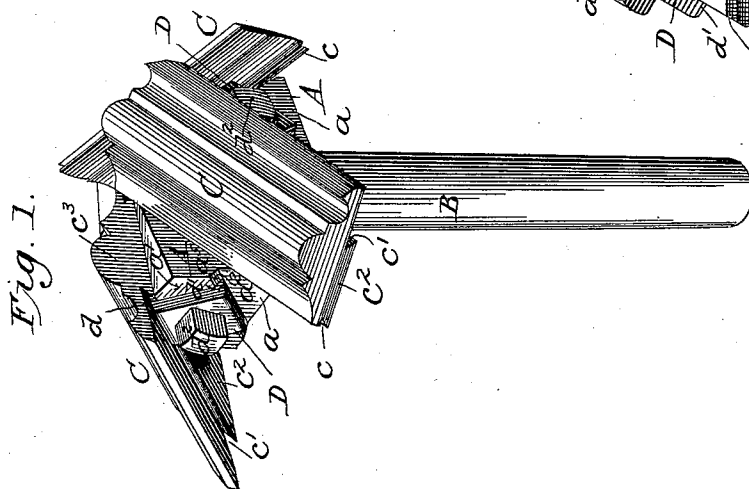
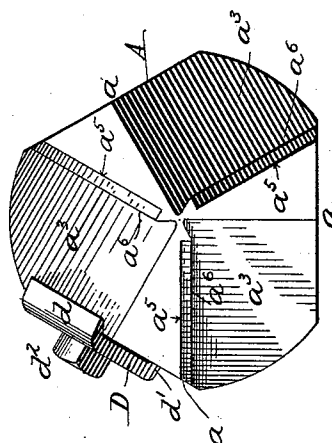


J. ETTINGER.
ROTARY CUTTER.

Patented Nov. 13, 1894.



Inventor.

Sidney P. Hingworth
W. Washington Miller.

JOEL ETTINGER,
by his attorneys
Baldwin, Davidson & Wright.

UNITED STATES PATENT OFFICE.

JOEL ETTINGER, OF MILTON, PENNSYLVANIA, ASSIGNOR TO THE JOEL B. ETTINGER MACHINE COMPANY, LIMITED, OF SAME PLACE.

ROTARY CUTTER.

SPECIFICATION forming part of Letters Patent No. 529,113, dated November 13, 1894.

Application filed March 15, 1894. Serial No. 503,788. (Model.)

To all whom it may concern:

Be it known that I, JOEL ETTINGER, a citizen of the United States, residing at Milton, in the county of Northumberland and State of Pennsylvania, have invented certain new and useful Improvements in Rotary Cutters, of which the following is a specification.

My invention relates to that class of rotary cutters, which are adapted especially for cutting rosettes, in which the cutters or bits are adjustably secured to the cutter-head or bit stock.

The object of my invention is to provide means for holding bits or cutters of a novel construction firmly in the best working position, and which admit of their ready independent adjustment when required.

In the accompanying drawings illustrating my invention,—Figure 1 is a perspective view of my improved rotary cutter. Fig. 2 is a side elevation partly broken away. Fig. 3 is a plan view of the cutter-head.

The bit stock or cutter-head A, is shown as secured to a spindle or support B, which may be attached to any suitable driving mechanism. The sides a of the cutter-head are arranged in planes parallel with the axis of the cutter, and are each provided with a seat a' for a clip or clamp to secure the bit or cutter in position. Each seat a' is formed with an inclined edge a^2 , for a purpose hereinafter described. Each bit or cutter B, is mounted in a seat a^3 on the front end of the cutter-head.

As shown, there are three bits and three corresponding seats, which are arranged at an angle of about forty-five degrees. The inner edges of the seats converge and meet at the prolonged axis of the cutter-head, and the bases of the seats are inclined in such a direction as to hold the bits or cutters at the best working inclination, and so that they shall radiate equidistantly apart about the prolonged axis of the cutter.

