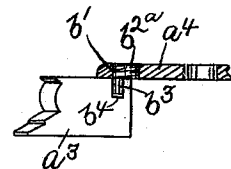
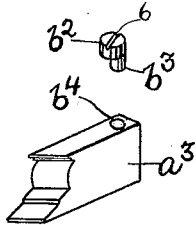
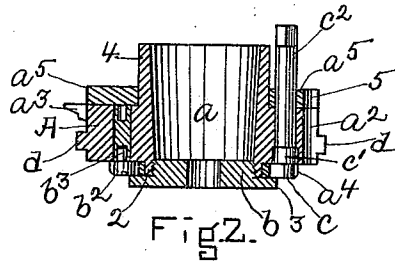
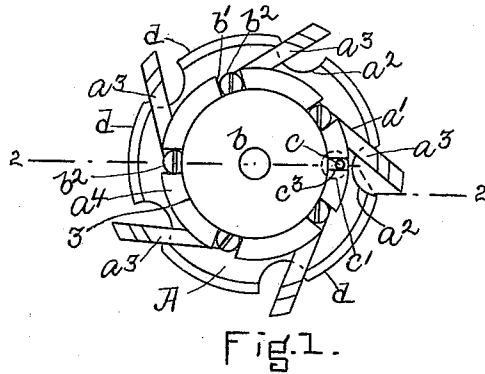


(No Model.)

A. S. VOSE.  
ROTARY CUTTER.

No. 547,098.

Patented Oct. 1, 1895.



WITNESSES.

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# UNITED STATES PATENT OFFICE.

AMBROSE S. VOSE, OF BOSTON, MASSACHUSETTS.

## ROTARY CUTTER.

SPECIFICATION forming part of Letters Patent No. 547,098, dated October 1, 1895.

Application filed June 25, 1895. Serial No. 554,021. (No model.)

*To all whom it may concern:*

Be it known that I, AMBROSE S. VOSE, a citizen of the United States, residing in Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Rotary Cutters, of which the following description, in connection with the accompanying drawings, is a specification, like letters and numerals on the drawings representing like parts.

This invention relates to a rotary cutter especially designed and adapted, among other uses, to be employed in trimming the heels and the edges of the soles of boots and shoes. Prior to this invention I am aware that rotary cutters have been provided with means for simultaneously adjusting all of the knives or blades, and while such adjustment is desirable and highly useful I am aware that practical experience has demonstrated that there is liability in this construction of rotary cutters of one or more of the knives performing all the work, owing to a number of causes. For instance, the cutters or knives may be of unequal length, varying only in a slight degree, but yet sufficient to cause one or more of the cutters to project beyond the others, so that in the original or starting position of the knives or blades the cutting-edges thereof are not in the same circle, and when the said knives or blades are simultaneously adjusted out into their operative positions this irregularity is maintained, and, as a result, those knives which project the farthest do the cutting.

This invention has for its object to provide a rotary cutter in which the knives or blades are capable of being simultaneously adjusted and in which each knife may be individually adjusted without interfering with the simultaneous adjustment, whereby each knife or blade may be individually adjusted so that the cutting-edges of all the knives are in correct cutting or operative position with relation to each other, which relative position is maintained when the said knives are simultaneously adjusted. These and other features of this invention will be pointed out in the claims at the end of this specification.

Figure 1 is a front elevation of one form of rotary cutter embodying this invention; Fig. 2, a section of the cutter shown in Fig. 1, on

the line 2 2, looking down; Fig. 3, a detail to be referred to, and Fig. 4 a modification to be referred to.

In the present instance I have chosen to illustrate my invention in a rotary cutter of a construction approximating that shown in United States Patent No. 498,144, granted to me May 23, 1893; but I desire it to be understood that I do not limit my invention to the particular construction herein shown and which will now be described.

Referring to Fig. 2, A represents the body of the cutter, more generally termed the "wheel," which is provided with a hub  $a$ , extended beyond the opposite sides or faces of the body or wheel A, the said hub being represented as integral therewith. The body or wheel A is also provided with a plurality of inclined slots  $a'$ , and the periphery of the body is provided with concaved or substantially-circular transverse cavities  $a^2$ , forming enlarged curved channels for the reception of the chips or material removed by the knives, blades, or cutters  $a^3$ , inserted into said inclined slots and secured therein against lateral displacement, as herein shown, by means of rings  $a^4$   $a^5$ , respectively, secured to the front and rear sides of the body or wheel A. The ring  $a^4$  is herein shown as mounted to turn on the portion 2 of the hub  $a$ , which projects beyond the front face of the body A, and it may be secured thereon, preferably, by means of a threaded nut  $b$ , engaging screw-threads on the inner circumference of the projecting portion 2 of the hub, as clearly shown in Fig. 2, the said nut having a flange 3, which is of sufficient diameter to partially overlap the ring  $a^4$ , as clearly shown in Fig. 1. The ring  $a^5$  is mounted upon the rearwardly-projecting portion 4 of the hub  $a$ , and is preferably made of such size that its outer circumference will be substantially flush with the outer circumference of the body A, as shown in Fig. 2, and the said ring is provided on its periphery with concaved substantially-circular cavities 5, which form practically continuations of the concavities  $a^2$  in the body or wheel A. The ring  $a^5$  may, and preferably will, be secured to the body A by screws (not shown) or in any other suitable manner. The ring  $a^4$  is provided with suitable slots or openings  $b'$ , herein shown as five

in number, to correspond to the number of knives or blades carried by the cutter-wheel herein shown, and each slot or opening  $b'$  has projecting into it a rotatable device, consisting, as herein shown, of a slotted circular head  $b^2$ , provided with a projection or pin  $b^3$ , which is eccentrically mounted with relation to the head  $b^2$ , the said pin in practice extending loosely into a hole or socket  $b^4$  in the side of the cutter blade or knife  $a^3$ .

