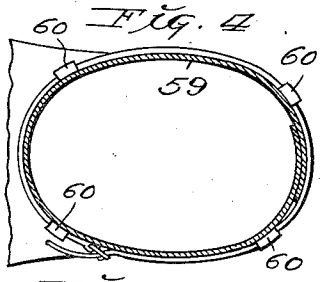
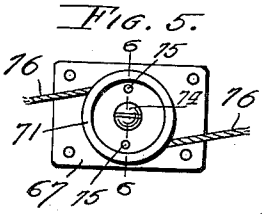
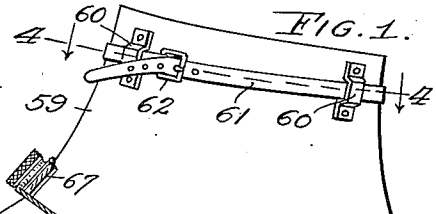
Feb. 9, 1937. C. O. ROE 2,070,093

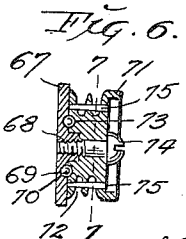
SPIKED SANDAL

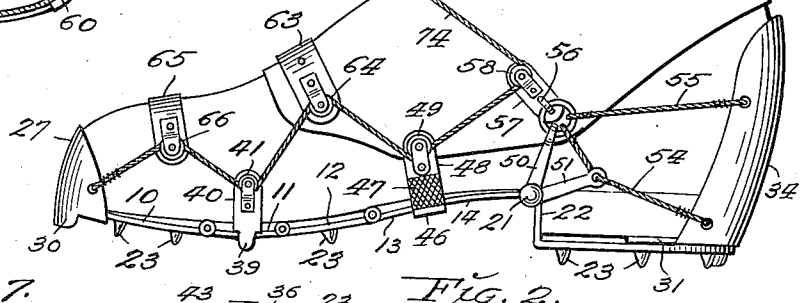
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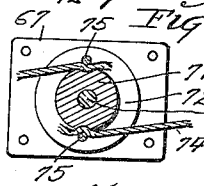


