

(No Model.)

3 Sheets—Sheet 1.

A. F. SMITH.

HEEL TRIMMING MACHINE.

No. 354,442.

Patented Dec. 14, 1886.

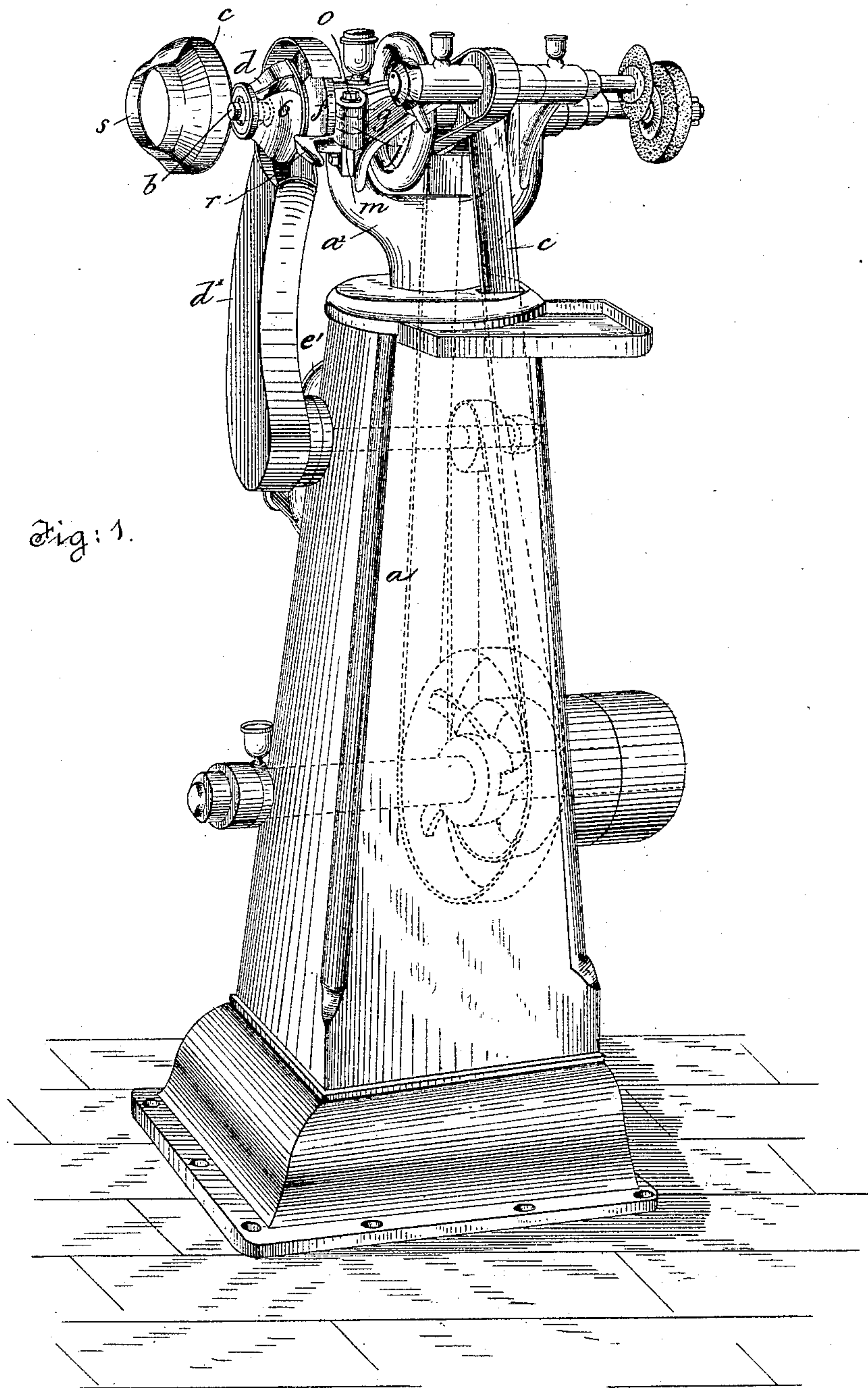


Fig. 1.

