(No Model.)

G. HAWKES.

METHOD OF AND MEANS FOR LASTING BOOTS AND SHOES.

No. 254,966. Patented Mar. 14, 1882.

FIG. 5.

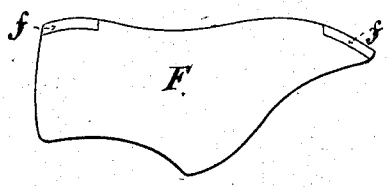


FIG. 6.

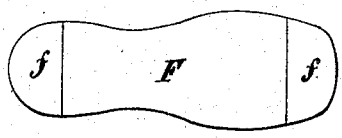


FIG. 7.

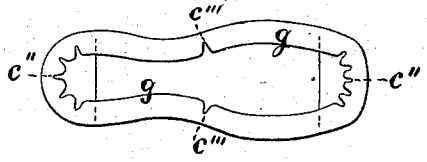


FIG. 8.

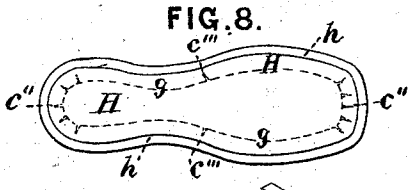


FIG. 9.

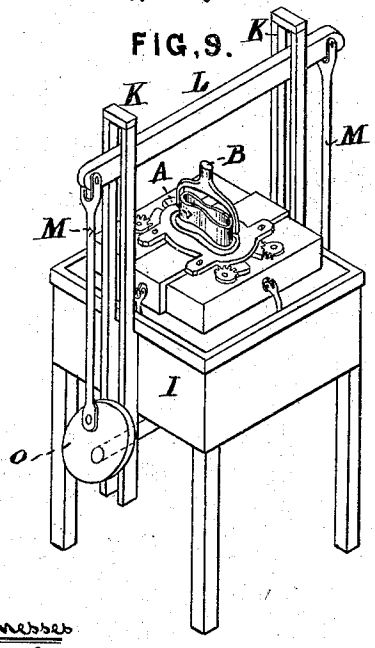


FIG. 1.

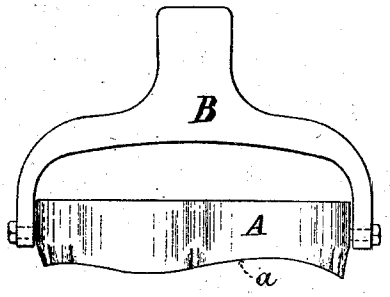


FIG. 2.

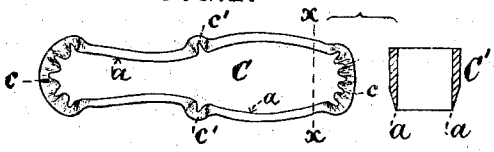


FIG. 3.

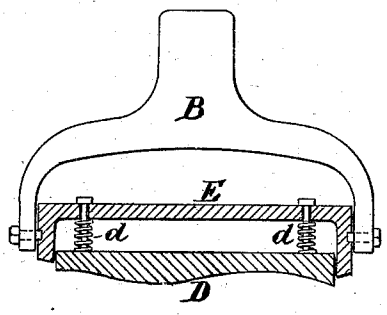


FIG. 4

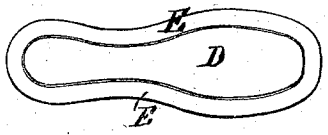
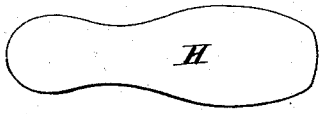


FIG. 10.



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UNITED STATES PATENT OFFICE.

GILBERT HAWKES, OF LYNN, MASSACHUSETTS.

METHOD OF AND MEANS FOR LASTING BOOTS AND SHOES.

SPECIFICATION forming part of Letters Patent No. 254,966, dated March 14, 1882.

Application filed March 21, 1881. (No model.)

To all whom it may concern:

Be it known that I, GILBERT HAWKES, of Lynn, in the county of Essex and State of Massachusetts, have invented a new and useful Improvement in the Method and Means of Lasting Boots and Shoes, of which the following is a specification.

The object of my invention is to provide an improved means for securing the upper to the insole of boots and shoes, by which I am enabled to dispense with nails or pegs in attaching the upper to the insole, and by which the operation is almost instantaneously effected.

My invention relates to a means for securing the uppers to the inner sole after the edges of the upper have been drawn over the last in a lasting-machine.

The invention is designed more particularly as an improvement upon a machine for which a patent was granted to me October 5, 1880, No. 232,964; and the invention consists in a means for securing the upper of a boot or shoe to the inner sole after the upper has been turned over the same in the process of lasting, as described in the said Letters Patent.

Referring to the drawings, Figure 1 is a view of the die and its holder. Fig. 2 represents the cutting-edges of the die, of which C is a plan and C′ a section on the line *x x*. Fig. 3 represents the pressing-tool and its holder. Fig. 4 is a bottom view of the pressing-tool. Fig. 5 represents the last, showing the yielding portions. Fig. 6 is a bottom view of the same. Fig. 7 is a view showing the turned-over edges of the upper after being operated upon by the die. Fig. 8 shows the cemented material as applied. Fig. 9 represents a machine to which my invention is applicable. Fig. 10 is the material prepared with cement.

