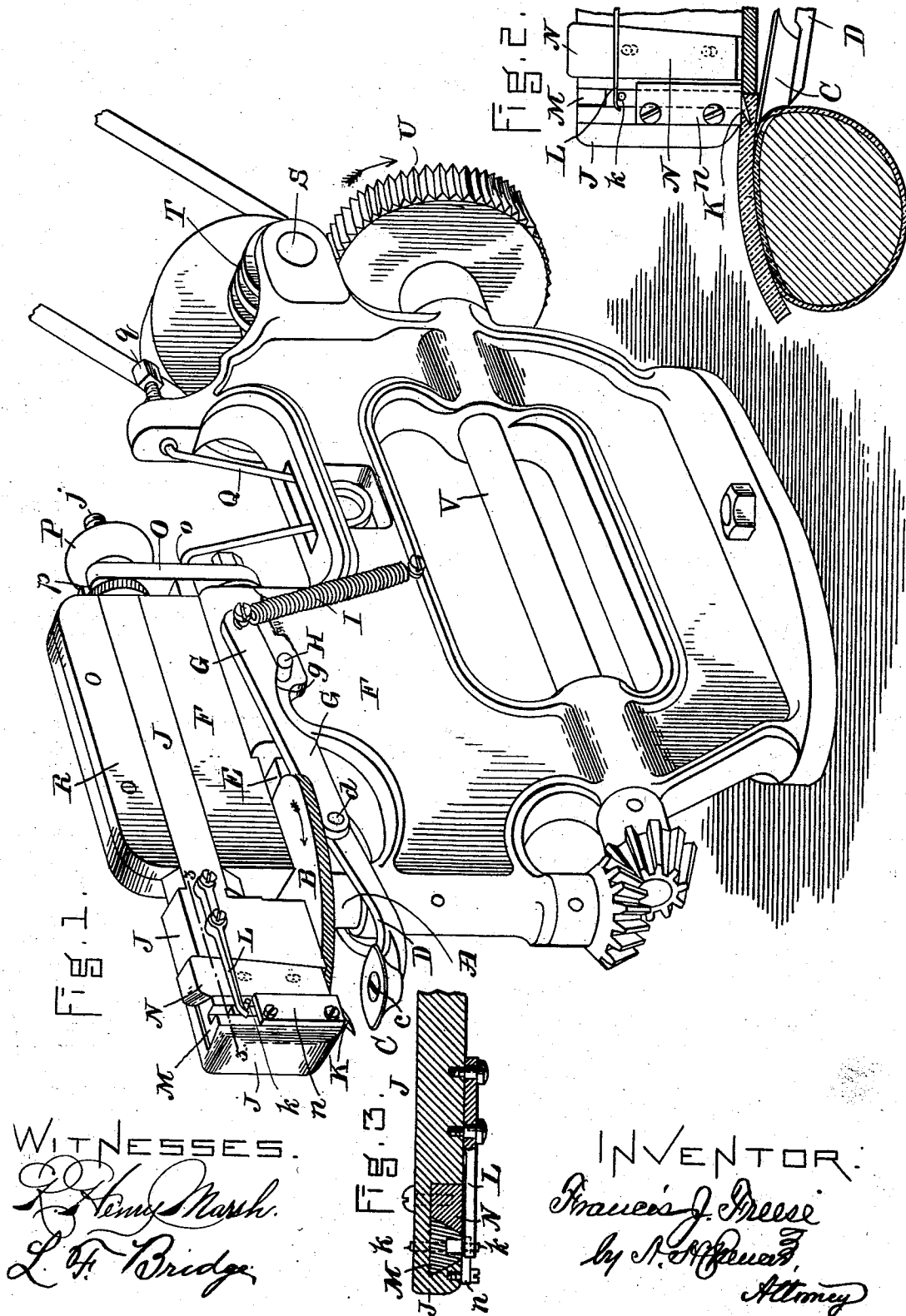


(No Model.)

