

A Quick Look At The Five Basic Drill Press Operations

The Drill Press is an extremely versatile machine. It will help you bore precise holes that are exactly perpendicular to your workpiece surface or edge – or at an ensured accurate angle, time-after-time. It's also extremely handy when you need to bore a succession of many holes in the exact same relative position on a series of workpieces. It's an amazing tool with many, many work-saving applications. Let's take a look at the basic Drill Press operations.

For more detailed explanations of the below operations, visit our January/February, 2001 issue of Shopsmith's on-line "Hands On" Magazine.

- **Through Drilling** is the process of drilling a hole all the way through a workpiece. Place a piece of scrap wood under your

Figure 7-38. Setups are invented to suit particular applications. Once this setup is made, any number of pieces can be accurately drilled.

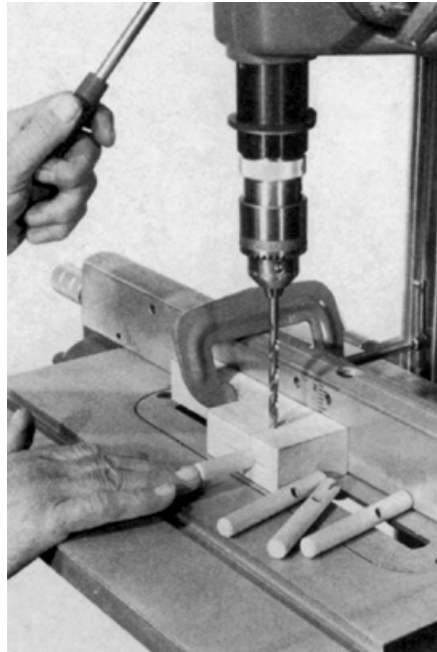


Figure 7-39. Another example of a hole locating setup. Bushings may be placed in drill guide holes to assure that holes will not become distorted by repetitive drilling. Bushings must be used when drilling metal.

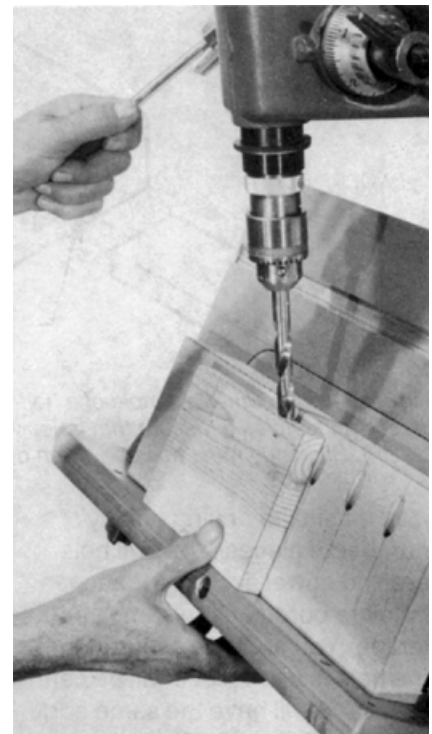
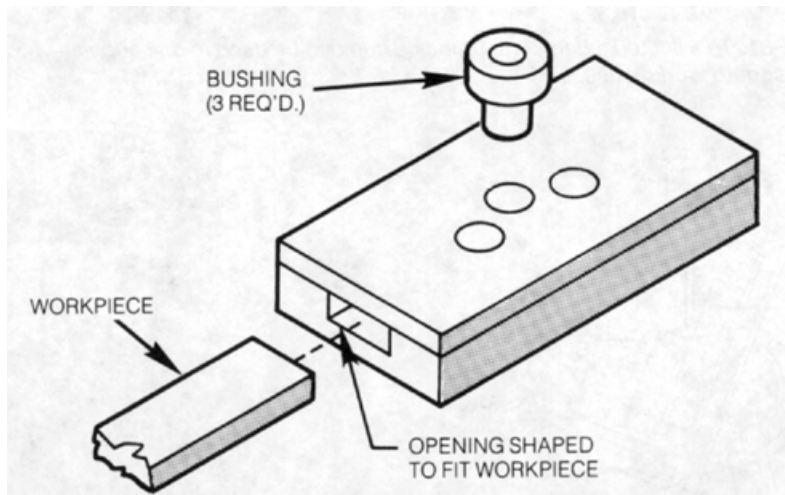


Figure 7-33. Use your Rip Fence as a holding jig and a scrap block to prevent bit "wandering" while drilling.

