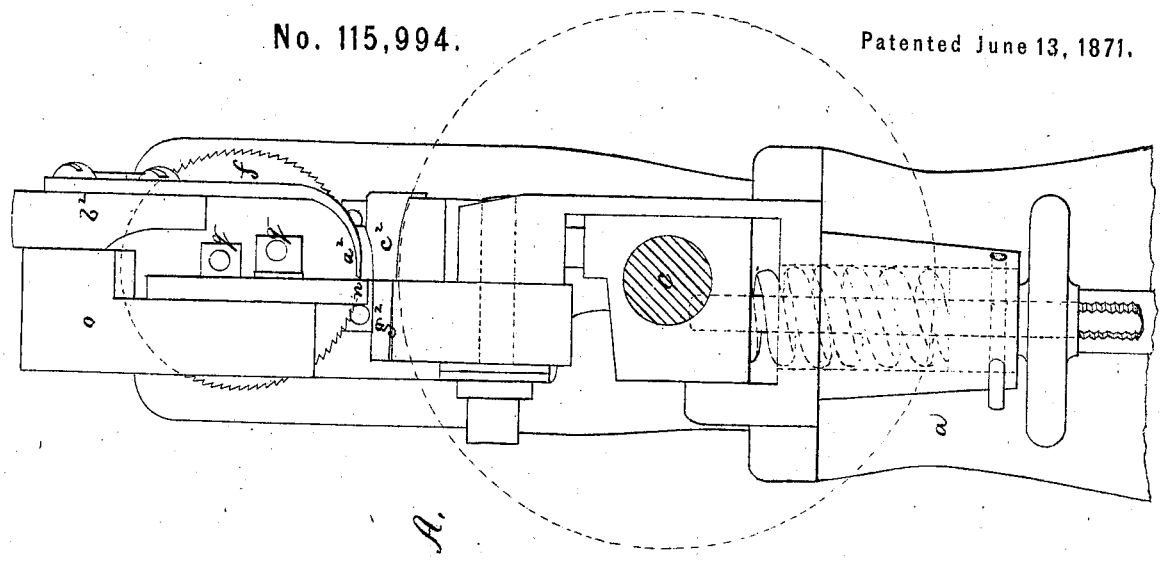
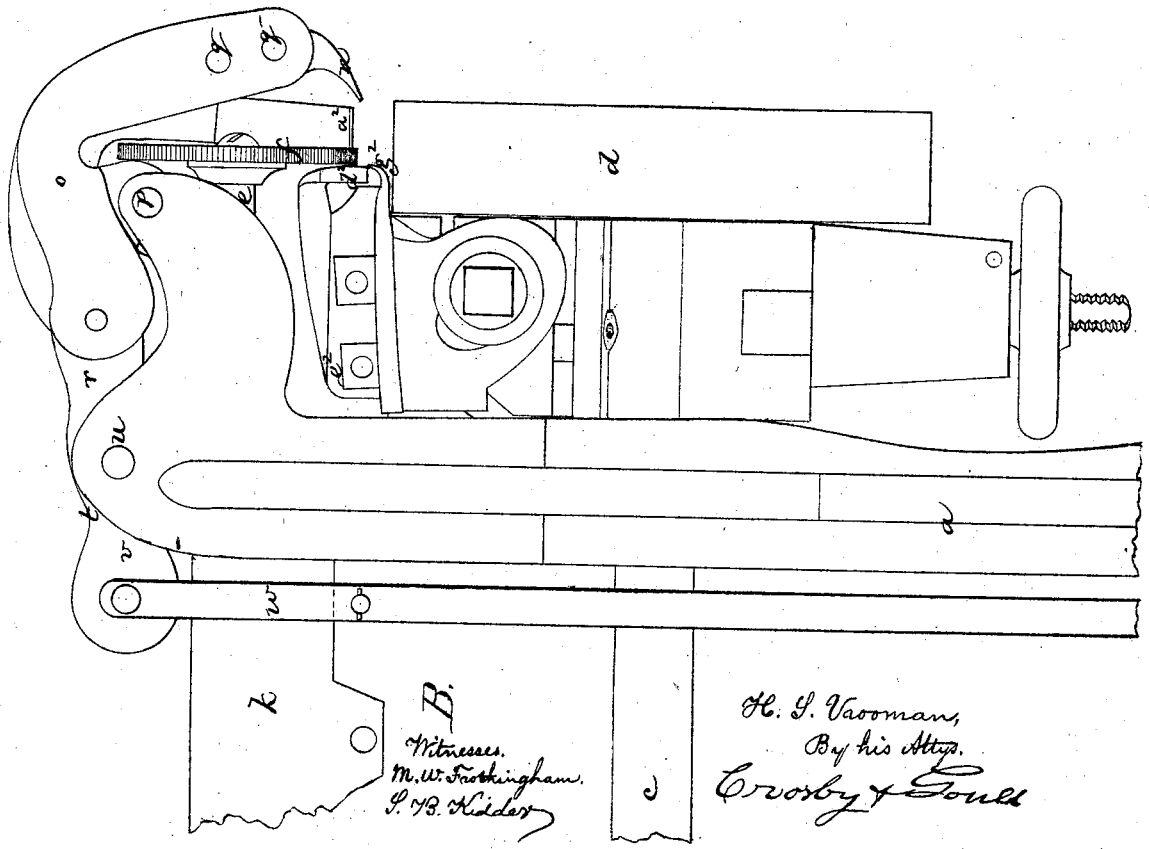
2 Sheets--Sheet 1.

