# IWG News

The Newsletter of the Island Woodturners Guild October 2020

## About the IWG :

The Island Woodturners Guild meets from 1:00 - 4:00 PM on the 4th Saturday of each month (except for July/Aug) at the Central Saanich Senior Citizens' Centre, 1229 Clarke Road, Brentwood Bay, BC.

**Visitors are welcome**.

**Executive Committee**

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The IWG gratefully acknowledges the support of the following companies:
Artisan Wood to Works
Chipping Away
Industrial Plastics & Paints
Island Blue Print
KMS Tools
PJ White Hardwoods
Richelieu Hardware

## THE PRESIDENT'S TURN

I hope everyone enjoyed the Cindy Drozda demonstration. It was a pleasure having her demonstrate for us. She is a very good instructor and her presentation/technical skills are first rate. Definitely one of the best.

I am excited for our meeting this Saturday. We are trying something new. We will have the first ever remote demo from one of our own members. Andre Robin has graciously agreed to let us into his shop to film his demonstration. We will be using our Guild video cameras and a bit of other tech to display it live in our Zoom meeting. I am sure it will be interesting and hopefully a good example of what we are able to do. I hope everyone is able to attend on Saturday.

And speaking of remote demos, in the near future you will receive a survey asking you to indicate who you would like to see deliver a remote demonstration. The Executive has developed a short list of 6 potential demonstrators for you to consider. More information can be found in this newsletter. Please take the time to complete the survey so we can get the best demonstrators for our Guild members.

Membership renewals are progressing well. If you haven't renewed, please consider doing so. It's fairly easy to do by visiting our website and following the prompts.

Hope to see everyone on Saturday!

Tim

## UPCOMING MEETING: OCTOBER ANDRE ROBIN

The October meeting will feature a live remote demonstration by Andre on turning a Sea Urchin style, multi-axis ornament.

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## NOVEMBER

The November meeting will feature a live remote demonstration by Joanne Sauvageau on using stamps for embellishment.

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## REMINDER: 2020-2021 MEMBERSHIP


If you have not done so already, it is time to renew your membership. Please go to the Guild website and complete the membership form. You will also find instructions there on how to pay your membership fees.

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# SPRING DEMONSTRATIONS: WHO DO YOU WANT TO SEE?

The Executive is beginning to plan our spring sessions. Since it appears unlikely that we will be able to meet in person, we are going to arrange at least two live remote demonstrations by professional turners.

As set out below, we have identified 6 potential demonstrators who may be available. Within the next week or so, you will receive an email containing an on-line survey form asking you to rank these 6 turners. In the meantime, please check out the websites of the following turners with a view to determining your preferences.

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**Potential Demonstrators (Alphabetic order)**

**REBECCA DEGROOT** Articulated Legs. Jewelry https://rebeccadegroot.com/index.html

**JOE FLEMING** Airbrushing https://www.airbrushingwood.com/

**MICHAEL KEHS** Boxes, Bowls, Horns https://michaelkehswoodworks.com/



**LAURENT NICLOT (France)** Sculptural, Colouring https://laurent-niclot.com/


**M. SABAN-SMITH (Eng)** Colouring/embellishment https://www.msabansmith.com/


**CRAIG TIMMERMAN** Bowls,Vases, Boxes https://www.armadillowoodworks.com/index.html


# SEPTEMBER RECAP: TWISTED TRIANGLE BOX

The September meeting saw an excellent demonstration by Cindy Drozda on turning a Twisted Triangle Box.

A step-by-step outline of her process can be found on her website at http://www.cindydrozda.com/html/handouts.html. Accordingly, the following is restricted to additional points she discussed.

**1. Blank**

Cindy began with a dry blank which is 3" square x 4" long. She indicated that it need not be end grain. A chop saw was used to ensure that each end of the blank is flat. The blank was then mounted between centres and turned to a cylinder.

