

S. HENSHALL.

BOOT AND SHOE SOLE CHANNELING MACHINE.

No. 180,714.

Patented Aug. 8, 1876.

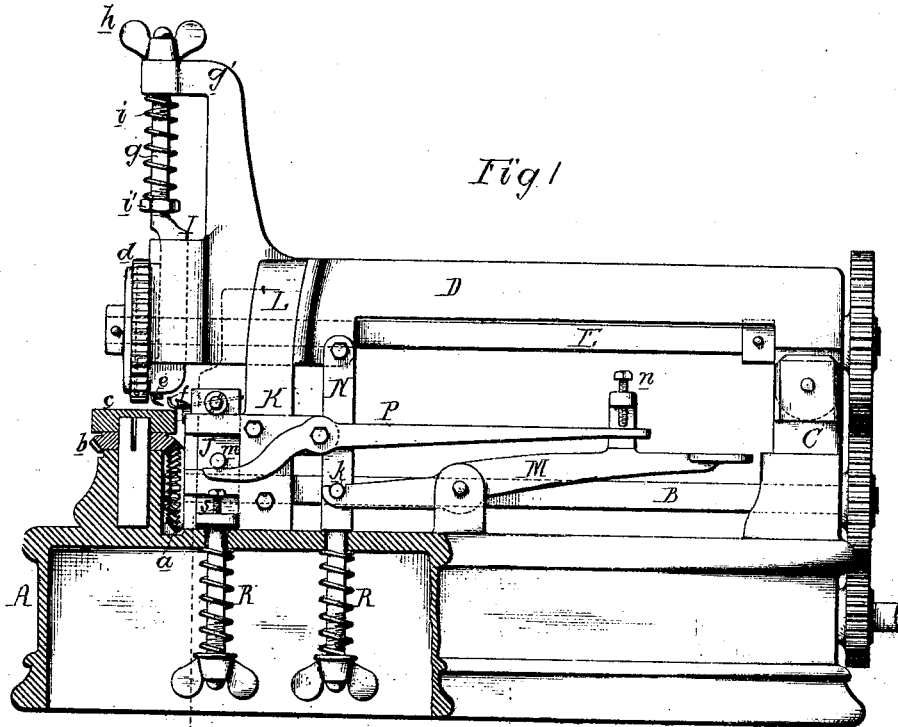


Fig. 1

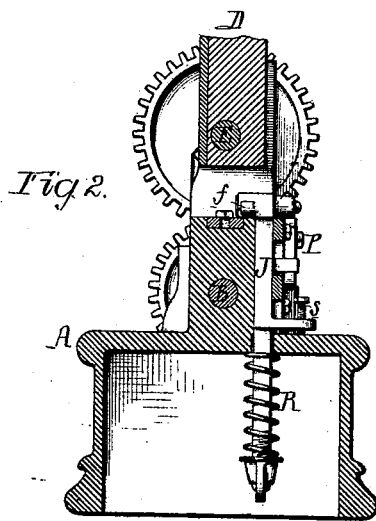


Fig. 2.

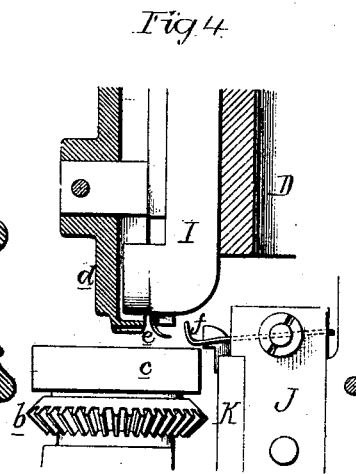


Fig. 4

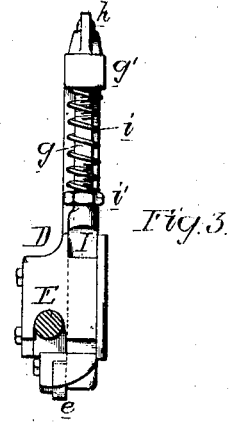


Fig. 5.

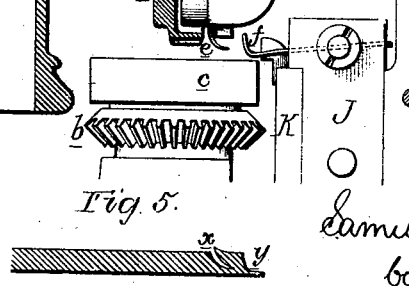


Fig. 5.

Witnesses,  
Ellwood T. Dreyfus,  
Harry Smith

Samuel Henshall  
by his Attorneys  
Howson and Son

# UNITED STATES PATENT OFFICE.

SAMUEL HENSHALL, OF PHILADELPHIA, PENNSYLVANIA.

## IMPROVEMENT IN BOOT AND SHOE SOLE CHANNELING MACHINES.

Specification forming part of Letters Patent No. **180,714**, dated August 8, 1876; application filed July 5, 1876.

