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MATERIALS USED IN WOOD CARVING TOOLS AND TYPES

Sardor Normuhamadovich Abdirahmanov
Termez State University

Khumoyiddin Abdugafforovich Turaev
Termez State University

ABSTRACT

This article discusses the materials used in wood carving, tools and their types. Cutter parts, cutting angles, description of the main elements of the machine are described.

Keywords: Drawing, Spatial imagination, engineer, perspective, Shapes, design principles, geometric object, drawing.

INTRODUCTION

Cutting is the main way to make details of wood of the required size and shape. During the cutting process, a plywood cutter penetrates the wood and cuts the wood fibers, breaking the connection between them and cutting a certain layer of wood to form a chip. It is also possible to cut wood without chipping: for example, when cutting an unusable part of a piece of wood or cutting a piece with scissors, the wood does not come out. Using less energy and using the device with high efficiency. to be able to correctly choose the cutting conditions for the required quality processing of wood, and for this it is necessary to first understand the essence of the process. Cutter parts. Cutting surfaces and angles. Cutting elements of various constructions are used to cut wood: single-cutter (knives), multi-cutter (milling cutters) or multi-cutter (saws) (Fig. 1).

METHODOLOGY

The cutter (Fig. 1, b) has a «ponasimon» shape. The front edge of the cutter has abdf, the back edge asef, and the two side edges abs and fde. The front edge is on the cutting edge of the work piece, and the back edge is on the machined surface. The racks consist of the edges of the cutter; the front pax is the cutting rake. If the width of the cutter is narrower than the width of the material, not only the front rack, but also the side

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racks ab and fd can have cutting blades. In this case, along with the front pax, the side racks are also involved in cutting the material.

RESULTS

During the cutting process, the following surfaces of the work piece are distinguished:

- the layer of wood directed from the surface to be treated (1) is separated in one (when the cutter moves forward) or several (when the cutter moves in rotation);

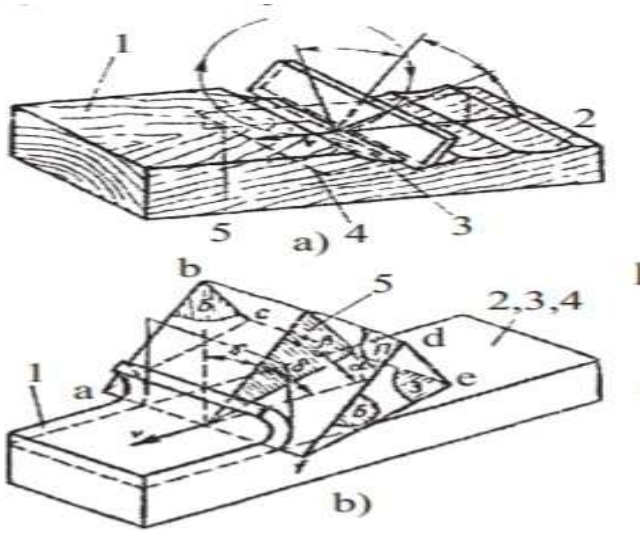


Figure 1. Parts, surfaces and planes formed when the cutter moves in a straight line (a) and a circle (b):

1 machined surface, 2 machined surface, 3 cutting surface, 4 cutting plane, 5 angle measurement plane.

- the treated surface (2) is formed after shaving;

- The cutting surface (3) forms the cutting edge of the cutter on the workpiece to be machined. When the cutter rotates (Fig. 1, b), the cutting surface is always curved, and the workpiece and the machined surface can be flat. The surface (4) that passes through the cutting rack of the cutter when it touches the cutting surface is called the cutting plane. When the cutter moves in a straight line, the cutting plane corresponds to the cutting surface. As the cutting wheel rotates, each of its positions corresponds to a known cutting plane.

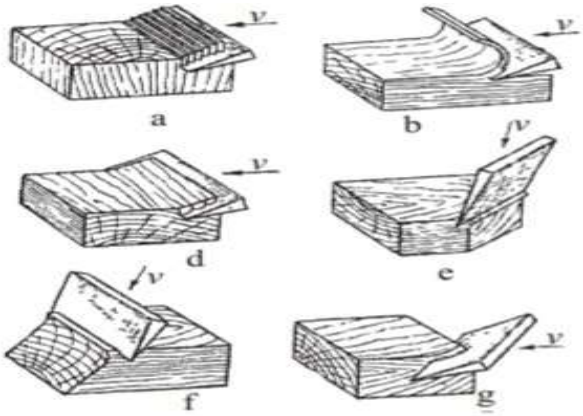
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Cutting angles. The following angles are formed when cutting the workpiece: - sharpening angle p - between the front and back edges of the cutter;

- cutting angle a - is formed by the cutting plane with the front edge of the cutter;
- front angle u - between the edge of the cutter and the perpendicular cutting plane;
- the back angle a is the plane of intersection with the back edge of the cutter.