As shown in Fig. 3, the circumference of the head  $b^2$  is represented as smooth, and in practice the said head may be turned by means of a suitable tool or screw-driver fitted into its slot 6, the head  $b^2$  turning within its slot or opening  $b'$  in the ring  $a^4$ .

By means of the head  $b^2$  and the eccentric-pin  $b^3$  the blade or knife  $a^3$  connected therewith may be moved into and out of its slot or opening  $b'$  while the ring  $a^4$  remains stationary.

Instead of making the opening in the ring  $a^4$  in the nature of an open slot, as represented in Fig. 1, and employing a smooth head  $b^2$ , which works within the said slot, the said opening may be made in the ring  $a^4$  after the manner represented in Fig. 4, wherein the opening is represented as a circular hole, screw-threaded to receive a screw-threaded head  $b^{2a}$ , having the eccentric-pin  $b^3$ , extended into the hole  $b^4$  of the knife  $a^3$ . The ring  $a^4$  is designed to be rotated on the projecting portion 2 of the hub, so that the knives  $a^3$  may be simultaneously adjusted, and this movement of the ring  $a^4$  may be effected substantially as shown in my patent above referred to—namely, by means of a pin  $c$ , eccentrically mounted upon the head  $c'$  of a rod  $c^2$ , extended through the body  $A$  and through the ring  $a^5$ , the rod  $c^2$  at its rear end being made square or other than round to receive a wrench or key, by which the rod  $c^2$  may be rotated, so as to turn the rod and thereby, through the eccentrically-mounted pin  $c$ , to move the ring  $a^4$  back and forth, the eccentrically-mounted pin  $c$  in the present instance being shown as extended into an opening  $c^3$  of the ring  $a^4$ , which opening is herein shown as a slot.

It will thus be seen that in my improved rotary cutter each knife or blade  $a^3$  may be individually adjusted, and when so adjusted it is left under the control of the device by which the knives are simultaneously adjusted—in other words, the means for accomplishing the individual adjustment co-operates with the actuating device for the simultaneous adjustment, so that each knife, as above stated, may be individually adjusted and may then be moved simultaneously with all of the other knives. A cutter embodying this feature is of very great importance from a practical standpoint, inasmuch as it insures a more perfect and accurate working of the rotary cutter, which results in a more finished trimming or cutting of the material operated upon, and avoids imperfect or defective working of the cutter due to slight irregularities in the

length of the cutter, which might be due to defects in the manufacture of the knives, and also irregularities due to imperfect fitting of the parts by the operator in assembling the cutter will be entirely avoided.

In practice the periphery of the head  $A$  bears against the leather or other material operated on, and in order to reduce to a minimum the friction between the material and the head  $A$  the said head is provided on its periphery with a substantially narrow annular bearing rib or surface  $d$ , (see Figs. 1 and 2,) the continuity of the said bearing surface or rib being interrupted by the concave cavities  $a^2$ , as clearly shown in Fig. 1.

I claim—

1. In a rotary cutter, the combination of the following instrumentalities, viz:—a body or wheel provided with a plurality of knives, blades or cutters, a device to effect the simultaneous movement or adjustment of the said knives or blades, and means connecting each knife or blade with the device for effecting the simultaneous adjustment and capable of movement independent of the said actuating device to effect the individual adjustment of the said knives or blades, for the purpose specified.

2. In a rotary cutter, the combination of the following instrumentalities, viz:—a body or wheel provided with a plurality of slots, knives or blades movable in said slots, an actuating ring carried by the body, and devices to connect the said knives or blades with the actuating ring to permit the knives or blades to be simultaneously adjusted by movement of said ring, the said devices being each capable of movement to effect individual adjustment of the said knives while the ring remains stationary, substantially as described.

3. In a rotary cutter, the combination of the following instrumentalities, viz:—a body or wheel provided with a plurality of knives or blades, an actuating device to effect the simultaneous movement or adjustment of the said knives or blades, and an independent adjusting device for a knife or blade capable of effecting individual adjustment of the blade without disturbing the relation of the said blade to the actuating device, which effects the simultaneous adjustment, for the purpose specified.

4. In a rotary cutter, the combination of the following instrumentalities, viz:—a body or wheel provided with inclined slots, knives or blades movable in said slots, an actuating ring carried by the body, and devices to connect the said knives with the actuating ring and each consisting of a head extended into an opening in the said ring, and a pin eccentrically mounted on said head and loosely extended into a hole in the knife or blade, substantially as described.

5. In a rotary cutter, the combination of the following instrumentalities, viz:—a body or wheel provided with a plurality of blades, knives or cutters, an actuating device to ef-

fect simultaneous adjustment thereof, and devices connecting said blades with the common actuating device and each consisting of a head provided with an eccentrically mounted  
5 pin extended loosely into a hole in the knife or blade, substantially as described.

In testimony whereof I have signed my

name to this specification in the presence of two subscribing witnesses.

AMBROSE S. VOSE.

Witnesses:

JAS. H. CHURCHILL,

J. MURPHY.