**2. Layout**

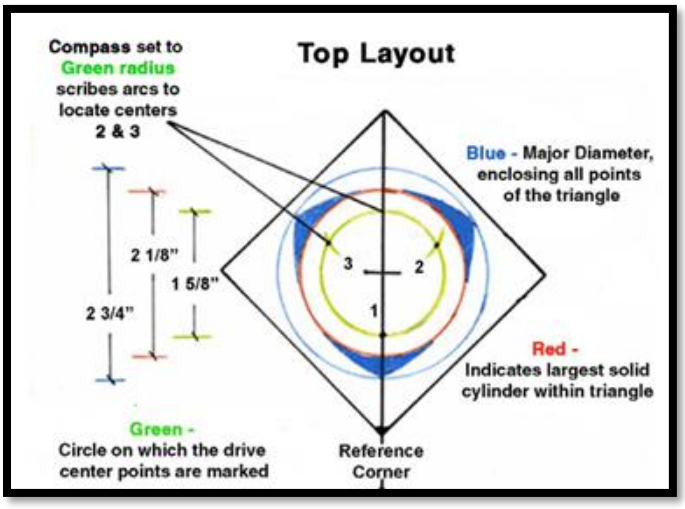
a. The centre points at each end are marked and the blank is placed between centres. A centre line is drawn on the tailstock end of the cylinder. Using the tool rest, a horizontal "reference" line from one end of this centre line is drawn the length of the turning. The end of this horizontal line is then marked on the headstock end of the cylinder.

b. Using a compass, 3 circles are drawn on the tailstock (top) end as shown on her drawing .

i. The outer circle (blue) with a radius of 1-3/8" marks the location of the 3 outside "points" of the ultimate box.

ii. The next ring (red) has a radius of 1-1/16" and marks the outside of the cylinder within the "blue" triangle.

iii. The final ring (green) with a radius of 13/16" marks the interior of the box.



c. With the compass set to the radius of the green circle, she marks out six arc points on the circumference of the green circle. As shown in the drawing above, the intersection of the green circle with the reference corner is drive centre #1 and then every second arc point is #2 and #3 respectively. These are marked with an awl.

d. The same layout details are then drawn on the other end of the cylinder.

e. The final layout step is to determine the drive centre marks on the bottom.

To obtain a twisted triangular shape, Cindy rotated each mark one arc point counter clockwise on the headstock end. i.e. Top Mark #1 was moved one arc counter clockwise. Again, the points are marked with an awl.

**Note**: How far you offset the marks will determine how aggressive the angle of the box is. Cindy suggested that for a taller box, you may want to rotate two arcs counter clockwise to produce a more pleasing twist.

Alternatively, if you want a triangular box with straight sides (photo right), simply transfer the top marks to the bottom in parallel orientation.

**3. Off-Set Turning**

a. With the blank mounted between centres, turn the cylinder down to the Blue diameter and, at each end, create a tenon turned down to the Red diameter. (For enhanced visibility, colour the outside of each tenon black.)

b. The blank is then remounted in an offset manner on the two #1 marks. With the lathe running at a high speed (2200 rpm), she turns the piece down to the red circle. This is the same diameter as the tenon and having coloured it black, helps to identify when the correct diameter is reached.

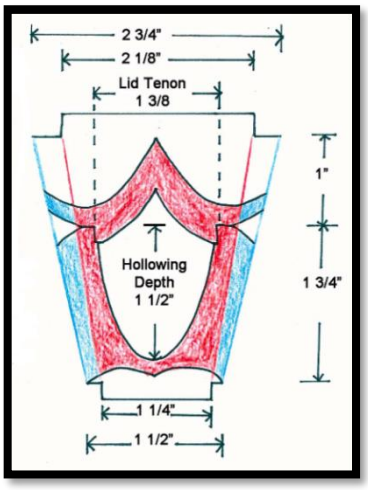
**Note:** For offset turning, Cindy does not use a conventional drive and live centre as she finds that the centre pins make too large a hole which affects orientation. She prefers to use centres that have a serrated cup with a retractable centre pin.