F. J. FREESE.
SOLE CHANNELING MACHINE.

No. 506,631.

Patented Oct. 10, 1893.



WITNESSES.
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FRANCIS J. FREESE, OF LOWELL, MASSACHUSETTS, ASSIGNOR TO THE GOOD-YEAR SHOE MACHINERY COMPANY OF CANADA, OF NEW YORK, N. Y., AND MONTREAL, CANADA.

SOLE-CHANNELING MACHINE.

SPECIFICATION forming part of Letters Patent No. 506,631, dated October 10, 1893.

Application filed March 27, 1893. Serial No. 467,705. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS J. FREESE, of Lowell, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Sole-Channeling Machines, of which the following, taken in connection with the accompanying drawings, is a specification.

The object of my invention is to provide an improved channeling machine, the use of which insures a true channel in the bottom of the shoe sole, such channel following the in-seam closely whether that seam be nearer to or farther from the center of the shoe bottom.

The characteristic features of my machine are a serrated-edged feed-wheel revolving with a vertical shaft mounted in fixed bearings; a knife-holder having a limited horizontally-yielding movement and formed with vertical ways in which the knife is mounted, and a circular channel-guide rotatable by the friction of the shoe and mounted on a lever which works in a vertical plane and is connected with a slide which has the same horizontal movement as the knife-holder. The lasted shoe which is being operated upon under my improved method of channeling is held, sole uppermost, in the hands of the workman, the rotatable channel guide, between the welt and upper of the shoe, pressing against the in-seam, while the shoe is pressed upwardly against the knife, and the edge of the sole against the serrated edge of the constantly revolving feed-wheel.

Means are provided for adjusting the knife-holder so as to bring the knife into the desired relation to the working edge of the channel-guide, since both yield together toward and from the edge of the feed-wheel. The channel-guide lever is arranged in a novel manner to drop away from the knife-holder after a shoe is channeled and to approach it when another is to be operated upon.

In the drawings, Figure 1 is a perspective view of my improved channeling machine. Fig. 2 is a transverse section through the lasted and partly-made shoe and its sole, showing the relative positions of the channel guide, the knife and the feed-wheel during the operation of channeling the sole. Fig.

3 is an enlarged horizontal section taken on line 3—3 of Fig. 1, through the knife-holder.

A is the rotating vertical shaft on which is mounted the constantly revolving feed-wheel B, which has a serrated periphery against which the edge of the sole of the lasted shoe is pressed by the operator.

C is the channel guide, a freely rotating circular disk tapering to a blunt edge adapted to fit in between the welt and the upper of the lasted shoe and bear against the in-seam thereof. This guide is mounted by a central stud *c* upon the free end of the channel-guide lever D. The opposite end of this lever is connected to a horizontal slide E which moves in ways formed in the main frame F, to give to the channel guide a backward and forward movement. Simultaneously with this an upward and downward movement is imparted to the channel guide and its lever D by means of an arm G pivoted to said lever at *d* and cam-shaped as at *g* its lower edge to move over a fixed fulcrum pin H while drawn downwardly at its rear end by a coiled spring I.

J is the knife-holder and K the knife which has a limited vertical movement in ways formed in said holder, a spring L serving to hold it down to its work by pressure on the projecting pin *k*. The knife is mounted in knife-slide M which is dovetailed and held in working position in the knife-holder J by the beveled and tapering adjusting piece N and the knife-clamp *n*. The pin *k* protrudes also rearwardly through a slot in the knife-holder J which forms a stop, limiting the downward movement of the knife.

The knife-holder, with parts mounted thereon, has a horizontal sliding movement in the frame coincident with that of the slide E which carries the channel guide and its lever D. In order that these movements may be simultaneous I connect slide E and knife holder J rigidly, at their rear ends, by the vertical yoke O, Fig. 1, adjusting nuts P and *p* being arranged each side of such yoke on the threaded extension *j* of the knife-holder. A spring Q having an adjusting screw *q*, bears with a yielding pressure against the yoke O and tends to keep the knife K and channel guide C pressed forward into the po-

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sition shown in Fig. 1,—a stop *o* on the frame or yoke limiting the forward movement. A dovetailed cap *R* bolted to the top of the frame *F* completes the ways in which the knife-holder *J* reciprocates.