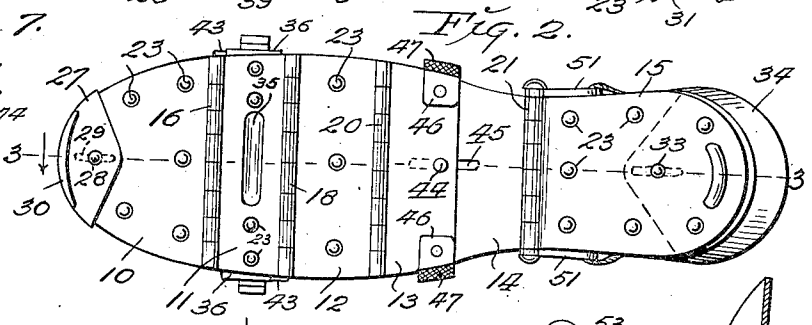


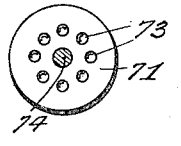


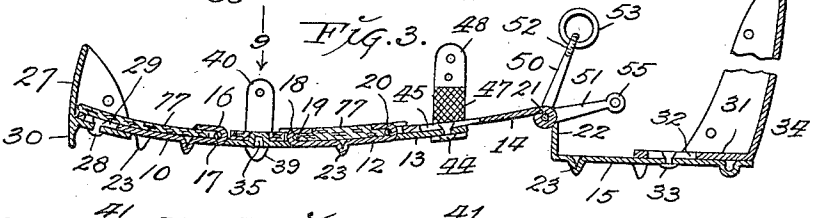


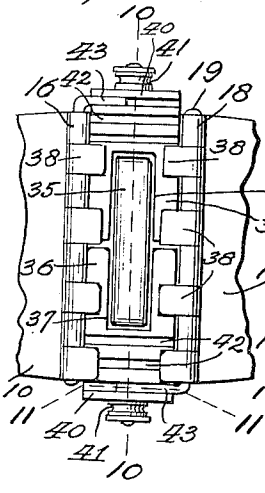


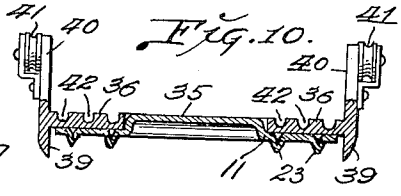


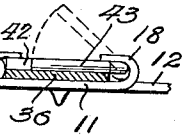












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Patented Feb. 9, 1937 2,070,093

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2,070,093

SPIKED SANDAL

Charles Oscar Roe, Redondo Beach, Calif.

Application November 6, 1935, Serial No. 48,479

12 Claims. (Cl. 36—7.6)

My invention relates to a spiked sandal and the principal object of my invention is, to provide a relatively simple, practical, strong and durable all-metal sandal that is adapted to be applied to boots and shoes for the purpose of protecting the same against excessive wear and to provide sure footing for persons working or walking on soft slippery or rocky ground.

Further objects of my invention are, to provide a spiked sandal that may be easily and quickly applied to or removed from the boot or shoe and the sandal being constructed so that it has a wide range of adjustment in order that it may be readily applied to boots and shoes of different sizes.

A further object of my invention is, to construct the sandal with easily and conveniently manipulated means for firmly securing and holding the sandal in proper position upon a boot or shoe.

Spiked sandals of my improved construction are particularly adapted for the use of soldiers while marching over soft, sandy or rocky ground, also by workmen in foundries, ice plants or where concrete or asphalt pavement or foundations are being laid or wherever it is desirable or necessary to protect the boots and shoes of workmen or wearers and to prevent slipping and resultant accidents.

With the foregoing and other objects in view my invention consists in certain novel features of construction and arrangements of parts that will be hereinafter more fully described and claimed and illustrated in the accompanying drawing in which:

Fig. 1 is a side elevational view of a spiked sandal constructed in accordance with my invention and showing the same applied to a shoe.

Fig. 2 is a view looking against the underside of the sandal.

Fig. 3 is a longitudinal cross section taken on the line 3—3 of Fig. 2.

Fig. 4 is a horizontal section taken on the line 4—4 of Fig. 1.

Fig. 5 is a front elevational view of the ratchet device utilized for winding and tightening the binding cables that secure the sandal to the boot or shoe.

Fig. 6 is a vertical section taken on the line 6—6 of Fig. 5.

Fig. 7 is a vertical section taken on the line 7—7 of Fig. 6.

Fig. 8 is a rear elevational view of the rotating member of the ratchet winding device.

Fig. 9 is an enlarged plan view taken looking in the direction indicated by the arrow 9 in Fig. 3.

Fig. 10 is a cross section taken on the line 10—10 of Fig. 9.

Fig. 11 is a cross section taken on the line 11—11 of Fig. 9.

Referring by numerals to the accompanying drawing which illustrates a preferred embodiment of my invention, 10 designates a front sole plate, 11 and 12 intermediate sole plates, 13 a rear sole plate, 14 an instep plate and 15 a heel plate. All of these plates are formed of tough wear resisting metal and when properly assembled they conform to the shape of the undersurfaces of the sole and heel of a boot or shoe.

The rear edge of plate 10 is connected to the front edge of plate 11 by a conventional hinge 16 that includes a hinge pin 17 that rotates freely within the loops formed on the adjacent edges of the plates and the rear edge of plate 11 is connected to the forward edge of plate 12 by a similar hinge 18 that includes a rotating hinge pin 19.

The rear edge of plate 12 is connected to the forward edge of plate 13 by a hinge 20 and the read edge of the instep plate 14 is connected by a hinge 21 to a short vertically disposed wall 22 that is formed integral with and projects upwardly from the heel plate 15. This wall 22 occupies a position against the front face of the boot or shoe heel.