While the most common product is the Sorby Steb Centre (LV: $84.50), you should be aware that there are other versions (left) which are considerably cheaper (Craft Supplies: US$22).

c. The same procedure is followed for the other two faces (#2 - #2 and #3 - #3) and the piece is then sanded to 400x.

**Note**: As they will likely have been "nicked", you should re-turn each tenon.

**4. Turning the Box and Lid**




a. Cindy's diagram (right) shows the overall configuration of the box and lid. (The noted dimensions may need to be adjusted based upon your results to this stage.)

b. With the bottom of the blank in a 4-jaw chuck, she parts off a 1" long piece (plus the tenon) from the tailstock end which will become the top of the box.

c. After turning the lid recess, the box portion is hollowed in the conventional manner. A chamfer is turned on the outside lip of the box and the piece is then sanded.

d. The lid blank is then mounted in the chuck and a tenon is turned to fit the box recess. The inside of the lid is hollowed, and a chamfer is turned on the underside of the lid edge which matches the one on the box.

e. After sanding, the lid blank is removed from the chuck and mounted in a jam chuck to turn and sand the top of the lid.

**5. Finishing**


While she uses a variety of finishes depending upon the wood and intended use, for this project she chose Waterlox Original Finish which is an oil/varnish wipe-on finish (resin, tung oil, mineral spirits).

**Note:** While widely available in the U.S., I could not find a Canadian source for this product as Lee Valley no longer carries it. You can easily make your own by mixing equal parts of polymerized tung oil, varnish, and mineral spirits. Otherwise, you could simply use a Watco product.

**6. Miscellaneous Points**

**a. Masking Tape**

Cindy recommends using Green Painters Masking Tape rather than the Blue Tape . The former has much stronger adhesion and better protection against “leaking”.

**b. Signing**

For signing her work, she uses a Dremel Engraver with a nail point. For maximum control, you should consider placing the power setting on the lowest setting.

(Tim Soutar has used this technique for many years and can provide any information you may require.)

She then uses a gold coloured lacquer stick (similar to a wax crayon) which fills the depressions and highlights the “writing”. Needless to say, the piece should be finished before applying the wax.

**Note**: Any metallic wax product such as “Rub N Buff” could be used for a similar effect.

**c. Magnetic LED Micro Light**

In response to a question, Cindy discussed her most recent invention: a magnetic LED light which is 1.25" long, 1/2" wide and 1/4" thick. The corded light attaches to any ferrous surface including a tool rest to provide illumination inside a box or hollow form.

**Note**: While this tool is available from many US sources including Cindy (US$30 plus shipping), she has recently made arrangements with *Stockroom Supply* a Canadian retailer ($40 plus $15 shipping to Victoria) http://stockroomsupply.ca/shop/bandsawblades/magnetic-led-micro-light.html

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## SAFETY NOTE — PHIL COTTELL

This past August I suffered a fall in my workshop. I was using my corded drill at the workbench. When I went to move to another location, it happened that my left foot was in the loop of the cord. It tripped me up, sending the drill flying, and I wound up at about a 20-degree angle with my face among the table saw controls.

Result: cracked ribs and two compression fractures in the back. No treatment for it but Tylenol, rest, and time. Feeling somewhat better now, but still a little unstable.

Some suggestions: check shop for tripping hazards and correct them; cordless tools probably a good idea; if corded, install some hooks on the bench to hold the cord off the floor; move about a bit more slowly and deliberately.

Stay safe.

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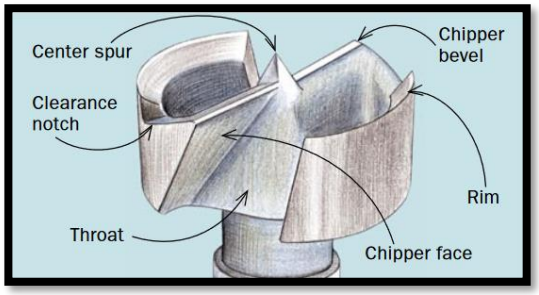
# FORSTNER BITS

A Forstner bit can be invaluable when you need to drill a flat bottom hole with fine tolerances for a turning project or jig. The following note provides some information on the various types as well as some tips on using and sharpening them.

