E. A. PLANT.

STUD FOR FOOTWEAR.

APPLICATION FILED MAY 31, 1922.

1,433,411. Patented Oct. 24, 1922.

3 SHEETS—SHEET 1

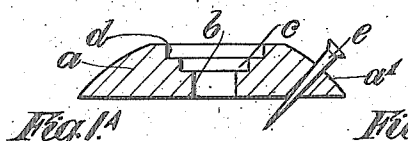


Fig. 1.

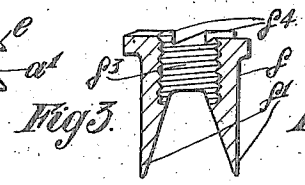


Fig. 3.

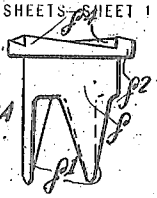


Fig. 3A.

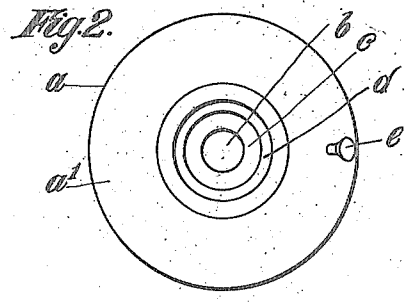


Fig. 2.

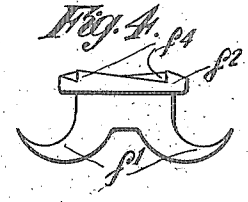


Fig. 4.

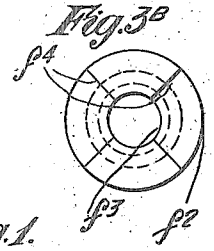


Fig. 3B.

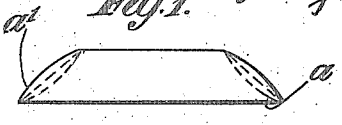


Fig. 1.

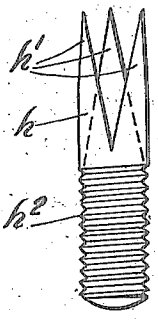


Fig. 7.

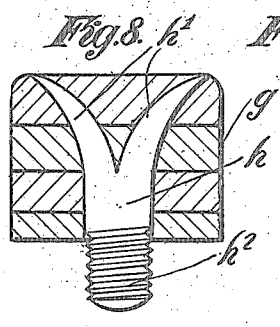


Fig. 8.

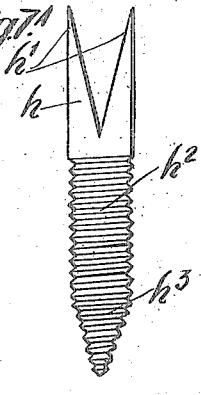


Fig. 7A.

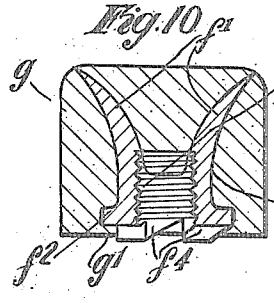


Fig. 10.

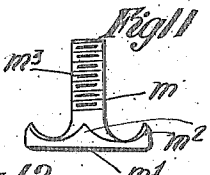


Fig. 11

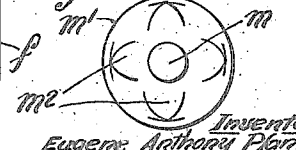


Fig. 12.

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3 SHEETS—SHEET 2.

Fig. 9.

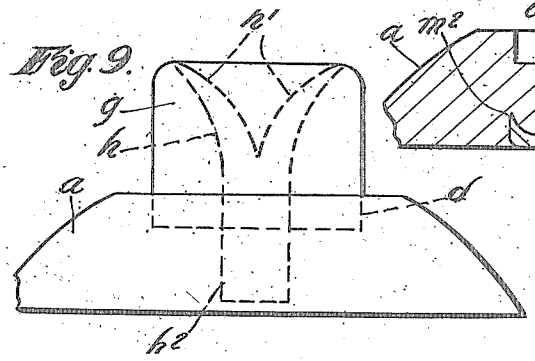


Fig. 13.

