

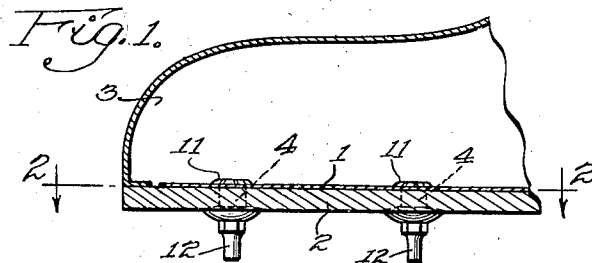
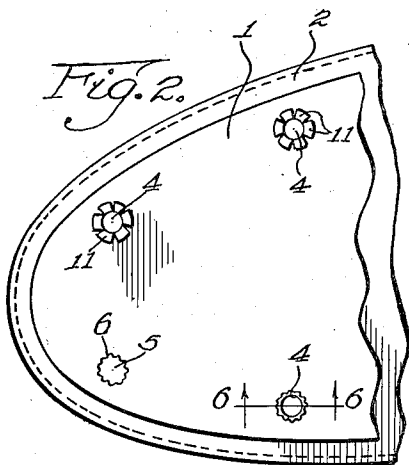
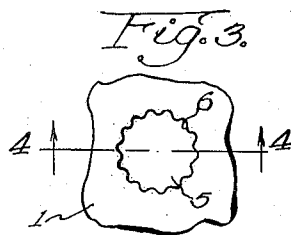
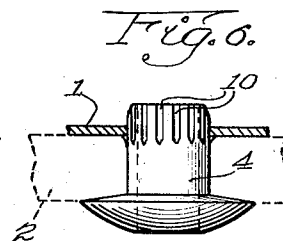
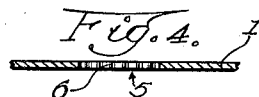
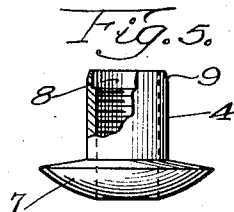
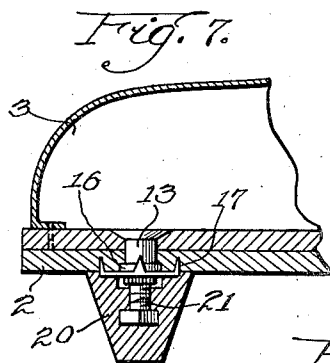
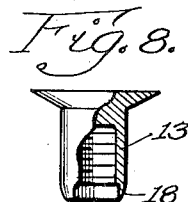
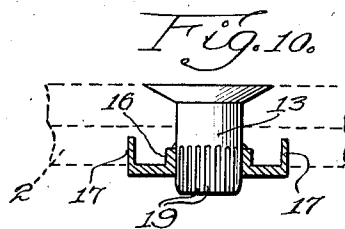
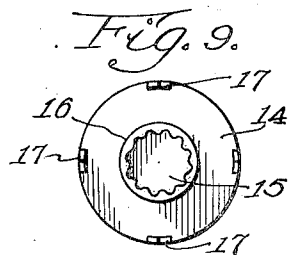
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1,948,885

ATHLETIC SHOE CLEAT FASTENER

Filed Oct. 17, 1931



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UNITED STATES PATENT OFFICE

1,948,885

ATHLETIC SHOE CLEAT FASTENER

John T. Riddell, Evanston, Ill.

Application October 17, 1931. Serial No. 569,438

12 Claims. (Cl. 36-59)

This invention relates to fasteners for removable shoe cleats and particularly to the means for securing cleat fasteners to the sole of a shoe and method of forming the same.

8 The main objects of this invention are to provide an improved method of securing cleat fasteners to a shoe sole and to prevent their becoming loosened by strains or wetting of the leather and then rotating while a cleat is being
10 screwed on or off; to provide such a method of securing cleat fasteners to a shoe sole wherein the assembly of the parts automatically locks them against relative rotation; to provide such a method whereby an otherwise costly structure
15 is produced by a simple and inexpensive assembly operation; and to provide an improved form of cleat fastener that can be quickly and cheaply assembled on a shoe sole, and especially applicable to shoes having the soles reinforced by metal
20 inserts and having riveted fasteners to which the cleat is removably attached.

A specific embodiment of this invention with a modification thereof is shown in the accompanying drawing in which:

25 Figure 1 is a sectional view through the toe portion of a shoe showing cleat fasteners and cleats attached to the sole thereof.

Figure 2 is a plan view of the same viewed from line 2-2 of Fig. 1.

30 Fig. 3 is a fragmentary enlarged detail in plan of the plate showing a perforation having a serrated margin.

Fig. 4 is a sectional view of the same taken on line 4-4 of Fig. 3.

35 Fig. 5 is an enlarged detail partly in section of the cleat fastener stud.

Figure 6 is an enlarged detail of the same showing the result in insertion into the serrated plate perforation.