## A. BASIC ANATOMY

All Forstner bits have a centre spur for initial positioning and a sharpened guide rim. The rim scores or severs the wood fibres and the chippers, which are slightly below the rim, scrape out the interior wood. The clearance notch and throat provide for chip ejection (at least in theory).




## B. DESIGN

There are four types of Forstner Bits which are distinguished by the design of the rim on the outside of the bit.

**1. Traditional (Continuous)**

The most common type, this bit features 2 adjacent rim sections with a continuous bevel. While this feature makes it particularly effective at angled cuts, this is rarely, if ever, a factor for turners. Moreover, the rim contact with the wood produces a great deal of heat – especially when boring end grain - which will quickly dull the bit and can cause the wood to smoulder. For that reason, this configuration is generally confined to bits that are 1” or less.

**2. Saw Tooth**

As the name implies, the rim of this type resembles the teeth of a hand saw. The teeth cut the wood rather than simply scoring it and the reduced rim surface area in contact with the wood means less friction, less heat, and a longer lasting edge. Bits over 1” are typically made with this rim. It is however less effective at guiding the bit straight in the wood and does produce rougher entry and exit holes.

**3. Wavy**

This design is a compromise of the first two. As the photo shows, the rim bevel is wavy or serrated. The reduced amount of wood contact means that it produces less heat than a traditional bit and is said to maintain its edge up to 3 times longer. It also does a better job of chip ejection compared to the traditional design and provides a smoother entry than a saw tooth.

**4. Next Generation**

There are two new bits which represent a significant improvement in design.

**Colt Maxi-Cut**

While it looks like a traditional HSS bit, these European-made bits have a few unique features. Instead of a continuous rim, they have two small scoring spurs which substantially reduces heat buildup and are easy to sharpen. Secondly, they feature a self cutting center point which reduces friction and allows a faster feed rate. Thirdly, they have a series of grooves in the chipper bevel which splinter the waste into small chips that are easily ejected. The result is less clogging and a reduction in the number of times the bit must be withdrawn to clear swarf.


Finally, they have a specially designed shank that locks the bit into a drill chuck to prevent "shank-scoring" slippage. This shank also enables the bits to be manually secured in a custom morse taper holder and/or bit extension.

**b. FAMAG Bormax 2.0**

FAMAG is one of Germany's most highly regarded tool cutting manufacturers. This bit is made using German high carbon tool steel. The centre point enables precise positioning and with a twisting geometry, provides a cutting edge which means less feed force and a faster cut. Like the Maxi-Cut, there are wide chip-breaking grooves in the chipper bevel which means less waste compaction and faster drilling. Looking like something from a Star War's movie, the rim features acute "wave-shaped" teeth and external grooves which significantly reduce friction and heat.

## C. TYPES OF STEEL

Forstner bits are available in a range of steels including carbon, titanium coating, high speed, stainless, carbide and forged steel. Practically speaking, the choice for woodturners is between high carbon tool steel, high speed steel and perhaps forged steel.

### 1. Carbon Steel Bits

There are three grades of carbon steel: low, medium, and high. Bits made from low carbon steel, also known as mild steel, must be avoided. They are far too soft to even develop a sharp edge let alone maintain it when heated. Medium carbon steel bits are slightly harder and will have better wear resistance but will not hold an edge well, particularly in the presence of high heat.

**Note:** The Mastercraft set of 16 bits from Canadian Tire ($119) is made of medium carbon steel. Two members who have these bits would advise you to avoid them.

Only high carbon steel, also known as high carbon tool steel (HCT), will provide sufficient hardness for a sharp edge as well as decent protection from loss of temper.