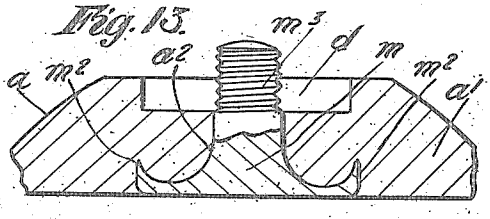


Fig. 5.

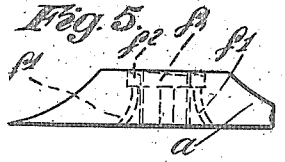


Fig. 6.

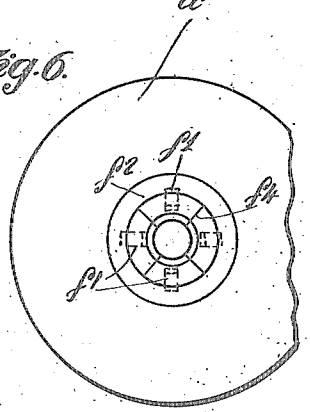


Fig. 8.

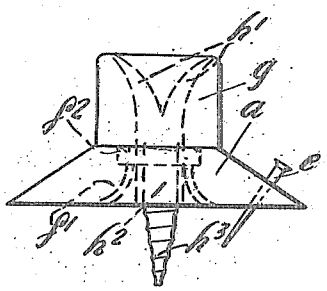
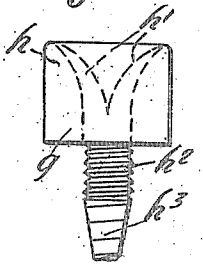


Fig. 8¹



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3 SHEETS—SHEET 3.

Fig. 14.