Pressed from the metal forming the plates 10, 12 and 15, are downwardly projecting pointed prongs 23 that engage the surface upon which the wearer of the sandal is walking or standing and thereby preventing slipping of the sandal upon the surface.

Mounted on the front end of plate 10, is a boot or shoe protecting plate 27 which is substantially L-shape in vertical cross section and which is curved lengthwise so as to conform to the curvature of the forward end of said plate 10 and the toe portion of the boot or shoe to which the sandal is applied.

The horizontally disposed portion of this toe plate underlies the front portion of plate 10 and a pin or ratchet 28 is seated in the underlying portion of said toe plate and extends upwardly through a short longitudinally disposed slot 29 that is formed in plate 10. This arrangement permits the toe protecting plate to move lengthwise for a limited distance upon plate 10 for the accommodation of boots or shoes of different lengths.

The upstanding curved portion of the toe plate 27 overlies the front portion of the boot

or shoe to which the sandal is applied, thereby protecting the same against wear.

Formed integral with the front portion of the underlying member of toe plate 27, is a transversely disposed depending prong 30 which is shaped somewhat similar to the toe calk of a horseshoe.

Mounted on top of the rear portion of heel plate 15, is a metal plate 31 in the forward portion of which is formed a short longitudinally disposed slot 32 and passing through said slot and seated in the heel plate 15 is a pin or rivet 33.

Formed integral with and projecting upwardly from the rear portion of plate 31 is a heel protecting plate 34 that is curved in horizontal section so as to fit snugly against the heel portion of the boot or shoe to which the sandal is applied.

The pin and slot connection between plate 31 and the heel plate 15, enables the heel protecting plate 34 to be adjusted lengthwise on the heel plate for a limited distance for the accommodation of boots and shoes of different lengths.

The intermediate portion of plate 10 is pressed upwardly to form a rib 35 that extends longitudinally of said plate and mounted for sliding movement on top of said plate and overlying the end portions thereof, are plates 36, the inner ends of which are slotted as designated by 37, for the accommodation of the rib 35.

These plates 36 are retained for sliding movement on the plate 11 by portions of the loops of hinges 16 and 18 that extend over the edges of the plates 36, as designated by 38.

Formed integral with the outer ends of the plates 36 are depending prongs or calks 39, which are designed to prevent side slippage of the sandal while in use.

Formed integral with and projecting upwardly from the ends of the plates 36, are short arms 40 and mounted for rotation on the outer faces of the upper portions of these arms, are small grooved pulleys 41.

Formed in the upper surfaces of the end portions of the plates 35, are transversely disposed grooves 42 and which grooves are adapted to receive the end portions 43 of the rotatably mounted hinge pins 17 and 19 and which end portions are bent at right angles to the main body portions of said hinge pins.

One of the hinge pin ends 43 is adapted to engage in the grooves 42 in one of the plates 36 and the other bent end portion 43 is adapted to engage in the grooves of the other plate. Thus when the members 43 are turned downward so that they engage in the grooves, the plates 36 are effectively held against longitudinal movement.

The hinge pins 17 and 19 are held against longitudinal movement through the hinge loops 16 and 18 with which they are associated, by a head that is formed on one end of each pin and by the portion 43 which is bent at right angles at the opposite end of the pin.

By providing a plurality of the grooves 42 in each plate, a wide range of adjustment is obtainable for boots and shoes of different widths.

The forward portion of plate 14 overlies the rear portion of plate 13 and a ratchet 44 that is seated in plate 43 projects upwardly through a short longitudinally disposed slot 45 that is formed in plate 14. Thus the length of the sandal body comprising the connected plates may be adjusted for the accommodation of boots or shoes of different lengths.

Suitably secured to the underside of plate 13 at the rear corners thereof, are small plates 46 and connected to the outer ends thereof, are short upwardly projecting flexible members 47, preferably formed of woven wire.

Secured to the upper ends of these short flexible members, are small plates 48, on the outer faces of which are mounted for rotation small grooved pulleys 49.

