CARPENTRY SHOP
(By Nilesh Tipan)

CARPENTRY

- Carpentry may be defined as the process of making wooden article and components such as roots, floors, partitions, doors and windows.

- Carpentry involves cutting, shaping and fastening wood and other materials together to produce a finished product.

- Preparation of joints is one of the important operations in wood work. Joinery denotes connecting the wooden parts using different points such as lap joints, T- joints, etc.

CARPENTRY TOOLS

Carpentry tools are used to produce components to an exact size

The types of carpentry tools are as follows:

1. Measuring and Marking Tools
2. Holding Tools
3. Cutting Tools
4. Planning Tools
5. Drilling and Boring Tools
6. Striking Tools
7. Miscellaneous Tools

Measuring and Marking Tools

Accurate marking and measurement is very essential in carpentry work, to produce parts to exact size. To transfer dimensions on to the work; the following are the marking and measurement tools that are required in carpentry shop.

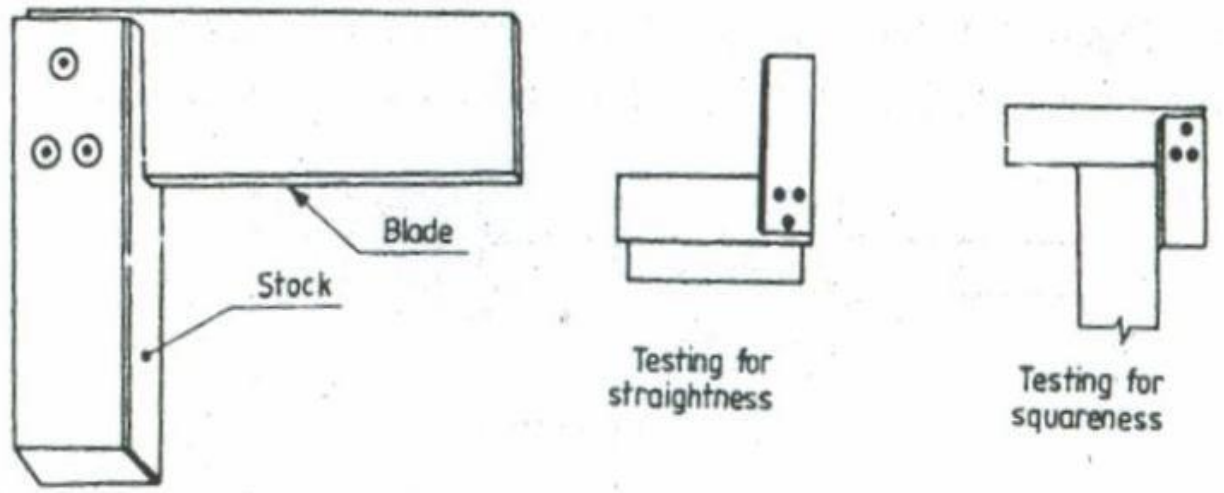
1. Steel Rule

It is an important tool for linear measurement. Used for measuring short lengths in centimeters and millimeters.

Fig. 1.1 Steel rule

2. Try square

It is used for marking and testing the squareness and straightness of planed surfaces. It consists of a steel blade, fitted in a cast iron stock. It is also used for checking the planed surfaces for flatness



3. Marking Gauge

It is used to marking lines parallel to the edges of a wooden piece. It consists of a square wooden stem with a sliding wooden stock on it. On the stem, a marking pin is attached which is made up of steel. This stem is provided with a steel nail to scratch the surface of the work. It consists of two pins; the distance between the pins is adjustable. It is used to draw parallel lines on the stock.

