(No Model.)

L. E. MILES.

SHOE MAKER'S LAST.

No. 379,590. Patented Mar. 20, 1888.

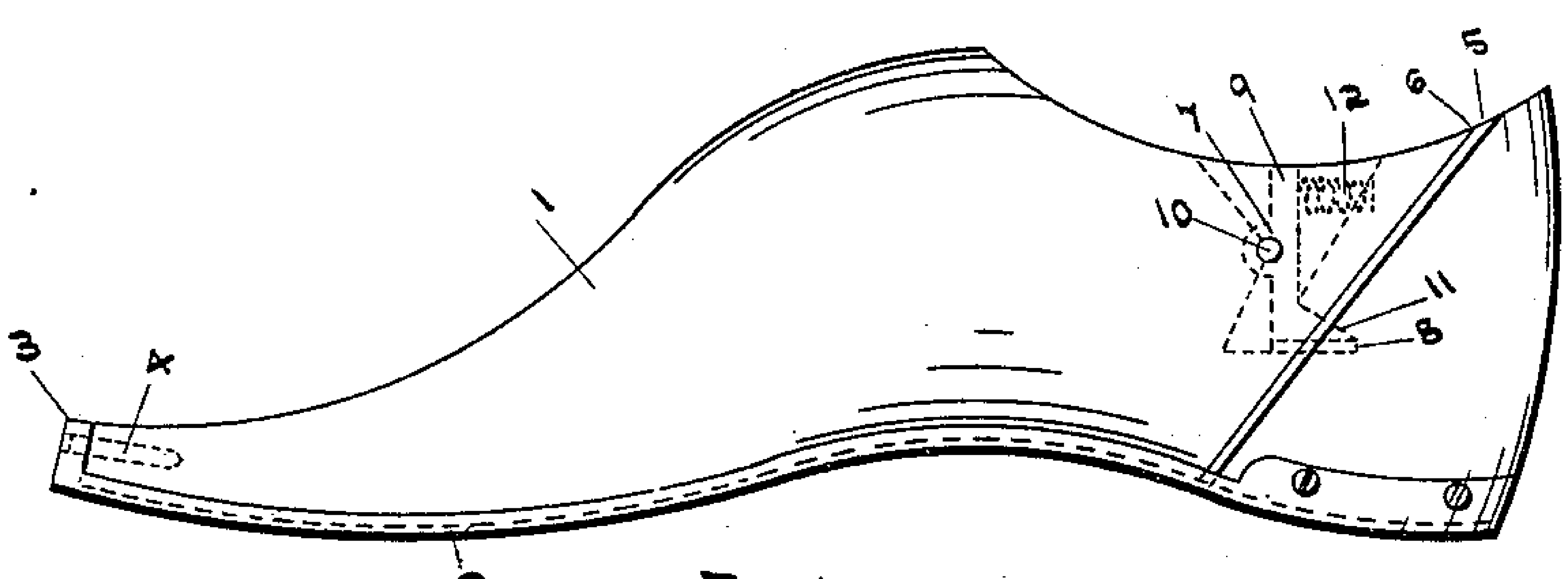

FIG 1

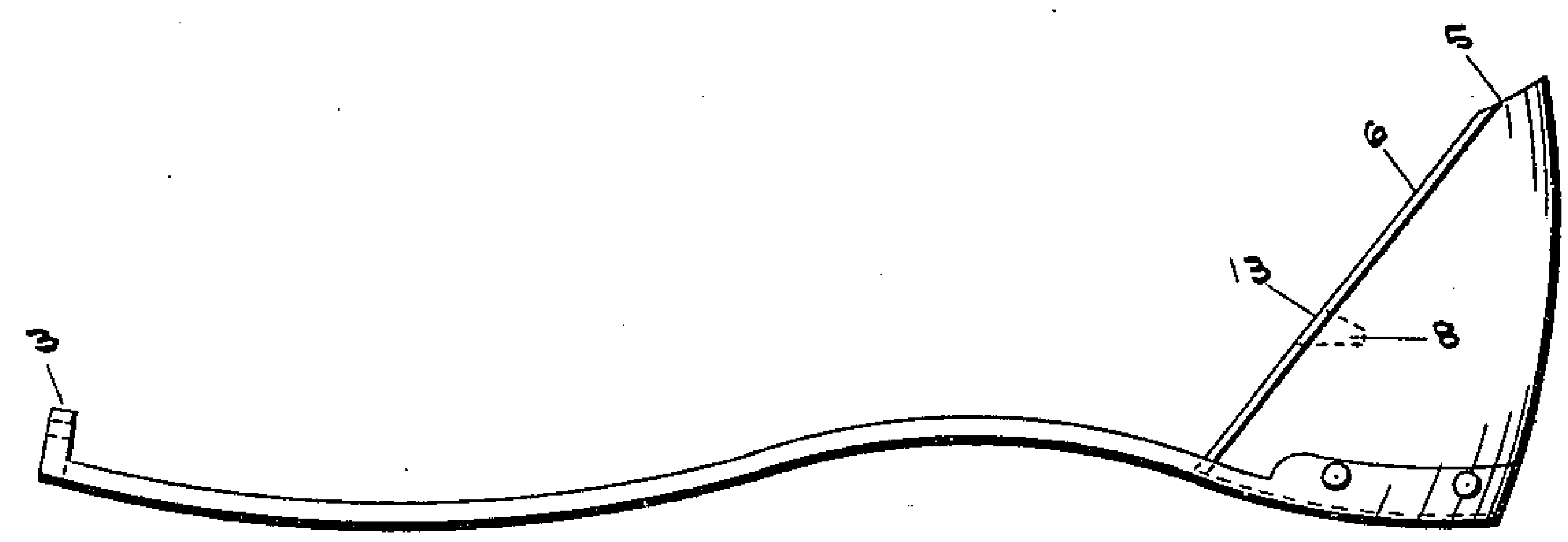

FIG 2

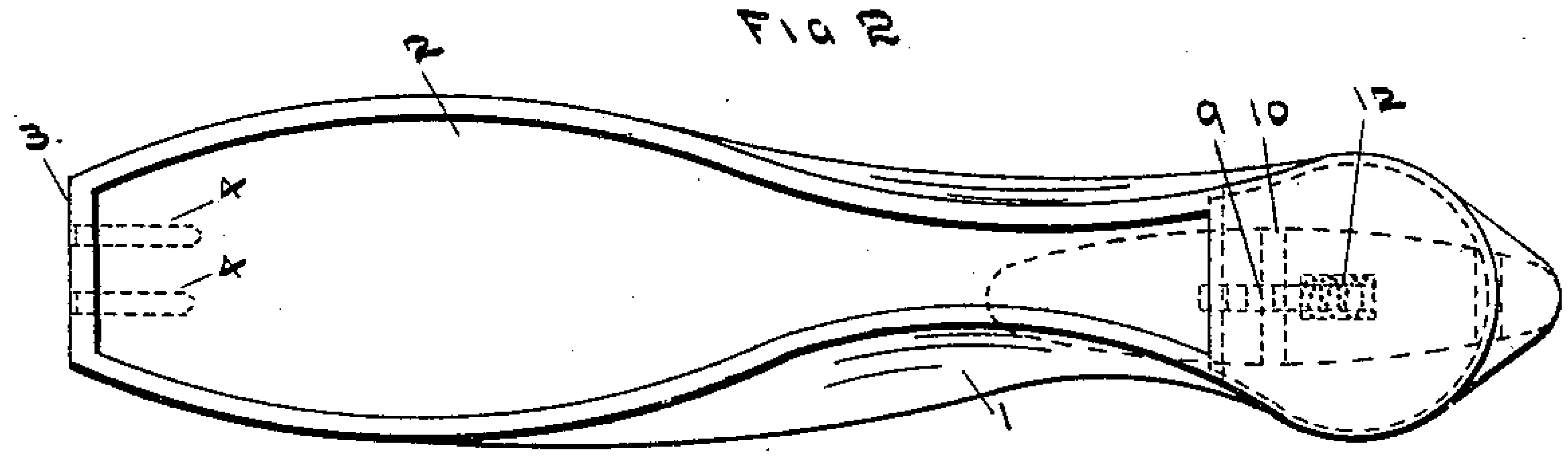

FIG 3

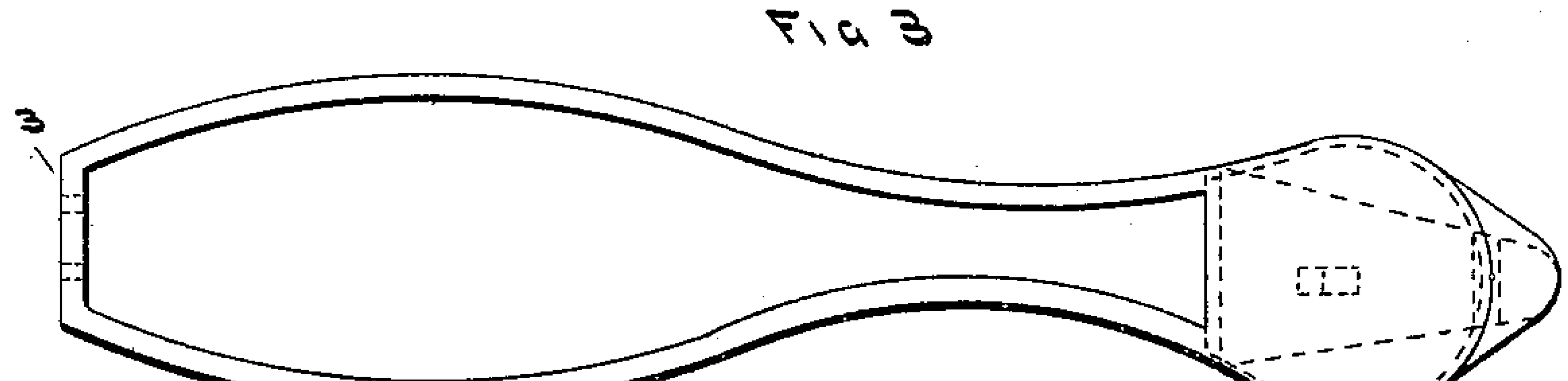

FIG 4

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UNITED STATES PATENT OFFICE.

LEONARD E. MILES, OF UTICA, NEW YORK.

SHOE-MAKER'S LAST.

SPECIFICATION forming part of Letters Patent No. 379,590, dated March 20, 1888.

Application filed April 6, 1887. Serial No. 233,870. (No model.)

To all whom it may concern:

Be it known that I, LEONARD E. MILES, of Utica, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Shoe-Makers' Lasts; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to an improvement in shoe-lasts; and it consists in the mechanism hereinafter pointed out and claimed.