Angles are measured perpendicular to the cutting plane and in a plane corresponding to the direction of movement of the cutter. When working with a rotary cutter, the direction of the cutting plane at each given point is considered to be the direction of movement of the cutter. Cutting conditions Depending on how the direction of movement of the cutter is in relation to the direction of the wood fibers, the cutting conditions are divided into three types: torso cutting, longitudinal cutting and transverse cutting of the fibers .

4- rasm. Kesish holatlari:
a — tortsaviy kesish, ɔ — tolalar yo'nalishida (bo'ylamasiga) kesish, ɗ — tolalar yo'nalishiga ko'ndalang kesish, e — ko'ndalang torsaviy kesish, f — torets bo'ylamasiga kesish, g — ko'ndalang bo'ylamasiga kesish.

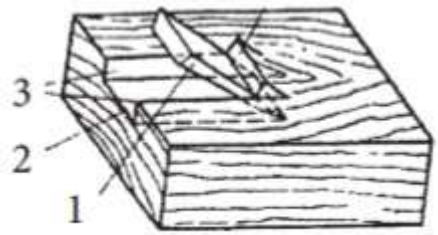


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In cross-cutting (Fig. 2, a), the cutting plane is perpendicular to the wood fibers, so that the chips are broken, slightly hung together or separated into separate pieces. When cutting fibers along the length of the fibers (Fig. 2, b), the cutting direction corresponds to the fiber direction; the scrap is banded, sometimes broken and fragmented. When cross-cutting in the direction of the fibers (Fig. 2, d), the cutter moves in a plane perpendicular to the length of the fibers in the cutting plane; the shards are loosely connected to each other. When cut under the same conditions, the resistance of the wood to cutting is greatest in the case of gravity cutting and the smallest in the case of cross-cutting. In addition to the main types of cutting, cross-sectional cutting (Fig. 2, e), longitudinal cutting (Fig. 2, /) and transverse cutting (Fig. 2, g) and there are other cases. When a piece of wood is cut with a cutter, it is called an open cut. In this case, scrapes come out of all parts of the surface to be treated; the blade of the cutter may be

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slightly wider than the width of the workpiece or equal to the width of the work piece. If two or three cutting surfaces are formed, such a cut is called a semi-open or hidden cut (Figure 3).



In this case, the front edge of the cutter (1) and the front edge form the bottom (2) of the groove (single cutting surface), and the side racks of the cutter form its walls (3) (second and third cutting surfaces). when moving, its front edge deforms the shaft (4). The cutter cuts the wood deeper, creating cracks in it and squeezing the fibers. If the cracks are long, the shavings will move and break, resulting in cracks and bumps on the surface to be treated. [1]

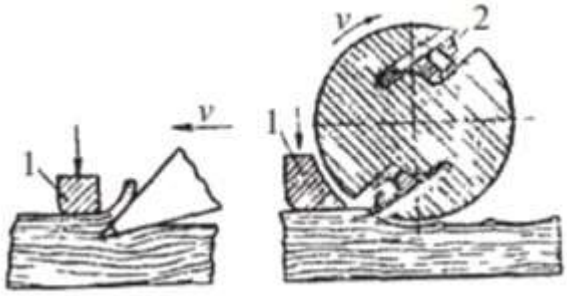


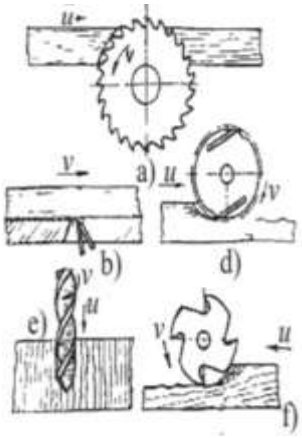
Figure 4. Installation of pole (a) and scraper (b): Pillar 1, scraper 2, c-cutter movement.

