# WESTERN CAPE WOODTURNERS ASSOCIATION

## NEWSLETTER : JANUARY 2026

The Western Cape Woodturners Association is a group of folk with a common interest in woodturning and wood.

We aim to promote the art of turning wood and to create awareness of this craft in the community and encourage young members to join the fellowship.

Members meet every Wednesday at 6.30pm to do " hands-on " turning and get instruction and help.

The venue is the Pinelands Hobbies Club, Nursery Way, Pinelands, Cape Town.

The Formal Meeting is on the 3rd Wednesday of the month at 7pm.

Visitors are welcome .

**JANUARY 2026:**

The main meeting on 21st January is still to be decided.
Remember the raffle.


WISHING ALL THE WCWA MEMBERS A TROUBLE-FREE AND CREATIVE

**2026**

**Western Cape Woodturners Association Committee :**

| | | |
|---|---|---|
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**EDITOR'S NOTE :**

I would like to mention a quote by Bill Jones, a British turner who was still actively turning at the age of 90 :

" I have read of many candidates for the ' best turner in the world ' award, but how absurd and invidious such an award would be when so many different kinds of turnery exist, each exemplifying different skills.

Some projects must be exactly what the poet had in mind when he wrote:

Some genius has ' wrested from the muse '
A strange new work that in its novelty
Arrests the glance and makes us take it up
And handle it, admiring its quaint charm.

Foreword to Woodturning Wizardry by David Springett

This month I have started the new year with some articles on projects ( albeit rather complex and needing not only turnery ) to build your own chuck for elliptical turning, and how to make a wooden Morse Taper spigot, which can be put to many uses.( See also WCWA Newsletter Tip on Page 6, October 2020)

## Birthdays in January :

Best Wishes to you all for your birthdays in January :

Doug Bruce-Brand, Karen Mostert, Alp Numanoglu,

Candace Philpott, Hugh Scholtz,

Juri van den Heever, and Carl Woermann .


Our grateful thanks to The American Association of Woodturners, American Woodturner & Woodturner magazines and authors :- David Springett, Wolfgang Malcherek and Jim Duxbury for their permission to reprint their articles.

# ELLIPTICAL TURNING

## *on a*

# SHOPMADE CHUCK

David Springett

The shopmade elliptical chuck described here allows you to turn elliptical frames and lidded boxes. It can be adjusted for a range of different ellipses.

**JOURNAL ARCHIVE CONNECTION**


Oval Traditions
A visit to the oldest continuously operating mill in North America

For more on elliptical turning, see "Oval Traditions" (*AW* vol 19, no 2, page 24), a 2004 article in which Alan Lacer describes oval turning at the historic Old Schwamb Mill. AAW members can access all past journal articles online at woodturner.org.

Elliptical, or oval, turning is fascinating and mysterious, yet entirely possible for woodturners using a shopmade chuck on the headstock of a regular wood lathe. The chuck is a fairly complex piece of apparatus (*Figure 1*), but you can make it by following the sequences accompanying this article. You can see the chuck in action in my short video, where you will also hear it vibrating and clattering as it whirls (*see end of this article for links to the video*).

Because of the complex motion of the workpiece, elliptical turning is quite unlike regular turning. There's a lot of noise and vibration. Surprisingly, the cut is constant once you establish the ellipse, not intermittent, provided you take light cuts and hold the tool tight on the rest. The profile is difficult to view while the lathe is running and not all tools will work, since tracing an ellipse involves a long sweeping curve quickly followed by a tighter curve. This tighter curve can trap deep parting tools and interfere with a gouge's bevel, but small scrapers and gouges work well enough, provided the cut stays right at the lathe's center height. ▸