The process of lasting shoes as employed in the ordinary shoe-factory is substantially as follows: What is technically known as the "insole" is first placed upon the bottom of the last. The upper is then drawn over the last and its edges turned down and appropriately fastened to the insole. The outsole, properly shaped, channeled, &c., is then placed upon the structure and temporarily fastened thereon. After this process, or "first lasting," as it is termed, the last is removed from the shoe, and it is then passed to the sewing-machine, which stitches the insole, upper, and outsole together. Removal of the last is necessary to admit of the introduction of what is technically known as the "horn" of the sewing-machine. After the sewing is completed it is necessary that the shoe be relasted, or "second lasted," as it is termed, in order that the other processes of manufacture may be carried out and the shoe completed and finished.

It is practically impossible to relast the shoe upon the same last as that used in the first lasting, as elements enter into the problem that render it commercially impracticable. The fact that the first and second lasts are not exact counterparts of each other results in wrinkling or straining the upper of the shoe in the processes of manufacture subsequent to the sewing and renders it impossible to produce as fine-finished, salable, and stylish work as could be done were the same last employed in all the processes. I aim to obviate these objectionable features by the use of the improved last herein described.

Referring more specifically to the drawings, Figure 1 represents a side elevation of my improved last, the skeleton bottom or frame being in position thereon and forming the bottom outer edge of the last, taken as a whole. Fig. 2 represents a side elevation of the skeleton bottom hereinafter described. Fig. 3 represents a plan view of the bottom of my improved last, and Fig. 4 represents a plan view of the bottom of the skeleton bottom.

Like reference-numbers refer to like parts in the several views presented, and are so referred to in the specification.

