

May 9, 1950

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2,506,801

SPIKE FOR SHOES

Filed Dec. 4, 1947

Fig. 1.

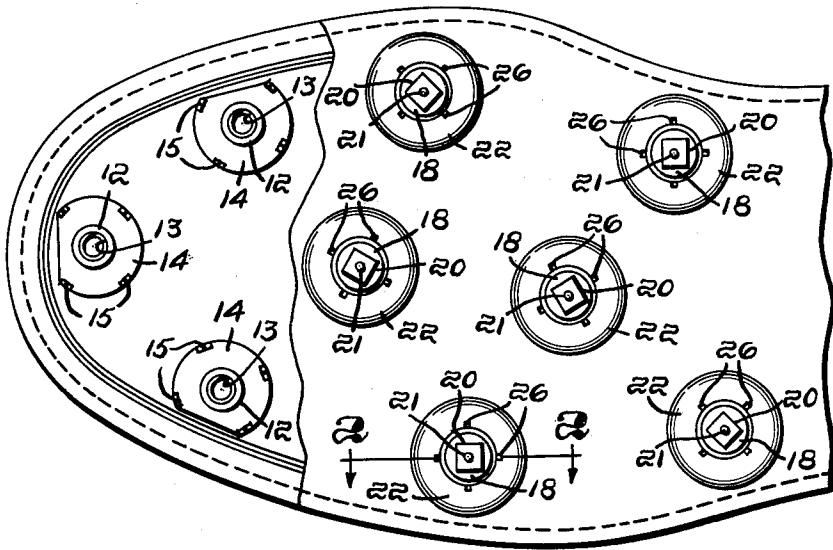
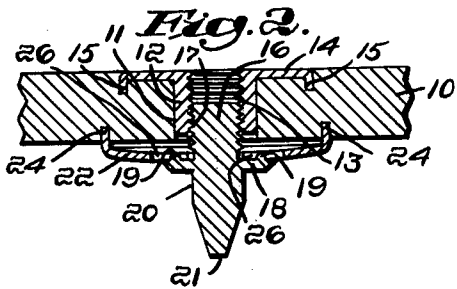


Fig. 4.

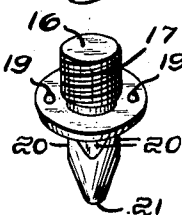


Fig. 3.

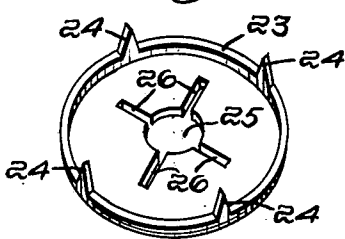
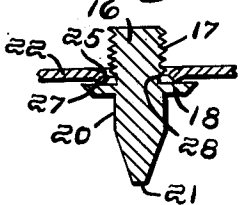


Fig. 5.



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UNITED STATES PATENT OFFICE

2,506,801

SPIKE FOR SHOES

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Application December 4, 1947, Serial No. 789,689

3 Claims. (Cl. 36—59)

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This invention relates to an improved means for mounting spikes in the sole of a sports shoe or the like, and has for its main object to provide spike mounting means which will effectively resist the tendency of the spikes to twist out of the sole in service and become lost.

A further object is to provide spike mounting means which will enable the spikes to conform to the contour or flexing of the shoe sole so that the shoe will always be comfortable to the wearer even though the sole may have become warped or distorted.

Other objects and advantages will appear as this description proceeds.

In attaining my objects I provide the individual spikes with threaded shanks and attach them to the shoe sole by screwing the shanks into threaded receptacles embedded in the sole. In order to effectively anchor the spikes against bending, twisting or working loose in service, I provide each spike between its ends with a horizontal annular flange and loosely mount on the spike between said flange and the outer face of the shoe sole an anchoring disc which as the spike is threaded home into its receptacle is put under stress near its center and collapsed so as to exert a spring effect on its rim which forces the rim tightly into the sole.

