

BASIC TECHNOLOGY THIRD TERM

TOPIC: WOODWORK HAND TOOLS

WOODWORK HAND TOOLS: is any tool that is powered by hand rather than an electrical motor, intended to process wood.

CLASSIFICATION OF WOODWORK HAND TOOL

Woodwork hand tools are classified into the following as;

- Measuring tools
- Setting and Marking out tools
- Driving tools
- Boring tools
- Holding devices
- Cutting and pairing tools

MEASURING TOOL

MEASURING TOOL: are instrument used for taking and measurement of sizes and length of an object.

The following are examples Measuring tools

- Metric ruler
- Callipers
- Dividers
- protractor
- Vernier calliper
- Soft pencil
- Try - square

METRIC RULER: this an instrument which is used to measure the length of an object.

STEEL TAPE: is used for taking measurement.

PROTRACTOR: is an instrument used to measure angles in degree.

DIVIDER: is an instrument used for taking the actual measurement of an object and transfer to another object.

SOFT PENCIL: is used for marking out and ruling lines.

CALLIPERS: are used for measuring the internal and external dimension of grooves and circular parts.

TRY – SQUARE: is used for ruling lines; testing and ensuring squareness of edge.

DRIVING TOOLS

DRIVING TOOLS: are instrument used for hitting, striking, nailing, screws and pining into woodwork pieces. They are also used for chiseling to cut and shape wood.

EXAMPLE OF DRIVING TOOLS

1. Hammer
2. Screw driver

- **HAMMER:** is mainly used for driving in and driving out nails. The hammer consists of metal head and a wooden handle.

TYPES OF HAMMER

- Cross peen head hammer
- Straight peen head hammer
- Ball peen hammer
- Blocking head hammer

SCREW DRIVER: is mainly used for screwing in and out or wood. The screwdrivers come in a range of lengths and they have plastic handles which are sometimes cover with rubber and a metal shaft.

TYPES OF SCREWDRIVER

- Flat head screwdriver
- Star head screwdriver
- Offset screwdrivers

BORING TOOLS

BORING TOOLS: are used for making or boring holes on wood.

Examples of boring tools are

- The brace
- Wood drill
- Bits
- Bradawl

THE BRACE: is used to hold and give leverage in a continues rotary motion to the various bits. Mostly when boring on wood of more than 6 mm diameter.

CUTTING TOOLS

Saw:

Saws are cutting tools made of high quality tool steel. The teeth of saws are set alternately left and right to allow for clearance. There are different types of saws designed to perform different jobs. These are rip saw, cross cut saw; tenon saw, bow saw, dovetail saw, coping saw and fret saw.

The rip saw: The rip saw is used for cutting timber into thin sections such as planks. It cuts wood along the grain.

slender.



The cross cut saw: This is just like the rip saw in appearance except that the blade is thicker. It also has a sharper taper blade than the rip saw. The cross cut saw is used to cut wood across the grain such as in cutting wood into logs.



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small loop on
is used for cr
smaller in size
This saw look
The dovetail

and A 92.8 313



The tenon saw: it is used for cutting tenon joints and other small jobs on the bench.

thickness and weight when cutting. It is used for both the rip saw and the cross-cut saw.

The coping blade to



Fig. 9.28 A tenon saw

Fig. 9.

The bow saw: This is used for cutting circular or semi circular curves. The deep bow shape of the frame provides the advantage.

The dovetail saw: This saw looks like the tenon saw but it is smaller in size and has an open handle. It is used for cutting dovetail joints on the bench.

The coping saw: The coping saw is used for cutting curves on the wood and ply wood. The blade of the coping saw is slender and this allows the saw to be adjusted in any direction.

blade to be adjusted in any direction.



Fig. 9.31 A coping saw

The key hole saw: the key hole saw has a slender but rugged blade. It is used for cutting holes of different shapes into the wood. Especially key holes.



Fig. 9.23 The key hole saw

the surface of wood is
plane in shape but the



Fig. 9.24 A small piece of wood

HOLDING DEVICE

HOLDING DEVICES: is any devices or instrument used for holding something

TYPES OF HOLDING DEVICES

1. Clamp
2. Vice

CLAMP: is an instrument used for holding work pieces firmly on the workbench and also for allowing glue to set properly.

EXAMPLES OF CLAMP

1. G – clamp
2. Holding fast clamp
3. Sash clamp

THE VICES: are tools used for holding an object tightly so that it can be worked on. It is fitted to the side of the bench.

Examples of vices

Vices are classified as follows:

1. Bench vice
2. Bench hook
3. Bench stop

BENCH HOOK: is used to hold the work piece on the bench during operation like chiseling and cutting. The bench hook also protect the bench stop

BENCH STOP: is a small strip of wood fitted on top of a bench. It is used for holding wood that is being planed on the bench. It prevent the wood from slipping off bench.