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Inventor,  
Aaron F. Smith  
by Night Brown & Cooley  
Atty

(No Model.)

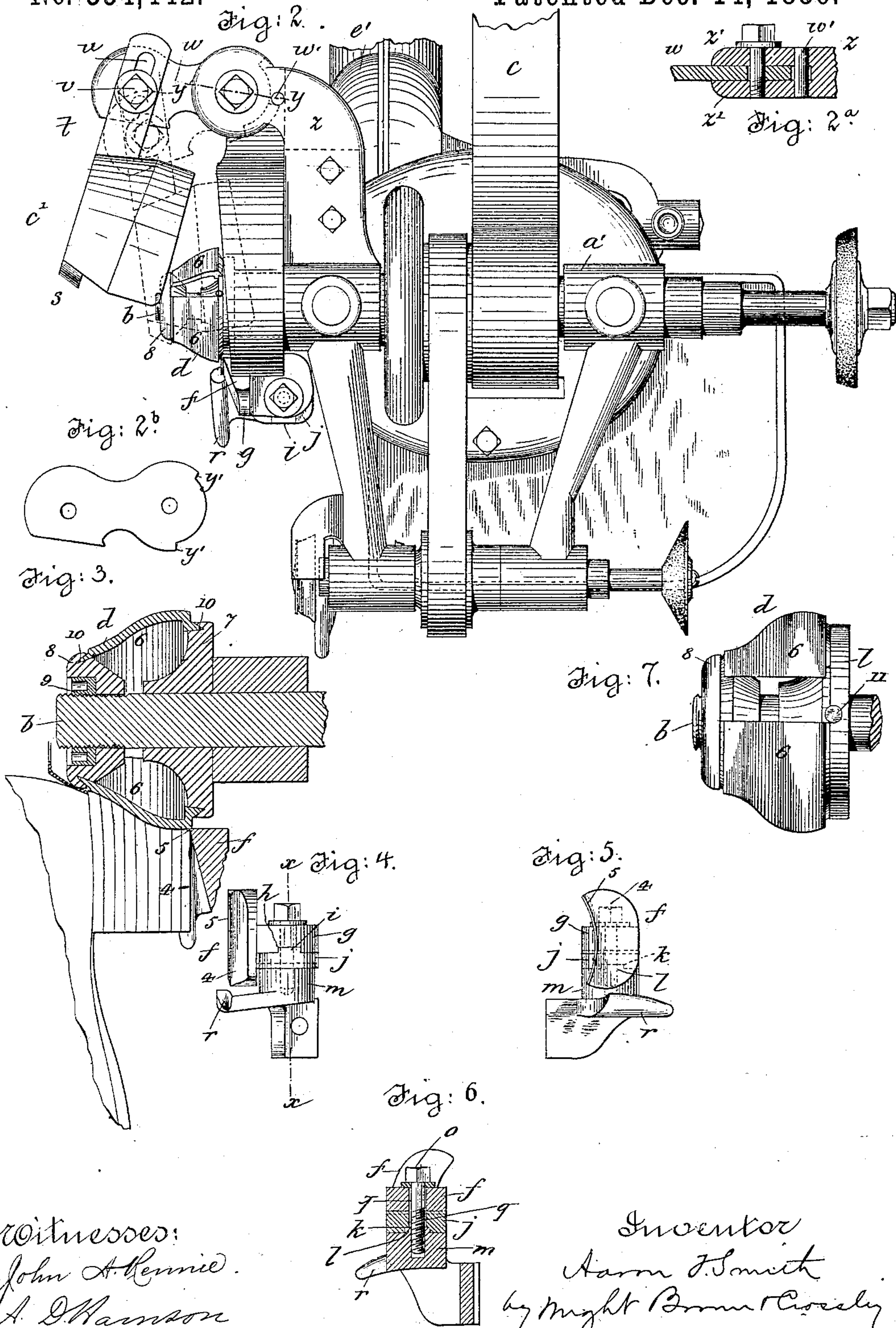
3 Sheets—Sheet 2.

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HEEL TRIMMING MACHINE.

