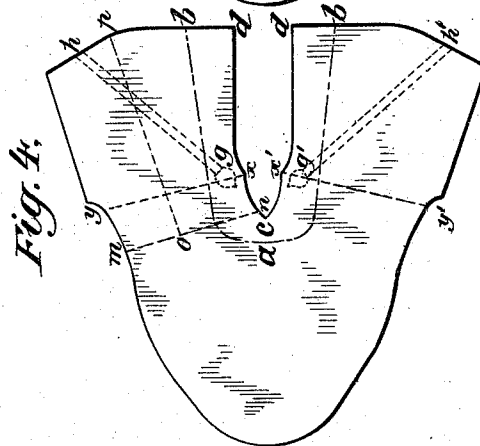
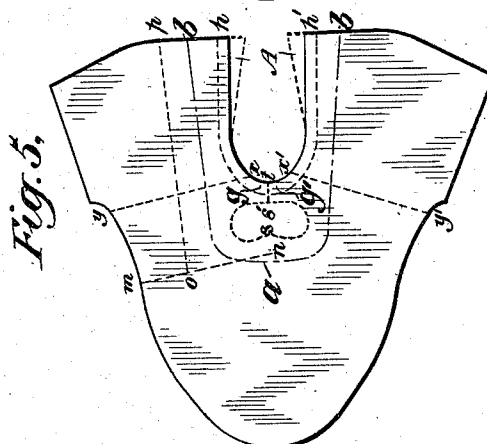
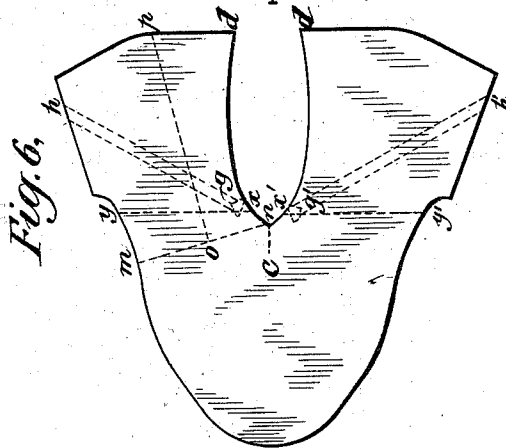
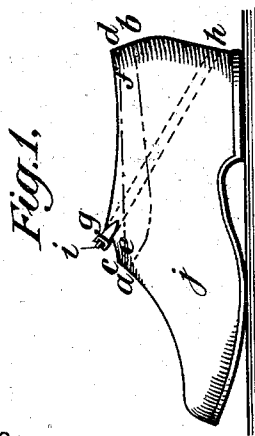
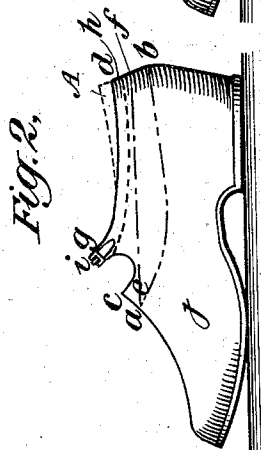
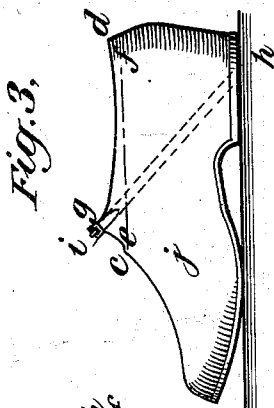


(No Model.)

E. A. SAUNDERS.
RUBBER SHOE.

No. 559,044.

Patented Apr. 28, 1896.



WITNESSES:

R. H. Raynolds
M. Wilson

INVENTOR

Emmett A. Saunders

BY *Lufford & Bull*

ATTORNEYS.

UNITED STATES PATENT OFFICE.

EMMETT A. SAUNDERS, OF NEW HAVEN, CONNECTICUT.

RUBBER SHOE.

SPECIFICATION forming part of Letters Patent No. 559,044, dated April 28, 1896.

Application filed May 18, 1895. Serial No. 549,738. (No model.)

To all whom it may concern:

Be it known that I, EMMETT A. SAUNDERS, a citizen of the United States, and a resident of New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Rubber Shoes, of which the following is a specification.

Heretofore one class of rubber shoes was constructed in which the upper surrounding the opening was elastic and therefore presented a line of elasticity which expanded to admit the foot of the wearer by reason of substantially coinciding with the line of strain produced by the entrance of the foot. This permitted the upper to be extended higher than if the material around the opening were inelastic. This class was unprovided with any inelastic fastenings adapted to bind the shoe to the foot firmly and closely. In another class of rubber shoes the upper surrounding the opening (excepting at and near the front) was constructed of inelastic material, continued as straps upward and forward above the sides of the shoe, so as to permit of the straps meeting and being fastened together above the instep and thus binding the shoe to the foot firmly and closely by an inelastic part. In the latter class, however, the presence of the inelastic material at the sides and around the back of the opening substantially destroyed the line of elasticity above referred to and necessitated the extension of the opening at the instep far below the strap-fastenings, producing a shoe low in front and with long dangling straps.

The object of my invention is to combine the advantages and avoid the disadvantages of both said classes; and it consists in constructing a rubber shoe containing a line of elasticity extending in the line of strain produced by inserting the foot, substantially around the opening, in combination with a line of inelasticity extending from the buckle or other strap-fastening substantially around the heel or rear of the shoe. Although the inelastic line in some forms of construction crosses the line of strain produced by inserting the foot it is so disposed that the elastic line exists substantially independently of it.

