

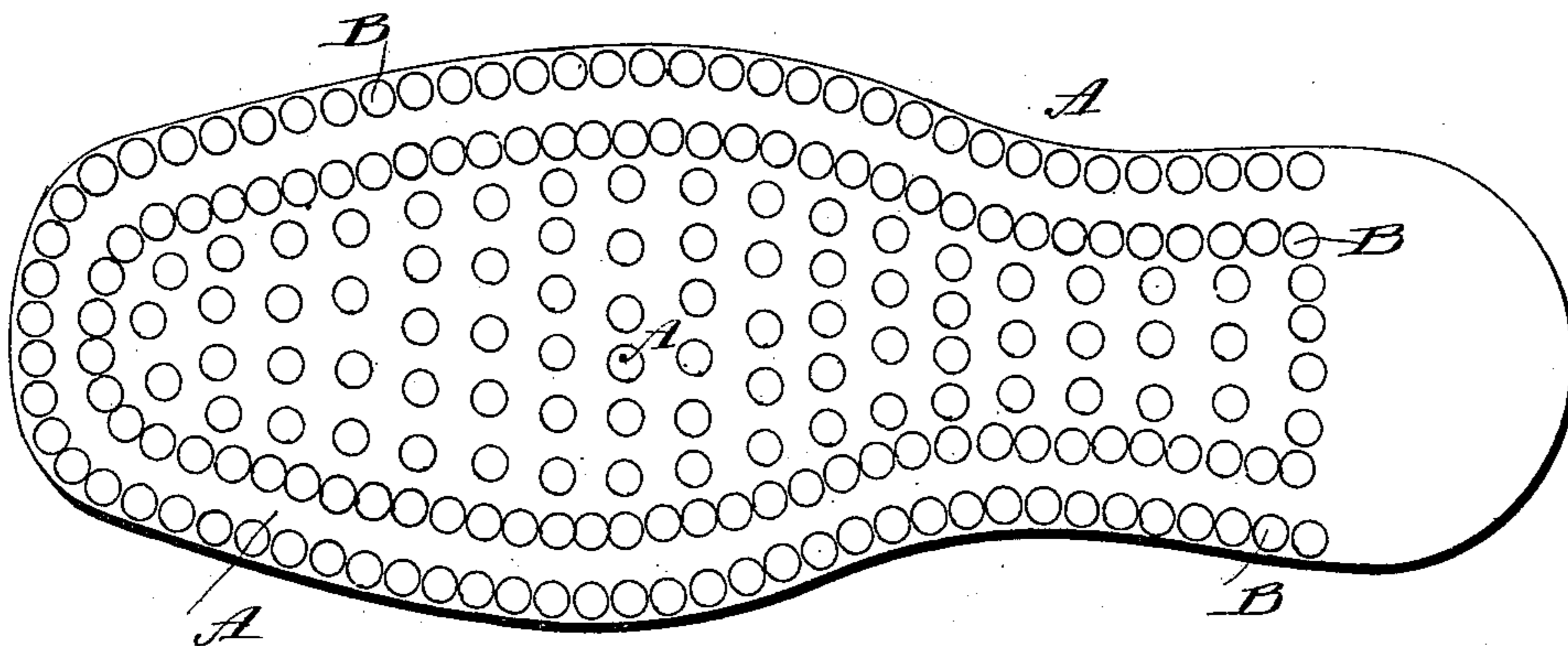
(No Model.)