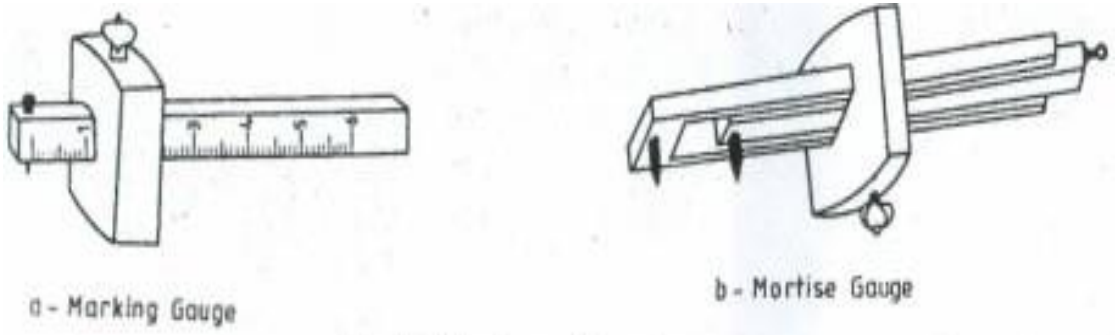


Fig. 1.3 Marking and mortise gauge

4. Scriber or marking knife

It is used for marking on timber. It is made of Steel having one end pointed and the other end formatted into a sharp cutting edge.

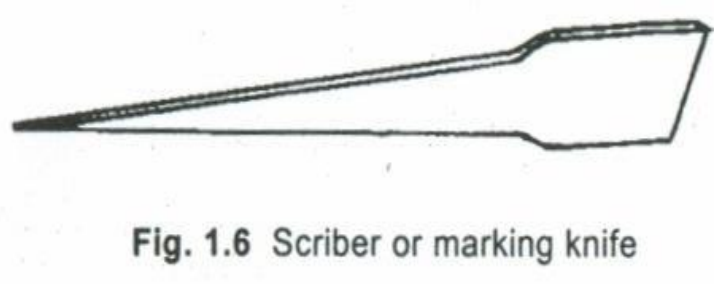


Fig. 1.6 Scriber or marking knife

HOLDING TOOLS

These are the tools used to hold the work piece while performing different operations.

Carpentry vice/ Bench vice

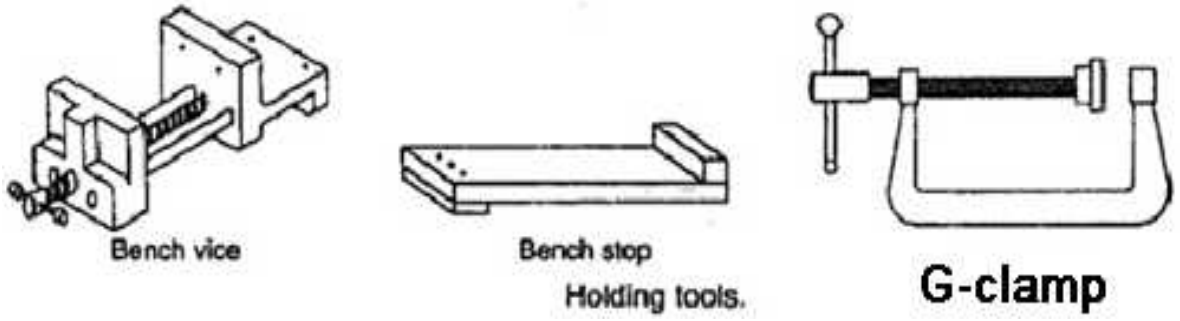
A carpentry vice is the common work holding device. It consists of one fixed jaw and one movable jaw. Its one jaw is fixed to the side of the table while the other is movable by means of a screw and a handle.

Bar clamp

The bar clamp (or) sash cramps are generally used in pairs in gluing up operations at the final assembly of joinery work. It is made up of a steel bar of T-section.

G-clamp

G-clamp is made up of malleable iron with acme threads of high quality steel.It can be used for clamping small work.



CUTTING TOOLS

1. Saws

A saw is used to cut wood into pieces. There is different type of saws, designed to suit different purpose. A saw is specified by the length of its tooled edge. The following saws are used in the carpentry section.

a. Rip Saw

The blade of rip saw is either straight or skew-backed. The teeth are so set that the cutting edge of this saw makes a steeper angle about 60^0.

b. Cross Cut saw

This is similar in shape of a rip saw. It is used to cut across the grain of the stock. The correct angle for cross cutting is 45^0.

c. Tenon or back saw

A tenon saw is used for fine and accurate work. It consists of a very fine blade, which is reinforced with a rigid steel back. The teeth are shaped like those of cross cut saw.

