C. J. BAILEY.

ELASTIC TREAD.

APPLICATION FILED JAN. 6, 1910.

954,413. Patented Apr. 12, 1910.

Fig: 1.

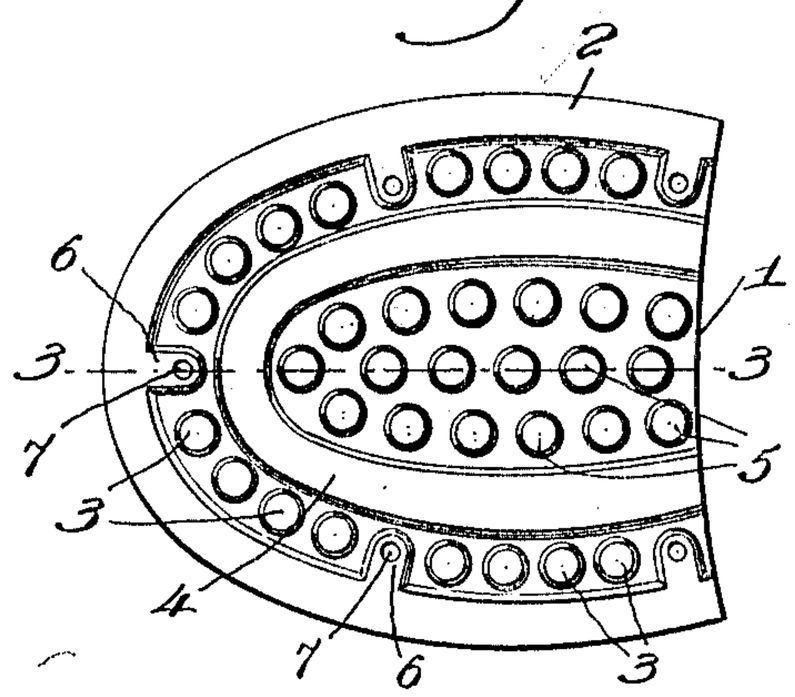


Fig: 2.

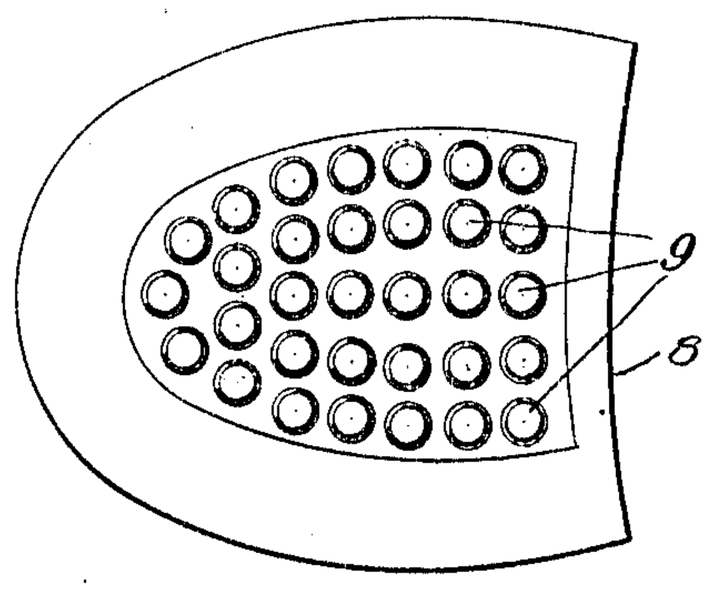


Fig: 3.

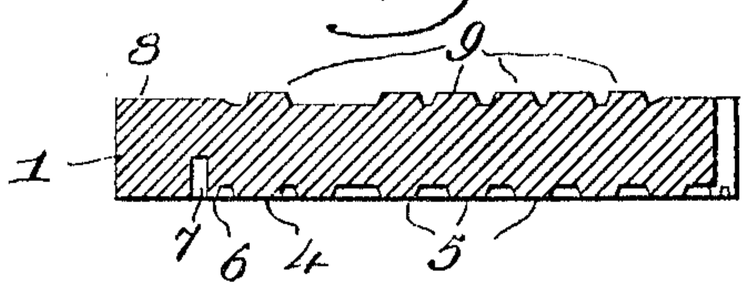


Fig: 4.

