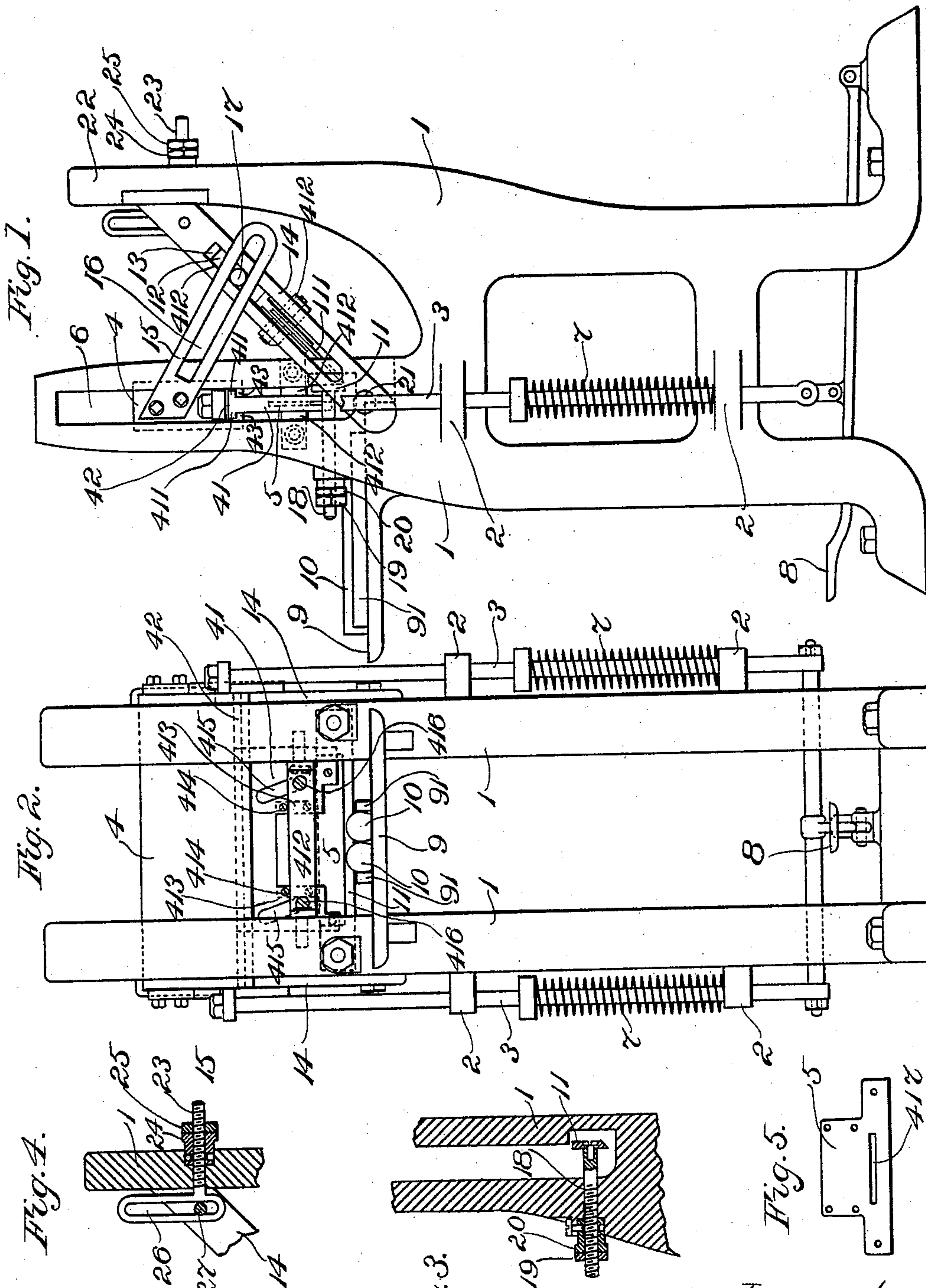


(No Model.)

E. S. MANSELL.  
MACHINE FOR MAKING SPRING HEELS.

No. 594,115.

Patented Nov. 23, 1897.



Witnesses:

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# UNITED STATES PATENT OFFICE.

ELBRIDGE S. MANSELL, OF LYNN, MASSACHUSETTS.

## MACHINE FOR MAKING SPRING-HEELS.

SPECIFICATION forming part of Letters Patent No. 594,115, dated November 23, 1897.

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*To all whom it may concern:*

Be it known that I, ELBRIDGE S. MANSELL, a citizen of the United States, residing at Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Machines for Making Spring-Heels for Shoes, of which the following is a specification, reference being had therein to the accompanying drawings.