*To all whom it may concern:*

Be it known that I, SAMUEL HENSHALL, of Philadelphia, Pennsylvania, have invented certain Improvements in Channeling-Machines, of which the following is a specification:

The object of my invention is to so construct a machine for channeling the soles of boots and shoes that the depth of the channel is not governed by the depth to which the feed-wheel penetrates the sole; and this object I attain in the manner which I will now proceed to describe, reference being had to the accompanying drawing, in which—

Figure 1 is a side view of my improved channeling-machine; Fig. 2, a section on the line 1 2; Fig. 3, a front view of the upper part of the machine, with the feed-wheel removed; Fig. 4, an enlarged view of part of the machine, and Fig. 5 a diagram illustrating the edge of the finished sole.

A is the base or table of the machine, in bearings on which turns the shaft B, carrying at its front end a bevel-wheel, *a*, which gears into a pinion, *b*, formed on or secured to the under side of the rotary bed *c*, on which the work rests as it is being operated upon. To a standard, C, at the rear end of the table A, is hung the rear end of an arm, D, having bearings for a shaft, E, which carries at its front end a toothed or roughened feed-wheel, *d*. It should be understood that the shafts B and E are so geared together, and that the wheel *d* is of such a diameter, that the periphery of the said wheel and that part of the face of the table C immediately below the wheel travel at the same speed.

Two cutting-knives are employed, as usual—the knife *e*, for cutting the channel *x* in the sole, and the knife *f*, for cutting the groove *y*, Fig. 5. The knife *e*, instead of being connected directly to the arm D, as usual, is secured to the lower end of a bar, I, which is adapted to a guiding-slot cut in the front end of the arm D, and has a threaded stem, *g*, passing through a bracket, *g'*, upon the arm, and provided above with a thumb-nut, *h*. Around the stem *g* is coiled a spring, *i*, which bears at one end upon the bracket *h*, and at the other upon a

nut, *i'*, adapted to the threaded portion of the stem.

By operating the thumb-nut *h*, the sliding bar, and, consequently, the channeling-knife *e*, can be raised or lowered at pleasure, and by operating the nut *i'* the pressure of the spring *i* upon the slide can be easily regulated.

The sliding bar J, which carries the grooving-knife *f*, is adapted to a slot in a fixed frame, K, at the front of the machine, this frame having arms L, which serve to steady the arm D in its vibrating movement. This vibrating movement of the arm D is necessary, partly on account of irregularities in the thickness of the soles to be operated upon, and partly because the front end of the arm has to be elevated to permit the introduction and withdrawal of the work. The elevation of the outer end of the arm for the latter purpose is effected, in the present instance, by means of a lever, M, the long arm of which is arranged so as to be readily depressed either by hand or treadle, while its short arm engages with a pin, *k*, on an arm, N, hung to the arm D, so that by depressing the long arm of the lever the outer end of said arm D will be raised, and on releasing the lever the said outer end will be depressed.

In order to insure the raising of the sliding bar J, which carries the grooving-knife *f*, at the same time that the arm D is raised, I use a lever, P, hung to the frame K, the short arm of the lever engaging with a pin, *m*, on the bar J, while its long arm is acted upon by a set-screw, *n*, carried by an arm of the lever M.

Both the sliding bar J and arm D are acted upon by springs R, which tend to maintain said bar and arm in their lowest positions, the downward movement of the bar J being limited by a set-screw, *s*, while that of the arm D is determined by the lower end of its arm N coming into contact with the table A.

In ordinary channeling-machines, the channeling-knife *e* is rigidly carried by the arm D, so that the depth to which it enters the leather is governed merely by the depth to which the feed-wheel penetrates, the result being a deep cut when the leather is soft, and a shallow cut when the leather is hard. Another objection

to the ordinary machine is, that the channeling-knife must be adjusted to suit the different thicknesses of soles, so that the attention of a skilled workman is required in running the machine.

It will be seen that in my machine the bar I, carrying the channeling-knife, is, in its vertical movement, entirely independent of the wheel *d*, the depth of the cut made by the knife depending solely upon the extent to which the said knife projects beyond the end of the bar, which may be furnished with an anti-friction roller, so that the sole will move freely beneath the bar without being indented thereby. It will also be observed that, as the bar I is acted upon by a spring, it will readily yield to suit different thicknesses of soles, the usual tedious adjustment being entirely dispensed with. The depth of the groove cut by the knife *f* may also be regulated by adjusting the set-screw *s* so as to limit the downward movement of the bar J.

I claim as my invention—

1. In a channeling-machine, the combination of the arm carrying the feed-wheel with the channeling-knife, arranged to be adjusted vertically independently of the said feed-wheel during the operation of the machine, as set forth.

2. The combination of the arm D, carrying the feed-wheel *d*, with the spring sliding bar I, carrying the channeling-knife.

3. The combination of the lever M and spring sliding bar J with the intermediate lever P.

4. The combination of the levers M and P with the adjusting-screw *n*, as set forth.

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

SAMUEL HENSHALL.

Witnesses:

HUBERT HOWSON,  
HARRY SMITH.