

No. 895,142.

PATENTED AUG. 4, 1908.

J. W. ARROWSMITH.
SHOE SOLE SUPPORT.
APPLICATION FILED NOV. 17, 1906.

Fig. 1.

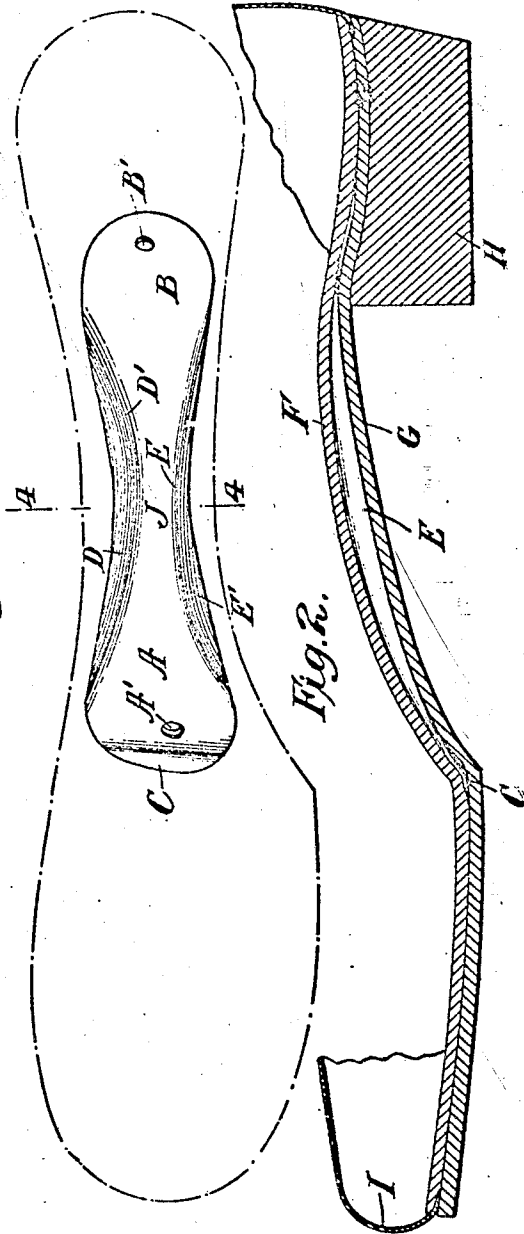


Fig. 2.

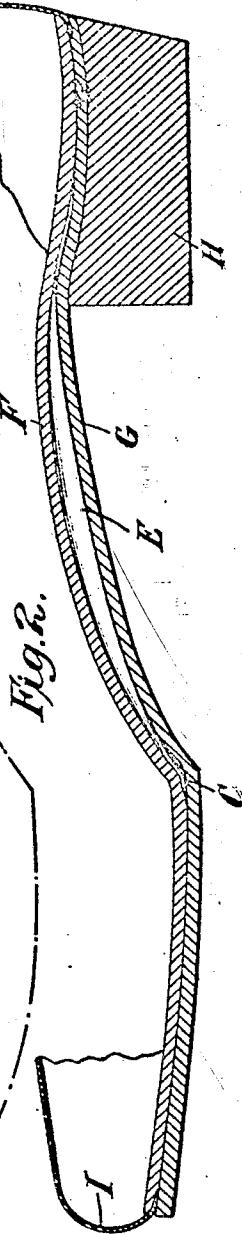


Fig. 3.

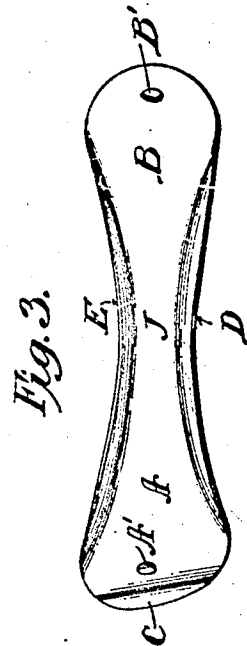


Fig. 4.



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UNITED STATES PATENT OFFICE.

JAMES W. ARROWSMITH, OF MORRISTOWN, NEW JERSEY.

SHOE-SOLE SUPPORT.

No. 895,142.

Specification of Letters Patent.

Patented Aug. 4, 1908.

Application filed November 17, 1906. Serial No. 343,912.

