2 Sheets—Sheet 1.

N. M. SEELYE.

SAND-PAPER ROLLS AND SHANK-WHEELS FOR THE SOLES OF BOOTS AND SHOES.

No. 186,761. Patented Jan. 30, 1877.

FIG 1.

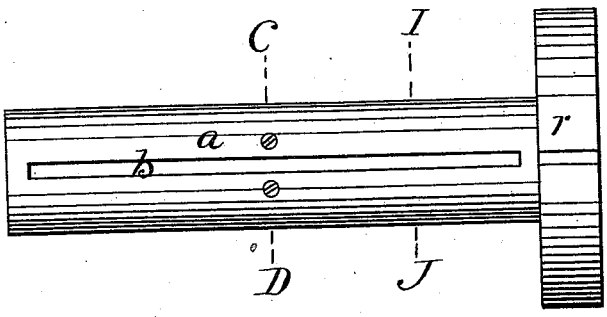


FIG 2.

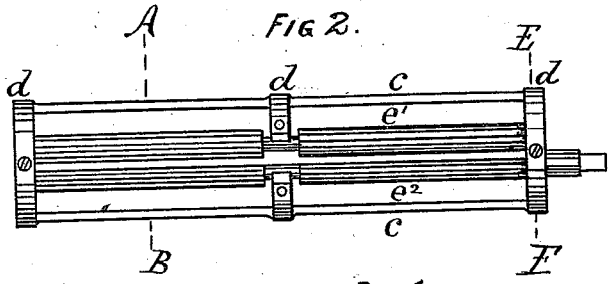


FIG 3.

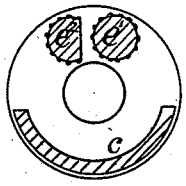


FIG 4.

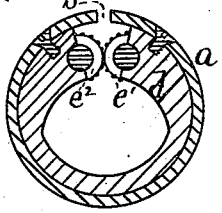


FIG 5.

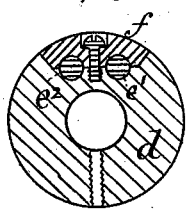


FIG 6.

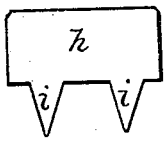


FIG 7.

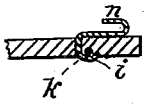
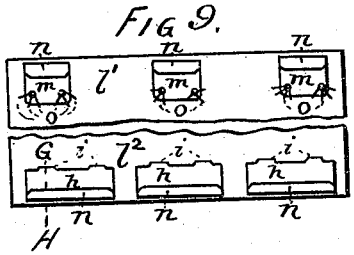


FIG 8.

FIG 9.



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2 Sheets—Sheet 2.

N. M. SEELYE.

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No. 186,761. Patented Jan. 30, 1877.

FIG 10.

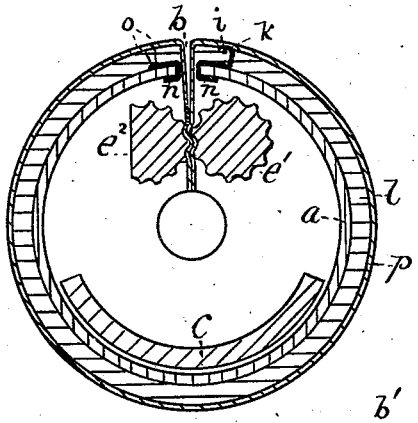


FIG 11.

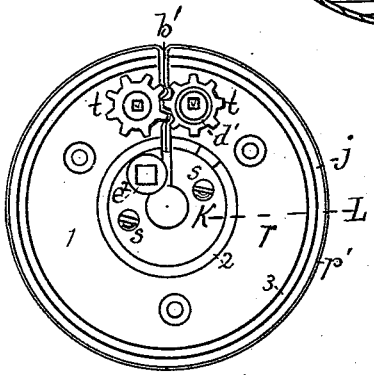


FIG 12.

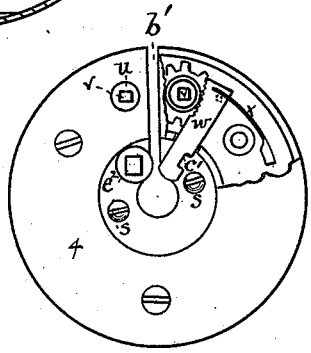


FIG 14.

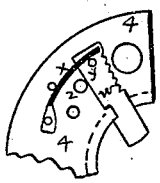
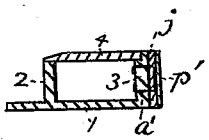


FIG 13.



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UNITED STATES PATENT OFFICE.

NORMAN M. SEELYE, OF CAMBRIDGE, MASSACHUSETTS.

IMPROVEMENT IN SAND-PAPER ROLLS AND SHANK-WHEELS FOR THE SOLES OF BOOTS AND SHOES.