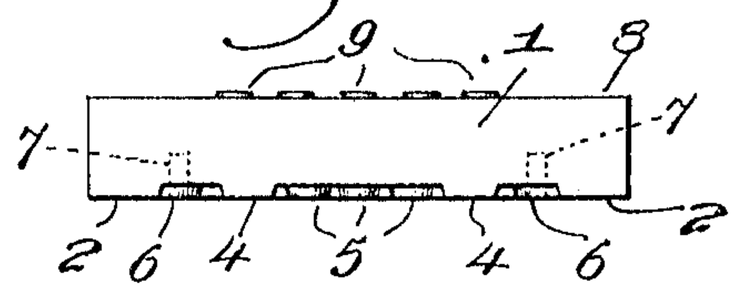
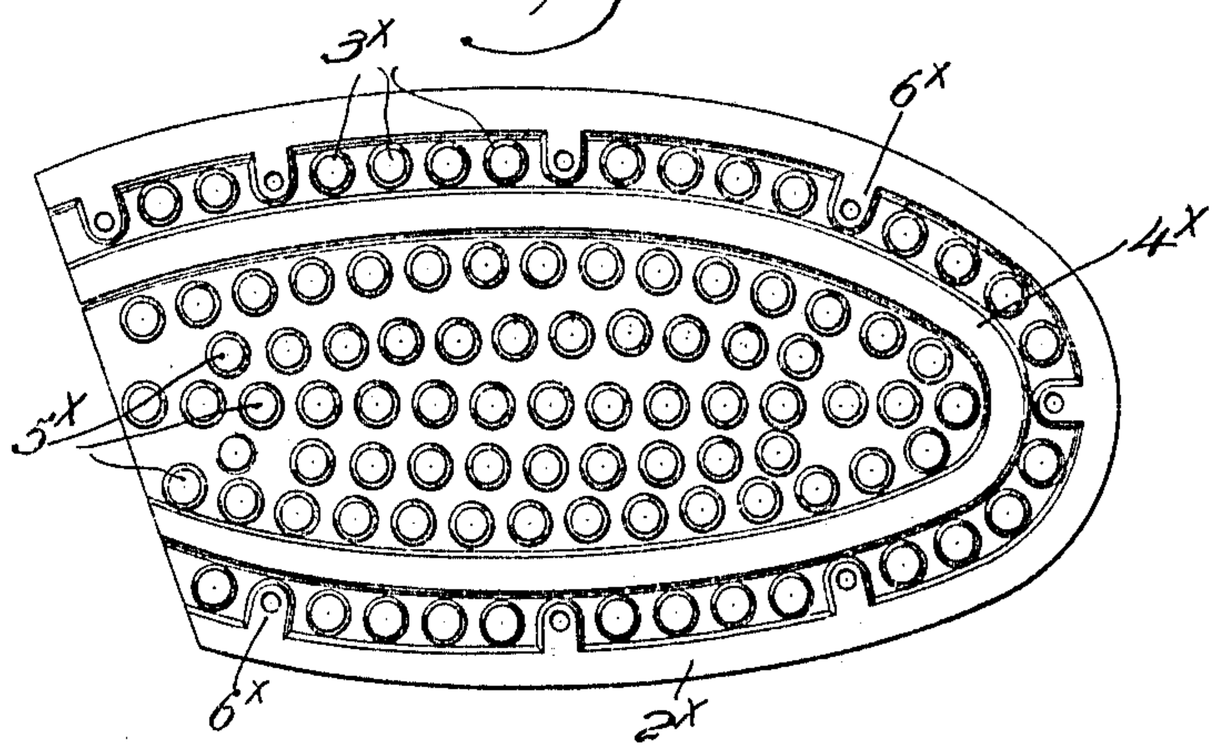


Fig: 5.



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UNITED STATES PATENT OFFICE.

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ELASTIC TREAD.

954,413. Specification of Letters Patent. Patented Apr. 12, 1910.

Application filed January 6, 1910. Serial No. 536,658.

To all whom it may concern:

Be it known that I, CHARLES J. BAILEY, a citizen of the United States, and resident of Newton, county of Middlesex, State of Massachusetts, have invented an Improvement in Elastic Tread, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts.

This invention has for its object the production of an improved, novel and efficient elastic tread particularly adapted for use on the bottoms of boots and shoes, my novel tread being adapted for application to the heel or sole, or to both, as may be desired.