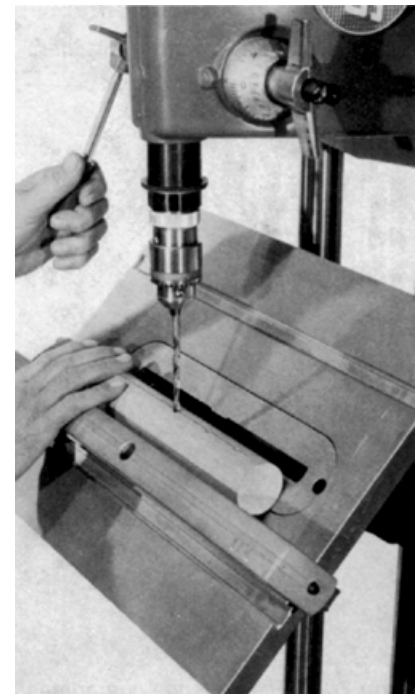


Figure 7-34. The table and the fence, ositioned this way, make a perfect V-block for holding a workpiece that requires diametrically accurate holes. Line the "V" with scrap blocks when drilling holes through the workpiece.

workpiece to protect your worktable and set your Drill Press's depth stop to control the depth of your hole.

- **Stop Drilling** is the process of drilling a hole that does NOT go all the way through your workpiece. Set up for this process in much the same way as for through drilling, setting your Drill Press's depth stop to limit your hole depth.
- **Angle Drilling** is used for operations like boring screw pockets. This is a technique that's often used to attach cabinet face frame rails & stiles together invisibly from the back side. (Fig.7-33)
- **Drilling Round Stock.** Use your Drill Press's worktable and Rip Fence to form a V-Block Jig for holding cylindrical or spindle-shaped workpieces during boring operations. (Fig. 7-34)
- **Jig Drilling** is a process whereby you build a simple jig or fixture to hold a series of workpieces in the same position while you bore holes in them. Jig drilling is the best way to save time and ensure the repeatability and accuracy of holes in repetitive drilling operations. (Fig. 7-38 and Fig. 7-39)

Horizontal Boring

Horizontal Boring is, as it sounds, the process of boring holes in the edges, faces or ends of workpieces with the drill bit approaching the stock from the side, rather than the top. This procedure is most commonly used for doweling operations, but can also be used for drilling workpieces that are too long or wide to be positioned conveniently between a conventional vertical Drill Press worktable and the Drill Chuck. Let's take a quick look at the three most common applications for Horizontal Boring:

- **Doweling** is the most frequently used application for Horizontal Boring. With this operation, the workpiece is laid flat on the worktable surface and the Rip Fence is used as a back-up to prevent the stock from moving while drilling. Mark the locations of your dowel holes on the mating pieces. Set your worktable height so you're drilling at the approximate centerline. **NOTE:** As long as you always keep the top (or bottom) surfaces of ALL boards flat against the tabletop when drilling, it isn't necessary for the holes to be centered perfectly on the edges between the top and bottom surfaces. (Fig.11-6)

Another doweling application involves reinforcing the mitered corners of a cabinet frame or picture frame. In this application, use your Miter Gauge to hold your workpiece in position while you drill your mating dowel holes. (Fig.11-8)

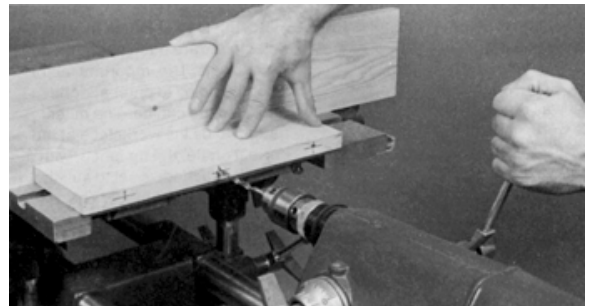


Figure 11-6. Feed the bit into the wood slowly and evenly, maintaining a light, pressure. Sopt when you feel the depth control halt the quill.

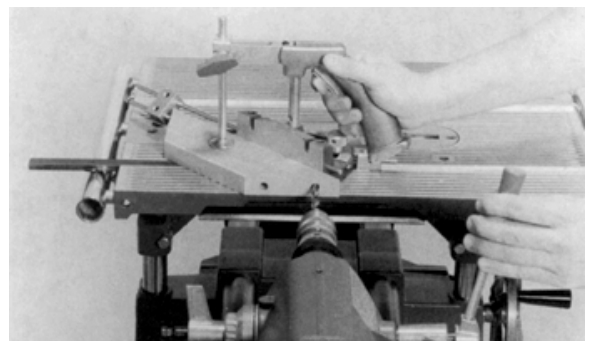


Figure 11-8. You can also bore at an angle by using the miter gauge. The miter gauge stop rod can be used to keep the bit from pushing the stock out of alignment.

- **Jig Boring.** In this application, your workpiece is held in position by a special jig or fixture while you drill your hole. (Fig 11-15)

In our example, a quarter section of a circular project component is held in a jig while dowel holes are drilled in the mating ends.