## Elliptical chuck parts

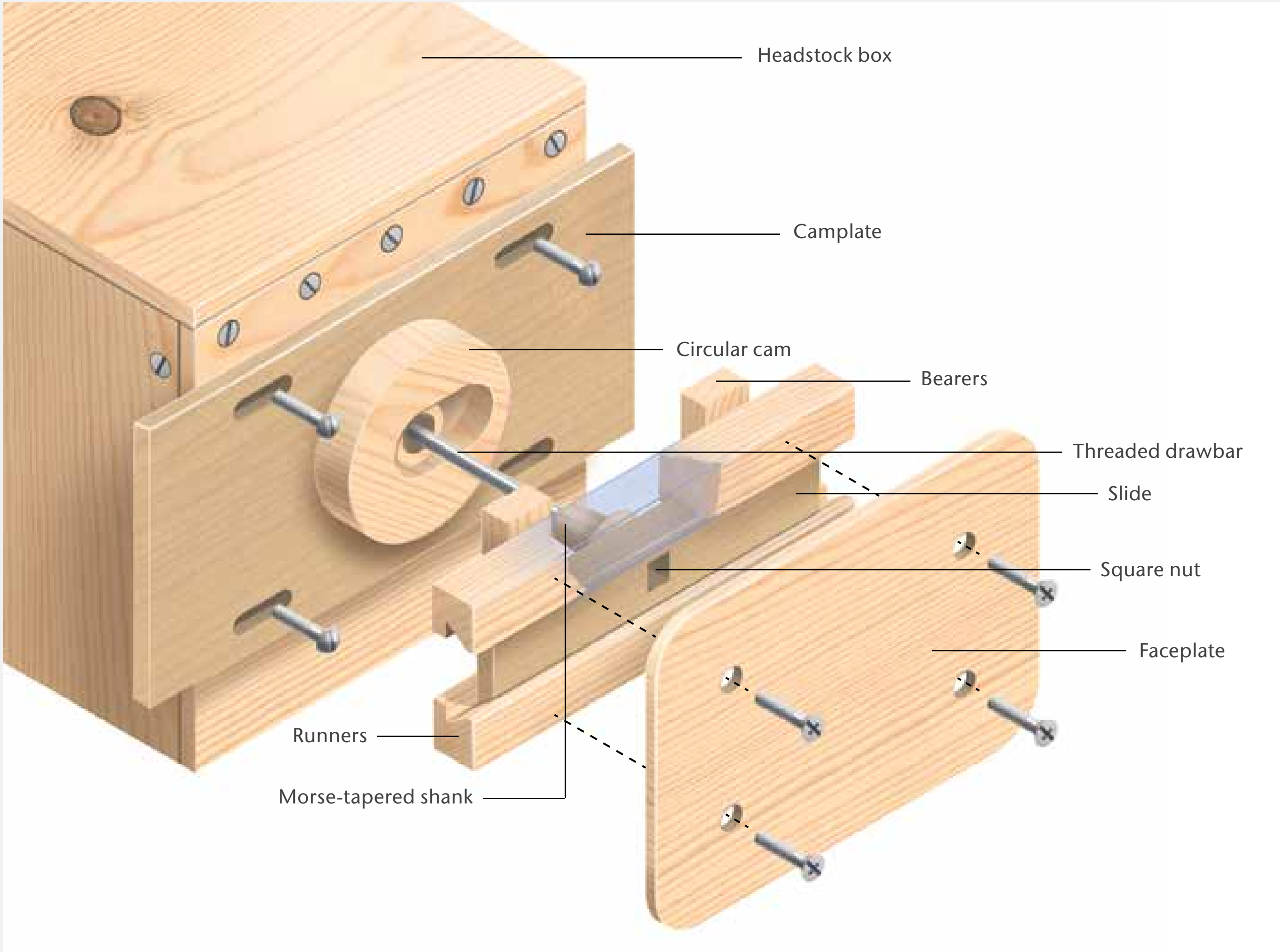



Figure 1.

# Required Materials

Because of the elliptical motion of this shopmade chuck, there is always a risk that something could come apart. That's why, except for fasteners and the threaded rod, the chuck is made entirely of wood, with each piece carefully chosen for its purpose. While you could experiment with making the cam of plywood and Morse-tapered shank of nylon or Delrin®, it would not be safe to introduce metal parts.

**Headstock box:** Dimension to fit your lathe; make of hardwood plywood joined with glued-and-screwed battens.

**Circular cam:** Dense hardwood, 3" (8cm) diameter by ¾" (19mm) thick; choose species to minimize wood movement. Cam shown was oriented end-on, long grain parallel to the lathe axis.

**Camplate:** ¼"- (6mm-) thick hardwood plywood, 9½" × 5" (24cm × 13cm).

**Slide with Morse-tapered shank:** Dense hardwood (I used pau amarello), 6¼" (16cm) long by 3" (7.6cm) by 2" (5cm); make as one piece or join from two pieces.

**Runners:** Glue up four pieces of oak, two 6¼" long by 1¼" (32mm) wide by 11⁄16" (17mm) thick; two 6¼" long by 1¼" wide by ¼" thick.

**Bearers:** Two pieces of oak, 3⅜" (9cm) long by 1⅛" (29mm) wide by ½" (13mm) thick.

**Faceplate:** ¼"-thick hardwood plywood, 7⅝" × 7" (19cm × 18cm).

**Hardware:** Four ¼" pan-head bolts with cross slot for screw-driver, 2" long, with nuts; one 5⁄16" (8mm) threaded rod, 3' (1m) length cut to fit your lathe, with two square nuts; various screws, including several 1"- (25mm-) long #6 flathead steel screws to attach the bearers.

As you'll see in the elliptical frame project on page 34, it is crucial to saw the blank close to finished shape and to mount it securely on the oscillating faceplate—I use newspaper glue joints and hot-melt glue on pre-heated mating surfaces so there is time to position carefully. You will find yourself having to remove a straight line at the center of the work, not the usual circular nub (*Photo 1*), and the line can be difficult to remove. The solution is to keep the edge of the tool cutting at the lathe's center height, which you can locate by shining a level laser line onto the whirling workpiece (*Photo 2*).

The laser solution was devised by the late Prof. Johannes Volmer. If you become seriously interested in elliptical turning, then you must visit his website, volmer---Ovaldrehen.de. He made the most comprehensive study of oval turning and was the designer of the Steinert® picOval lathe, which is capable of turning ellipses at high speed.

## Cut at center height


The edge of the lathe tool must cut at the lathe's center height. Deviation above or below center will create a new pathway and a confusing profile.


Guide the cut by shining a center-height laser line onto the faceplate. The cutting angle may not always be perfect but its position will be.

## How the chuck works

The chucking apparatus consists of a rigid wooden **headstock box** bearing an adjustable **camplate** and an offset **circular cam**. The lathe rotates a **slide** mechanism that drives a pair of **runners** and **bearers** riding the offset cam while carrying a **faceplate** and, ultimately, the **workpiece** (*Figure 1*). The combined rotation of the slide with the back-and-forth action of the runners moves the faceplate on an elliptical path. The farther off center you locate the circular cam, the more pronounced the elliptical shape.

This is an all-wood chuck that efficiently rubs wood on wood. There can be considerable vibration while turning, especially at low speeds, against some risk of burning due to friction at higher speeds. Do not go faster than 500 rpm, and work in short bursts to keep everything cool, including yourself: this work requires intense concentration. And be sure to keep an eye on all screws and fixings while you work; they can easily vibrate loose.

## Making the chuck

Dimension the headstock box to fit your lathe, making sure its front plate is truly vertical and square to the ways. Mine was made from plywood joined with glue, screws, and solid-wood battens. The box holds a wood camplate firmly in place, with the lathe spindle protruding through its center hole, so it must be rigidly clamped to the lathe ways.

The camplate carries a circular cam at center height bolted in place through slotted holes, permitting sideways adjustment to change the major axis of the ellipse. The hardwood cam has an elongated center hole, so it too can be adjusted sideways; the back corner of the camplate might need to be cut away to avoid interfering with the lathe motor. Use the slots in the camplate to mark holes for the fixing bolts on the front of the headstock box.

The slide mechanism consists of a wooden shank Morse-tapered to fit the headstock spindle, driving a rectangular wooden slide with beveled edges. The slide mechanism is fixed directly to the headstock by a threaded drawbar through the lathe's hollow spindle, so it rotates like a propeller. The photo and figure sequence, Slide with Morse-tapered shank, shows the slide mechanism sawn, bored, and turned from one piece of dense hardwood, with the tight drawbar overcoming any short-grain weakness. You could instead make it of two pieces, a Morse-tapered shank tenoned and glued into the slide piece. You would be making the shank of long-grain wood, but you might have to juggle dimensions to set the nut down flush.

A pair of runners mounted on a pair of bearers fits over the slide and can move back and forth along the slide. The bearers

## Headstock box

To lock the front of the headstock box in position, make a simple toggle that can be tightened under the lathe bed.