In the manufacture of shoes having spring-heels a heel-piece consisting of one or more pieces of leather is introduced and secured between the heel-seat and the outer sole, the rear end portion of the latter constituting the top lift for the heel. The heel-piece aforesaid commonly is termed in the art, for the sake of convenience of designation, a "spring-heel." The forward edge thereof is beveled or skived off in order to give the proper inclination to the heel-breast.

The object of my present invention is to facilitate the production of the heel-pieces aforesaid, otherwise spring-heels, to enable them to be rapidly and economically formed and completed and to effect a saving in the material employed.

To these ends the invention consists in the novel machine which I shall now describe with reference to the accompanying drawings, and the distinguishing characteristics of which I also shall point out particularly and define distinctly in the claims at the close of this specification.

The accompanying drawings show, in Figure 1, my said machine in side elevation. Fig. 2 shows the said machine in elevation as when viewed from the left-hand side in Fig. 1. Figs. 3 and 4 are sectional views of details. Fig. 5 shows a modified form of knife.

At 1 is the framework of the machine, which may be of any suitable form or character, according to what is required for the support, arrangement, &c., of the essential parts of the machine. 2 2 are guides on the sides of the said frame. 3 3 are upright rods working in the said guides 2 2. 4 is a bar or block which is connected with the upper ends of the said rods 3 3 and moves therewith. 41 is a knife-holder that is connected with the said bar or block 4 in a manner which compels it to move vertically with the said bar or block while leaving it capacity to move lengthwise

thereof—that is to say, crosswise or laterally of the machine. The connection between the said bar or block and the said knife-holder may be of any known or suitable character. I have found it convenient to form the upper edge of the knife-holder 41 with a flange or flanges 411 411, as shown, and to form the lower edge of the bar or block 4 with a longitudinal recess, as 42, into which the flanged edge of the knife is entered, the said bar or block 4 also being formed with lips 43 43, which underlie the flanges 411 411.

5 is a knife or cutter blade which is inserted into the knife-holder 41, the said knife-holder being shaped to fit the said knife and grooved to receive the lateral edges of the knife, and the knife being slipped edgewise into the recess that is provided for its reception in the said knife-holder.

412 412 are plates which are placed parallel with each other at a distance apart sufficient to receive between them the knife-holder and knife within the same, the said plates extending crosswise in the machine and being secured to the fixed framework. These plates guide the knife-holder and knife in their vertical movements and assist in holding the knife in position within the said knife-holder. The use of the knife-holder and of the plates 412 412 enables me to employ with safety a very thin knife, which I find desirable in practice. The vertical grooves 413 413 in the knife-holder receive the lateral edges of the knife, and thereby the knife is prevented from springing in its descent through the material which is being cut. The knife is retained in place in the knife-holder in any suitable manner, as by means of the screws 414 414.

In order to make a clean cut without marring or injuring the stock and without turning over the edge of the layers or lifts composing the heel-bar, I provide for giving an endwise movement to the knife during the vertical movement thereof, thereby producing a draw cut. To this end I form oblique or inclined slots 415 415 in the knife-holder, which slots receive the stems of screws 416 416, passing through the plates 412 412, which stems may be fitted with rollers to reduce friction, if desired.

6 6 are slots or guideways in the sides of



the frame, in which slots or guideways the ends of the bar or holder 4 move up and down.

7 7 are springs which act to press the bar or holder 4 and parts connected therewith vertically upward. The said springs act to raise the knife into its elevated position after it has been depressed to effect its cut.

8 is a treadle which is connected to the lower ends of the rods 3 3, whereby to depress the knife or cutter.

9 is a table which is supported by the framework 1. The knife 5 descends at the rear edge of the said table—that is, the right-hand edge thereof in Fig. 1—and coacts with the said edge in making its cut.

I contemplate taking the necessary stock and dieing the same out into the form of heel-lifts or parts of heel-lifts. These then have paste applied to their surface and are piled upon one another, being subjected to compression, so as to unite them securely together. Thereby I produce bars of stock, each of any desired and convenient length and composed of a great number of lifts or layers united together, the said bars having each in cross-section the shape more or less approximately of a heel. Taking one of these bars of stock or heel-bars I lay them on the upper surface of table 9, between the guides 91 91, as indicated at 10 10, Figs. 1 and 2, with the rounded or convexed side of each bar uppermost. While knife or cutter 5 is raised I push the bar or bars 10 10 rearward until the rear end or ends thereof come in contact with the stop-bar 11, the said stop-bar being located slightly to the rear of the cutter 5—that is to say, to the right thereof in Fig. 1. The descent of cutter 5 cuts a heel-piece or spring-heel of the desired thickness from the heel-bar, or from each of the latter in case more than one heel-bar is placed in the machine at a time. For the purpose of skiving or beveling off one edge of the heel-piece simultaneously with the operation of severing the same from the heel-bar I employ a second knife or cutter 111, placed in an inclined position and operated in unison with the knife or cutter 5. Thereby as the two knives or cutters descend the knife or cutter 111 acts against the rear side of the lower end of the heel-piece that is severed by the knife or cutter 5 and cuts away the material of the same on an oblique or inclined line, giving thus the required bevel or inclination to this portion of the heel-piece.