H. S. VROOMAN.

Improvement in Boot and Shoe Channeling Machines.

No. 115,994. Patented June 13, 1871.





Witnesses.
M. W. Frothingham.
S. B. Kidder

H. S. Vrooman,
By his Attys.
Crosby & Gould

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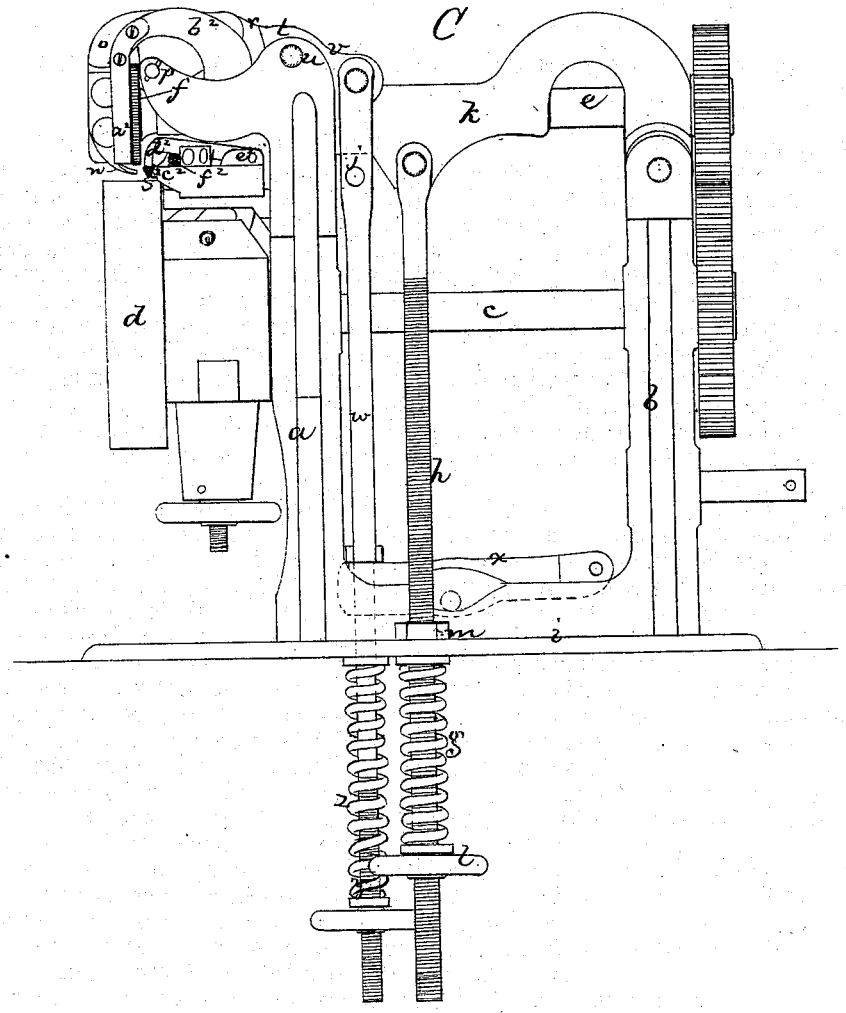