The front of the headstock box must be vertical and square to the lathe ways. Mark a horizontal line across the face of the box at center height and note how far the spindle projects, as this distance limits the thickness of the cam and bearers.

are screwed to the runners at right angles, parallel to each other and spaced exactly the cam-diameter apart. This keeps them in close contact with the cam as the chuck rotates, creating the elliptical motion. I made these parts from a less-dense hardwood, oak, because they are easier to replace than the slide and are the parts that wear out first.

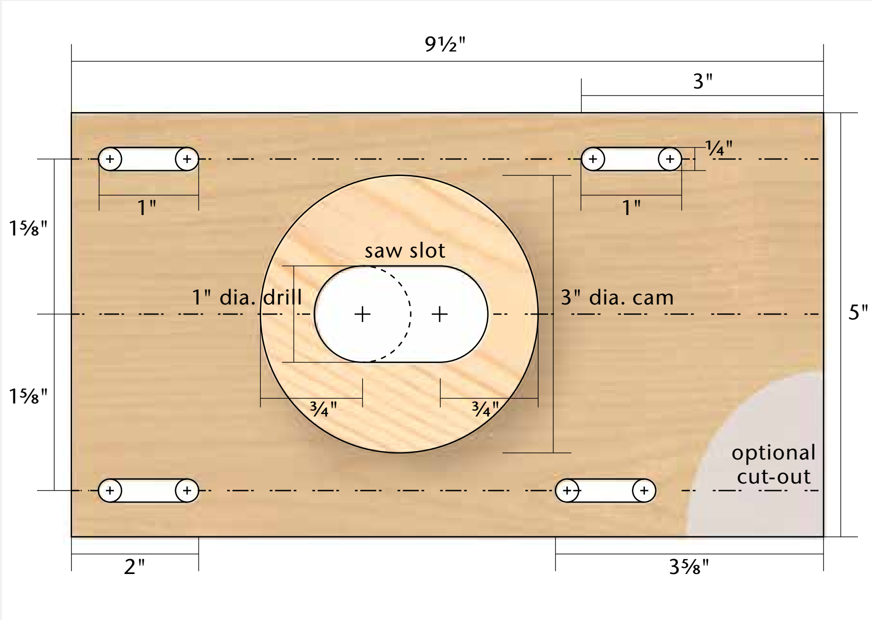
## Final fitting

When you fit the bearers to the cam, check with a square that all parts stay in line. If you fear a bearer will slip during attachment, try running a weld of hot-melt glue along the edge away from the shank. The bearers should make a good firm fit against the circular cam and run easily, as should the runners on the slide. Lubricate the wood with candle wax or spray-on furniture polish. Depending on how far your lathe spindle projects from the headstock box (⅞", or 22mm, on my setup), you might need to adjust the cam thickness, bearer thickness, or slide length so everything moves without interference.

To fit the drawbar that connects the chuck to the headstock spindle, turn a simple handwheel for the outboard side, center-bore it 5/16" (8mm) and epoxy a nut into it. Lock down the camplate and push the bearers onto it, guiding the wooden Morse taper into the headstock spindle. Feed the threaded rod through the headstock spindle and screw it into the slide nut. Now you can mark and cut the rod to length on the outboard side, then attach and tighten the handwheel to lock everything into place. Adjust the fit as needed before you epoxy the threaded rod into the slide.

Make the faceplate from ¼"- (6mm-) thick hardwood plywood, carefully rounding its corners. Screw the faceplate to the runners, and the elliptical chuck is ready to run. Rotate the lathe by hand to see the elliptical motion. It should be a tight, squeaky movement. To test it, run the lathe at 500 rpm and mark your first ellipse with a pencil held firmly on the centerline. ▸

## Cam and camplate




Make a camplate from ¼" plywood marked out according to the drawing. Drill and cut slots for mounting bolts.

Mount and turn the cam blank on a softwood faceplate using a newspaper glue joint that you can split when done. Make sure the edge is 90° to the face and mark clear centerlines. *(Note: A primer on making good newspaper glue joints can be found in one of David Springett's prior* AW *articles, in vol 30, no 1, page 28.)*

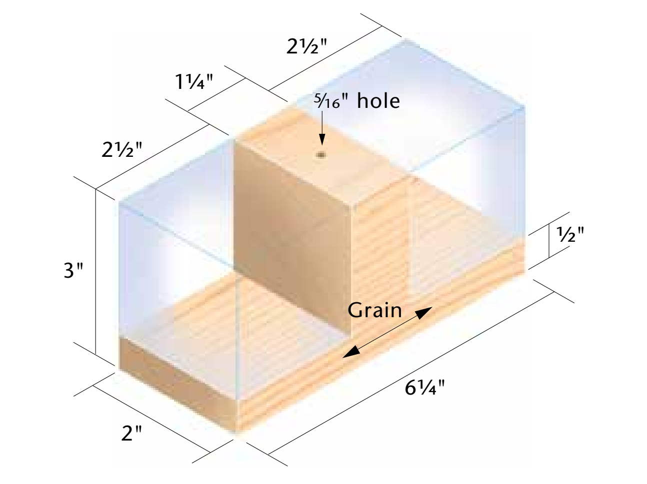
Glue the circular cam on the centerline of the camplate; note that it is offset toward one end.

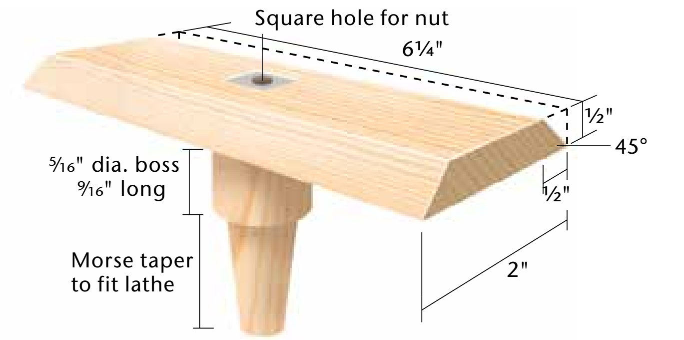
Mark and drill the cam and plate using a 1" (25mm) saw-tooth bit. Use a coping saw to join the two holes, and rasp to clean up the slot.