Loss of temper occurs when a steel tool becomes too hot: it permanently softens and loses the ability to hold a sharp edge. Some poorly treated high carbon steels can lose their temper as low as 180 degrees C. While this may sound high, keep in mind that we are talking about a very thin layer of metal at the cutting edge. Boring into end grain hardwood can easily produce this temperature. Once softened, there is no way to fix it.

The problem is that many manufacturers do not indicate the type of carbon steel, and even if they do, there is no indication of the quality of treatment or indeed even an assurance that the claim is accurate. You should only buy these bits from a well recognized manufacturer which generally will use high carbon tool steel that can withstand temperatures in the neighbourhood of 250 - 300 degrees C.

### 2. High Speed Steel (HSS) Bits

Bits made from HSS will not only have a sharper cutting edge but will also have much better edge retention. HSS bits can sustain heat up to 600 degrees C before there is any adverse effect on the steel and, even then, it is relatively slight. While the price difference of tool steel and HSS bits up to 1” is relatively small, it becomes very significant in larger bits.

**3. Forged Steel**

Both high carbon and HSS bits are made from cast steel where molten metal is poured into molds or extruded and subsequently machined to the desired shape. More expensive forged steel is an alloy of carbon and iron which is manufactured by the application of intense heat and a series of compressions under extremely high pressure. In comparison with cast steel, forged steel is stronger, has higher tensile strength, a finer grain structure which means a sharper tool and, at least in comparison with HCT, has greater wear resistance which means it will hold an edge longer.

# D. SOME BRANDS TO CONSIDER

## 1. HIGH CARBON TOOL STEEL

**DIMAR/FAMAG**

This consortium is a highly regarded German manufacturer of a wide range of cutting and boring tools under both names. They offer four brands of Forstner bits all made from high carbon tool steel. The "hobby" version from Dimar is marketed as Woodpecker bits while their next highest level is the Nova line. Their high-end product is the Famag Bormax 2.0. They all have hex shanks to prevent slippage.

**Woodpecker**
Set of 7 (1/4" – 1") $30 (KMS)
Set of 16 (1/4" - 2 1/8") $90 (KMS)
Individual bits range from 1-1/16" ($9) to 2-1/8"($14) (KMS)

**Nova Super Forstner (Saw Tooth)**

Set of 7 (1/4" – 1") $110 (OnLine Supplies, Langford)
Individual bits range from 1-1/16" ($21) to 2" ($55) (KMS/OnLine Supplies)

**Famag Bormax 2.0**

As discussed above, this is one of the new generations of Forstner bits.

Individual Bits: 1-1/16" ($23) to 2" ($51) OnLine Supply (Langford)
https://onlinesupply.ca/Drilling-Cutting/drill-bits-1/wood-bits-boring-auger/forstner-bits

## 2. HIGH SPEED STEEL

### a. Lee Valley

Set of 7 HSS Traditional Bits (1/4" – 1"): $82
Individual HSS Saw Tooth: 1-1/16" ($21) to 2 ¼ ($44)

### b. Colt Maxi-Cut

These bits are no longer offered by Lee Valley and I could not find any Canadian source. They are available from many sources in the U.S.

Individual HSS Bits: 1-1/16" (US$36) to 2 ¼ (US$50).

## 3. FORGED STEEL

### a. Fisch Wave Cutters

These highly rated bits are made in Austria from forged steel. This type of steel has a finer grain structure (and hence sharper edge), higher tensile strength and better durability compared to HSS. They are available from Ultimate Tools in Burnaby.
https://www.ultimatetools.ca/products/fisch-wave-cutter-forstner-bit-sets

Set of 7 (1/4 – 1"): $116
1 1/8" – 2": $22 - $43

**b. Freud Precision Shear Bits**

These wave bits are also made in Austria. While they are also forged, I was unable to determine whether Fisch is the OEM.

| | |
|---|---|
| Set of 7 (1/4 – 1”): | $90 (Amazon: Freud)<br>$72 + Shipping (Blackrock Tools) |
| 1 1/8” – 2”: | $29 - $43 (Amazon: Freud)<br>(Some sizes may be available for less at Home Depot) |

## E. DRILLING TIPS

**1. Staged Drilling**

For those with mini or midi lathes, or for deep boring with a diameter greater than 1”, you may wish to consider drilling a series of holes with ever increasing bits. This will minimise torque with the high diameter bits, reduce the amount of heat buildup and facilitate straight boring.

