

Health and safety

Mr. Murphy

Woodwork room rules

- Always follow the teachers instructions.
- Do not move around the room without good reason and **never run** in the room.
- Safety equipment should be worn appropriately but particularly when using machines or as instructed by your teacher.
- Always read and follow the manufacturers instructions and warnings carefully.
- Never interfere with others when they are working.
- Report all damaged equipment immediately.
- Always turn power tools off and disconnect them from the mains when they are not in use.
- Report all accidents, no matter how small to your teacher.
- All work benches should be swept down and floor swept.
- All tools should be back in there right place
- Work pieces should be placed in your press for safe keeping

This list of rules is to be read, understood and signed by the student

Signed Student _____

Tidiness

- Keeping your work area tidy at all times
- When tools are not being used they should be put away
- Keep the floor free from waste material
- Hands should be clean to avoid getting your work pieces dirty



Safety Guidelines

- Always follow the instructions given to you
- Wear the correct safety gear for the job
- Tie up long hair and secure loose clothing
- Report all damage
- Report all accidents

Safety Equipment

- Safety glasses should be worn to protect your eyes.
- Dust masks can be worn which protect you from breathing in dust particles.
- Ear protection should be worn when there is excessive noise in the room.



Safety signs



**Eye
protection
must be worn
in this area**



**Ear
protection
must be worn
in this area**



Caution



Warning
Corrosive



**Respirators
must be worn
in this area**

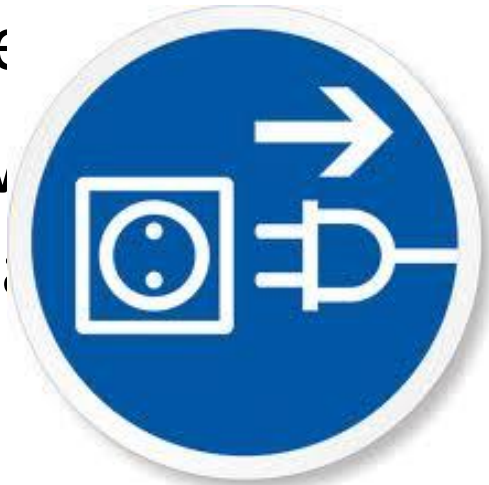
Power tools safety

- Power tools are more dangerous than manual tools
- They can cause great injury
- Only use power tools after being instructed on safe use by the teacher



Power tools safety

- Always disconnect a tool before making adjustments.
- Always use the proper safety equipment with the



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End of class

- All work benches should be swept down and floor swept.
- All tools should be back in there right place
- Work pieces should be placed in your press for safe



Health and safety



Hand tools



Marking Out tools

- Sometimes called setting out tools
- Referred to as geometric tools
- Very accurate
- Used to mark distances and angles
- Used to measure the dimensions of joints

Try Square

- Makes an angle of 90°
- Used to mark lines across wood grain
- Two main parts, the stock and the blade
- The brass strip protects the stock
- When using a try square it is very



Sliding Bevel



- This has a similar use to the square but the angle is adjustable
- The wing nut allows to adjust the angle of the blade
- Main parts are the stock and the blade
- Must be used with stock tight up against the work

Be

- Used for cross cutting material at the bench
- Should be held in the vice
- Made from Beech



Marking Gauge

- Used to mark lines on wood parallel to the grain
- Parts are: the stem; the stock; the spur and the thumb screw
- Made f



Mortise Gauge

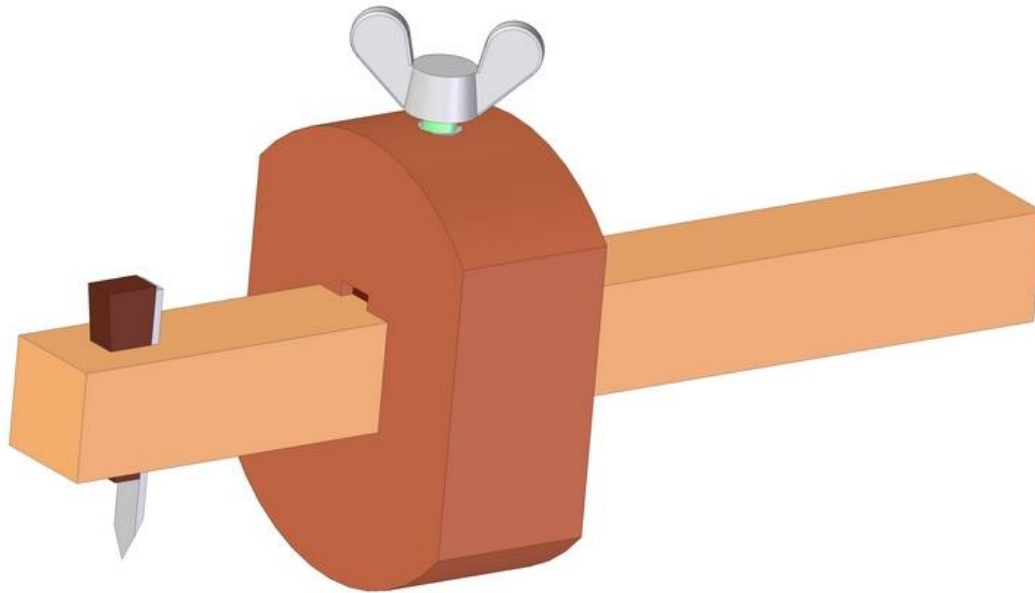
- Used to mark out mortise and tenon joints
- It has two pins, one is fixed, the other is adjustable
- It is adjusted by a thumb screw on the end of the stem



