

Making Multiples

Here are several time-honored “secrets” used by the *Old-Timers* to save hours of work when making several of the same project .

The Letter Box “Money-Makers” project presented elsewhere in this issue makes use of several techniques that will save your time and help you make more than one of a project faster and with far greater repeatability and accuracy than you could hope to achieve without using these techniques. This article will provide some great tips for doing this.

Before you start making anything in your shop, there is one simple ground rule that you should always follow to make your work easier and more efficient...and this rule is especially worthy of consideration if your objective is to make money. That rule is to always keep your shop area uncluttered and well organized. A cluttered, disorganized shop not only slows you down, it makes your work more dangerous, as well.

Tools, fasteners, glue, wood and other important shop items should all be stored in the proper place...wherever you decide that should be. Cabinets, pegboard, parts drawers and convenient storage bins can help you see to it that you spend your time using your tools and supplies rather than looking for them.

If you have a number of Shopsmith Special Purpose Tools (Bandsaw, Jointer, Belt Sander, etc.), the Shopsmith Storage Station will give you a place to keep them out of the way until they’re needed — then roll them over to your MARK V for easier mounting and use.

Once you’ve chosen a project to build, start by making a set of master patterns that you can use to mark out your project components. This eliminates the time-consuming process required to mark out each individual piece separately. Take the time to measure everything very carefully and precisely. If your pattern isn’t accurate, your project will be a disappointment.

When making multiples, never make each one individually from start-to-finish. Instead, start by cutting all the parts for your entire “run” at the same time – using the same machine set-ups, then proceed with the remaining steps in a logical sequence. For example, first bandsaw *all* the pieces for your project at the same time. Then, sand *all* the pieces, drill *all* the pieces, rout *all* the pieces, etc. By using this technique, you’ll cut down on your set-up times, have more productive hours in your shop and actually be able to make *all* the parts for your entire run of projects in just a little more time than it would take you to make just one. It’s true !

So, now that we’ve laid the groundwork, what are the other *secrets* you can use ? Let’s start with the fact that many gift and craft projects require stock that’s less than a standard 3/4" thickness. These days, many Home Centers and lumberyards carry thinned stock...perhaps even in the thicknesses you need. But beware! The prices they ask for this thinned stock can be astronomical. If you have a Bandsaw, you can resaw 3/4" stock to the exact thickness you need...often getting two or three component pieces out of a single piece of wood...and save a bundle in the process (See Fig 1) ! A 5/8" Resawing Blade helps you keep your cuts straight and true when performing this operation.

Pad sawing (See Fig 2) is another technique that will dramatically increase your productivity.

Start by stacking a number of boards on top of one another and taping them together with regular masking tape or a special double-faced, carpet-style tape (link to 755007 in on-line catalog). Be sure your stack isn't thicker than your Bandsaw or Scroll Saw's maximum depth-of-cut. Then, once your boards are taped together, trace your pattern onto the top piece and start cutting. Make your cut slightly outside of your pattern line so you can then Disc Sand or Drum Sand your pieces to their final dimension. This process is much faster than cutting each thin piece separately...plus...your pieces will be more consistent and accurate, as well. **NOTE:** If you're going to be Drum Sanding or Drilling your stack of components once they're cut out, be careful not to make your stacks any higher than your Drum sander is high...or your Drill Bit is long.

Some projects call for cutting tapers. There are a couple of ways to do this. The first is to make and use a fixed taper jig such as the one shown in Fig 3. This jig is used by dropping your workpiece into a cutout area, then guiding the jig's straight side against your Bandsaw or Table Saw Rip Fence .

The second way to cut tapers is with an Adjustable Taper Guide such as the one shown in Fig 4. Since these Guides are fairly large, they're best used for cutting larger workpieces on Table Saws.

Belt or Disc Sanders are great for sanding flat surfaces or corners, but what about concave curves? This is when you need a Drum Sander. However, freehand drum sanding often won't give you the accuracy you need. The Drum Sanding jig shown in Fig 5 will give you the accuracy to sand whatever you need, quickly and accurately. Make the jig by making an auxiliary table top from a sheet of 1/2" to 3/4" thick plywood or hardboard that you can clamp to your Worktable Top. Make a circular disc from a piece of 1/4" hardboard that's exactly the same diameter as your Drum Sander (This disc should be the same, exact thickness as your pattern – if your pattern is 1/8" thick, the Disc should be 1/8" thick). Screw this disc to your auxiliary table top, near the center, then clamp this entire assembly to your Worktable surface so the disc is in perfect alignment with the bottom of your Drum Sander.

Tape your workpiece to your pattern, using double-stick tape. Guide your pattern against the disc, sanding your workpiece to the exact size and shape.