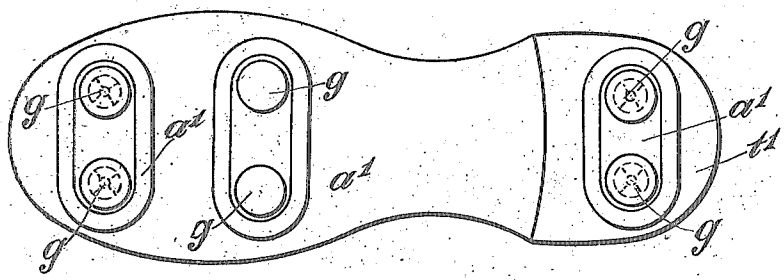


Fig. 15

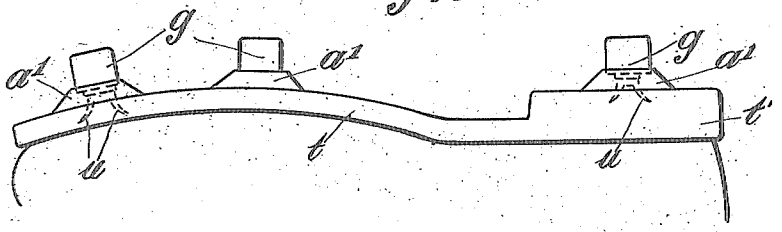


Fig. 16

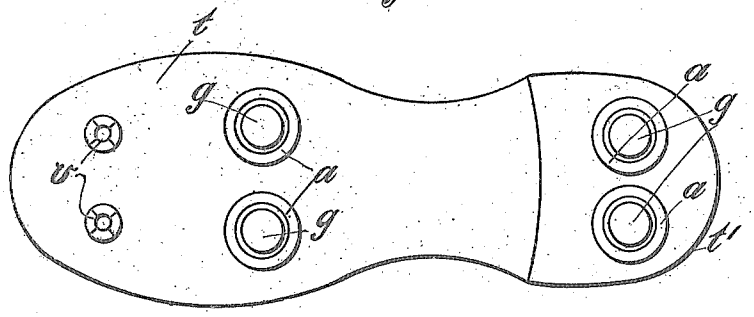
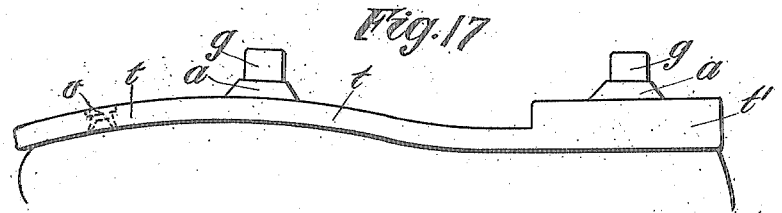


Fig. 17



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Eugene Anthony Plant.
Per:- B. Singer,
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Patented Oct. 24, 1922. 1,433,411

UNITED STATES PATENT OFFICE.

EUGENE ANTHONY PLANT, OF PORTH, GLAMORGAN, WALES.

STUD FOR FOOTWEAR.

Application filed May 31, 1922. Serial No. 564,933.

To all whom it may concern:

Be it known that I, EUGENE ANTHONY PLANT, subject of the King of Great Britain and Ireland, residing at 1 Station Street, Porth, Glamorgan, Wales, Great Britain, have invented new and useful Improvements in Studs for Footwear, of which the following is a specification.

This invention relates to improvements in studs, bars or protectors for boots, shoes and the like footwear and has for its principal object to supply means whereby distortion or destruction of the soles or heels, owing to wear or repeated changing of such studs or the like, is prevented. A further object of the invention consists in an arrangement whereby said studs, bars or protectors may be rapidly changed, renewed or replaced. A still further object of the invention consists in an improved method of attachment of such studs or the like whereby they may be more firmly secured to the sole or heels of footwear, or where such studs or the like comprise a plurality of elements or layers, such elements will be more effectively reinforced and secured to each other and to the sole or heel of the footwear.

The invention is primarily intended for use with studs, bars, points or protectors for attachment to boots and other footwear worn by footballers, cricketers, golfers and the like, but it will be readily understood that the improved studs or the like and the means for attachment thereof may be equally well employed in connection with other classes of footwear.

In the preferred construction, the cushion member is provided with a bush or its equivalent which may if desired form part of the member whereby it is secured to the footwear, whilst the stud portion is also provided with a screwed member, suitably secured thereto, adapted to screw into the bush in the cushion portion and if desired also into the sole or heel of the footwear. Suitable means are also provided whereby the stud may be secured against displacement or rotation in said socket or bush.

In order that the invention may be readily understood reference is made to the accompanying drawings which show by way of example several constructions according to the invention, in which:—

Figures 1 and 1A are elevation and transverse section of a cushion member constructed according to the invention.

Figure 2 is a plan view of Fig. 1A.

Figures 3, 3A and 3B are vertical section, side elevation and plan respectively of the bush member adapted to be secured to the cushion, Figures 3 and 3B showing a bush member having two prongs, and Figure 3A a bush member having three prongs.

Figure 4 is a side elevation of Figure 3 showing the position of the prongs when secured to the cushion member.

Figure 5 is a side elevation of the cushion with the bush attached thereto.

Figure 6 is a plan view thereof.

Figures 7 and 7A are side views of a screw rivet adapted to be attached to and form a stud, Figure 7 showing one form of rivet having three prongs, whilst Figure 7A shows another form having two prongs.

Figure 8 is a section elevation showing the screw ended rivet according to Figure 7 attached to a stud, and

Figure 8A is an outside elevation showing the screw-rivet according to Figure 7A attached to a stud.

Figure 9 is a side elevation showing a cushion member having a stud secured thereto, the screw ended rivet employed being according to Figures 7 and 8.