Specification forming part of Letters Patent No. **186,761**, dated January 30, 1877; application filed July 17, 1876.

To all whom it may concern:

Be it known that I, NORMAN M. SEELYE, of Cambridge, State of Massachusetts, have invented Improvements in Sandpapering-Rolls, and Shank-Wheels, of which the following is a specification:

My invention relates to improvements in the rolls and wheels which are employed to "buff" the bottoms or soles of boots and shoes, and for other purposes, which rolls are constructed with a shell having a longitudinal slot therein, a frame formed with circular rings fitting the interior of said shell, together with two tightening-rolls journaled in said frame, and which serve as the means of tightening or producing tension upon a covering of sand-paper, while the shank-wheel is attached to said roll, and is similarly covered with "felt," as a cushion for the sand-paper covering; and my invention consists in forming said rolls, "fluted" longitudinally, for the greater facility of tightening the sand-paper, and also cutting away an arc of the circle of one or both of said rolls. It also consists in the peculiar devices or clamps, and their combination with the said felt covering for the roll, and by which the felt is secured to said roll; and it also consists in the construction of said wheel and the operative parts thereof, as will all be hereinafter more fully described.

Figure 1 is a top or plan view of the roll and shank-wheel, with the sand-paper and felting removed, and showing the slot in the roll. Fig. 2 is a plan view of the frame and rolls journaled therein. Fig. 3 is a transverse section of the frame and rolls, taken on line A B, Fig. 2. Fig. 4 is a transverse section, taken on line C D, Fig. 1, and showing the shell, frame, and rolls in section. Fig. 5 is a transverse section, taken on line E F, Fig. 2. Fig. 6 is a plan view of one of the clamp-blanks. Fig. 7 is a vertical section, taken on line G H, Fig. 9, showing the blank bent into form, inserted in the felt, and secured by the holding-wire. Fig. 8 is a different clamp-blank formed to be sewed to the felt. Fig. 9 shows the ends of the felt covering, each provided with modifications of holding clamps or hooks. Fig. 10 is an enlarged transverse vertical section of the roll complete, taken on line I J, Fig. 1, and provided with both the felt covering and the sand-paper. Fig. 11 is a front elevation of the "shank-wheel," with the front plate removed, and with the felt and sand-paper applied for use. Fig. 12 is a front elevation of the shank-wheel couple, but without the felt and sand-paper, and with a portion of the front plate broken away to exhibit the pawl and spring. Fig. 13 is a diametric section of the shank-wheel, showing the section of the semi-diameter thereof, as taken on line K L, and showing the felt covering, and the wire fastenings which secure it to the wheel. Fig. 14 is an inside view of a section of the face-plate of the shank-wheel, showing the positions and connection of the friction-pawl and its actuating-spring, both in relation to the face-plate and the pinions.

In the drawings, *a* is the metallic shell or case of the roll, and *b* the slot therein. *c* is a semi-cylindrical bar having a cross-section, as shown in Figs. 3, 4, 10, and as long as shell *a*, and having formed upon it the rings *d d d*, which may be varied in number according to the length of the roll. e^1 and e^2 are fluted rolls, which are journaled in the rings *d*, as is shown in Figs. 2, 3, 4, 5, a portion of the central ring being cut away, as shown in Fig. 4, to admit the journals formed in the rolls, being inserted in the semicircular bearings formed in the ring. The end journals of the rolls are seated in bearings formed in rings *d*, and a removable block, *f*, as shown in Fig. 5. The roll e^2 extends through the ring, as shown at the right of Fig. 2, and a squared portion receives the wrench, by which the rolls are rotated, as will be hereinafter explained.

From the roll e^2 an arc or longitudinal segment is cut away, as shown in Figs. 2, 3, and 10, so that when in the relative position shown in Figs. 2 and 3 a free space is left between the rolls, while, if in the relative position shown in Figs. 4 and 10, any substance interposed between the rolls would be compressed into the flutes or longitudinal recesses in the faces of the rolls.

The method of securing the frame to the shell is shown by the screws in Fig. 4, which are represented as passing through the shell into the rings; also, by screws or screw-studs

to be inserted in the threaded hole shown in Fig. 5.

In Fig. 10, *l* represents a thick covering of felt secured upon shell *a*. To thus secure the felt in place upon the roll, I employ metallic clamps or hooks, which I will now describe. The blanks for the hooks I cut from sheet-metal, brass being preferred, and either in the form shown in Fig. 6 or 8. When cut as shown in Fig. 6, the points *i i* are bent to the form shown in Fig. 7. When applied to the felt they are hooked or inserted through it, as shown in said figure, and the rod *k* passes through the entire series of hooks thus secured in the end of the felt, this wire serving to prevent the hooks from being drawn through the felt. When cut in the form shown in Fig. 8 the holes *g* are punched therein, in order to sew the hooks to the felt by means of thread, as shown at *o*, Figs. 9 and 10. These blanks are bent or folded at the end not secured to the felt, as shown at *n*, Figs. 7, 9, and 11, and this hook portion *n*, when secured to the shell at the slot, as shown in Fig. 10, serves as the means of fastening the felt firmly and smoothly around and to the roll.