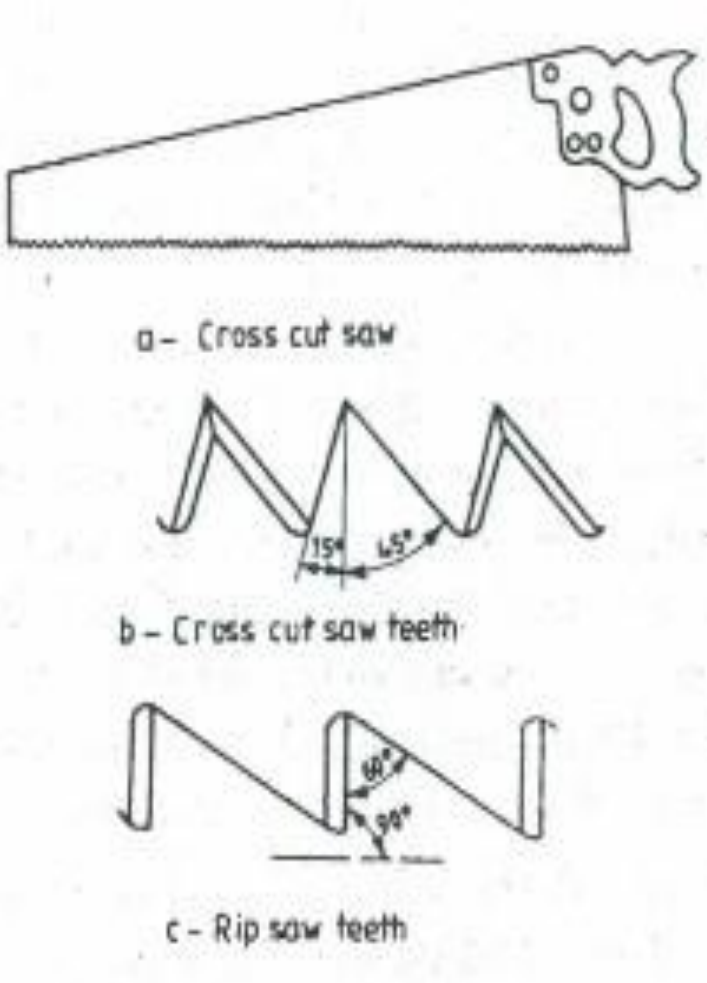
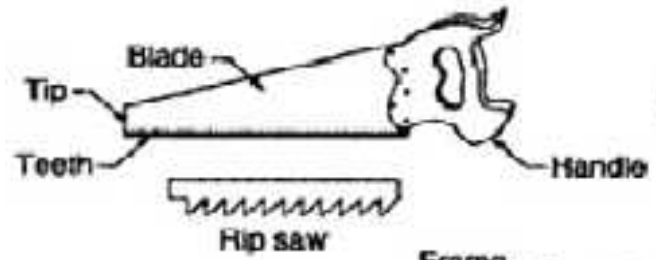
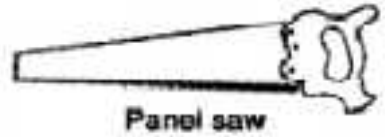
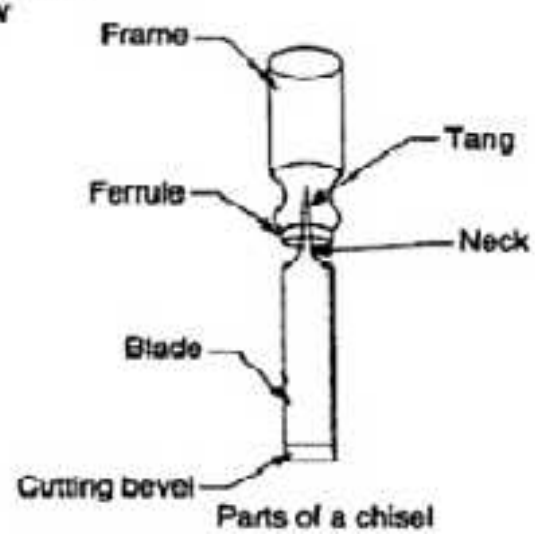


