on a third side including a series of ribs, the projecting elements on a fourth side including knurling on the surface of the fourth side, said cavities and said bars extending axially transversely of the sole.

13. A multiple purpose shoe, comprising a thick sole having a generally cylindrical cavity therein open laterally at the bottom of the sole, a bar removably mounted in said cavity with a side of the bar exposed at the bottom of the sole, means for selectively holding the bar in each of a plurality of fixed circumferential positions so that a different side of the bar is exposed in each of said positions, and different outwardly projecting elements on the respective sides of the bar.

14. A multiple purpose shoe, comprising a thick sole having a generally cylindrical cavity therein open laterally at the bottom of the sole, a bar removably mounted in said cavity with a side of the bar exposed at the bottom of the sole, means for selectively holding the bar in each of a plurality of fixed circumferential positions so that a different side of the bar is exposed in each of said positions, and different outwardly projecting elements on the respective sides of the bar, said bar being polygonal in cross section with multiple flat sides, said projecting elements being shaped and adapted to provide traction for the shoe on slippery surfaces.

15. A multiple purpose shoe, comprising a thick sole having a generally cylindrical cavity therein open laterally at the bottom of the sole, a bar removably mounted in said cavity with a side of the bar exposed at the bottom of the sole, means for selectively holding the bar in each of a plurality of fixed circumferential positions so that a different side of the bar is exposed in each of said positions, and different outwardly projecting elements on the respective sides of the bar, said bar being polygonal in cross section with multiple flat sides, said projecting elements being shaped and adapted to provide traction for the shoe on slippery surfaces, the projecting elements on a first side of each bar including a series of sharp teeth, the projecting elements on a second side of each bar including a series of studs, the projecting elements on a third side including a series of ribs, the projecting elements on a fourth side including knurling on the surface of the fourth side.

16. A multiple purpose shoe, comprising a thick sole having a generally cylindrical cavity therein open laterally at the bottom of the sole, a bar removably mounted in said cavity with a side of the bar exposed at the bottom of the sole, means for selectively holding the bar in each of a plurality of fixed circumferential positions so that a different side of the bar is exposed in each of said positions, and different outwardly projecting elements on the respective sides of the bar, said bar being polygonal in cross section with multiple flat sides, said projecting elements being shaped and adapted to provide traction for the shoe on slippery surfaces, the holding means for the bar including ridges formed on opposing sides of said cavity, and mating grooves formed in the sides of the bar.

17. A multiple purpose shoe, comprising a thick sole having a plurality of axially parallel laterally spaced generally cylindrical cavities open laterally at the bottom of the sole, a bar removably mounted in each cavity with a side of the bar exposed at the bottom of the sole, means for selectively holding each bar in a plurality of fixed circumferential positions so that a different side of the bar is exposed in each of said positions, and different outwardly projecting elements on the respective sides of each bar.

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18. A multiple purpose shoe, comprising a thick sole having a plurality of axially parallel laterally spaced generally cylindrical cavities open laterally at the bottom of the sole, a bar removably mounted in each cavity with a side of the bar exposed at the bottom of the sole, means for selectively holding each bar in a plurality of fixed circumferential positions so that a different side of the bar is exposed in each of said positions, and different outwardly projecting elements on the respective sides of each bar, the holding means for each bar including ridges formed on opposing sides of each cavity and mating grooves formed in the sides of each bar.

19. A multiple purpose shoe, comprising a thick sole having a plurality of axially parallel laterally spaced generally cylindrical cavities open laterally at the bottom of the sole, a bar removably mounted in each cavity with a side of the bar exposed at the bottom of the sole, an endless band entrained on the bars with a first half of

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the band juxtaposed to the bottom of the sole and the other half of the band juxtaposed to said first half, the respective halves of the band having projecting elements of different degrees of coarseness for providing different degrees of traction to the shoe on slippery surfaces.

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