(No Model.)

J. VAUGHAN.

RUBBER-SOLE FOR SHOES.

No. 306,561. Patented Oct. 14, 1884.

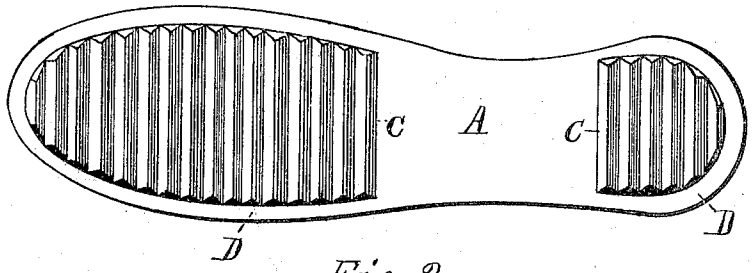
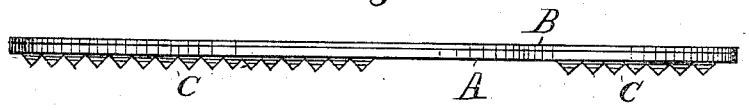


Fig. 1

Fig. 2



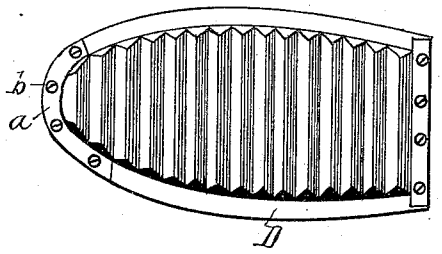


Fig. 5.

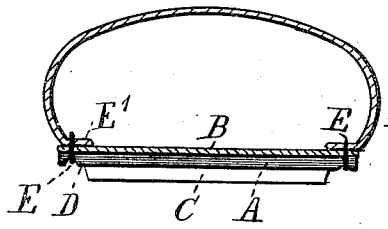


Fig. 3.

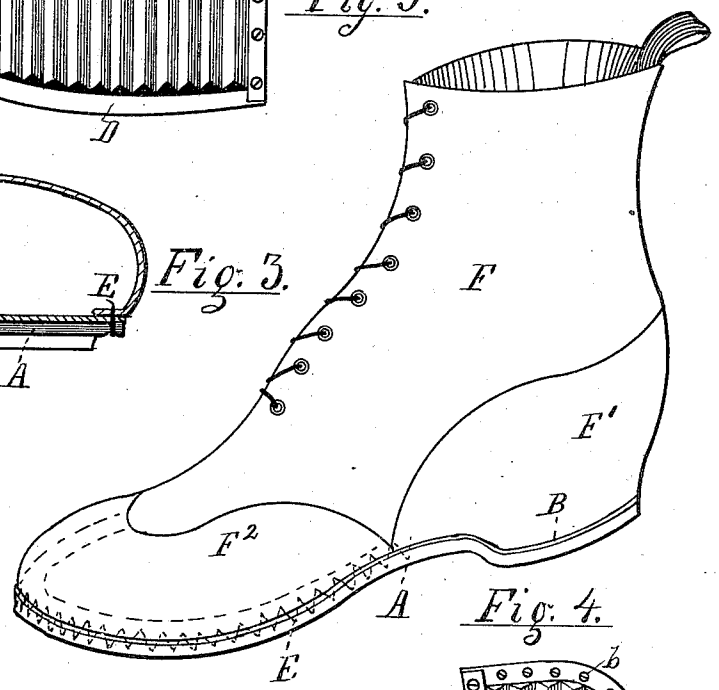


Fig. 4.

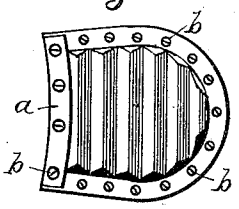


Fig. 6.

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UNITED STATES PATENT OFFICE.

JOSEPH VAUGHAN, OF NEWARK, NEW JERSEY.

RUBBER SOLE FOR SHOES.

SPECIFICATION forming part of Letters Patent No. 306,561, dated October 14, 1884.

Application filed February 23, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH VAUGHAN, a subject of the Queen of Great Britain, residing in Newark, Essex county, New Jersey, have invented certain new and useful Improvements in Rubber Soles for Shoes, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to that class of shoes manufactured with a leather or canvas top and a soft sole for base-ball, lawn-tennis, cricket, &c.; and it consists, first, in a combined rubber and canvas sole, as a new article of manufacture; second, in the combination, with such sole, of transverse corrugations at certain parts of the bottom; and, third, in a shoe constructed with a sole of the character described.

The invention will be understood by reference to the annexed drawings, in which Figure 1 is a plan, and Fig. 2 an edge view of a sole embodying my invention. Fig. 4 is a perspective view of a leather and canvas top shoe with such a sole. Fig. 3 is a section across the toe of the shoe at *x x* in Fig. 4, showing the attachment of the welt to such sole by stitching. Fig. 5 is a plan of a tap-sole secured by plates in addition to the usual cement, and Fig. 6 is a plan of a heel-top secured by plate and screws.

The improvement consists, essentially, in securing by powerful pressure and cement a canvas top to the rubber soles heretofore used for the class of shoes for which this improvement is intended.

