

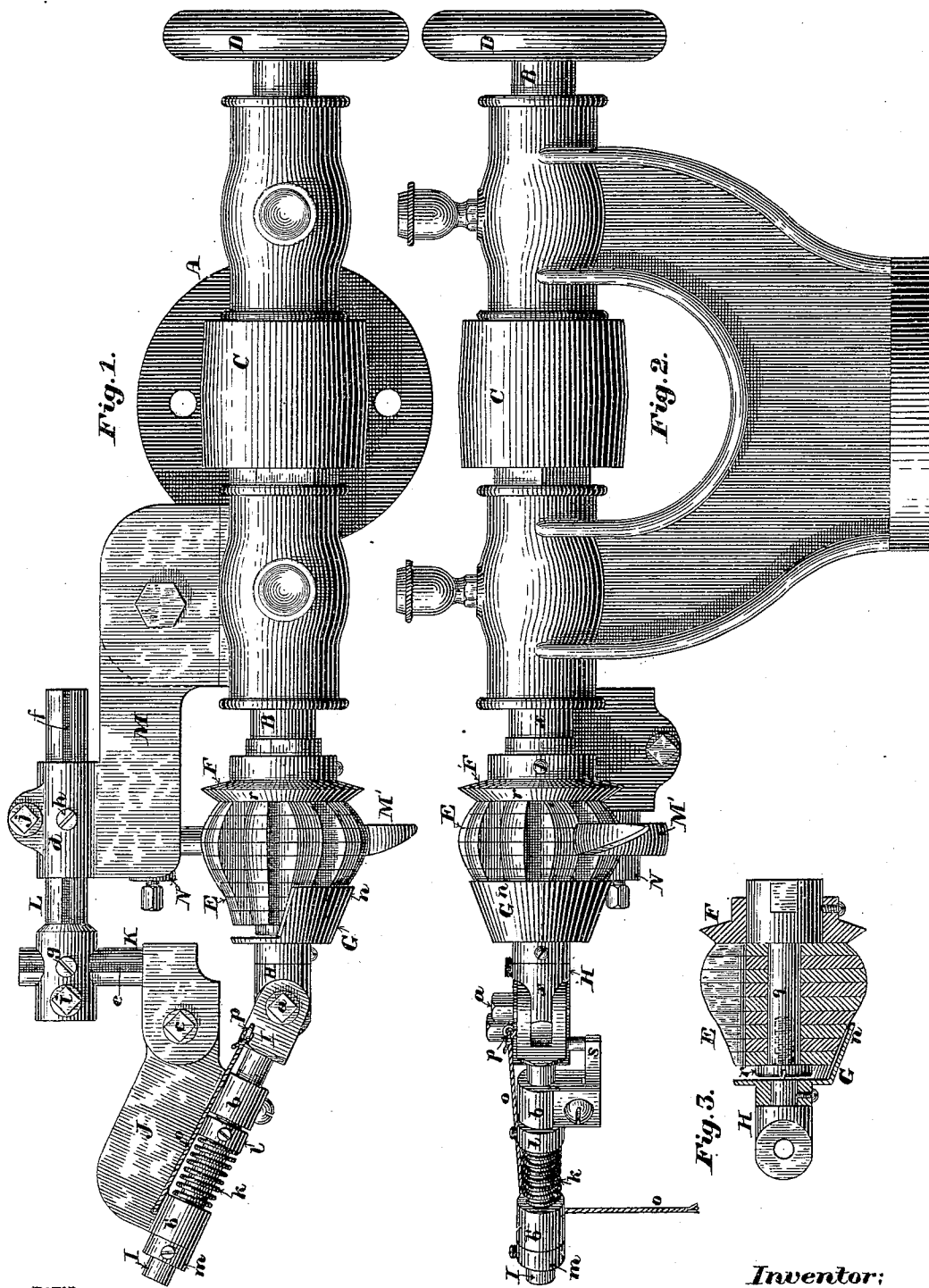
(No Model.)

J. H. BUSELL.

HEEL TRIMMING MACHINE.

No. 270,632.

Patented Jan. 16, 1883.



Witnesses:
 Walter E. Lombard.
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UNITED STATES PATENT OFFICE,

JAMES H. BUSELL, OF BOSTON, MASSACHUSETTS.

HEEL-TRIMMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 270,632, dated January 16, 1883.

Application filed November 20, 1882. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. BUSELL, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful improvements in Heel-Trimming Machines, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to that class of heel-trimming machines in which rotary cutters are used, and is especially adapted to use in trimming that class of heels called "French" heels, or those in which the heel-seat projects beyond the tread-surface of the heel more at the rear than at the sides. In trimming such heels with a rotary cutter having its periphery molded to the counterpart or reverse of the curve that it is desired to give to the heel from the tread-surface to the heel-seat, it becomes necessary to present the edge of the heel to the action of the cutter with the tread-surface of the heel at a varying angle to the axis of the cutter, and as a consequence the length of the cutter must be considerably greater than the perpendicular thickness of the heel, and as the tread-surface of the heel must always bear against the tread guiding flange or rest and maintain the same relative position relative to the length of the cutter, it follows that when trimming the sides of the heel near its forward end, at which time the tread-surface of the heel is held more nearly at right angles to the axis of the cutter than when trimming around the rear portion of the heel, the periphery of the cutter will extend beyond the heel-seat of the heel and overlap the upper.

It has been found in practice that it is not safe to trim heels of the description described, after they are attached to the shoe, by means of a revolving cutter, in the manner described, on account of the danger of cutting the upper.