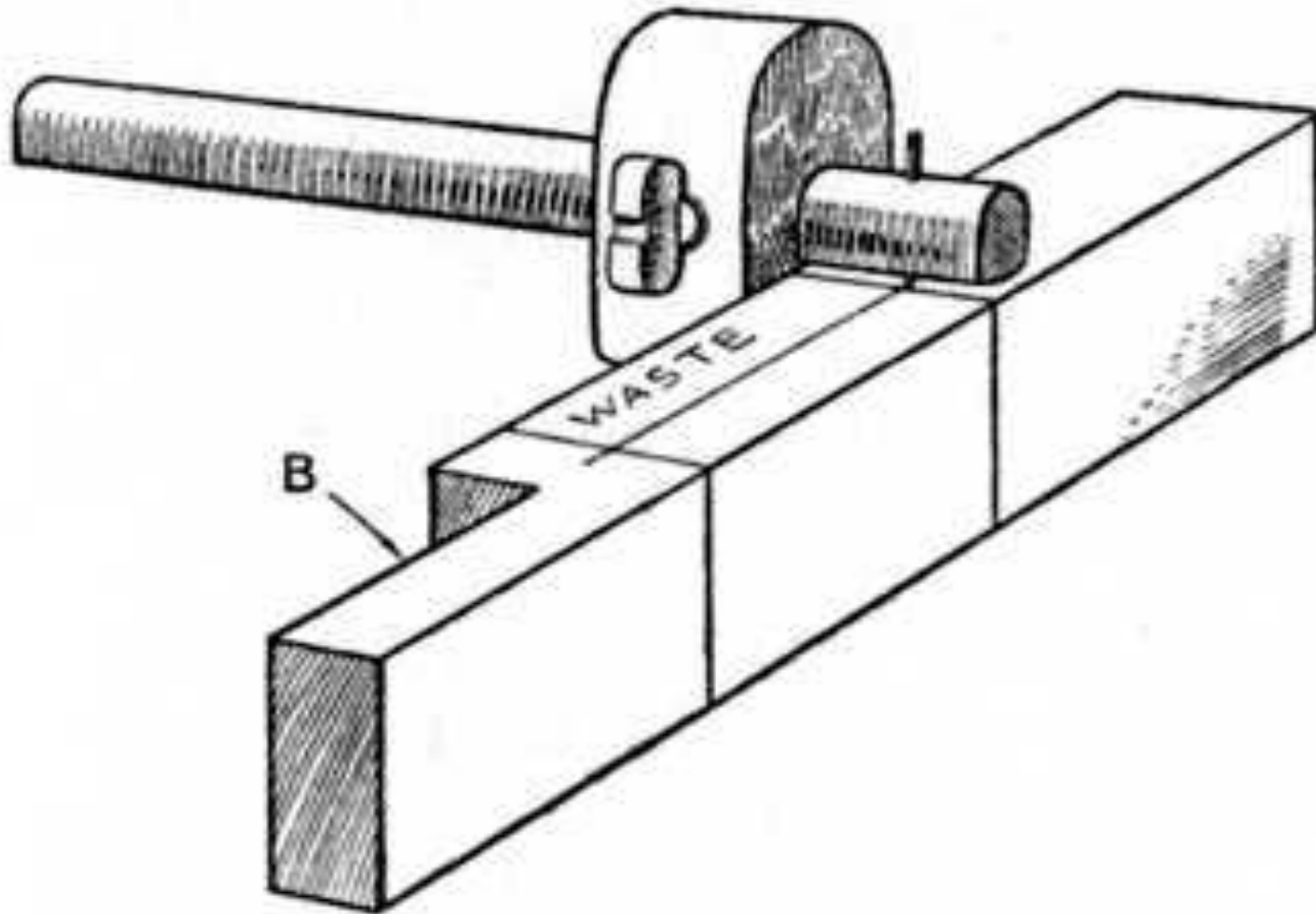
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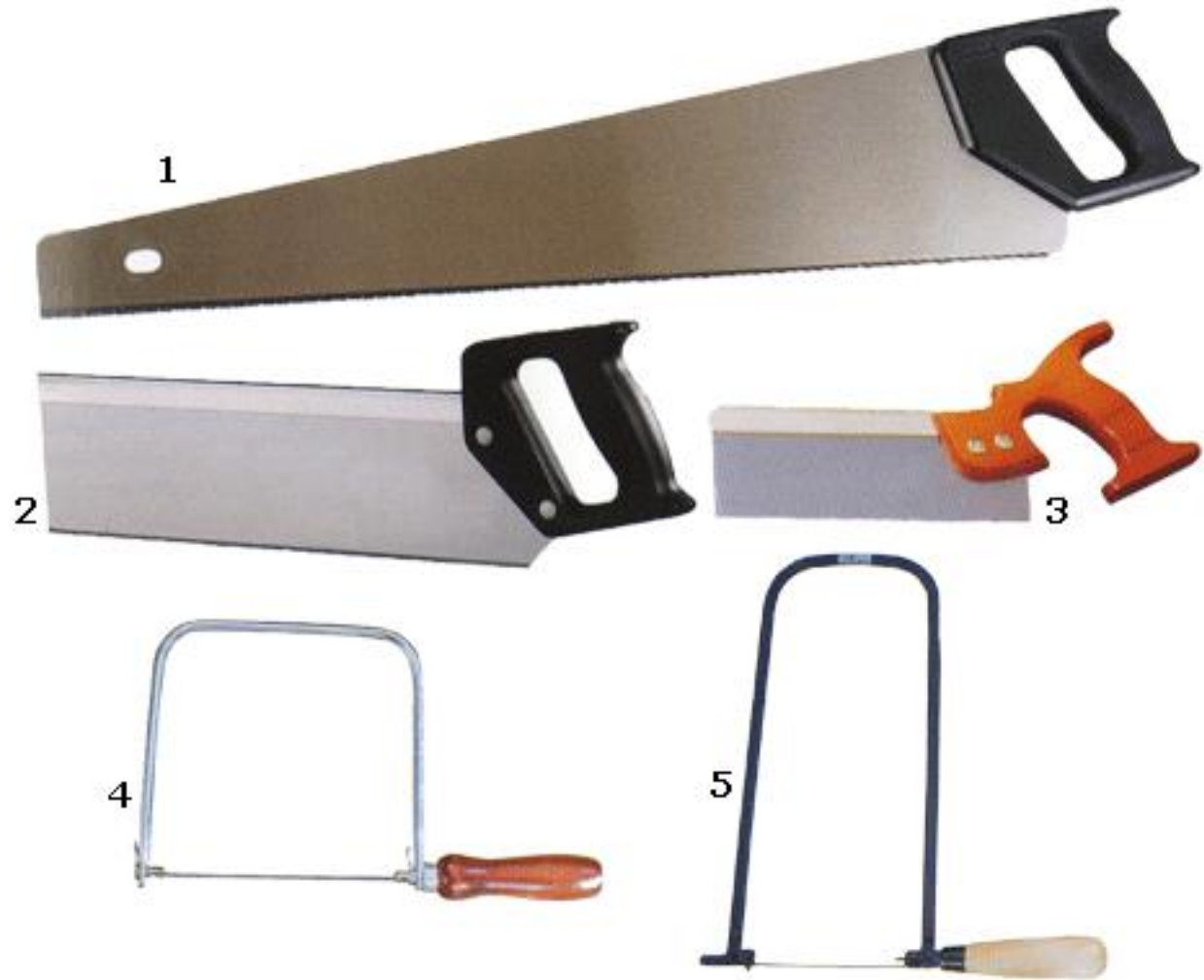
Cutting Gauge

- Has a knife instead of a spur
- Used to mark wood across the grain
- Mainly used for dovetail joints