1, Figs. 1 and 2, represents the body of the last, that I preferably construct of wood. This is preferably plated or covered upon the bottom with metal, as shown at 2, Figs. 1 and 2.

Reference to Fig. 3 will show that the skeleton bottom consists, essentially, of a rim of metal or other suitable substance corresponding in contour to the bottom of the outside of the bottom of the last. The bottom is properly recessed to receive this skeleton bottom, and the parts are so designed and proportioned that when the skeleton bottom is combined with the body of the last, as shown in Figs. 1 and 3, the parts form a complete last of any desired form or shape.

Reference to Figs. 1, 2, 3, and 4 will show that I provide the tip or toe of the skeleton bottom with a projection, as shown at 3. I provide this projection with one or more holes, the purpose of which is to engage pins 4, which are permanently fastened to the body of the last, and hold the body and skeleton in relative position. Permanently attached to the heel of the skeleton body is what is really a portion of the body of the last, it being separated therefrom by the diagonal cut 5, Figs. 1 and 2, and having the face of the cut or joint plated with metal, as shown at 6, Figs. 1 and 2, to guard against excessive wear. The cut is made diagonally in order to facilitate removal of the body of the last from the shoe.

At an appropriate point in the body of the last I provide spring-catch 7, Fig. 1, the purpose of which is to engage with the rear porton of the skeleton, as shown at 8, Figs. 1 and 2, and hold the parts firmly and securely together, thus combining the body and skeleton into one complete structure.

The spring-catch consists, essentially, of a

bar of metal, 9, pivoted at or near its center, as shown at 10, Figs. 1 and 3, and having a toe-shaped projection, 11, at its lower end. The catch is held in its normal position by coil-spring 12 or its equivalent. When the skeleton and body of the last are brought into contact, the toe of the catch automatically engages with slot 8, Figs. 1 and 2, and holds the parts firmly together. The inclined upper surface of the toe-shaped projection affords compensation for the ordinary wear of the catch at its point of contact with the slot. The catch can be swung out of contact with the opposing slot by applying pressure upon its upper end and swinging it upon its pivot, when the skeleton and body can be readily separated.

Having thus described my invention, its mode of employment and operation is as follows: The combined last, as shown in Fig. 1, is used in the ordinary way for the first lasting of the shoe. After the completion of this process spring-catch 7 is disengaged or unlocked and the body of the last removed from the shoe, leaving the skeleton, as shown in Figs. 2 and 4, in the shoe. This offers no impediment to the introduction of the horn of the sewing-machine or to the process of sewing. It is proper to observe in this connection that the retention of the skeleton in the shoe during the operation of sewing offers some advantages over the ordinary system. As the horn of the sewing-machine, being inside the shoe and the shoe bottom up, is concealed from view, it is often the case that the most experienced operator "runs off" the insole with the line of stitching and punctures the upper with the needle, making bad work and spoiling the shoe. With my device with ordinary care this is impossible, as the skeleton furnishes a guide or path for the horn of the machine and renders it impossible to run off the insole without breaking the needle. After the completion of the sewing and removal of the shoe from the horn of the machine the body of the last is reintroduced and locked to the skeleton and the various subsequent processes of manufacture completed.

Another advantage gained in the use of my improved last is that unskilled labor can be employed in reinserting the body of my last, in contradistinction to the fact that under the ordinary system considerable skill is demanded in the operative that performs the second lasting. The fact that the various processes of manufacture are carried on and consummated upon the identical last upon which they were begun is a feature of great industrial and mechanical value.

Another advantage that accrues from the employment of my improved last is that a much lighter insole can be employed than by the ordinary system, rendering the shoe much more flexible and decreasing its cost.

It is evident that various modifications and changes could be made in the construction of my device without departure from the central feature or spirit of my invention; hence I do not limit or confine myself to the precise specific construction herein pointed out and described.

What I claim as new, and desire to secure by Letters Patent, is—

The metallic skeleton frame consisting of an encircling strip of metal conforming to the lower outer edge of the last, having a section of the last rigidly secured thereto at the heel, in combination with the last-body.

In witness whereof I have affixed my signature in presence of two witnesses.

LEONARD E. MILES.

Witnesses:
W. G. STONE,
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