Mounted to rotate freely on the ends of the pin that is associated with hinge 21, are V-shaped members comprising arms 50 and 51. The arms 51 project rearwardly alongside the heels to the boot or shoe to which the sandal is applied and the arms 50 project upwardly and rearwardly alongside the front portions of the heels. The upper ends of arms 50 terminate in eyes 52 and carried by each eye is a ring 53.

A flexible member 54, preferably a small wire cable, has one end connected to ring 53 and said cable passes through an eye 55 that is formed on the end of arm 51 and the rear end of said flexible member is secured to the lower portion of the wall 34 that projects upwardly from plate 31.

A flexible member 55, preferably a small wire cable, connects each ring 53 with the upper portion of the upstanding plate or wall 34.

Each ring 53 passes through an eye 56 that is carried by a small plate 57 and mounted for rotation on the outer face of the upper portion of each of these plates, is a small grooved pulley 58.

A spat-like member 59 of flexible material, preferably leather, is shaped so as to overlie the ankle portion of the boot or shoe and to extend downwardly over the instep and along the sides of the shoe upper just above and in front of the heel thereof and the rear end portions of this member overlap one another to the rear of the ankle encircling portion of said member (see Fig. 4).

Applied to the outer face of this member adjacent its upper edge, are keepers 60, which may be either leather or metal and passing through said keepers, is a strap 61. One end of this strap carries a buckle 62, through which passes the free end of the strap, thus securing the spat-like member in proper position upon the boot or shoe.

Suitably secured on top of the forward end portion of member 59 or that portion that overlies the front portion of the instep of the boot or shoe, is a transversely disposed plate 63 of flexible metal and mounted for rotation on the ends of said members are small grooved pulleys 64.

A short strap 65 or flexible metal is adapted to overlie the toe portion of the boot or shoe to which the sandal is applied and mounted for rotation on the upper face of this strap adjacent its ends, are small grooved pulleys 66.

Secured to the front of member 59 on that portion above the rear of the instep and in front of the ankle, is a plate 67 and formed through the center thereof, is a threaded aperture 68.

Projecting forwardly from the front face of this plate at points equi-distant from the threaded aperture, are two or more recesses 69, in which are seated small balls 70 that project beyond the face of the plate. In some instances it may be found desirable to utilize small hemispherical lugs that project forwardly from the plate instead of the balls.

Mounted to rotate freely on the front face

of plate 67, is a circular knob 71, provided in its periphery with a pair of circumferential grooves 72.

Formed in the rear face of this knob is a circular row of recesses 73 that are adapted to receive the balls 69 or the lugs that project from the plate 67.

A screw 74 passes through the center of knob 71 and the threaded portion of said screw is seated in the threaded aperture 68. Thus when the screw is loosened knob 71 may be freely rotated on the plate and when the screw is tightened, the balls 69 or the lugs projecting from plate 67 will engage in the recesses 73, thereby functioning as a ratchet to hold the knob against rotation.

Seated in the groove 72 and secured to the knobby means of pins or keys 75 that are driven into apertures formed in the knob, are the ends of a pair of flexible members 76, preferably wire cables. These flexible members 76 project laterally in opposite directions from the knob and said members pass respectively beneath the pulleys 58 and 49 over the pulleys 64, thence beneath the pulleys 41, thence over the pulleys 66 and the forward ends of said cables are suitably secured to the ends of the upstanding member of the toe plate 27.

Overlying the plates 10 and 12, are layers 77 of cork, rubber composition or the like to provide a firm support and bearing for the undersurface of the boot or shoe to which the sandal is applied.

In applying the sandal to a boot or shoe, the free end of strap 61 is disengaged from buckle 62 and said strap is withdrawn from one of the keepers 60 in order that the spat-like member may be positioned around the ankle portion of the boot or shoe and screw 74 is loosened to permit knob 71 to be rotated so as to produce slack in the cables 76.