Using a gauge





SAWS

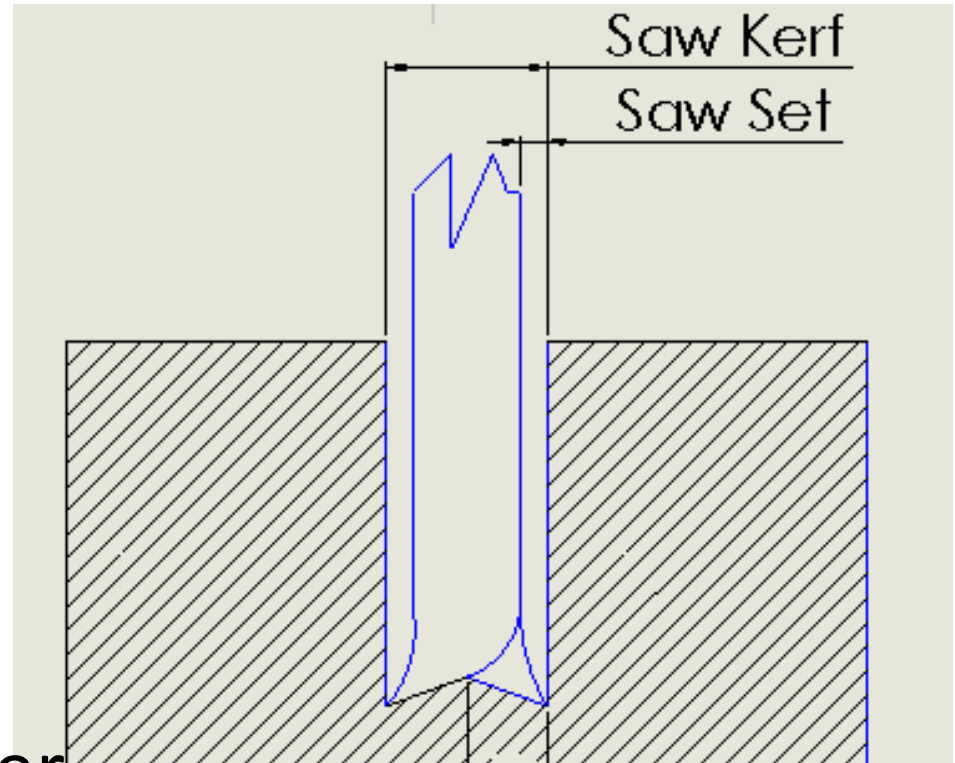
Saws

- Saws are grouped into two main groups
 - Saws for cutting straight lines
 - Saws for cutting curved lines

Straight Cutting	Curved Cutting
Tennon Saw	Bow Saw
Cross-Cut saw	Coping Saw
Panel Saw	Compass Saw
Dovetail Saw	Pad Saw
Rip Saw	

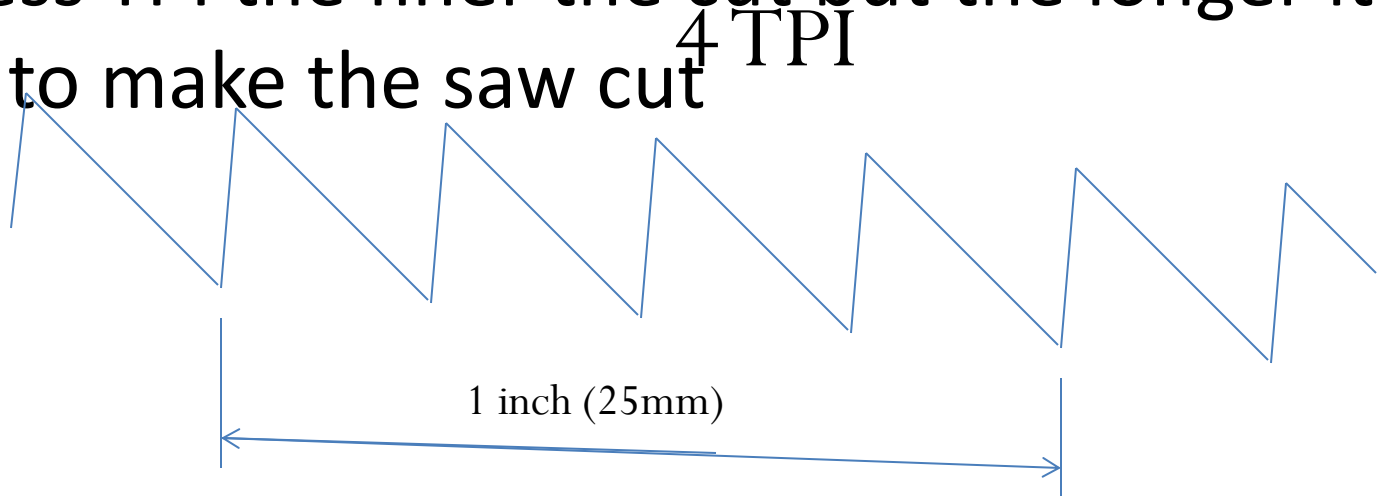
Saw Teeth

- The teeth of the saw do all of the work
- There are certain teeth for certain jobs
- Larger teeth cut quicker and rougher
- Smaller teeth cut slower and more accurately



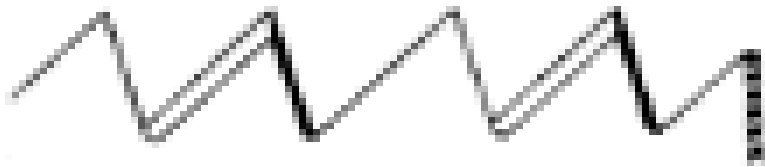
Saw Teeth

- Saw teeth are measured in TPI (teeth per Inch)
- That is how many teeth in every 25mm
- The Tenon saw, for example, has 10-15TPI
- The less TPI the finer the cut but the longer it takes to make the saw cut



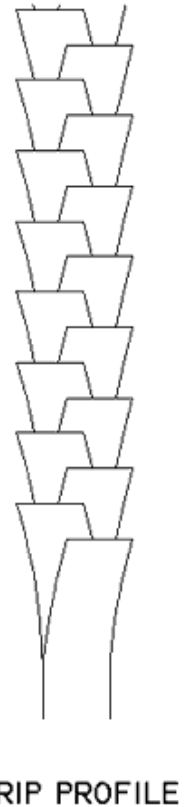
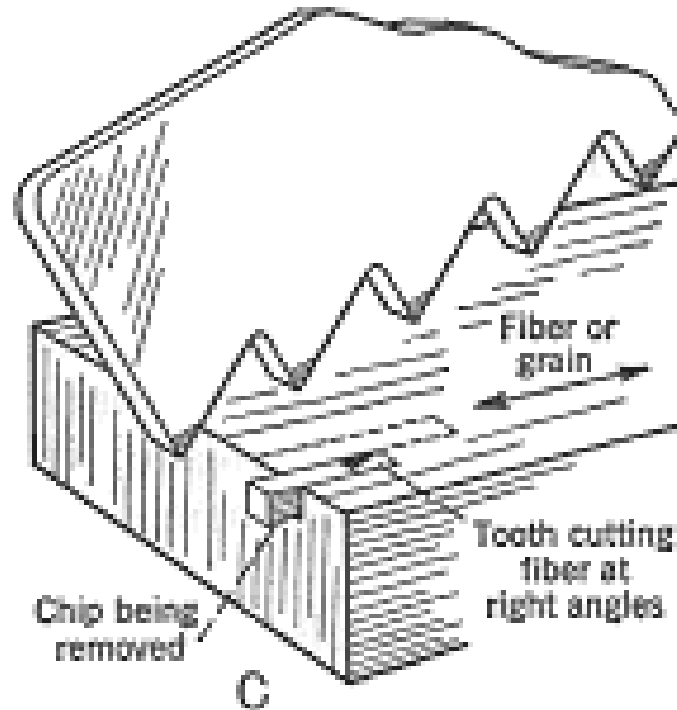
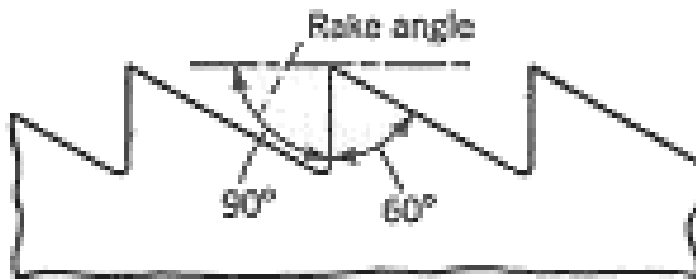
Cross Cut Saw

- Is used for cutting across the grain of the wood
- Its teeth sever the fibres
- The teeth are pointed on the bottom
- Usually has 6-8 TPI
- Teeth are sharpened at 65-70 degrees to the blade