40 Fig. 7 is a sectional view similar to Fig. 1 but showing a modification of the fastener and another form of cleat.

Fig. 8 is an enlarged detail partly in section of a modified cleat fastener stud such as shown
45 in Fig. 7.

Fig. 9 is an enlarged plan of the plate washer shown in Fig. 7.

Fig. 10 is an enlarged sectional detail of the assembled fastener shown in Fig. 7.

50 As shown in the drawing, my improved cleat fastener comprises a hardened steel plate 1 disposed against the inner face of the out-sole 2 of a shoe 3 and a stud 4 penetrating the sole 2 and passing through a perforation 5 in the plate 1.

55 In the form shown in Figs. 1 and 2, the plate 1

would preferably be of sufficient size and contour to cover the front half of a shoe sole. A plurality of spaced perforations 5, as shown in Fig. 2, are made in the plate 1, and in forming these perforations the periphery or margin of each hole is provided with dentations or serrations
60 of such form as to provide a plurality of inwardly projecting teeth 6, as shown in Figs. 2 and 3.

In order to readily receive the studs 4 the sole 2 is provided with spaced perforations arranged in the same manner as those in the plate 1 so that when the plate is placed against the shoe sole the perforations in both the plate and the sole will register.

As shown in Figs. 1, 2, 5 and 6, the stud 4 is made in the form of a hollow rivet having a rounded flange 7 at one end and a bore 8 passing longitudinally through the entire stud and threaded internally to receive a stud. The shank of the stud 4 is cylindrical in form and is made with a sectional diameter equivalent to the longest or root diameter of the toothed or serrated holes 5 in the plate 1. Also, the small end of the stud 4 is slightly tapered, as at 9, to facilitate its entry into the plate perforation 5.
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In the manufacture of this form of cleat fastener the plate 1 is preferably made of spring steel stock and hardened after the serrated perforations have been formed in order that the teeth or serrations 6 may be formed without cracking the plate 1. The stud 4 is made of a somewhat softer metal than the hardened plate 1 in order that the serrations 6 can bite into and grip the sides of the stud as it is pressed through the plate perforation 5.
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When assembling the fastener, as shown in Figs. 1 and 2, the plate 1 is set against the sole 2 so that the sole and plate perforations are registered and then the fastener 4 is pressed through the sole and the plate perforation until the flange 7 on the stud 4 rests securely against the sole 2, the stud 4 entering the sole perforation on the side opposite the plate 1. As shown in Fig. 6 the operation of pressing the stud 4 through the perforation in the plate 1 causes the teeth or serrations 6 to cut complementary grooves 10 along the shank of the stud, and in this manner the stud 4 is securely held against rotation relative to the plate 1.
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After the stud 4 and plate 1 have been pressed together on the sole 2, the end of the stud 4 projecting beyond the plate 1 is secured against withdrawal from the plate by being expanded and clenched as at 11 in Figs. 1 and 2. The cleats or calks 12 are provided with an externally
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threaded stud adapted to engage the threads of the fastener.

In the modification shown in Figs. 7 to 10 inclusive, the stud 13 has a flat head, instead of the rounded flange of the stud 4, and the shank of the stud is bored and threaded for only a portion of its length. Thus the stud 13 is in the form of the usual hollow rivet, but having an internally threaded portion.

10 In this modified form of fastener a small plate or washer 14 is substituted for the large plate 1 shown in Figs. 1 and 2. As shown the washer 14 is provided with a perforation 15 around the margin of which is disposed an upstanding collar 15 16 and the internal margin of the collar 16 and the perforation 15 is serrated or toothed in the same manner as the perforation 5 in the plate 1. The washer 14 is also provided with a plurality of marginal prongs or points 17 as shown in Figs. 20 7, 9 and 10.

When applying this modified form of fastener to the shoe sole, the sole is first perforated and the stud 13 passed through the perforation from the inner side of the sole. The plate 14 is then 25 pressed over the small end of the stud 13, the plate being disposed on the stud in such a manner that the collar 16 and prong 17 are forced into the sole 2. The small end of the stud 13 is slightly tapered as at 18, to facilitate entry into 30 the perforation 15 of the washer 14, and as the washer is pressed onto the stud 13 the marginal serrations around the perforation 15 will cut complementary grooves 19 on the shank of the stud.

35 The small end of the stud 13 projecting beyond the edge of the plate 14 is then expanded and clenched over the plate in order to prevent separation of the fastener parts. As shown in Fig. 7, a cleat 20, having a threaded stud 21 projecting therefrom, can then be threaded into the 40 hollow stud 13 and thereby secured to the sole 2.

It has been found in practice that when securing a cleat with the ordinary type of riveted cleat fastener, it is often difficult if not impossible to 45 attach or remove the cleat because of rotation of the fastener parts relative to the sole due to the distortion of the leather by usage and wetting. This relative rotation of the fastener to the sole, is prevented by the method of joining the fastener 50 parts and by suitably securing one of the fastener parts to the shoe sole. In the first case, a plate having two or more fasteners therein is employed, and in the modified form a plate washer having projecting prongs is used.

