J. G. Ross,

Sole Machine.

No. 113,350. Patented Apr. 4. 1871.

Fig. 1.

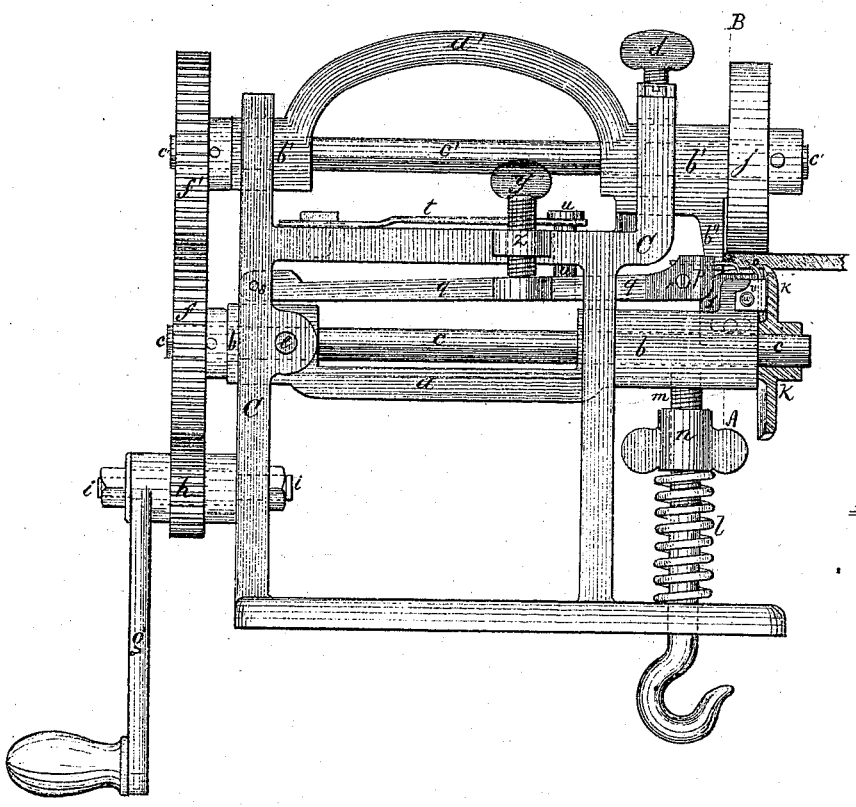


Fig. 2.

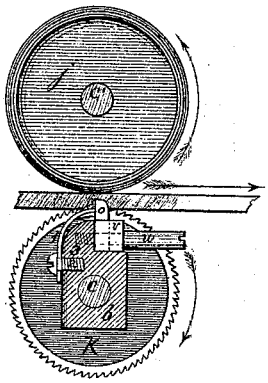
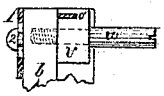


Fig. 3.



Witnesses.

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JOHN G. ROSS, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN MACHINES FOR CHANNELING AND BEVELING SOLES FOR BOOTS AND SHOES.

Specification forming part of Letters Patent No. **113,350**, dated April 4, 1871.

To all whom it may concern:

Be it known that I, JOHN G. ROSS, of Philadelphia, in the county of Philadelphia, and in the State of Pennsylvania, have invented certain Improvements in Channeling and Beveling Machines for the Soles of Boots and Shoes; and do hereby declare that the following description, taken in connection with the accompanying drawing, hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said improvement, by which my invention may be distinguished from others of a similar class, together with such parts as I claim and desire to secure by Letters Patent.

The first part of my invention relates to a combination of the channeling and beveling knives with a feed-wheel in such a manner that the position of said knives can be easily adjusted without interfering in any way with the feed-wheel.

The second part of my invention relates to an improved edge-guide, which, being permanently attached to the bearing of the upper feed-wheel, must at all times remain in the same relative position with the feed-wheel.

The third part has reference to an improved support for the sole while undergoing the beveling and channeling process.

The fourth relates to an improved method of adjusting the knives.

Figure 1 is a side view of the machine. Fig. 2 is a section through A B, Fig. 1, showing that part of the machine which is on the right of the line A B. Fig. 3 shows the method of fastening the knives.

C is the housing of the machine, which is provided with openings, through which the frames *a a'* are passed. Each frame has two bearings, *b b'* and *b' b'*, through which the shafts *c* and *c'* pass. The upper frame, *a'*, may be moved longitudinally to some extent, but can be fastened in any position to which it is brought by means of set-screws *d d*. The lower frame, *a*, is connected with the housing by a pin, *e*, around which it can freely swing, its motion being limited by the extent of the opening in the right side of the housing C, through which it passes.