Rip Saw teeth

- Is used for cutting with the grain of the wood
- Its teeth cut with a chisel like action
- The bottom of the teeth are flat
- Usually has 4 – 8 TPI
- The teeth are sharpened at 90 degrees to the blade



The Hard point Saw

- These are universal saws that are replacing the cross cut and rip saws
- They have precision hardened and set teeth that **Cannot** be set or sharpened
- These saws are disposable
- They can cross cut and rip saw because every second tooth is either for ripping or



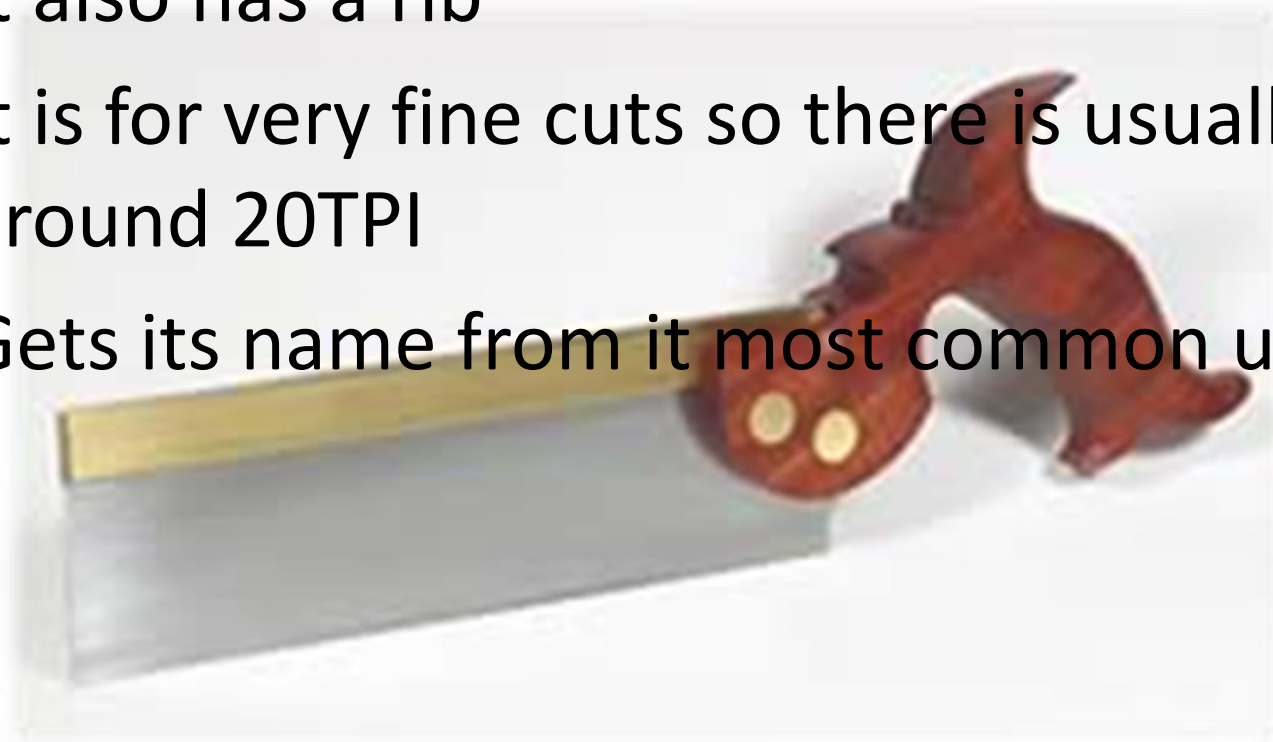
Tenon Saw

- Mainly used for bench work
- Small accurate saw for cutting joints
- 10 – 15 TPI so there is a smooth cut
- Rib on back of the saw for strength prevents deep cuts



Dovetail Saw

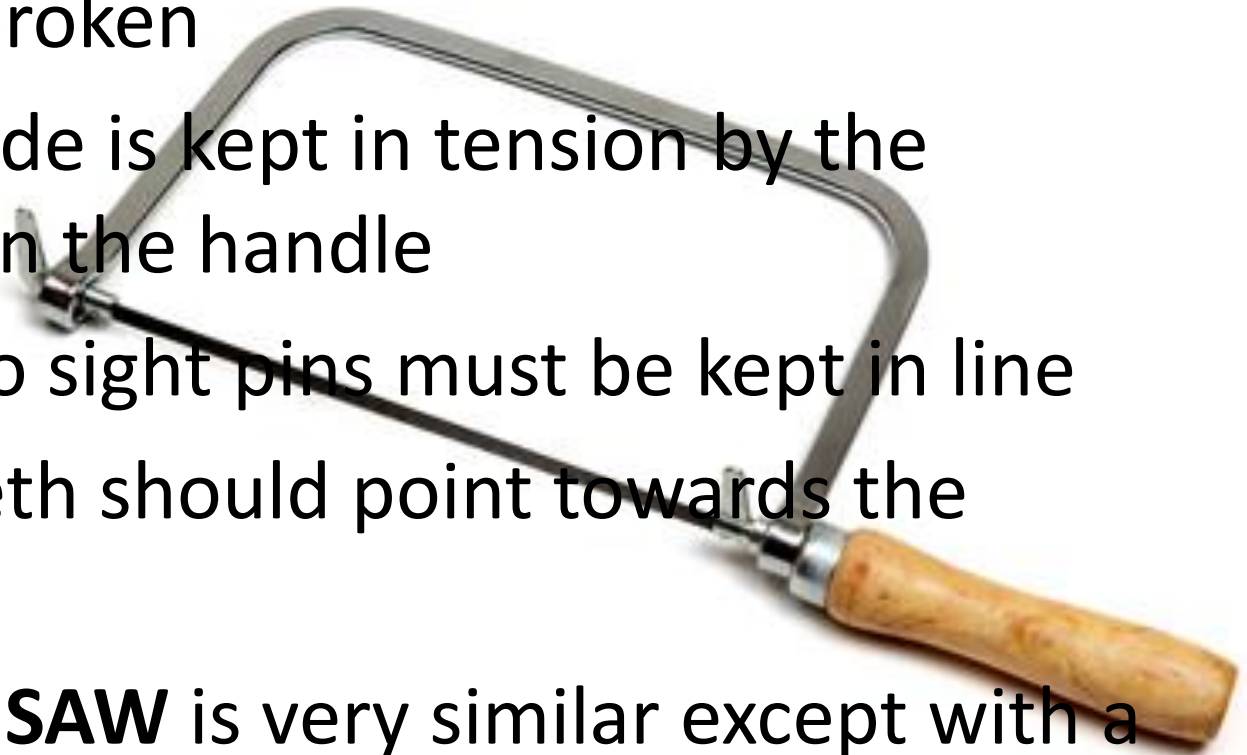
- Very similar to the Tenon saw but is usually smaller
- It also has a rib
- It is for very fine cuts so there is usually around 20TPI
- Gets its name from its most common use



SAWS FOR CURVED WORK

Coping Saw

- Most common saw for curved work
- Has a fine blade with 14-16TPI which is easily broken
- The blade is kept in tension by the spring in the handle
- The two sight pins must be kept in line
- The teeth should point towards the handle
- A **FRET SAW** is very similar except with a deeper frame



