

987,815.

P. C. NIEMANN.
SHOE.
APPLICATION FILED DEC. 3, 1909.

Patented Mar. 28, 1911.

2 SHEETS-SHEET 1.

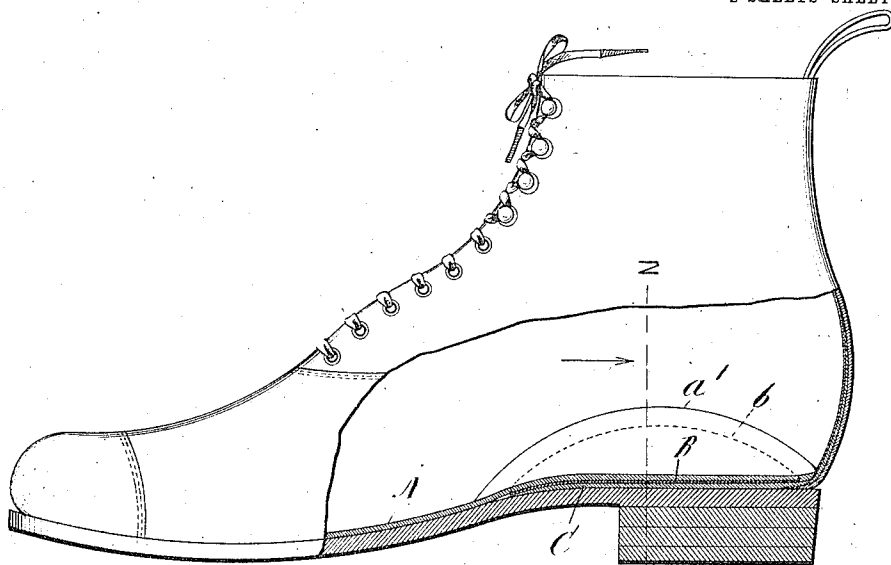


Fig. 1.

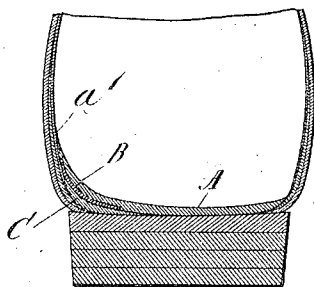


Fig. 2.

WITNESSES=
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George. Langton.

INVENTOR=
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by
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2 SHEETS-SHEET 2.

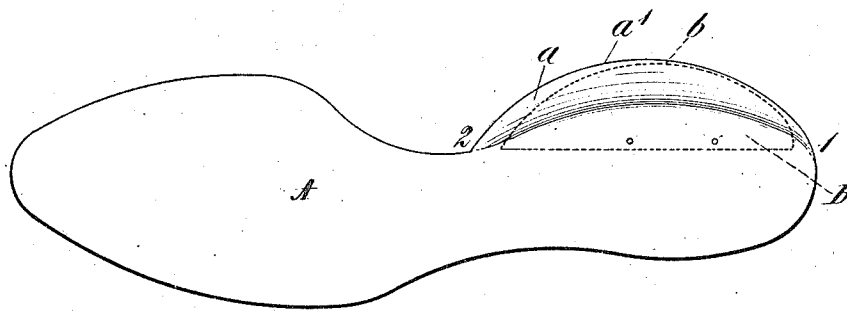


Fig. 3.

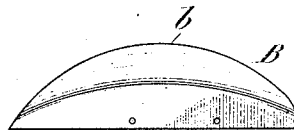


Fig. 4.

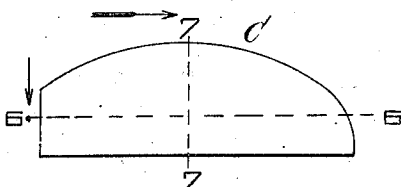


Fig. 5.

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Fig. 6.



Fig. 7.

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UNITED STATES PATENT OFFICE.

PETER C. NIEMANN, OF NEWTON, MASSACHUSETTS.

SHOE.

987,815.

Specification of Letters Patent.

Patented Mar. 28, 1911.

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To all whom it may concern:

Be it known that I, PETER C. NIEMANN, of Newton, in the county of Middlesex and State of Massachusetts, a citizen of the United States, have invented a new and useful Improvement in Shoes, of which the following is a specification.

