

(No Model.)

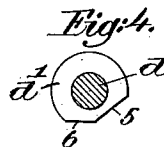
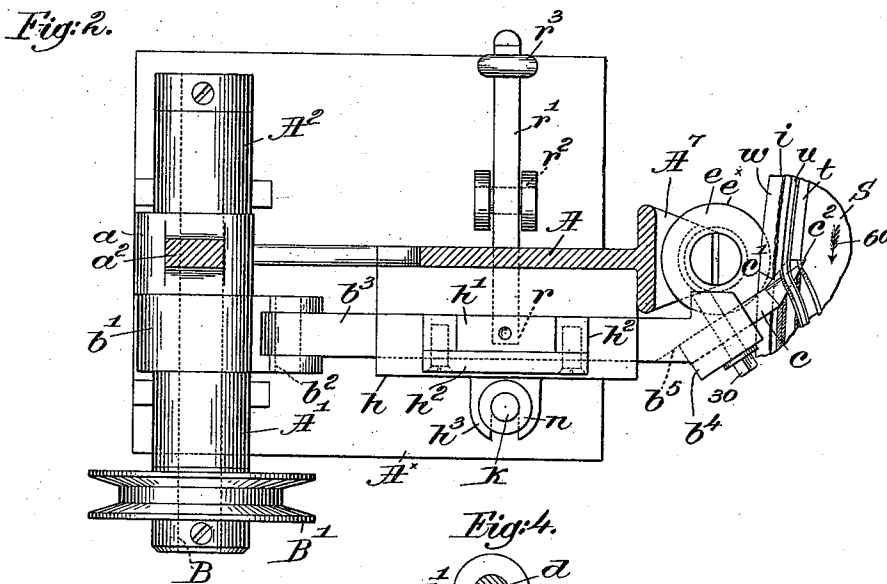
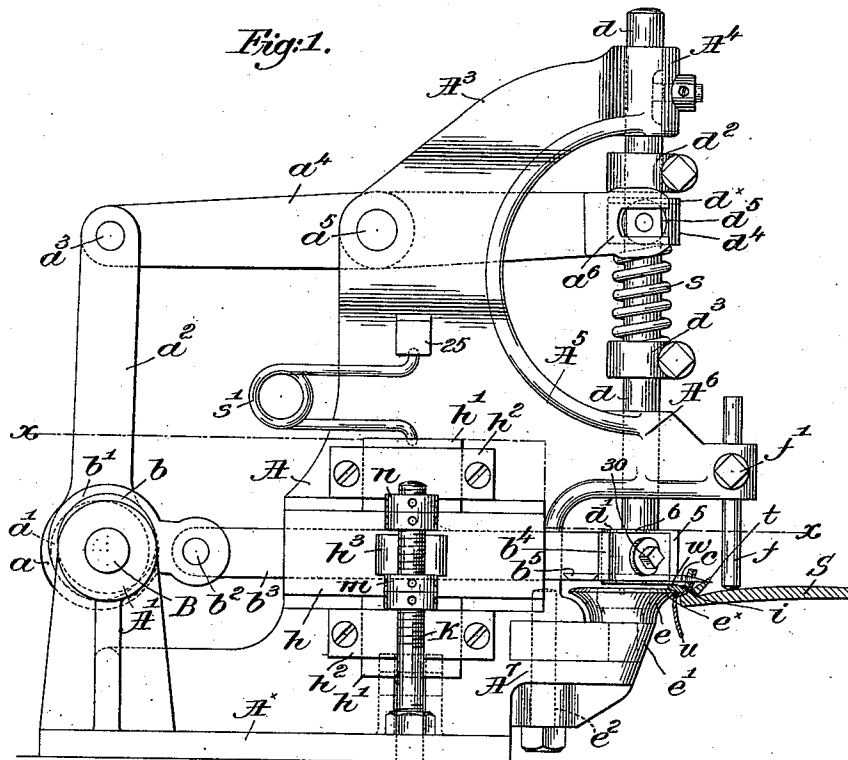
2 Sheets—Sheet 1.

A. C. SPENCER.

MACHINE FOR INSEAM TRIMMING AND BEATING OUT WELTS.

No. 542,813.

Patented July 16, 1895.



Witnesses.
Fred S. Grunleaf.
Thomas J. Drummond.