Figure 9A is a similar view showing the stud secured to the cushion, the screw ended rivet employed being according to Figures 7A and 8A.

Figure 10 is a sectional elevation showing the bush according to Figure 3 secured in a stud.

Figure 11 is a side elevation and Figure 12 a plan view of a headed screw provided with lugs or flanges adapted to be secured to the cushion member.

Figure 13 is a sectional view to a larger scale of the headed screw of Figure 11 secured within a cushion member, the cushion member being thus suitable for the reception of the stud and bush according to Figure 10.

Figures 14 and 15 are underplan and side view respectively showing a sole or shoe having two studs secured to an enlarged mount.

Figures 16 and 17 are similar views showing single studs and cushions, and bushes in the sole for the reception of the screw ended studs secured direct to the sole of the footwear.

Referring to the construction of cushion member shown in Figures 1, 1A and 2, the cushion *a* which may be of leather, leather substitute or any other suitable material is

provided with a central recess b the upper portion of said cushion being provided with a recess c for the reception of the flange of the bush to be secured therein, and with an additional recess d forming a seating for the stud proper. The outer surface of the cushion member a may be flat and inclined as shown at a^1 or concave or convex as shown by dotted lines. The cushion member is secured to the sole or heel of a boot or shoe by nails or screws e driven therethrough in a direction substantially at right angles to the inclined surface a^1, it being understood that although only one nail is shown in Figure 2, a plurality of nails or other securing means are employed as will be readily understood.

The bush which is secured to the cushion member a comprises a metal socket like member f provided with two or more prongs f^1 as shown in Figures 3 and 3A, whilst the upper end of the bush is provided with an annular external flange f^2 which forms a snug fit in the recess c of the cushion member whilst the prongs f^1, f^1 are adapted to bend outwardly as shown in Figure 4 said prongs being thus engaged in the material of the cushion member a. The bush is internally screw threaded at f^3 with a thread of suitable pitch for the purposes hereinafter described, whilst the upper surface of the bush is provided with ratchet teeth or the like f^4 which, when the stud is placed in position thereon, secures the same against displacement as hereinafter described. The position of the bush f in the cushion member a before attachment to the sole or heel and before the stud is placed in position is shown in Figures 5 and 6.

It will be observed that in my invention the cushion members are secured to the sole and the studs are mounted in the cushion members so as to afford a resilient connection. This prevents pressure from being exerted on small areas of the sole cushion with hard ground and avoids inconvenience and discomfort to the wearer, such as would result if the studs were secured directly to the sole, as has been heretofore the practice. By my construction and arrangement of devices the cushion overcomes such objections and serves to absorb and distribute such pressure.

The stud g which may consist of a single block of suitable material or a stud built up of a series of layers as shown in Figure 8 has secured thereto a rivet member h which may be formed as shown in Figures 7 and 7A. The rivet member is provided with two or more prongs h^1 adapted to be bent or flared outwardly as shown in Figure 8, whilst its shank is screw threaded at h^2. When the rivet member n is formed as shown in Figure 7 the screwed shank is adapted to engage the threaded hole f^3 only of the bush f, but in the construction shown in Figure 7A the shank of the rivet member h is provided at its end with a conical portion provided with screw threads h^3 which engage and screw into the sole or heel of the footwear when the stud is secured in position, as shown in Figure 9A or where a rivet member according to Figures 7 and 8 is employed they are assembled in the manner shown in Figure 9. When the stud with rivet attached in the manner above described is firmly screwed into the bush f of the socket member, the lower face g^1 of the stud takes its seating in the upper and largest recess d of the cushion member where such recess is provided or on to the upper face of the cushion member a. The ratchet teeth f^4 are arranged to project slightly above the bottom of the recess d in which the base of the stud takes its seating, so that when the stud g with rivet member attached is screwed into position, the leather or other material of which the stud is constructed is compressed on its underside and rides over the top of the ratchet teeth f^4 in such a manner that, when the material again expands it will offer considerable resistance to unscrewing of the stud, or rotation of the rivet member to which the stud is attached, thereby offering much greater security than has hitherto been attained. The construction furthermore offers greater resistance to deformation of the sole or heel of the footwear, to which it is applied, inasmuch as the stud has a firm seating in the recess d of the cushion member or on the cushion, whilst the latter has a much greater area and consequently a firmer seating on the surface of the sole or heel so that the tendency to become displaced or for the sole or heel to become distorted is reduced to a minimum if not entirely eliminated.

