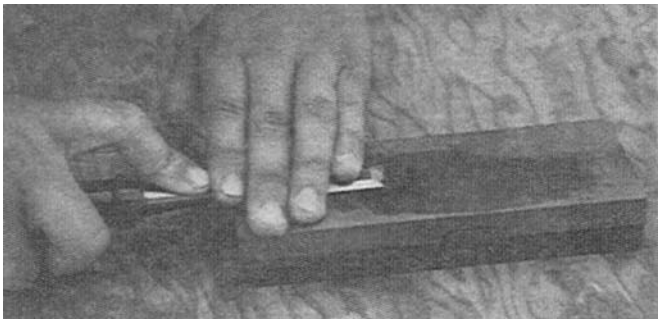


Safety Notes for Using Plane Irons

Make sure the cutting edge on plane irons stays sharp. Dull blades can be dangerous.

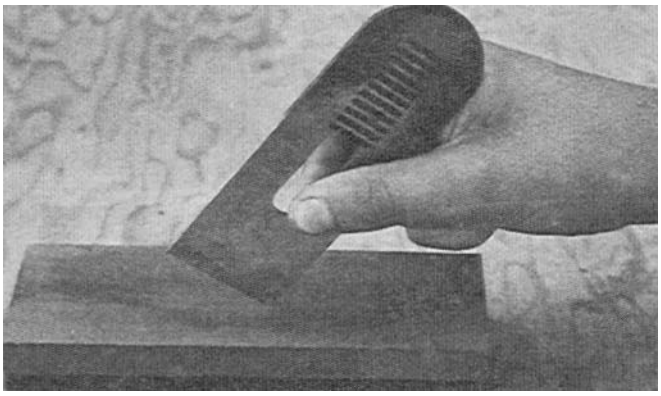
Make sure the work to be planed is securely fastened or held with a clamp to avoid slippage.

After whetting the bevel edge on the oil stone, remove the wire or feather edge. Turn the chisel over and hold the flat side flat on the oil stone. Move the chisel back and forth a couple of times in this position.

Now look at the cutting edge. If you see a nick or a shiny edge of bluntness, whet both sides again. Make a small cut in a piece of wood before taking a final look.

Use dulls the cutting edge. When it becomes dull, sharpen by whetting as described. The whetting process can be repeated until the bevel becomes too short and thick. Then, grind for the correct angle.

Plane marks show less on a finished surface if the corners of the plane iron are slightly rounded. This can be accomplished by additional honing at the edges or just stroking the corner in a circular motion as illustrated.



Power Tools

Bench Grinder

The bench grinder is used for sharpening woodworking tools. Chisels, plane irons, and screwdrivers can all be sharpened on the bench grinder. The simplest kind of grinder is turned by hand, but most of today's grinders are operated by electricity. This grinder is mounted on a bench and is equipped with a grinding wheel, wire brush wheel, and buffing wheel.

There are several different types of grinders. Your parent or leader may be able to explain them in further detail. Anyone interested in buying a grinder should compare cost, size, and quality of the various types. Ask your parent or leader for help. Be sure to look for sturdy construction, guards for the grinding wheels, adjustable tool rests, and safety eye shields.

Grinder Wheel Dressing

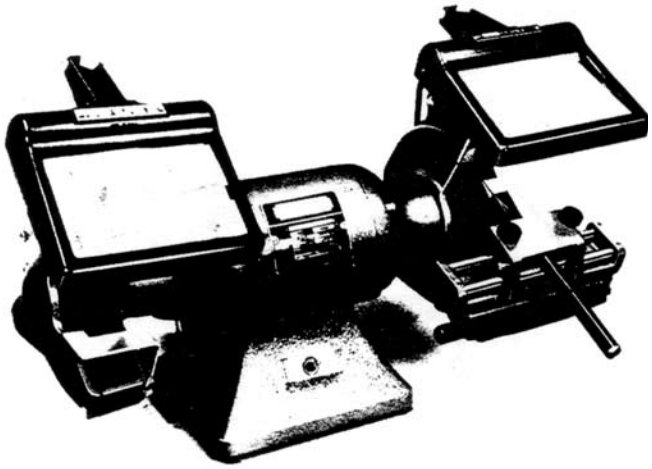
The grinding wheels should be dressed regularly to keep the wheels round, grinding surface flat or even, and to remove glaze. Either a steel cutter wheel dresser or carbide wheel dresser can be used.

Support the dresser on the tool rest and hold it firmly against the grinding wheel while it is operating at full speed. Move the dresser back and forth across the surface. Do not remove more of the grinding wheel than is necessary. Exert just enough pressure on the steel wheel dresser so that the dresser is cutting the wheel. If you see sparks when using the steel dresser wheel, apply more pressure. When the proper pressure is exerted on a carbide wheel dresser, there are sparks at the area of contact between the dresser and the wheel.

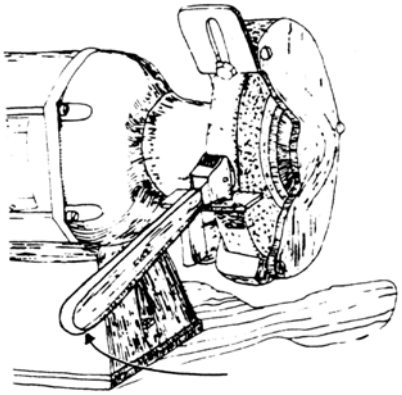
Grinder Operation and Safety

- It is important to protect your eyes when operating a high speed grinder. Pieces of metal and abrasive wheel particles fly from the grinding wheel when it is in use. These particles may injure unprotected eyes. Provide yourself with a pair of safety goggles and use them.