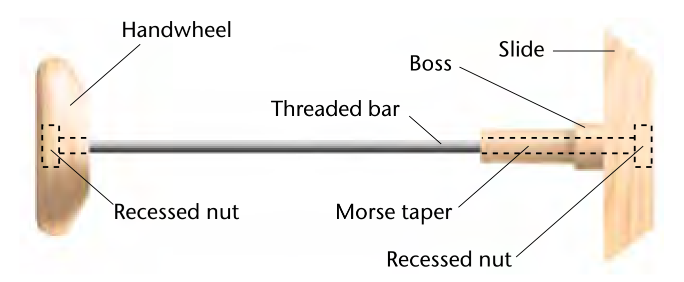
Add plywood squares to locate and glue nuts on the back side of the headstock box front. These nuts will accept the camplate's mounting bolts.

# SLIDE WITH MORSE-TAPERED SHANK

## Slide and drawbar




*(Upper left)* For optimum strength, the slide is best made from a single block of wood.

*(Upper right)* The finished slide.

*(Lower right)* Slide and drawbar assembly. The drawbar extends through the hollow lathe spindle and holds the slide firmly in place.

## Prepare and mount stock

*(Left to right)* Saw the waste away from the slide blank and bore a 5/16" (8mm) vertical hole through its marked center.

Use the hole to locate the blank on a 5/16" dowel centered in a wooden faceplate. Secure it with two screws plus a weld of hot-melt glue.

Turn the central boss fully round and down to about 15/16" (24mm) diameter. Clean up to the flat face of the slide.

## Turn the Morse taper

Use a Morse taper accessory such as a live center to take measurements for turning the shank of your slide. *(Note: If you use the tailstock to take these measurements, be sure the tailstock and headstock have the same Morse taper size. If not, take the measurements using the headstock.)* Insert the live center, mark where it exits, and measure this diameter: about 11/16" (17mm) for a No. 2 Morse taper. Take the diameter at a point 1⅞" (47mm) from the exit mark: about ⅝" (16mm).

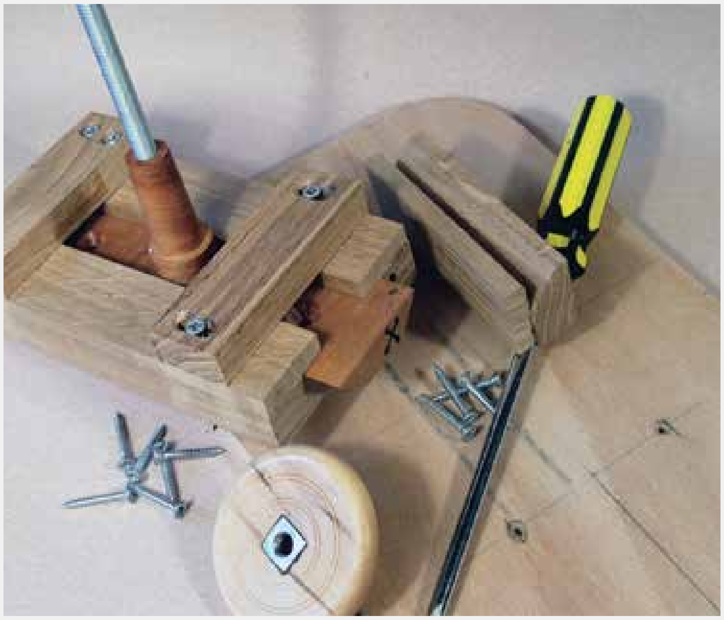
Cut a shoulder 9/16" (14mm) from the flat face, and turn the shank to match the measured taper. Turn with care, testing the fit in the tailstock.

## Shape the slide

Mark the 45° bevels on the top of the slide and plane the slope to the layout lines.

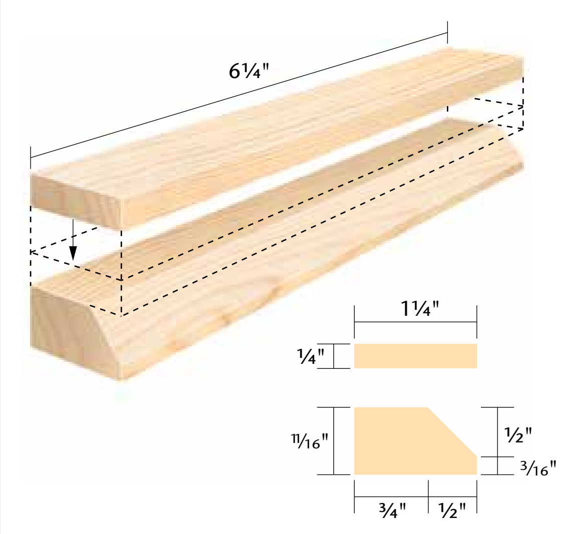
Chisel a recess for the 5/16" square nut and set it flush to the surface of the slide.

# RUNNERS, BEARERS, AND FACEPLATE



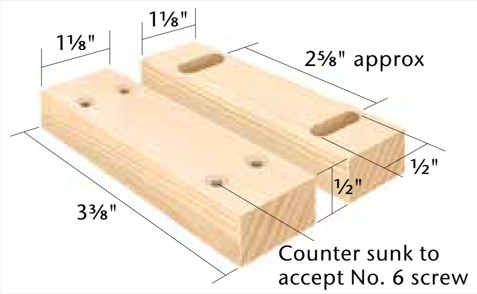
The slide mechanism moves between runners mounted on bearers that are set the cam diameter apart. The work-holding faceplate, at right, gets screwed to the runners and moves with them.

## Runners




Create two identical runners to fit the slide by assembling each from two pieces of hardwood. Plane the 45° bevels before assembly. Glue and clamp the two parts, and be sure to remove any squeezed-out glue.

## Bearers

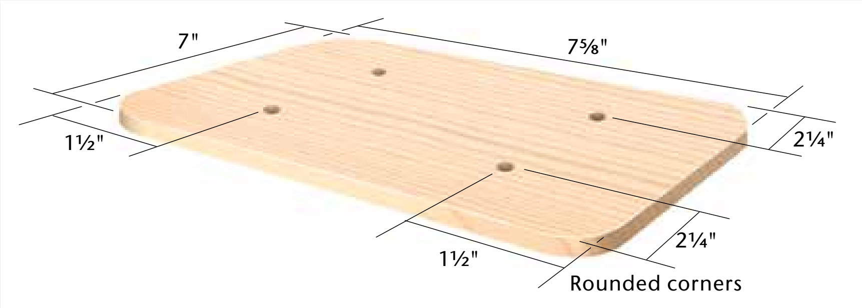



One bearer has joined holes to form slots for adjustment. Choose #6 screws long enough to penetrate solid wood, but make sure they do not foul the sliding grooves.