To obviate this difficulty is the object of my invention; and it consists, first, in the combination, in a heel-trimming machine, of a rotary cutter having its periphery molded to the counterpart of the curve to be given to the rear of the heel, and a guard arranged to partially inclose the smaller end of said cutter and to yield in a direction oblique to the axis of said cutter, as will be described.

It further consists in certain combinations and arrangements of parts, which will be readily understood by reference to the description of the drawings and to the claims to be hereinafter given.

Figure 1 of the drawings is a plan of a machine embodying my invention. Fig. 2 is a front elevation of the same, and Fig. 3 is a section through the rotary cutter and the guard on line *xx* on Fig. 2.

A is the frame or head of the machine, which may be secured upon a column or a bench, as may be desired, and having mounted in suitable bearings thereon the shaft B, provided with the pulley C, hand-wheel D, and the cutter E, all constructed in a well-known manner.

F is a conical or beveled flange, secured to the larger end of the cutter E, and serving to prevent the action of the cutter upon the heel jamming the corner of the tread-lift outward, and at the same time, by virtue of its conical or beveled shape, permits the angle of the heel to the axis of the cutter to be changed by swinging about the corner of the tread-surface as a fulcrum.

G is a guard made in the form of a conical dish or cup, with about one-half of its conical walls cut away upon one side, and arranged to partially inclose and lie close to the tapering smaller end of the cutter E, as shown in Fig. 3. This guard G is mounted upon the stud H, which is pivoted and clamped to the rod I at *a*, with its axis in line with the axis of the cutter E, as shown. The rod I is mounted in bearings *b b'* on the arm J, which is pivoted and clamped by the screw *c* to the rod K, which is mounted, and adjustable endwise, in a bearing made transversely through the rod L, adjustably mounted in the socket *d* on the arm M, bolted to an ear cast upon and projecting from the back side of the head A, but not shown in the drawings. The rods K and L have formed therein the longitudinal grooves *e* and *f*, respectively, with which the inner ends of the set-screws *g* and *h* respectively engage to prevent said rods from turning about their axes in their bearings. The sockets in which the rods K and L are mounted are cut open upon one side, and are provided respectively with the clamping-screws *i* and *j*. The rod I and guard G are pressed toward the cutter E

by the spring *k*, coiled about said rod between its rear bearing, *b'*, and the collar *l*, as shown. The motion of said rod I and guard G toward the cutter is limited by the collar *m* coming in contact with the bearing *b'*, as shown.

M' is a heel rest or support, adjustably mounted in a socket in the rod N, also adjustably fitted to the socket cast upon the under side of the arm M, this rest and the means of adjusting it being substantially the same as described in the Patent No. 261,094, granted A. J. Johnson, July 11, 1882.

The rod I is adjusted to such an angle relative to the axis of the cutter that when it is moved away from the cutter the edge *n* of the guard G at center or extreme front thereof will move in a line parallel, or nearly so, to the taper of the small or left-hand end of the cutter. The angle of the rod I may be adjusted to fit different cutters by adjusting the rods K and L endwise in their bearing and swinging the rod I and arm J about their fulcrum-pins *a* and *c*, respectively. A cord, *o*, is connected to the rod I at *p*, and passes through an eye or hole in the arm J, and is connected at its lower end to a treadle mounted upon the floor, but not shown, by which the position of the guard G relative to the tread-rest F may be controlled.

The cutter E is made up of a series of disks or plates secured upon the central core, *q*, by means of the screw *r*, in a well-known manner.

The operation of my invention is as follows: The operator places breast of the heel upon the rest M', with the tread-surface of the heel in line with the angle formed by the conical face *r'* of the tread-guard F with the periphery of the cutter E, and the corner or edge *n* of the guard G bearing in the rand of the shoe, and gradually rotates the heel by moving the toe of the boot or shoe toward him and gradually swinging the toe toward the right, at the same time moving the guard G to the left to expose a greater length of the cutter E to act upon the heel as it approaches the extreme rear of the heel, and from that point gradually moving the toe of the boot or shoe toward the left and allowing the guard G to move toward the right, so as to cover all of the upper in the immediate vicinity of the heel-seat, and thus protect it from the action of the cutter.

The position of the guard G may be con-

trolled by the operator's foot acting through the medium of the cord *o* and the treadle connected therewith, but not shown, by his thumb pressing against the screw-head *a*, or by the pressure of the heel-rand thereon as the heel is rotated, and the angle of its tread-surface to the axis of the cutter is varied.

The rod I is prevented from turning in its bearings *b* and *b'* by the guide-bar *s*, which moves endwise through a slot formed in the under side of the bearing *b*, as shown in Fig. 2.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a heel-trimming machine, the combination of a rotary cutter having its periphery molded longitudinally to the desired curve to be given to the rear of the heel, and a guard arranged to partially inclose the smaller end of said cutter and to yield in a direction oblique to the axis of said cutter, as will be described.

2. The combination of the cutter E, the conical or beveled tread guard or rest F, and the guard G, arranged to yield in a line oblique to the axis of the cutter E, substantially as and for the purposes described.

3. The combination of the cutter E, the conical tread guard or rest F, the heel-rest M', and the guard G, arranged to yield in a direction oblique to the axis of the cutter, substantially as described.

4. In combination with a rotary cutter having its periphery molded longitudinally to the desired vertical curve to be given to the rear of the heel, the guard G, rod I, arm J, rods K and L, arm M, clamping-screws *c*, *i*, and *j*, and the spring *k*, all constructed, arranged, and adapted to operate substantially as and for the purposes described.

5. The combination of the cutter E, the guard G, rod I, pivoted arm J, spring *k*, and the cord *o*, all constructed and arranged to operate substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 18th day of November, A. D. 1882.

JAMES H. BUSELL.

Witnesses:

E. A. HEMMENWAY,
WALTER E. LOMBARD.