Pad saw and compass saw

- Often called a key hole saw
- Rarely used due to modern electronic equipment



The Hacksaw

- Used for cutting metal and plastic
- Very fine teeth in a wavy pattern
- Used with one hand on the handle and the other on the frame



- Screwdrivers

- Bradawl

- Nail Punch

- Hammers

PERCUSSION TOOLS

- Mallet

- Pincers

Screwdrivers

- Three main types:
 - Parallel Tip (Flat head)
 - Philips
 - Pozidrive



- What size?
 - Use the longest screwdriver convenient for the work

Parallel Tip Screwdriver

- Old type of Screwdriver
- Not used as much anymore
- Tip must be exact size of the screw
 - Too big and you will damage the wood



the



nd you will damage the screw head

Torque Damaged screw head

Philips Head Screwdriver

- Known by its cross head tip
- More common than parallel tip
- Tip must be the right size for



Phillips

How to



damage



Pozidrive

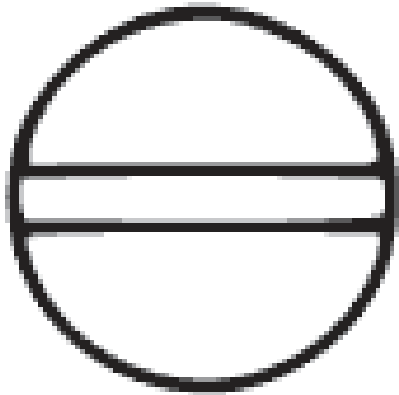
- Has replaced the above two types
- Has a Philips head with added square section for extra grip



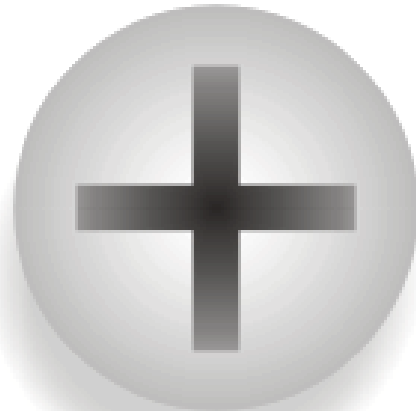
Pozidrive



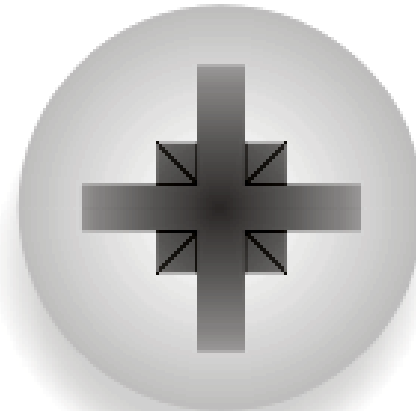
Three Types



Flat Head



Phillips



Pozidrive

Markings on screw tips

Flat Head	Phillips	Pozidrive
4, 6, 8	PH1, PH2, PH3	PZ1, PZ2, PZ3

Bradawl and Nail Punch

- Bradawl:
 - Used made :
 - the wood be
 - screws by ha
 - Always used



- Nail Punch:
 - Used to drive nail heads
 - below the surface of the
 - wood



Hammers

- Warrington Hammer

- Handle made from hickory or ash

- Used for light work, weighs from 170g to 450g



- Claw hammer

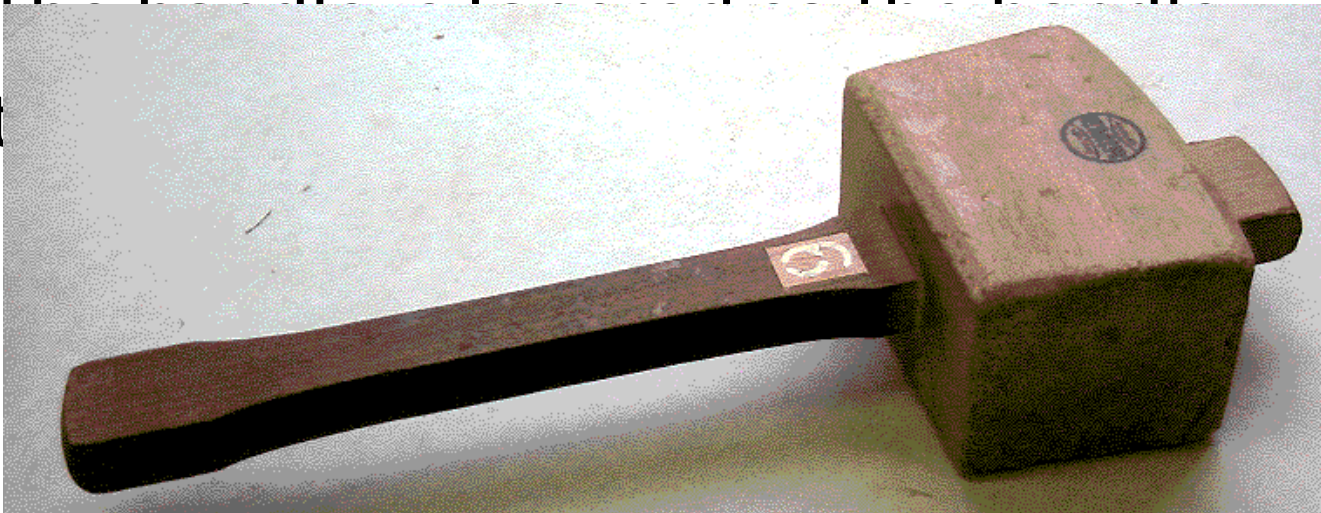
- Similar to above but used for pulling nails also

- Heavier in weight, 450g to 680g



Mallet

- Used for striking the handle of the chisel
- Also used for assembling joints
- Made from beech so it is tough but will not damage the piece it is hitting



Carvers mallet

- Similar to above but the head is rounded
- This is to allow it to be used from a number of angles
- Handle is ash
- Only used for carving work



Pincers

- Used to remove nails from timber



- Planes

- Chisels

PARING TOOLS

- Gouges

- Spokeshave

Planes

- There are four types of Plane
 - The tri plane
 - The Jack Plane
 - The Smoothing plane
 - The Block plane
- A Plane is used to smooth or to plane it straight and true

The Tri Plane

- Very large plane
- Used to plane long timber straight and true
- Length 460mm – 560mm



The Jack Plane

- Used to plane timber straight and true
- Easier to operate than the try plane
- Length 355mm – 380mm



Smoothing Plane

- Small plane
- Used to smooth timber before sanding
- Easier to control than previous
- Length: 213mm – 245mm



Block plane

- Small handy plane that is used with one hand
- Blade is set at a lower angle than smoothing plane
- Length





