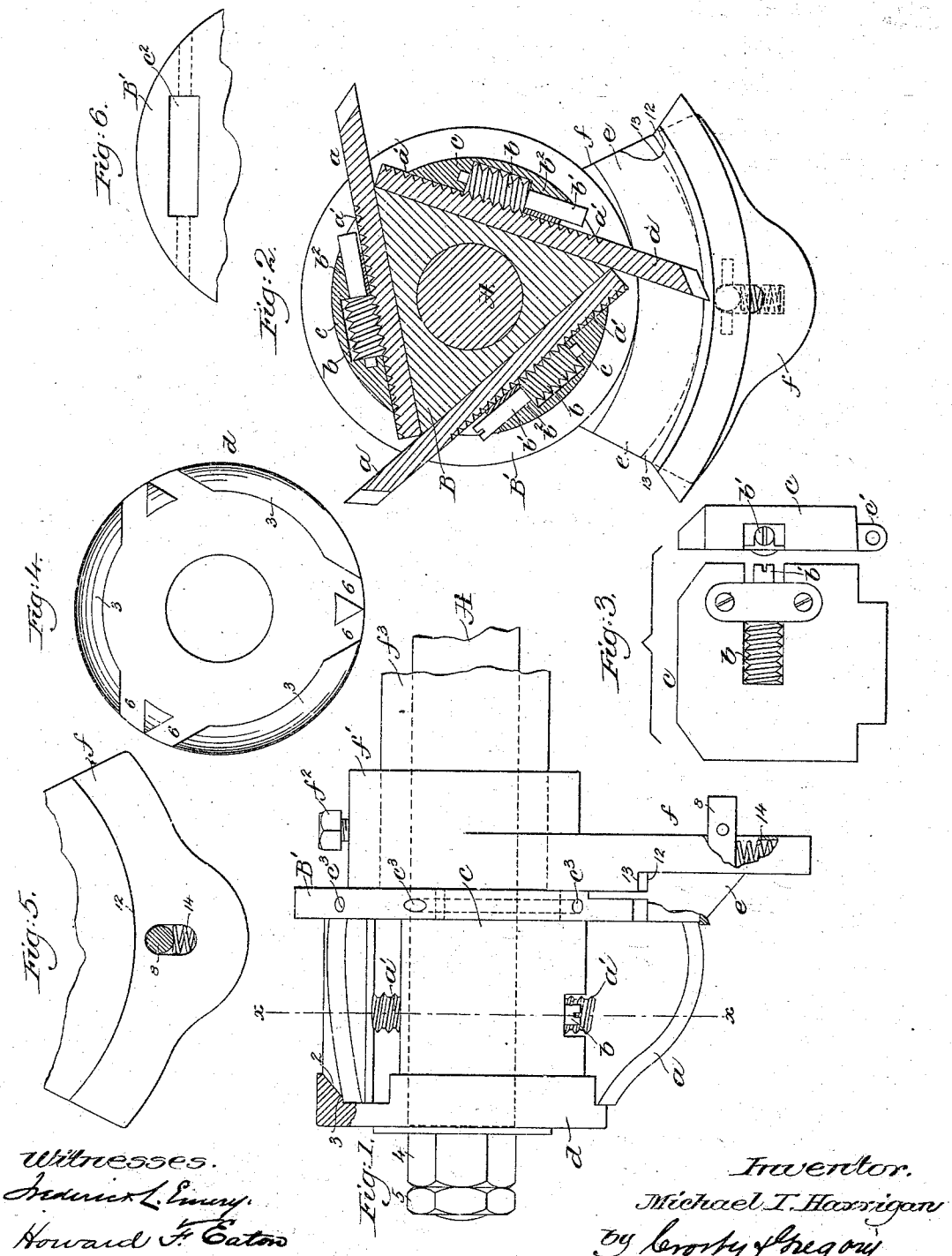
(No Model.)

M. T. HARRIGAN.

HEEL TRIMMER.

No. 406,582. Patented July 9, 1889.



Witnesses.
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UNITED STATES PATENT OFFICE.

MICHAEL T. HARRIGAN, OF WOLLASTON, ASSIGNOR TO JAMES W. BROOKS, TRUSTEE, OF CAMBRIDGE, MASSACHUSETTS.

HEEL-TRIMMER.

SPECIFICATION forming part of Letters Patent No. 406,582, dated July 9, 1889.

Application filed January 15, 1889. Serial No. 296,384. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL T. HARRIGAN, of Wollaston, county of Norfolk, State of Massachusetts, have invented an Improvement in Heel-Trimmers, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object to improve and simplify rotary heel-trimmers.

In heel-trimmers of the class herein shown it has been customary to use a tread-guard made as a ring supported concentrically with relation to the shaft carrying the trimmer; but herein the tread-guard is made as a segment of a ring and is mounted loosely, so that it may tip and also move toward and from the center of the trimmer-shaft. I have also provided the blades of the trimmer at one side each with a series of screw-threads, which are engaged each by a worm-screw, the rotation of which adjusts the position of the blade longitudinally on the head, and the said screws are each represented as held in a binder-block pivoted upon or with relation to the head, so that the said blocks, acted upon by a cap-plate having a beveled rim, are made to clamp the blades in position on the head.

