Nov. 30, 1943. E. I. LA CHAPELLE 2,335,772

MACHINE FOR LASTING TOES OF BOOTS AND SHOES

Original Filed Sept. 29, 1941 2 Sheets-Sheet 1

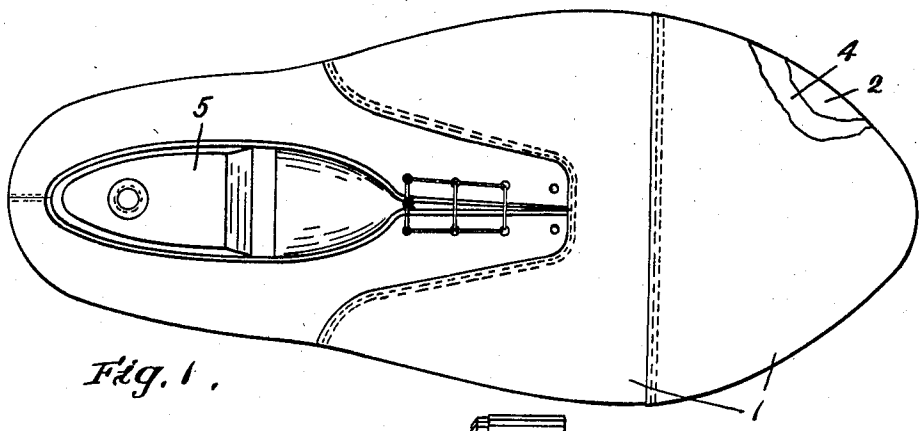


Fig. 1.

