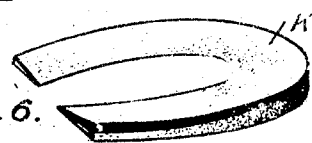
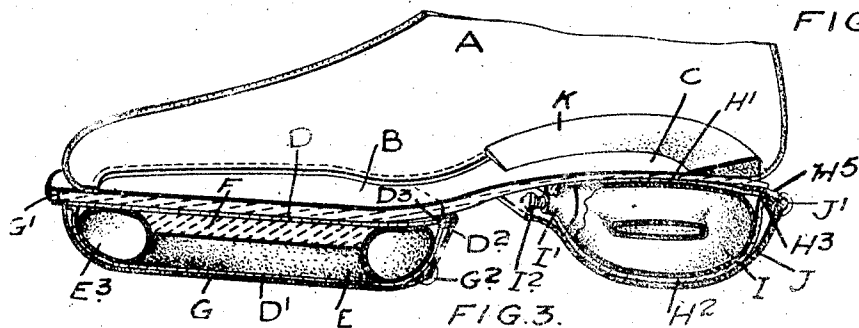
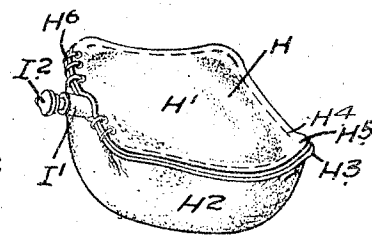
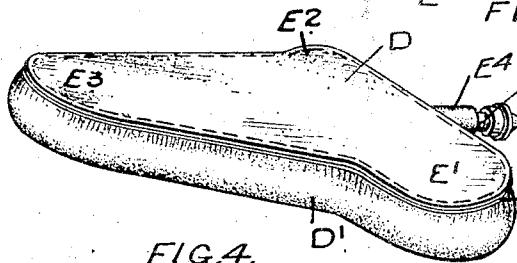
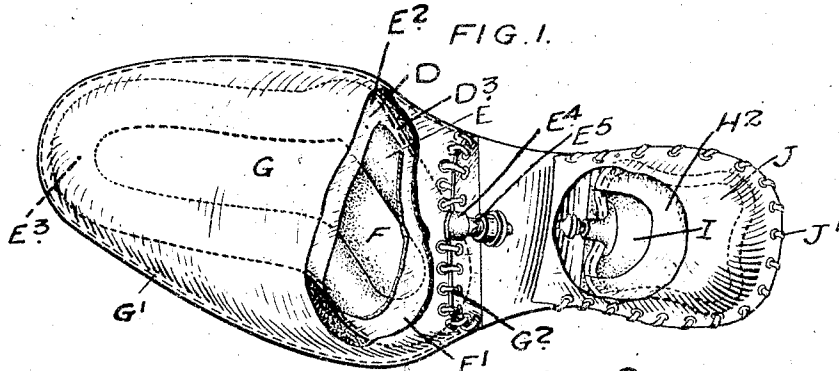
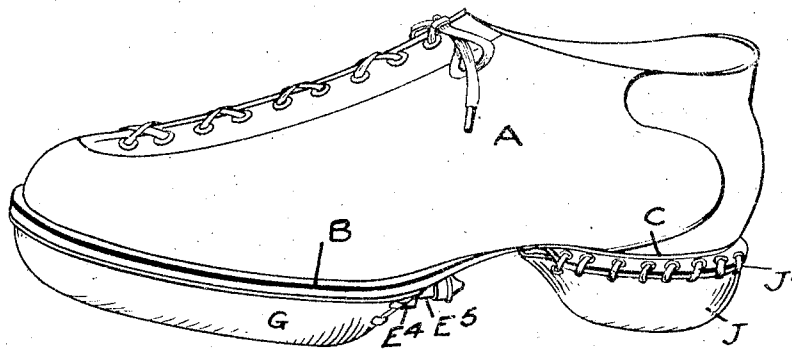


E. MADDOCKS.
PNEUMATIC TREAD FOR BOOTS AND SHOES.
APPLICATION FILED NOV. 24, 1909.

1,011,460.

Patented Dec. 12, 1911.



WITNESSES.
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PNEUMATIC TREAD FOR BOOTS AND SHOES.

1,011,460.

Specification of Letters Patent.

Patented Dec. 12, 1911.

Application filed November 24, 1909. Serial No. 529,733.

To all whom it may concern:

Be it known that I, EDWARD MADDOCKS, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Pneumatic Treads for Boots and Shoes, of which the following is the specification.

My invention relates to improvements in pneumatic treads for boots and shoes and the like, and the object of the invention is to devise a simple, cheap, durable and readily repaired pneumatic cushion tread applicable to both sole and heel, which will produce a maximum resiliency, and thereby reduce to a minimum the strain and jar on the foot and leg when walking or running, thus reducing the tiring effect and making a shoe or the like particularly adaptable for use for runners, professional walkers and athletic contests.

My invention consists of a tread envelop, an air tube inclosed in the same and provided with a valve stem, which extends through the laced side of the envelop, the parts being otherwise constructed and arranged in detail as hereinafter more particularly explained.

Figure 1, is a view of a shoe provided with my pneumatic tread both on the heel and sole portions. Fig. 2, is a plan view looking from the bottom of the shoe and partially broken away to exhibit the formation of the envelop and the air tube. Fig. 3, is a longitudinal section through the shoe. Fig. 4, is a detail of the form of envelop forming the cushion tread of the sole of the shoe or boot as it would appear before being secured in position. Fig. 5, is a view of the envelop forming the cushion tread for the heel before it is secured in position. Fig. 6, is a perspective detail of the leather heel bed.