Fig. 1.11 Cross-cut and rip saw







2. Chisels

Chisels are used for cutting and shaping wood accurately. Wood chisels are made in various blade widths, ranging from 3 to 50 mm. Most of the wood chisels are made into tang type, having a steel shank which fits inside the handle. These are made of forged steel.

a. Firmer chisels

These are general purpose chisels and are used either by hand pressure or by a mallet. The blade of a firmer chisel is flat and their sloping face is at an angle 15^0 to 52^0.

b. Dovetail Chisel: It has a blade with a beveled back, due to which it can enter sharp corners for finishing, as in dovetail joints.

c. Mortise Chisel: It is used for cutting mortises and chipping inside holes, etc. The cross-section of the mortise chisel is proportioned to withstand heavy blows during mortising. Further; the cross-section is made stronger near the shank.

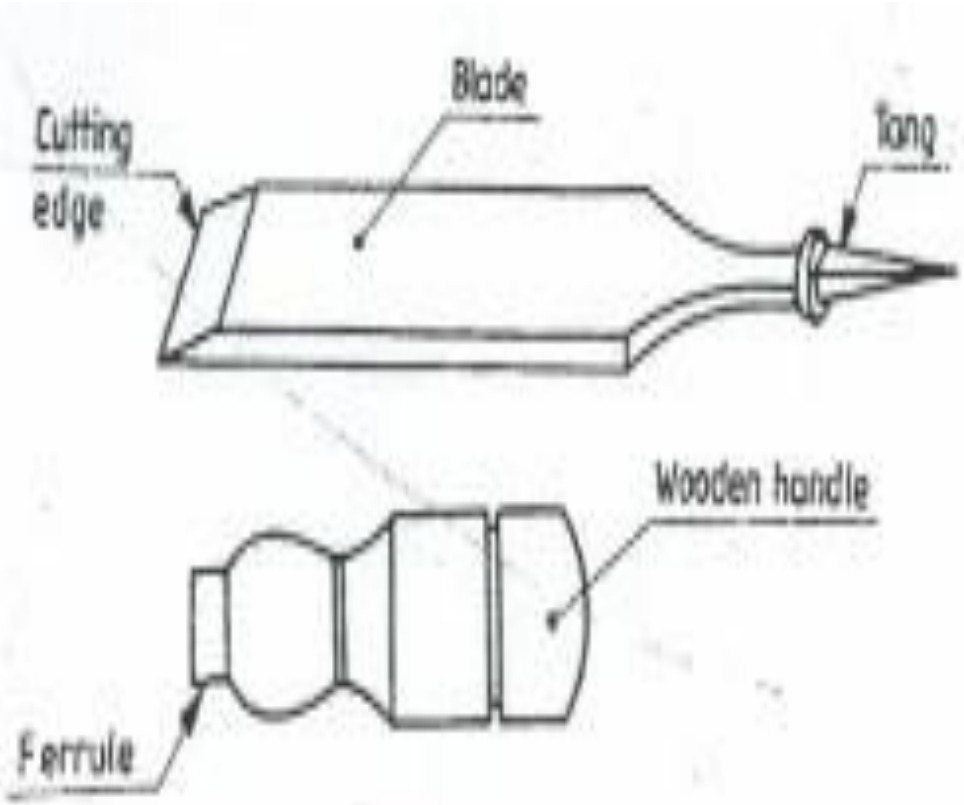


Fig. 1.14 Parts of chisel

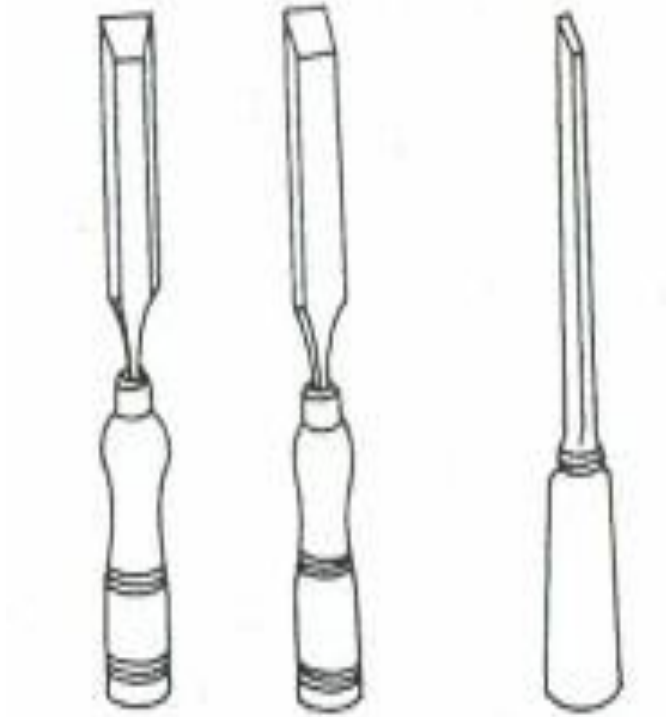


Fig. 1.15 Chisels

PLANNING TOOLS

Planning is the operation used to produce flat surfaces on wood. A plane is hand tool used for the purpose. The Blade of a plane is fitted in wooden or metallic block, at an angle.

a. Jack plane

It is the most commonly used general purpose plane .it is above 35cm long. The cutting iron (blade) should have a cutting edge of slight curvature. It is used for quick removal of material on rough work and is also used in oblique planning.

b. Smoothing plane

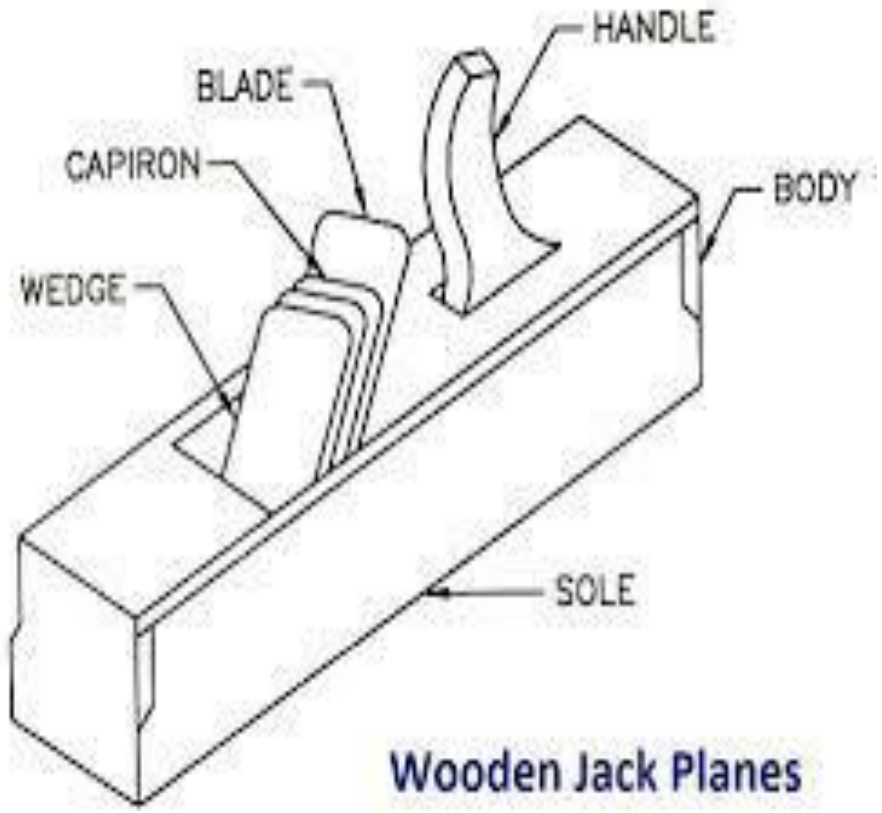
It is used for finishing work and hence, the blade should have a straight cutting edge. It is about 20 to 25cm long. Being short, it can follow even though slight depression in the stock, better than the jack plane. it is used after using the jack plane.

