LW RELEASES SEGMENT STOPS

Last Fall L-W completed their design and testing process for the Segment Stop Kit, and it is now available for purchase. Segment stops are a useful addition to your rose engine kit allowing you to make precise and repeatable terminations of cuts. The stops are most often used in conjunction with other accessories such as the Dome Chuck and Straightline Chuck which will allow you to make precise flutes with crisp starting and stopping edges. The stops are also designed to work with accessories currently in development which will further expand their capabilities. The kit also converts into a micro-adjustable index pin that is easily seen and adjusted. The kit retails for $350. The first production run has been sold with a second run in production.

Small Fluted Bowl

Brian Clarry is one of our talented and inventive owners. He has shared the following article and photos which illustrate the usefulness of the new Segment Stop Kit. We want to thank Brian for the time and effort to prepare and share this article in Rose Engine News.

SMALL FLUTED BOWL

By Brian Clarry

This article describes each step in making a small bowl that is fluted on the outside with a phased pattern on the inside. The rose engine used in this project is a Lindow-White Rose Engine using their leveling chuck, the double eccentric with the dome chuck, a horizontal cutting frame, and the segment stop. An expansion chuck with a ¾"-16 thread and a holding or scroll chuck with expanding jaws, are used to hold the bowl during ornamenting. The wood used in this project is Argentine Osage Orange.
Designing the Bowl
To assist in setting up the double eccentric chuck that will be used to ornament flutes on the outside of the bowl a method to first design the outside of the bowl and cut out templates is explained below. One advantage of using this method is that the offset of the double eccentric chuck to cut the flutes on the outside of the bowl is quickly calculated. The outside of the bowl in this project is shaped as part of the circumference of a circle.

Section Drawing
First, draw the size and shape of the bowl on tracing paper as a side view or section drawing. The bowl can be any size; however, the outside shape of the bowl should be a part of the circumference of a circle. Use a compass to draw this curve. If a rim at the edge of the bowl is required mark this on the design. In the two designs at right, Example A (top drawing) has a larger diameter than Example B; however, both curves are part of a circle. The shape of Example B is used in this project.

Create Templates
Second, transfer the bowl design from the tracing paper to a card or stencil stock to make two templates. The first template will be used to check the shape of the bowl when cutting the outside of the bowl, and the second template will be used to determine the offset measurement of the double eccentric chuck.

Create Offset Template
Third, use a compass or the RE to draw a series of circles on a rectangular piece of card stock at 0.100” apart. The offset template made above will be used in conjunction with this card to determine the offset required to move the double eccentric chuck.

Calculate the Offset
To calculate the offset of the double eccentric chuck place the second template on the circular card and move the base line (A) until the curves on each template line up. In the first design the flutes will extend to the top of the rim so no adjustment will be needed. If an edge is required around the rim use base line (B).

To calculate the offset using Example A from above move the base line until both curves line up. In this example it suggests moving the double eccentric chuck 0.300”.

(Cont. p. 3)
Prepare the Bowl

Cut a piece of wood approximately 3” square and 1 3/4” thick and round to its largest diameter, which will be just less than 3”. On a standard wood lathe cut the bowl to shape using the template as a guide. Cut a 1 1/2” diameter tenon about 3/16” deep at one end that will fit into a holding chuck. It is important the tenon have a small shoulder for the holding chuck to rest against.

Insert the tenon of the bowl into a holding chuck and drill a 1 ¼” hole about 1” deep. Alternatively, transfer the chuck to the Rose Engine. Align the bowl axially using the leveling chuck and set an end mill at center height. Use a ¼” 4 flute single end mill (end mill) in an end mill holder screwed into a drilling frame to bore the hole. Check the diameter of the hole frequently so there is a tight fit with the expansion chuck.

The final part of preparing the bowl is to drill a 1 ¼” hole in the base. A scroll chuck with expanding jaws, or an expansion chuck, will be inserted in the hole to hold the base when ornamenting the inside of the bowl. First, insert a 1 ¼” expansion chuck with a ¼”-16 thread into the 1” deep hole drilled above, and use a 1” x 8 to ¾” adapter to connect to the lathe mandrel.