**Note**: Twist drills will bore straighter than forstner bits. Hence a starter hole using a ½” or 5/8” twist drill should be considered where this is required.

**2. Slow the Speed Down**

Every professional source I could find emphasizes the danger of running these bits at high rpms. This is especially important when using larger bits. The following chart offers a range of speed suggestions from a variety of sources. You may want to opt for the slower speed if you are drilling end grain or particularly hard woods.

| Diameter | RPM |
|---|---|
| 1/4 - 3/8 | 700 - 900 |
| 1/2 - 1 | 500 – 700 |
| 1-1/8 – 1-1/2 | 400 - 600 |
| 1-5/8 – 2 | 300 - 400 |
| 1-1/8 – 2 | 250 - 500 |

**3. Clean Frequently**

Chip buildup not only increases heat it also raises the spectre of jamming the bit in the hole. Withdraw the bit frequently to clean both the bit and the bore hole.

**4. Lubrication**

When deep boring in end grain hardwoods, several sources suggest applying wax to the bit to reduce friction. Obviously, this should not be used when you intend to apply a finish to the bore hole.


A commercial product is Boelube which is a powder wax machining lubricant that is water soluble. While intended for use in metal drilling, a number of woodworkers report good results on Forstner bits in end grain. $16/4 oz (Aircraft Spruce)
((https://www.aircraftspruce.ca/catalog/cspages/boelube4.php)

**5. Thin Material Option**

Where you are boring thin material that might be pierced by the centre spur, you may wish to begin with a Forstner bit stopping well short of the required depth. You may then be able to use a router bit with a flush bearing to cut down to the desired depth.

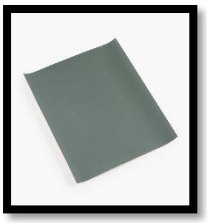
## F. SHARPENING

Regardless of the metal composition, all bits will eventually require sharpening. The more often you sharpen, the less time it will take.

**a. Chipper**

For all 4 types of bits, the chipper (bevel and face) is sharpened in the same manner. Most recommend using a 600-grit diamond paddle hone on both surfaces, taking care to ensure that you match the machined angle on the bevel.

**Note**: For smaller bits, you can use diamond needle files or simply buy a sheet of adhesive-backed silicon-carbide paper (15u) (LV: $3) and attach it to a narrow piece of stiff metal.



**2. Spur Point**

The same tools can be used to sharpen the spur point on traditional, saw tooth and wavy bits.

**3. The Rim**

Different procedures are required depending upon the form of the rim.

**a. Traditional**

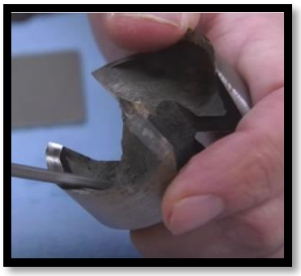
For sharpening the rim of a traditional style bit, you can use a fine aluminum oxide conical grinding stone (Dremel) or a Ceramcut Blue Stone (Foredom) in a drill press. (They both cost roughly the same but the Ceramcut will last 2 or 3 times longer). With the drill press set at a relatively high speed, rotate the inside of the rim against the stone using a **light** touch.
These bits can also be used in a rotary tool although I found it much harder to maintain a consistent honing angle.

**Note**: Some commentators report that they have difficulty getting a consistent edge using a drill press. They prefer to use a round diamond file which they find easier to control.

**b. Saw Tooth**

The teeth on this type of rim can be sharpened with a 600-grit triangular diamond file or hone. Tilt the file to match the tooth angle and use a push cut towards the centre of the bit. Two or three passes with a light touch should be sufficient. Try to apply and equal number of strokes to each tooth to avoid changing he geometry of the rim.