The stud g may be secured to the cushion and to the sole or heel of the footwear in any other suitable manner. For instance in Figure 19 the stud proper g is nailed to the sole or heel by nails k, k, of which any suitable number may be employed, said stud having a seating in a recess d^1 at the top of the cushion member a and the nails k passing through the cushion member into the sole or heel of the footwear.

In the modified construction illustrated in Figures 10 to 13, the bush member f is secured within the stud proper g and a rivet member having a screw threaded shank is secured to the cushion. The rivet member m is formed with a head m^1 substantially flat on its outer face whilst its inner face is provided with a plurality of projecting or upstanding lugs or fins m^2. The cushion member a is provided with a central hole a^2 through which the shank portion m^3 of the rivet member m projects, the lugs or fins m^2 being forced or embedded into the material of the cushion in the manner shown in Figure 14. The upper surface of the cushion member a is provided with a recess

d forming a seating for the under-surface g^1 of the stud g as in the prior constructions.

The stud member g has the bush f secured therein by flaring or bending outwardly the prongs f^1 in the manner already described, the ratchet teeth f^4 on the flanged end of the bush extending slightly beyond the outer surface of the flat face g^1 of the stud. In this construction the cushion member is secured to the sole or heel of the footwear with the screw threaded shank m^3 projecting centrally therefrom, the stud g being screwed into position so that its lower flat face takes its seating in the recess d of the cushion member.

Figures 14 and 15 show the studs and cushion members attached to the sole and heel of a boot or shoe. In the form shown in Figure 14, the cushion members a^7 are made of such size as to receive two separate studs g, g suitably spaced apart. The cushion members a^7 are provided with separate bushes to receive the shanks of the studs of rivet members carrying the studs as will be readily understood.

Figures 16 and 17 show the studs mounted upon separate cushions a each having secured thereto internally screwed bushes into which the shanks of the studs g or rivet members carrying the studs g are screwed.

In some cases the prongs attached to the bush f in Figures 3, 3^A, 4, 9 and 16 may be of sufficient length to not only secure the bush to the cushion member a but also to secure the cushion member a to the sole t or heel t^1 of the boot or shoe as shown at u in Figure 15.

Again if desired the sole or heel proper of the boot or shoe, or the outer layer of said sole or heel may constitute the cushion member. In Figures 16 and 17 I have shown at v a metallic bush similar to Figures 3, 3^A and Figure 4 secured within a suitably shaped recess in the sole t of the boot or shoe. In this method of construction, the outer face of the flanged bush which is provided with ratchet like teeth f^4 is secured in said recess in the sole t so that said ratchet teeth f^4 project slightly above the general level of the sole, or where a recess is provided in which the inner flat face of the stud g takes its seating, the ratchet teeth would project slightly above the bottom of the recess so that the base of the stud g frictionally engages said teeth to secure the same against displacement.

It will be seen that the cushion like members are of such size, whether constructed to support one stud or a plurality of studs, as to distribute any lateral strains on the stud over a greater area of the sole through the cushioning means employed. A similar effect is produced when the sole or heel proper forms the cushioning member, in which case the prongs of the stud, or the rivet member carrying the stud are projected into the material of the sole or heel a sufficient distance outwardly as to constitute sufficient area of support to absorb excessive shocks and thereby eliminate distortion of the footwear.