Note: Check the bowl is running true. If not, reshape the outside of the bowl including the tenon. Note: The tenon in the base should be reduced from 3/16” to 1/8” depth using a horizontal cutting frame before boring the hole.

Use a forstner bit to drill a 1 ¼” hole 3/16” deep in the base. To eliminate the problem with the forstner bit’s sharp point going too deep only drill the outline of the hole and complete the hollowing using a small scraper.

Alternatively, use a ¼” 4 flute single end mill (end mill) in an end mill holder screwed into a drilling frame to bore the hole. If an expansion chuck is used to hold the base check the diameter of the hole frequently so there is a tight fit with the expansion chuck.

(cont. p. 4)

News Statement from Steve White & David Lindow

With long deliberation and regret I’ve come to the conclusion that Lindow-White has grown to the point where it is no longer a part-time job and with the changes that have come to my life of late I cannot give the company the time it deserves. As a result I am handing the reins of the business over to David Lindow completely. I know the business will be in good hands and will be well supported by him. I have no intention of getting out of ornamental turning and will be involved in the more occasional help of doing small jobs or representing the company at trade shows. We came out with a prototype machine 4 1/2 years ago hoping to build 12-25 machines on a part-time basis solely for the enjoyment of the process. We could have never guessed what was to come, and machine #60 having rolled out the door with more attachments and improvements than was thought possible in 10 years. I am proud to have been able to be part of that process. My door is still open to any who want to discuss OT or have a problem that needs a solution. I’ll see you in the basement making chips!!

—Steve White

With regret indeed. It’s been a fun four years, and I’m confident that we’ll be close for year to come. None of this would (cont p 4)
Setting up the RE for fluting.

Install the double eccentric chuck with the dome chuck on the RE. Adjust all slides so that they are all lined up central with the mandrel. Slide B will not be touched again during this project. Refer to a previous published L-W document called ‘Open Ended Box – Second Level Alignment’.

When the Slide A is in-line with the mandrel mark the slide with a fine marker to denote the center point. Screw the \( \frac{3}{4}'' \)-16 expansion chuck attached to the bowl onto the index chuck.

Move the slide rest so that it is 90 degrees with the bowl, and install the horizontal cutting frame. Align the cutting head to center height of the mandrel. Again refer to a previous published L-W document called ‘Open Ended Box – Second Level Alignment’ for instructions. The cutting frame must be truly horizontal, on center to the RE mandrel, and centered to the index head spindle on the dome chuck as per those instructions.

(Cont. p 5)

(from p 3 News Statement)

I remember 5 years ago when we came up with the idea to make a rose engine that anyone who truly wanted one could afford. You worked tirelessly to put the L-W in the hands of those who had a fascination for the craft with or without deep pockets. Your drive to see all who were interested involved led to an explosion of interest that I hope doesn’t stop any time soon. In the process I’ve seen many who, like myself, got thoroughly addicted to OT. The bottom line is that it’s always been about fun, and you’ve helped bring that fun to the many.

I’m certain I’ll be calling on you for help often. It’s been a fun ride together. It won’t be as much fun alone.

—David Lindow
Cont from p4

If an edge is part of the bowl design it will be necessary to install the Segment Stop on the RE base. First install the arm with the screw adjusters.

Place a level on the headstock. Move the headstock to top dead center and adjust the level accordingly. Lock the headstock so there is no rocking movement. Place the level on the Slide A as shown and rotate the slide until it is also level. Lock the mandrel.

Install one of the metal stops in the index wheel and adjust the upper adjustment bolt to touch the metal stop. Unlock the mandrel and swing the bowl to ensure the bowl stops at the correct level position, otherwise make fine adjustments to the upper adjustment bolt.

Install the second metal stop and adjust the lower adjustment bolt so that the tenon is not removed by the cutting head.

**Positioning the bowl for ornamenting.**

Move the bowl up and down, using the red adjustment wheel on Slide C, to determine the thickness of the rim. This adjustment will not be touched again.

Using the red adjustment wheel on Slide A move the bowl towards the cutting frame head by the offset amount calculated previously using the circular and bowl templates.

