S. STRAUSS.

SHOE.

APPLICATION FILED APR. 30, 1917. RENEWED AUG. 20, 1919.

1,331,220. Patented Feb. 17, 1920.

Fig. 1.

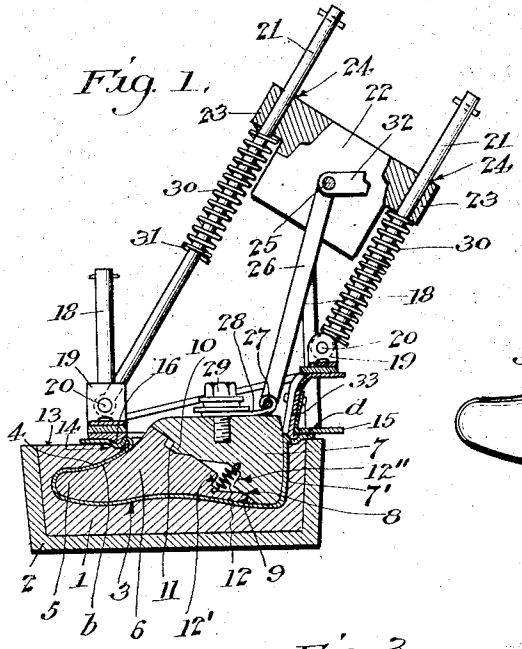


Fig. 2.

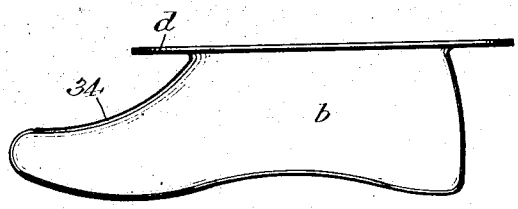


Fig. 3.

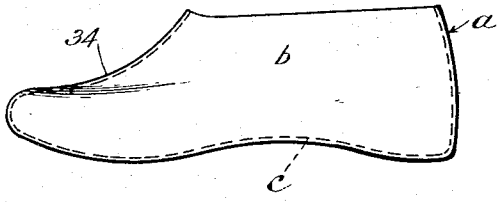


Fig. 4.

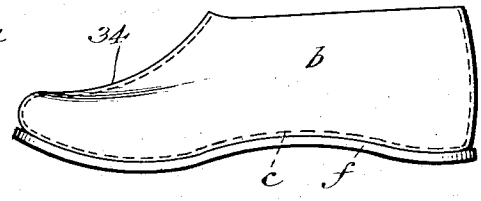
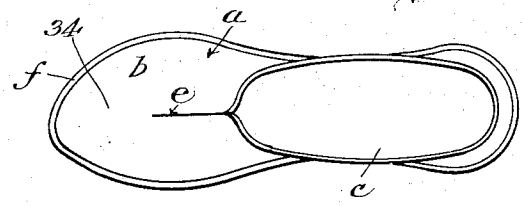


Fig. 5.



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UNITED STATES PATENT OFFICE.

SAMUEL STRAUSS, OF LOS ANGELES, CALIFORNIA.

SHOE.

1,331,220. Specification of Letters Patent. Patented Feb. 17, 1920.

Application filed April 30, 1917, Serial No. 165,311. Renewed August 20, 1919. Serial No. 318,770.

To all whom it may concern:

Be it known that I, SAMUEL STRAUSS, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Shoe, of which the following is a specification.

The subject matter of this invention was canceled from my previous application for patent for shoe, filed Feb. 21, 1917, Serial Number 150,031.

An object of this invention is to minimize the cost of shoes made of leather or similar material.

Another object is to produce an absolutely seamless one-piece leather shoe, thereby insuring comfort to the wearer thereof.

Another object is the production of a leather shoe having any desired shape and style.

Other objects and advantages will appear in the subjoined detail description.

The accompanying drawings illustrate the invention;

Figure 1 is a vertical mid section of a machine well adapted to manufacture the newly invented shoe, the operating parts being shown in their shoe-forming positions.

Fig. 2 is a side view of the unfinished shoe produced by the machine shown in Fig. 1.

Fig. 3 is a side view of the same shoe completed.

Fig. 4 is a side view of the shoe in Fig. 3 with the addition of a supplementary sole.

Fig. 5 is a plan view of the shoe shown in Fig. 4.

Any suitable machine may be employed to perform the various operations whereby this newly invented shoe is made, and therefore the machine shown in Fig. 1 is only typical of the kinds of machines which may be employed in the manufacture of the new shoe. In Fig. 1 there is provided a female die 1 of suitable material such as zinc or the like mounted in a base 2 provided with a mold cavity 3 having an undercut toe portion 4 adapted to receive a toe portion 5 of a male die which is formed of sections 6, 7, the section 6 being provided with the toe portion 5 and the section 7 forming the curved heel portion that fits in the undercut heel portion 7′ of the female die. The die sections 6, 7 are provided with complementary inclined faces 8, 9 respectively adapted to seat against one another when the die 6, 7 is in the shoe-forming position, the section 7 being provided with a tongue 10 designed to engage a groove 11 in the face 8 of the section 6 so as to prevent the section 7 from sliding relative to said section 6 when the sections are inserted in the die 1 and pressure is applied to said die sections.

