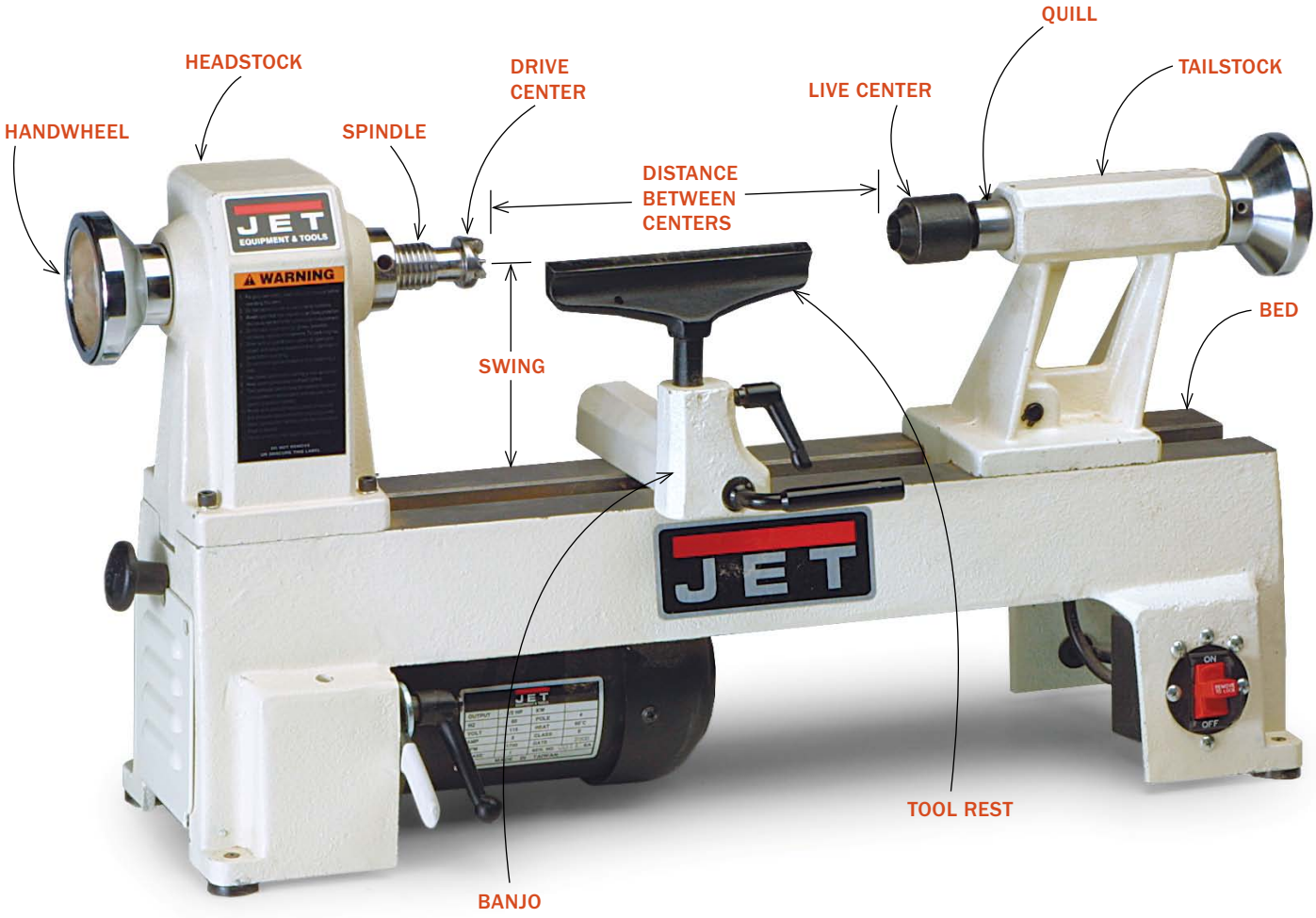
The language of turning

DEMYSTIFYING ONE OF WOODWORKING'S OLDEST TRADITIONS

BY MIKE MAHONEY



Wood turning is one of the fastest-growing segments in the realm of woodworking-related hobbies, but to get started, you must understand all the unique equipment, tools, and terminology turners use. That can be daunting. Here I'll walk you through the essentials, starting with the lathe.

