

(No Model.)

W. MILLER.
CUTTER HEAD FOR TWIST LATHES.

No. 513,810.

Patented Jan. 30, 1894.

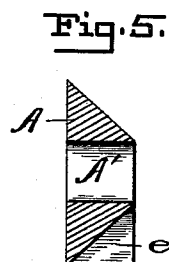
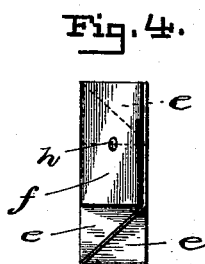
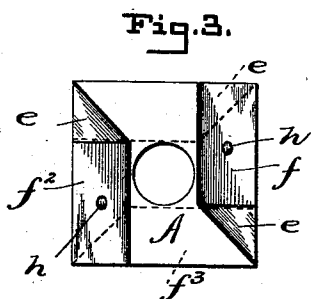
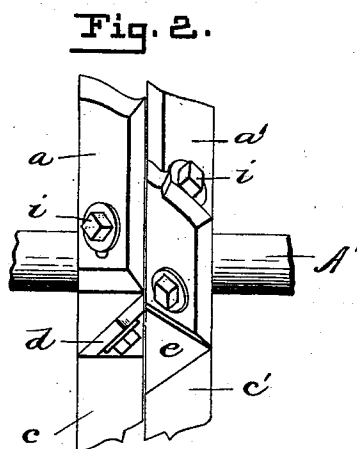
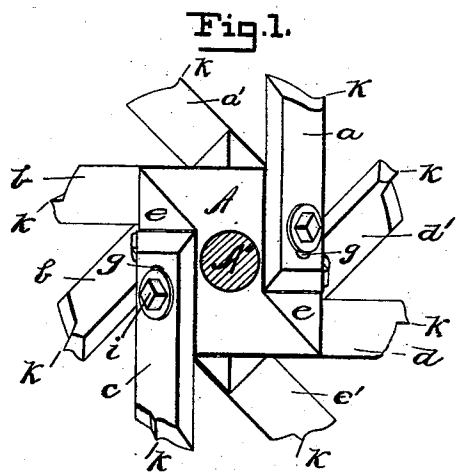


Fig. 6.

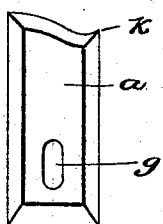


Fig. 7.

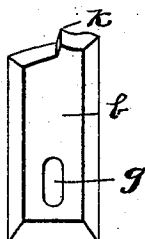


Fig. 8.

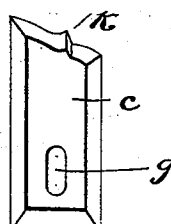
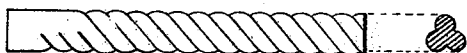


Fig. 9.



WITNESSES: —

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Fig. 10.

INVENTOR: —

William Miller.

By Chas B. Mann
att'y

UNITED STATES PATENT OFFICE.

WILLIAM MILLER, OF SPARROW'S POINT, MARYLAND.

CUTTER-HEAD FOR TWIST-LATHES.

SPECIFICATION forming part of Letters Patent No. 513,810, dated January 30, 1894.

Application filed January 28, 1893. Serial No. 460,035. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MILLER, a citizen of the United States, residing at Sparrow's Point, in the county of Baltimore and State of Maryland, have invented certain new and useful Improvements in Cutter-Heads for Twist-Lathes, of which the following is a specification.

This invention relates to that class of wood turning machines known as twist machines, and it has special reference to the rotary cutter-heads used thereon.

The invention has for its object to provide a novel tool-stock, and a system of disposing the knives with relation to each other on the tool-stock, whereby a wood twist of three strands may be made by one operation.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a sectional view of the rotary shaft and two cutter-heads, A, and, B, with the knives thereon. Fig. 2 is a side view of the device transverse to that shown in Fig. 1. Fig. 3 is a plan view of the top side of one tool-stock. Fig. 4 is a side view of the tool-stock. Fig. 5 is a central cross-section of the tool-stock. Figs. 6, 7 and 8 each show a different knife. Fig. 9 is a longitudinal section of one of the knives. Fig. 10 represents the wood twist, being the product of the two cutter-heads, both in elevation and in section.

