Oct. 30, 1934. J. R. DEXTER 1,979,193

METHOD OF MAKING SHOE LASTS

Filed Oct. 28, 1933 2 Sheets-Sheet 1

Fig. 1.

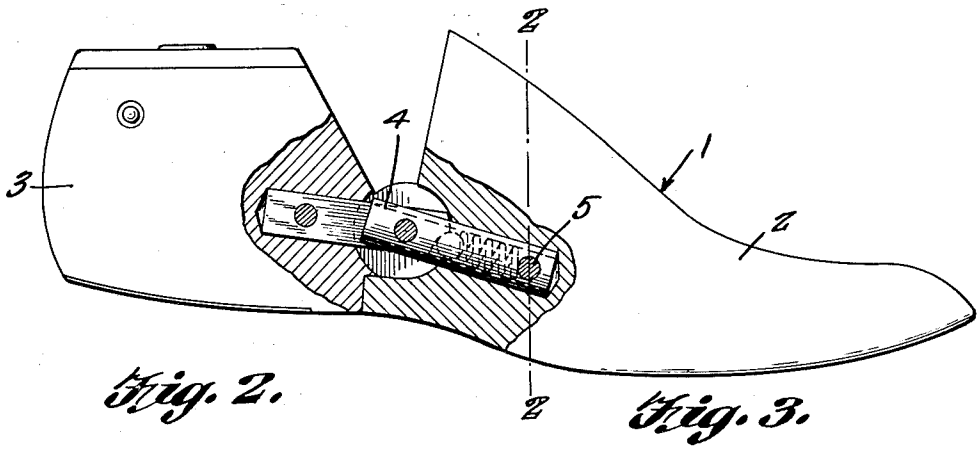


Fig. 2.

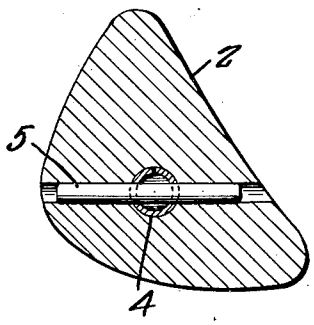


Fig. 3.

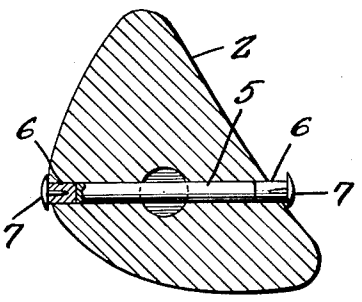


Fig. 4.

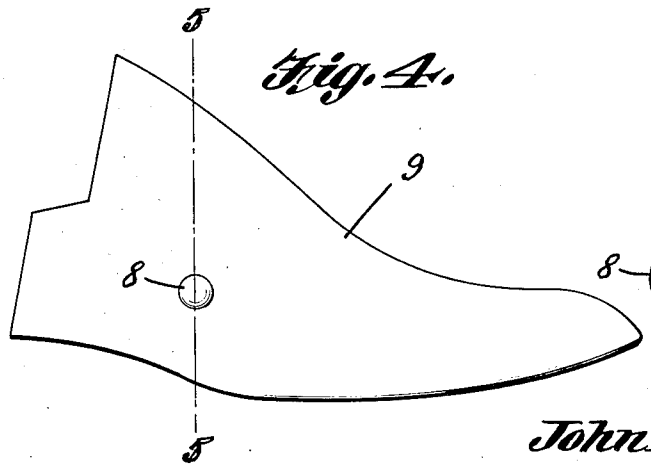
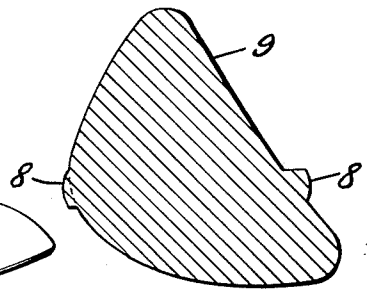


Fig. 5.



John R. Dexter,
INVENTOR

P. S. Hickey
WITNESS:

BY Victor J. Evans & Co.
ATTORNEY

Oct. 30, 1934. J. R. DEXTER 1,979,193

METHOD OF MAKING SHOE LASTS

Filed Oct. 28, 1933 2 Sheets-Sheet 2

Fig. 6.

