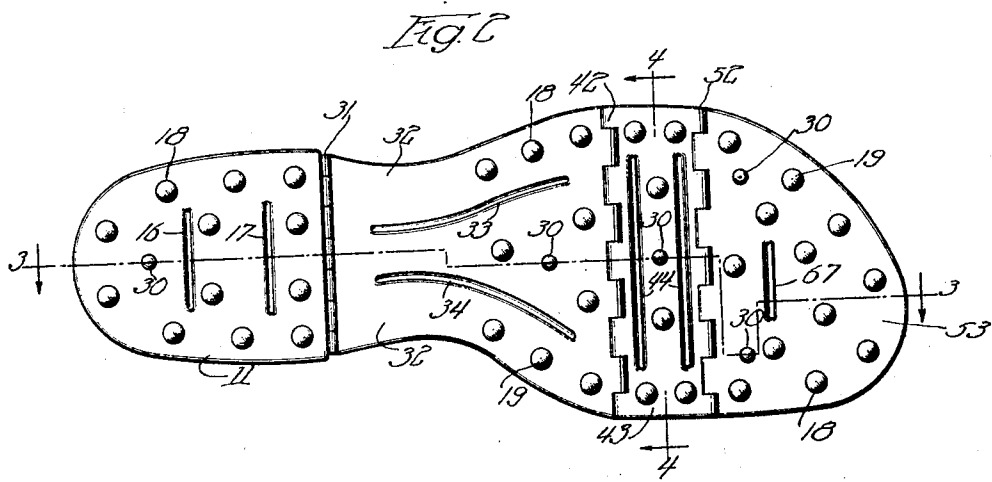
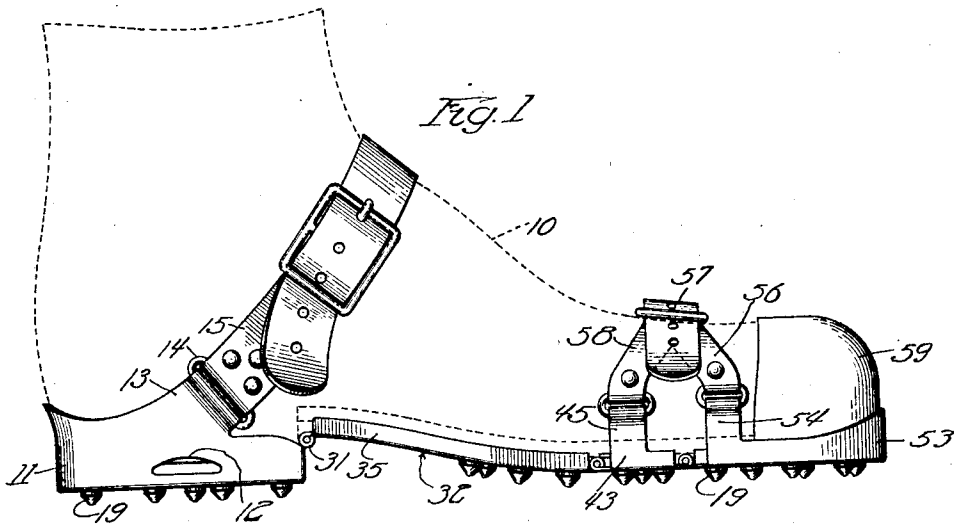


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APPLICATION FILED DEC. 22, 1919.

Patented Aug. 2, 1921.  
2 SHEETS—SHEET 1.