The letter, A, designates one of the rectangular tool-stocks having knives, *a, b, c, d*, thereon and secured thereto by set-screws, *i*, passing through slots, *g*, in the said knives into screw-threaded holes, *h*, in the tool-stock. The drawing, Fig. 1, shows two rectangular tool-stocks, A, and, B, mounted on the rotary shaft, A', in contact with each other, and with the four corners of one stock disposed alternately or between the four corners of the other stock. The tool-stock, when viewed from either its bottom or top side, is of rectangular form (as shown in Fig. 3) and has four beveled knife bearings, *f, f', f², f³*, thereon. Two of the knife-bearings, *f, f'*, are on the top side of the tool-stock and each starts from a corner diagonally opposite the other and extends along parallel edges to each other for a distance of, perhaps, two-thirds of the length of

the tool-stock and terminates at the base of an incline, *e*, each of which starts from diagonally opposite corners of the top side and meets said beveled bearings, the angles between them being forty-five degrees. The other two bearings, *f², f³*, are on the bottom side of the tool-stock and are a duplicate of those on the top side, except that they extend transversely to those on the top side, and the inclines, *e'*, are on diagonally opposite corners from the inclines, *e*, on said top side. These beveled bearings are disposed at an angle of about forty-five degrees to the parallel planes of the top and bottom sides of the tool-stock.

Of the four knives on each tool-stock, as shown in the drawings,—three *a, b, c*, on the head, A, or *a', b', c'*, on the head, B, have differently-shaped cutting edges. The fourth, *d*, or, *d'*, may conform in shape to either of the other three. As shown in the drawings the second knife, *b*, and the fourth knife, *d*, on the head, A, correspond, and the knives, *b'*, and, *d'*, on the head, B, also correspond.

The set of knives on one tool-stock will cut one finished strand of the wood twist, and will half cut another. The addition of another tool-stock, with its complement of knives, will finish the half-cut strand and will cut one more finished strand. Thus it will be seen that two of these cutter-heads will cut a wood twist of three strands.

As shown in the drawings, the two cutter-heads, A, B, are mounted on one shaft; if the knife, *a*, of one head, A, strikes the wood first, it cuts one-half of one of the strands; the knife, *d*, of the same head, following, cuts the other half of the same strand, and knife, *c*, cuts one-half of a second strand. The knife, *a'*, of the other head, B, cuts the remaining half of said second strand, and the knives, *d'*, and, *c'*, of the same head make the third strand; this is due to the manner of disposing the two cutter-heads with respect to each other.

The cutter-heads revolve at a high rate of speed while at the same time the wood stick to be cut moves longitudinally on its carriage, and is also rotated on its axis.

This particular tool-stock has been devised in order to form a long beveled bearing for each knife, for it is obvious that if the two

inclined corners on one side were removed the ends of the beveled bearings on the opposite side, which the said corners form, would be shortened and would not be long enough to properly sustain the knives. The said corners are made inclined in order to clear the chips made by the knives in cutting the wood twist.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The cutter-head for twist machines, comprising the rectangular tool-stock having in its top side two beveled bearings, f, f' , each starting from a diagonally-opposite corner and extending along parallel edges to each other, and inclines, e , starting from the other diagonally-opposite corners and meeting said beveled bearings; and the bottom side of the tool-stock having two similar beveled bearings, f^2, f^3 , extending transversely to those on the top side and two inclines, e' , on diagonally-opposite corners from those on said top side.
2. The cutter-head for twist-machines, comprising the rectangular tool-stock having in its top side two beveled bearings, f, f' , each starting from a diagonally-opposite corner and extending along parallel edges to each other, and inclines, e , starting from the other diagonally-opposite corners and meeting said beveled bearings; the bottom side of the tool-stock having two similar beveled bearings, f^2, f^3 , extending transversely to those on the top side, and two inclines, e' , on diagonally-opposite corners from those on said top side; and a cutting knife secured on each beveled

bearing with its cutting edge projecting beyond the tool-stock at the side opposite from the corner-incline adjacent to said beveled bearing.

3. The combination with the shaft, A' , of the two rectangular cutter-heads, A, B , fixed on said shaft and in contact with each other and the corners of one alternating with the corners of the other, and each comprising the rectangular tool-stock having in its top side two beveled bearings, f, f' , each starting from a diagonally-opposite corner and extending along parallel edges to each other, and inclines, e , starting from the other diagonally-opposite corners and meeting said beveled bearings; the bottom side of the tool-stock having two similarly beveled bearings, f^2, f^3 , extending transversely to those on the top side, and two inclines, e' , on diagonally-opposite corners from those on said top side; and each tool-stock having a knife secured on each beveled bearing with its cutting edge projecting beyond the tool-stock at the side opposite from the corner incline adjacent to said beveled bearing, said knives performing some pre-determined step in the cutting process, the co-action of all the knives of both tool-stocks effecting the result of cutting a wood twist of three strands at a single operation.

In testimony whereof I affix my signature in the presence of two witnesses.

WILLIAM MILLER.

Witnesses:

CHAS. B. MANN,
ALVAN MACAULEY.