The die sections 6, 7 are loosely and yieldingly connected to one another by a loose connection such as a coil spring 12 fastened at its opposite ends to said sections respectively and designed to seat in recesses 12′, 12″ cut into the faces 8, 9 respectively.

The die 1 is provided with a top flat flange-forming face 13 having a groove 14 extending around the mouth of the cavity 3. Above the flat top face 13 of the die 1, there is provided a presser foot 15 having a bead 16 complementary to the groove 14, said presser foot being reciprocative on guide rods 18 mounted on the die 1 and projecting upward therefrom.

The presser foot 15 is provided with upwardly projecting ears 19 fastened by rivets 20 or equivalent to the lower ends of diagonally extending guide rods 21 on which is reciprocatively mounted a follower 22 having ears 23 provided with perforations 24, through which said rods 21 extend. The follower 22 is pivoted at 25 to the upper end of a swinging arm 26 which is pivoted at 27 to a link 28 secured by a cap screw 29, or equivalent, to the die section 7.

The follower 22 is normally supported, relative to the presser foot 15 in the position shown in Fig. 2, by coil springs 30 surrounding the rods 21 between the ears 23 and abutments 31 projecting from the guide rods 21.

The male die 6, 7 and the parts moving therewith may be operated by any suitable power and in the instance shown in the drawings said power may be applied through an arm 32 pivoted by the pivot 25 to the follower 22.

The presser foot 15 is provided with a rearwardly and upwardly inclined face 33 forming a rest and guide along which the male die slides when said die is moved up and down.

In practice to make the shoe shown at *a*, Fig. 3, the machine described above will be operated as follows: Assuming at the start that the parts are in the positions they occupy when the male die is withdrawn, a piece of leather, which may have been previously soaked in water, if desired, will be placed on the flange-forming face 13 and the

arm 32 will be operated to lower the presser foot 15 on to the leather to hold said leather in position. Then the lever 32 will be operated still farther to depress the follower 22 against the expansive force of the springs 30 to force the male die 6, 7 into the shoe-forming position as in Fig. 1, thereby pressing the leather into the desired shape determined by the form of the dies so as to form the upper *b* and sole *c* all from the single piece of leather.

Then the arm 32 will be operated to raise the follower 22 or allow said follower to be forced upward by the expansive action of the springs 30, the first portion of said movement, owing to the sectional construction of the male die and to the loose connection between said sections, raising the section 7 and sliding said section forward relative to the section 6 so as to withdraw the rear face of said section 7 out of the undercut heel portion 7', and further movement of the arm 32, by reason of the spring 12, withdrawing the toe section 6 from the undercut toe-forming portion 4 and at the same time raising the presser foot 15 out of engagement with the flange *d* of the shoe, so that the parts again assume the retracted positions.

To complete the shoe formed as above, all that is necessary is to trim it by cutting off all or part of the flange *d* and, if desired, the upper may also be provided with a slit *e* of which the edges may be drawn toward one another by laces or equivalents, not shown.

Thus it is seen that the finished shoe is formed of a single piece of leather and is absolutely seamless.

If it is desired to have a shoe with a heavier sole, a sole *f* may be fastened to the sole *c* as in Fig. 4.

I am not aware that a seamless shoe formed of a single piece of molded leather has ever been known before this invention thereof, and the foregoing read in connection with the drawings filed herewith will enable those skilled in the art to which this invention pertains to make the newly invented shoe.

The vamp 34 of the shoe, as is clear, is integral with the other portions thereof, as is the entire heel, thus differentiating this shoe from the sandal type of shoe disclosed in Patent No. 1,167,277 issued January 4, 1916, to Wilfred J. Drey, which sandal, exclusive of the fastening straps, is composed of three distinct pieces fastened together.

This present shoe besides being formed of a single piece of leather is absolutely seamless, since by the improved method of making it seams are unnecessary.

I claim:

1. A shoe comprising an entire upper and sole formed from a single piece of leather molded into shape.

2. A shoe formed entirely from a seamless single piece of leather molded into shape to form an integral upper and sole.

3. A shoe formed entirely of a single piece of leather molded into shape, the middle portion of said piece being intact and forming the sole of the shoe, and the marginal portion having a slit and being otherwise intact and forming the upper of the shoe substantially as described.

4. A shoe comprising a unitary upper and sole entirely formed from a single piece of leather molded into shape, the heel portion of said upper being outwardly convex.

5. A shoe of which the vamp and sole are integral with one another and the sole and entire upper are formed from a single piece of leather molded into shape, said vamp having a slit extending from its upper edge toward the toe of the shoe.

Signed at Los Angeles, California this 14th day of April 1917.

SAMUEL STRAUSS.

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