The shafts *c* and *c'* revolve in opposite directions, the motion being imparted by means of spur-wheels *f f'*, which receive their motion by means of the crank *g*, fastened to the pinion *h*, both revolving loosely on the stud *i*, fastened into the housing C. The shaft *c'* carries on its opposite end a blank wheel, *j*, and the shaft *c* is, on the right end, provided with a disk, *k*, the periphery of which is serrated or notched. The latter is forced toward the blank wheel *j* by a helical spring, *l*, coiled loosely around the bolt *m*, the upper end of which screws into the bearing *b*, and the lower end is provided with a hook, for a purpose hereafter to be described.

The force with which the spring *l* presses the disk *k* upward is regulated by the thumb-nut *n*, which, when screwed downward on the bolt *m*, increases the tension of the spring, and if screwed upward relieves it.

The channeling-knife *o*, Figs. 1 and 2, is held in place by the cap *v* and screw *w*, and may be adjusted vertically by loosening the screw *w*, moving the knife as desired, and then fastening the screw again. By this process the depth of the channel cut into the leather is regulated.

The beveling-knife *x*, Fig. 1, is adjusted horizontally, for the purpose of varying the distance between the bevel and channel in precisely the same manner—namely, by sliding the knife after loosening the cap *p* and screw *r*, and then fastening them again. By this means the distance between the bevel and channel in the sole can be adjusted.

For the purpose of varying the depth of the bevel a means has been provided for the adjustment of the beveling-knife *x* in a vertical direction, as follows: The bar *q*, to the right extremity of which the knife *x* is attached, is hinged to the housing C at *s*. The spring *t*, connected with the bar *q* by the pin *u*, pulls the bar upward against the end of the regulating-screw *y*, which passes through the nut *z* on the housing C. Therefore by screwing the screw up or down the position of the bar *q* and knife *x* is regulated.

Thus far we are able to regulate the depth of the channel, the distance between bevel and channel, and the depth of the bevel, so that the method of varying the distance of the bevel and channel from the edge of the channel remains to be described.

The leather in passing through the machine is kept firmly against the edge-guide b'', and by moving the latter horizontally a greater or lesser distance from the knives x and o our purpose is accomplished.

In the machines at present in use this edge-guide b'' is attached separately to the machine, and as it is necessary to have the blank wheel always close to the edge-guide, as shown in Fig. 1, it follows that in moving the edge-guide to the left the blank wheel j has to be brought up to it, and when it is desired to move the edge-guide to the right the blank wheel has to be moved first before the adjustment can be accomplished.

In my invention this trouble of having two pieces to move is overcome by casting or otherwise fastening permanently the edge-guide b'' to the bearing b' of the shaft c', to which the blank wheel is fastened, so that the relative position of the edge-guide and blank wheel is never disturbed. All that we have to do, then, in setting the edge-guide is to unscrew the screw d to move the upper frame a, with all that is fastened thereto, horizontally until the edge-guide comes to the desired position. The screw d is then again screwed up, and the machine is ready for operation.

The fastening of the knives is shown in Fig. 3, where v is a loose cap, provided with a groove, o', slightly less in depth than the knife is in width, so that after introducing the knife into the groove the cap, on being screwed against the support 3, will hold the knife tightly.

The leather, in going through the machine, passes over the support 1, which is simply a piece of sheet-steel or other similarly-elastic material, fastened to the bearing b by means of a screw, 2.

The disk k, in drawing the leather over the support 1, sinks to a greater or lesser extent into the leather, according to its degree of hardness. As long as the leather is tolerably hard the disk sinks into it very little, and the support 1 does not approach the blank wheel j so near as to cause any considerable friction on the leather; but when the leather is soft the disk penetrates it deeply, and the support 1 comes so near to the blank wheel j that a solid unyielding support would occasion so much friction as to make the machine practically useless; but by making it elastic, as shown in Fig. 2, no such excessive friction is produced.

The operation of the machine is as follows: A treadle being connected with the hook on the bolt m and compressed, the feeding-disk k is lowered so that the sole may be introduced between it and the blank wheel j. When, now, the crank is turned in the right direction, the feed-disk k and blank wheel j revolve, forcing the sole against the knives x and o, which thus cut the sole in the desired manner.

I do not claim anything as my invention which is not mentioned in the following clauses, although it may be described in the foregoing specification.

I claim—

1. The adjustable channeling-knife o, cap v, screw w, feeding-disk k, shaft c, frame a, bearings b b, spring-support 1, wheel j, and edge-guide b'', when constructed, arranged, and operating together as described.

2. The adjustable beveling-knife x, spring-support 1, feed-wheels j and k, cap p, screw v, bar q, pin u, spring t, screw y, when constructed, arranged, and operating together, as described.

3. The spring-support 1, bearings b b', wheels j and k, shaft m, nut n, and spring l, when constructed and arranged as described.

In testimony that I claim the foregoing I have hereunto set my hand.

JOHN G. ROSS.

Witnesses:

ISAAC H. MILLER,

THOMAS G. MILLER.