CARE AND MAINTENANCE OF WOOD WORK HAND TOOLS

MAINTENANCE: is the act of keeping equipment in good operating condition by implementing regular remedial measure.

TYPES OF MAINTENANCE

1. Preventive maintenance
2. Predictive maintenance
3. Corrective maintenance

PREVENTIVE MAINTENANCE: is the work carried out on equipment in order to avoid its breakdown or malfunction. This type of maintenance is a regular routine action taking on an equipment in order to prevent its breakdown.

PREDICTIVE MAINTENANCE: is the regular work that may be necessary to retain the performance characteristics of equipment. That is detecting a fault and work on it before it happens or completely breakdown.

CORRECTIVE MAINTENANCE: this is repair work carried out after an equipment has broken down, or when it can no longer work properly. It is usually very costly in terms of money and time.

CARES AND MAINTENANCE OF WOODWORK HAND TOOLS

Woodwork hand tools can be maintained through the following ways;

1. Clean tools immediately after use.
2. Keep the tool in their respective casing and shelves.
3. Do not throw hand tools around and at each other.
4. Grind and sharpen the tools as required
5. Check the handles and fasteners tools before and after use.
6. Lubricate the moving part of the tools regularly.

NEEDS AND IMPORTANCE OF MAINTENANCE

- To keep equipment in good operating condition
- To avoid sudden breakdown of the equipment
- To avoid high cost of repairs of breakdown equipment
- To avoid waste of time

TOPIC: METAL WORK HAND TOOLS

SUB-TOPIC: MEASURING TOOLS

Measuring tools are tools used to measure distances or angles on a metal work piece prior to any operation.

Measuring tools include;

- ❖ steel rule
- ❖ vernier calipers
- ❖ micrometer screw gauge
- ❖ protractor etc.

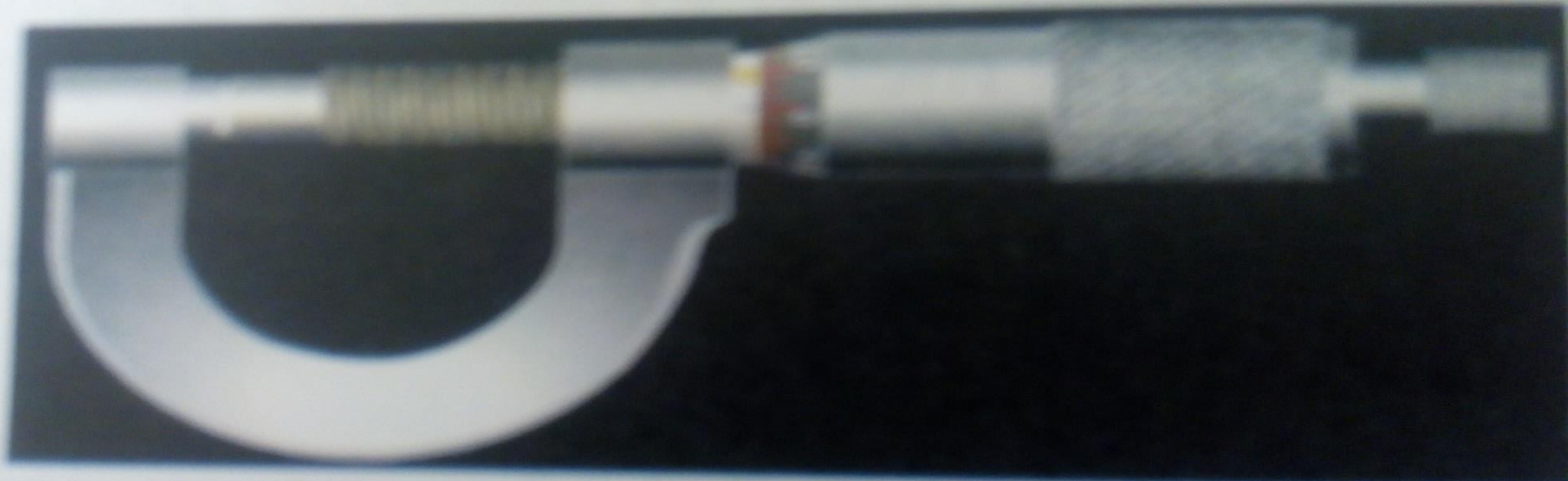
Steel rule: These are steel metals graduated in metres, centimetres, inches or millimetres used to measure the length on the metal work piece



Vernier caliper: used to measure objects by adjusting their moveable jaws to the object faces.