Inventor
Alvin C. Spencer
by Crosby Gregory.
attys.

(No Model.)

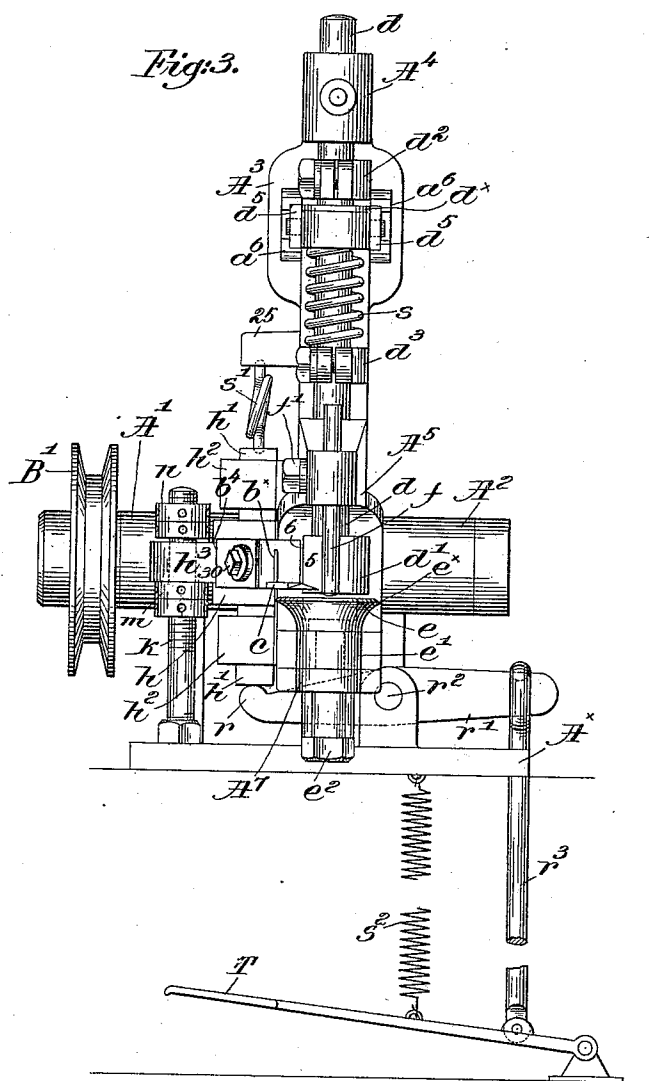
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UNITED STATES PATENT OFFICE.

ALVAH C. SPENCER, OF BOSTON, ASSIGNOR OF ONE-HALF TO ADELBERT P. HANSCOM, OF WEST MEDFORD, MASSACHUSETTS.

MACHINE FOR INSEAM-TRIMMING AND BEATING OUT WELTS.

SPECIFICATION forming part of Letters Patent No. 542,813, dated July 16, 1895.

Application filed April 24, 1895. Serial No. 547,012. (No model.)

To all whom it may concern:

Be it known that I, ALVAH C. SPENCER, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Machines for Inseam-Trimming and Beating Out Welts, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

In the manufacture of welted boots and shoes the welt stitched to the upper and to the insole has to be hammered or beaten out to make it smooth and level, and the inseam has to be trimmed as closely as possible to the stitching that the welt and inseam may lie properly upon the outer sole to be attached to the welt by stitches or otherwise, the trimming of the inseam reducing the thickness of the necessary filling.

So far as I am aware the beating out of the welt and the trimming of the inseam have been performed as separate operations; and this invention has for its object the production of a machine for beating out the welt and trimming the inseam by means of an automatically-actuated hammer and trimmer-knife, respectively, the welt being held by the hammer on a suitable welt-support, while the trimmer-knife by a shearing cut trims the inseam at an adjacent point. A single handling of the boot or shoe is thus attained, and the work is more satisfactorily and rapidly performed than is now possible.

Figure 1 in side elevation represents a machine embodying my invention, a portion of the boot or shoe operated upon being shown in section. Fig. 2 is a plan view thereof, partly in section, taken below the irregular line $x x$, Fig. 1, with the hammer omitted. Fig. 3 is a right-hand end view of the machine shown in Fig. 1, and Fig. 4 is a plan view of the hammer detached.