Understanding the lathe

The wood lathe is a fairly simple machine with only a few moving parts. Different-size machines are available, from mini and midi benchtop models to monstrous floor-standing beasts. A lathe's physical dimensions correspond directly to its swing and distance between centers, which describe the maximum diameter and length, respectively, of material it can handle.

The heart of the lathe is the headstock, which houses the pulleys that attach to the motor and the spindle. The spindle is the threaded section that protrudes from the headstock and holds the work. Spindles typically have a common diameter and thread count so that third-party manufacturers can make chucks and faceplates to fit any lathe. They are typically hollowed to accept Morse-tapered tools such as chucks and drive centers.

Most turning is done on the right, or inboard, side of the headstock. The left, or outboard, side has a handwheel that is used to turn the spindle manually. On some lathes, the handwheel can be removed for outboard turning of bowls and vessels that exceed the swing, or capacity, of the lathe. On some

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*You need to **change speed** based on the project size and material. To do that on most lathes, change the orientation of the belt drive.*

*The **spindle** transfers power. It is the driven portion of the lathe and can accept all manner of accessories, like a chuck (shown) or drive center, via its threaded shaft or Morse taper.*

machines, the headstock can rotate for the same effect.

The tailstock sits opposite the headstock. It consists of a quill, or barrel, hollowed to a Morse taper to accept a variety of centers. It is used to hold work to the headstock when turning spindles between centers, which includes long items like table legs. The tailstock's live center engages an end of a workpiece (spindle) and secures it against the headstock's drive center.

The lathe bed, or ways, is the track that aligns the headstock and tailstock. The tailstock slides back and forth in line with the headstock to change the distance between centers.

The tool rest supports hand tools while turning and is attached to the bed via the banjo. It's fully adjustable between the head- and tailstock to provide a stable work surface in any position.

A look at accessories

In addition to the basic components of the lathe, there are a host of other attachments with specific purposes. These include faceplates, four-jaw chucks, vacuum chucks, drive centers, and steady rests.

Many lathes come with a faceplate, which attaches to the spindle. The work is screwed to the faceplate from behind, then mounted on the spindle. The faceplate is used when turning bowls and other wide, flat pieces.

*A term integral to making spindles, **turning between centers** refers to turning an item captured between a drive center on the headstock and the live or dead center on the tailstock.*

***Drive centers** mount on the spindle and drive the work through a center point and gripping spurs.*

*Mounted in the quill, **live centers** spin with the workpiece and apply pressure via a hand screw against the drive center. A live center rotates on bearings with the workpiece while a dead center remains stationary.*

*Some lathes allow **outboard turning** of oversize bowls and vessels on the other side of the headstock, where the bed won't interfere.*

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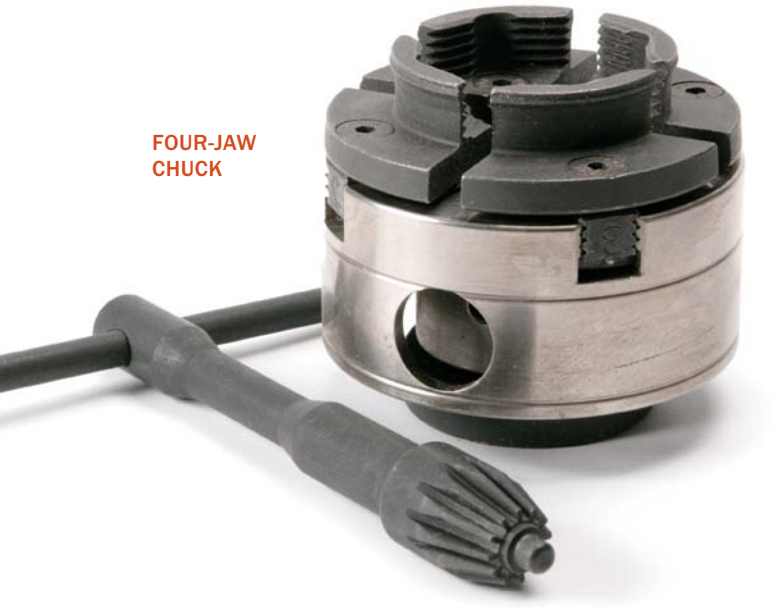


FOUR-JAW CHUCK

Chucks grab onto a turned piece, most commonly bowls and vessels, and allow the face to be turned without the tailstock intruding. A four-jaw chuck grips a tenon or mortise that is carved by the turner or otherwise attached to the workpiece. Its scrolling action allows it to grab a range of stock sizes and shapes, making it a convenient way to hold work whether between centers or off the headstock only.

