

S. H. HODGES.

Rotary Cutters for Sole Trimming Machines.

No. 123,478.

Patented Feb. 6, 1872.

Fig. 1.

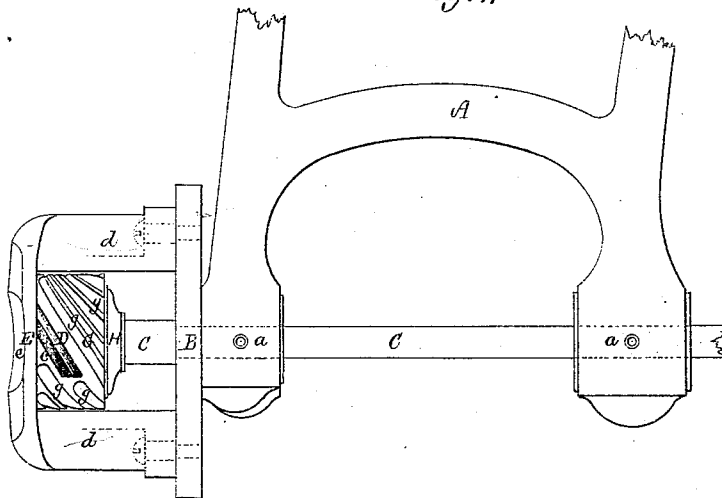


Fig. 2.

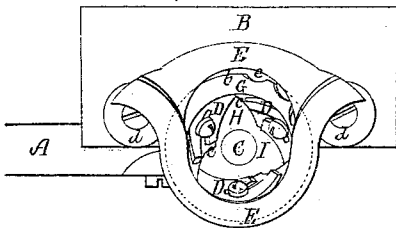
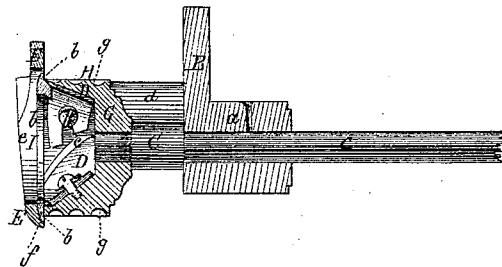


Fig. 3.



Witnesses.

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Frederick Curtis.

UNITED STATES PATENT OFFICE.

SAMUEL H. HODGES, OF LYNN, MASSACHUSETTS, ASSIGNOR TO THE HODGES
EDGE-TRIMMING AND SETTING-MACHINE ASSOCIATION, OF SAME PLACE.

IMPROVEMENT IN ROTARY CUTTERS FOR SOLE-TRIMMING MACHINES.

Specification forming part of Letters Patent No. 123,478, dated February 6, 1872.

To all to whom these presents shall come:

Be it known that I, SAMUEL H. HODGES, of Lynn, in the county of Essex and State of Massachusetts, have made an invention of certain new and useful Improvements in Rotary Cutters for Sole-Trimming Machinery; and do hereby declare the following to be a full, clear, and exact description thereof, due reference being had to the accompanying drawing making part of this specification, and in which—

Figure 1 is a plan, Fig. 2 an end elevation, and Fig. 3 a vertical section of a portion of a sole-trimming machine embodying my improvements.

The novelty in my present improvements consists, first, in the employment of a stationary shield or lip, such lip being recessed upon its obverse or inner side to receive the outer end of the cutter-head and the shallow annular flange making part of the latter; the purpose of the said lip or shield being to enter and traverse the seam between the sole and upper, and protect the latter from accidental injury by the cutter, while the purpose of the latter is to prevent the formation of a rough burn upon the inner edge of the sole, the lip or flange being stationary, in order that it may retain so low a temperature as to insure the upper against the injury now resulting from the heat generated by the friction of a rapidly-revolving disk upon the sole-edge; and, secondly, these improvements consist in a method of indenting, scoring, or channeling, or otherwise reducing, at intervals, the perimeter of the cutter-head or stock, in order to reduce the degree of heat imparted to the said stock by its friction with the leather; and, thirdly, these improvements consist in a peculiar mode of applying the cutting-knives to the cutter-head, and the preparation of the latter for the purpose, whereby the cutting-edge of each knife is placed at a tangent to the periphery of the head and a drawing cut obtained; which, in practice, has been found to result in great advantage.