## Affix bearers to runners

Mark a centerline squarely across the two runners, flanked by lines the cam diameter apart. Clamp or glue-tack one bearer on the line, then screw the other bearer against the cam and adjust for a firm fit.

## Faceplate




The faceplate has four #6 countersunk screw holes positioned to penetrate the runners while avoiding the sliding grooves.

To change faceplates, clamp the runners against the slide to hold them in position while you loosen screws.

# Turning an ELLIPTICAL FRAME

In elliptical work, you must always turn with the tool edge precisely at center height, the Point of Tranquility, where the cut is still and the turning is easy. Misaligned cuts result from the tool cutting above or below the centerline; raising or lowering the gouge to "improve" the cut will only cause trouble.

Turning elliptical frames always poses the additional problem of how to hold the workpiece. My solution, the best I've found so far, relies on newspaper glue joints in a careful sequence, as follows:

1) Newspaper-glue the blank face down on the elliptical chuck's faceplate. Turn the rebate in the back that holds glass, picture, and backing, leaving enough rim (at least ⅜", or 10mm) for the wall-hanging fixings. Separate the joint to remove the workpiece.
2) Newspaper-glue an oversized blank onto the faceplate and turn an elliptical plug to fit inside the elliptical rebate. Newspaper-glue the workpiece onto it.
3) Turn the outer edge of the workpiece down into the supporting plug. Turn through to remove the center waste, then shape the inside of the frame. Sand and polish, then separate the newspaper glue joint to release the finished frame.

This project, scaled to the chuck just described, produces an oval frame about 5" (13cm) high and 4" (10cm) wide, with variations in size depending on how far you offset the circular cam. Make the frame from a piece of hardwood 6" (15cm) by 4½" (11cm), 1" (25mm) thick; the photos show maple. You'll also need tracing paper, pencil and felt pen, masking tape, white glue, newspaper, hot-melt glue, and two #6 × 1" wood screws.

Bumpy cuts can be caused by loose runners in the chuck; inconsistent cuts usually result from worn parts or loose fixings. Before each work session, give the chuck a complete checkup. Replace any worn parts and tighten where needed.

For straight-in cuts, a square-end cutting tool works best, ideally supported on a flat, shelf-like toolrest. For shaping cuts, use a typical toolrest and small gouge.

## Turn an elliptical recess

Mark on the faceplate an ellipse slightly larger than the size of the finished frame. Trace this ellipse onto a maple blank and saw it out.

Newspaper-glue the blank onto the faceplate, bringing up the tailstock for clamping pressure. Let dry overnight.

Use the square-end tool to turn a ¼"-inch groove in the back of the blank, leaving a ⅜" outer rim of wood. Widen the groove to prevent the tool from grabbing.

Turn out the middle with a small gouge, leaving a flat-bottomed recess ¼" deep. You will struggle to keep the gouge at center height. Note the laser line.

Make a reference tracing of the oval recess, then carefully split the workpiece away from the faceplate.

## Remount on a plug chuck

Saw an oversized ellipse of 1"-thick wood, cut notches for access to screws, then newspaper-glue the blank to the faceplate and clamp with the tailstock.

Draw an ellipse to match the turned recess and use the small square-end tool to turn a 1/16" (2mm) trial plug. Confirm the fit before cutting the plug to ¼" height.

Drill and countersink two screw holes in the middle of the recess. Newspaper-glue the workpiece to the plug and tighten the screws.

## Turn the picture frame

Turn the outer edge of the oval frame and extend the turning into the supporting wood. Keep the cutting edge on the lasered centerline.

Turn the frame down to ¾" (19mm) thick, avoiding the two screws. Sand and polish the edge, then, for added support, glue-weld the joint between chuck and workpiece with hot-melt glue.

Use the recess tracing as a guide to mark the smaller frame opening, then with the square-end tool, turn through to the supporting plug. Unscrew the center waste and remove it.

Turn the inside profile of the frame with a small gouge, always cutting on the centerline.

Sand and polish the inside profile and, when satisfied, peel away the glue weld.

The newspaper glue joint now can be split to release the finished frame.

## You read the article—now see the video!

This article has an accompanying online video in which David Springett further explains and demonstrates the use of this shopmade elliptical chuck. To view the video, visit tiny.cc/TurnElliptical (case sensitive) or scan the QR code with your mobile device.

*David Springett is a British woodturner known for his inventive creations. He is the author of* Woodturning Wizardry, Woodturning Full Circle, Woodturning Magic, *and, with Nick Agar,* Woodturning Evolution.

*All illustrations by Robin Springett.*

# Wolfgang Malcherek

## Germany

I completed my professional training as an optician, studied precision engineering specializing in optometry, and graduated with a degree in engineering. I worked as a quality manager at an eyeglass lens manufacturer until my retirement in October 2023.

My father taught me how to turn metal on a lathe, and I was fascinated by the process of turning. An acquaintance with the owner of a carpentry business awakened my interest in woodworking, and it was only logical that I would take up woodturning as a hobby. I learned the basics of woodturning in a one-week course at the master school in Ebern (Germany) in September 2008.

I am now enthusiastic about oval turning. Prof. Johannes Volmer enabled me to get started in this technique with his script, “Ovaldrehen” (Oval Turning), a visit to his workshop, and lots of tips. (Learn more by visiting volmer---ovaldrehen.de/englisch.htm.)

I turned all the objects shown here by hand on my self-built oval-turning chuck. I sanded the pieces to 400 grit and then oiled the surface three times with steinert® Drechsleroel (turner’s oil).

*For more, follow Wolfgang on Instagram, @wolfgangmalcherek.*

*Round Meets Oval*, 2025, Apple wood, oil, 1¼" × 5½" × 4⅛" (32mm × 14cm × 10cm)

*Bubinga Box*, 2025, Bubinga, ebony, oil, 1⅜" × 4¾" × 3⅜" (35mm × 12cm × 9cm)

## A specialized chuck

The author’s self-built oval-turning chuck.