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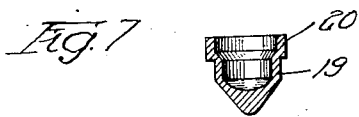
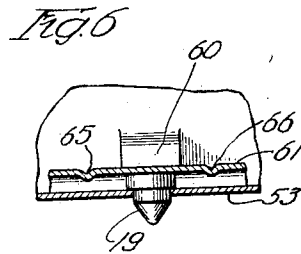
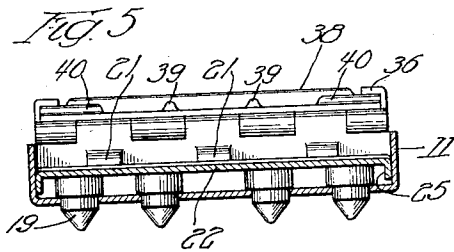
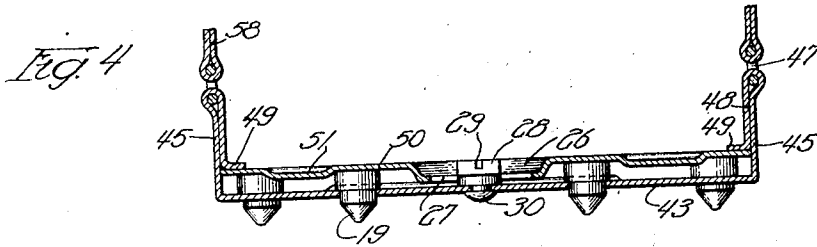
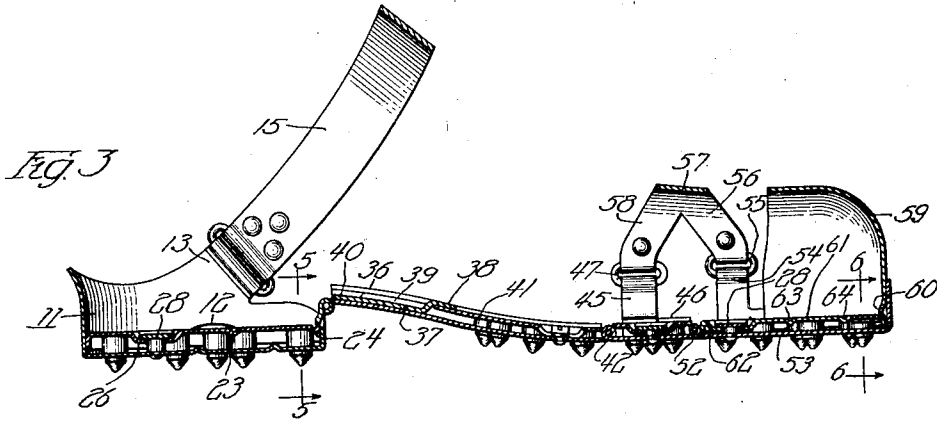


Inventor  
Charles O. Roe  
By Gabel & Mueller  
Attys.

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Inventor  
 Charles O. Roe  
 by Gabriel & Mueller, Attys.

# UNITED STATES PATENT OFFICE.

CHARLES O. ROE, OF INDIANAPOLIS, INDIANA, ASSIGNOR TO ROE METAL SANDAL COMPANY, OF MILWAUKEE, WISCONSIN.

## SANDAL.

1,386,028.

Specification of Letters Patent.

Patented Aug. 2, 1921.

Application filed December 22, 1919. Serial No. 346,623.

*To all whom it may concern:*

Be it known that I, CHARLES O. ROE, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented a certain new and useful Improvement in Sandals, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to sandals and more particularly to a sandal which is adapted to be worn with boots or shoes in order to protect the soles thereof and to provide a roughened walking surface which will enable the user to walk over rough or slippery surfaces without danger of slipping or falling.

It is an object of my invention to provide a sandal of the character set forth which may be readily attached to the foot of the wearer exteriorly of the shoe and which is provided with a plurality of removable sharpened calks or spurs which may be replaced by others when they become worn out or dull.

It is a further object of the invention to provide a metallic sandal which is made up of a plurality of yieldably or flexibly united sections which conform to the movements of the foot of the user during walking movements.

It is a further object of the invention to provide readily detachable means for holding the removable calks or spurs in position, which readily detachable means bear at all times against the heads of the calks or spurs in order to hold them in projecting position on the sandal.

With these and other objects in view which will be apparent from the detailed description of the sandal disclosed in the drawings, I have shown one form which my invention may take which form is the best known to me at the present time and is an improvement upon the sandal shown in my former Patent No. 1,276,964 issued August 27, 1918. However it is to be understood that by this specification and the accompanying drawings I do not intend to limit myself to the specific construction disclosed as modifications in the specific structure may be required in the manufacture thereof or may occur to those skilled in this art. The real nature and scope of the invention disclosed

is to be determined from the claims appended to this specification.

The same characters have been used to designate the same parts throughout the several views of the drawings in which—  
Figure 1 is a side elevation of my improved sandal shown attached to a shoe.

Fig. 2 is an exterior bottom plan view of the sandal looking upwardly in Fig. 1.

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

Fig. 4 is a transverse section taken on line 4—4 of Fig. 2.

Fig. 5 is a transverse section taken on line 5—5 of Fig. 3.

Fig. 6 is a section through the toe portion of the sandal taken on line 6—6 of Fig. 3.

Fig. 7 is a sectional view of one of the removable calks or spurs.