Each bit seat is open at each end on one side, and on its outer side, the bit resting on the surface a^4 , and its inner edge bearing against the inner wall a^5 , which is arranged at right angles to the surface a^4 . A tongue or rib a^6 is formed on the wall a^5 , near its inner edge, and it matches a corresponding

groove c in the edge of the bit C. The tongue or rib a^6 has beveled or inclined edges, and the groove c is correspondingly inclined. A corresponding groove c' is formed on the opposite side of the base piece c^2 , of the cutter, and this is adapted to receive the overhanging projection d of a clamp or clip D, the opposite flange or projection d' of which engages the inclined edge a^2 on the side of the cutter-head. These clamps are secured to the cutter-head by means of bolts d^2 . The arrangement is such that when the bolts are tightened, the clamps engage the edges a^2 and the groove c' , holding the bits or cutters firmly in place. When loosened, the cutters may be adjusted to the desired extent. By forming inclines in the grooves c and c' , and on the ribs a^6 and edges a^2 , a wedging action is afforded, which insures a firmer connection.

The bits or cutters C, are molded or formed on their outer faces, to correspond with the rosette to be manufactured. The grooves and ribs of the molding are straight and parallel, as are also the side edges of the bit.

The cutting end of the bit is ground or beveled at c^3 , at the proper inclination to produce the best cutting effects and to allow the separation of the chips.

By forming the bit as above described, the same design may be preserved until the bit is worn out or ground down, it being only necessary in order to preserve the design to always grind the bit at the same angle.

It will be observed that the devices for securing the bits to the cutter-head are connected to the bits on their under sides, and that the bits are independently adjustable and one bit may be removed without disturbing the others. It will also be observed that the beveled surface of the cutting end of the bit is straight and plane in contradistinction to being serrated or of an irregular formation to obtain the desired pattern. Such a formation requires expert grinding, while by my improvements the grinding may be done quickly, easily and accurately without special care.

By employing straight cutters, that is, bits with the molding formed of straight parallel grooves and ribs, the beveled or cutting ends

may be more readily and more accurately formed, as in grinding it is only necessary to bevel the cutting end of the bit uniformly; whereas in curved or segmental bits it is necessary to grind one end more than the other, great care being taken not to grind to any great extent the inner end or corner of the cutting edge near the axis of the cutter head. No such care or skilled labor is required in grinding the bits employed in my rotary cutter.

The bits are adjusted in straight lines to compensate for wear and grinding, and the cutting ends of the bit always maintain the same relative angle or position with reference to each other and the cutter-head, the inner ends or corners of the bits coming close together so as to give a fine finish to the rosette from center to circumference.

I claim as my invention—

1. A cutter-head provided with one or more inclined seats for the bits or cutters and having walls at their inner ends provided with tongues engaging grooves in the bit or cutter, in combination with a bit or cutter mounted in said seat, and engaging said tongue, and a clip or clamp secured to the side of the cutter and engaging a groove in the bit and an inclined edge on the side of the cutter head.

2. The combination of a cutter-head provided with inclined converging bit-seats, and two or more bits secured therein, each bit

having straight molding and a plane flat beveled end, substantially as described.

3. A cutter-head formed with bit-seats, provided with straight walls at their inner ends, against which the side edges of the bits or cutters rest, and which converge toward and meet at the axis of the cutter, in combination with bits having straight parallel grooves and ridges to form moldings on their outer sides, and having plane flat beveled ends to form cutting edges, substantially as described.

4. A cutter-head provided with open seats inclined relatively to the axis of the cutter, and having straight converging inner guide walls, in combination with bits formed with straight molding and plane flat straight beveled edges, and devices for securing the bits to the cutter-head, substantially as described.

5. A cutter-head provided with a series of bit-seats formed with straight converging inner guide walls against which the straight inner edges of the bits rest, in combination with devices for independently securing the bits to the cutter-head, and which permit of their independent adjustment and removal.

In testimony whereof I have hereunto subscribed my name.

JOEL ETTINGER.

Witnesses:

JOS. ANGSTADT,
WM. C. MILLER.