Micrometre screw gauge: These are very similar to the vernier caliper except that they are used to measure the thickness of very thin metal sheets and wires. It normally has a fixed and a moveable jaw which can be tightened to take measurements.



Driving tools include the following

- ❖ Spanners
- ❖ Screwdrivers
- ❖ Hammers

Spanners: These are used for loosening or tightening bolts and nuts.

The various types are the

- ❖ adjustable spanner
- ❖ Socket spanner
- ❖ open end box spanner and
- ❖ combination spanners.

Screwdrivers: These are used to drive screws into a metal. They are classified according to the type of tip as flat, star, offset, Allen, ratchet screw driver.

Hammers: These are used to drive nails and screws into a metal sheet. They usually have a metal head and a handle made of wood or metal. The different types of hammer are named by the type of head they have such as cross peen hammer, Ball peen hammer, Straight peen hammer, planeshing hammer, claw hammer, blocking hammer

- **Cross Peen Hammer:** This is used for riveting, forging, striking steel tools etc. They are also mostly used by blacksmiths.
- **Ball Peen Hammer:** This is a type of hammer with one flat face and one rounded or peen face. It is a general purpose hammer with opposite sides of the head having a ball. It is mostly used for riveting.

- **Straight Peen Hammers:** These are used for shaping sheet metals and riveting in an awkward position.
- **Planishing Hammer:** This comes with round or square face. It is mostly used by panel beaters for finishing jobs on car bodies.
- **Claw Hammer:** This normally will have one side flat and the other have a claw like shape used to remove nails from metal work piece.
- **Blocking Head:** it has applied surface used for shaping sheet metal.

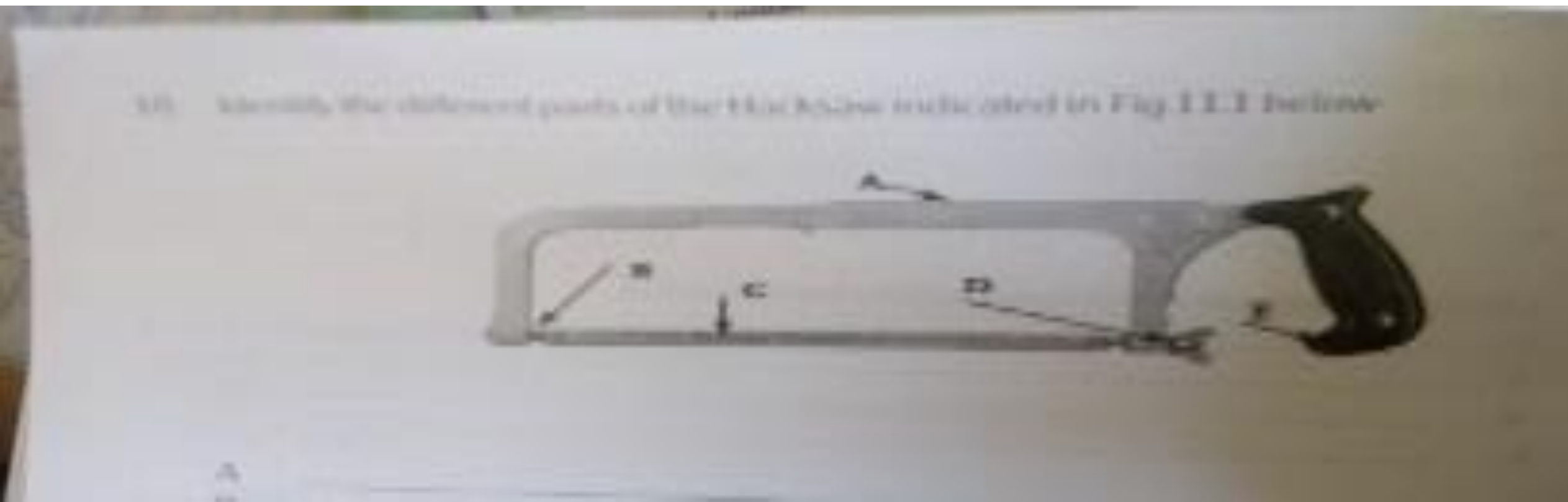
CUTTING TOOLS

Cutting Tools: are used in cutting or reducing metal to required size.

EXAMPLES OF CUTTING TOOLS INCLUDE;

1. Saws
2. File
3. Chisel

Saws: These are used to cut metals usually clamp on a vice. Types of saws used for metal work include; hack saw, piercing saw and back saw. The hack saw consists of three parts namely the frame, the blade and the handle.



A. ADJUSTABLE FRAME

B. PRONGS

C. BLADE

D. BLADE TENSION

E. HANDLE