In the drawings the numeral 10 designates an ordinary shoe to which my improved sandal may be attached. My sandal is preferably made of metal and in order that it may be flexible it is made in a plurality of yieldably or flexibly connected sections. The heel section 11 is formed from a single piece of metal which is stamped substantially into cup shape as shown in the drawings. The section 11 is of a size and shape to accommodate the heel portion of the shoe 10. The heel portion is provided with openings 12 which will permit the escape of dirt or water that may get into the heel section. Each side of the heel is provided with an ear 13 and the end of the ear is bent into an eyelet 14 which forms a convenient attaching means for the strap 15 by means of which the heel section is secured to the foot of the wearer. The bottom of the heel section is provided with upwardly extending ribs 16 and 17 which ribs extend transversely of the heel section as shown in Fig. 2 in order to reinforce and strengthen the bottom of the heel section. The bottom of the heel section is also provided with a plurality of perforations 18 which are adapted to receive sharpened calks or spurs 19 which project downwardly through the perforations 18 as shown in Fig. 3. The calks or spurs 19 are made hollow as shown in Fig. 7 in order that they may be light although of comparatively large diameter. Each calk or spur is provided with a head 20 which may rest against the upper surface of the bottom of the heel section as shown in Fig. 3. The forward

edge of the heel section is provided with inwardly bent fingers 21, three of such fingers being shown in Fig. 5 of the drawings. These fingers cooperate with a removable plate 22 to hold the calks in position in the perforations 18. The plate 22 is provided with a transverse depressed rib 23 which is shown in Fig. 3 and strengthens the plate and prevents bending of the same. The forward edge of the plate 22 is bent downwardly and then upwardly as shown at 24 in order to provide a square edge to cooperate with the fingers 21 to hold the forward edge of the plate 22 in position on top of the calks. The side and rear edges of the plate 22 are bent downwardly as shown at 25 in Fig. 5. The plate 22 is provided further with a circular depressed portion 26 which has extending thereacross a slot 27 which slot is adapted to receive a locking key 28, which key is provided in its upper surface with a slot 29 in which a screw driver may be inserted to turn the key from its position in alignment with the slot 27 to a position transversely of the slot. The key 28 extends through the bottom plate of the heel section and its lower end is formed into a head 30 which prevents removal of the key but permits rotation of the key on the heel section. The top surface is flush with the upper surface of the plate 22 as will be apparent from Fig. 3 of the drawings. The depressed ribs 16, 17 and 23 extend toward each other but are of less depth than the thickness of the head 20. The depressed ribs 16, and 17 therefore do not contact with the plate 22 and the depressed rib 23 does not touch the bottom plate of the heel section. Likewise the downwardly turned edges 25 of the plate 22 do not contact with the bottom plate of the heel section. This is necessary in order that the plate 22 may bear firmly against the heads of the calks. Along the forward edge of the heel section is formed a hinge portion 31 which cooperates with a similar hinge portion on the instep section 32 of the sandal. The heel and instep sections are therefore yieldably or flexibly connected. The instep section is shaped as shown in Fig. 2 and is provided with upwardly bent ribs 33 and 34 which extend longitudinally of the section and reinforce the same. The edges of the instep section are bent upwardly as shown at 35 in Fig. 1 and then inwardly as shown at 36 in Fig. 3. These bent over portions of the instep section also serve to reinforce the same in order to provide a rigid section. Extending across the rear portion of the instep section and confined beneath the bent over edges 36 is a small plate 37 whose forward edge is bent upwardly as shown at 38 in Fig. 3. The plate 37 has two longitudinally extending grooves 39 formed therein which grooves are adapted to accommodate the rear ends of the ribs 33 and 34. Adjacent the edges of the plate 37 are formed reinforcing ribs 40 which ribs 40 lie adjacent the edges 36. The grooves 39 and ribs 40 stiffen the plate 37 so that the plate will cooperate with the instep section 32 to form a rigid structure at this point of the sandal which is usually subjected to the greatest strain. The hinge 31 permits relative movement between the sections 11 and 32 and will prevent breaking at this point.

The instep section has its forward portion provided with a number of perforations 18 which are adapted to receive calks or spurs 19 such as described above. These calks are maintained in position within the perforations by means of a removable plate 41 which extends beneath the edges 36 and is held in position by means of a key 28 similar to that described above. The rear edge of the plate 41 extends beneath the upwardly turned edge 38 of the plate 37. Edges 36 and 38 and the key 28 serve to hold the plate 41 and the calks in position on the section 32.

