C. L. MATTISON.

CUTTER HEAD.

APPLICATION FILED JUNE 5, 1918.

1,315,734. Patented Sept. 9, 1919.

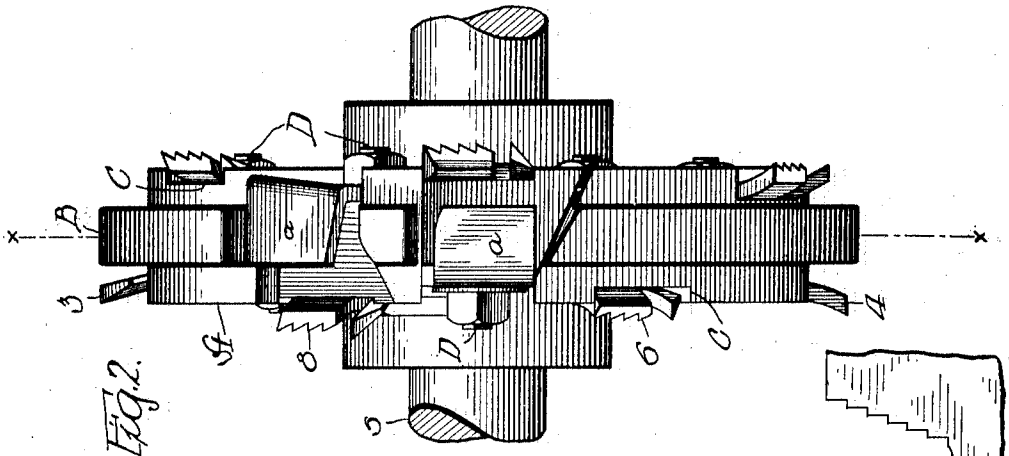


Fig. 2.

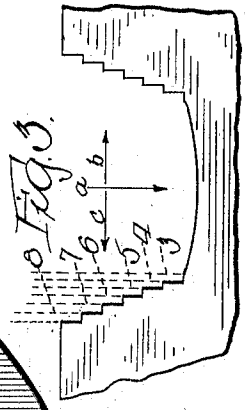


Fig. 3.

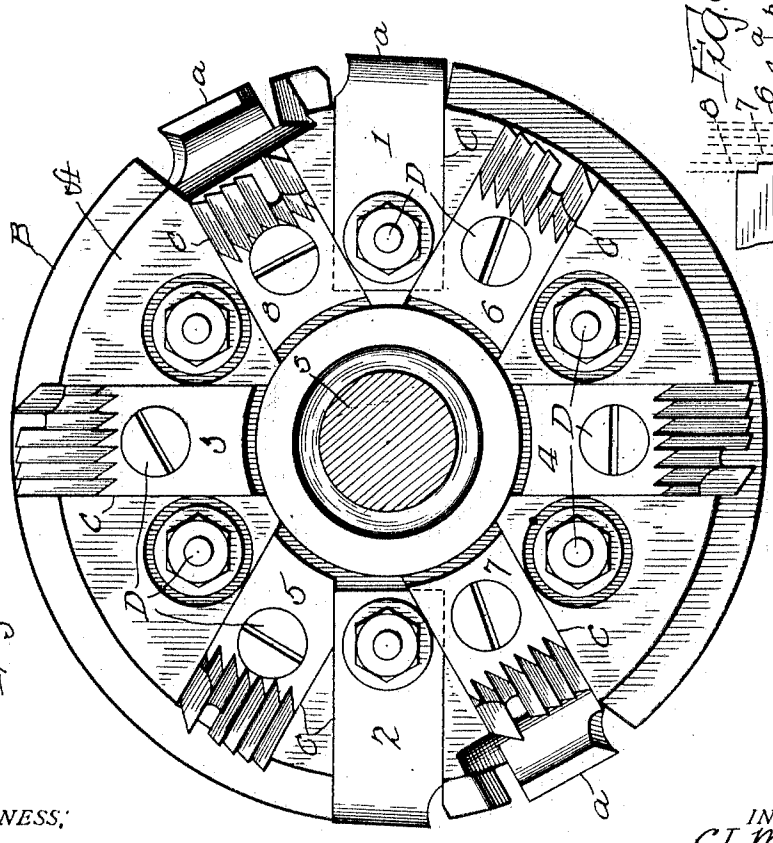


Fig. 1.

WITNESS:

Leo J. DuFrane.

INVENTOR.

C. L. Mattison.

By Miller Chrisdahl & Parker

ATTORNEYS.

UNITED STATES PATENT OFFICE.

CARL LAWRENCE MATTISON, OF BELOIT, WISCONSIN, ASSIGNOR TO MATTISON MACHINE WORKS, OF BELOIT, WISCONSIN, A CORPORATION OF WISCONSIN.

CUTTER-HEAD.