- **End Boring Long Workpieces.** Sometimes, it's necessary to drill holes in the ends of long workpieces. A couple of examples of this procedure include lamp standards – or joining long or tall turned bedpost sections together. When this is necessary, you can often use your worktable and Miter Gauge to form a jig to hold your stock firmly in position while you drill your hole. However, there are other times when this procedure might not provide the precision you need. In those cases, you may have to craft a special holding jig like the one shown here. (Fig.11-21 and Fig.11-23)

This type of fixture is perfect for drilling centered holes in either round or square stock. **TIP:** If you're boring an extremely deep hole using a 12" or longer bit, use a shorter, conventional bit to keep your initial ("pilot") hole on-track. Drill to the full depth of this bit, then switch over to your longer bit. Your first hole will serve as a guide for keeping your longer bit going straight as you deepen the hole.

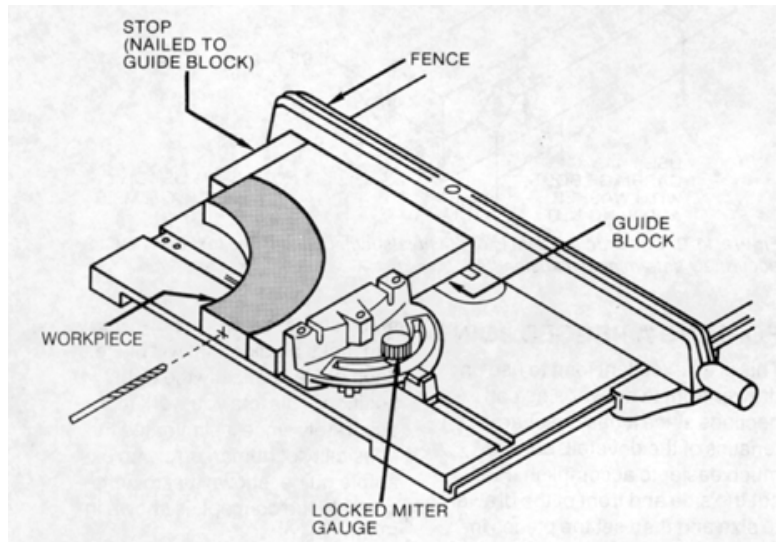


Figure 11-15. An example of a guide used for boring odd-shaped pieces.

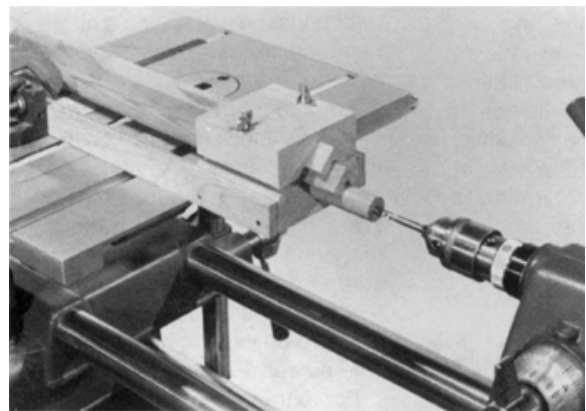


Figure 11-21. An extension V-block is used for extra-long workpieces.

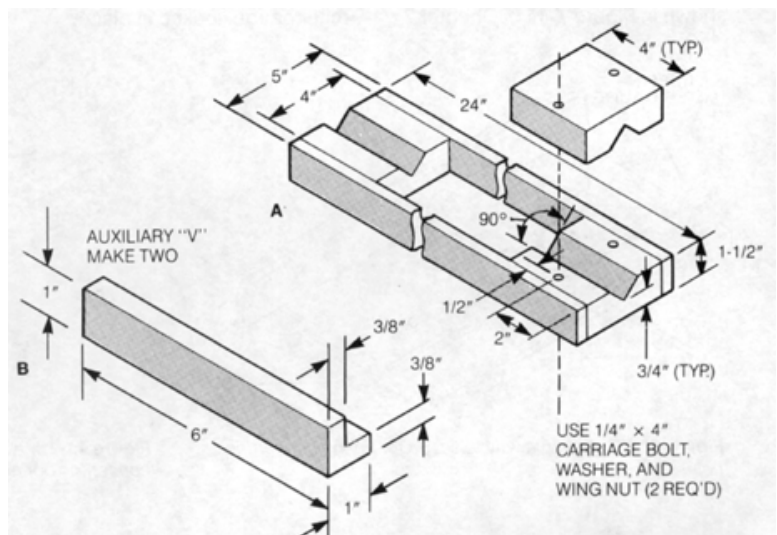


Figure 11-23. Construction details of the (A) extension v-block and (B) the auxiliary V's. The shape needed is actually a rabbet cut.