Pivotaly connected to the forward edge of the instep section 32 by means of a transversely extending hinge 42, is a ball section 43. This ball section is provided with upwardly extending transverse ribs 44 which strengthen and reinforce the section. The section is also provided with perforations 18 to receive calks 19. The edges of the section 43 are bent upwardly as shown at 45 in Fig. 4. A portion of each edge is cut away and then bent inwardly to form an inwardly extending edge 46 as shown in Fig. 3. The remaining portion of each edge extends upwardly some distance and is then bent through the eyelet 47, downwardly as shown at 48 and inwardly as shown at 49 in order to provide an inwardly extending edge which cooperates with the edge 46 to hold the removable plate in position. This plate 50 is provided with depressed ribs which stiffen the plate and prevent bending of the same. The plate 50 is provided with a depressed portion and slot adapted to receive a key 28 such as described above. The edges 46 and 49 and the key 28 serve to hold the plate and the calks in position on the ball section 43.

Pivotaly connected to the forward edge of the ball section by means of the hinge 52 is a toe section 53. This toe section is formed of a single piece of material having its edges bent upwardly as shown in the drawings. The section will, of course, be shaped to fit the toe of the shoe. Near the rear end of the section is provided an upwardly extending ear 54 which is bent through an eyelet 55 to which one leg 56 of a forked strap 57 is attached. The other leg 58 of the strap is suitably secured to the eyelet 47 on the ball section.

In order that the toe section may be more securely attached to the shoe and in order that means may be provided for protecting the toe of the shoe a toe piece 59 is provided. This is shaped as shown in the drawings and may be secured to the upwardly turned edges of the section 53 by means of rivets or preferably by being spot welded thereto. Within the toe piece 59 there is provided an inwardly bent finger 60 as shown in Fig. 3. This finger engages the forward edge of a removable plate 61 which is shaped to fit the toe section and cover the calks as shown in Fig. 3. The edges of the plate 61 are bent downwardly as shown at 62 except where the plate engages the finger 60. At this point the edge of the plate extends horizontally in order that it may more securely engage beneath the finger 60. The plate 61 is provided with two transverse depressed ribs 63 and 64 and two longitudinally extending depressed ribs 65 and 66. The ribs 63 and 64 strengthen the plate against transverse bending and the ribs 65 and 66 reinforce the plate adjacent the finger 60. The plate 61 is also provided with two depressed rib portions having slots 27 adapted to receive keys 28 which cooperate with the finger 60 to hold the plate 61 in position on the section 53. The bottom portion of the toe section 53 is provided with a transversely extending rib 67 which forms a strengthening rib for the bottom plate. The downwardly turned edges 62 of the plate 61 are spaced a slight distance from the bottom plate of the section 53 so that the removable plate 61 will bear firmly against the heads of the calks and the plate 61 will not be supported by the downwardly turned edges 62. Likewise the ribs 63, 64, 65 and 66 do not engage the bottom plate of the toe section.

From what has been described it will be apparent that I have provided a flexible metallic sandal which may be attached to the exterior of the shoe of the wearer and in which the calks or spurs may be readily removed after they become dull or worn out. When it is desired to remove or change the calks in the heel section it is only necessary to turn the single key 28 of the heel section whereupon the plate 22 may be readily removed. New calks can be inserted and the plate again locked in position by turning the key 28 a fourth of a turn. When it is desired to change the calks in the instep section the single key 28 formed thereon may be turned until it extends longitudinally of the section. The slot 27 in the plate 41 extends longitudinally of the section as will be clear from Fig. 3. The plate 41 may then be slid forwardly from beneath the edges 36 and 38 and the calks removed. The reverse operation will, of course, be necessary to replace the plate 41. When it is desired to remove the calks of the ball section 43 the key 28

of this section will be turned until it extends transversely of the sandal and is in alignment with the slot 27. The middle portion of the plate 50 may then be bent upwardly beyond the top of the key and the plate can then be slid backwardly from beneath the edges 46 and 49. When it is desired to remove the plate 61 of the toe section the keys 28 thereon will be turned until their heads extend transversely of the sandal and are in alignment with the transversely extending slots in the plate 61. The forward edge of the plate 61 will then be lifted upwardly and the plate drawn out from beneath the finger 60. The reverse operation will, of course, be necessary to replace the plates 50 and 61.

Inasmuch as all of the plates are reinforced by means of ribs and as the calks 19 are made hollow it will be apparent that the sandal although it is made of metal, will not be heavy. It may be readily attached to the foot of the wearer by means of the two straps 15 and 57. The toe piece 59 will protect the toe of the shoe and the hinges 31, 42 and 52 will permit the several sections of the sandal to conform to the movements of the foot of the wearer. The locking plates for the calks may be easily removed by turning the keys by means of an ordinary screw driver or a similar implement.