1,315,734. Specification of Letters Patent. Patented Sept. 9, 1919.

Application filed June 5, 1918. Serial No. 238,288.

To all whom it may concern:

Be it known that I, CARL LAWRENCE MATTISON, a citizen of the United States, residing at Beloit, Rock county, Wisconsin, have invented certain new and useful Improvements in Cutter-Heads, of which the following is a specification.

This invention relates to a cutter-head or rotary gang of cutters for cutting or shaping wood or the like and has particular reference to a cutter-head arranged to be fed laterally, that is to say, in a direction parallel with its axis. The present invention is especially applicable to machines for shaping aeroplane propellers, aeroplane struts and similar articles.

The object of the invention is to produce a cutter-head, the cutters or knives of which are arranged to operate in succession so as remove the material in stages or steps, whereby increased speed of operation with consequent increase in output is attained.

In the accompanying drawings, Figure 1 is a side elevation of a cutter-head embodying the features of my invention. Fig. 2 is an edge elevation of the cutter-head. Fig. 3 illustrates the manner in which the cutter-head operates.

The body of the cutter-head may be of any suitable form. Herein I have shown a cylindrical or disk-like body A having upon its periphery an annular centrally disposed rib B. The cutter-head is slidable longitudinally of a shaft S.

The cutter head is provided with a plurality of cutters or knives rigidly secured in any suitable manner to the body A. Preferably each knife lies in a groove C in order that it shall be well supported against turning movement with relation to the body A. Each blade is held in its groove by suitable means, as, for example, a bolt D.

Some of the knives are arranged to operate at the sides of the cutter-head, while others are arranged to operate at the periphery of the head. In this instance I have shown two pairs of blades or knives 1 and 2, one pair being secured to each side of the cutter-head. While these knives may be of any suitable form, they are herein shown as consisting of a shank secured in a groove C and an angular blade *a*, the cutting edge of which projects slightly beyond the periphery of the rib B. Said rib and the body A are suitably recessed to accommodate the knives 1 and 2 and provide the necessary clearance. As indicated in the drawing, the blades *a* of the knives 1 and 2 at one side of the cutter-head extend oppositely to the blades *a* of the knives 1 and 2 at the other side of the cutter-head.

The knives which operate at the sides of the cutter-head are of any suitable number and form. Herein I have shown six knives at each side of the cutter-head, said knives being numbered 3, 4, 5, 6, 7 and 8. As best shown in Fig. 1, the cutting portions of the knives 3, 4, 5, 6, 7 and 8 are at different distances from the axis of the cutter-head, their relative order being indicated by their reference numbers, the knife 3 being farthest from said axis and the knife 8 being nearest the axis. The knives 3 to 8 also are so located as to operate in different parallel planes extending transversely of the axis of the cutter-head, as best indicated in Fig. 3. Taking a plane *x* extending transversely of the shaft S and midway between the sides of the body A as the datum plane, the knife 3 is nearest to said plane and the knife 8 farthest therefrom, the relative arrangement of the knives 4, 5, 6 and 7 being indicated by the order of their reference numbers. Thus it will be seen that the knife which is farthest from the axis S is nearest to the transverse datum plane, and that the knife which is nearest the axis of the cutter head is farthest from said transverse datum plane. Consequently the material is removed in steps or by stages, as indicated in Fig. 3, when the cutter head is fed in any of the directions denoted by the arrows *a*, *b* and *c* in Fig. 3. By reason of such division of the cutting operation into different stages or steps, the cutter-head may be fed more rapidly than would otherwise be possible and the output of the machine is correspondingly increased.

I claim as my invention:

1. A cutter head comprising, in combination, a rotatable disk having two flat faces, a plurality of radial slots in each of said

faces, and cutting tools mounted in said radial slots at various distances from the axis of said disk and having cutting blades laterally projecting various distances from the faces of said disk.

2. A cutter head comprising, in combination, a rotatable disk, a series of cutting blades on one face of said disk arranged at progressively decreasing distances from the axis of said disk and at progressively increasing distances from a datum plane extending through the head transversely of the axis, a pair of peripheral blades extending across the edge of said disk and inwardly along the face thereof to a point nearer the axis of the disk than the outer end of the outermost blade of the series, a second similar series of blades on the opposite face of said disk, and a second pair of peripheral blades extending similarly across the edge and inwardly along the opposite face of said disk.

3. A cutter head having, in combination, a rotatable disk having a flat face with a series of slots in said face, and a second series of slots cut deeper than said first series, and tools in each series of slots, the tools in said deeper slots having flat shanks of a thickness not greater than the difference in depth between said two series of slots, whereby the shanks of tools in said first series of slots may overlap the shanks of said tools in said second series of slots.

In testimony whereof, I have hereunto set my hand.

CARL LAWRENCE MATTISON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."