

S. S. & C. A. BLACK.
Machine for Trimming the Sole-Edge of Boots
and Shoes.

No. 214,611.

Patented April 22, 1879.

Fig. 1.

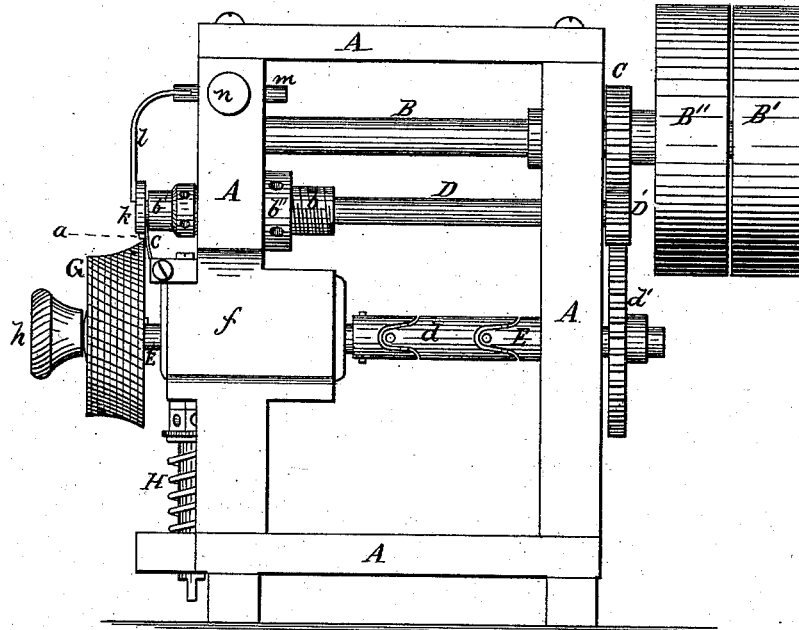
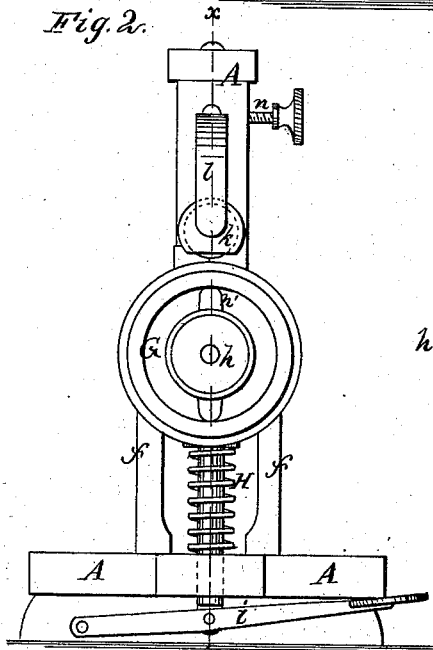


Fig. 2.



WITNESSES:

Henry N. Miller
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Fig. 3.

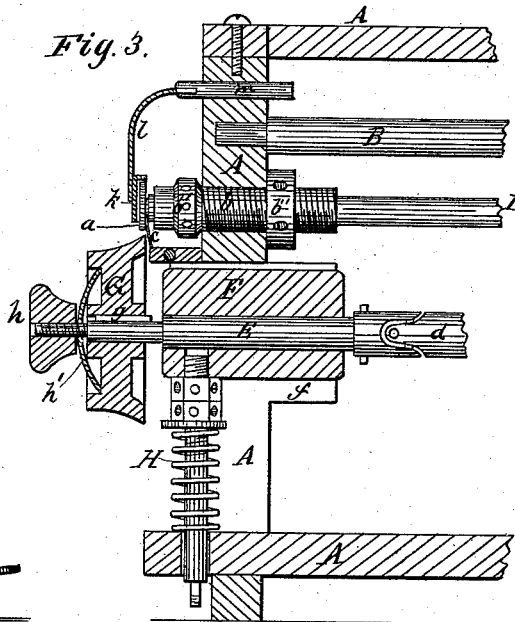
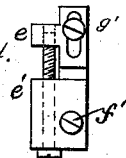


Fig. 4.



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STEPHEN S. BLACK, OF FREDERICTON, NEW BRUNSWICK, AND CHARLES
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IMPROVEMENT IN MACHINES FOR TRIMMING THE SOLE-EDGES OF BOOTS AND SHOES.

Specification forming part of Letters Patent No. **214,611**, dated April 22, 1879; application filed
October 1, 1878.

To all whom it may concern:

Be it known that we, STEPHEN S. BLACK, of Fredericton, in the Province of New Brunswick, and CHARLES A. BLACK, of Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Edge-Trimming and Stitch-Impression Machine for Boot and Shoe Soles, of which the following is a specification.

The object of this invention is to provide a machine for trimming the edges of boot and shoe soles easily and more expeditiously than is now done, and without injury to the welt or uppers, and that will at the same time impress upon the welt an imitation of stitching.

In the accompanying drawings, Figure 1 is a side elevation of our improvement. Fig. 2 is an end elevation of the same. Fig. 3 is a longitudinal section on line *xx* of Fig. 2, and Fig. 4 is a detail of the knife-holding device.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, the frame-work of the machine is represented by the letters A. The driving-shaft B is journaled in the upper part of the frame, and carries on its projecting end a fixed pulley, B', loose pulley B'', and spur-wheel C. Below shaft B is journaled the upper feed-wheel shaft D, its ends projecting through both ends of the frame, and carrying at one end a pinion, D', meshing with the spur-wheel C, and at the opposite end a milled feed-wheel, *a*. On the side next the feed-wheel the shaft D passes through the threaded bushing *b*, placed in the upright, having on its outer end, next to the milled feed-wheel, a fixed collar, *b'*, and on its other end, next the upright, a screw-threaded collar, *b''*.