**c. Wavy**



The configuration of wavy bits varies between manufacturers. In some cases, you will be able to use a conical grinding stone as discussed above for a traditional rim. Otherwise, you will need to use a round diamond file applied to each "wave" at the appropriate angle. Once again, only a few strokes should be needed.

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## EYE CANDY

## DAVID BLAIR

Faced with an off-cut of walnut that was potentially destined for the burning pile, David decided to plane it to check out the crotch-grain figure. Good decision! He added the finger hole and cut a soft "natural" curve around the top perimeter which complements the random bark edges. The piece was finished with tung oil. A lovely piece!

Now if only he had had a log of this wood!

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## TRI-POD BOX

## CINDY PEI-SI YOUNG

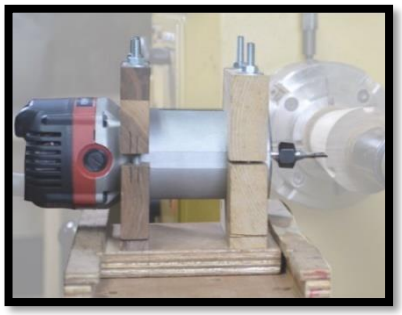
Cindy Pei-Si Young is a graduate of the Rhode Island School of Design and has been teaching woodturning in Taiwan since 2010. Her work was featured in a two-page spread in the April 2019 edition of *American Woodturning.* As her *Cupcake Box* illustrates (photos above), her turnings reflect an inventive and engaging blend of structural form and ancient decoration.

For the recent Worldwide Woodturners Symposium, she delivered a demonstration on turning a Tri-Pod box.

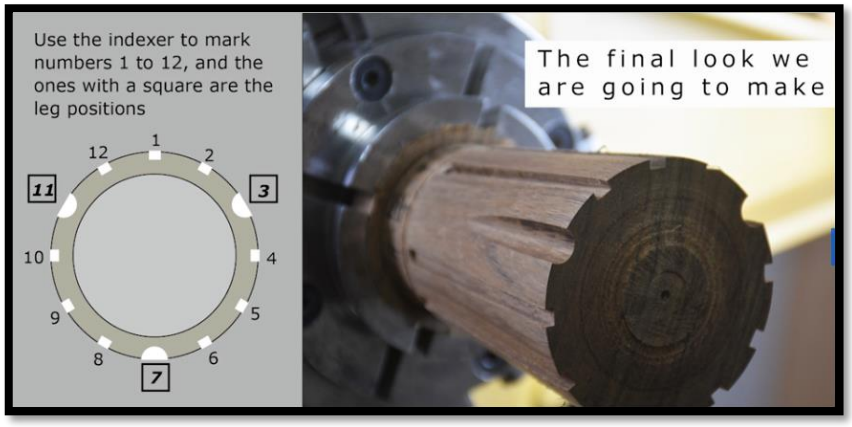
While there are many turners who produce works supported by 3 legs, the vast majority use pins to connect the legs to the turning.

However, Cindy uses a mounted-router and sled to cut cylindrical mortises which house the 3 legs of the turning. (She also uses the router to cut square channels for the decorative slats on the outside of the box.)

Her trim router is mounted in a captured rig which slides on a sled set in the banjo.



**Overview**



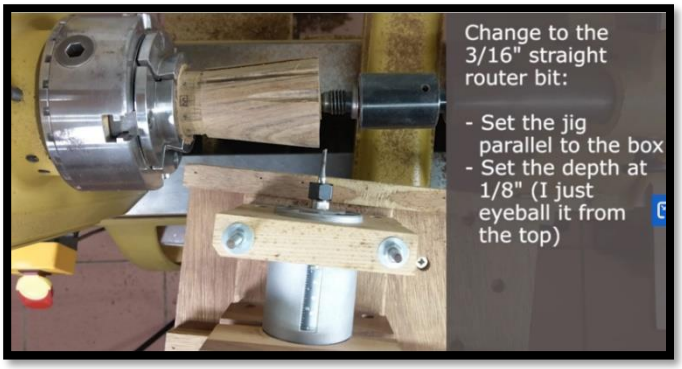

**Routing the Leg Channels**

With the jig set parallel to the lathe axis (and chuck locked securely), the 3 recesses for the legs are cut using a 3/8” round nose bit.