No. 354,442.

Patented Dec. 14, 1886.



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(No Model.)

3 Sheets—Sheet 3.

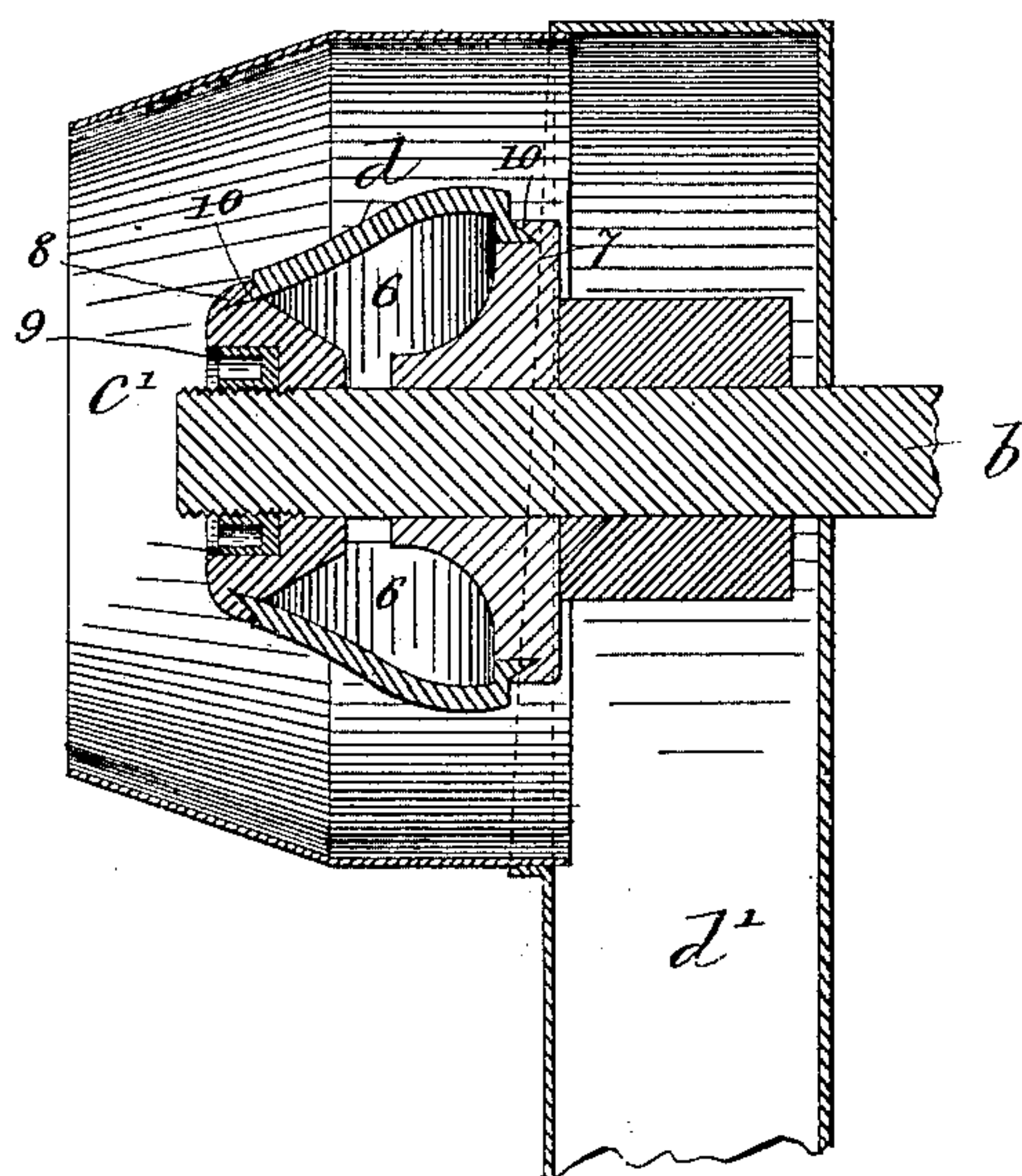
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Fig. 8.