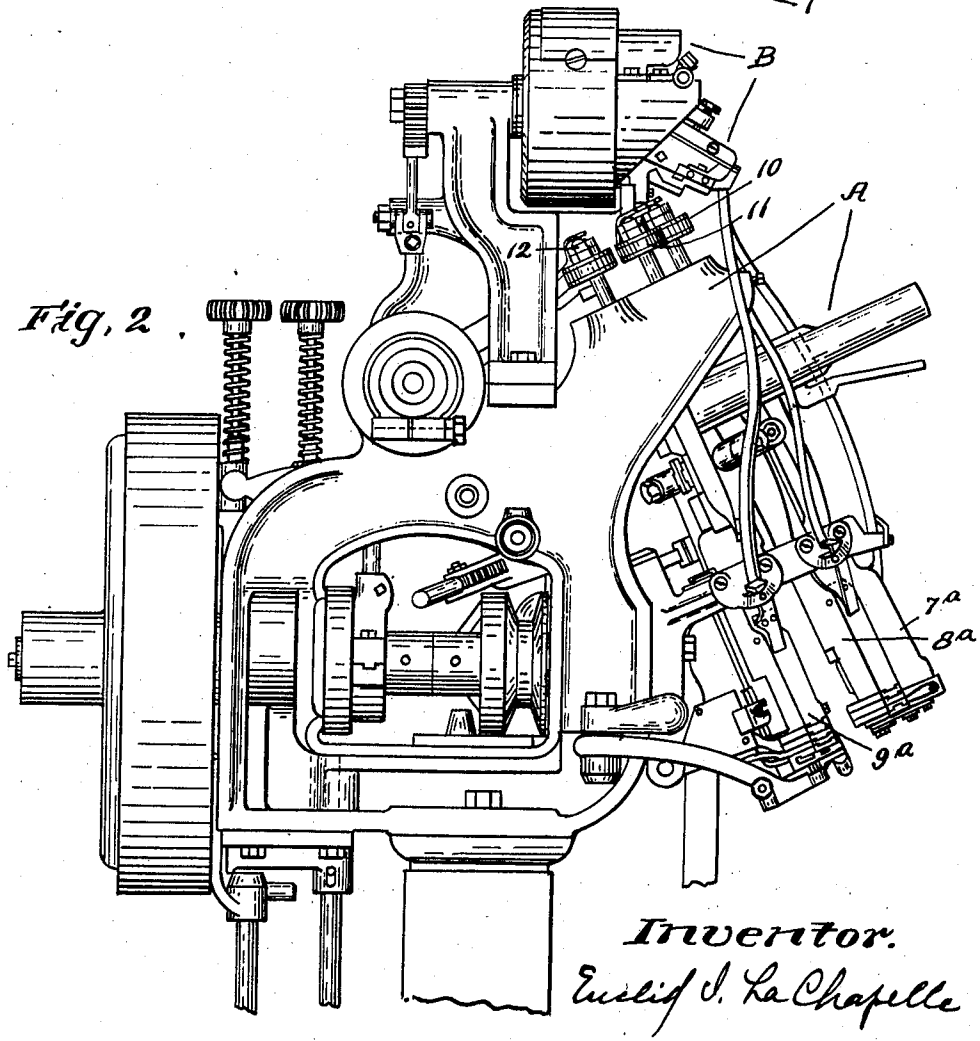


Fig. 2.

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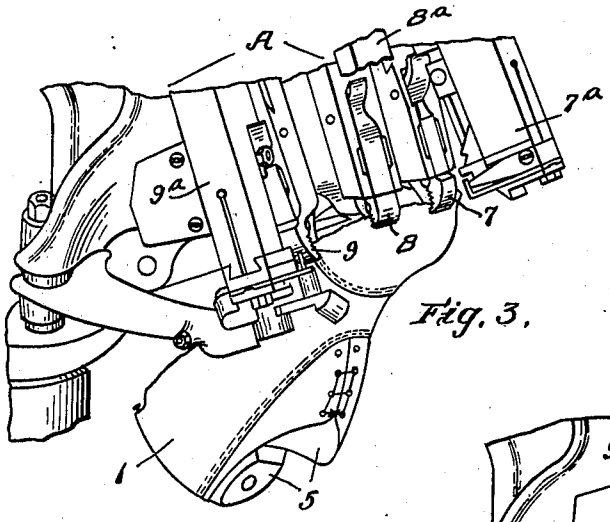


Fig. 3.

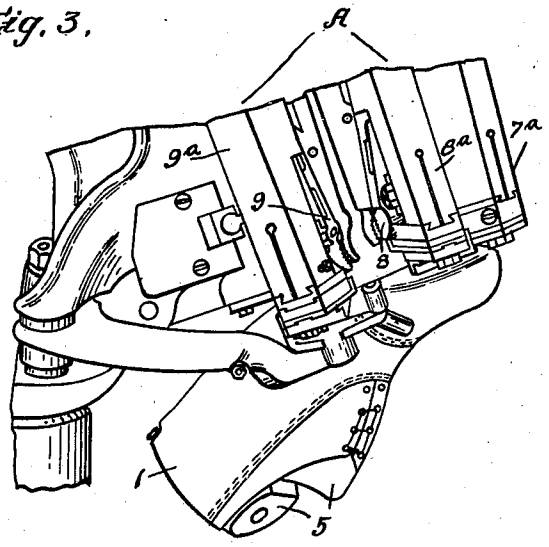


Fig. 4.

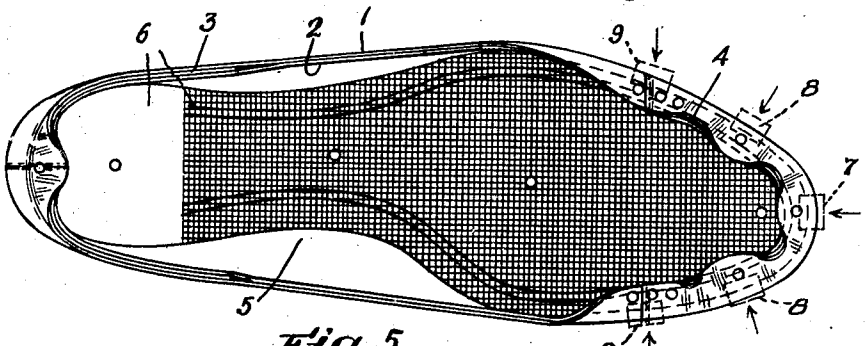


Fig. 5.

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UNITED STATES PATENT OFFICE

2,335,772

MACHINE FOR LASTING TOES OF BOOTS AND SHOES

Euclid I. La Chapelle, Brockton, Mass.