The elastic tread embodying my invention provides a firm yet elastic support and is so constructed and arranged that a most effective frictional engagement with the ground is provided, absolutely preventing slipping on snow, ice, or on wet, muddy or slippery sidewalks or other surfaces.

In practice the tread is preferably made of solid rubber, the outer or tread surface being provided with one or more wear-sustaining ribs conforming in shape to the general contour of the tread and having a flat, continuous face, and a plurality of separated resilient and flexible projections which when compressed and distorted are extended momentarily into the intervening spaces. When such projections are released from pressure they instantly resume their normal positions, displacing or freeing the tread surface from mud, dirt, or particles of snow or ice and placing it in proper condition for the next step.

The various novel features of my invention will be fully described in the subjoined specification and particularly pointed out in the following claims.

Figure 1 is a plan view of the outer or tread surface of an elastic tread embodying my invention and adapted to be applied to the heel of a boot or shoe. Fig. 2 is a similar view of the attaching surface of the tread illustrated in Fig. 1; Fig. 3 is a longitudinal section of the tread taken on the line 3—3, Fig. 1; Fig. 4 is a right hand end elevation of the tread; Fig. 5 is a view similar to Fig. 1 of a tread adapted to be applied to the sole of a boot or shoe, showing the outer or tread surface.

Referring to the drawings, the tread comprises a body portion 1 of suitable thickness, in practice made of molded rubber and suitably vulcanized, and of suitable contour to adapt it for the heel or sole of a boot or shoe, as the case may be, the outer or tread surface, see Fig. 1, being provided with a substantially U-shaped wear-sustaining rib 2 adjacent the edge of the tread, a series of separated flexible and relatively soft resilient projections 3 within the rib 1, an inner and symmetrically shaped wear-resisting rib 4, and a plurality of projections 5 within it and similar to the projections 3.

The ribs have flat and continuous faces, as herein shown, lying in the same plane, and herein I have shown the projections 3 and 5 as frusto-conical in shape, with flattened outer ends, which latter normally lie in the plane of the faces of the ribs 2 and 4.

At suitable intervals the outer rib 2 is provided with inwardly extended enlargements 6, which are socketed at 7 for the reception of nails or screws for the attachment of the tread, said enlargements extending quite close to the inner rib 4, and as shown in Fig. 1 the projections 3 are located between the enlargements in the space between the two ribs.

Both edges of the rib 4, and the inner edge of the rib 2, are preferably slightly beveled so that the bases of the ribs are slightly wider than the wearing faces thereof, the corners of the ribs being made sharp to assist in frictionally engaging or contacting with the ground, to prevent slipping.

The wear on the tread surface is taken up mainly by the flat faces of the ribs, as will be apparent, the relative solidity and the continuity of the the ribs sustaining the major part of the weight to which the tread surface is subjected when in use, and equalizing the wear thereupon.

It might be said that the body is recessed within and between the ribs, and that the projections 3 and 5 rise from the bottom of the recess, the projections being separated from each other and relatively soft and flexible, so that when the weight is brought upon the tread said projections will be compressed and flexed to distort them more or less and cause them to extend momentarily into the spaces between them.

By the use of a number of separate projections, which yield or flex independently of each other, the tread surface conforms readily to irregularities in the surface walked

upon and the edges formed by the junction of the side walls and outer ends of the projections present a multitude of sharp edges which engage and cling to the road or other surface, preventing any slipping or sliding motion of the tread thereupon.

Upon very smooth and slippery surfaces, such as ice and hard-packed snow, or wet pavements, the numerous small, independent and clinging engaging and holding portions provide such a frictional grip or hold that slipping is eliminated, the transverse edges of the ribs 2 and 4 acting similarly at such time and increasing the non-slipping characteristic of the tread.

There will be some spreading or flexing of the ribs when the weight of the wearer is brought upon the tread, manifestly, tending to more or less fill the adjacent spaces between the ribs and the projections, and this is desirable for the reason that the return of the ribs to normal condition when released from pressure acts, in conjunction with similar action on the part of the projections, to disengage and throw out any snow, mud or other dirt which may have collected on the tread. Thus the tread will not retain and carry indoors any dirt from the outside, and after each step the tread acts automatically to clear itself from anything picked up from the roadway or other surface traveled upon, and is in readiness to act with full effect when the next step is taken.