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Inventor,  
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Per: Wright Brown & Cooley  
His Attys.

# UNITED STATES PATENT OFFICE.

AARON F. SMITH, OF LYNN, MASSACHUSETTS.

## HEEL-TRIMMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 354,442, dated December 14, 1886.

Application filed May 3, 1886. Serial No. 200,936. (No model.)

*To all whom it may concern:*

Be it known that I, AARON F. SMITH, of Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Heel-Trimming Machines, of which the following is a specification.

This invention relates to that class of heel-trimming machines in which a rotating cutter is employed, in combination with a rest for the edge and tread surface of the top lift of the heel to be trimmed, and a guard which protects the upper from the cutter, both the top-lift rest and the guard being independently adjustable, and provided with means for positively holding them in any position to which they may be adjusted, as shown in my pending application for Letters Patent of the United States, filed October 12, 1885, Serial No. 179,669.

The present invention consists, first, in certain improvements in the construction of the cutter; secondly, in the means for adjustably holding the guard; thirdly, in the means for adjustably holding the top-lift rest, and, lastly, in certain minor details, all of which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a perspective view of a heel-trimming machine having my improvements. Fig. 2 represents a top view of the same. Fig. 2<sup>a</sup> and 2<sup>b</sup> represent detail views. Fig. 3 represents a horizontal section through the cutter-head, the top-lift rest, and the guard. Fig. 4 represents a front elevation of the top-lift rest and its supporting devices detached. Fig. 5 represents a side elevation of the parts shown in Fig. 4. Fig. 6 represents a section on line *x*, Fig. 4. Fig. 7 represents a side elevation of the cutter. Fig. 8 represents a sectional view of the cutter and of the upper end of the trunk or passage which conducts the cuttings from the cutter.

The same letters of reference indicate the same parts in all the figures.

In the drawings, *a* represents the supporting-pedestal, to which is attached the frame or head *a'*, having the bearings for the cutter-shaft *b*. Said shaft is rotated by a driving-belt, *c*, and has affixed to one of its ends the cutter *d*. The knives 6 6 of the cutter are

formed separately, and are clamped between a collar, 7, which bears against a shoulder on the shaft *b*, and a collar, 8, which is formed by a nut, 9, on the threaded end of the shaft turned toward the collar 7. Said collars have grooves 10 10 in their inner sides, which receive the beveled edges of the knives 6. The collar 7 has stops 11, corresponding in number to the knives 6, and supporting the backs of the knives, as shown in Fig. 7. The collar 8 is recessed to receive the nut 9, and the latter is provided with sockets to receive projections on a wrench. By this construction a cutter is produced having large internal spaces for the admission of air and the egress of cuttings, and which can be readily taken apart and put together.

*f* represents the top-lift rest, which has a surface, 4, to support the tread-surface of the heel, and a narrow lip, 5, to bear against the margin of the top lift, as shown in Fig. 3, thus limiting the approach of the heel to the cutter, as described in my above-named application.

The top-lift rest has a shank, *g*, projecting horizontally from it. Said shank has a groove, *h*, in its under side, which fits upon a tongue, *i*, on the upper side of the block *j*. Said block has a groove, *k*, in its under side fitting upon a tongue, *l*, formed on a bracket or arm, *m*, rigidly attached to the head or frame *a'*. The groove *h* and tongue *i* are at right angles with the groove *k* and tongue *l*, so that by sliding the shank *g* on the tongue *i* the top-lift rest will be moved at right angles with the axis of the cutter and toward or from the latter, as the case may be, while by moving the block *j* on the tongue *l* the top-lift rest will be moved laterally parallel with the axis of the cutter, so as to overlap the same to any desired extent. The rest is therefore adjustable only in two directions at right angles to each other, and cannot swing, as on a pivot. This arrangement keeps the rest with its lip at right angles with the axis of the cutter, so that said lip is always in good working position. The rest is positively held at any point within its limits of adjustment by a bolt, *o*, secured into the bracket *m* and passing through slots *q q* in the shank *f* and block *j*, said slots being of sufficient length to permit the described move-



ments of the shank and block within the desired limits. When the screw *o* is tightened its head bears upon the shank *f*, and confines the shank and block against movement in any direction. A rest, *r*, for the side of the heel, is attached to the bracket.