To all whom it may concern:

Be it known that I, JAMES W. ARROWSMITH, a citizen of the United States, and a resident of Morristown, in the county of Morris and State of New Jersey, have invented certain new and useful Improvements in Shoe-Sole Supports, of which the following is a specification.

My invention relates to improvements in boots and shoes and particularly to devices intended to be incorporated in the sole of the boot or shoe for the purpose of reinforcing or supporting the same.

Its objects are, among others, to provide a strong and durable support for the portion of the sole connecting the heel and the ball of the sole, which may be fitted or adjusted to shoes of different sizes and styles or made in uniform sizes and shapes as desired and which will form a serviceable and efficient support, preserving the shape of the shoe, increasing its durability and giving beneficial results to the wearer.

The invention is illustrated in the accompanying drawings in which

Figure 1, is a plan view of my sole support with the sole of the shoe shown in dotted lines to show the location of the said support therein; Fig. 2 is a vertical section of a shoe sole with the support therein; Fig. 3 is an underside view of the support; and Fig. 4 is a horizontal section of the same on the line 4-4 of Fig. 1.

In the ordinary construction of a boot or shoe the heel and sole proper are connected by a shank of strips of comparatively thin leather which are not capable of sustaining any considerable weight and on this account a metal tongue is sometimes inserted in the sole at this part for the purpose of stiffening the same and causing it to retain its proper shape until worn a short time. This tongue or "stiffener" is usually a flat narrow strip of metal and does not prevent the sole of the shoe from stretching and becoming flattened and thus losing its original shape and appearance. It is very undesirable to have a thick or heavy piece of metal in the sole of the shoe and the reduced width of the sole beneath the instep prevents the use of a strip wide enough to have any effective strength. The result is that after the shoe has been worn a short time, and especially when it is worn by a person having a low instep, the shoe loses its proper shape at this part. With my support, however, the sole of the shoe is sup-

ported and its original shape is preserved until the shoe is worn out, and the wearer is thus given the benefit of the new appearance of the shoe and the support and comfort due to the preservation of its natural shape at the instep. Not only this, but by a very slight adjustment of the support the part of the sole beneath the instep may be made to fit the size and shape of the foot of the average person.

The sole of the shoe consists of the lower and outer sole G, and the upper and inner sole F, to which are attached in the usual manner the heel H and the upper I.

The support is concavo-convex in form having two spatulate ends A and B connected by a neck J. Near the ends are provided perforations A' and B' which may be employed to receive rivets or other means for securing the support to the sole of the shoe. The enlarged end A has an outwardly turned portion at its extreme end which is adapted to rest upon the sole of the shoe and form a base or foot for the forward end, while the enlarged end B is formed on lines corresponding approximately with the curve of the heel but diverges sufficiently from said curve to leave a slight space for the support to flex under the pressure of the foot. The extreme forward edge of the enlarged part A is nearer to a straight line than the rear edge of the part B and is disposed at an angle to a line drawn crosswise through the center of the support. This peculiar formation of the end assists in causing the support to retain its position in the sole and to properly sustain the weight of the wearer.

The upper surface of the support is curved on a radius about equal to the distance from the heel to the ball of the foot of the wearer, or in other words from the calcaneum to the forward end of the first metatarsal, but this curve may be varied within certain bounds to suit the wearer. It is supported by the ends A and B and the webs E and D, which are formed of integral portions of the metal of which the support is made. The web D has its deepest portion E' slightly in advance of the center of the support and the web D at its corresponding portion slightly back of the same. The two webs begin at the ends A and B and gradually increase in width toward the center, so that the strengthening effect increases toward the center of the support; and in this manner an arch of increasing and diminishing strength is formed. The double

arch or the support enables it to sustain great weight and to maintain its original shape through long use, and its peculiar formation adapts it to the shape of the foot and to the resistance to the weight of the same in exactly the proper manner.

What I claim is:

1. In a device of the character described, in combination with the sole of a shoe composed of a plurality of layers, a supporting device located between said layers and extending from the heel to the sole proper consisting of a strip of metal of substantially uniform thickness having flared flattened ends and a narrower connecting portion, having a convex upper surface and a correspondingly concave under-surface uniformly varying from end to end.