The spat is now applied to the boot or shoe of the wearer with the front portion of the boot or shoe extending beneath the transverse strap 65 and with the toe portion positioned against plate 27.

Knob 71 is now rotated so as to wind the cables 76 into the grooves 72 of the knob, thereby taking up the slack in said cables and tightening the same and this movement draws the ends of the transverse straps 63 and 65 downward and the members 40, 47, 48 and 57 are drawn upwardly so as to cause the sole and heel engaging plates of the sandal to fit tightly against the sole and heel of the boot or shoe.

As members 57 are drawn upwardly and forwardly, the arms 50 and 51 will be swung forwardly, thereby pulling on the cables 54 and 55 so as to draw the heel engaging plate 34 into close engagement with the heel portion of the boot or shoe.

After the cables 76 have been drawn to the proper degree of tightness on the knob 71, screw 74 is tightened or screwed into the base plate 67 and the engagement of the balls 69 in the recesses 73 in the knob serve to lock the same against rotary motion in both directions.

The end of strap 61 is now engaged in buckle 62 so as to cause the spat to fit snugly around the ankle of the wearer and the sandal is now ready for use.

Inasmuch as the sole portion of the sandal is connected to the heel portion by the hinge 21 and the various plates of the sole portion are connected by hinges 16, 18 and 20, the sandal has the necessary degree of flexibility to yield readily with the sole portion of the boot or shoe while the wearer is walking or running.

The prongs and calks that depend from the various parts of the sandal are highly effective in preventing the wearer from slipping while walking or running over soft or slippery surfaces and the heel and sole covering plates being formed of hard wear resisting metal, they function to prevent rapid and excessive wear on the heels and soles of the footwear to which the sandals are applied.

The plates 36 that are mounted for sliding movement on the sole plate 11 may be readily adjusted for the accommodation of boots or shoes of different widths and after such adjustment, said plates are held in their adjusted positions by the engagement of the laterally bent ends 43 of the hinge pins in hinges 16 and 18 and which laterally bent ends engage in the grooves 42.

The pin and slot connections 28 and 29, 32 and 33 and 44 and 45 provide simple means for adjusting the sandal so as to be applied to boots and shoes of different lengths.

Thus it will be seen that I have provided a spiked sandal that may be easily and quickly applied to or removed from boots and shoes and which sandal is of strong and durable construction, inexpensive of manufacture and very effective in performing the functions for which it is intended.

It will be understood that minor changes in the size, form, and construction of the various parts of my improved spiked sandal may be made and substituted for those herein shown and described without departing from the spirit of the invention, the scope of which is set forth in the appended claims.

I claim as my invention:

1. In a spiked sandal, an articulated sole, an instep plate adjustably connected to the rear portion of said articulated sole and an upstanding toe plate adjustably connected to the forward portion of said articulated sole plate.

2. In a spiked sandal, an articulated sole, an instep plate adjustably connected to the rear portion of said articulated sole, an upstanding toe plate adjustably connected to the forward portion of said articulated sole plate, a plate hinged to the rear edge of said instep plate and adapted to underlie the heel of the shoe to which the sandal is applied and an upstanding heel engaging plate mounted for longitudinal adjustment upon said last-mentioned plate.

3. In a spiked sandal, an articulated member comprising a plurality of hingedly connected plates adapted to underlie the sole and heel of a boot or shoe, a spat adapted to be applied to the ankle portion of the boot or shoe, flexible members connected to the sides of the articulated sole and heel engaging member and a grooved knob mounted for rotation on the spat and to which knob the ends of the flexible members are connected for imparting tension to said flexible members and thereby secure the articulated sole and heel engaging member upon the shoe or boot.

4. In a spiked sandal, an articulated member comprising a plurality of hingedly connected plates adapted to engage the underface of the sole of a boot or shoe, a pair of plates arranged for sliding movement toward and away from each other upon one of the parts of said articulated member the outer portions of which sliding

plates are provided in their upper faces with grooves and means carried by said articulated member and adapted to be selectively engaged in said grooves for securing said sliding plates in differently adjusted positions.