Continuation of application Serial No. 412,756 September 29, 1941. This application October 9, 1942, Serial No. 461,644

1 Claim. (Cl. 12—4)

My invention relates to the lasting operation upon the toe portion of a shoe upper and more particularly to the lasting, in part only, of the portion of a shoe upper and to the sequential moulding on the toe of the last of the lasted portions, including at least those portions of the shoe upper, including, when present, the toe box, coinciding with the "corners of the toe of the last" (those portions of a last located at the sides of its toe portion in close proximity to its toe-end portion) preparatory to passing the partly toe lasted shoe to a motive power actuated toe lasting machine provided with crescent shaped wipers and adapted to perform the final lasting operation upon the entire toe portion of the shoe upper.

Proceeding with further explanations from which the appended claim may be also properly construed, the toe of a shoe upper including the lining and the toe box, such as of a shoe of the well known Goodyear type as preferably herein shown, is pulled over at the extreme toe-end of the last and then at the sides of the toe at and back of the tip-seam and is fastened in pulled over condition to the insole assembled on the last at the aforesaid pulled over portions of the shoe upper. Then under the effect of the pulling over operation, those portions of the toe of the shoe upper, including the toe box, which are located at the corners of the toe of the last are formed into what is termed in the trade "dog ears" which are quite rigid and which disadvantageously protrude away from the last. The pulled over shoe is then passed to the side lasting machine and then to the toe lasting machine in that aforesaid objectionable pulled over condition. The toe lasting machine in the case of a welt shoe invariably is of the bed lasting machine type provided with crescent shaped toe wipers and in wiping the toe of a welt shoe, the operator of the bed lasting machine performs, with ordinary hand lasting pincers a very laborious toe lasting operation and notably so in lasting the aforesaid rigid protruding portions of the toe of the shoe upper and of the toe box located at the corners of the toe of the last where he consecutively pulls and stretches the upper and the toe box heightwise of the last while he intermittently actuates the toe wipers of the bed lasting machine by means of a hand operated lever until the entire toe portion of the shoe upper has been smoothed out and firmly set against the bottom of the shoulder of the sewing rib of the welt shoe insole.

Aiming towards making a motive power actuated toe lasting machine commercially successful, I have conceived the herein disclosed machine whereby those portions of the shoe upper, including the toe box, located at the corners of the toe of the last may be lasted, by stretching the shoe upper and the toe box lengthwise and heightwise of the last so as to firmly set the upper and the toe box on top of the last and so as to take out the maximum extent of stretch from the upper and the toe box, and by then fastening the said stretched portions of the shoe upper to the insole on the last so as to mould on the toe of the last, under the effect of such lasting, the aforesaid lasted portions of the shoe upper including the toe box, located at the corners of the toe of the last preparatory to passing the partly toe lasted shoe to a motive power actuated toe lasting machine, such as of the type herein described.

As shown in Fig. 5, those portions of the upper and of the toe-box coinciding with the extreme toe-end of the last and those portions of the upper and of the toe-box coinciding with the corners of the toe of the last will become properly moulded (and the fibres of a leather shoe upper also deadened) on the last within the time extending from the performance of the pulling over operation to the performance of the final lasting operation upon the entire toe portion of the shoe upper.

As shown in the accompanying drawings:

Figure 1 is a plan view of a man's leather shoe upper embodying the usual component parts such as a counter and a toe box and which is mounted on a last having a welt shoe insole assembled thereon;

Figure 2 is a side elevation of a pulling over machine incorporating the conventional pulling over machine elements adapted to pull over the extreme toe-end portion and those portions of the shoe upper located at the tip-seam and incorporating in the novel combination, corners of toe grippers adapted to engage and stretch heightwise of the last, including, when present, the toe box, those portions of the shoe upper located at the corners of the toe of the last and of fastening inserting mechanisms adapted to insert fastenings to hold the aforesaid stretched portions of the shoe upper including those portions located at the corners of the toe of the last in lasted condition to the insole on the last;

Fig. 3 is a perspective view showing the pulling over machine grippers in engagement with the extreme toe-end of the shoe upper; in engagement with those portions of the shoe upper

located at the corners of the toe of the last and in engagement with the tip-seam portions of the shoe upper and all the said grippers stretching heightwise of the last the aforesaid engaged portions of the shoe upper, including, when present, the toe box;

Figure 4 is a view similar to that shown in Fig. 3, but with the wipers advanced over the bottom of the last and with all the grippers in open condition after having released the shoe upper under the influence of the operation of the wipers; and

Fig. 5 is a plan view showing the lasted toe portions of the shoe upper, including, when present, the toe box.