(The jig needs to be held securely as it will tend to mount the piece.)

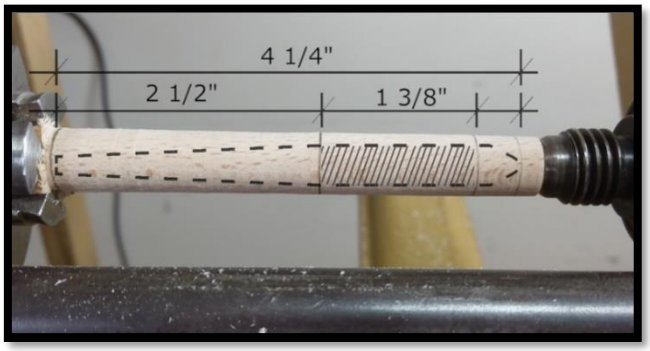

**Routing the Slat Channels**

With the jig set parallel to the box, a 3/16” straight bit is used to rout the channels for the slat.



**Turning the Legs**

The portion of the leg which is cross hatched in the photo must be round (i.e. no taper).




Note: The dimensions may have to be adjusted depending upon the size of the box.

**Milling the Slats**

The square slats can be milled at the table saw or, in Cindy's case, using a hand plane.

**Assembly**

After hollowing the box, the legs and slats are glued in place.

You can see more of her work at her website: https://www.cindypeisiyoung.com/

## PARTING OFF

Thanks to those who have renewed their membership. Your financial support is crucial to enable us to continue to offer free, live remote demonstrations.

And thanks to the members of the Executive and in particular Tim and Vik for their efforts regarding live remote demonstrations and Virginia for her technical support in a wide range of initiatives.

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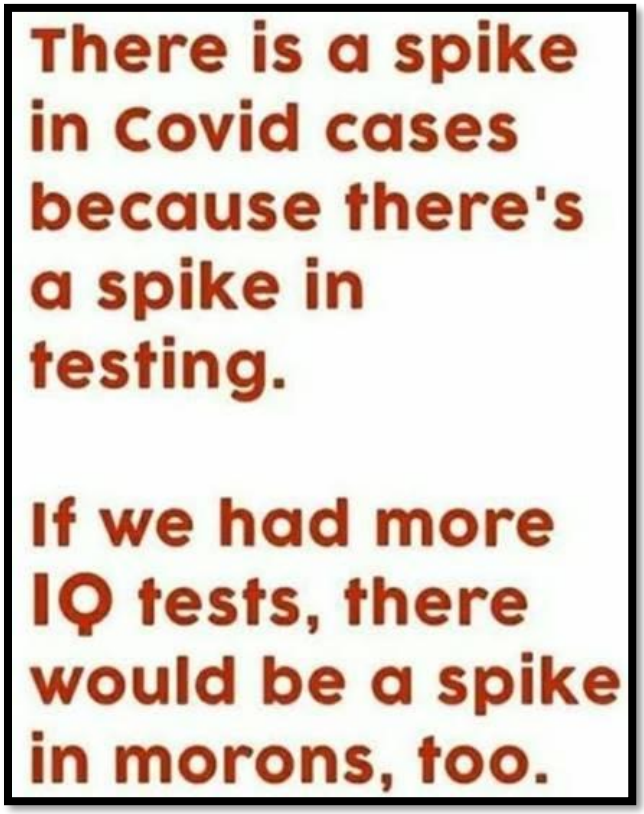
## CONCLUDING THOT

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