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UNITED STATES PATENT OFFICE.

HENRY S. VROOMAN, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN BOOT-AND-SHOE CHANNELING-MACHINES.

Specification forming part of Letters Patent No. 115,994, dated June 13, 1871.

To all whom it may concern:

Be it known that I, HENRY S. VROOMAN, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Channeling-Machines; and I do hereby declare that the following, taken in connection with the drawing which accompanies and forms part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

My invention relates particularly to the details of construction and arrangement of the cutting, feeding, and guiding mechanism of sole-channeling machines.

The drawing represents a machine embodying my improvements. A shows in front elevation the feed-wheels, channeler-cutters, and adjacent mechanism. B is a side elevation of the same. C is a side elevation of the machine.

a b denote the two uprights or journal-stands; *c*, the lower shaft, turning in stationary bearings in said stands, and having on its front end the lower feed-wheel *d*; *f*, the upper feed-wheel, fixed on the front end of a shaft, *e*, turning in bearings in the movable arm *k*, which arm is jointed to the rear upright, the two shafts being geared together, and the upper arm being held down to force the upper feed-wheel against the sole (supported upon the lower feed-wheel) by a suitable spring, *g*, acting upon a rod, *h*, one end of which is jointed to the other arm, and on the screw-threaded lower end of which, extending through the base-plate *i*, is a nut, *l*, between which and the bottom of the plate *i* is the spring *g*, the stress of which forces down the arm. The extent of downward movement of the arm may be limited by a nut, *m*. The channel-knife *n* is not attached to the arm, or to a block fixed to or with respect to the arm, as in other machines, but is attached to a movable stock or bent lever, *o*, pivoted to the front stand at *p*, the front arm of the lever extending down vertically in front of the upper feed-wheel, and having the shank of the channeler-knife *n* secured to it by screws *q*, and the other arm extending back and being jointed to one arm, *r*, of another lever, *t*, pivoted to the stand at *u*, the other arm, *v*, of this lever being jointed to rods or a rod, *w*, resting upon or having projecting under it the front arm of a lever, *x*, whose rear arm has a treadle-rod depending from it. The rod *w* has a screw-threaded shank, *y*, projecting down from it through the base-plate, and between a nut on the lower part of this shank and the under surface of the base-plate is a spring, *z*, surrounding the shank, the stress of the spring drawing down the rod and operating the compound-lever mechanism so as to force the channeler downward and inward and into proper position to form the channel, while, by depression of the treadle, the channel-knife is thrown out from the channel, as will be readily understood. Between or connecting the rods *w* is a cross-pin, *j*, and when the lever is operated by the treadle this pin strikes the under part of the arm *k* after the treadle has thrown the channeler-knife outward, and the continued depression of the treadle then raises the arm, and with it the channeler-knife or knives, and the upper feed-wheel. In channelers as now constructed the channel-knife is immovable, except for purposes of adjustment—that is to say, is immovable when the machine is in operation or the knife in a channel. The knife-stock is in front of the upper feed-wheel, and on the sole-entering side of the knife, and in front of the feed-wheel, and in close proximity to it, is a presser-foot, a^2, which is fixed by suitable fastenings to an arm, b^2, projecting from the journal-arm *k*, the presser-foot and the feed-wheel being, therefore, relatively immovable, except as relates to the rotative movement of the wheel, the presser-foot holding in place that part of the sole acted upon by the channel-knife, and just back of the point where the knife cuts.

