June 9, 1931. F. W. EAST 1,809,194

BOOT AND SHOE

Filed Dec. 11, 1929

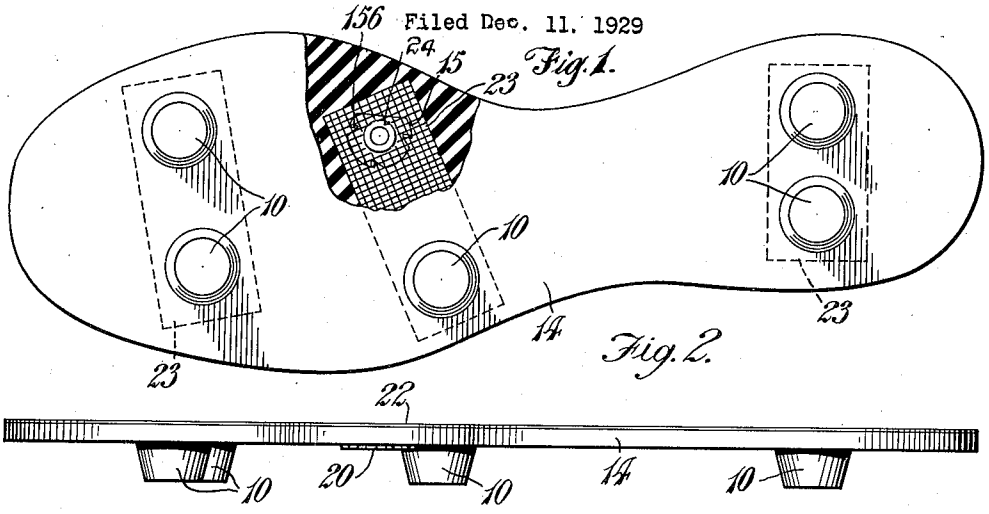


Fig. 1.

Fig. 2.

Fig. 3.

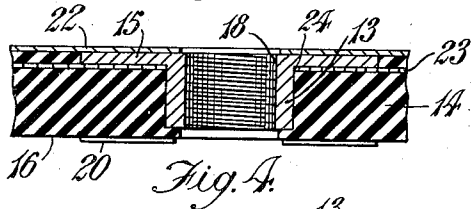


Fig. 4.

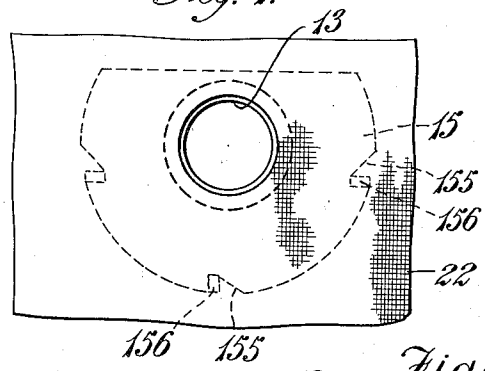


Fig. 5.

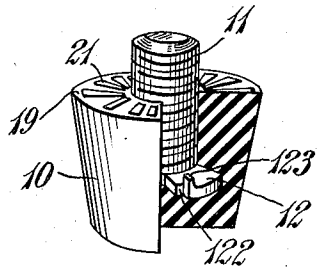


Fig. 6.

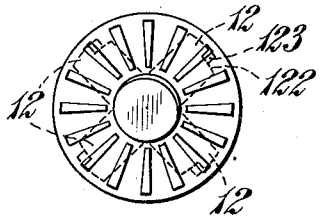


Fig. 8.

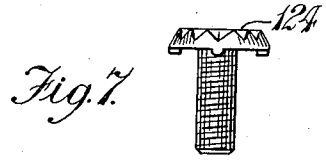
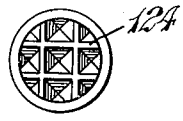


Fig. 7.



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UNITED STATES PATENT OFFICE

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BOOT AND SHOE

Application filed December 11, 1929. Serial No. 413,366.

This invention refers to improvements in or relating to boots and shoes, and it has more particular reference to the studs, soles and heels of football boots and the like, such, for instance, as those described in the specification of prior application for British Letters Patent No. 16,269 of 1929.

The primary object of the present invention is to provide certain improvements in or modifications of the studs, soles and heels described in the said prior specification which will, by reinforcing the parts, provide an even more robust and durable structure which will stand up to the hardest possible wear without breakage.

Now according to the present invention there is provided a boot or shoe for football or other sports wear or the like, comprising a sole or tread portion formed of vulcanized rubber or the like, a plurality of screw-threaded metal ferrules moulded therein, studs provided with screwed shanks for engaging said ferrules, and reinforcement members moulded in the sole or tread portion and engaged by ferrules.

In order that the present invention may be clearly understood and more readily carried into effect, it is hereinafter described with reference to the accompanying drawings, in which:—

Figure 1 is a part sectional plan view of a football boot showing one of the studs removed;

Figure 2 is a side elevation;

Figure 3 is a detail sectional side elevation of a portion of the tread showing the ferrule embedded therein and in the reinforcing material;

Figure 4 is a corresponding plan view thereof;

Figure 5 is a sectional perspective view of one of the studs;

Figure 6 is a plan view thereof; and

Figures 7 and 8, show in elevation and plan, respectively, a modified form of stud.

As shown, the studs 10 are provided with a projecting portion or shank 11 which is adapted to pass through and to co-operate with a metal ferrule or plate 13 which is embedded, during the process of manufacture, in the sole and/or the heel portion 14 of the boot. The studs 10 may conveniently be formed of vulcanized rubber or the like which, according to the present invention is reinforced by the addition of shredded hemp, cotton or like material adapted to harden the rubber and to add further strength, and to prevent the composition or material being broken down as the result of hard use.