A vacuum chuck is similar to a faceplate in that it is used to hold the piece flat to the headstock for face-grain turning. Unlike the fasteners used with the faceplate, the vacuum chuck uses atmospheric pressure, via a vacuum, to hold the piece.

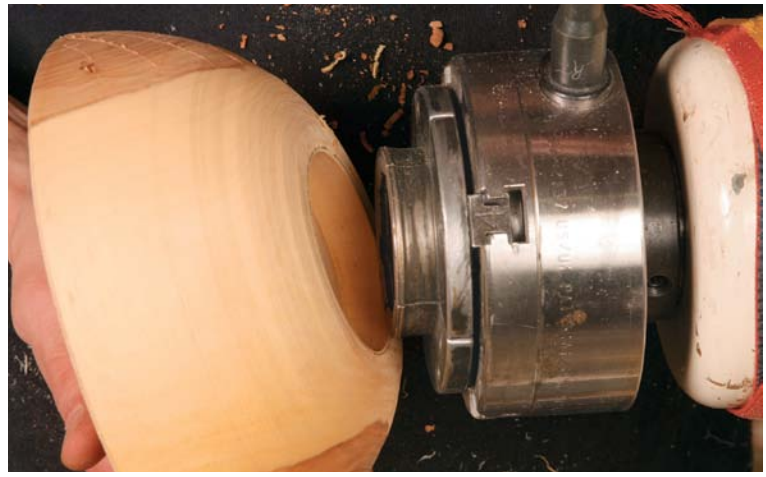
Drive centers mount on the spindle and drive the work through a center point and gripping spurs, hence the nickname "spur drives." Typically used to turn spindles and other longer pieces, these centers are pressed into the workpiece where the spurs engage the piece.

A steady rest supports the spinning work to keep vibration from causing chatter, a catch, or a piece that comes loose. When a tool skips across the workpiece and mars the surface, it's called chatter. A catch occurs when the tool bites too deeply and gets sucked into the piece. A steady rest mounts to the bed and uses adjustable rollers to engage the workpiece—whether it's a long spindle or a bowl—and dampen vibrations.

Tools of the craft

Turning tools may look like standard bench tools, but they are each specialized to do a specific set of tasks.

Gouges are similar in shape to traditional carving tools, with a bevel cut into the underside of a flute. They are used bevel down to take shavings as the piece rotates on the lathe. A bowl gouge has deep flutes and is typically used for face grain and bowls. A spindle gouge has shallow flutes and a long grind to get into tight spaces, usually



*Much like a faceplate (below), **four-jaw chucks** are an alternative holding method. They grab the bowl or vessel with clamping jaws, either grabbing onto a turned tenon (top) or expanding into a turned mortise (above).*

*Bowls and vessels also can be turned using a **faceplate,** which screws to the face of a blank and mounts to the headstock spindle.*

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when making beads, coves, and other details found in spindle work.

A skew chisel is used in spindle turning to plane, roll beads, make V-cuts, and scrape. A round-nose scraper is a flat bar with a rounded end that has a steep, beveled edge sharpened into it. It is used to level and smooth tool marks. A parting tool is a double-beveled tool used upright in the tool rest to part or cut off the work from a spindle.

With the lathe spinning

Most work on the lathe can be broken down into two categories: spindle turning and hollow turning. Spindle turning, as its name implies, refers to turning long pieces between centers. Hollow turning refers to turning vessels and bowls, usually using a chuck or faceplate that allows access to the end of the piece so that the hollow can be turned into it.