By mounting the disc loosely on the shank of the spike so that it may rotate within the disc as it is being tightened, the disc can automatically adapt itself to the contour or flexing of the shoe. When the spike is finally tightened home in its socket however, the spike and the disc are interlocked together as a unit in the shoe sole by interlocking means on the disc and spike respectively which come into interengagement with each other as a result of the collapsing of the disc at its center under the torsional stress developed in screwing the spike home.

In the accompanying drawing wherein I have illustrated a preferred embodiment of my invention:

Figure 1 is a fragmentary plan view, partly broken away, of a shoe sole equipped with my invention.

Figure 2 is an enlarged vertical section through the sole, taken on line 2—2 of Fig. 1.

Figure 3 is a bottom perspective view of my anchor disc.

Figure 4 is a similar view of my spike, and

Figure 5 is a longitudinal sectional view through the spike-disc assembly.

I have indicated at 10 a shoe sole which may be of leather, rubber, composition or other suit-

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able material and may be embodied in any desired type of shoe, as a golf or other sport shoe, or a shoe to be worn by loggers, woodsmen, hunters, etc.

The shoe sole is provided with a plurality of through-and-through holes 11 at selected points over its area within which are mounted receptacles or sockets 12 which are internally threaded as at 13 and headed at their upper or inner ends as at 14 and provided with spurs or barbs 15 to be embedded in the top or inner surface of the sole. Preferably the sole is countersunk in the region of the holes 11 so that the heads 14 will lie substantially flush with the top surface of the sole.

Each spike has a shank 16 externally threaded as at 17 to cooperate with the internal threads of a socket member 12. Intermediate of its ends, each spike is provided with an annular flange 18 having on its inner or upper face one or more upstanding locking projections, as the lugs 19 or their equivalents. Preferably there are two lugs arranged opposite one another, although I do not wish to be confined to any particular number or arrangement of these locking projections.

Below the flange 18 the spike may be flattened off at spaced opposite points (here shown as four) about its circumference as indicated at 20 to receive a wrench for enabling the spikes to be screwed into and removed from the threaded sockets or receptacles 12, and below the flattened surfaces 20 the spike tapers to a pointed ground-engaging end 21.

Associated with each spike is an anchoring member preferably in the form of a disc 22 which may be concavo-convex in cross section and may have an upturned marginal rim or flange 23 provided at suitably spaced points with upstanding barbs or teeth 24 to be embedded in the material of the shoe sole at the outer face thereof.

Each disc 22 is provided with a central hole 25 of the diameter to loosely receive the threaded shank 16 of a spike and is made more flexible in the vicinity of such hole to enable it to be collapsed at its center when the spike is screwed home into its receptacle 12 and thereby exert a spring effect at its rim 23. Conveniently such increased flexibility may be given the disc by providing it with a plurality of radial slots 26 extending symmetrically from the hole 25 toward the rim or periphery of the disc. As here shown, there are four of such slots 26 arranged 90°

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apart, but I do not wish to be confined to any particular number or arrangement of slots.

In assembling my improved spikes, the shoe sole is first provided with the desired number of through-and-through holes 11 located as desired over the surface of the sole and a threaded receptacle 12 is inserted into each hole with the barbs 15 of its head 14 embedded in the upper or inner face of the sole. The required number of spikes, each with its anchoring disc 22 loosely assembled on its threaded shank 16, is then screwed into the threaded receptacles 12. As the spike is tightened in the socket the torsional pressure of the screw on the disc 22 tends to collapse the disc at its center and to set up a spring pressure at the rim of the disc effective to force the rim and its barbs 24 into the outer face of the shoe sole. At the start of this action the disc is free to rotate around the spike until the rim of the disc contacts the outer surface of the shoe sole. Further pressure forces the disc harder against the shoe sole, but inasmuch as the spike is free to rotate within the disc, the spike exerts but little torque on the disc until the flange 18 of the spike contacts the center of the disc and collapses it and thereby sets up a spring effect at the rim of the disc effective to drive the rim deeply into the shoe sole. This same collapsing action at the center of the disc also raises the slots 26 high enough for the lugs 19 of the spike flange 18 to eventually interlock with them. As shown in Fig. 2, the concavo-convex shape of the disc provides a spring action resiliency opposing pressure engagement of the flange 18, thereby providing a resilient ratchet action for the lugs 19. In this action, the lugs may ratchet past the slots for a few turns of the spike but eventually come to rest in an opposed pair of slots and thus lock the spike and the disc together as a rigid unit, after which the spike can be removed only by employing a wrench on the four flats 20.

