H. Underwood

Shaving Leather.

No. 5329. Patented Oct. 16, 1847.

Fig. 1.

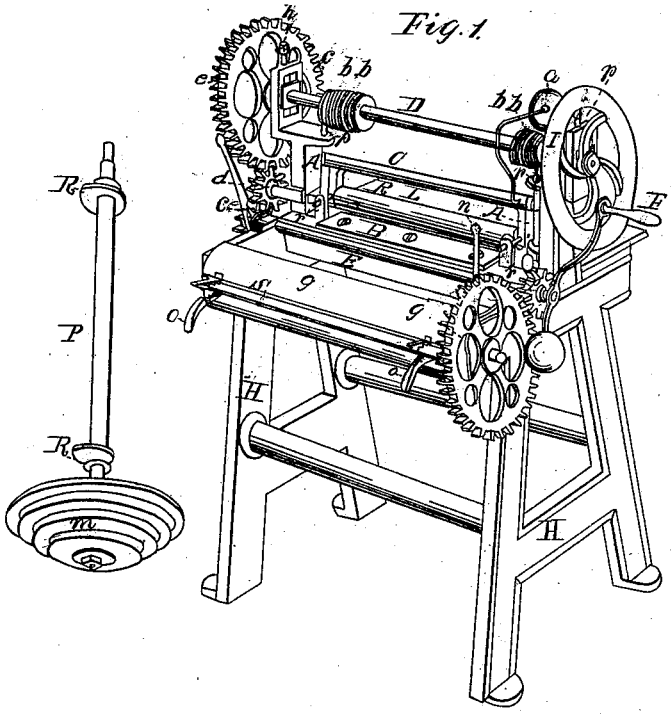
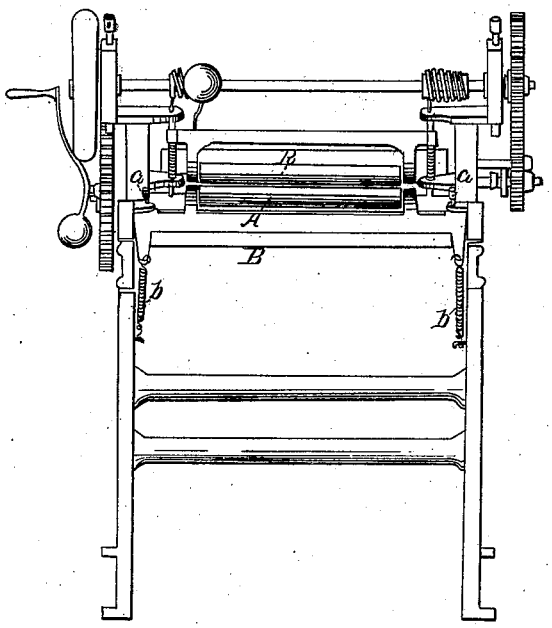


Fig. 2.



UNITED STATES PATENT OFFICE.

HENRY UNDERWOOD, OF TOLLAND, CONNECTICUT.

LAP CUTTING AND LEVELING LEATHER.

Specification of Letters Patent No. 5,329, dated October 16, 1847.

To all whom it may concern:

Be it known that I, HENRY UNDERWOOD, of the town of Tolland, in the county of Tolland and State of Connecticut, have invented a new and useful Machine for Scarfing and Leveling Leather; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a perspective view of the front of said machine, and Fig. 2, an elevated view of the back of same.

Said machine consists of the following parts, to wit:

1st. (Fig. 1). A frame (H, H,) with two head pins (A, A,) of cast-iron, or wood, so constructed as to be permanent and substantial.

2d. A knife (B,) fastened to the top of the frame by bolts, or screws.

3d. An upper gage (C, R,) being a roller (R,) revolving on pivots inserted in a frame (C,) having its bearings at each end in a slide (p), so as to permit the roller to be thrown out from over the knife, by the lever (A,) each slide supported by spiral springs, so as to prevent the gage from resting on the knife, and cause an upward pressure of the slide against the spiral cams (b, b,).

4th. A shaft (D), bearing upon the two heads pieces (A, A,) upon which shaft are fitted two sliding spiral cams (b, b,) prevented from turning on the shaft by a slot, and pieces riveted to match.

These cams are grooved spirally, and in each groove are corresponding elevations, the first set converging to the center say three-eighths of an inch, in passing over one-fourth of their circumference, then diverging the same distance in passing over the same space. Converging each time alike, but in diverging passing over one-fourth more of the circumference at each successive step, so that the sixth elevation, will occupy once and one-half of the circumference in diverging three-eighths of an inch. The upper ends of the slides (p, p,) are fitted to the grooves, so that if placed in a corresponding position, as in Fig. 2, and motion communicated to the shaft (D,) motion will also be given to the gage (C, R,) upward, or downward, as the slides approach, or recede from the center of the cams—faster, or slower, as the elevations occupy more or less of the circumference, consequently, a piece of leather placed beneath the roller (R,) and drawn through at a rate proportioned to the motion of the shaft (D,), would be scarfed longer, or shorter, as the gage was forced down faster, or slower. A lateral motion, will also be given to the cams, as the ends of the slides pass through the grooves. On one end of the shaft (D,) is a gear (e, e,) which connects with a stud gear (d,), that also connects with the gear (i); on the end of the shaft (E,), at the gear (i,) is a handle (i, i,), which, if moved to the right, permits the gear to turn on the shaft, if to the left, the gear is made stationary.