The machine as shown is driven by power applied to a pulley on shaft *S* which carries the worm *T* meshing with gear wheel *U* on shaft *V* which is connected by bevel gears with shaft *A* which carries the positively-driven feed-wheel *B*; but this arrangement of driving mechanism may be varied.

The operation is as follows: The knife *K* is properly mounted to project the desired distance below the bottom of knife-slide *M*, and the knife-holder *J* is adjusted by the nuts *P* and *p* so as to bring the knife even with or forward or back of the working edge of the channel guide *C*, as the operator desires. The pin *k* of the knife will be in the bottom of its slot in the knife-holder, where it is pressed downwardly by the spring *L*. The lasted shoe, upon which the bottom sole has been fastened in the customary manner, is then taken in the hands of the operator and presented, sole uppermost, to the machine for its action. The outer edge of the channel guide *C* is placed between the welt and upper of the shoe. The operator now presses the shoe against the channel guide, causing its lever *D* and slide *E* to move rearwardly against the resistance of the spring *Q* and simultaneously with the like movement of the knife holder *J*. This rearward movement causes the cam-edge *g* of the arm *G* to move over its fulcrum pin *H*, see Fig. 1, and the spring *I* drawing down upon the rear end of this arm raises its front end which is pivoted to the lever *D*. These movements bring the channel guide up close to the knife, and both of them into close proximity to the serrated edge of the revolving feed-wheel *B*. The operator now presses the bottom of the shoe sole up against the knife until the knife enters it, and then holds the sole edge firmly against the edge of the feed-wheel, the rotation of which turns the shoe about in the operator's hands, the channel guide *C* being rotated by the friction of the shoe upon it, while the knife cuts the channel over or parallel to the inseam, as will be clear from Fig. 2. After a shoe is channeled, the reaction of the spring *Q* moves the knife and channel guide away from the edge of the feed-wheel and the cam-form of arm *G*, permits said guide to drop away from the knife, as in Fig. 1. The

feed-wheel being mounted between and independently of the knife-holder and guide holder, it follows that the edge of the sole may project more or less irregularly outside of the inseam or the last,—the position of the channel being perfectly controlled by the guide roll with reference to the inseam and not with reference to the edge of the sole.

I claim as my invention—

1. In a channeling machine, the feed wheel and means for driving the same, the movable channel guide in position to bear against the inseam of a shoe when the sole edge is against the feed wheel, and the knife mounted on a support separate from the guide support, but connected to the same by intervening mechanism substantially as described, so as to partake of the movement in one direction, all combined substantially as described.

2. In a channeling machine, the feed wheel, a channel guide in position to enter the inseam of a shoe when the edge is against the feed wheel, a laterally and vertically movable support for the guide, and the knife and its support connected to the guide support by mechanism substantially as described, so as to partake of its lateral but not of its vertical movement, all combined substantially as described.

3. In a channeling machine the feed wheel, the channel guide roll mounted on a lever, a slide connected to said lever to guide its horizontal movement and a spring tending to rock the lever on its pivot, and the knife and a sliding support therefor connected to the slide of the channel guide, all combined substantially as described.

4. A positively-driven serrated feed-wheel and a channeling knife having a horizontally-yielding movement with relation thereto, in combination with a rotatable channel-guide, a pivoted lever on which said guide is mounted, a horizontally-yielding slide to which said lever is pivoted, and a cam-formed arm pivoted to said lever and spring-actuated to raise the channel-guide when its slide moves rearwardly, substantially as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 27th day of February, A. D. 1893.

FRANCIS J. FREESE.

Witnesses:

F. W. KNOWLTON,
T. MOLDON.