1

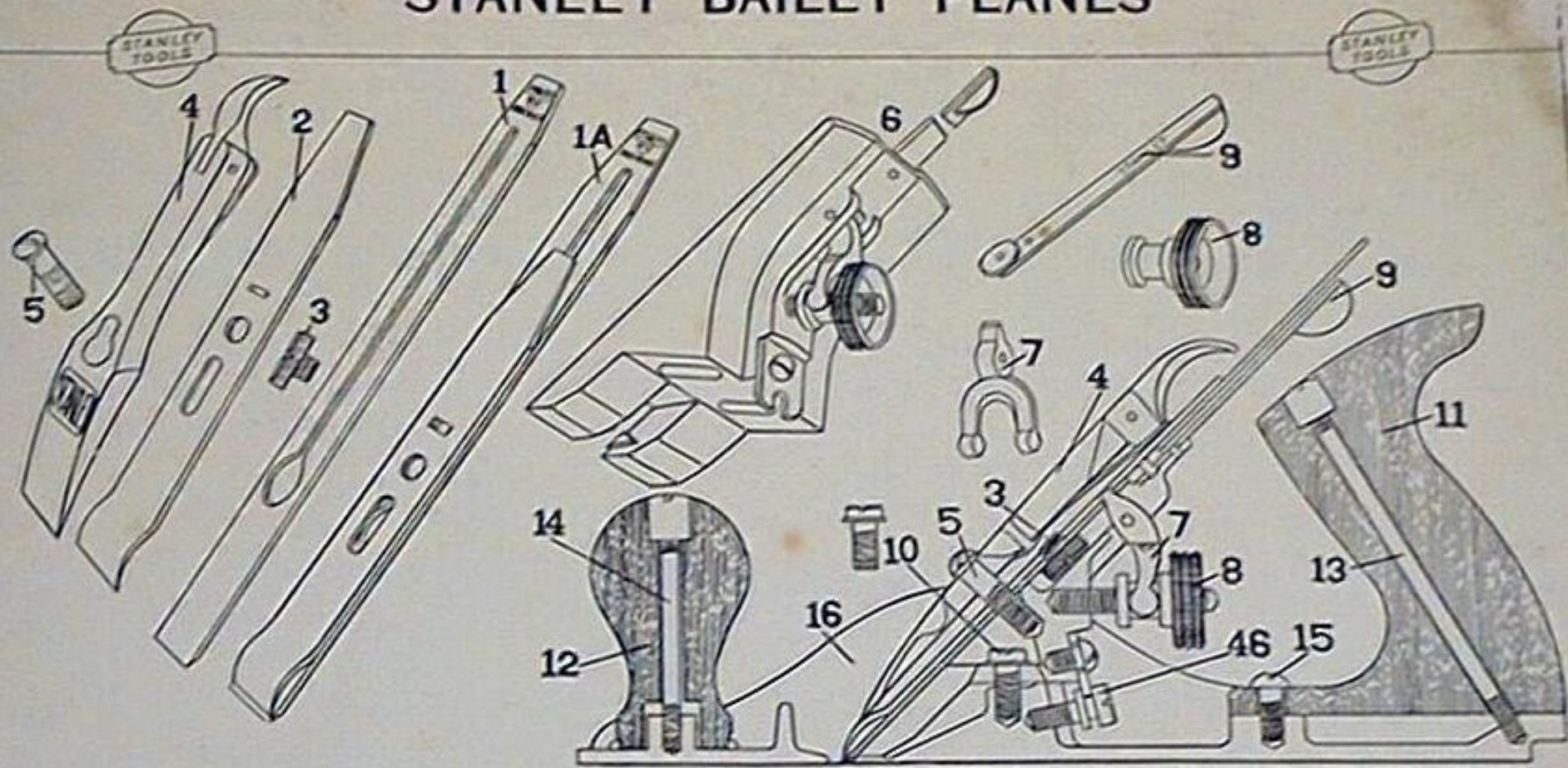
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4

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STANLEY BAILEY PLANES



- | | | | |
|----------------------------|----------------------------|----------------------------------|--------------------------------|
| A DOUBLE PLANE IRON | 4 LEVER CAP | 9 LATERAL ADJUSTING LEVER | 14 KNOB BOLT & NUT |
| 1 SINGLE " " | 5 " " SCREW | 10 FROG SCREW | 15 HANDLE SCREW |
| 2 PLANE IRON CAP | 6 FROG COMPLETE | 11 HANDLE | 16 BOTTOM |
| 3 CAP SCREW | 7 Y ADJUSTING LEVER | 12 KNOB | 46 FROG ADJUSTING SCREW |
| | 8 ADJUSTING NUT | 13 HANDLE BOLT & NUT | |

Chisels

- Very important woodworking tool
- Available in widths from 3mm to 38mm
- Common sizes here in the room are 6, 12, 18 and 25mm
- Safety:
 - When using a chisel all parts of the body should be behind the cutting edge