My invention relates to that class of shoes in which support is provided to the arch of the foot as a prevention of or remedy for flat-foot, so called. Many remedies for this trouble have been suggested, but they have resulted either in a shoe which has practically lost all elasticity at the arch because of the use of a metal shank or in a plate of considerable weight which while it may have afforded temporary relief has proved cumbersome and has been very uncomfortable in the shoe and has also deprived the foot of the flexibility which it should have to enable it to be used comfortably and with freedom in walking.

My invention consists therefore in a shoe having a support which extends forward from the heel but a short distance under the instep and upon one side only thereof and does not necessarily extend the width of the sole. Such a device while it serves to support that part of the foot, viz: astragalus and scaphoid bones which bear the immediate weight of the leg and hence of the person, in no wise limits the flexibility of the foot. On the contrary it leaves all the joints as free to bend as if there were no unusual element in the construction of the shoe.

My invention will be understood by reference to the drawings in which—

Figure 1 is a side elevation partly in section of a shoe embodying my invention. Fig. 2 is a section of the lower part of the shoe taken on line 2—2 of Fig. 1. Fig. 3 is a plan of the inner sole and plate, and Fig. 4 of the plate. Fig. 5 is a plan of the extra sole piece, Figs. 6 and 7 being sections on lines 6—6 and 7—7 of Fig. 5.

The exterior of the shoe is of ordinary form. In constructing it, the inner sole A is of ordinary shape and proportions except that from a point 1 at the rear to a point 2 somewhat forward of the heel it is provided with an extension *a* which is carried up on the inner side of the last as shown by the line *a*¹ in Fig. 1.

B is the metallic member or support the

shape of which in cross section is shown in Fig. 2, its side outline being indicated by the dotted lines *b* in Fig. 1. It extends from a point near the rear of the shoe to a point somewhat forward of the heel sufficiently far only to reach under the astragalus bone and so support the forward bone of the leg, but by no means extending under the instep or arch to stiffen it. From Fig. 2 it will be seen that the flat or sole portion of this support extends but a short distance horizontally from the edge of the shoe—sufficiently far only to enable it to be fastened in place and give the necessary firmness or rigidity of support. Where the inner sole is of stiff leather the use of the metal plate B is unnecessary, but it is useful in light shoes where the inner sole is made of light leather as is usually the case. The next layer normally will be an extra sole piece C which will cover the exposed portion of the plate and will be sufficient in shape and thickness for the purpose. Upon the structure so built up the shoe will be constructed so that when complete it will appear upon the outside like a shoe of ordinary construction. Upon the inside it will appear as shown in Fig. 2. It will fit into the natural cavity of the foot compressing the flesh but in no wise cramping it or preventing the exercise of its natural flexibility in walking. It has been found also that this construction will prevent the foot from turning inward and so wear down the inner portion of the heel.

As in shoe-making the last is supposed to be shaped to the foot, so in this case the last must be shaped at the proper place according to the thickness of the extra layers to be used. In other words, it must be shaved off slightly say from $\frac{1}{4}$ to $\frac{3}{8}$ of an inch to accommodate the addition to its layers necessary to give the required stiffness to support the bones referred to, and the number and character of these layers will depend upon the kind and thickness of the material used, the point to be secured being strength as well as thickness.

Thus it will be seen that my invention consists in a shoe having in its interior a reinforce or support extending along its inner edge from a point at the rear to a point a short distance in front of the heel.

If a metal support is used I prefer to make it of copper, but other metal may answer as well and it may in fact be somewhat

wider than shown, but its length should be such as to give the necessary support without stiffening the arch.

What I claim as my invention is:—

- 5 1. A shoe having a flexible shank and a stiff reinforce extending forwardly from approximately the rear of the shoe and stopping at a point just in front of the heel and under the astragalus bone whereby the shank
10 will be left flexible to be bent by the wearer in walking and at the same time said bone will be supported by said reinforce.

2. A shoe having a flexible shank and a stiff reinforce extending along one side of its sole from a point approximately at the rear 15 of the heel to a point just in front of the heel and upward a short distance on the inside of the sole whereby it will support the arch of the wearer's foot without interfering with the flexibility of the foot in walking.

PETER C. NIEMANN.

Witnesses:

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