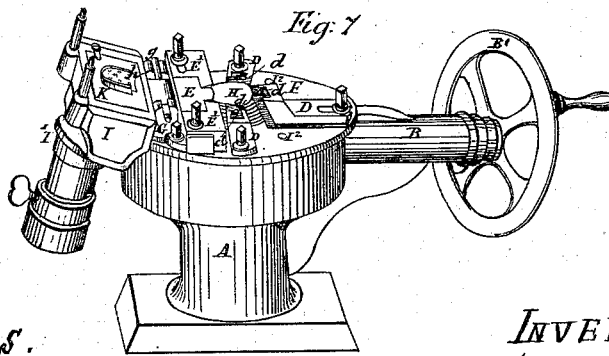
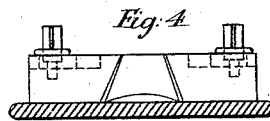
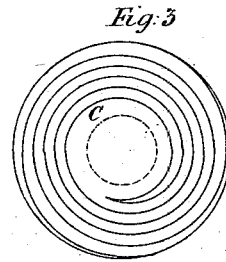
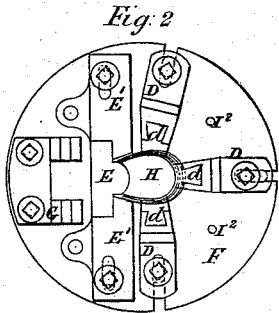
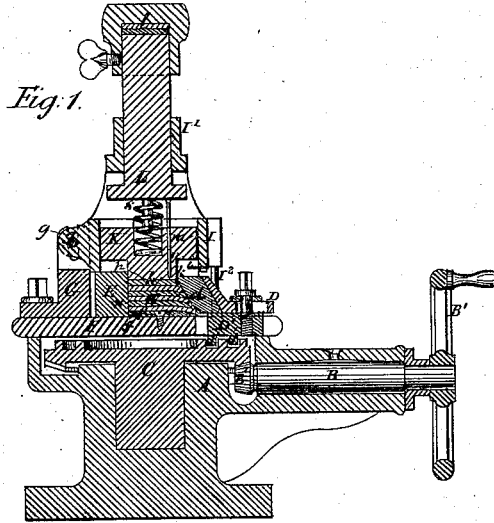


W. STEVENS.
Machine for Making Boot and Shoe Heels.
 No. 160,481. Patented March 2, 1875.



WITNESSES.
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WILLIAM STEVENS, OF NORTHAMPTON, ENGLAND.

IMPROVEMENT IN MACHINES FOR MAKING BOOT AND SHOE HEELS.

Specification forming part of Letters Patent No. 160,481, dated March 2, 1875; application filed October 16, 1874.

To all whom it may concern:

Be it known that I, WILLIAM STEVENS, of Northampton, in the county of Northampton, England, have invented an Improvement in the Manufacture of Heels for Boots and Shoes, and apparatus for that purpose; and do hereby declare that the following description, taken in connection with the accompanying sheet of drawings hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said improvement, by which my invention may be distinguished from others of a similar class, together with such parts as I claim and desire to secure by Letters Patent; that is to say—

This invention relates to a method of joining together, by nailing or riveting, the separate slabs of leather or other material used for making heels of boots or shoes, and compressing the heel so as to render it firm and solid, and to shape it to the hollow form on the side presented to the foot of the wearer, at the same time inserting the nails presented on the other side by the use of simple apparatus, the construction and action of which will be understood on reference to the accompanying drawings.

Figure 1 represents a vertical section of the apparatus. Fig. 2 represents a plan of the face-plate, and Fig. 3 a plan of a revolving disk under the face-plate. Fig. 4 represents a section through the face-plate, with an elevation of an adjustable block forming the abutment of the heel. Figs. 5 and 6 represent face views of the two dies used, as will hereafter be explained, for compressing and nailing the heel; and Fig. 7 shows a perspective view of the apparatus.