In the drawings, A is the india-rubber, and B the canvas, the two being so incorporated that when the welt is sewed to the sole the joint or seam is effectually held together by the canvas.

Care projecting ribs or corrugations—such as are commonly formed on the bottom of such rubber soles to prevent the slipping of the same on ice or muddy ground—the corrugations not being extended to the edge of the sole, but a flat or smooth seat, D, being left around the edge for the more convenient application of the stitches in case such means of securing the sole to the shoe may be used.

In Fig. 3 the welt is shown at E′ and the stitches at E, the section showing plainly the insertion of the stitches in the flat seat at the edge of the sole, and the manner in which the stitches may be drawn into the rubber without weakening the hold of the sole to the welt, as the canvas lying between the two serves as an effectual stay to hold the stitches, even though the stitches should pull entirely through the rubber.

In Fig. 4 the stitches are shown at a part of the sole to illustrate the application of the canvas between the true rubber sole and the welt. The same figure also illustrates the class of shoe to which such soles are commonly applied, the vamp F^2 and counter F′ being of leather and the top F of canvas, or the whole shoe made of leather or canvas alone.

In manufacturing my improved sole the canvas is cut to the desired form and placed in a mold with a suitable piece of soft india-rubber, a strong adhesive cement being preferably applied to the canvas. Sufficient pressure is then applied to the canvas to force the rubber into its pores, so that the rubber will always be strongly secured to the shoe by means of the canvas. The canvas surface in contact with the welt is by this means well fitted to strongly retain the cement that is commonly applied to the welt to make a water-tight joint, and with our canvas-topped soles such cement may be used without stitching to secure the soles of shoes for the lighter kinds of wear, as lawn-tennis, although the stitching is very desirable for such purposes as base-ball, &c. The corrugations, to lighten the sole in a certain measure, do not extend farther than is really necessary—namely, to the ball of the shoe and top piece of the heel, just where the tread of the foot expends itself, freeing the waist of the shoe from all unnecessary weight and stiffness, (a feature belonging to the old style of sole,) and imparting that flexibility and elasticity essential to this class of shoes, designed for use chiefly in active athletic exercises.

The assimilative properties of the canvas and leather being admirably adapted in securing a perfect adhesion of the cement, I am enabled to avoid all the unnecessary toil bestowed on the old style of sole by rasping and cleaning the rubber preparatory to spreading the cement over its surface.

The old method of cementing the sole, welt, and insole together being precarious, it was often necessary to stitch the welt and sole

together; but even then the tearing or slipping of the stitch through to the welt rendered the stitching process abortive. The work thus done was generally irregular and clumsy, as the corrugations, extending to the extreme edge of the sole, would not permit of a finished piece of work.

In my combination-sole the flat narrow margin running around the entire circumference of the sole affords a perfect surface to stitch upon, if desirable, although not always necessary, as stated above, owing to the rough and fibrous character of the surface afforded by the canvas to the cement. The spikes necessary in base-ball and cricket shoes would also be firmly held against the canvas in such a manner as to be absolutely immovable in the shoe.

These soles may be very readily and strongly attached, by sewing, to any leather shoes already in use, and would then answer an excellent purpose in winter, as they can be applied so easily to the soles already on the shoes, and effectually prevent slipping on the ice.

From the above it will be seen that my invention has no reference to overshoes of india-rubber or other material, but is intended for direct application to any old or new shoes as the outer sole thereof.

Having thus set forth the nature and advantages, it will be seen that it does not consist merely in cutting soles from cloth-lined rubber, as the soles require to be separately molded to secure the proper adhesion of the canvas to the rubber. Neither does it consist in the special arrangement of the corrugations, apart from the combined rubber and canvas sole, as the staying character of the canvas renders the use of stitching and the flat seat around the edge of the sole especially useful and effectual.

It is obvious that any other strong fabric of equivalent character may be used to the same effect as the canvas I employ without departing from the spirit of my invention.

In Figs. 5 and 6 are shown methods of applying my invention to a leather shoe in two pieces, the rubber sole being applied only to the ball and heel of the foot, and omitted from the shank, where its weight might be objectionable and its presence of no material advantage. The tap-sole A′, Fig. 5, is shown secured by a fastening-plate, *a*, at each end, the same being applied to the flat marginal seat D, and secured by screws *b*, inserted into the leather of the original sole. The heel-top is secured by a similar plate, *a*, at the inner end, and elsewhere by screws *b*, the canvas on the inner side of the rubber serving in all these cases to form an effective stay to the screws or plates. By these means the rubber sole may be quickly applied to any leather shoe, and the labor of sewing the same avoided, cement being preferably first applied and the screwed fastenings serving to relieve the same of the real strain when the shoe is in use.

I claim—

1. As a new article of manufacture, a sole for lawn-tennis and cricket shoes, and others of an analogous character, consisting of the rubber bottom A and canvas top B, pressed and incorporated together, substantially as and for the purpose set forth.

2. The sole formed of the rubber bottom A and canvas top B, incorporated together, as described, and provided with corrugations C and flat seat D around the edge of the rubber, as and for the purpose set forth.

3. The combination, with a shoe of canvas or leather, as described, of a rubber sole faced on the top with canvas, and the canvas being united to the welt of the shoe by cement, substantially as herein set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOSEPH VAUGHAN.

Witnesses:
THOS. S. CRANE,
C. C. HERRICK.