12 is a bar or block by which knife or cutter 111 is actuated. The ends of this bar 12 move in slots or ways 13, which are formed in inclined bars 14 14, one of which is shown in Fig. 1.

For the purpose of operating the knife or cutter 111 in unison with the knife or cutter 5 I apply to each end of the vertically-moving knife-actuating bar or block 4 a longitudinally-slotted piece 15, the slot 16 of which occupies an inclined position and receives the

pin 17, projecting from the corresponding end of the knife-actuating bar or block 12.

Preferably the means of supporting and actuating the obliquely-moving knife or cutter 111 will be constructed and arranged to operate as in the case of the means of supporting and actuating the knife or cutter 5, already described. In this case, however, the side plates 412 412 will be affixed to the inclined supporting-bars 14 14. To the end, however, that the lateral movement of the knives or cutters may not tend to force the heel-bars laterally I so form the slots 415 415 as that one knife or cutter shall be caused to move in one direction and the other knife or cutter shall be caused to move in the other direction.

In order to render the machine capable of producing heel-pieces of various thicknesses, I render the stop-bar 11 adjustable toward and from the knife or cutter 5. Any suitable or preferred means of supporting and adjusting the said stop-bar may be employed. In the drawings I have represented the same as mounted upon rods 18 18, which last have their free ends extended forward through the sides of frame 1 and screw-threaded, the said ends receiving thereon the adjusting-nuts 20 and lock-nuts 19.

For the purpose of enabling the inclination of the beveled-off or skived end of the heel-piece to be varied as desired I mount the bars 14 14 in the machine in a manner which enables the inclination thereof to be varied as required. Thus I pivot each of the said bars, as at 21, in line, or approximately so, with the rear edge of the table 9, and to each bar 14 I apply means whereby to adjust the same into the desired inclined position and to secure the same effectually in place. Thus the upper end of each bar 14 may extend into contact with or proximity to an upright portion 22 of the framework. To the said portion 22 is applied an adjusting and securing bolt 23, (see Figs. 1 and 4,) having adjusting and lock nuts 24 25, and also having a vertical slot 26, which receives a pin 27, that is carried by the bar 14.

It is old in the art to build up lifts or layers of leather to the required height or thickness of a heel and to produce thereby a heel-blank of twice the length of a single heel, the blank thus produced being known commonly as a "double heel." After being thus produced the said double heel is cut at mid-length on an oblique line to separate it into two spring-heels, the single cut producing the desired scarfing of the breast ends of the two spring-heels which thus are formed. My improved machine may readily be adapted to the cutting apart of double heels. All that is requisite is that the heel-bar or prepared bar of stock should have the shape in cross-section of a double heel and that the obliquely-working knife should act at the desired height to sever at approximately mid-length the heel-



piece which is cut from the heel-bar by the vertically-moving knife.

To enable the machine to be used for the purpose just mentioned, I either recess the side of the vertically-moving blade or form a slot therethrough, as at 417 in Fig. 5, so as to provide against contact of the edge of the obliquely-moving knife with the material of the vertically-moving knife, which would result in dulling the said edge.

I claim as my invention—

1. The improved machine for making spring-heels comprising a support for a heel-bar, a gage to determine the position of the rear end of the said heel-bar, a knife or cutter whereby to sever a heel-blank from the said end of the said heel-bar and a knife or cutter whereby to skive one edge of said heel-blank, substantially as described.

2. The improved machine for making spring-heels, comprising a support for a heel-bar, a vertically-moving knife or cutter whereby to sever a heel-blank from the said heel-

bar, an obliquely-moving knife or cutter whereby to skive or bevel off the breast end of the heel-blank, and means to actuate the said knives or cutters whereby a draw cut is produced, substantially as set forth.

3. The improved machine for making spring-heels, comprising a support for a heel-bar, a vertically-moving knife or cutter whereby to sever a heel-blank from the said heel-bar, an obliquely-moving knife or cutter whereby to skive or bevel off the breast end of the heel-blank, and means to actuate the said knives or cutters, including provisions for moving said knives or cutters endwise in opposite directions to each other, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ELBRIDGE S. MANSELL.

Witnesses:

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EDITH J. ANDERSON.