(Cont p 6)
Swing the bowl from the top to the bottom ensuring the cutting head follows the contour of the bowl. Use the red adjustment wheel on Slide A and/or the slide rest to make any fine adjustment. Set the Hardinge slide rest dial to zero.

Cutting the flutes.
This particular bowl will have 24 flutes set at 15 degrees apart. To start cutting the flutes first set the index chuck to zero degrees as the starting point.
Swing the bowl up and down to ensure the movement is smooth and it stops at the correct place below the edge.
Turn on the cutting frame and bring the cutting head in slowly until a flute is cut. Note the depth of cut used.
Turn off and retract the cutting head.
Carefully move the index by 15 degree counter-clockwise and make another cut to the same depth.
If the sides between the first and second flutes are not sharp or have flats between them it will be necessary to deepen the cut and repeat the previous steps.
Note: After a flute is cut a good technique is to finish the cut by deepening it by just a few thousandths of an inch which will give a smooth finished surface.
Once the depth has been established repeat the cuts until all 24 flutes have been done. This completes the outside of the bowl.
Finally, examine all flutes for flat spots. If there are flat spots select the worst flat spots and re-cut by a few thousandths deeper until they disappear. Use this depth to cut all the flutes.
Remove both the metal stops from the index wheel.

Cutting the side rim.
If the edge of the rim does not need to be cut skip to the next section. If it does need to be cut remove the double eccentric chuck and replace with the leveling chuck, and a 1” to 3/4” converter. Screw the expansion chuck onto the converter. Check the rotation of the bowl, and adjust the leveling chuck accordingly.
Move the slide rest inline with the bowl and move the cutting head to the edge of the rim of the bowl. Rotate the bowl and cut the rim to the depth required.

(Cont p 7)
Hollowing out the inside of the bowl.

To hollow out the inside of the bowl either the RE or a wood lathe can be used.

If the RE is used insert an expanding chuck in the base and attached to a 1” to 3/4” adapter. Screw the converter on to a leveling chuck. The leveling chuck should be used to ensure the bowl is correctly centered to the lathe. Use the horizontal cutting frame to cut out the interior of the bowl. Leave the sides of the bowl 1/4” thick and slightly thicker at the bottom.

On a wood lathe is used the base of the bowl can be held with a scroll or holding chuck with expanding jaws. Leave the sides of the bowl ¼” thick and slightly thicker at bottom.

Install the holding chuck on the RE leveling chuck and ensure the bowl is lined up correctly. Move the slide rest inline with the bowl. Move the front of the cutting frame to the top edge of the bowl. Rotate the bowl so that the cutting head squares up the top edge of the bowl for about ¼” in from the outside of the bowl. Set the dial on the slide rest to zero.

Ornamenting the inside of the bowl.

The design inside the bowl uses a 24 sine wave rosette and a 1 ½” rubber. Install the rubber so that the headstock rocks approximately 0.065” either side of top dead center. Set the crossing wheel phasing to number 24 to match the rosette.

Move worm gear on the crossing wheel to rotate the rosettes until the valley of the rosette is inline with the valley of the flutes.

Move the cutting head until it is just touching the inside the bowl and set the dial on the slide rest to zero. Move the cutting head slightly away from the bowl and start the cutting frame.

Cutting the patterns.

Note that the following is just a guideline and for each pattern use your own discretion as to the position of the cutting head, pattern and depth of cut used. Write down your measurements used so it can be repeated or modified for next time.

First pattern — move the cutting head in 5 turns (0.500”) and slowly rotate the bowl ensuring the rocking action is smooth. At the same time move the cutting head into the side of the bowl and cut a pattern to approximately 1/8” (0.125), or half the thickness of the rim. Move the cutting head away from the bowl. This completes the first pattern.

Second pattern — move the crossing wheel by 50% i.e. from 24 to next detent. Move the cutting head in 3 turns (0.300”). Slowly rotate the bowl and move the cutting head into the side of the bowl and cut a pattern until the sides and top of the pattern meet up with the first pattern with sharp edges. At this time move the cutting head away from the bowl.

Third pattern — move the crossing wheel by 50% i.e. back to 24. Move the cutting head in and cut a pattern on the bottom of the bowl. Repeat the process as above.