In the accompanying drawings I have shown in Figures 1, 2, and 3 three forms of

my invention. In Fig. 4 I have shown the pattern for the upper of Fig. 1; in Fig. 5, a pattern for the upper of Fig. 2, and in Fig. 6 a pattern for the upper of Fig. 3.

In Figs. 1 and 2 the broken line *a b* shows about the height to which it has heretofore been found practicable to build the upper of the old strap-and-buckle rubber shoe.

In Figs. 1, 2, and 3 *c d* represent in a shoe containing my invention the extreme front and rear of the top opening, and the unbroken lines between them represent the top of the upper. The broken line *e f* is the line of strain produced by the entrance of the foot, which is also the line of elasticity. The broken line *g h* is the line of inelasticity. It will be observed that in the figures the fastenings *i*, instead of being secured at the ends of long dangling straps, are mounted on or close to the sides of the shoe which extend high enough up toward them.

In none of the figures is the line of inelasticity coincident with the line of strain for inserting the foot. In Figs. 1 and 3 the lines of inelasticity and of strain cross each other at a considerable angle. In Fig. 2 the lines of inelasticity and strain do not cross each other, but diverge from each other from the back of the shoe forward. In all cases the line of strain produced by inserting the foot is elastic substantially at or near the heel and at the sides as well as substantially at or near the instep, and at the same time the line of strain from the buckle or fastening is substantially an inelastic loop surrounding the heel (either at the back of or at the sole of the heel) and the instep.

The shoes (shown in Figs. 1, 2, and 3) containing the elastic and inelastic lines according to my invention may be built as follows: The last is first covered in the usual manner with the ordinary elastic lining, but cut, as shown in full lines in Figs. 4, 5, and 6, respectively. It is a well-known peculiarity of these linings that they are, because of their construction, very much more elastic in one direction of the goods than in the other, so that when constructed with lining cut whole (or in one piece) the shoe is much more elastic across the vamp on the line *m n* than lengthwise of the sides on the line *o p*. Should it be desired to produce a shoe cut extremely

high the lining may be cut in three pieces instead of one, the sides back of the lines $x y x' y'$ being turned and cut the elastic way of the goods and joined to the fore part on the lines $x y x' y'$ in Figs. 4, 5, and 6. The elasticity of the sides or quarters is retained, which was not the case when an inelastic strap was superimposed upon them as in the old construction of the strap-shoes. After this lining is lasted up in the usual way the inelastic cords or strips $g h g' h'$ (dotted lines in Figs. 4, 5, and 6) are placed upon it, after which the shoe is finished up in the regular way, the fasteners being attached in each case at points near g and g' after the gum outer ply of the shoe-upper is in position. For the shoes shown in Figs. 1 and 3 this gum outer ply is cut to correspond with the contour of the lining shown in full lines in Figs. 4 and 6. To construct the shoe shown in Fig. 2, that outer ply is cut to correspond with the lining shown in full lines in Fig. 5, except that the section shown by the dotted lines $s s'$ is cut out of the outer ply before it is put in place on the lining. After the shoe has been vulcanized the corresponding portion $n s$ of the lining is trimmed out, preferably before the shoe is removed from the last, and the portion of the shoe remaining between g and g' is slitted apart or divided on the line $s t$. In the construction of Fig. 2 the lining and gum outer ply may be cut with the elastic extension A, (dotted outline,) if desired. Shoes constructed as shown are (notwithstanding the fact that they are very high cut, and so a great protection to the foot of the wearer) not only put on and removed from the foot as easily as the old much lower-cut shoe furnished with the old straps, but they are more easily and more cheaply made, and while they are capable of being secured to the foot by the fasteners just as effectively as the old style of shoe they are free from the long dangling straps which were so great an objection in that shoe. The sides of the shoe become the straps, while retaining substantially their old efficiency as the sides of shoe, and the straps, while retaining sub-

stantially their inelastic properties necessary to them as straps, (or strap extensions,) become substantially the sides of the shoe. By this combination and arrangement of parts is produced a cheaper, neater, better, and more desirable shoe, and one for which it is believed there is a great demand in the market.

The invention may be applied to other patterns of lining or upper or straps and to other forms of shoes, and the buckle or fastener for the instep-strap need not be located in the position shown. I wish it to be understood that forms shown are given by way of illustration.

I am aware of the shoe described in Patent No. 231,293, dated August 17, 1880, in which the upper is interrupted between the vamp and the quarter by elastic gore-pieces, to which were added outside flaps covering the gussets. I make no claim to such a shoe. In my shoe the vamp and quarter are merged together, making a substantially continuous upper, and the non-elastic loop or strip is merged in the upper by being permanently secured to or incorporated in it, so as to form with the upper (both vamp and quarter) a united composite material extending from the top of the upper at the instep around the heel.

I claim—

In a rubber shoe, containing elastic upper extending continuously substantially around the opening in the line of strain for the insertion of the foot, in combination with said upper, a fastener and an inelastic loop connecting with said fastener and merged into said upper substantially from the instep around the heel at an angle with the line of strain for inserting the foot, substantially as described.

Signed at New Haven, in the county of New Haven and State of Connecticut, this 15th day of May, A. D. 1895.

EMMETT A. SAUNDERS.

Witnesses:

GEORGE W. MERWIN,
MAE E. WEBSTER.