

933,551.

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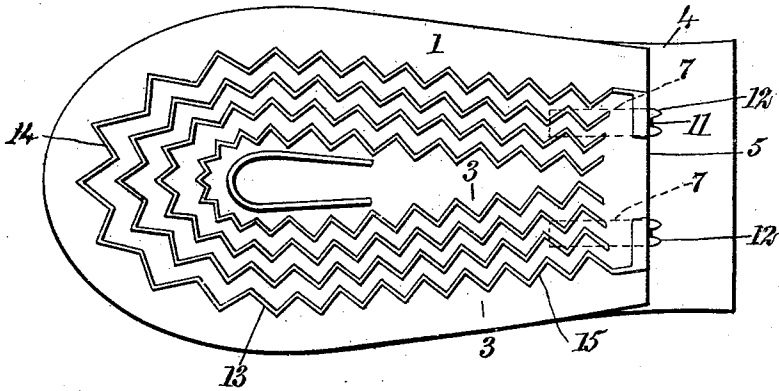
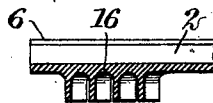
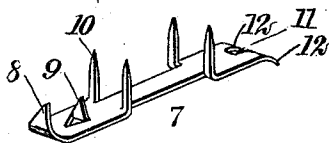


Fig. 2



7-4



WITNESSES
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UNITED STATES PATENT OFFICE.

WILLIAM L. GORDON, OF DEAL, NEW JERSEY.

PNEUMATIC HEEL-CUSHION.

933,551.

Specification of Letters Patent.

Patented Sept. 7, 1909.

Application filed September 17, 1908. Serial No. 453,520.

To all whom it may concern:

Be it known that I, WILLIAM L. GORDON, a citizen of the United States, and a resident of Deal, in the county of Monmouth and State of New Jersey, have invented a new and Improved Pneumatic Heel-Cushion, of which the following is a full, clear, and exact description.

This invention relates to pneumatic heel cushions such as worn at the heel of the shoe on the inside in order to cushion the heel in walking.

An object of the invention is to produce a heel cushion having an improved form which increases its elasticity in action, and a further object is to provide improved means for holding the heel cushion in position.

The invention consists in the construction and combination of parts to be more fully described hereinafter and particularly set forth in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a longitudinal section through a shoe taken at the heel and illustrating the manner in which the heel cushion is held in position; Fig. 2 is a bottom plan of the heel cushion constructed according to my invention; Fig. 3 is a transverse section through the heel cushion, on the line 3—3 in Fig. 2, and Fig. 4 is a perspective of one of the clips or fasteners which I employ for securing the heel cushion in place.

Referring more particularly to the parts, 1 represents the heel cushion, the body 2 of which is in the form of an elongated plate formed of rubber or similar material. This plate has the outline of the shoe at the heel, and is adapted to be laid on the sole 3 of the shoe, as indicated in Fig. 1. It is attached to the under side of an insole 4 which is formed of a light absorbent material, such as cork. This insole is slightly larger than the heel cushion and conforms to it in outline; it projects beyond the forward edge 5 of the rubber cushion, as indicated in Fig. 2. On the upper side of the insole 4, I provide a covering 6 of a coarse fabric. At its forward edge the cork insole 4 tapers, as indicated, so that its forward edge is very thin. Between the rubber plate 2 and the insole 4 I provide fastening devices or clips 7, the form of which is very clearly illus-

trated in Fig. 4. Each clip consists of an elongated plate which is turned upwardly at its inner end to form a nib 8, and near this point a triangular tooth 9 is struck from the material of the clip in an upward direction. At suitable points on the sides of the clip, the material of the clip is bent upwardly so as to form pointed fastening spurs 10, as shown.

In forming the heel cushion, the clips are applied as indicated in Fig. 1, that is, so that the spurs 10 pass up through the insole to which they are clenched. The nib 8 and the tooth 9 also engage with the under side of the insole and assist in holding the clips in position. The clips are attached with their forward ends projecting, as indicated in Fig. 2, and these ends are formed with deep notches 11 centrally disposed so as to form two prongs or forks 12 on each of the fasteners. These prongs are slightly curved downwardly, as indicated in Fig. 4. When the heel cushion is placed in position, these prongs 12 are forced downwardly so that they engage the sole 3 of the shoe and hold the heel cushion against displacement.

The under side of the rubber plate 2 is provided with a plurality of ribs 13 which are of horseshoe form, presenting curves or bows 14 at the rear, and substantially straight extensions running toward the forward end of the cushion. These ribs are formed of straight extensions or sections 15 which are disposed substantially at right angles to each other, as indicated. In other words, each rib has a sinuous or zigzag formation. The object of this construction is to give the ribs greater stiffness under pressure of the heel, for it will be observed that each section of each rib will be braced as it were by the adjacent sections which are disposed at right angles thereto. In this way I prevent the ribs from collapsing too freely under pressure, and I very materially increase the cushioning effect of the device without greatly increasing the amount of rubber consumed.

Special attention is called to the form of the channels 16 which are formed between the ribs. The bottoms of these channels are preferably rounded or curved, as indicated in Fig. 3, so that the material of the plate 2 merges gradually into the material of the ribs. This form of rib has a considerably increased stiffness and resilience. Attention is also called to the fact that at the forward

end of the cushion, an opening is formed which permits a forward movement of air from the channels. It should be understood that a cushion having ribs of this form produces a good circulation of the air for the reason that the pressure at the heel constantly tends to force currents of air from the channels in a forward direction under the heel of the foot.

Attention is drawn to the fact that the forward end of the cork insole projects well over the fastening clips and protects the sole of the foot from coming in contact with them. Attention is called also to the tapering forward edge of the insole which prevents the formation of a ridge or shoulder which could be felt by the foot at the forward edge of the cushion.

Having thus described my invention, I claim as new and desire to secure by Letters Patent,—

1. A heel cushion having a plurality of ribs formed on the face thereof and forming continuous channels extending from end to end of said ribs, said ribs having connected sections inclined with respect to the longitudinal axis of said ribs.

2. A heel cushion having a plurality of ribs formed on the under side thereof and forming channels therebetween extending in a longitudinal direction and opening forwardly, said ribs having a zigzag form.

3. A heel cushion having a plurality of unconnected ribs formed on the under side thereof presenting continuous channels therebetween, said ribs being formed of substantially straight sections, the adjacent members of said sections forming angles with each other.

4. A heel cushion having a plurality of unconnected ribs of substantially horseshoe form and disposed on the under side thereof, said ribs being composed of short sections, the adjacent members of said sections forming angles with each other, and reinforcing each other.

5. A heel cushion, in combination with a fastening device attached thereto, said fastening device consisting of a plate having integral fastening members projecting upwardly securing the same to the said cushion and having prongs adapted to engage the sole of the shoe and projecting downwardly in an inclined direction at the forward edge of said cushion, said cushion comprising an insole projecting over said prongs and protecting the foot from the upper side thereof.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM L. GORDON.

Witnesses:

F. D. AMMEN,
JOHN P. DAVIS.