Final pattern …. move the crossing wheel by 50% i.e. back to 24. Move the cutting head in and cut a pattern on the bottom of the bowl. Repeat the process as above.
Ornamenting the bottom of the bowl.

The base of the bowl needs to be finished. Either use the RE or a lathe to decorate the base. The first step is to find a method to hold the rim of the bowl. In the photo cole jaws are used.

If the RE is used first reduce thickness of the tenon. In the photo the eccentric cutting frame is used, as an example, to ornament the interior of the base, or it can be left plain.

If a lathe is used first reduce the thickness of the tenon, and then finish the base with decoration or not.

Editor’s Note: If you do not have a copy of the document, “Open Ended Box-Second Level Alignment, E-mail me and I’ll be happy to E-mail you a copy.

Completed Bowls

Left: Argentine Osage Orange

Right: African Blackwood (A) exterior and (B) interior

Editor’s Chips

Here’s the second edition of our newsletter. I hope you find it useful and informative. We’re planning on producing two issues per year to start. This issue had much to cover since both AAW and OTI met since our last issue. I want to thank Brian Clarry for his wonderful article for this issue which shows a great method of design, excellent use of the rose engine for shaping and ornamentation, and the use of the newly released Segment Stops. He’s set a great standard for us to follow. I hope all of you will consider writing an article or sending useful tips. We’ll be glad to help with editing and formatting if needed.

I think we can see from David’s article on prototypes that several interesting and useful items are in the pipeline. Also, the article makes the excellent point that a solution to a problem may not be the solution to a problem. Sometimes finding the solution takes a little longer, but is ultimately worth the wait.

Also, David did an excellent job of explaining the use of our hidden forum on the OTI site. I know that I am one of the guilty people who hasn’t used this site to advantage. I’m going to do better in the future and look forward to seeing all of you on the forum. It’s definitely another tool to make us better rose engine users.

—John Tarpley
OT At AAW 2010

L-W was well represented at this year’s AAW Symposium in Hartford, CT. There was a very busy booth in the trade show containing two L-W rose engines where rose engine work was continually demonstrated to interested attendees. The Instant Gallery had several examples of OT work from various attendees, and one of Jon Sauer’s pieces was given an award of merit.

Using an Eccentric Cutting Frame

how to make sure the work is centered on the sides of the box. The order of cutting prevents fuzzing the wood and makes sure the grain is supported during cutting. He also used Bonnie Klein’s technique of using only one cutter in the cutting head, reversing it and running the head backwards which gives a smoother cut. To quote David, “If you get discouraged easily by ruining things, you should probably try a different type of turning.” Both his rotations were well attended and received.

David provided an excellent set of handouts for both rotations.

Following lunch, Jon Sauer gave a talk, Rose Engine Lathes, Then and Now. Jon has had the opportunity to travel extensively to view rose engines and the art they produced located in various museums and private collections mainly in Europe. He did a slide show illustrating the development of the lathe over the years and the quality and versatility of the work that has been and continues to be done.

OTI San Jose Meeting

The 2010 OTI meeting was held in San Jose, CA in September with 80 members and 22 guests attending. There were 3 turners from England and 1 from New Zealand.

A highlight of each meeting is the competition for the 4 cups, and this year was no exception. The Master Cup was presented to Joshua Salesin for his beautiful Pagoda Box. The Pagoda Box was inspired by the Riguang pagoda built in Suzhou in the year 247. It consists of 5 boxes made from 21 different parts which were tuned using an ornamental lathe and a rose engine lathe. The Straight Line Cup was presented to Robert Sakauye for his fine silver Needle Case. Robert made the case from a series of silver discs that were formed using custom punches and dies. The case was then mounted on a pencil chuck on a Wilh Stahl straight line engine. Robert Sakauye also won the Rose Engine Cup for his Top Box made from African blackwood and Turkish boxwood. The cylindrical box was ornamented inside on the rose engine. The lid of the box is a finger spinning top made with inlays and ornamented with the rose engine. The OTI Friendship Cup was presented to Bill Ooms for his Egg Cup. The egg cup stand with its screw on lid is made from African blackwood, and the removable egg is made from red mallee burl. The shape of all three pieces was turned by hand on a traditional plain lathe and then ornamented on Bill’s computer controlled ornamental lathe. Bill designed the lathe and wrote the software used for design and cutting.