A is the base of the apparatus, which is covered by a face-plate, F. Within the base, and under the plate, is mounted a disk, C, having on its under edge bevel-teeth, which gear with the teeth of a bevel-pinion, B², on the end of a shaft, B, on the other end of which is fixed a wheel and handle, B¹. The stem of the disk C is fitted to turn in a hollow in the base A, and on the upper surface of the disk C is formed a volute rib, projecting upward, as shown at Fig. 3. On the upper surface of the face-plate F is fixed a butting-piece, E,

with two adjustable cheeks, E', which may be set nearer together or farther apart, to suit different widths of heel. The face-plate F is also made with two or three radial slots, (in Fig. 2 three such slots are shown,) in which are fitted slides D. The slides have ribs *d'*, projecting downward and engaging with the volute rib of the disk C. On each of slides D' is fixed a dog, D, by means of a screw passing through a slotted hole in the dog, so that the dog can be adjusted upon its slide D' nearer to or farther from the center of the face-plate. The front part of each dog is inclined forward, and made with a dovetailed recess, in which is fixed a piece of caoutchouc or other elastic material, *d*. On the middle of the face-plate F is fixed a convex piece, *f*, shaped to the hollow desired for the heel. There is also fixed on the face-plate F a bracket, G, having two arms projecting upward, with slotted holes for receiving the hinge-pin *g* of a die-frame, I. This die-frame is fitted in its lower part with a sliding die, K, which is made with its under face corresponding in form with the small end of the heel, as shown at Figs. 5 and 6. The upper part of the die-frame I forms a boss, I¹, through which slides the stem of a disk, L, kept up from the die K by a spring, S. The upper end of the stem of the disk L has a head screwed on it by a set-screw, with packing-pieces *l*, to adjust it to the height of the press in which the apparatus is employed. The die K is prevented from dropping out of the frame I by a stop, *i*, fixed to the frame. Through the die K are bored holes, which receive nails *n*, and are fitted with plungers *m*. Round the circular part of the face of the die K is fixed a lip, *k*, and the die-frame I has two pins, I², projecting down from it into holes in the face-plate F.

In using this apparatus, as I will presently explain, there are several of the die-frames I, with their dies K, having faces such as shown in Fig. 5, and several others having faces like Fig. 6, of somewhat smaller size, with a greater number of nail-holes, *n*, and their corresponding plungers *m*; and any one of these dies can be placed upon the apparatus, its joint-pin *g* being inserted in the slots of the bracket G, and the die and frame turned up into the position shown in Fig. 1.

In operating with this apparatus, the workman places on the piece *f* a number of the slabs H, intended to constitute a heel. He then, by turning the hand-wheel B', causes the disk C to revolve, and its volute rib, acting on the slides D', causes all these slides simultaneously to advance toward the center of the apparatus, and thus the slabs H are clamped by the dogs D, the inclined and elastic faces *d* of those dogs being brought to bear firmly on the slabs H. In the meantime other workmen, who may be unskilled, have inserted nails *n* into the holes in the dies K, and have put on the faces of those dies the upper slab *h*, which is held thereon by the lip *k*, and which forms a cover, to prevent the nails *n* from dropping out of the holes when the die is inverted. The operating workman takes, then, one of these dies—the larger, Fig. 5—inserts the joint-pin *g* of its frame into the slots of the bracket G, and turns the die and frame over from the position shown in Fig. 7 into the position shown in Fig. 1, the pins *l*² resting in the holes in the face-plate F. He then pushes the whole apparatus into a screw, hydraulic, or other convenient press, and subjects it to pressure. The die L is thus made to descend, pushing down the plungers *m*, and thereby forcing the nails *n* through the slabs H, so as to nail them together. When the disk L has reached the die K, by continuing the pressure the die itself is forced down, squeezing together and compressing the slabs H, molding them to the form of the piece *f*,

and burring over or riveting the points of the nails *n* by pressing them against the piece *f*. He then relieves the pressure, withdraws the apparatus from the press, removes the die and frame, and repeats the operation with the smaller die, Fig. 6, whereby the last or smallest slab of the heel is put on, and the numerous nails *n*, which appear on the face of the heel, are inserted. When the second die has been removed the hand-wheel B' is turned backward, the dogs D are thus withdrawn, and the heel H is removed, ready to be fixed on the boot or shoe, and to be shaped to its proper form.

Having thus described the nature of my invention, and in what manner the same is to be performed, I claim—

1. The combination of the simultaneously-advanced dogs and the volute rib on the revolving disk, whereby the slabs are clamped on the face-plate, as described.

2. In combination, the volute disk C, slides D', with dogs D, hinged die-frame I, with die K, plungers *m*, spring S, and compressing-disk L, arranged and operating substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses this twenty-fourth day of August, 1874.

WILLIAM STEVENS.

Witnesses:

CHAS. D. ABEL,
JNO. P. M. MILLARD.