c. Rebate plane

It is used for making a rebate. A rebate is a recess along the edge of a piece of wood, which is generally used for positioning glass in frames and doors.

d. Plough plane

It is used to cut grooves, which are used to fix panels in a door.



Wooden Jack Planes

Drilling and Boring Tools

1. **Carpenter's Brace:**

It is used for rotating auger bits, twist drills, etc., to produce holes in wood. In some designs, braces are made with ratchet device. With this, holes may be made in a corner where complete revolution of the handle cannot be made. The size of a brace is determined by its sweep.

2. **Auger Bit:**

It is the most common tool used for making holes in wood. During drilling, the lead screw of the bit guides into the wood, necessitating only moderate pressure on the brace. The helical flutes on the surface carry the chips to the outer surface.

3. **Hand Drill:**

Carpenter's brace is used to make relatively large size holes; whereas hand drill is used for drilling small holes. A straight shank drill is used with this tool. It is small, light in weight and may be conveniently used than the brace. The drill bit Is clamped in the chuck at its end and is rotated by a handle attached to gear and pinion arrangement.

4.Gimlet: it has cutting edges like a twisted drill .it is used for drilling large diameter holes with the hand pressure.

Fig. 1.16 Carpenter's brace

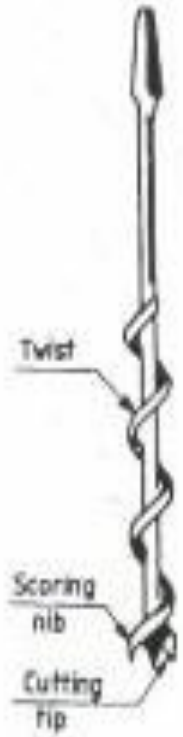


Fig. 1.17 Auger bit

Fig. 1.18 Hand drill

Fig. 1.19 Gimlet

Miscellaneous Tools

Mallet: It is used to drive the chisel, when considerable force is to be applied, which may be the case in making deep rough cuts. Steel hammer should not be used for the purpose, as it may damage the chisel handle. Further, for better control, it is better to apply a series of light taps with the mallet rather than a heavy single blow.

Pincer: It is made of two forged steel arms with a hinged joint and is used for pulling-out small nails from wood. The inner faces of the pincer jaws are beveled and the outer faces are plain. The end of one arm has a ball and the other has a claw. The beveled jaws and the claw are used for pulling out small nails, pins and screws from the wood.

Claw Hammer: It has a striking flat face at one end and the claw at the other, The face is used to drive nails into wood and for other striking purposes and the claw for extracting relatively large nails out of it wood.

Screw Driver: It is used for driving wood screws into wood or unscrewing them. The screw driver of a carpenter is different from the other common types, The length of a screw driver is determined by the length of the blade. As the length of the blade increases, the width and thickness of the tip also increase

Wood Rasp File: It is a finishing tool used to make the wood surface smooth; remove sharp edges, finish fillets and other interior surfaces (Fig.1.24).Sharp cutting teeth are provided on its surface for the purpose. This file is exclusively used in wood work.