During the business meeting President Steve White announced that as of the meeting OTI has 235 members with 21 of those members being from other countries. The loaner MDF rose engine lathe is being circulated among AAW chapters that have asked to borrow it. Our next meeting will be in Scranton, PA in 2012 and will be hosted by David Lindow and Eric Spatt. The membership expressed its thanks to Steve White and Jon Sauer for their work in planning and hosting this year’s very successful meeting. Space does not allow me to fully cover all the sessions, but I can mention a few highlights.
John Edwards gave a presentation on Materials, Cutting Tools, and Sharpening. Some of the materials he recommended are African blackwood, lignum, ivory, pink ivory, diamond wood, mopane, kingwood, partridgewood, cocouswood, boxwood, burl elm, burl lacewood, lemonwood, various plastics, and alternative ivory. For tools he recommended the use of high speed steel for roughing tools and carbon steel for formed cutters. Reconditioned circuit board drills are a good alternative to the hard to find antique OT drills. Engraving tools also find their uses for some shapes. He also discussed a variety of methods for holding work including collet chucks and jam chucks which may utilize hot glue or tape. He emphasized that the lathe must be level with cutting frames and cross slides setup properly before cutting begins. For screw thread cutting he recommends cutting the female {corrected from original copy} thread first because it is easier to test. He also recommended cutting the female thread from the inside out since climb milling gives a better finish. When using a vertical cutting frame for basket and brick work cutting upwards is best to stop the mandrel unthreading.

David Lindow gave a presentation on Maintenance of Cutting Frames and Cross Slides. This detailed presentation was similar to those David has given at our L-W get togethers held each year in either Scranton or another city. If you haven’t heard David’s presentation it is worth the trip to a meeting for this one presentation to keep your cross slide and cutting frames in good condition and proper adjustment.

Al Collins gave a presentation on Fixed Tool Cutting. Fixed tool work, the oldest use of the rose engine, seems to gaining popularity each year and Al is one of the best.

D-H Mayeron gave a talk on Karl Rockenhauser, Henry Fischer, and their Amazing Oval Chuck. This was an interesting historical presentation of oval chucks and he had, with great difficulty, transported one to the meeting which was on display in the shop room so the everyone could explore its intricacies.

Fred Armbruster presented Cutting Frames which focused on his newly designed cutting frame made for his rose engine. He recommended always using shielded bearings and discussed the various types of belting available. He also gave some information on metal work in general and tool development.

Ken Newton, New Zealand, gave a session entitled My Journey into Ornamental Turning in which he described his history and journey into this field. An interesting part of the talk was his discussion of using random and nonrandom holes in the same turning.

David Wood-Heath from Great Britain gave a historical presentation, A Review of the Work of George Baumgarl, Master Engine Turner and Metal Decorator of New Jersey. David purchased at auction many of the metal plates that were cut by Mr. Baumgartl so that he could preserve them and prevent their loss when the company Mr. Baumgartl had worked for closed. Since they are large sheets that must be stored flat he has to store them under his house. He showed examples of several patterns and styles of engine work.

Joshua Salesin presented How to Make a Box. Since Joshua won the Masters Cup with his Pagoda Box, it was interesting to hear his techniques. During the presentation he mentioned he uses what he calls a friendly plastic with the trade name of InstaMorph.

We rounded off the afternoon with a panel discussion led by several knowledgeable members and the input of several others from the audience. One of the topics was finishes for OT. Those recommended were lacquer with and without oil, Deft and lacquer thinner mixed 50/50, wipe on gel poly, and the Bea Buff system. It was also mentioned that Whiteside makes several useful carbide router bits that can be used in a drill frame.

Jon Sauer presented A Review of How his Boxes are Made. Besides showing slides of his work and discussing how they were made he also gave several other tips. He uses thinned lacquer followed by wax as a finish. He as used stingray skin as an inlay because of its unusual pattern. Engine turning works well on endgrain African blackwood. Tauga nuts and pink ivory make good finials.