While I have illustrated the spike flange 18 as provided with projections 19 for interlocking within the indentations or slots 26 of the disc 22, it will be understood that this construction might be reversed and the outer face of the disc provided with projections for interlocking in suitable indentations or slots in the inner face of the spike flange.

The spike is provided with an annular groove therearound (Fig. 4) between the threaded portion 17 and the flange 18 and the free ends of the inwardly projecting wings formed by the slots 26 engage in this groove and loosely unite the spike and washer 22 into a unit. As illustrated in Fig. 5, the free ends of the wings can be left extending somewhat outwardly of the plane of the member 22 in a direction opposite to the flange 23. In such construction the spike flange 18 is adapted to engage and compress the wings when the spike is tightened into the receptacle 12 whereupon the wings serve as a locking means for preventing unscrewing of the spike.

Various other modifications in structure and design may be made within the spirit and scope of my invention as defined by the appended claims.

I claim:

1. Spike mounting means for attachment in a shoe sole having a receiving hole therethrough, comprising a receptacle having an internally threaded socket portion to be disposed in said hole and a headed portion at one end to con-

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tact the inner face of the sole, a metal spike having at one end a threaded shank for threading into the other end of the socket portion, a washer-like sheet metal member loose on the spike adjacent to its junction with the threaded shank and provided with a marginal flange for engaging the outer face of the sole, an annular flange integral with the spike for engaging said member and pressing it tightly against the sole when the spike is tightened into the receptacle, and means integral with the annular flange and member providing interengaging locking shoulders between the spike and member for preventing unscrewing of the spike, said washer-like member being provided with a hole for receiving the spike and having slots extending inwardly to the hole and forming a plurality of inwardly extending wings, the spike having an annular groove therearound between the threads and annular flange into which said wings engage and hold the member loosely assembled on the spike, said wings at the slots and cooperating means on said annular flange comprising said inter-engaging locking shoulders.

2. Spike mounting means for attachment in a shoe sole having a receiving hole therethrough, comprising a receptacle having an internally threaded socket portion to be disposed in said hole and a headed portion at one end to contact the inner face of the sole, a metal spike having at one end a threaded shank for threading into the other end of the socket portion, a concavo-convex sheet metal member loose on the spike adjacent to its junction with the threaded shank and provided with a marginal rim at its concave face for engaging the outer face of the sole, an annular flange integral with the spike for engaging said member and pressing it tightly against the sole when the spike is tightened into the receptacle, and means integral with the annular flange and member providing interengaging locking shoulders between the flange and member for preventing unscrewing of the spike, the concavo-convex shape of said member providing resilient ratchet action for said locking shoulders.

3. A golf spike unit assembly comprising a metal golf spike having at one end a threaded shank for threading into a threaded socket, an annular flange on and integral with the spike intermediately of its ends, the spike having an annular groove therein between the threaded shank and the flange, a concavo-convex sheet metal member mounted on the spike at a centrally disposed spike receiving hole in the member, the margin of the member at said hole extending into said groove and holding the member loosely assembled on the spike, and means integral with the flange and member providing interengaging locking shoulders between the spike and member for preventing unscrewing of the spike when the spike is threaded into the socket with the flange tightly engaged against the member.

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