Having thus described my invention what I claim as new and desire to secure by United States Letters Patent is:

1. In a sandal of the character described, a ball section comprising a perforated plate, headed calks or spikes slidably and removably mounted in the perforations of said ball section, a retaining plate within said perforated plate engaging the heads of said calks or spikes, means on said retaining plate for spacing the same from said perforated plate, and means carried by said perforated plate and engaging said retaining plate for detachably holding said retaining plate in calk retaining position.

2. A sandal of the character described comprising a heel section having upwardly extending edges, perforations formed in the bottom portion of said heel section, calks positioned in said perforations, a finger formed on the forward edge of said heel section, a single key carried by the bottom portion of said heel section and a removable plate held in position upon said calks by means of said finger and said key.

3. A device of the character described comprising a heel section having upstanding edges, means formed upon certain of said edges for attaching straps by means of which the heel section may be secured to the foot of the wearer, removable calks carried by said heel section, holding fingers formed on a single edge of said heel section, a removable plate engaging beneath said fingers

and means cooperating with said finger to hold said plate in position upon said calks.

4. A sandal of the character described comprising an instep section having upwardly and inwardly turned edges longitudinally extending reinforcing ribs formed in said section, a plate positioned beneath the inwardly turned edges and having grooves to accommodate said ribs, calks removably carried on said section, a removable plate insertible beneath said inwardly turned edges for holding said calks in position, and means carried by said section for preventing accidental displacement of said removable plate.

5. A device of the character described comprising a heel section, an instep section hingedly connected to said heel section, inwardly turned edges on said instep section, perforations formed in said instep section, calks positioned in said perforations, a removable plate insertible beneath said inwardly turned edges and resting upon said calks, and a single means to lock said plate against accidental displacement.

6. A sandal of the character described comprising a heel section having upwardly extending edges, perforations formed in the bottom portion of said heel section, a finger formed on one edge of the heel section, calks positioned in said perforations, a single plate member resting upon said calks and having one edge positioned beneath said finger, and a single key member for removably holding said plate in position within said heel section.

7. A sandal of the character described comprising an instep section, calks removably mounted in the instep section, inwardly turned edges formed on said instep section, a single plate member insertible beneath said inwardly turned edges and resting upon said calks and a single key member for holding said plate in position with its edges beneath said inwardly turned edges.

8. A sandal of the character described comprising a toe section having upwardly turned edges, a toe piece secured to said edges, calks removably held in said toe section, a single finger formed on said toe piece, a plate having its forward edge positioned beneath said finger, and keys formed on said toe section for locking the plate in position upon said calks.

9. A sandal of the character described comprising a toe section having a perforated bottom portion and upwardly turned edges, strap engaging means formed on said edges,

a toe piece carried by said toe section, calks positioned in the perforations of said bottom portion, a single finger formed on the toe piece, a removable plate for holding said calks in position in said perforations, and having its forward edge positioned beneath said finger, and means carried by said toe section for locking the rear edge of said removable plate in position upon said calks.

10. A device of the character described comprising a lower perforated plate, removable calks positioned in said perforations, a plate resting upon said calks, means for locking said plate to the perforated plate and reinforcing ribs formed in each plate, the reinforcing ribs of each plate being out of contact with the other plate.

11. A sandal of the character described comprising a toe section having an upwardly turned edge, said upturned edge being provided with a widened portion, and a toe piece spot welded to said edge at said widened portion, said toe piece being provided with a single inwardly bent finger for receiving a calk holding plate therebeneath below said spot weld.

12. A sandal comprising a heel section, an instep section pivotally connected to the heel section, inwardly turned edges formed on said section, a reinforcing plate carried by said instep section adjacent the heel section, and having its edges positioned beneath said inwardly turned edges, perforations in said section, calks positioned in said perforations, a plate for retaining said calks in said perforations, said plate extending beneath said inwardly turned edges at its sides, and extending beneath said reinforcing plate at its rear and means for locking said calks and plate against accidental displacement.

13. In a sandal of the character described, a ball section comprising a perforated plate, headed calks or spikes slidably and removably mounted in the perforations of said ball section, a retaining plate within said perforated plate engaging the heads of said calks or spikes, means on said retaining plate for spacing the same from said perforated plate and a single holding means carried by said perforated plate and engaging said retaining plate for detachably holding said retaining plate in calk retaining position.

In witness whereof I hereunto subscribe my name this 19th day of December, A. D., 1919.

CHARLES O. ROE.