DISCUSSION

In order to prevent the formation of long cracks on the machined surface, the machine design provides for the installation of a support (1) in front of the cutter (Fig. 4, a). Pressing the shaft in front of the cutter helps to break the unit, thus limiting the length

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of the wood fiber breakage. To cut the debris, a special debris breaker (2) is mounted on the blade head and shaft of the machine (Fig. 6, b). Cutting methods The main methods of mechanical processing of wood include sawing, planing, milling, drilling and sanding, during which sawdust and sawdust are produced



7-rasm. Yog'ochni kesish usullari:
a – arralash, b – randalash, d,f – frezalash, e – parmalash U – zagotovkaning harakati, V – keskichning harakati

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. [2]

The elements of a woodworking machine depend on the equipment of the woodworking machine and the work they perform. Some tools are used for sawing wood, some for sawing, others for drilling, and so on. However, although machine tools differ in structure, their device elements perform the same function: stands, tables or carriages serve as a base for details, and nodes serve to fasten the cutting tool and transfer movement to the tool or workpiece during operation. Modifying a device does not always change the device of its elements. Therefore, knowing the parts of the machine allows you to quickly master the tools and automatic lines of the new device. [3]

Workpieces and thrust devices

Saw guard. The saw shaft is the working part of the disc saw and aggregate tools. The saw shaft (Fig. 9, a) rotates on two ball bearings (3) mounted on the housings (2), the shaft is mounted on the base of the machine (for example, on the stand) by means of these housings.

A pulley (1) is attached to one end of the shaft; The rotational motion of the wire to the electric motor is transmitted to the shaft via a belt attached to this pulley. At the other end of the shaft, the disc saw (5) is inserted between the special washers (6) and (4)

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and tightened with a nut (7).

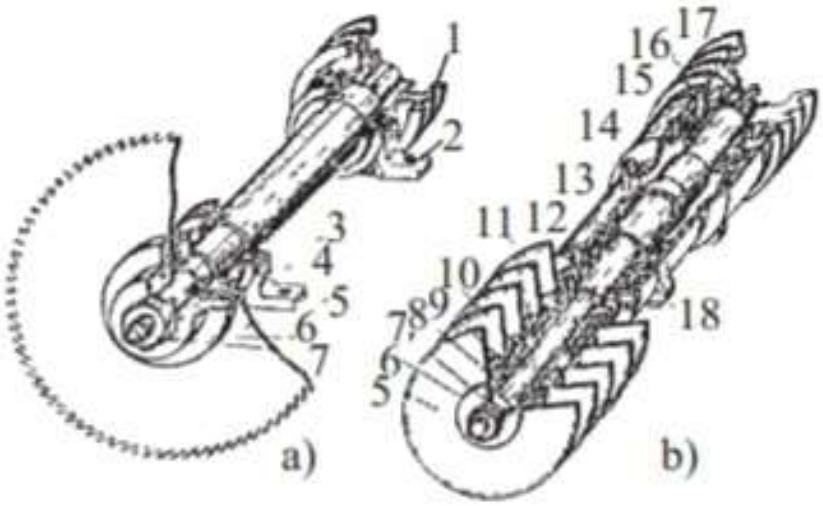


Figure 8. Assembled position of the saw shaft on single-saw (a) and multi-saw (b) machines: 1st pulley, 2,13-housings, 3-ball bearing, 4,6-washers, 5-disc saw, 7-nut, 8-bushing, 9-pin, 10-saw shaft, 11-intermediate ring, 12, 15-flanges, 14,18-out, 16-pulley, 17-dowel

Knife guard. Longitudinal milling machines, such as a planing machine, a reismus machine, and a four-sided longitudinal milling machine, use a knife shaft (Figure 9).

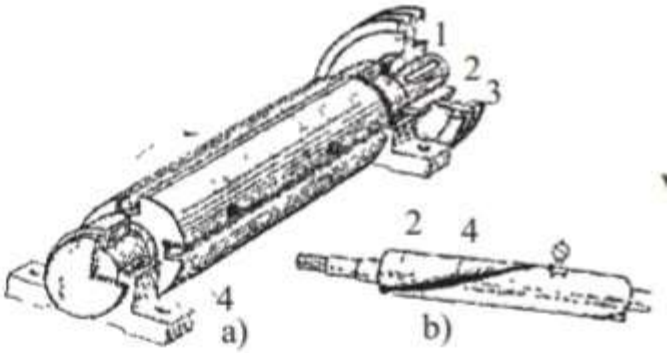


Figure 9. Shaft of blades: a-blades are located on a straight line shaft, b-blades are located on a screw line, 1st pulley, 2nd shaft, 3rd bearing, 4th blade.

CONCLUSION

The blade shaft (2) is made of steel (Fig. 10, a). The shaft device allows him to install the blades (4) and move them in a circular motion. will be half-clutch; the half-clutch blades connect the shaft directly to the shaft of the electric motor. In this case, the

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axis of the shaft of the electric motor must be parallel to the axis of the shaft of the blades. [1.3]

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