Firmer Chisel



Mortise Chisel

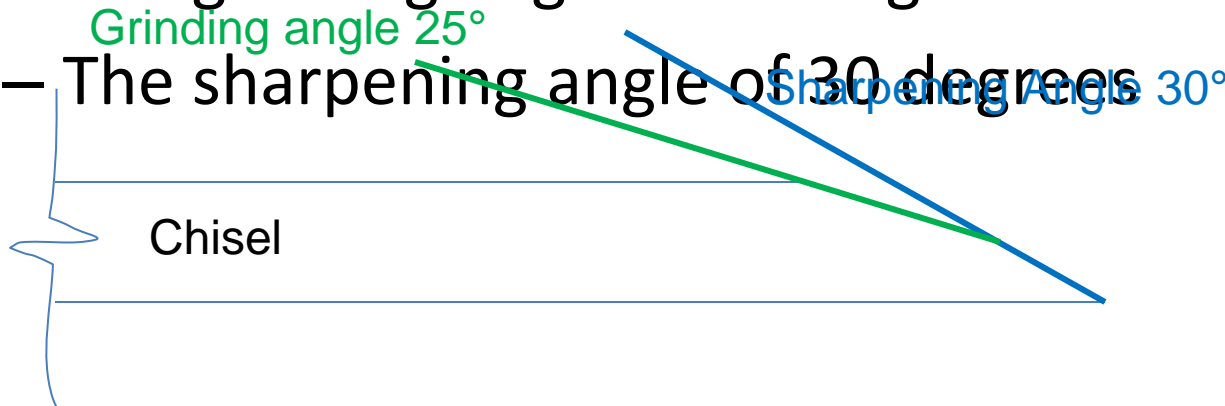


Bevel Edged Chisel



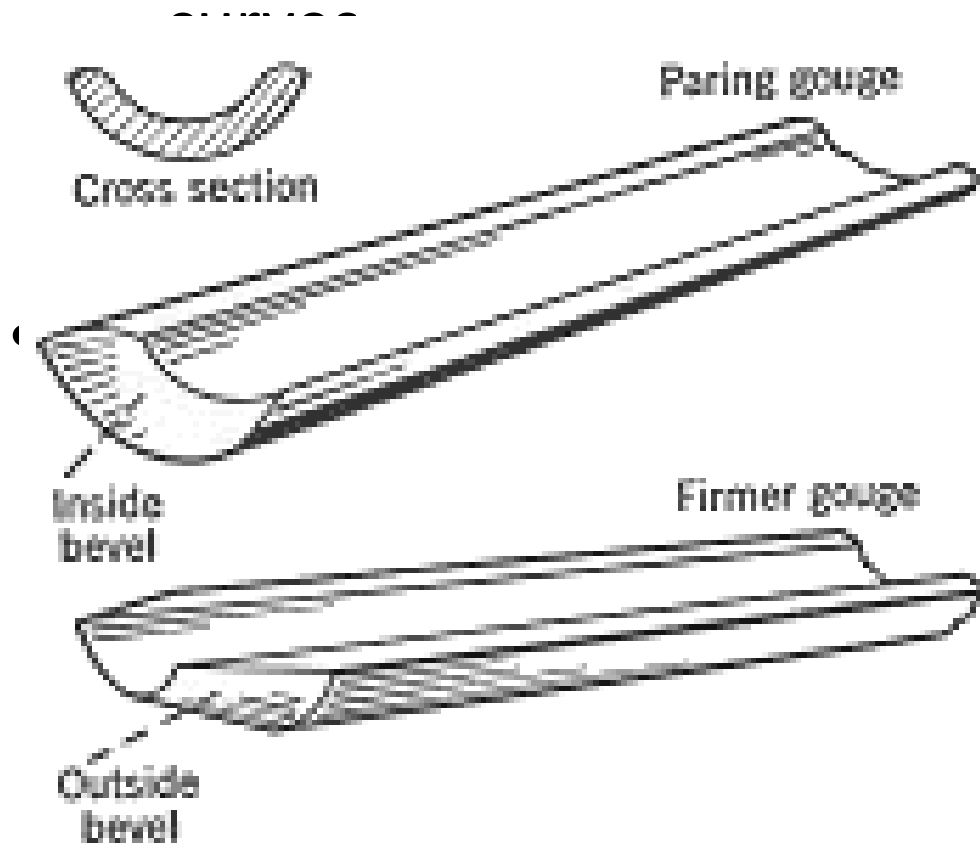
Grinding and sharpening

- When a chisel or plane gets blunt it has to be sharpened.
- Sometimes it has to be ground back before it can be sharpened
- There are two angles to remember
 - The grinding angle of 25 degrees
 - The sharpening angle of 30 degrees



Gouges

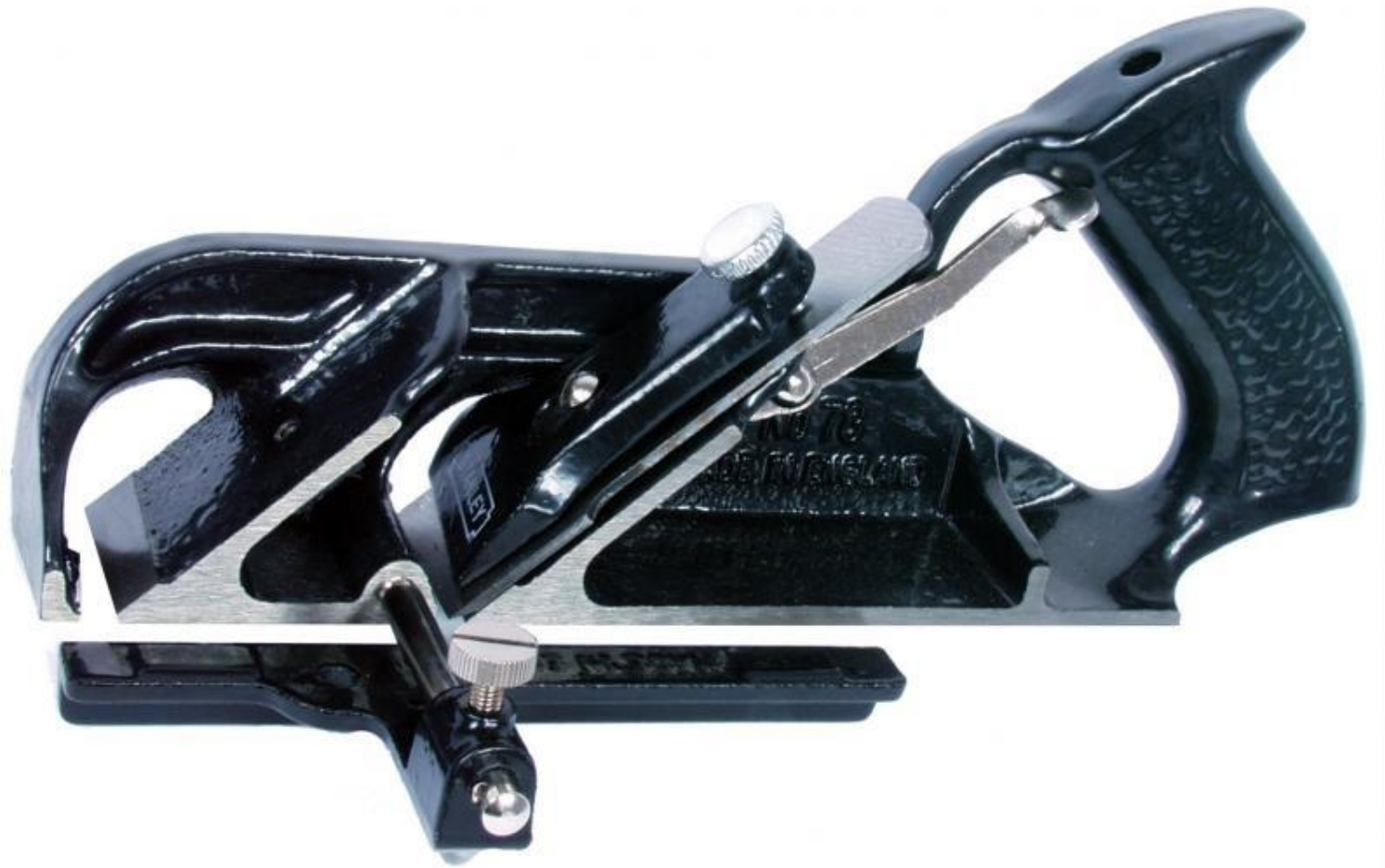
- Gouges are similar to the chisel but with a curved blade
 - The Paring gouge is ground inside for concave