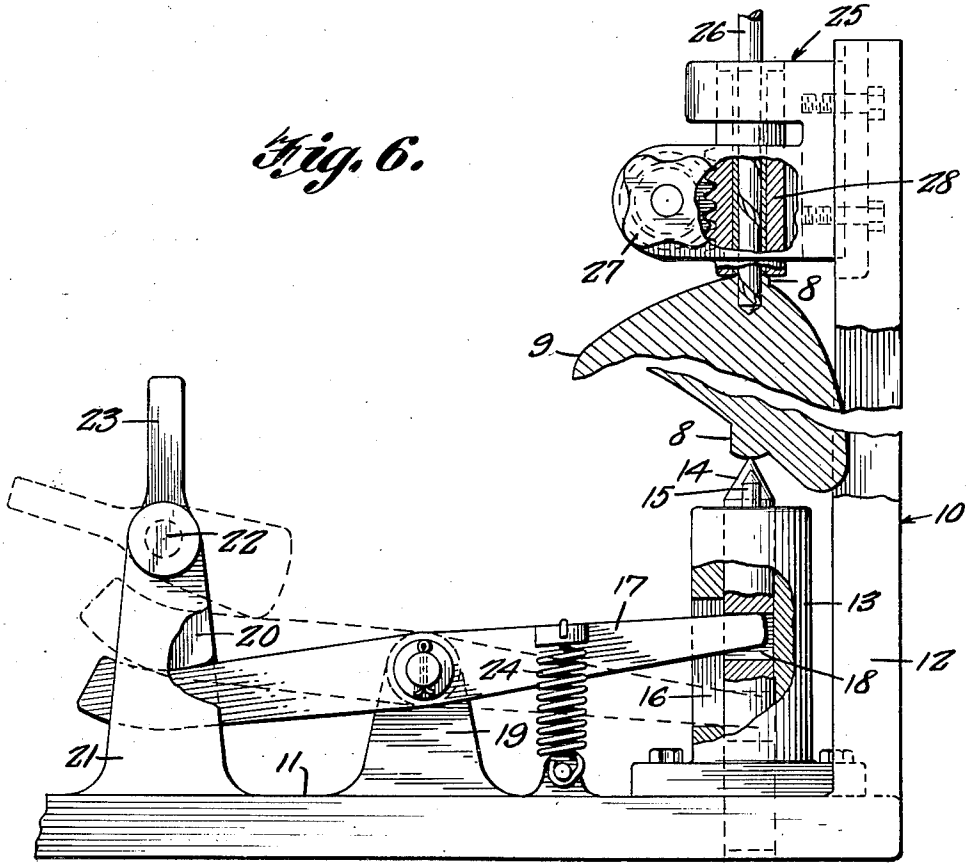


Fig. 7.

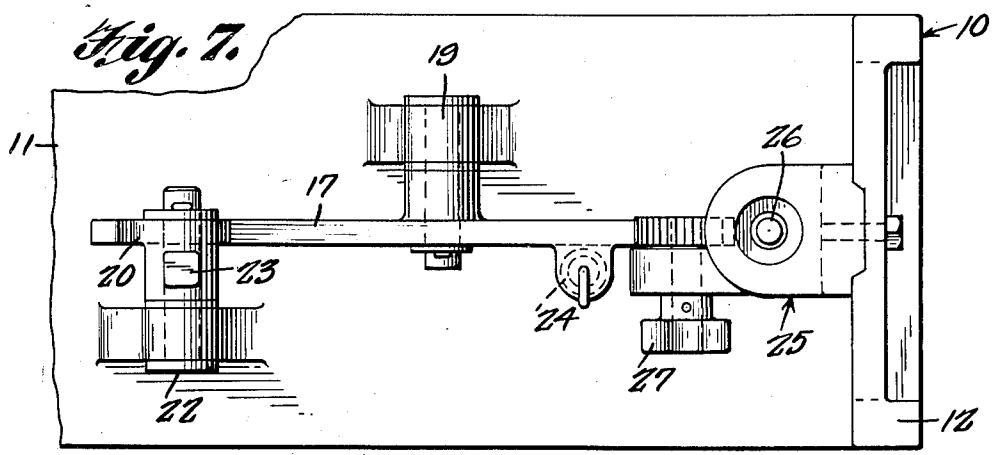
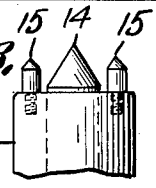


Fig. 8.



John R. Dexter,
INVENTOR

BY Victor J. Evans & Co.
ATTORNEY

P. J. Hickey
WITNESS:

Patented Oct. 30, 1934 1,979,193

UNITED STATES PATENT OFFICE

1,979,193

METHOD OF MAKING SHOE LASTS

John E. Dexter, Marlboro, Mass.

Application October 28, 1933, Serial No. 695,685

1 Claim. (Cl. 144—309)

This invention relates to a method and apparatus for making shoe lasts and more particularly to adapt a new design of toe and instep portions of a last to heel portions already in use and heretofore found to be impractical due to said parts not aligning when assembled, causing improper forming of shoes from such lasts, and the present invention has for the primary object the accuracy of drilling of the hinge pin opening in the toe or instep portion so that it aligns with the hinge pin opening of the heel portion so that when assembled said portions are in proper alignment with each other and obviates the necessity and expense of constructing an entire shoe last when it is only desired to alter the design of the instep and toe portions.

Figure 1 is a side elevation partly in section illustrating a shoe last constructed in accordance with my invention wherein the heel portion is of a design already in use and the toe and instep portion of a new design.

Figure 2 is a sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a sectional view of a sample toe and instep portion with the hinge pin opening closed by a plug carrying headed elements in its end.

Figure 4 is a side elevation of a toe and instep portion copied from the new design prior to having the hinge pin opening formed therein.

Figure 5 is a sectional view taken on the line 5—5 of Figure 4.

Figure 6 is a side elevation partly in section illustrating a machine or jig designed especially for drilling the hinge pin opening in the new design toe and instep portion in accordance with the markings thereon.