*Oval Bowl of Cherry Wood*, 2023, Cherry, wax, 1½" × 7" × 6" (38mm × 18cm × 15cm)

*Oval Pepper Mill* (inspired by Lüder Baier of Germany), 2023, Doussié (afzelia), Crushgrind® ceramic grinder mechanism, wax, 6" × 3½" × 2" (15cm × 9cm × 5cm)

*Oval Boxes of Doussié*, 2023, Doussié (afzelia), bamboo (lids), oil, each: approx. 1½" × 5" × 4" (38mm × 13cm × 10cm)

*Oval Box of Walnut*, 2025, Walnut, linden (lid), oil, 4" × 4¾" × 3½" (10cm × 12cm × 9cm)

## FOR FURTHER READING

**EXPLORE!**

For more on oval turning from the AAW archives, log in at woodturner.org and use the Explore! search tool to find these *American Woodturner* articles.

- "Oval Traditions: A Visit to the Oldest Continuously Operating Mill in North America," Summer 2004 (*AW* vol 19, no 2, page 24), by Alan Lacer
- "Elliptical Turning on a Shopmade Chuck," December 2015 (vol 30, no 6, page 28), by David Springett

# The magical Morse taper

Jim Duxbury demonstrates how to make this useful tool

**Stephen A Morse invented the Morse taper in 1864. It was like magic. The Morse taper is a tapered spindle used on lathes and pillar drills to quickly and reliably mount tooling and other devices on the spindle centre. The principle of a Morse taper is that of a long, precision tapered cone inside a matching tapered cone socket. Tools made with this cone-shaped taper on the shank can simply be slipped into a cone-shaped socket and the pressure of the tool against the workpiece drives the tapered shank tightly into the tapered socket. The friction across the entire surface area of the taper interface provides a large amount of torque transmission, so that splines, clamps or keys are not required.**

PHOTOGRAPHS BY JIM DUXBURY

## Easy and economical

Morse tapers are usually made of steel but I discovered many years ago that wooden tapers work very well for light duty. These tapers are quick and easy to make, very economical, and the drive ends can be customised to perform a specific operation, then saved and reshaped for other uses. Many of my Morse tapers have been used, reshaped and used over again numerous times.

The taper itself has to be accurately turned so that it will wedge into a similarly tapered socket with the maximum contact area. Over the years I have seen many methods of how to turn Morse tapers. These methods seem to be complicated and this is probably the main reason most turners do not make them. I have used the following method and the simple little jig to make dozens of Morse tapers. I think you will like the simplicity of the jig and develop many uses for these tapers.

## Materials, tools and equipment

### Tools & equipment

- PPE & RPE as appropriate
- ¾in spindle roughing gouge
- 3/8in spindle gouge
- 1/8in parting tool
- Callipers
- Steel rule

### Materials

- A piece of ¾in plywood, 4 x 5.5in
- Two pieces ¾in plywood, 1 x 4in
- A piece of hardwood, 1 x 1 x 4in
- 80 grit sandpaper
- Yellow wood glue

### HEALTH & SAFETY

**Morse tapers are only to be used with pressure against them forcing the taper into the socket.**

## The making

**1** Select two pieces of 1 x 4in (25 x 102mm) and one piece 4 x 5.5in (102mm x 140mm) of a good grade of plywood. Cut the two corners off as shown and lightly sand the edges.

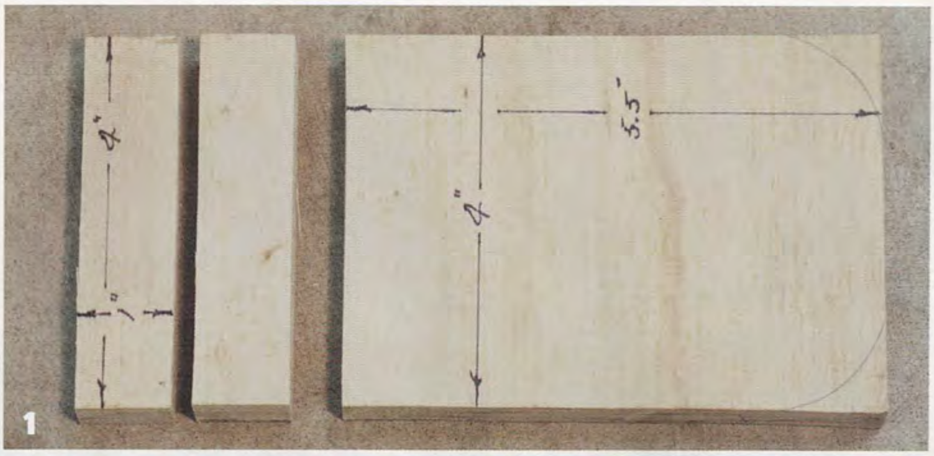
**2** Glue and clamp one piece of the 1 x 4in to the square side of the 4 x 5.5in piece. Yellow wood glue will be used for this project.

**3** Now we need to select a suitable Morse taper to attain the location of the next 1 x 4in. Note: Study the examples shown in the next three photos. If you notice, this cup-shaped drive centre sits almost into the lathe's No.2 Morse taper socket. That is just too close.

**4** The four-pronged spur drive sticks out over ¾in (19mm). For what we are making that is a little too far.

**5** This drive centre sticks out about ¼in (6mm) and should work fine to make the template.

**6** Place the Morse taper against the glued-up 1 x 4in so that the large end of the taper is at the side of the jig. Then glue and clamp the second 1 x 4in piece next to the Morse taper, being sure to press it tightly to the taper.