The shell *a* and frame *c*, with its rolls *e*, being connected and arranged as described, and the felt secured to the shell by the hooks, as shown in Fig. 10, and the roll e^2 being arranged so that the plane or face thereof is opposite roll *e*, as shown in Fig. 3, then the sheet of sand-paper P is wrapped around the felt, and its ends are passed in through the slot in the shell and between the rolls, and roll e^2 being then rotated by the means before described, the paper is drawn through the slot by the united action of the rolls, as shown in said Fig. 10, until the required degree of tension is secured. By cutting away longitudinally a portion of one or both of the rolls, as shown at e^2, the ends of the sand-paper can be passed freely through the space between the rolls until it is quite closely fitted to the felt, when, by turning the rolls, it is drawn closely and smoothly around the same; but, if the rolls are round, no space can be allowed between them when in any position, and hence the paper must be entered between the rolls and gradually wound to the original tension, and, it being exceedingly difficult to enter both ends of the paper simultaneously, therefore it is quite impossible to thus produce a smooth fit of the paper upon the roll.

The shank-wheel *r* is secured to the end of the frame *c* by the screws *s s*, shown in Fig. 11, and it is centered, in common with the roll, on the arbor thereof, which passes through and is secured in the central apertures shown in Figs. 3, 5, 10, 11, 12. The cross-section of this wheel is shown in Fig. 13, 1 being the back, 2 the internal and 3 the external concentric rings, while 4 is the removable face-plate, which is secured in position by screws, as shown in Fig. 12. *t t* are two short fluted rolls, journaled in the plates 1 and 4, the flutes of one extending from the interior face of one of said plates to the other, while in the roll shown in Fig. 12 the flutes are shortened to the extent of the thickness of pawl *w*, which acts upon a neck or collar of the roll. The journals *u* of the rolls *t* do not extend beyond the planes of the wheel, and, by inserting a square wrench or key in the holes *v*, which extend through the rolls, they are actuated to tighten or release the sand-paper. *j* is a band of felt which encircles the wheel and is secured in place by a series of small wire staples, *a'*, Fig. 13, which pass through the felt and holes in the ring 3, and are clinched down upon the interior surface thereof.

The ends of the sand-paper are inserted in radial slot *b'*, cut through the wheel, and passed between the rolls *t t*, which, being actuated, draw in and tighten the paper to the required degree, and, as this band is narrow, the difficulty experienced in equalized tension, as in case of the roll, is not here experienced.

To hold the rolls immovable and the paper "taut," the toothed pawl *w* is provided. It is inserted in a recess cut in the face of ring 2, as shown in Fig. 12. It is confined from circumferential motion by the stud *z*, (upon plate 4,) against which it bears. The spring *x*, secured to plate 4, bears against pin *y* in the pawl, and thereby tends to force it toward the center of the wheel; and, as the toothed line of the pawl is oblique to the line which bears against stud *z*, and these lines converge toward the center of the wheel, therefore the action of the spring serves to engage the teeth of the pawl with the collar *d'* of the roll, thereby preventing the rotation thereof. To release this pressure upon the roll, the pawl is pressed toward the outer periphery of the wheel till the notch *c'* coincides with ring 2, when the pawl is swung free from the roll and the notch engaging the ring holds it in that position until it is released.

Having thus described my invention, I desire to state that I do not claim the slotted shell; nor do I claim, broadly, a pair of rolls acting within such shell; nor do I claim a felt cushion in combination with such roll; neither do I claim a shank-wheel in combination with the roll; but

What I do claim is—

1. In a buffing or abrading roll, the toothed or fluted tension-rolls e^1 e^2, substantially as and for the purposes specified.

2. In a buffing or abrading roll, an interior roll or rolls, having a section or arc, of the area of the transverse section, cut away longitudinally, substantially as and for the purposes specified.

3. In a buffing or abrading roll, the metallic clamps or hooks, when constructed to be secured to the felt and to engage with the slotted shell, substantially in manner as and for the purposes specified.

4. A metallic shank-wheel, formed and provided with the back plate 1, the interior and exterior rings 2 3, the removable face-plate 4,

and the radial slot b', all substantially as described and shown.

5. In a shank-wheel, the toothed rolls t t, arranged upon opposite sides of the radial slot, substantially as and for the purposes specified.

6. In combination with rolls t, the toothed pawl w and spring x, when constructed and arranged to operate substantially in manner as described and shown.

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Witnesses:
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WM. H. HART.