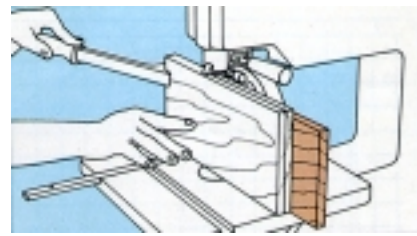


Fig 1: When resawing with an older Shopsmith Bandsaw (cast iron table), use a wooden, shop-made Miter Gauge Extension and remember that it must be exactly parallel to the 5/8" wide blade. If you have a newer Shopsmith Bandsaw (aluminum table) use the Bandsaw Rip Fence. Always use a push stick for the last few inches of your cuts to prevent injury.



Fig 2: To "Pad Saw" your components, stack several pieces of thin stock on top of one another, tape them together and cut them all at once.

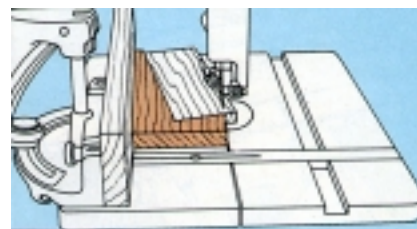


Fig 3: Use a fixed taper jig to cut duplicate tapers without measuring each board.

In addition to cutting and sanding, drilling is another operation that can be streamlined for efficiency. When you need to drill a hole in exactly the same place on a large number of workpieces, use a Stop Block. The block can be attached to your Rip Fence and used in either the Vertical Drill Press or Horizontal Boring Machine mode, as shown in Fig 6.

Plans for a Drilling Stop Block are shown in Fig 7. These blocks are far more convenient than fumbling around with a C-Clamp or Handscrew and a scrap block of wood.

Another option is Shopsmith's Flip-Up Rip Fence Stop (See Fig 8). This handy accessory attaches to the top of your MARK V or Bandsaw Rip Fence and may be instantly adjusted across a wide range of dimensions in a matter of seconds.

Use any of these devices to stop the movement of your stock at various locations along the length of your Rip Fence so you can drill holes with exacting repeatability on a large number of workpieces.

By using the pad sawing technique and any of the adjustable Stops described above, you can also pad drill a number of workpieces all at once in the Horizontal Boring mode of operation by stacking them on the Worktable, against the Rip Fence and your Stop. Be sure to use a backup board to avoid drilling into the fence. (See Fig 9)

Some other invaluable accessories that can help you speed-up the process of building multiples of any project with added efficiency and repeatability include the following:



Fig 4: An Adjustable Taper Guide in use.

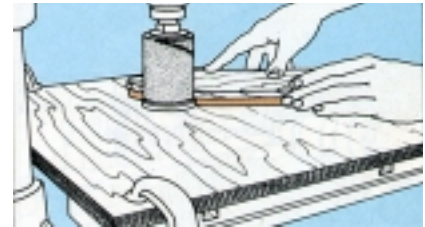


Fig 5: Use the Drum Sanding Jig with your master pattern to sand duplicate shapes accurately.



Fig 6: The Stop Block eliminates the need for you to mark each hole individually before you drill.



Fig 7: Plans for the adjustable sliding Stop Block.

Fig 8: Shopsmith's Flip-Up Rip Fence Stop

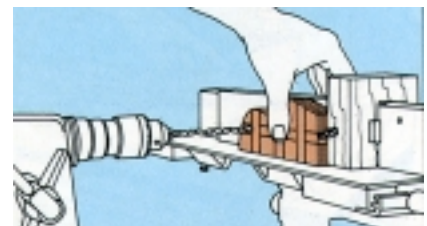
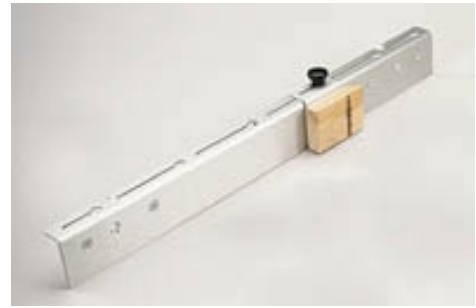


Fig 9: Apply the pad sawing technique to drilling so you can pad drill.

- Shopsmith's 24" Miter Gauge Extension Face. Just attach it to your Miter Gauge, then slide the adjustable stop to where you need it and lock it into position with a quick twist of a single knob. It's perfect for making identical length cross cuts and miter cuts.



- A budget-priced option to the Miter Gauge Extension Face is Shopsmith's Miter Gauge Stop Rod. It performs exactly the same function as the Extension Face, except with a reduced range of adjustment.



- If you're planning to cut a large number of 45-degree miters, you might want to consider adding the Shopsmith Miter Pro to your tool collection. It also includes a built-in Stop for cutting identical length pieces and is permanently set at an exact 90-degree angle for perfect-fitting miters every time.



- If your project calls for lathe turnings, you should consider Shopsmith's easy-to-use Lathe Duplicator. It will help you turn a series of identical table legs, chair back spindles, newel posts, stair railings, bowls, goblets or virtually any turned object with amazing speed and ease.



By using the jigs, fixtures and techniques described here, you'll be making multiple gifts and craft items for sale faster and with less effort and fewer mistakes that you could without them.