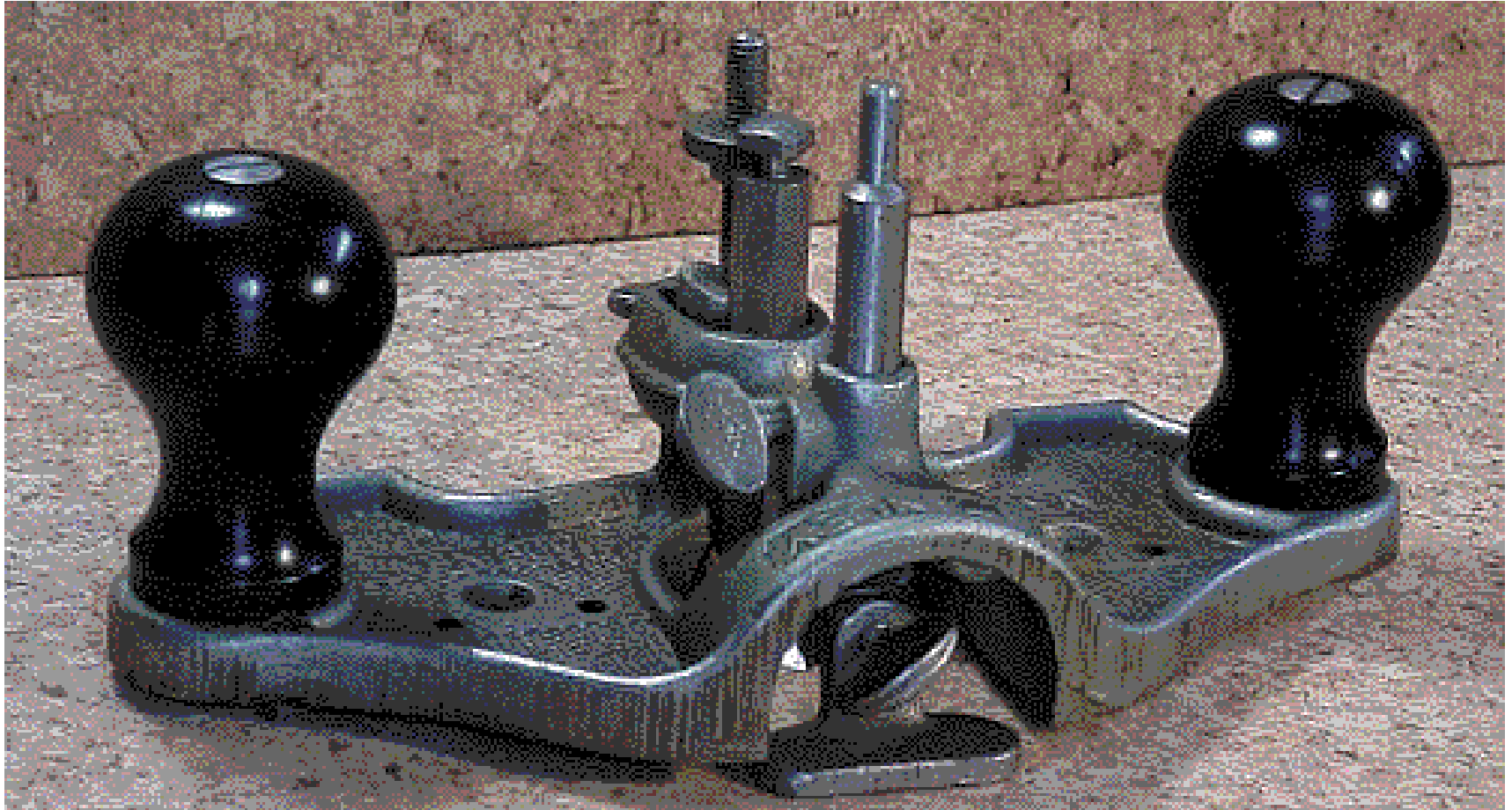
outside for paring
ing an oilstone



OTHER PLANES



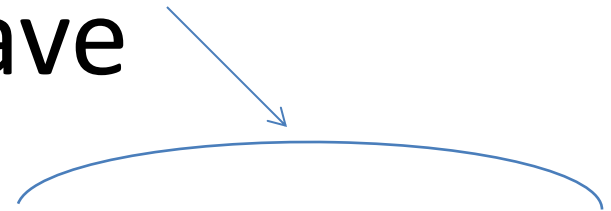
The Hand Router



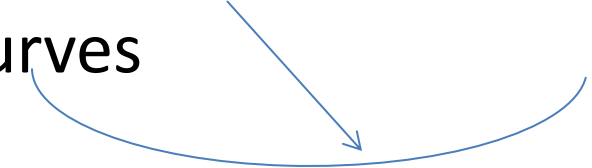
The Spokeshave

- There are two types:
 - The curved type is for concave curves
 - The flat type is for convex curves

Convex Curve



Concave Curve



Top View

- Surform

- Rasp

- File

ABRASIVE TOOLS

Surform

- A cross between a file and a plane
- Used to shape and sculpt wood and plastic
- Do r



Rasp

- Similar to a file but has rougher teeth



F

- Use
- d for shaping plastics and metals
- Available with rough or smooth teeth



- Types:



- Flat



- Half round



- Three square

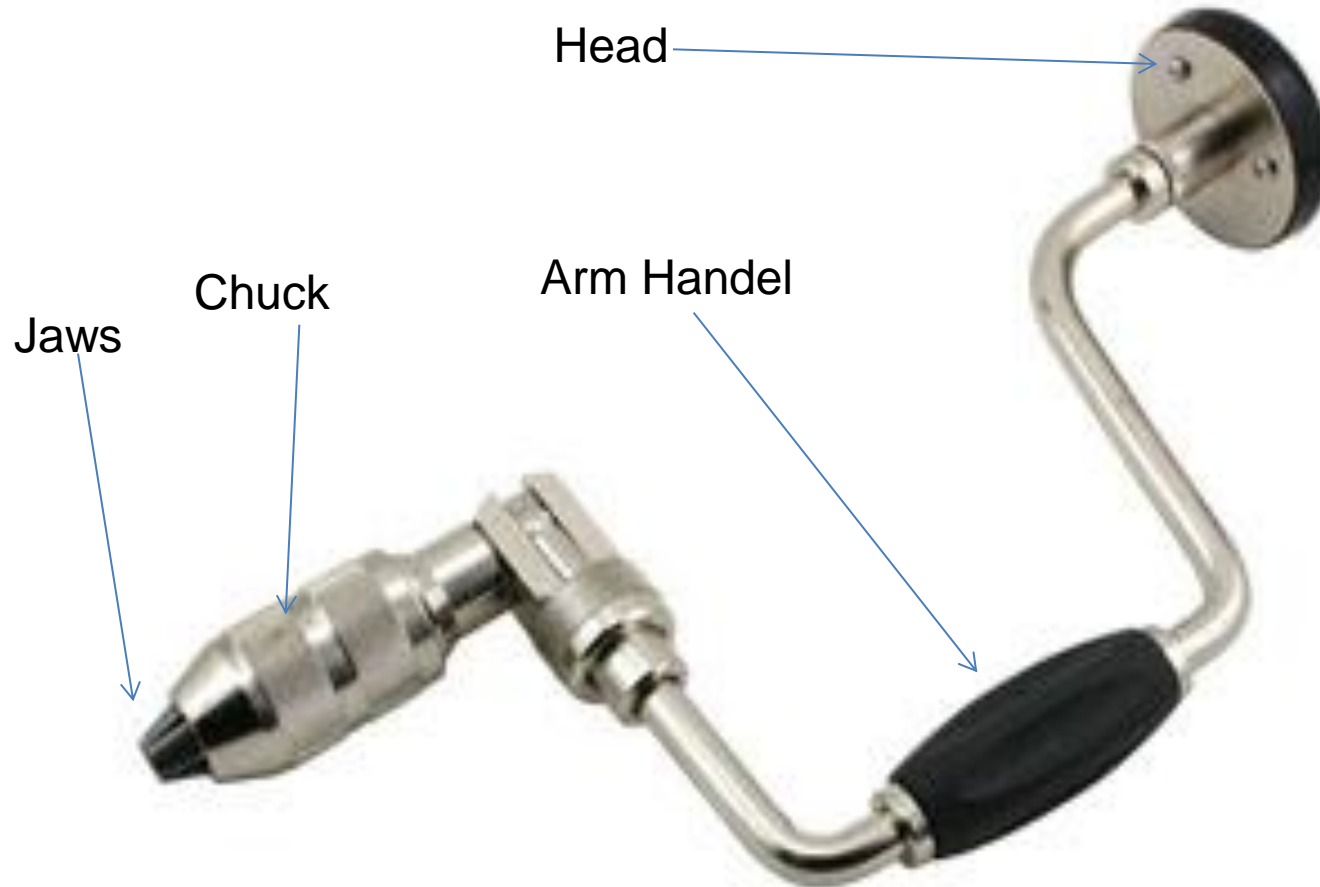


- Square

BORING TOOLS

Bit and Brace

- Trad



Auger drill bit



Forstner Drill bit



Twist drill bit and Flat drill bit



Hole Saw



Countersink Bit

- Used to set the head of the screw below the surface of the wood