There is a lot involved in the actual work of turning, but the cuts can be broken down into four basic types: beads, coves, chamfers, and pommels. Beads are protruding round surfaces on turnings; coves are the opposite, concave surfaces cut into the turning. A chamfer is a transitional straight edge between two surfaces, usually sloping in a straight line. A pommel is the point where a spindle transitions from round to square. □

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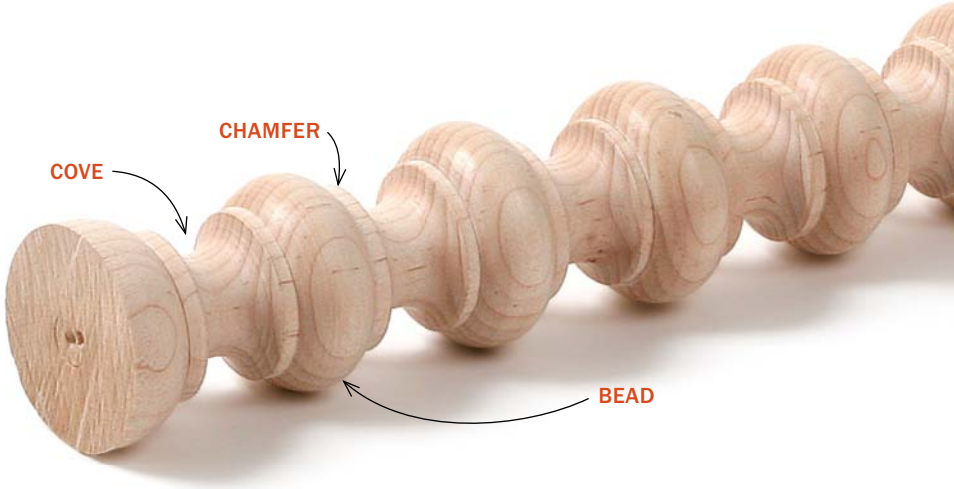
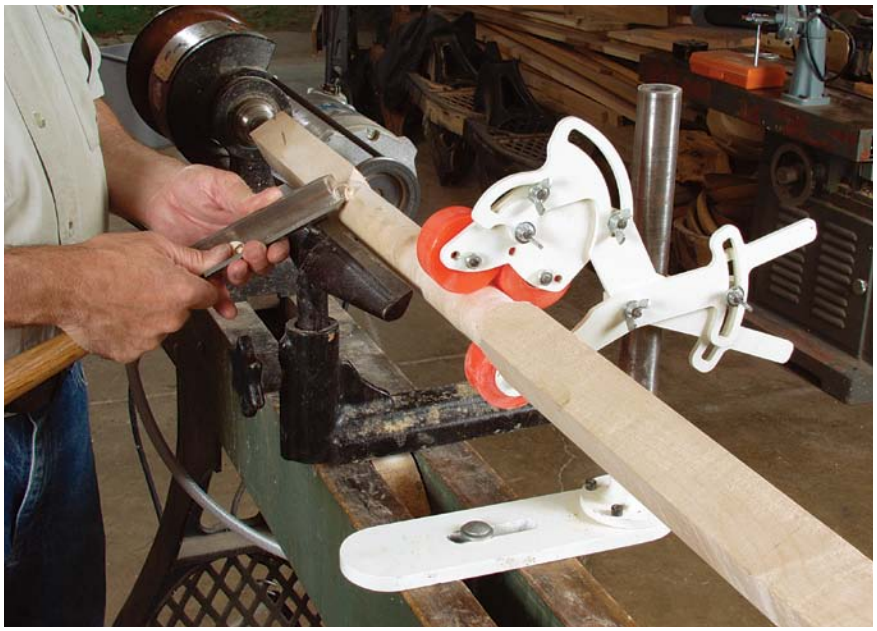


***Beads** are the raised and rounded portions of a spindle. **Coves** are the hollowed portions.*

***Catches** are something every learning wood turner has experienced. At the very least, they will ruin the spindle or bowl, if not ejecting the piece entirely from the lathe.*

*The **pommel** is the point where a piece transitions from a round surface to a square one.*



***Steady rest.** Especially in long spindle work, a steady rest can be used to help dampen any vibrations.*

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