Fig. 1.21 Pincer

Fig. 1.22 Claw hammer

Fig. 1.23 Screw driver

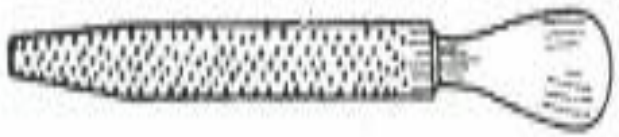
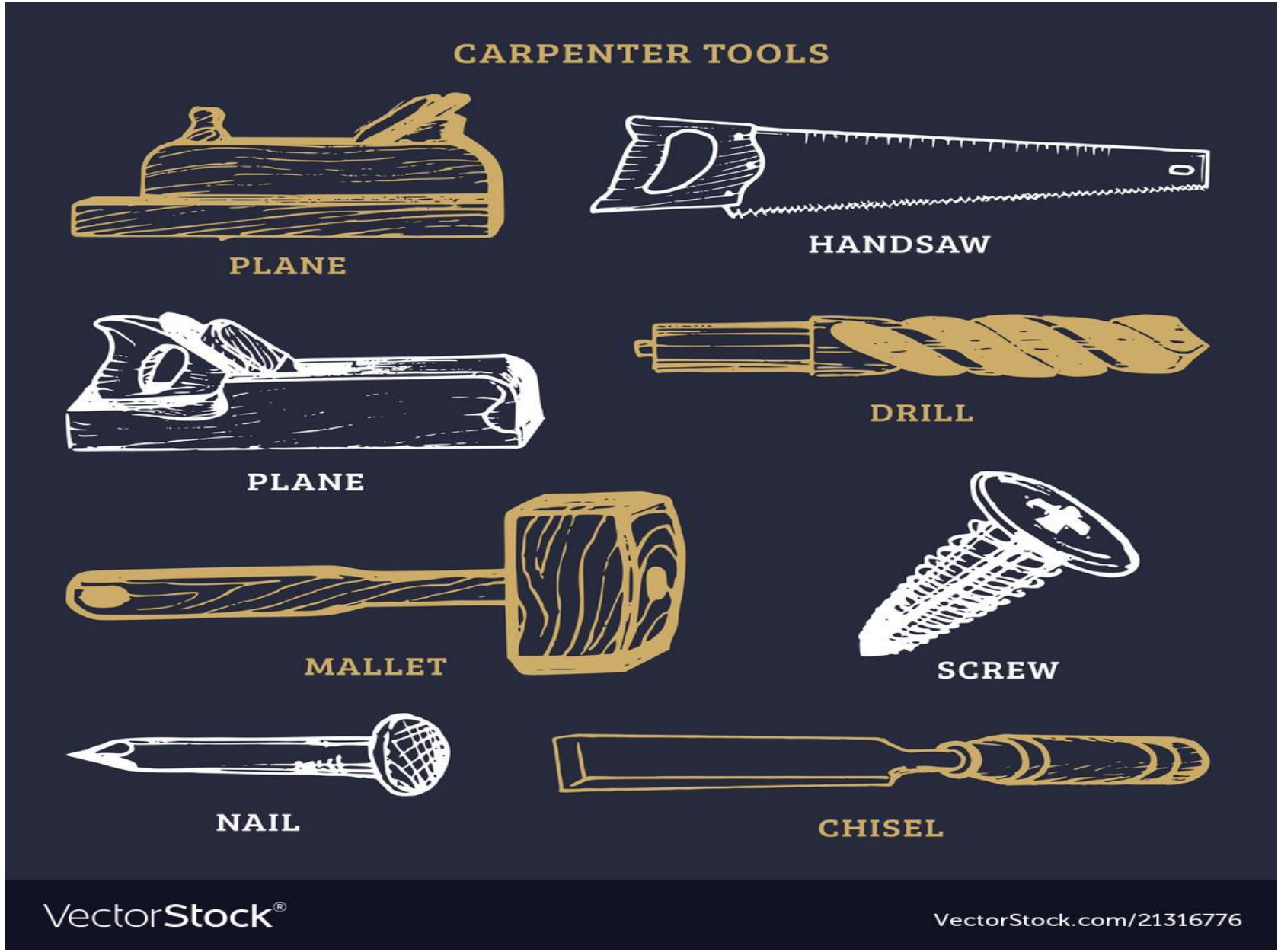


Fig. 1.24 Wood rasp file


CARPENTER TOOLS
PLANE
HANDSAW
PLANE
DRILL
MALLET
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Thank you