Referring to Fig. 5 the tread therein shown is shaped for attachment to the sole of a boot or shoe, the tread surface being made up of projections and ribbed portions substantially as shown in Fig. 1, the wear-sustaining ribs being indicated at 2^x, 4^x, the resilient projections at 3^x, 5^x, and the enlargements for the nails or screws are shown at 6^x.

Referring to Figs. 2, 3 and 4, the upper or attaching surface of the tread is shown as presenting a rather broad and flat faced border or rim 8, within which I provide a number of separate projections 9, similar to the projections on the tread surface, but said projections 9 extend slightly above the plane of the border or rim 8, as shown clearly in Figs. 3 and 4.

The rim 8 is in practice cemented to the part of the shoe bottom to which the tread is to be applied, and preferably the tread is additionally secured by suitable nails or screws, but the projections 9 are placed under compression, increased as the weight of the wearer comes down on the shoe, so that these projections serve as an elastic cushion.

The elastic tread embodying my invention is applicable to boots and shoes of various kinds, such as those used for ordinary wear, for tennis, or yachting shoes, and for overshoes, arctics, lumbermen's boots, etc. in fact, for any article of footwear where it is desired to prevent slipping and to obtain a firm and safe yet elastic or yielding foothold.

My invention is not restricted to the precise construction and arrangement herein shown and described, for the same may be varied or modified in different particulars by those skilled in the art without departing from the spirit and scope of my invention as set forth in the claims annexed hereto.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. An elastic tread comprising a body portion provided with a plurality of relatively soft projections on its tread surface and adapted when compressed to substantially fill the spaces between them, and a substantially U-shaped wear-sustaining rib on the tread surface and within which rib the projections are located, said rib having laterally extended nail-receiving enlargements on its inner edge.

2. An elastic tread comprising a body having its tread surface provided with inner and outer wear-sustaining ribs substantially U-shaped and having continuous flat faces, a series of separated, flexible and resilient projections interposed between said ribs, and similar projections within and inclosed by the inner one of said ribs, said projections being free to yield laterally when compressed and momentarily fill the intervening spaces.

3. An elastic tread for boots and shoes, provided on its tread surface with a plurality of substantially U-shaped wear-sustaining ribs having flat faces lying in the same plane, one of said ribs adjacent the edge of the tread, and a plurality of relatively soft, resilient projections on the tread surface, laterally separated from each other and from said ribs and inclosed thereby, compression of such projections when the tread is in use causing them to be distorted momentarily and forced into the spaces between them.

4. A cushioned tread for boots and shoes, comprising an elastic body having its tread surface provided with a flat-faced wear-sustaining rib adjacent its edge and with flexible, resilient and separated projections within said rib, and a series of yielding and resilient projections extending above the attaching surface of the tread, to bear against and be compressed by the contiguous part of the shoe and form a cushion for the tread.

5. A cushioned tread for boots and shoes, comprising an elastic body having its tread surface provided with elongated flat-faced wear-sustaining portions and a plurality of flat-ended, resilient and relatively soft projections whose outer ends lie in the plane of said wear-sustaining portions, a broad and flat rib on the attaching surface of the tread, and separated, resilient projections within

said rib and having their ends extended beyond the plane thereof.

6. A rubber tread for boots and shoes, having its tread surface provided with a U-shaped wear-sustaining rib adjacent its edge and having inwardly extended nail-receiving enlargements, a row of separated, resilient and flexible projections arranged within and near said rib and between the said enlargements, an inner wear sustaining rib symmetrical with relation to the outer rib, and a plurality of separated, resilient and flexible projections arranged within said inner rib, the ends of the projections and the wearing faces of said ribs normally lying in the same plane.

7. An elastic tread comprising a body portion provided with a plurality of flat-ended and relatively soft, separated and distinct frusto-conical projections on its tread surface, said projections yielding laterally when compressed and momentarily extending into and substantially filling the spaces between them, a flat-faced wear-sustaining rib adjacent the edge of the tread, the projections being located within said rib and having their flat ends lying in the plane of the face of the rib, and nail-receiving enlargements within and adjacent said rib.

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

CHARLES J. BAILEY.

Witnesses:

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