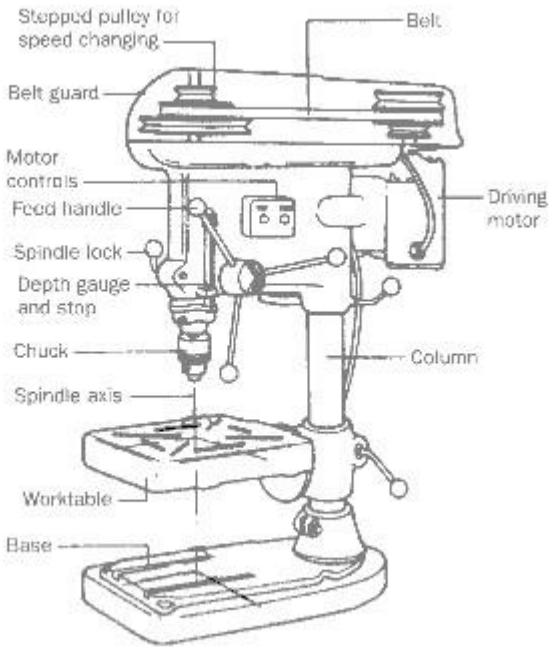
EXPERIMENT NO.10

OBJECTIVE: Drilling holes using drilling machine

APPARATUS: Drilling machine

THEORY: When drilling a hole using a hand or power drill, it can be tricky to drill the hole at a right angle to the work. Drills often have a level incorporated into the drill housing, but usually this requires good vision to read. There are, however, several techniques that persons with low vision or no vision use which can make drilling quite accurate. These techniques include:

Drill guides in a range of diameters are available from hardware stores or building supply centers. Placing the guide on the surface of the work to be drilled and inserting the bit through the guide makes it possible to drill a hole straight into the work. If you have access to a drill press, you can make a set of drill guides yourself by drilling holes of different diameters into small blocks of wood. These work just like the drill guides described above. If you don't have access to a drill press, you might ask a sighted friend to make drill guides using a portable drill with a built-in level.



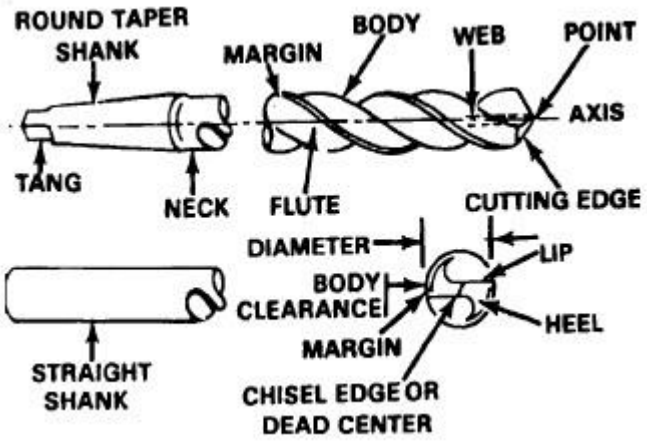
Tip: Over time, the guide hole in the wooden guide may become slightly enlarged, which may make it a bit more difficult to position the drill at exactly a 90 degree angle.

Remove a square or rectangle of wood from a board, creating a right angle; then place the bit into the corner to help align the bit.

Place a large-headed nail with the head down on the surface of the board, and align the bit with the nail by touch.

Use an empty spool of thread or sewing machine bobbin (pictured below). Mark the spot by making a "start hole" with an awl, nail, or ice pick. Place the drill bit through the spool or bobbin and align the point of the bit with the start hole you've created. With the drill in the "off" position, place the flat end of the spool or bobbin firmly against the surface and hold it in place with pliers. Please note: Do not use your hands to hold the spool in place. With the drill and spool in this position, start the drill – and your hole will be straight/perpendicular with the surface.

TWIST DRILL: Twist drills are rotary cutting tools normally having two cutting edges and two flutes which are grooves formed in the body to provide cutting lips, to permit the removal of chips and to allow coolant or cutting fluid to reach the cutting action. They are identified by the shank style, straight or taper, then by length, screw machine, jobber or taper length, by the material they are made from and finally by the helix or spiral of the flutes.



Result: Drilling operation has been performed.