Figure 7 is a top plan view illustrating the jig.

Figure 8 is a detail view illustrating holding pins and a centering pin for the drill.

Referring in detail to the drawings, the numeral 1 indicates a sample shoe last consisting of a toe and instep portion 2 of a new design and a heel portion 3 of the same design as heel portions already in use. The sample last is made from a single block of wood and is first shaped to the desired design and then placed in a machine for the purpose of forming therein in a single operation hinge pin openings. The sample last is then cut to separate the heel portion from the toe and instep portion and said portions are then recessed to receive the hinge 4, the hinge pins 5 thereof fitting within the openings heretofore drilled therefor, consequently the toe and instep portion is in proper alignment with the heel portion when joined by the hinge. The sample last constructed in accordance with the foregoing is given to the last manufacturer with instructions to produce toe and instep portions therefrom which will properly fit and align with the heel portions already in use. Heretofore, it has been impossible to construct toe and instep portions that would align with heel portions already in use due to the fact that there was no way of accurately aligning the hinge pin opening of the instep and toe portion with the hinge pin opening of the heel portion already in use. The present invention successfully accomplishes this result.

The sample toe and instep portion minus the hinge and heel portion is placed in a copying machine along with a block of wood and the machine copies the design from the sample instep and toe portion onto the block of wood. Before starting the copying machine in operation, the hinge pin opening of the sample instep and toe portion is closed by a plug 6 and headed tacks or similar elements 7 are placed in the ends of the plug, care being taken that the headed elements 7 are in alignment with the center of the plug. The copying machine during its operation besides copying the design of the toe and instep portion upon the block also indicates upon the block raised portions 8, as shown in Figure 5, representing exactly where the hinge pin opening is to be drilled in the newly produced instep and toe portions 9. The toe and instep portion 9 is then placed in a jig 10, which will be hereinafter more fully described for the purpose of accurately drilling the hinge pin opening therein and in accordance with the raised portions 8 so that when the toe and instep portion 9 is connected to the hinge of the heel portion already in use said toe and instep portion 9 will properly align therewith.

The jig 10 is designed especially for accurately drilling the hinge pin opening in the toe and instep portion 9 and consists of a base 11 with a vertical standard 12. A guide sleeve 13 is mounted on the base adjacent the standard 12 and slidably supports a centering pin 14 and also holding pins 15 arranged upon opposite sides of the centering pin. The sleeve 13 is provided with a slot 16 for receiving one end of a pivotally mounted lever 17, said end of the lever fitting in a slot 18 formed in the centering pin. The lever is pivoted to a standard 19 mounted upon the base and the other end of said lever is slightly curved and is engaged by an eccentric 20 pivoted to a standard 21, as shown at 22, and is provided with an operating lever 23. A coil spring 24 is connected to the lever 17 and to the base 11

for the purpose of urging the lever to further the movement of the eccentric or to normally urge the end of the lever fitting in the slot 18 of the centering pin downwardly so as to move the centering pin in a corresponding direction for positioning its active end below the upper ends of the pins 15.

A drill operating mechanism 25 carrying a drill 26 is secured to the upper portion of the standard 12 with the operative end of the drill in alignment with the pointed end of the centering pin 14. The drill is adapted to be rotated, advanced and retarded in any suitable manner. The drill operating mechanism 25 also includes a centering sleeve 28 adapted to be advanced towards the sleeve 13 by the hand operated mechanism 27. The unbored toe and instep portion 9 is positioned between the centering sleeve 28 and the pins 15 of the sleeve 13, the lower end of the sleeve 28 fitting over the projection 8 at one side of the toe portion 9 while the pointed end of the centering pin 14 is brought into engagement with the opposite offset 8 with the pins 15 engaging the toe and instep portion 9. Sufficient pressure is placed upon the lever 17 by the eccentric 20 to cause the centering pin to bight into the offset 8. The drill is then set in operation and after said drill advances substantially through the portion 9, the lever 23 is actuated to allow the spring 24 to move the centering pin 14 downwardly away from engagement with the toe and instep portion 9 so that the drill may complete its boring and follow through into the sleeve 13. The drill is then rotated in a reverse direction to be fed out of the bored hole in the toe and instep portion 9 whence the latter may be freed from the jig by operating the mechanism 27 manually. The toe and instep portion 9 thus drilled will have the pin opening accurately aligned with the pin opening in the heel portion already in use so that when the hinge is applied to said portion the toe and heel portion 9 will be properly assembled with the heel portion already in use.

While I have shown and described the preferred embodiment of my invention, it will be understood that minor changes in construction, combination and arrangement of parts may be made without departing from the spirit and scope of my invention, as claimed.

Having described the invention, I claim:

A method of reproducing a determined shoe last consisting in first taking a last matrix of a determined instep and toe portion having a hinge pin hole for a hinge of a heel portion of a last and introducing a plug into said hole, then capping the ends of said plug to present centering localities with relation to said hole, then placing the matrix into a copying machine to produce a last imitative of the matrix with the centering localities and finally drilling the last at said centering localities.

JOHN R. DEXTER.