In the drawings like letters of reference indicate corresponding parts in each figure.

My invention is adapted to a shoe, but it will, of course, be understood that it may be adapted with equal facility to boots and the heel portions of artificial legs, and for like uses.

A is the upper of the shoe. B is the ordinary sole thereof formed preferably of leather and C is the heel portion of the sole.

D is the upper portion of the envelop, and D' is the lower portion of the envelop. The lower portion is crimped up at the sides in curvular form as shown and provided with an attaching edge D², which is sewn all around to the attaching edge D³ of the upper portion.

A pneumatic tube E preferably of rubber in the form shown is inserted in the envelop D D'. The tube E before insertion is of ring form but after insertion it will be noticed that it is formed in the shape of an irregular oval substantially L-shape in form to fit the envelop and the sole of the shoe. One end E' of the loop is designed to come under the ball of the foot at the outside and the intermediate projection E² under the ball of the foot at the inside, and the opposite end E³ of the loop under the toes. The air tube E is held in position by a plate F preferably of leather, see Figs. 2 and 3. This plate may be of any desired thickness, but such thickness must be sufficient to hold the air tube in the position shown. The tube E is provided with a tubular nipple E⁴, which extends from a position underneath the shank and is provided with a suitable air valve E⁵, whereby the air tube may be inflated, so as to give the desired resiliency or cushioning effect.

The envelop D is secured in position by means of an outer envelop G, which is attached by stitching G' to the sole around the outer edge and across the shank. The outer envelop is provided with a mouth underneath the shank through which the air valve extends, the opposing edge of such mouth being secured together by lacing G².

H' is the upper portion of the envelop H and H² is the lower portion, which is crimped or formed up at the sides, so as to extend upwardly and is provided with a projecting edge H³, whereby it is connected by a row of stitching H⁴ to the attaching edge H⁵ of the upper portion H'.

The tube I is somewhat in the form of a ring and is inserted through the front of the envelop, the attaching edges of which are afterward secured together by lacing H⁶. A tubular nipple I' is provided, which is connected to the tube and is provided with an air valve I². The tube may be of ring form in which case it is pressed together

in the form shown in Fig. 3 forming an elongated loop with the sides of the loop preferably disposed one above the other.

An outer envelop J preferably of leather is provided and the envelop H is secured in position by the envelop J, the edges of which are attached by lacing J' extending through the edge of the heel portion of the sole as indicated in Figs. 1 and 3.

K is a leather heel bed preferably in the form somewhat of a horse shoe and beveled inwardly. The heel bed K serves to form a comfortable rest for the heel, which would otherwise rest upon a rounded or convex surface caused by the inflation of the tube I.

It will, of course, be understood that the means of attaching my pneumatic cushion tread to the sole may be varied from that shown in the drawings and other changes may also be made in detail of my cushion tread without departing from the spirit of my invention. For instance, my heel cushion may be adapted to the heel portion of an artificial leg, which would, of course, have to be so formed at the bottom of the heel in order to receive the cushion tread, which would be suitably secured in place.

What I claim as my invention is—

1. In a pneumatic tread for boots and shoes, the combination with the sole portion of the shoe, of an air tube formed in the shape of a loop and adapted to lie flat in relation to the sole, one end of the loop extending underneath the toe and the other being turned, so as to form somewhat the shape of an L with the back end of the loop under the ball portion of the shoe at the outer side and a bend in the loop under the ball portion at the opposite side and an envelop inclosing the tube and holding it in shape, and an encompassing envelop inclosing the aforesaid envelop provided with an attaching edge secured by stitching around the edge of the sole of the shoe and across the shank as and for the purpose specified.

2. In a pneumatic tread for boots and shoes, the combination with the sole portion of the shoe, of an air tube, an envelop inclosing the same and a plate of leather suitably formed and holding it in shape, an outer encompassing envelop inclosing the aforesaid envelop provided with an attaching edge se-

cured by stitching around the edge of the sole of the shoe and across the shank as and for the purpose specified.

3. The combination with the sole of a shoe and heel portion thereof, of an envelop comprising a top portion adapted to fit underneath the heel portion and a bottom portion rounded or crimped up into pouch-like shape and suitably attached to the upper portion, a tube in flat ring form held in the envelop and provided with a suitable tube and an air valve adapted to extend underneath the shank of the shoe, an outer envelop inclosing said first named envelop, and lacing securing said outer envelop to the sole of the shoe.

4. The combination with the sole or bottom of the shoe, of a pneumatic tube of ring-like form so arranged as to leave an opening in the center and located underneath the sole, an encompassing envelop in which the pneumatic tube is inclosed comprising a flat plate of leather and an outer covering extending inwardly around the outside edge of the tube and provided with an outwardly extending attaching edge or flange projecting around the outer edge of the same which outer covering covers both the tube and the opening in the center, and suitable means for connecting such attaching edge to the bottom of the shoe as and for the purpose specified.

5. The combination with the sole or bottom of the shoe, of a pneumatic tube located underneath the sole, an encompassing envelop in which the pneumatic tube is inclosed provided with an outwardly extending attaching edge or flange projecting around the outer edge of the same, a reinforcing bed of horse shoe shape located at the inside of the shoe and beveled inwardly so as to receive the heel bone and forming a support for the edge of the sole, and means for fastening the heel bed and encompassing envelop, one to the upper side and the other to the under side of the bottom of the shoe directly over one another as and for the purpose specified.

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Witnesses:

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