Upon the other end of the shaft (E,), is a gear (f,), which connects with the gear (g,) upon the end of the beam (G,). Said beam, is grooved lengthwise, and at each end of it are ratchets (o, o,), which receive a rod (s,) made triangular at each end, to this beam, if desired, leather to be scarfed, or split, is made fast by aid of the rod and ratchet. The gear (g,) is connected, or disconnected, at pleasure, with (f,) by the handle (n,) and a spring. At the gear (f,) is a crank (F,) by which the machine is operated. Upon the end of the shaft (D,) is the balance wheel (I,) used in setting the cams, or in bringing the gage (C, R,) down to the knife, or leather. On the back part of the machine is a shelf (L) which is removed in (Fig. 2.) Fig. 2 (A, B,) is a lower gage, having the roller (A,) hung on pivots, inserted in (B,), which has bearings at each end. The spiral springs (b, b,) attached to (B,) serve to keep the opposite part of the gage up against the set screws (a, a,) and permit the roller (A,) to yield to downward pressure.

The machine is prepared for operation: 1st, by placing the roller in the under gage, parallel with the bevel of the knife, it (the gage) having movable bearings, and also, equidistant from its edge, say the thirty-second of an inch, which is done by the set screws (a, a, Fig. 2). 2d, with hand on (I, Fig. 1,) turn (D), until the upper ends of the slides (p, p,) are upon the apexes of two corresponding elevations, when the gage (C, R,) will be brought to the lowest point of its downward motion, then with set screws (h, h,) in head pins (A, A,) bring the roller (R,) as near the knife as possible

and have it revolve without touching it, then with set screws (*r*, *r*,) bring the center of the roll directly over the edge of the knife. As before stated the elevations in the cams (*b*, *b*,) vary by quarters of their circumference. If the gears (*e*, *e*, and *g*,) have a like number of teeth, and the gears (*d*, and *f*,) correspond with each other, then (the machine being in motion) will the cams (*b*, *b*,) be turned around once, while the beam G, is turned once. Now if G, is 18 inches in circumference and the slides (*p*, *p*,) at the points of the shortest elevations, nearest the center of the shaft (D,) then will the gage (C, R,) be forced down once while the beam (G,) is turned one-fourth around, consequently a piece of leather placed beneath the gage and attached to the beam (G,) would be drawn through one-fourth the circumference of (G,) or 4½ inches. The second set occupying one-half of the circumference would force down the gage while (G,) turned one-half around and the leather would be drawn through 9 inches. So on in the same proportion through each set. The thickness of the leather being the same there will be as many different lengths of scarfs as there are different sets of elevations in the cams.

In scarfing leathers the gage or roller should be forced down so as to press upon the leathers, and after being scarfed the length of the lap will be in proportion to the thickness of the leather. To scarf leathers with hand on (I,) bring the upper ends of (*p*, *p*,) to the lowest point of a particular set of elevations, say second set with hand on (*a*) throw out (R,) and place the end of the leather to be scarfed over the edge of the knife, if three-sixteenth of an inch in thickness 4½ inches, if more than three-sixteenth then more than 4½, if less then in the same proportion. Set the lever (A) back to its place and with hand on (I,) bring the roll to the leather. See that the handle (*i*, *i*) is moved to the left and the gear (*g*,) thrown out of (*f*,) by the handle (*n*,) the beam being at liberty bring the ratchets to the upper side and detach the rod, (S,) from them, place the leather across the groove, then press the rod down into the ratchets which fastens it to the beam.

Press against (G,) which throws (*g*,) into gear with (*f*,) then with crank put machine in motion and the scarf is cut, detach the leather from the beam and with hand on (I,) turn back the shaft, D, to the point started from, and the machine is again ready to cut a lap of the same length. When other lengths are desired bring the end of the sides to the particular point of the cam required. The same effect may be produced by placing the shaft (P, Fig. 1) in the place of the shaft (D,) and the single cams (K, K,) in the place of the cams (*b*, *b*,) so that the end of the slides (*p*, *p*,) will press against them *i. e.*, (the single cams). These cams are continuous diverging say three-eighths of an inch in passing around and converging suddenly. The gang of pulleys (*m*,) will occupy the place of the gear (*e*, *e*,) and a like gang in the place of the gear (*i*) on the shaft (E,) with their order reversed having the larger opposite the smaller and so on; these pulleys are connected by a band. To scarf with a machine arranged in this manner, similar steps are taken as with the other, except that the change in length of scarf is effected by change of band on the pulleys. The gage (C, R,) being forced down once while the shaft (P,) is turned once, and as this shaft is turned faster or slower as compared with the motion of (G,) so the scarfs will be longer or shorter. The same result will be arrived at by placing a simple cone in the place of (*m*,) the shaft (P,) being in the place of (D,) and likewise one at (*i*) and connecting them by band; or the simple cams (K, K,) being in the place of (*b*, *b*,) a change in the length of the scarfs may be effected by change of gear at (*e*, *e*,). To operate the above-named machine as a splitter or leveler, it is only necessary to bring the handle (*i i*) to the right, so as to permit the cams to remain stationary, while the leather is passing between the knife and gage, the cams having been brought to such a point on the slides as to leave the leather of the required thickness.

I hereby claim as new,

The method of cutting laps or scarfing leather by a cam motion single or spiral, applied to a gage in such a manner as to gradually decrease the thickness of leather drawn between it and a knife, making it tapering and of any desired length—this motion *i. e.* (cam motion) being connected either by gearing, gangs of pulleys, cones, or by any mechanical method with the motion by which the leather is drawn through between the gage and knife.

Dated at Tolland, this 28th day of September, A. D. 1847.

HENRY UNDERWOOD.

Witnesses:
I. S. PARISH,
O. P. WALDO.