Nick Edwards of the SOT in England closed the meeting with a presentation on Cataloguing the Ornamental Turning Collection at the London Science Museum. The London Science Museum has one of the best collections of antique OT equipment in existence, but unfortunately it was not catalogued and therefore was not available for public viewing. Several members of the SOT have been working with the museum staff to develop a catalog to make the collection more usable and available to the public.

As an addition to the program Albert LeCoff made a presentation that updated the attendees on the work and plans of the Woodturning Center. He announced the donation to the center of over 175 OT objects from the collection of Walter Balliet of New Jersey. OTI voted to donate the proceeds of this year’s auction to the Woodturning Center for support of their work and their relocation to a new site in Philadelphia.

Throughout the meeting there was ample opportunities for shop time, show and tell, and discussions among attendees. One of the interesting sessions was a chance for the owners of various types of lathes to gather as a group to discuss their specific equipment. There was also an open house time when the members of the various area AAW chapters were invited to attend the shop room and learn about OT. Mitch Talcove from Tropical Exotic Hardwoods gave a presentation on some of the various types of exotic woods and how to determine if you have received the wood you ordered.
Photos from OTI San Jose, CA

Joshua Salelsin Master Cup Winner

The Group of Members Attending

Bill Ooms Friendship Cup Winner

Joshua Salelsin’s Winning Pagoda Box

Robert Sakauye Straight Line & Rose Engine Cup Winner

Bill Ooms Winning Egg Cup

Robert Sakauye’s Winning Top Box

Buttons and Boxes by Cal Nash

Pens by Eric Spatt

Boxes by Gorse Duplessis
Prototypes, What’s Developing?
By David Lindow

The ubiquitous question seems to be, “What’s coming next?” With the Detent and Segment Stops out of the way the next thing in line would be the #2 MT spindle which we hope to have done in the next two or three weeks. After that it will likely be the pen chucks as they’re relatively straightforward to build and have been prototyped. The pen holder with a 9/16” shank will mount in any tool holder, and the paper holder will mount on the dome chuck face plate. It is designed to hold 4”x6” cards.

Very shortly we’ll have the prototype done for the single outboard rosette system we call the “Plus One.” This will allow for the quick and easy exchange of a single rosette, but also with the capacity for phasing it will greatly expand the possibilities in regard to what’s possible with rosette design as two rosettes will have the capability to be phased independently. The rosette holder and phasing device will be accompanied by a second tower that will be mounted on the outboard side of the table in the same hole as Detent and Segment Stops. This tower will not only hold rubbers for this purpose, but in the future it will likely hold a headstock retractor which has been prototyped but will be back shelved for a while.

We know what you’re going to say when you read this, but the oval and spiral attachments will be prototyped soon too. We think we have worked out the big nemeses to the spiral apparatus and have ordered components and parts to put together a working prototype. With this new direction it should make the unit much more user friendly. This attachment will also include a curvilinear apparatus.

We’re thinking in the direction of a spherical slide too if there is interest. For those of us who desire to do fixed tool work the spherical slide, the headstock retractor, and the “Plus One” rosette holder are all musts. We have also done a good amount of prototype work on fixed tool cutters. With some design help from Al Collins we have employed an EDM machine to make cutters. We are convinced that good cutters can be readily made on the EDM machine which would save us all a lot of labor in making them. Getting all of the angles correct is critical and though we are not there yet we will continue to experiment when time allows. Some of us have a hard time waiting for such developments to take place.

David was especially inspired by Jeremy Soulsby’s lecture at the 2006 OTI Symposium which also spurred Al Collins to go in that direction. Al’s work has also been an inspiration to all who have seen it.

Using the Hidden L-W Forum on the OTI Site
By David Lindow

A great resource for information on ornamental turning is the OTI website. It was put together by Dennis Daudelin after the 2006 OTI Symposium. The Gallery has provided me hours of enjoyment and enlightenment as I have gained encouragement and inspiration from pictures from all over the world that I would not have otherwise seen. The Forum provides a place for the open exchange of ideas and a place where questions can be asked with access to some of the best turners the world over as well as a place where equipment can be sold or purchased. This website has done much to promote not only OTI but ornamental turning in general. The Forum has also, thanks to Dennis, given us L-W owners a “hidden” section that can only be seen by fellow L-W owners that I put on the list. If you are not on the list for the “Hidden” Lindow White Machine Owners Group you can signup by registering on the OTI site and emailing me your username and password. You, however, will not see the L-W Forum on the Forum page unless you log in. When you log in it will appear at the bottom of the list.