Referring to the drawings, the bed or base A^x , of suitable shape to sustain the operating parts, has erected thereupon or forming a part of it a substantially central upright web A and bearings $A' A^2$, Fig. 2, for an actuating shaft B , having fast thereon a driving-pulley B' , (shown only in Figs. 2 and 3,) to receive a suitable belt.

Eccentric-cams a and b , (see full and dotted

lines, Fig. 1,) are secured to the actuating-shaft in suitable manner, the cam a being surrounded by a strap a' on a link a^2 , pivoted at a^3 to one end of a lever a^4 , fulcrumed at a^5 in a tubular enlargement of an overhanging arm A^3 at the top of the web A . The arm A^3 has a bearing A^4 , and a lateral branch A^5 of the web is provided with a bearing A^6 for a slide-bar or reciprocating hammer-carrier d , to which is secured, preferably by shrinking thereon, a steel hammer d' , (shown separately in Fig. 4, and cut away at 5 and 6,) for a purpose to be described.

Split or other suitable collars $d^2 d^3$ are adjustably secured to the slide-bar between the bearings, and a loose collar d^4 is sustained by a spring s surrounding the slide-bar d and resting on the collar d^5 .

Suitable rocking blocks d^5 , pivoted to the collar d^4 , enter with a sliding fit in the slotted checks a^6 of the bifurcated end of the lever a^4 , the oscillation of the latter, due to the rotation of the eccentric a , reciprocating the hammer-carrier d and its hammer.

It will be obvious that the spring s connects the lever and slide-rod in a yielding manner, and thereby permits variations in the stroke of the hammer-carrier, due to variations in the thickness of the welt, and in the upstroke the spring retains the hammer pressed upon the work until the collar d^4 positively raises the collar d^2 and the slide-bar d , a yielding washer d^x being interposed between them to prevent noise. The hammer thus descends and dwells upon the welt at each stroke, for a purpose to be described.

A preferably circular and revoluble welt-support or anvil e is mounted below the hammer d on a slide-plate e' adjustably held in a cut-away portion A^7 of the web A by a suitable screw or bolt e^2 passed through a slot in the plate e' .

The welt-support or anvil e is preferably shaped to present an annular lip e^x to extend beneath the welt w , Fig. 1, and between it and the adjacent part of the upper u , and as the operator moves the boot or shoe along the hammer d' will, by a series of quick blows, automatically hammer or beat out the welt resting on the support or anvil e .

A work-support, shown as a rod f , is ad-

justably held by a set-screw f' in a socket in the branch A^5 , the uppermost surface of the inner sole S being held against the end of the work-support, as shown clearly in Fig. 1.

5 The strap b' of the eccentric b is pivotally connected at b^2 to the elongated end b^3 of, and to reciprocate laterally, a trimmer or knife-carrier b^4 , having in its under side a diagonal undercut or dovetailed groove b^5 to receive
10 the shank of an inseam trimmer or knife c , the carrier being split at b^x and drawn together by a bolt 30 to form a clamp for the knife.

Referring to Figs. 1 to 3, it will be seen that
15 the trimmer-carrier b^4 is reciprocated above the welt-support e at one side of the path of the hammer d' , the cut-away portion 6 of the latter avoiding interference with the trimmer-carrier. The trimmer-knife c is held in its
20 carrier diagonally to the direction of movement of the latter, and the beveled cutting-edge c' of the knife is set in or at an obtuse angle with the shank to thereby cause the trimmer-knife to trim the inseam with a
25 shearing cut, as it is on its inner stroke and as near as possible to the point where the hammer d' is acting upon the welt. When the trimmer-knife is moving outward, the angle of the cutting-edge c' leaves a clearance-space in the cut, so that the operator can
30 move the work ahead in the direction of the arrow 60, Fig. 2, and the widened extremity c^2 of the knife maintains the latter in the cut while at the inner end of its stroke.

35 I prefer to so set the eccentrics a and b upon the shaft B that the "dwell" of the hammer d' acts to clamp the welt w on the support or anvil e while the trimmer-knife is making its shearing cut to trim the inseam,
40 the operator being thus enabled to give his whole attention to feeding the work.