- Operate the wheel only at speeds recommended by the manufacturer.
- Keep the tool rest adjusted and close to the grinding wheel. The distance from the wheel should not exceed ⅛".
- Keep the grinding wheel round with the proper shaped working face by frequent dressing.
- Do not exert a side pressure on the grinding wheel by making a heavy cut on the side of the wheel.
- Do not grind with the wheel before it has reached operating speed or while it is coasting to a stop.
- Whenever possible, avoid standing directly in line of the grinding wheel rotation.



Bench grinder self-contained



Dressing a grinding wheel

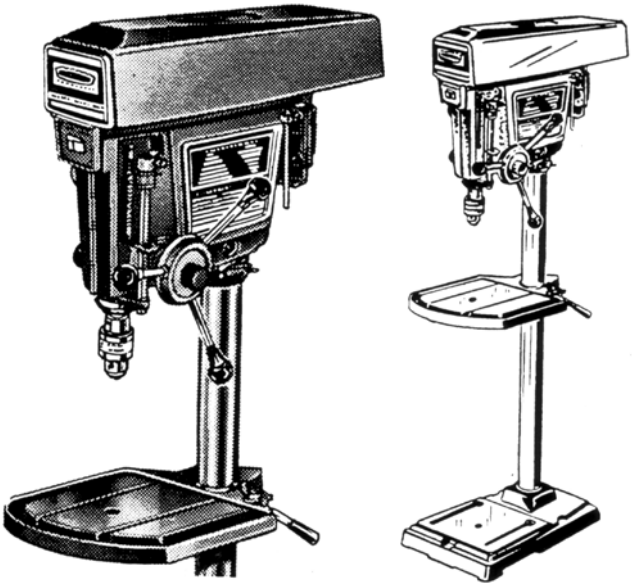
Drill Press

The drill press is a power machine that has many uses. With proper attachments, it can be used for drilling, routing, sanding, mortising, shaping, carving, cutting dovetails, buffing, wire brushing, and grinding.

There are two basic types of drill presses: the **bench** type and the **upright** type. These are basically the same, the difference being in the mounting. As the name suggests, the benchtype drill press is mounted on a work bench and the upright type is mounted on a pedestal which stands on the floor.

Drill presses come in a number of sizes and use a wide variety of bits. Those most commonly found in shops have the capacity to drill holes up to 1 inch in diameter, using the proper bits.

If you have the machine, study the operator's manual and instruction book.



Belt Sander

A belt sander quickly sands large surfaces such as floors, walls, and planks. It can erase scratches or smooth uneven workmanship. The belt sander also works well on furniture made of solid lumber, but it is not suited to sanding furniture made from veneer plywood.

The cutting action is done by a sanding belt which runs over two pulleys. The work capacity of this sander depends upon its size and belt speed. These are either noted on the machine itself or in the literature that accompanies the machine. For very small pieces of wood, the belt sander may not be a safe tool to use.

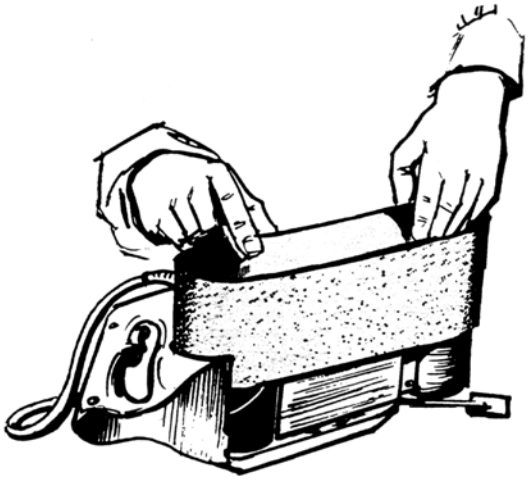
The **size** is listed as the width of the belt that fits the sander. Common belt sizes are 3 x 18, 3 x 21, 3 x 24, 4 x 21, and 4 x 24 inches. Generally, the larger the sander, the greater the work capacity.

The **speeds** of the belts on different models range from 900 to 1,600 surface feet per minute (SFPM). The greater the SFPM, the greater the work capacity of the machine and the swiftness of the sander.

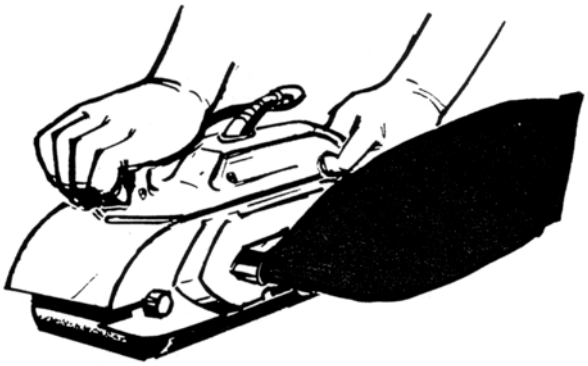
Belt changing. To change a sander belt, consult your instruction book. It is a simple operation to do. If you are buying a sander, ask the salesman to demonstrate belt changing, then try it yourself.

Dust collection. A belt sander produces large quantities of dust and waste from the work surface, so a system of dust collection is recommended. You can use a built-in dust bag, a bag bought separately that can be attached as required, or a flexible accessory hose that connects to a vacuum cleaner.

Belt Sander



Changing the Belt



Accessory Dust Bag