This resource has been under utilized. For whatever reason we’ve taken to asking each other questions and answering each other via email rather than using the Forum. Being that the “hidden” L-W Owners Group is hidden to all but us fellow L-W owners it shouldn’t be embarrassing to put our questions out in this manner. If one of us has a particular question it’s more than likely one or the other of us has the same question. Put into this format the answers will be archived in an orderly manner not only for our future perusal, but also for the next generation of ornamental turners.

Another big advantage of this avenue of exchange is that it will allow those who frequently answer questions to reference a previous answer. All too often those who’ve gone farther down the road on their journey in turning find themselves answering the same questions over and over. Using this resource allows such a person to work on future projects or in my case, spend time building prototypes and refining tools rather than answering email with the same repeated basic questions. The Forum also gives one a chance to hear solutions from different sources. None of us has a corner on experience.

Next time you are in a jam or simply have a question for which you need an answer try to think of using the Forum. If we all get into doing this it won’t be long till we have a lot of useful information well organized in a searchable format. I also want to encourage all of you to post pictures to the Gallery. Despite what you may think these pictures are an encouragement to others. Amongst other things it lets us all know that we are not alone in our endeavors to become better and better turners. In a way I think that sharing pictures does as much to make ornamental turning a community endeavor as does the Forum. It also helps guide us in knowing what should be covered at future meetings. Pictures can be easily added to the Gallery. An album can be created and a nearly limitless amount of pictures can be added to your personal album. By using a single album to post your pictures it will allow you to easily find them or remove them.
Drilling Frame and Eccentric Cutter Head

In ornamental turning two of the most versatile tools are the drilling frame and the eccentric cutter. Combining the two without question makes for the most versatile tool possible.

The drilling frame is made to use decorative drills including raised pearls and spherical depressions. It is exceptional for fluting and reeding. It is also capable of decorating the insides of boxes with the use of extended 8MM fly cutters. Holtzapffel, Evans, and Walshaw all spend a lot of time describing the use of this tool in their books.

It is designed to handle lateral loads as well as thrust, and coupled with its capacity to accept collets, it's an exceptional carrier for the eccentric cutter head. This cutter head is a compact and well balanced tool that can handle recommended speeds up to 6000 RPM's. Its design keeps the cutter head close to the frame body to reduce vibration and give better results. The clamping bolt is offset from the center allowing for circles to be cut from about 1/8" diameter to just over 1 1/8". The cutter head incorporates a 1/8" round tool bit holder and comes with two 60 degree carbide bits of different lengths -- a short one for face work and a longer one for spherical work. As tools are often specially ground by the user of the eccentric cutter, the tools are made to be changed quickly and easily with a socket head set screw. The tool block is held in by the clamping screw for safety in such a way that it cannot come away from the cutter head. The major diameter of the cutter head is 1 1/8", and the shanks come in either 3/8", 8MM (WW) collet style, or a 1/2" shank meant to be turned to the desired size for special applications. It is designed to handle 8MM or WW collets which are easily obtained in any metric or fractional size both on the used market and new as it has been the standard in instrument lathes for over 125 years. It is a proven design. Collets come in sizes from one tenth of a MM to 80 MM or 5/16" with through holes of just over 3/16". The bearing tube and spindle is made of steel while the carrier is made from aluminum and will fit the standard tool post.

The eccentric cutter is used to make the famous "fish" as well as the standard barleycorn pattern. Half squares can easily be made with it as well as the pineapple style decorations so often associated with ornamental turning. One can also create convex shaped rings around the edges of projects. Further uses can be found in Holtzappfel No. 5, Evans, and Walshaw books. There are two 1/8" studs in the face of the tool to allow measurement of the diameter being cut by simply placing calipers across the stud on one end and the cutter on the other. The offset is easily measured and is repeatable.