My invention consists, essentially, in the combination, with a trimmer head and blades having a series of partial screw-threads, of worm-screws to engage the said threads and move the said blades longitudinally, substantially as will be described; also, in a heel-trimmer, the head and the hinged or pivoted blocks having beveled ends and blades, combined with the cap having a beveled surface to co-operate with the beveled ends of the blocks to clamp the blades, substantially as will be described; also, in a heel-trimmer, a head, and blades, and a bracket, combined with a segmental tread-guard and movable pivot for the same, whereby the tread-guard is free to tip for a limited distance in the direction of its length, substantially as will be described.

Figure 1 is an elevation, partially broken out, of a rotary cutter embodying my invention; Fig. 2, a section thereof in the line *x*. Fig. 3 shows one of the clamping-blocks separately. Fig. 4 is an inner side view of the cap. Fig. 5 is a partial view of the bracket; Fig. 6, a detail showing part of the rim B′ mortised for the reception of the ear of the block.

The shaft A has secured to it or forming part of it, in usual manner, the head B, having a flange B′. The head, as herein shown, (see Fig. 2,) has three sides or faces, against which bear the blades *a*, each provided at its outer side with a series of screw-threads, as *a′*, which are engaged by a worm-screw *b*, having for part of its length a plane cylindrical shank, as at *b′*, which, as shown, takes a bearing in a threaded sleeve b^2, screwed into a clamping-block *c*, one of which blocks is shown separately in Fig. 3 in inner side and edge view. Each block *c* has an ear, as *c′*, which enters a slot, as c^2, in the flange B′, (see Fig. 6,) and is therein pivoted by a pin c^3, so as to constitute a hinge-connection between the block and head. Each block *c* has its front end beveled, as at 2, and is acted upon by a beveled portion 3 of a cap *d*, made adjustable longitudinally on the front end of the shaft A, the said cap being herein represented as made adjustable by a nut 4, a set-nut 5 holding the latter in place.

The cap *d* (shown separately in Fig. 4) has notches 6 to surround the edges of the blades *a*. By moving the cap on the shaft toward the flange B′ the blocks *c*, by the action of the beveled surface of the cap *d* upon the beveled ends of the blocks, are made to clamp the blades snugly, the reverse movement of the cap serving to release the blocks from pressure, to permit the threads of the worm-screws to be disengaged from the series of screw-threads of the blades when it is desired to remove the latter from the head for grinding or other purposes.

To adjust the edges of the blades properly with relation to the head, the operator has merely to turn the screws *b* while the blocks acted upon by the cap are in position to keep the threads of the worm-screws in engagement with the series of threads of the blades.

The tread-guard *e*, of usual form in cross-section and of segmental shape, has a guide-pin 8, which is extended backwardly through a slot 10 in a bracket *f*, having a hub *f′*, secured by a screw f^2 to a sleeve-like journal-

box f^3, secured in usual manner to the framework of the machine, and in which sleeve rotates the shaft A.

The bracket f (shown partially in Fig. 5) has a curved shoulder, as 12, upon which rests the curved shoulder 13 (see dotted lines, Fig. 2) of the tread-guard e, the pin 8 being acted upon by the spring, as 14, in the bracket f. The curves 12 and 13 referred to are of such different configuration or outline that the tread-guard, acted upon near its center by the said spring, causes the shoulder 13, at about the center of the length of the tread-guard, to touch the shoulder 12 of the bracket, the said shoulder 13 not, however, at such time bearing upon the shoulder 12 to the ends of the tread-guard. In this way it will be seen that the tread-guard is permitted to tip for a greater or less distance about the pin 8 as a center, that depending upon the difference in the curves referred to.

When the heel is being trimmed about its substantially circular rear part, it will be borne against the tread-guard substantially in the line of the pin 8; but to effect the trimming of the sides of the heel the said heel is gradually rolled on the tread-guard toward its end, the end of the tread-guard being pressed upon by the heel approaching the center of rotation of the trimmer for a distance defined by the shoulder 12, such movement of the tread-guard enabling the straight side of the heel to be properly trimmed.

I am aware that all the blades of a heel-trimmer have been adjusted by one-toothed gear, as in United States Patent No. 388,548; but prior to my invention I am not aware that a simple device as a worm-screw has ever been employed to adjust each block separately in a positive manner.

I claim—

1. In a heel-trimming tool, the head and blades having a series of partial screw-threads, and caps or plates having each a recess at its inner side, combined with the worm-screws inserted in the openings of the said cap and engaging the said blades.

2. In a heel-trimmer, the head, the flange B′, a series of blades, and the pivoted clamping-blocks c, having beveled outer ends, combined with the cap d, having a beveled surface to act upon the outer ends of the said blocks and force them toward the blades, substantially as described.

3. In a heel-trimmer, a head and blades and a bracket, combined with a segmental tread-guard and movable pivot for the same, whereby the tread-guard is free to tip for a limited distance in the direction of its length, substantially as and for the purpose set forth.

4. In a heel-trimmer, the head, the blades having the series of threads, the flange B′, and the series of pivoted blocks having screw-threads at their inner faces and beveled at their outer ends, combined with the series of blade-adjusting worm-screws and a cap having a beveled portion 3 to act upon the said blocks, to operate substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MICHAEL T. HARRIGAN.

Witnesses:

GEO. W. HAMMATT,

H. P. FAIRFIELD.