Between the end of the collar *b'* and the milled feed-wheel *a* one end of a curved knife, *c*, is held, the other end being held between the adjustable jaws *e e'*, which are connected with the part of the frame marked *f* by the screw *f'*.

To secure the knife *c* in place, its upper end is placed against the inside of the wheel *a*, and the bushing *b* is screwed up until it is held firmly between the two. The collar *b''* is then screwed up against the upright, to prevent the bushing from working back and re-

leasing the knife. The knife *c* is curved, as represented in the drawings; but this is not essential, as it may be straight, though the curved form is better, for a reason that will be hereinafter mentioned.

Below the shaft D is journaled a third shaft, E, divided in the middle, and the two journaled ends coupled by a universal joint, *d*. The part of shaft E projecting through the rear upright carries a gear-wheel, *d'*, which is engaged by the pinion D'. The opposite end is journaled in the vertically-sliding block F, confined between the ways *f f*, forming part of the frame. On the projecting end of this shaft is placed the large feed-wheel G, the periphery of which is beveled, so that the larger circumference is inward, and finally serrated. In the eye or hub of this wheel is a slot, which is engaged by the feather *g*, fixed in the shaft. The feed-wheel is held on the shaft by the thumb-nut *h* pressing against the spring *h'*, which, in turn, bears upon the face of the wheel. The vertically-sliding block F is supported underneath by the spring bearing-shaft H, controlled by the foot-lever *i*.

Over the face of the milled feed-wheel *a* is placed a shield, *k*, to protect the upper of the shoe or boot from injury by the wheel when the sole is being trimmed. This shield is held in its place rigidly by the arm *l*, fixed to the stud *m*, which is secured in the upright by the screw *n*.

The object in having the shaft E divided and coupled by the universal joint, as above mentioned, is to provide for the adjustment of its bearing, so as to keep up the motion of the machine when the feed-wheel G is pressed downward by the lever *i*, to give space for the interior of the sole between the wheels. The wheel G is feathered to the shaft, so that it can have a slight movement when it is pressed down, and thus its inner edge is kept pressed against the knife. The shaft E is called the "radius-shaft."

The operation of our invention is as follows: Motion is communicated to the geared parts of the machine through the pulley B' by any suitable motor, and the feed-wheel G is moved away from the feed-wheel *a* by the operator pressing his foot on the treadle *i*. The shoe

is then taken with its toe toward the workman, and the edge of the sole at the ball of the shoe is inserted between the two feed-wheels, the treadle released, and the spring on the shaft forces the lower feed-wheel up against the under side of the edge of the sole, which is thus clasped between the two feed-wheels, and their revolution carries the edge of the sole against the cutting-edge of the knife, which trims off all the superfluous leather, leaving the edge smooth and finished, and at the same time the upper feed-wheel, in bearing upon the welt, impresses upon it scores in imitation of hand-stitching.

The upper of the boot or shoe and the insole bear against the shield *k*, and furnish, of course, a gage for the knife; but the shoe is held and guided by the workman. The sole is trimmed off very quickly by the machine; but the edge of the shank has to be trimmed off in the usual manner.

It is not essential that the upper feed-wheel should be milled in order to make a complete edge-trimming machine. A smooth wheel will answer the purpose; but when the imitation stitch is desired the face of the wheel should be milled.

By using a curved knife for trimming the edge this effect is produced: that in trimming the edges of thin-soled shoes a nearly straight face will be given to the edge of the sole; but in thick-soled shoes the edge will be beveled and slightly curved inward.

As it is essential that the edge of the feed-wheel *G* should hug the knife, the latter, if curved, should form part of a circle concentric to the segment of a circle described by the feed-wheel *G* when it is moved downward or upward, and thus the edge of the wheel will remain in contact with the outside of the knife.

Having thus described our invention, we

claim as new and desire to secure by Letters Patent—

1. The combination, with the shaft *D*, having end wheel *a*, of the threaded bushing *b*, the fixed collar *b'*, and the adjustable collar *b''*, as and for the purpose described.

2. The combination of the fixed knife *c* and upper feed-wheel, *a*, with a large feed-wheel, *G*, free to move under spring-pressure upon its shaft, and follow the curve of knife, as set forth.

3. As an improvement in devices for trimming soles of boots and shoes, the feed-wheel *G* on shaft *E*, journaled in the vertically-sliding block *F*, and provided with the universal joint *d*, in combination with the spring-shaft *H*, knife *c*, and feed-wheel *a*, substantially as described.

4. As an improvement in devices for trimming soles of boots and shoes, the knife *c*, secured at the upper end between the bushing *b'* and feed-wheel *a*, and at the lower end in the jaws *e e'*, in combination with the feed-wheels *a* and *G*, substantially as described.

5. The shield *k*, extending over the external face of feed-wheel *a*, held by an arm, *l*, fixed to the stud *m*, which is held adjustably by a screw, *n*, as and for the purpose described.

6. The combination, with the shaft *E*, that supports the bottom feed-wheel of a sole-edge-trimming machine, of the thumb-nut *h* and spring *h'*, as and for the purpose specified.

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