A represents a die secured to a holder, B, by which the device can be readily applied by hand to the machine for operation. The die is formed with a cutting-edge entirely around the lower side, as indicated at *a a*, and at each end is formed a scalloped edge, as designated by *c c*, and also with a projection on each side at or near the center of the die, as shown at *c′ c′*. The die is hollow through the center to allow the cut portions to pass through. This die is designed to cut away a portion of the upper at the toe and heel, and also at the center, so as to cause these portions to lie flat upon the inner sole, and insure a smooth even surface all around the turned-over edge of the upper.

D, Figs. 3 and 4, represents a pressing-tool fitted in a frame, E, and attached to the same by means of rods surrounded by springs *d*, so as to allow the presser to yield when forced down upon the inner sole in the space between the edges of the upper. The frame E is attached to a holder, B, as shown, similarly to that used for the die. The presser is to be made of metal, or may be made of a solid block of rubber of sufficient hardness to properly do its work and possess a sufficient degree of elasticity.

Figs. 5 and 6 represent a last which I employ in carrying out my present invention. The last F is provided at its heel and toe ends with pieces of india-rubber *f f*, which are set into the last and conform to the contour of the bottom of the same. The object of the rubber pieces *f f* is to provide a yielding surface, so as to cause the pressing-tool to act upon the toe, heel, and sides of the folded edges of the upper at the same time.

Fig. 7 represents the upper turned over on the bottom, and after having been operated upon by the die C, portions of the toe and heel and at the center being cut out, as shown.

Fig. 8 represents the bottom of the inner sole and the turned-over edges of the upper covered by a piece of textile or other suitable material, H. (Shown in Fig. 10.) This material is covered on one side with a cement, which may be waterproof, if desirable. I propose using a cement composed of shellac and rubber, which, when prepared for use, is not adhesive, and is only so when subject to a degree of heat sufficient to fuse it. Pieces of cloth thus prepared may be made and sold as a separate article of manufacture. The dotted line in Fig. 8 indicates the turned-over edge of the upper, and the line *h* shows that part of the upper which is covered by the clamps or jaws of the lasting-machine, for which I have already received a patent, as above mentioned.

Fig. 9 represents a machine to which my present invention is applicable, and shows the method of operation. To the body I of the machine are attached the two uprights K K,

which serve as guides to a beam, L, which is connected at each end by a rod, M, to an eccentric, O, by means of which an up-and-down motion is imparted to the beam L by any suitable power. The beam L is designed to be made adjustable by any suitable and well-known means, so as to bring the same down the proper distance to cut through the turned-over part of the upper, but not to cut into the inner sole. B represents the holder having the die A, as above described.

Instead of having two separate handles or holders B for the die and pressing-tool, the two latter may be joined together back to back, and pivoted in the holder so as to admit of either tool being turned down for use, as required.

The operation of my invention is as follows: The shoe to be lasted, being drawn over the last F, is placed in a machine, as shown in Fig. 9, in which the edges of the upper have already been turned over the inner sole, and held by jaws or clamps, as described in my Patent No. 232,964, above mentioned, the said jaws holding the portion of turned-over edges of the upper on a line designated by *h h* in Fig. 8, the extreme edges designated by the line *g g* in Figs. 7 and 8 being left free. The holder B, containing the die A, is then taken by the operator and the die placed upon the turned over edges of the upper. The beam L is then brought down upon the holder B, causing the edges of the upper to be cut, as shown in Fig. 7, leaving the notches *c'' c''* and *c''' c'''*. The beam L is then caused to rise, when the die is removed and the cemented piece H is laid, with its cemented side down, upon the inner sole and the turned-down edges of the upper, occupying the space indicated by the line *h h*, Fig. 8, the dotted line *g g* indicating the edge of the upper. The presser D, which has been properly heated, is then applied by the operator, and the beam L again brought down, as in the case of the die, and held a few seconds, when the cement is fused, and by the pressure is almost instantaneously caused to adhere firmly to the insole and edges of the upper, thus completing the lasting process.

The die is to be heated to a degree sufficient to fuse the cement without injuring the stock, and I design to use a bath of hot water and glycerine as best adapted to the purpose, though any other suitable means may be employed.

It will be understood that I do not herein specifically claim a strip of binding material having a coating of fusible cement, such being reserved for a future application; but

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

1. The herein-described method of lasting a boot or a shoe, consisting in first drawing the upper over a last to which the inner sole has been previously applied, then cutting notches in the turned-over edges of the upper, next applying to the surface of the inner sole and turned-over portions of the upper a binding-strip coated with a fusible cement, and finally subjecting the whole to pressure under heat, sufficient to melt the cement, and thereby unite the parts, all in one continuous operation, substantially as specified.

2. In a lasting-machine, the combination of a last, a die having a continuous cutting-edge provided with scallops *c c* at the heel and toe and scallops *c' c'* at the sides, and suitable mechanism for operating said die, whereby notches are cut in the edges of the upper at the sides, heel, and toe, substantially as set forth.

3. In a lasting-machine, the combination, with a last, F, having yielding surfaces *f f* and a holder, B, for the attachment of a cutting or pressing tool, of the beam L, rods M M, eccentrics O O, and suitable supporting and operating mechanism, substantially as shown and described.

GILBERT HAWKES.

Witnesses:
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CHAS. H. DREW.