S. A. LENTZ.  
SOLE.

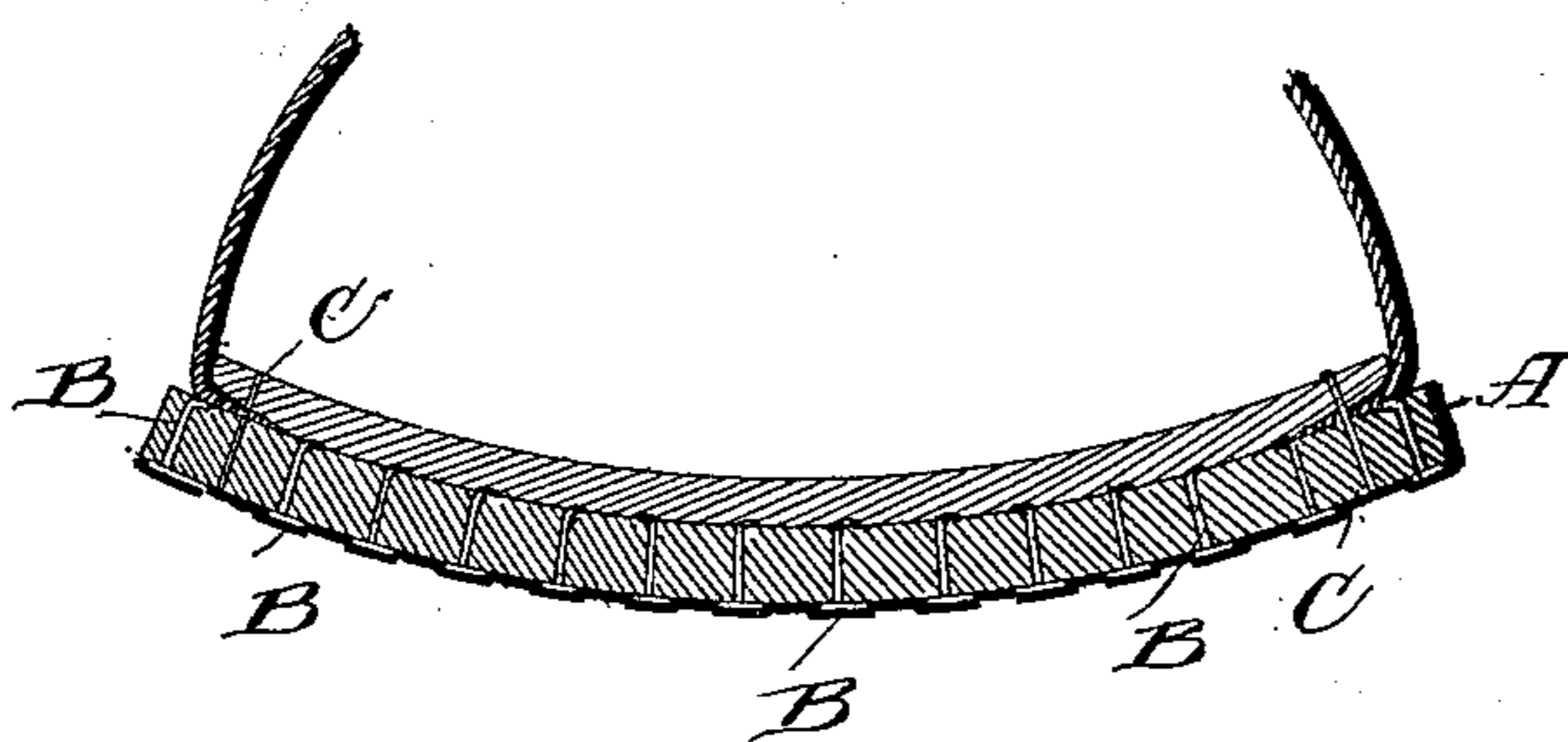
No. 463,971.

Patented Nov. 24, 1891.

*Fig. 1.*



*Fig. 2.*



Witnesses  
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# UNITED STATES PATENT OFFICE.

SILAS A. LENTZ, OF ALLENTOWN, PENNSYLVANIA, ASSIGNOR TO JOHN E. LENTZ, OF SAME PLACE.

## SOLE.

SPECIFICATION forming part of Letters Patent No. 463,971, dated November 24, 1891.

Application filed July 6, 1891. Serial No. 398,482. (No model.)

*To all whom it may concern:*

Be it known that I, SILAS A. LENTZ, a citizen of the United States, residing at Allentown, in the county of Lehigh, State of Pennsylvania, have invented certain new and useful Improvements in Soles, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to that class of boots or shoes which are known as "armored."

Heretofore the soles of boots or shoes have been protected from wear by driving and clinching nails or tacks in the outer sole, and these nails or tacks have been distributed in various forms and designs both before and after the application of the sole to the upper; but I am not aware of any instance before my invention of the production of an armored sole which could be applied to the upper in any practicable manner, either by hand or by any well-known boot or shoe sewing or pegging machines, in which sole the extreme edges were protected by nails or tacks; but, on the contrary, in prior instances the outer margin of the sole has been left unarmored for the purpose of permitting the stitching, pegs, screws, nails, or other sole-attaching devices to be applied for the purpose of securing the sole to the upper.

There are several objections attending the use of armored soles both in the manufacture and completed article, and especially is this the fact in the case of rubber boots or shoes, which are now very commonly employed in mines and other wet places. If it be attempted to armor the rubber soles, the nails frequently are drawn out, because they are so easily detached from the material in which they are embedded. If a leather sole is applied to a rubber upper, the nails are easily withdrawn from the upper, notwithstanding they may be clinched. Ordinarily, armored shoes have a double sole in order to give sufficient material to retain the nails, and the double sole is so stiff and unwieldy as to draw the nails or fastenings from the upper, separating the same from the sole and thus destroying the boot or shoe. Finally, it is practically impossible to drive and clinch nails into the sole at or near and so as to protect its edges after the sole has been applied to the upper, because

the point of the nail being opposite the center of the head said point will be driven into the upper, thereby damaging if not destroying the boot or shoe. The presence of the inner sole will not permit the entrance of any suitable anvil or clinching-surface between the outer sole and the upper sufficiently far to serve the purpose of clinching any nails which one may attempt to drive along the edges after the sole is applied to the upper.

