

UNITED STATES PATENT OFFICE.

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IMPROVED CUTTER-HEAD FOR ROTARY PLANING.

Specification forming part of Letters Patent No. 29,633, dated August 14, 1860.

To all whom it may concern:

Be it known that I, HENRY D. STOVER, of the city, county, and State of New York, have invented a new and useful Cutter-Head for Use in Molding, Planing, and Irregular-Form Machines for Wood; and I hereby declare that the following specification, in connection with the accompanying drawings and references thereon, constitutes a lucid, clear, and exact description of the construction and use of the same.

In referring to the said drawings, Figure 1 denotes a plan or top view; Fig. 2, a side elevation of the same; Fig. 3, a transverse section of the same on line C D of Fig. 2; Fig. 4, a transverse vertical section of the same on line A B, Fig. 1; Fig. 5, an edge view of clamp G; Fig. 6, a side view of the same.

The nature of my invention consists in securing the cutters by clamping them flatwise by pieces drawn together at their ends in a peculiar and secure manner; also, in a conical and cone graduating feed to secure the person and stock when the latter is entering the machine; also, in the combination of such graduating-feed and revolving adjustable guard with cutter-head; also, in clamping the cutters at an angle with and above each other; also, in combining a guide-ring with cutter-head and lubricating-cavity between; also, in constructing curved cavities or grooves in the collars and the side clamps with ends to match for securely holding them from flying out, even if loose; also, in providing the cutters and blanks with a dovetail, each fitting a corresponding channel formed in the main body of the cutter-head, so that in no event to the cutters can they fly out, to the danger of the operator and all around.

To enable persons skilled in the art to which my invention appertains to construct and carry out the same, I will describe it as follows:

A portion of the top end of the shaft carrying the cutter-head is seen at A. The main part of cutter-head is seen at B, and is secured to shaft A by screw W. Just above the top end of shaft A, I place a guide-ring N upon reduced portion of the main part B, so that the latter may freely revolve therein to allow the guide-ring to be stationary, so as not to wear the pattern while the cutter-head is re-

volving within. To lubricate this ring N and cutter-head, I cut a spiral groove like a screw-thread around that portion of the cutter-head under the guide in direction to raise the oil as the cutter-head revolves, and thus keep the guide well oiled.

A portion of main part B is made four-square, (seen at Fig. 3,) commencing at stationary collar C and extending up to movable collar X. This square part has a dovetail groove formed in each of its sides the entire length to receive corresponding but reverse dovetail pieces R, P, T, and N, Fig. 3, affixed to or made part of the blank between the cutters or the cutters themselves to hold them perfectly secure under every circumstance. These blanks are seen at O, S, and U, and the cutters at K, L, M, and Q. I place screws *i* through collar X, to be turned down upon the blanks and cutters to hold them edgewise.

Above collar X the main part of cutter-head is made a screw, (seen at Fig. 4,) on which is first placed the nuts E and F for holding and checking the collar down upon clamps G. The collars C and X are channeled or turned out on an engine-lathe, as per red line, Fig. 4, to receive clamps G, which are also shaped on a lathe, as per red lines, Figs. 5 and 6. By this construction the clamps cannot fly out, even if they become loose, but will give the operator timely warning. Besides they hold the cutters very secure, the side of G being curved inward a trifle, so as to press at the central point when screwed up. The cutters are put on the different angles of main part B in order to equalize the cut and for convenience in making and changing the cutters. I construct a cone ridged or of a true taper, (seen at H,) and channel the same to embrace a portion of the cutters K, L, and M, so as to be slid down thereon, as seen at Figs. 2 and 4. I now construct a revolving guard, (seen at I,) threaded to screw of main part B and held by nut J as a check. The lower inner portion of guard is threaded to upper and outer portion of cone H. The object of this is to place the cone at the desired elevation regarding the cutters. Then screw down the revolving guard I and screw it onto the cone H at the same time until entirely down. Then turn down check-nut J to guard I, and all is secure, the lip or ring *n* on col-

lar X guiding upper end of cone H. The object of this cone is to just allow the cutters to project to cut the molding, and little, if any, more, so that when the piece is first set in it will not throw it from the operator's hands; but to allow the piece to strike the cone H while the cutters are removing the mass of it until the pattern underneath strikes the guide N, thus obviating all danger to the operator and of the cutters spoiling the piece.

The revolving guard I effectually protects the operator in his work about the machine. Thus my machine will operate with great celerity and safety to life and property, and embodies great convenience in the ease of constructing, changing, and sharpening the cutters.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The conical or cone graduating feed, whereby the operator and stock are both secure when the latter is being entered to the cutters, essentially as set forth.

2. Such graduating cone-feed and revolving adjustable guard with cutter-head, essentially in the manner and for the purposes fully set forth.

3. Placing and clamping the cutters at an angle with and above each other, essentially

in the manner and for the purposes fully set forth.

4. Combining a guide-ring N with cutter-head so that the ring shall remain stationary while the cutter-head revolves with great velocity within when such ring and cutter-head are kept lubricated by a spiral channel in cutter-head or ring to force the oil to every part of the working-surface, essentially as set forth.

5. Constructing curved grooves in collars C and X and imparting a corresponding reverse shape to the ends of clamp-pieces G for securely holding them from flying out, even if they should by any reason become loose, essentially in the manner and for the purposes fully set forth.

6. Constructing the cutters K, L, M, and Q and blanks O, S, and U with dovetail pieces R, P, T, and V, fitting to corresponding reverse dovetail grooves formed in main part B to prevent the cutters or blanks from flying out under any circumstances, essentially in the manner and for the purposes fully set forth.

HENRY D. STOVER.

Witnesses:

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