55 The simplicity of the parts and the ease of assembly of my improved fastener are apparent. The parts can be manufactured automatically by machine and therefore at a greatly reduced cost and a considerable saving is had in the relatively 60 small amount of labor necessary for the assembly of the fastener to the shoe sole.

The method of forming complementary grooves in one part by pressing that part into a serrated opening of another part is a considerable improvement and advance in the art, as well as a 65 means for reducing the labor and manufacturing cost chargeable to the product.

Although but two specific embodiments of this invention have been herein shown and described 70 it will be understood that numerous details of the construction shown may be altered or omitted without departing from the spirit of the invention as defined by the following claims.

I claim:

1. The method of securing a cleat fastener to a

shoe sole which consists in pressing a relatively soft metal stud through a serrated perforation in a hard metal plate disposed against the sole, the plate serrations cutting complementary grooves in the stud, and then securing the end of the stud to prevent its withdrawing from the plate.

2. The method of securing a cleat to a shoe sole which comprises providing on one side of the sole a hardened metal plate having a serrated perforation, pressing a relatively soft metal stud 85 through the serrated perforation of the plate so that the serrations cut complementary grooves in the stud, securing the stud to prevent its withdrawing from the plate, and securing a cleat to the stud. 90

3. The method of securing a cleat to a shoe sole which comprises perforating the shoe sole, passing a hollow internally threaded rivet through the sole perforation, providing a hardened metal washer having a marginally serrated perfora- 95 tion, pressing the washer on the end of the rivet so that the serrations will cut complementary grooves on the rivet, heading the rivet over the washer to prevent its withdrawal therefrom, and screwing a cleat having a projecting threaded 100 stud into the hollow rivet.

4. A fastener comprising a plate having a perforation therein, a plurality of inwardly projecting teeth on the periphery of said perforation, and a hollow internally threaded stud of softer 105 material than said plate having a flange at one end, and the other end of said stud being tapered and counterbored, the shank of said stud being adapted to be pressed through said perforation and having a diameter greater than the diameter 110 of said perforation at the tip of said teeth.

5. A cleat for athletic shoes comprising a plate having a perforation therein, a plurality of inwardly projecting teeth on the periphery of said perforation, a hollow internally threaded stud 115 having a flange at one end and a counterbored portion at the other end, the counterbored end of said stud being adapted to be pressed through said perforation and expanded over said plate, said teeth gripping the shank of said stud, and a 120 cleat having a projecting externally threaded portion adapted to engage said stud.

6. A cleat fastener for shoes comprising a plate member having a perforation therein, a stud member pressed through said perforation, serrations on one of said members adapted to cut complementary grooves in the adjacent periphery of the other of said members when said members are pressed together, said stud member having threads for a cleat, and means to prevent said stud mem- 130 ber from withdrawing from said perforation.

7. A cleat fastener for shoes comprising a plate having a marginally serrated perforation and disposed on one side of a shoe sole, a stud having a shank diameter greater than the diameter of said perforation at the crests of its serrations and passing through said perforation and the shoe sole, and means to prevent said stud from withdrawing from said plate and the shoe sole. 135

8. A cleat fastener for shoes comprising a plate 140 having a marginally serrated perforation and disposed on one side of a shoe sole, a relatively soft stud pressed through said sole and the serrated perforation of said plate, said stud having a shank diameter greater than the diameter of said perforations at the crests of its serrations, whereby complementary grooves are cut in said stud by the said serrations, and means to prevent said stud from withdrawing from said sole and plate. 145

9. In an athletic shoe comprising a sole having a plurality of spaced perforations adapted to receive cleat fasteners, a plurality of cleat fasteners each comprising a hollow internally threaded stud having a flat head at one end and being tapered at the other end, said stud passing through a sole perforation from the inner side of said sole, a plate washer having a marginally serrated perforation pressed on the tapered end of said stud, said washer perforation having a diameter at the crests of its serrations less than the diameter of the body of said stud whereby the serrations on said washer cut complementary grooves on said stud, and means to prevent the rotation of said washer relative to said sole.

10. A cleat fastener for shoes comprising a threaded stud having a shank arranged to extend through a shoe sole, and a plate in the form of a washer having a marginally serrated perforation adapted to receive the shank of said stud, said stud having a shank diameter greater than the diameter of said plate perforation at the crests of its serrations.

11. A cleat fastener for shoes comprising a threaded stud having a shank arranged to extend through a shoe sole, a plate in the form of a washer having a marginally serrated perforation adapted to receive the shank of said stud, said stud having a shank diameter greater than the diameter of said plate perforation at the crests of its serrations, and said plate having marginally disposed means to prevent relative rotation of said plate and shoe sole.

12. A cleat fastener for shoes comprising a stud having a head disposed on one side of a shoe sole and a shank extending therethrough, a plate in the form of a washer disposed on the other side of said sole and having a perforation adapted to receive the shank of said stud, said perforation and shank being formed to provide coacting shoulders to prevent relative rotation of said plate and shank, and means on said plate to prevent rotation thereof relative to said sole, said stud having means independent of the cleat to secure said plate.

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