My invention, which involves such a disposition of the nails as to completely protect the edges of the sole and at the same time to leave an unarmored space between the outer and the adjacent or the next inner row, permits of the use and operation of the standard screw or any other suitable shoe pegging or stitching machine for the purpose of securing the sole to the upper.

It will be noted that the application of the nails or tacks to the sole is made before it is applied to the upper, and a brief description of the operation and of that employed in applying nails after the sole is secured to the upper shows another important advantage attending my invention.

In applying nails after the sole is secured to the upper an iron last is introduced into the shoe and a pegging-awl is generally required, and the result is that the nails must pass through the inner sole in order to be clinched against the iron last, and it will invariably happen that a greater or less number of clinches will be imperfect and present an uneven surface, which is very destructive of a lining and very uncomfortable to the wearer. It also perforates the insoles to such an extent (especially in rubber boots or shoes which have a rubber sole) to cause them to leak. Furthermore, as before stated, it is practically impossible to drive tacks or nails along the edge of the sole and clinch the same, and therefore it is customary to employ clinch-nails on the tread of the sole and Hungarian nails along the edges. These latter very frequently are in use withdrawn from the sole and leave its edges unprotected.

The simpler operation of applying the nails attending my invention is as follows: The sole is laid upon a wooden block and the workman drives the nails through the sole

and the points into the wooden block. As soon as two or more of the nails or tacks are thus driven the sole is held in position by them and consequently the remainder of the 5 nails are very rapidly inserted and the sole is stripped from the wood and placed on an iron plate or anvil and the nails as rapidly clinched.

A space having been left for the attaching 10 devices, a sole is produced which can afterward be applied by the Standard screw machine as rapidly as can an unarmored sole, and the result is a boot or shoe which has a single sole with an armored edge, the sole being 15 substantially as pliable as one that is not armored and the boot or shoe substantially as light and serviceable as the unarmored shoe of the same grade. There is no undue stiffness in the sole to tear the attaching 20 vices from the upper, as in double-thick soles.

Referring to the drawings, Figure 1 is a plan of a sole armored in accordance with my invention, and Fig. 2 is a cross-section of a 25 portion of a shoe provided with an outsole constructed in accordance with my invention.

Like letters refer to like parts in both figures.

A represents the outsole, and B represents the tacks or nails which are driven through 30 the same and clinched within the inner surface of the outsole, as clearly shown in Fig. 2. In a disposition of the tacks or nails B a space A' is left between the outer and the next row B of tacks or nails of sufficient width to permit 35 of the introduction of any suitable attaching devices, which may be either stitches, pegs, ordinary nails, or, what is preferable, the screw wire nails made and applied by a Standard screw-nail machine. The width of 40 the space A' should not only be sufficient to permit of the introduction of the fastening devices, but for the operation of the knives or other device employed in pegging-machines for severing the fastening devices. The outer 45 nails B', it will be readily seen, can be driven nearer the edges and thoroughly clinched before the sole is applied, as are all the nails in the sole, while a glance at Fig. 2 of the drawings will show that it is practically impossible 50 to present any satisfactory clinching anvil or surface between the outsole and the upper to serve the purpose of clinching nails

along the edges of the sole after the same is applied to the upper.

It has been found desirable, and in fact almost 55 absolutely necessary, that the outer row of clinched nails should be arranged in close proximity to each other and that the sole-attaching devices be arranged inside of said outer row, so that the entire outer surround- 60 ing portion of the sole shall be protected and the sole-attaching devices be arranged so as to take a better hold upon the insole and through the upper, leaving an entire row of the nails beyond said sole-attaching devices. In this 65 resides the gist of my invention.

By arranging the outer row of nails with their heads adjacent to each other and locating the nails along and close to the edge of the sole there is provided a practically continuous 70 and at the same time a more or less flexible line of metal, which thoroughly protects the extreme edge of the sole against wear, and this more effectually than any other arrangement of nails heretofore employed. Plac- 75 ing a parallel and similarly-arranged row of nails some distance from the outer row not only provides a space for the sole-attaching devices, but insures their protection from undue wear, whereby a lasting attachment of 80 the sole is secured.

I do not claim the application of tacks, nails, or other armor to the soles of boots or shoes either before or after the sole is applied to the upper, as this is very old and well known; 85 but what I do claim is—

A sole having a continuous row of nails with their heads immediately adjacent to each other and extending around the margin of the sole and a corresponding row with their heads 90 adjacent some distance from and substantially parallel with the outer row, leaving a space between the rows for the reception of the sole-attaching devices, and the central part of the sole having nails driven at some 95 distance from each other, and all of said nails being clinched in the inner surface of the sole, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

SILAS A. LENTZ.

Witnesses:

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O. B. WEINSHEIMER.