It will be observed that, whatever may be the thickness of the sole or the want of uniformity in such thickness, the channeler-knife maintains, when cutting, a fixed position relatively to the upper surface of the lower feed-wheel, or the side of the sole opposite to that which the knife enters, and that the bottom of the channel is, therefore, always (or entirely around the sole) at a uniform distance from the part of the sole on the lower feed-wheel, or, as in channeling soles for turned work, at a uniform distance from the flesh side of the sole, a point of much importance in this class of work, where any slight variation of the channel from an equidistance from the surface of the sole causes the needle to come out

at the wrong point and the stitches to be at irregular distance from the bottom of the sole. While the channel-knife is thus held in place in operating it, it may be thrown out from the channel and the sole removed at any point along the channel. It will be seen that while the channeler-knife in operating keeps at a fixed distance from the upper surface of the lower feed-wheel, the upper feed-wheel and presser-foot a^2 move vertically, as required by the varying thickness of the sole.

c^2 denotes the edge-guide, which regulates the distance at which the channel shall be cut from the edge of the sole, this guide being attached to an arm projecting from the front journal-stand, and being adjustable in position forward and backward, to vary, as may be desirable, the distance from the edge at which the channel is cut. To the edge-guide or to a movable or adjustable block to which said edge-guide may be fixed, and with which it may move, I joint or affix the shank of a presser-foot, d^2, which foot is back of the toothed feed-wheel, or between it and the edge-guide, and presses down the extreme edge of the sole to the smooth feed-wheel beneath. As the edge-guide is moved the presser-foot is moved with and as a part of it, and by these means the edge of the sole is always kept pressed down adjacent to the guide. The edge presser-foot may be jointed, as seen at e^2, and forced up by the stress of a spring, f^2, the descent of the arm k pushing down the presser-foot upon the work, and the spring raising it when the arm is raised for introduction or removal of a sole. At g^2 is shown an edge-channeling, or scarfing, or feather-edging knife, the shank of which is fixed to the frame a, the knife being, therefore, stationary with respect to the lower feed-wheel.

I claim—

1. In combination with feed-wheels and an edge-guide, c^2, a movable channeler-knife, n, hung to a swinging-lever, so that it can be thrown out from the channel, substantially as described.

2. In combination with feed-wheels and an edge-guide, a channeler-knife, held in operative position, laterally, by the stress of a suitable spring.

3. A channeler-knife held in operative position by a suitable spring, and having provision for throwing it out of position against the stress of the spring, substantially as described.

4. In combination with feed-wheels and an edge-guide, a channeler-knife, arranged to cut a channel to uniform distance from the side of the sole opposite to which the knife enters.

5. In combination with the edge-guide c^2 a presser-foot, d^2, moving with said guide, or maintaining a fixed relation thereto, laterally, substantially as described.

6. In combination with the feed mechanism and edge-guide c^2, and with a channeler-knife arranged to cut to a depth uniformly distant from the surface of the sole opposite to that which the knife enters, a presser-foot, a^2, varying with the inequalities of the sole, coincidently with the upper feed-wheel f.

7. The combination of the laterally-movable channeler-knife, feed-wheel, and presser-foot with a lever, x, by operating which the movable knife, feed-wheel, and presser-foot may all be raised and the knife thrown outward, substantially as described.

8. The jointed presser-foot d^2, forced up by a spring and down by the arm k, substantially as described.

HENRY S. VROOMAN.

Witnesses:

M. W. FROTHINGHAM,

FRANCIS GOULD.