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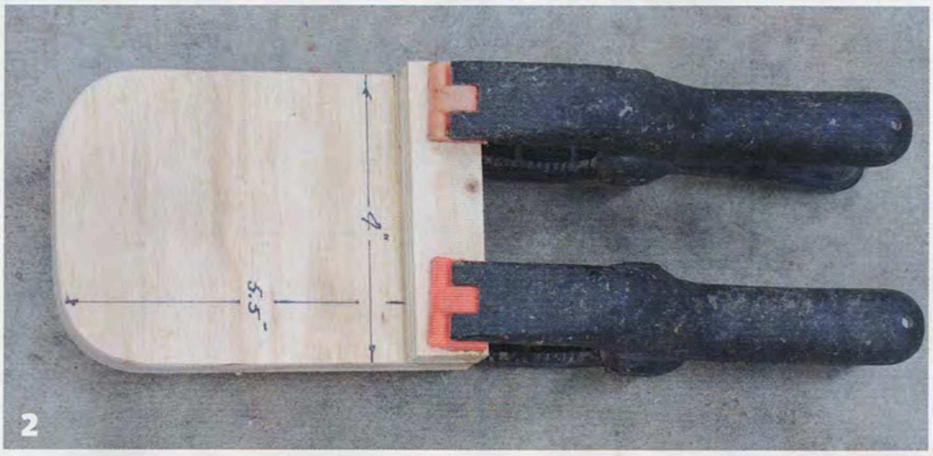
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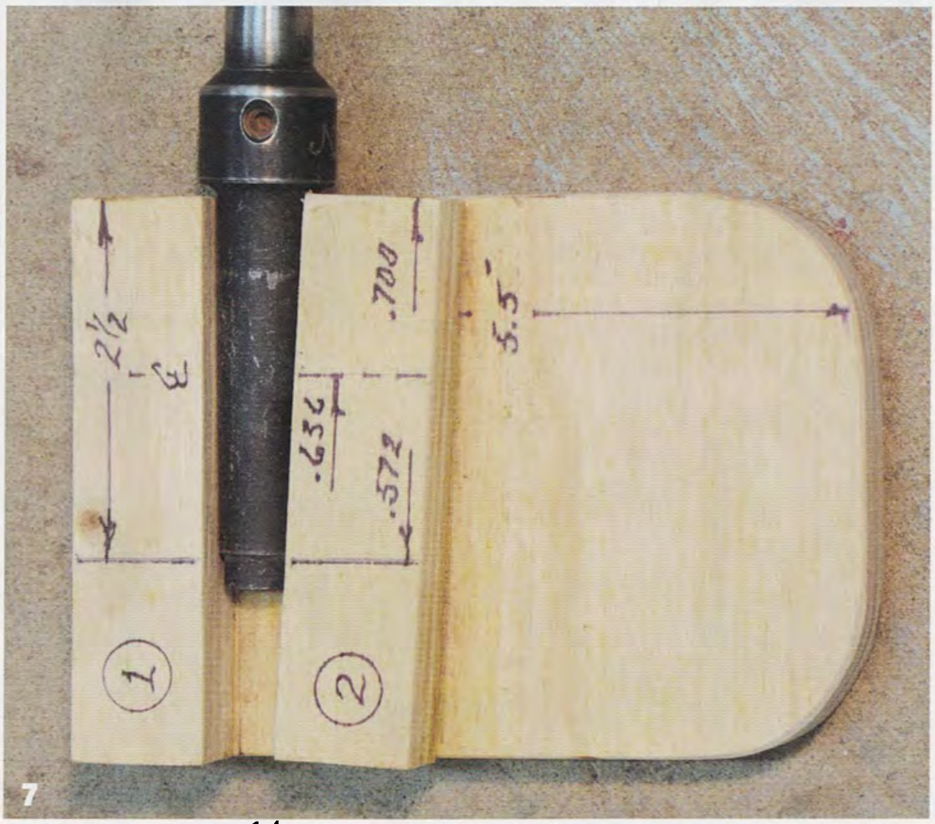
6

**7** After the glue has cured remove the clamps. Mark the small end of the taper, in this case 2½in (64mm) from the side. Next mark the centreline at 1¼in (32mm) as shown. Now write in the diameter dimensions of the taper at each one of these lines.

### Doing the maths

The actual dimensions for a No.2 Morse taper are a taper 2½in (64mm) long with 0.700in (17.8mm) for the large end diameter and 0.572in (14.5mm) for the small end diameter. For our use it is nice to have a centreline dimension also. The centreline dimension is obtained by averaging the large and small dimensions. 0.572in + 0.700in = 1.272in / 2 = 0.636in (16.2mm)



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**8** Now it is time to make a taper. Start with a straight-grained piece of hardwood 1in (25mm) square x 4in (102mm) long mounted between centres. With a 1in spindle roughing gouge, turn the piece into a cylinder.

**9** Turn off the lathe. Hold the jig up under the cylinder and mark the three reference lines. Turn the lathe by hand and continue the lines all the way around the cylinder.


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**10** Set the callipers to 0.572in (14.5mm). Turn on the lathe and set the speed to about 1200rpm. Then with the use of a 1/8in (3mm) parting tool, turn the first line down to a 0.572in diameter.

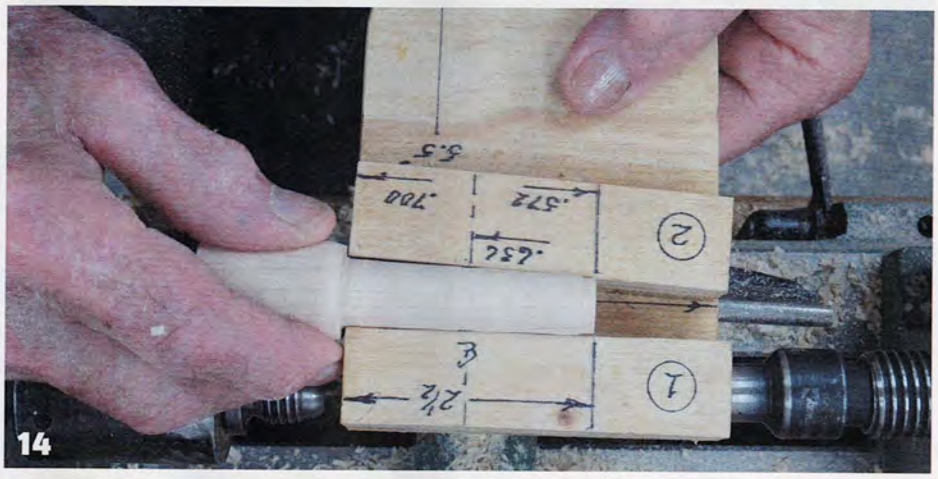
**11** Now set the callipers to 0.636in (16.2mm) and turn the centreline down to this dimension. Take your time and do not push in too hard on the callipers as that will cause an oversized cylinder.

