

# Cross-grained wheels

easiest to turn with the skew chisel long point, keeping the tool flat on the rest.

## How to turn cross-grained wheels

If you cut cross-grained wheel blanks from dimensioned boards with parallel faces and drill the axle hole square to the faces, then you can easily turn the wheels between cones. Simply bring them down to size and round the edges. However, if you want to add details to the wheels, it's better to use a screw chuck.

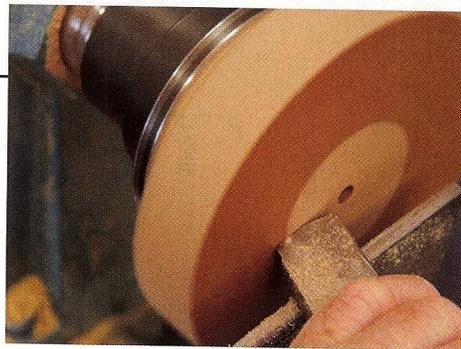
**True up the face**—Check that it's slightly concave, so it will sit firmly against the chuck when you reverse it. A skewed scraper is the best tool to use if the face is already reasonably flat. Otherwise, a bowl or spindle gouge is a better option.

I marked lines for the details by measuring from the diameter marked with dividers. To turn the detail, I used a skew chisel flat on the rest like a scraper. With the details cut, sand and finish this face.

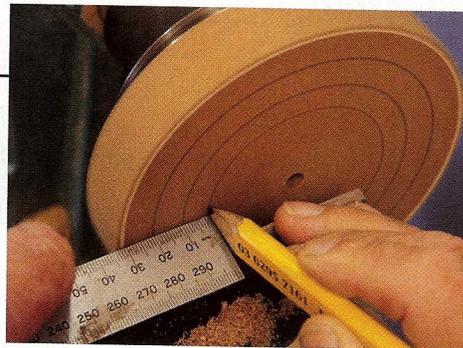
**Reverse the blank**—Lay out the width of the wheel, working from the face against the chuck. But before you bring the wheel down to size, true the face back to the desired thickness using a scraper.

**Lay out the diameter**—Use a gouge to cut in from either face, then refine the surface by shear-scraping with a scraper held at an angle.

**Round over the rims**—Use a spindle gouge as a shear scraper, holding it on its side with the flute facing the wood you are cutting. Stroke the surface with small arc-



**True the face.** Begin by making the face slightly concave, so that it will fit snugly against the chuck when you reverse it. Use a ruler to check the profile.



**Lay out details.** Mark the diameter with dividers, then measure from that line to locate details for the wheels. Turn them with a square-end scraper or a skew held like a scraper.



### Fixing tearout.

If you get tearout around an axle hole, remove it by first marking the area to be turned out. Then use a square-end scraper to bore in far enough to leave a clean surface. You'll need to include this detail on every wheel in the set.

### Screw chuck.

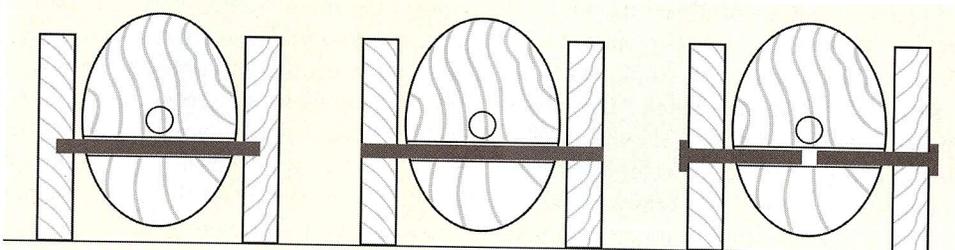
Reverse the wheel, so that the finished side faces the screw chuck.

ing cuts, which you make by dropping the tool handle slightly. Mirror the cut for the other corner. Sand and finish everything you didn't do earlier. □

*Richard Raffan is a renowned Australian woodturner. This article is adapted from his new book, Turning Toys (The Taunton Press, 2013).*

## AXLE OPTIONS

The neatest option is the stopped axle, which passes through the body of the toy and fits into stopped holes in the wheels. Nearly as good is the through-axle, although the ends must be sanded flush with the wheels. The pin axle has less strength and requires more work at the lathe, turning the two short axles with hubs.



A. Single stopped axle rotates with wheels.

B. Single through-axle rotates with wheels.

C. Hubs on pins. Wheels rotate on axle.