*s* represents the guard for the upper, which is a ring of sufficient diameter to encircle the outer end of the cutter, and is attached to a shank, *t*. Said shank has a slot, *u*, and is attached by a bolt, *v*, passing through said slot, to one end of an arm, *w*, which arm is pivoted at *y* to a fixed bracket, *z*, on the head *a'*. The bracket *z* is slotted at its outer end to form two clamping-plates, *z' z'*, bearing on opposite sides of the arm *w*, and of sufficient area to hold the latter firmly, when clamped against it, by the bolt *y*, which passes through the plates *z' z'* and arm *w*.

It will be seen that the slot *u* and bolt *v* permit the guard *s* to be adjusted forward and back, to regulate its forward projection from the front side of the cutter, and laterally to cause it to overlap the cutter more or less, while the clamping-plates *z' z'* and bolt *y* permit the guard to be readily moved out of its operative position when it is desired to expose the cutter, as shown in Fig. 1, and in full lines in Fig. 2, and to be readily moved back to and held in its operative position, as shown in dotted lines in Fig. 2.

The bracket *z* has a stud or stop, *w'*, arranged within the slot or space between the plates *z' z'*. The margin of the arm *w* within said slot or space is cut away to form two shoulders, *y' y'*, one of which strikes the stop *w'* and arrests the swinging movement of the arm *w* when the guard has been moved sufficiently away from its operative position, while the other strikes said stop and arrests the opposite movement of the arm *w* when the guard reaches its operative position.

It will be seen that when the guard has been adjusted at the desired angle to the arm *w* the act of swinging said guard into and out of its operative position does not affect said adjustment, so that in restoring the guard to its operative position after it has been swung therefrom, it is only necessary to swing the arm *w* forward until its movement is arrested by the stop *w'* and one of the shoulders *y'*. To the guard is affixed a hood, *c'*, which closes into the upper end of a trunk or passage, *d'*, communicating with the casing *e'* of a blower supported on the pedestal *a*. The hood, therefore, partly closes the open upper end of the trunk

or passage and facilitates the passage of cuttings, &c, from the knife into said trunk.

I claim—

1. The improved rotary heel-trimming cutter-head, composed of the shaft having a shoulder and a threaded outer end, the collar 7, bearing against said shoulder and having a groove in its inner side, the collar 8, movable upon the shaft and having a groove in its inner side, the knives 6, inserted in the grooves in said collars, and the clamping-nut 9, engaged with the threaded end of the shaft, as set forth.

2. The combination, in a heel-trimming cutter-head, of the shouldered shaft, the collar 7, having the groove 10 and stops 11, the collar 8, having the groove 10, the nut 9, screwed onto the threaded end of the shaft, and the knives clamped between the collars and bearing at their rear edges against the stops 11, as set forth.

3. The combination, with the rotary cutter, of the top-lift rest having the grooved and slotted shank *f*, the slotted block *j*, tongued on its upper side and grooved at its lower side, the groove and tongue of said block being at right angles with each other, the arm or bracket *m*, having a tongue fitting the groove of the block *j*, and a bolt, *o*, passing through the slots in the shank *g* and block *j* into the arm *m*, as set forth.

4. The combination, with the cutter, of the guard, the slotted shank *t*, to which the guard is affixed, the arm *w*, to which the shank *t* is adjustably secured by a bolt, *v*, passing through the slot of the shank, the arm or bracket *z*, to which the arm *w* is pivotally connected and clamped by a bolt, *y*, and the devices for limiting the swinging movements of the arm *w*, as set forth.

5. In a heel-trimming machine, the combination of the rotary cutter, the blower, the trunk *d*, communicating with the blower casing and having an opening at its upper end, and the swinging guard having a hood, *c'*, adapted to coincide with and partly close the opening in the trunk, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 30th day of April, 1886.

AARON F. SMITH.

Witnesses:

C. F. BROWN,  
A. D. HARRISON.