**12** Similarly set the callipers to 0.700in (17.8mm) and cut the last line to that dimension.

**13** We now have the defining surfaces to make the taper. Reset the toolrest at an angle to be parallel to the three cut surfaces and with the 1in (25mm) spindle roughing gouge connect the surfaces. Note: Do not be too aggressive as it is easier to make the taper smaller than it is to make it larger.

**14** Once the taper surface looks right, remove it and try the taper in the jig. Look closely at where material should be removed. Put the piece back on the lathe and make the final cut.

**15** A useful technique when the taper is getting close to fitting in the jig would be to hold a piece of 120 grit sandpaper on a 1½in (38mm) wide flat board and sand the taper to the final dimension.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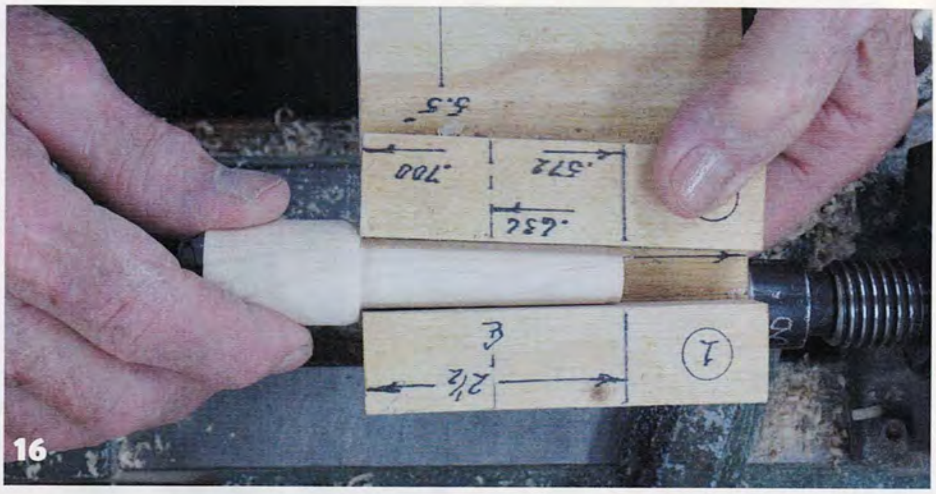
## Moment of truth

**16** Take your time and check often. Soon the taper will fit perfectly, and you can try it in the lathe.

**17** The taper should fit firmly with no sideways movement. Once you are satisfied that the taper fits snugly, bring up the tailstock and add a small amount of pressure. (Note: Remember a Morse taper can and will come out of the socket if pressure is not continually applied inward.) Now it's time to configure the blank end of this taper to perform a specific task. In this case, we will make a long point with a 3/8in (10mm) spindle gouge.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**18** Once the point has almost been completed, slow the lathe down and trim the last of the point off. Remove the tailstock, make any final very light cuts.

**19** This surface can now be sanded, however it is a tool and not a piece of art. Over time this smooth, pointed surface will get worn, have rings, chips, and gouges cut into it. Slippage will cause burn rings when not enough pressure is used. All sorts of things can happen, but this point can easily be recut and shaped good as new in just a few minutes.


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**20** Shown are some examples of Morse tapers. Some are many years old and well used. From left to right, the first two are cup-shaped, used for holding spherical surfaces. The next one was specially made to go down into a small hollow form. Then there is a dome-shaped taper made for a similar-shaped recess. With any of these four tapers a rubber, cloth or leather pad could be used between the taper and the piece to prevent damage to the contact surface. The last four tapers are straight tenon type of various diameters used to turn drilled turning blanks.


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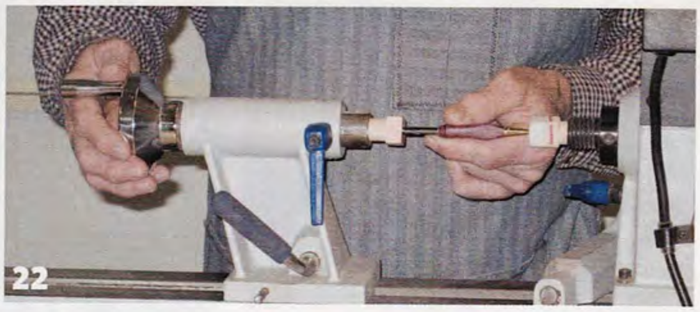


**21** In use, this taper with a 5/8in straight tenon, is made to easily secure a bud vase with a 5/8in drilled hole in it. This piece can now be turned and sanded, ready for the final finish.

**22** By turning two Morse tapers with flat ends your lathe can become an excellent press to assemble pens and other such objects. (Note: It is wise to unplug the lathe when doing this sort of non-turning operation.) If you do a lot of pressing, the flat wooden surfaces will wear and the end grain may puncture. To remedy this problem, glue a small ¾in (19mm) square piece of ½in (13mm) thick corian, as shown on the headstock end, to the pressing surface. Medium CA glue works well for this.

**23** This Morse taper has about a 2in (51mm) flat disc end covered with a piece of inner tube. It could be used in the headstock to drive but I use it almost exclusively in the tailstock where it will not rotate. The pad can then be pressured against the turned piece, securing it for carving or drilling.

**24** You can see from the wear on this buffing wheel that I really like it and it has been well used over the years. This is a Morse taper with a 5/8in (17mm) tenon about 1¼in (32mm) long. It has a wooden cap about 2in (51mm) long with a 5/8in oversized hole to slip over the 5/8in tenon. The buffing wheel is an 8in (203mm) diameter cloth wheel with a 5/8in arbor hole in it.



## The taper in use

**25** To use this buffing wheel, put the Morse taper in the headstock, slip the buffing wheel onto the tenon, slide the wooden cap over the tenon, add pressure with the tailstock, set the lathe speed to about 120rpm, and buff away. Always wear a face shield when buffing.

**26** This buffing wheel is easy to make, with minimal expense, and is quick to install. Without the threaded arbor, buffing wheels can be switched in seconds, will work on any lathe with a No.2 Morse taper, is lightweight and efficient to use.

These are just a few of the examples and uses I could show for the Morse taper. Many of my tapers have been used, reshaped, used, and reshaped again, right down to a nib. You will see even nibs can come in handy at times. Be creative. Use your imagination. You will be amazed at the results of these magical Morse tapers. ●