The drawing accompanying this specification represents at A the outer portion of the frame which supports the revolving cutter-head of a sole-trimming machine, the front corner of such frame terminating in a flat vertical plate or wall, B. The cutter-shaft is shown at

C as supported horizontally in suitable bearings *a a*, making part of the frame A, and as passing through the wall or abutment B and projecting a short distance from the latter. To the forward end of the shaft C I affix a cutter-head or stock, G, which is a hollow disk, H, open at front, as shown at I, and having upon or near its outer corner a shallow rib or annular lip, *b*, which, as before stated, prevents the formation of a rough bur or edge upon the sole-edge by the action of the cutters; the latter being shown at D D, &c., in the drawing as curved steel plates, secured in a proper adjustable manner to the inner periphery of the cutter-head, and extending through diagonally-disposed throats or passages *c* created in the periphery of such cutter-head and abutting closely up against the lip *b*, the shavings or chips taken from the sole-edge by the cutters being received into and discharged from the interior of the disk in a very advantageous manner. E in the drawing represents an upright curved bar or recessed shield or plate, attached to or constituting part of horizontal arms *d d* projecting outward from the plate or wall B before named, the aperture *e* of the shield E being about equal in diameter to that of the interior of the cutter-head, the outer periphery or boundary of the said shield being somewhat larger than that of the cutter-head in order, as before stated, to enter and traverse the seam between the sole and upper, and, while guiding the latter in the proper direction, protect the sole, as before stated. The inner face of the shield E is recessed with a shallow annular rabbet or inclosure, *f*, to receive the concentric lip *b*, the depth of the recess and lip being equal, or substantially so, in order that the cutting-knives D may take effect entirely up to the rear face of the shield and trim the entire width of the sole-edge. The shield E and cutter-head G are so constructed, combined, and operating that the inner faces of said shield and of the annular protecting rib or guard of the cutter-head coincide in a vertical plane, and enter, though to varying extent, the seam between the sole and upper and traverse the inner corner of such sole, the angle formed by the meeting of the rib and cutter-head serving to protect and preserve the smooth condition of the sole-edge.

The purpose I have had in view in adopting a stationary shield or guard has been to protect the upper of the boot from injury, as a revolving shield soon becomes heated to such an extent by friction upon the leather as to burn the latter. Having thus employed a stationary shield for reasons given, I prefer to form an annular lip upon the outside of the cutter-head to prevent the formation of a rough edge upon the sole, as I consider this course the most effective, for, although the cutters might be made to rotate within the recess of the shield with such nicety as to produce the desired result, the use of the lip is the easier and surer method.

The periphery of the cutter G is scored, channeled, or otherwise divided or diversified, in order to reduce its bearing surface, and, by so doing, diminish the friction between it and the sole-edge, and consequently avoid the undue heating of the head to which it has heretofore been liable. *g g*, &c., in Fig. 1 of the accompanying drawing represent several channels cut in the periphery of the head G in accordance with this feature of my invention.

The mode of applying the cutting or shaving knives herein explained, and the formation of the cutter-head which receives them, results in an easy and expeditious means of enabling the knives to be removed and replaced; of affording a large and free delivery for shavings; and of presenting the cutting-edges of the knives to the leather to the best advantage.

The shield or guard E, produced substantially as herein explained, performs several important offices in machinery of this character: First, it constitutes a depth-gauge, so to speak, to determine the extent to which the rotary cutters shall reduce the sole. Second, it serves to protect the upper against injury from undue or accidental heating of the cutter-head, should this occur. Third, it provides a protection against scarring or cutting of the upper by the shaving-knives. Fourth, by traversing the seam between the sole and upper it performs the office of a guide, to direct the movements of the cutter-head and its cutters as they travel about the circumference of the sole in the act of trimming the same. Fifth, it relieves, in a great measure, the labor devolving upon the

operator, as it receives the occasional thrusts upon the supports of the cutter-head, and provides a means of rest, to a certain extent, which would not exist were the cutter-head and its adjuncts simply suspended in the air.

Claims.

1. I claim the shield or guiding-plate E, in combination with a rotary cutter or cutter-head, upon or near the outer edge of whose periphery—that is to say, the edge nearest the shield—an annular rib or spline projects, substantially as shown and described.

2. I claim, in a machine for trimming the edges of soles, a shield or plate for entering and traversing the seam between the sole and upper, having the inner portion recessed to admit the outer end of the cutter-head, for purposes stated.

3. I claim the combination of the guiding and protecting shield or plate E and the cutter-head G, when the two are constructed, arranged, and operating substantially as herein shown and described, so that the inner faces of the said shield and of the annular rib upon the cutter-head coincide and meet at the inner edge of the sole or between the sole and upper, for purposes herein set forth.

4. I claim the cutter-head G, consisting of the hollow disk H, open at front for escape of shavings, and provided with throats or orifices *c* and curved knives D, having oblique cutting-edges, the whole being arranged and operating substantially as herein shown and set forth.

5. I claim the cutter-head herein shown, the same consisting of the hollow or cavernous disk H, with its open chip-passage I and its annular rib or lip *b*, and provided with the knives D, the whole being for purposes stated.

6. In machinery for trimming soles or heels of boots and shoes, I claim a rotary cutter-head, having all that portion of its periphery included between the cutting blades scored or channeled, substantially as shown and described, to prevent the cutter-head from becoming unduly heated when in operation.

SAMUEL HORATIO HODGES.

Witnesses:

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