2. In a device of the character described, in combination with the sole of a shoe composed of a plurality of layers, a supporting device located between said layers and extending from the heel to the sole proper consisting of a strip of metal of substantially uniform thickness and cross sectional area arched upwardly from end to end and from side to side and having its greatest transverse diameters near its ends.

3. In a device of the character described, in combination with the sole of a shoe composed of a plurality of layers, a supporting device located between said layers and extending from the heel to the sole proper consisting of a strip of metal of substantially uniform thickness and cross sectional area arched upwardly from end to end and from side to side at its middle portion, the said middle portion being narrower than the ends and entirely above the same.

4. In a device of the character described, in combination with the sole of a shoe composed of a plurality of layers, a supporting device located between said layers and extending from the heel to the sole proper consisting of a strip of metal of substantially uniform thickness and cross sectional area arched upwardly from end to end and from side to side on a radius gradually decreasing toward the middle.

5. In a device of the character described, in combination with the sole of a shoe composed of a plurality of layers, a supporting device located between said layers and extending from the heel to the sole proper consisting of a strip of metal of substantially uniform thickness and cross sectional area and superficial area throughout, but being wider horizontally at the ends than at the middle portion and concavo-convex at all points between said heel and sole, the convex surface being upward.

6. In a device of the character described, in combination with the sole of a shoe composed of a plurality of layers, a supporting device between said layers and extending

from the heel to the sole proper consisting of a strip of metal of substantially uniform thickness having flared ends and a narrower connecting portion and a horizontally turned portion at one extreme flared end, the remainder of said strip being curved upwardly from side to side on a small and constantly varying radius and from end to end on a greater radius.

7. In a device of the character described, a supporting device adapted to be placed between the layers composing the sole and extending from the heel to the sole proper consisting of a strip of metal of substantially uniform thickness having flared ends and a narrower intermediate portion, one of the said ends having its extreme outer edge horizontally turned and oblique to the longitudinal diameter of the strip.

8. In a device of the character described, in combination with the sole of a shoe composed of a plurality of layers, a supporting device adapted to be inserted between the layers and extending from the heel to the sole proper consisting of a strip of metal of substantially uniform thickness having flared ends and a narrow convex middle portion, the convex surface of the middle portion terminating at different points on opposite sides of the support at both ends but being substantially the same in extent longitudinally.

9. A device of the character described comprising a piece of sheet metal curved upwardly from end to end on its upper surface and from side to side at its middle portion, the said transverse curve being on a radius gradually increasing from the center toward the ends and constantly varying.

10. A device of the character described comprising a piece of sheet metal curved upwardly from end to end on its upper surface and from side to side at its middle portion, the said transverse curve being on a radius gradually increasing from the center toward the ends and being irregular at all points except the center and constantly varying.

11. A device of the character described composed of a piece of sheet metal of greater length than width and of substantially the same thickness throughout provided with flattened portions at its ends adapted to rest upon the heel and sole proper respectively of a shoe and an intermediate portion in the form of a double arch extending from end to end and from side to side the curvature of said side to side arch varying constantly from end to end of the intermediate portion.

12. A device of the character described comprising a strip of metal of substantially uniform thickness and cross-sectional area arched from end to end and from side to side on an irregular and constantly varying curve.

13. A device of the character described comprising a piece of sheet metal of substan-

tionally uniform thickness and superficial area throughout arched upward from end to end and from side to side, end portions of approximately the same horizontal diameter and a medial portion which gradually decreases in diameter from said end portions to the middle.

14. A device of the character described comprising a piece of sheet metal of substantially uniform thickness and superficial area throughout arched upward from end to end and from side to side, end portions of approximately the same horizontal diameter and a medial portion which gradually decreases in diameter from said end portions to the middle, a horizontally turned portion at the extremity of one of said end portions disposed obliquely to a line drawn through the longitudinal center of the device.

15. A device of the character described comprising a piece of sheet metal of substantially uniform thickness and superficial area throughout arched from end to end through its longitudinal center and from side to side at its middle part, the said side to side arch becoming gradually deeper and smaller in radius towards the middle corresponding to the height of the end to end arch so that the side edges of the device are approximately straight throughout the length of the portion which is curved from side to side.

Witness my hand this 14th day of November, 1906, at the city of New York, in the county and State of New York.

JAMES W. ARROWSMITH.

Witnesses.

S. J. Cox,

WILLIAM R. BAIRD.