As further shown in the drawings:

I, preferably, have herein shown a man's leather shoe upper 1, which incorporates the usual lining 2, the counter 3 and the toe box 4 and which is mounted on the last 5, having a welt shoe insole 6, assembled thereon.

The machine is provided with the conventional pulling over machine lasting instrumentalities, such as the single pair of extreme toe-end grippers 7, the wipers 7a and the tack-driver 10; and the tip-seam engaging grippers 9, the wipers 9a and the tack-drivers 12; and in addition to the said provided conventional lasting instrumentalities, I have provided on the said machine, in the novel combination, the grippers 8 (which are provided, as common with each of the remainder of the grippers, with compression springs adjustable as to tension whereby the extent their straining action upon the upper heightwise of the last may be regulated) adapted to engage and stretch heightwise of the last those portions of the shoe upper located at the corners of the toe of the last including the lining and the toe box, the wipers 8a and the fastening inserting mechanisms in the form of the tack-drivers 11, adapted to respectively wipe in the stretched upper, the lining and the toe box and to insert fastenings to hold in lasted condition to the insole assembled on the last the aforesaid stretched portions of the upper, the lining and the toe box.

The herein shown pulling over machine is shown in a patent to Ronald F. McFeely No. 663,777, dated December 11, 1900, and for a full description of the said machine reference may be had to the said patent.

In the operation of the machine, the operator presents the shoe shown in Fig. 1, to the lasting instrumentalities of the pulling over machine herein shown and he then depresses the operating treadle (not herein shown) and then the toe-end gripper 7, engages the upper, the lining and the toe box at the extreme toe-end of the last and stretches the upper with great strain lengthwise. Then the machine comes to a stop and, if need be, the operator may then move the tip-seam grippers to set the stretched tip-seam straight on the last and the operator again depresses the operating treadle (not herein shown) and the wipers 7a, 8a and 9a draw the upper, the lining and the toe box over the bottom of the last and flatten down the upper, the lining and the toe box on the insole assembled on the last and bear down and hold the upper from retracting movement on the last, while the tack-drivers 10, 11 and 12 insert the lasting tacks through the upper, the lining, the toe box and the insole and then the shoe is automatically released from the machine and the pulling over operation has been completed.

I am first, so far as I am aware, to have lasted the toe portion of a shoe upper "in part only" (in contra distinction to the lasting of the entire toe portion of a shoe upper as in the performance of the final toe lasting operation) by stretching heightwise of the last and by then fastening in lasted condition to the insole assembled on the last those portions of the shoe upper located at the corners of the toe of the last preparatory to passing the partly toe lasted shoe to a toe lasting machine provided with crescent shaped wipers and as herein described adapted to perform the final lasting operation upon the entire toe portion of the shoe upper.

It is the usual practice for the operator of a bed lasting machine to remove the pulling over tacks at the toe of the last immediately prior to setting the shoe on the machine and the pulling over machine tacks, notably at the toe-end and at the corners of the toe of the last, likewise may be removed immediately prior to setting the shoe on a motive power actuated toe lasting machine such as herein described, as by then the moulded toe-end and corners of toe portions of the shoe upper and of the toe box will still remain in proper moulded condition on the toe of the last for the attainment of the beneficial results aimed at by my invention.

Having thus explained the nature of my invention and shown the same in the best form now to me known, what I claim as new and desire to secure by Letters Patent of the United States is:

A pulling over machine, having, in combination, a plurality of grippers including, a single pair of extreme toe-end grippers adapted to engage and stretch an upper mounted on a last heightwise of the last at the extreme toe-end of the last to thereby stretch and draft the upper lengthwise of the last along its median line; grippers at the corners of the toe adapted to engage and stretch the upper heightwise of the last at these points; and the said single pair of extreme toe-end grippers and the said grippers at the corners of the toe being built and arranged for independent extent of straining action in the stretching of the upper heightwise of the last, and a plurality of fastening inserting mechanisms, one of which is adapted to insert fastenings at the extreme toe-end of the last to hold the stretched and drafted upper in pulled over condition on the last and others of which are adapted to insert fastenings at the corners of the toe of the last to hold the stretched upper in pulled over condition on the last, for the purposes described.

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