It will be readily understood that the studs may be of any other shape, and may if desired be prolonged into a bar or the like which may be attached to its bush by a screwed connection at one point and by nailing at other points.

The construction also affords simple means whereby the studs may be quickly changed or replaced when required for use, according to the condition of the ground surface.

I claim:—

1. A cushion member having an opening and a recess forming a diametrical enlargement of the opening, a bush forming a socket member fitted in said opening, having an external flange arranged in said recess and also having a threaded bore and prongs which are engaged in the material of the cushion member, a stud fitted on said cushion member, and a rivet member secured in the stud, and having a threaded portion engaged in the threaded bore of the bush.

2. A cushion member having an opening and a recess forming a diametrical enlargement of the opening, a bush forming a socket member fitted in said opening having an external flange arranged in said recess and also having a threaded bore and prongs which are engaged in the material of the cushion member, a stud fitted on said cushion member, and a rivet member secured in the stud having prongs engaged therein and having a threaded portion engaged in the threaded bore of the bush.

3. A cushion member having an opening, a recess forming a diametrical enlargement of the opening, and also having at its outer side a second recess of greater diameter than the first-named recess, a bush forming a socket member fitted in said opening, secured to said cushion member and having an external flange arranged in the first-named recess, a stud fitted in the second-named recess and a rivet member embedded in the stud and engaged in the said bush.

4. A stud, bar or protector for footwear, comprising a cushion member formed of resilient material secured to the footwear, a stud proper, and a member in permanent connection with said stud member having a screw threaded engagement with a member in permanent connection with said cushion member, for the purposes set forth.

5. A stud, bar or protector for footwear, comprising a cushion like member and a stud member, means for securing said cush-

ion member to the footwear, a screw threaded member permanently secured to said cushion member, and a screw threaded member permanently attached to said stud member adapted to engage the threaded portion of said cushion member to secure said stud yieldingly in position, for the purposes set forth.

6. A stud, bar or protector for footwear, comprising a cushion member formed of resilient material secured to the article of footwear, an internally screw threaded bush provided with prongs adapted to be splayed outwardly into the material of said cushion member, a stud proper, a screw threaded shank adapted to engage said socket, and prongs on said shank adapted to be splayed outwardly into the material of the stud for the purposes set forth.

7. A stud, bar or protector for footwear, comprising a cushion like member formed of yielding material adapted to be secured to the article of footwear, a stud proper formed of unyielding material, and a screw threaded connection between said cushion member and said stud, for the purposes set forth.

8. A stud, bar or protector for footwear, comprising a cushion like member formed of yielding material, a stud member of smaller dimensions than said cushion member, a socket member provided with prongs adapted to be splayed outwardly into the material of one of said members, a shank having prongs adapted to be splayed outwardly into the material of the other of said members, a screw threaded bore in the said socket member and external screw threads on said shank for engaging said bore, for the purposes set forth.

9. A stud, bar or protector for footwear, comprising a cushion like member formed of yielding material adapted to be secured to the article of footwear, a stud member formed of unyielding material, a metallic socket adapted to be embedded in one of said members and having prongs adapted to be splayed outwardly into the material thereof, a screw threaded bore in said socket, a shank adapted to be embedded at one end in the other of said members and having prongs adapted to be splayed outwardly into the material thereof, and a screw threaded portion on said shank adapted to engage the threaded bore of said socket member when said members are connected together.

10. A stud, bar or protector for footwear, comprising a cushion like member formed of yielding material adapted to be secured to the article of footwear, a stud member formed of unyielding material, a metallic socket adapted to be embedded in one of said members and having prongs adapted to be splayed outwardly into the material thereof, a screw threaded bore in said socket, a shank adapted to be embedded at one end in the other of said members and having prongs adapted to be splayed outwardly into the material thereof, a screw threaded bore on said shank adapted to engage the bore in said socket, and a projecting portion on said shank adapted to engage the article of footwear when said members are connected together, for the purposes set forth.

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