5. In a spiked sandal, an articulated member comprising a plurality of hingedly connected plates adapted to engage the underface of the sole of a boot or shoe, a pair of plates arranged for sliding movement toward and away from each other upon one of the parts of said articulated member the outer portions of which sliding plates are provided in their upper faces with grooves, means carried by said articulated member and adapted to be selectively engaged in said grooves for securing said sliding plates in differently adjusted positions and calks depending from the outer end portions of said sliding plates.

6. In a spiked sandal, a plurality of sole plates, transversely disposed hinges connecting said sole plates, an upstanding toe protecting plate adjustably mounted on the forward portion of the forward one of said sole plates, an instep plate adjustably connected to the rear one of the sole engaging plates, a heel plate arranged to the rear portion of said instep plate and an upstanding heel engaging plate adjustably mounted on the rear portion of said heel plate.

7. In a spiked sandal, a plurality of sole plates, transversely disposed hinges connecting said sole plates, an upstanding toe protecting plate adjustably mounted on the forward portion of the forward one of said sole plates, an instep plate adjustably connected to the rear one of the sole engaging plates, a heel plate arranged to the rear portion of said instep plate, an upstanding heel engaging plate adjustably mounted on the rear portion of said heel plate and spikes formed integral with and depending from certain of said sole plates and said heel plate.

8. In a spiked sandal, a plurality of sole plates, transversely disposed hinges connecting said sole plates, an upstanding toe protecting plate adjustably mounted on the forward portion of the forward one of said sole plates, an instep plate adjustably connected to the rear one of the sole engaging plates, a heel plate arranged to the rear portion of said instep plate, an upstanding heel engaging plate adjustably mounted on the rear portion of said heel plate and flexible means secured to said sole plates, said toe protecting plate and said upstanding heel plate for securing the sandal to a boot or shoe.

9. In a spiked sandal, a plurality of sole plates, transversely disposed hinges connecting said sole plates, an upstanding toe protecting plate adjustably mounted on the forward portion of the forward one of said sole plates, an instep plate adjustably connected to the rear one of the sole engaging plates, a heel plate arranged to the rear portion of said instep plate, an upstanding heel engaging plate adjustably mounted on the rear portion of said heel plate, spikes formed integral with and depending from certain of said sole plates and said heel plate and flexible means secured to said sole plates, said toe protecting plate and said upstanding heel plate for securing the sandal to a boot or shoe.

10. In a spiked sandal, a plurality of sole plates, transversely disposed hinges connecting said sole plates, an upstanding toe protecting plate adjustably mounted on the forward portion of the forward one of said sole plates, an instep plate adjustably connected to the rear one of the sole engaging plates, a heel plate arranged to the rear portion of said instep plate, an upstanding heel engaging plate adjustably mounted on the rear portion of said heel plate, a spat, flexible members connected to said sole plates, toe protecting plate and upstanding heel engaging member and adjustable means secured on the spat and connected to said flexible members for drawing the latter taut to secure the sandals on the boot or shoe.

11. In a spiked sandal, the combination with a spat, of a longitudinally adjustable articulated member adapted to be positioned against the underside of the sole and heel of a boot or shoe, flexible connections between said articulated member and said spat and a grooved knob mounted for rotation on the spat and to which knob the ends of the flexible members are connected for producing tension in said flexible members and thereby secure the articulated member on a boot or shoe.

12. In a spiked sandal, the combination with a spat, of a longitudinally adjustable articulated member adapted to be positioned against the underside of the sole and heel of a boot or shoe, flexible connections between said articulated member and said spat, a grooved knob mounted for rotation on the spat and to which knob the ends of the flexible members are connected for producing tension in said flexible members and thereby secure the articulated member on a boot or shoe and means on the upper portion of the spat for securing the same around the ankle portion of a boot or shoe.

CHARLES OSCAR ROE.