The inner portion or shank 11 of each stud 10 is suitably shaped or headed, as at 12, and embedded in the material thereof so as to provide a firm fixing and prevent rotation. To this end the shank 11 is formed with a head 12 of appropriate size which is provided with notches 122 and small projections 123 which, by engaging the rubber, prevent more effectively than heretofore, the rubber stud 10 rotating about the stud bolt 11.

Conveniently the studs 10 may be coated with copper in order to obtain a more satisfactory bonding of the rubber and metal parts, and if desired, the studs 10 may also be formed with an indented top 124, as indicated in Figures 7 and 8, which also serves to better enable the studs to obtain a firm fixing in the rubber.

The projecting portion or shank 11 of each stud 10, as heretofore, is screw-threaded and is adapted to co-operate with an embedded ferrule 13 provided in the sole or heel portion 14 of the boot. The ferrule 13 is also suitably shaped or headed, as at 15, and provided with notches 155 and spikes 156, the latter of which are adapted to engage in the mesh openings of reinforcement portions of wire gauze 23 which are also embedded in the rubber of the said sole or heel.

The heads 15 of the ferrules may be of any preferred shape, that shown, wherein a circular disc has a segmental portion removed so as to provide one flat side, being found to be very convenient in practice.

In manufacture the strips or portions of steel or other metal, wire gauze 23, of which there may conveniently be three in the case of the sole and heel of a football boot, may be of rectangular formation, each having a hole 24 formed therein at or near each of its ends, the said holes 24 being of a size to neatly fit

over or receive the outer cylindrical portions of the ferrule 13. In practice the strips or portions of wire gauze 23 are laid transversely across the sole and heel 14 in the places where the ferrules 13 are located, so that they serve to reinforce the sole and heel 14 at such parts and to hold the said ferrules 13 firmly in place and so as to enable them to resist heavy blows or any tendency to become loose in wear. The spikes 156 which engage in the wire gauze 23 also serve to prevent angular movement of the ferrules 13 in relation to the sole or heel 14. By arranging the strips or portions of wire gauze 23 in the way indicated, the flexibility of the sole and heel 14 is not appreciably interfered with.

The ferrules 13 are preferably moulded with their heads 15 flush with or just below the outer surface of the sole 14 and they are perforated and internally screw-threaded, as at 18, so as to provide a socket with which the projecting screwed stems or shanks 11 on the studs 12 are adapted to co-operate. The flush surface 16 of the sole 14 and the co-operating surface 19 of the base or underside of the studs 10, are preferably, as before, provided with a series of interlocking radial serrations or ribs 20, 21, respectively, which may be moulded or otherwise provided on the said co-operating surfaces.

In manufacturing the improved sole a canvas backing 22 is provided to cover the sole and to keep the ferrule plates 15 in position during subsequent manufacture of the boot, and the arrangement is preferably such that the outer sides of the said ferrule plates 15 come flush with the inner surface of the sole and heel 14 and just below the surface of the canvas 22. Thus the strips or reinforcement portions of wire gauze 23 occupy a position well embedded in the rubber of the sole or heel above the inner surfaces of the ferrule plates 15 with the projections 156 thereon passing through the openings in the wire gauze 23 into the vulcanized rubber forming the sole and heel.

It will be obvious that the wire gauze "inserts" 23 may be made in a variety of different shapes. For instance, each stud may be provided with a separate wire gauze "insert", or each "insert" may be arranged or shaped to co-operate with more than two ferrules, and also, if desired, a single wire gauze "insert" may be provided in the sole so as to co-operate with all of the studs, the "insert" being shaped as required and being cut away or perforated in places if found necessary to provide for a better bonding of the "insert" with the vulcanized rubber.

It will be obvious that other means may be employed for effecting the engagement of the ferrules with the wire gauze. For instance, the cylindrical portions of the ferrules may be of square, hexagonal or other formation, and the holes in the wire gauze be similarly shaped to receive and hold the same against rotation.

What I claim is:—

1. A boot or shoe for sports wear, comprising a sole formed of vulcanized rubber, a wire gauze reinforcement embedded in the said sole, screw-threaded metal ferrules molded into the said sole, such ferrules projecting downwardly through holes in the gauze reinforcement and having flanges extending above the said reinforcement, the said flanges being formed with downwardly extending spikes for engaging with the wire gauze reinforcement, and studs provided with screwed shanks for engaging with the said ferrules.

2. A boot or shoe for sports wear comprising a sole formed of vulcanized rubber, screw-threaded metal ferrules molded into the said sole, a wire gauze reinforcement for each predetermined number of metal ferrules, such ferrules projecting downwardly through holes in the gauze reinforcement and having flanges extending above the said reinforcement, the said flanges being formed with downwardly extending spikes for engaging with the wire gauze reinforcement, and studs provided with screwed shanks for engaging with the said ferrules.

3. A boot or shoe for sports wear, comprising a sole formed of vulcanized rubber, a wire gauze reinforcement embedded in the said sole, screw-threaded metal ferrules molded into the said sole, such ferrules projecting downwardly through holes in the gauze reinforcement and having flanges extending above the said reinforcement, the said flanges being formed with downwardly extending spikes for engaging with the wire gauze reinforcement, and studs provided with screwed shanks for engaging with the said ferrules, the free ends of the shanks being indented to provide a plurality of gripping means in the rubber of the sole.

In testimony whereof I have hereunto signed my name.

FREDERICK WILLIAM EAST.