In the drawings the trimmer-knife is shown as at about the middle of the cutting-stroke, and to prevent interference of the
45 knife and hammer I have slabbed off the latter at 5. (Clearly shown in Fig. 4.) As the boot or shoe is moved along by the operator the projecting lip of the welt is hammered or beaten out, and the inner edges of the welt,
50 upper, and channel-flap t are trimmed adjacent the inseam i .

Inasmuch as the amount to be cut in trimming the inseam varies it is very desirable to
55 adjust vertically the normal path of the trimmer-knife, and also to provide means under the control of the operator for instantly changing the elevation of the trimmer at particular points. For this purpose I have provided the support or bearing h , in which the
60 trimmer-carrier b^4 is reciprocated, with projecting portions h' at top and bottom to enter suitable guides h^2 , secured to the upright web A and to be vertically movable therein.

A slotted ear h^3 on the outer vertical face
65 of the bearing h receives a threaded rod k , secured to the bed-plate A^x of the main frame,

check-nuts m and n being adjustable on said rod above and below the ear h^3 , and thus limiting the vertical movement of the bearing-block h . Normally the said block is de-
70 pressed by a strong spring s' , interposed between its top and a lug 25 on the web A , the ear h^3 normally resting on the check-nut m , which is adjusted to provide for the trimming of the inseam to the proper depth normally;
75 but as this amount will vary in different parts of the boot or shoe I provide means under the control of the operator to instantly adjust the trimmer thereto.

As best shown in Fig. 3, the lower project-
80 ing portion h' of the bearing h is adapted to be acted upon by the toe r of a lever r' , extended through the web A and pivoted to the bed-plate A^x at r^2 and controlled by a link r^3 ,
85 connected to a suitable treadle T , (shown only in Fig. 3,) depression of the treadle lifting the toe r and raising the bearing h to instantly elevate the trimmer c , so that the in-
90 seam will be trimmed to a less degree. A spring s^2 normally maintains the treadle T in elevated inoperative position.

My invention is not restricted to the exact construction and arrangement herein shown,
as modifications may be made therein without departing from the spirit and scope of
95 my invention.

I claim—

1. In a machine for beating out welts and trimming the inseams of boots and shoes, a welt support to sustain the attached welt ad-
100 jacent the upper, combined with a hammer to beat out the welt, a trimmer knife to trim the inseam, and means to automatically actuate the hammer and trimmer knife, substantially as described.
105

2. In a machine for beating out welts and trimming the inseams of boots and shoes, a welt support to sustain the attached welt ad-
110 jacent the upper, combined with a vertically reciprocating hammer to beat out the welt, a trimmer knife movable in a path adjacent the hammer, to trim the inseam, and means to automatically actuate the hammer and trimmer knife, substantially as described.

3. In a machine for beating out welts and
115 trimming the inseams of boots and shoes, a welt support to sustain the attached welt adjacent the upper, combined with a reciprocating hammer to beat out and dwell upon the welt at each stroke, a trimmer knife having a
120 diagonal cutting edge to trim the inseam with a shear cut, and means to automatically reciprocate the hammer and to operatively actuate the trimmer knife during the dwell of
125 the hammer, substantially as described.

4. In a machine for beating out welts and trimming the inseams of boots and shoes, a welt-support to sustain the attached welt ad-
130 jacent the upper, combined with an automatically reciprocated hammer to beat out the welt, a laterally reciprocating trimmer knife to trim the inseam, a carrier therefor,

an adjustable bearing for the said carrier, and means to reciprocate the knife and its carrier, substantially as described.

5 In a machine for beating out welts and trimming the in-seams of boots and shoes, a welt-support to sustain the attached welt adjacent the upper, and an automatically re-
10 ciprocated hammer to beat out the welt, combined with a laterally reciprocating trimmer knife having a diagonal cutting edge, to trim the in-seam with a shear cut, and means controlled by the operator to instantly vary the
15 depth of cut, substantially as described.

6. In a machine for beating out welts and trimming the in-seams of boots and shoes, a

welt-support to sustain the attached welt adjacent the upper, and an adjustable work-support for the insole within the in-seam, combined with a vertically reciprocating hammer to beat out the welt, a laterally reciprocating trimmer knife to trim the in-seam, and means to automatically reciprocate the hammer and trimmer knife, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALVAH C. SPENCER.

Witnesses:

JOHN C. EDWARDS,
EMMA J. BENNETT.