The eccentric cutter was designed by Fred Armbruster and has been proven a good design over time. The drilling frame/eccentric cutter package comes with the drilling frame, eccentric cutter with 8MM shank, two collets (1/8" and 3/16"), and a 1/4" end mill or router bit holder.

Diamond Bit Pearling Tool

This tool which incorporates a boring tool fitted with a diamond drag cutter to guilloche metals as well as wood.

With this tool barleycorns can be applied with ease. The diamond drag tool automatically sets the depth and gives repeatable results every time. The tool is operated by setting the diameter with the boring head and then turning the handle. One indexes and repeats the procedure until the desired barleycorn is finished. Diameters from zero to over 1" can be accomplished. This is a great tool to accent edges or to engrave brass, silver, gold, steel, stainless or aluminum to make a flashy metallic insert into any project. By replacing the diamond with Cratex one can also accomplish damascening or pearling.
Crossing Wheel

The Crossing Wheel allows for very quick and extremely accurate phasing of the rosettes without moving the position of the work piece being ornamented. The Crossing Wheel is constructed of four main parts. They are the barrel, the crossing wheel, the worm, and the worm wheel. The barrel rotates on the spindle and holds the rosettes. The crossing wheel has sets of three notches for each of the 12, 18, 24, 36, 40, 48, 60, 72, 84, 96, and 120 count rosettes. There are also three sets of graduation notches for 96 divisions, 200 divisions, and 300 divisions. A spring loaded detent is inserted in the notches to secure the crossing wheel. The worm turns the worm wheel using a detachable handle. Each full turn of the handle moves the worm wheel 2 degrees. For even more accuracy the worm itself is also divided into 10 divisions. The worm wheel has 180 divisions cut into the wheel surface. If the worm is turned 180 times the worm wheel is moved 360 degrees or one complete circle.

Phasing Using The Crossing Wheel – A simple example of phasing is to first insert the detent into the notch that corresponds to the count of the rosette that is being used in the phasing process. For example, if you want to phase using a 24 count rosette first insert the detent into the 24 notch. By moving the detent to the notch on either side of the 24 notch the phase is changed by half or 50% of one valley or bump of the rosette. By moving the detent backwards and forwards in the notches basket weaves and barleycorns patterns can be made. Also, using the graduation notches of 96 divisions, 200 divisions, and 300 divisions basket weaves, herringbones and chevrons, as well as many other designs, can be made. For those trying to accomplish engine turning the Crossing Wheel is a must.

Phasing Using The Worm - The worm is not only used to make designs using odd numbered rosettes and making moirés, it is also used for quick alignment of the spindle especially in regard to the Dome Chuck, Double Eccentric Chuck and Straight line Chuck.

Threading Attachment

The threading attachment mounts to the outboard end of the spindle by means of a collar and set screw and functions in the same way the traditional Holtzapffel lathes did by means of engaging a threading chaser into a threaded bobbin of the same pitch. The attachment comes with four sets of thread pitches or threads per inch (they are 4 tpi., 8 tpi., 12 tpi., and 16 tpi.) and is capable of making one, two, three, or four lead threads which gives a wide variety of threading options. The thread chasers are made of brass and the attachment holder, collar and four threaded bobbins are coated in black oxide to prevent rust. The lever is used to engage the thread chaser firmly into the bobbin and hold it while it’s being locked down by the cap screw.

Cutting the threads – The Threading Attachment is used with the Drilling Frame using a 60 degree cutter to cut a thread in the work piece. There are two options for cutting threads. The first is to use a 60 degree cutter held in an end mill holder. Only the 3/16” end mill holder is supplied with the purchase of the Drilling Frame. The second option is to use a 60 degree thread mill cutter which is held in a 3/8” end mill holder. Both parts for the second option can be purchased from Lindow-White.
Pumping Kit

The pumping kit includes four rosettes, a two directional rubbers, spring, and thrust bearing. The rosettes have 18, 24, 36, and 48 bumps matched for pumping and rocking. The rubber has an end with 1/2" rollers for simultaneous pumping and rocking. The opposite end has a 1/4" stud for pumping, and if the rollers are removed one can use the 3/8" stud for pumping also. The spring is coupled with a thrust bearing to give an exceptionally smooth action.

The pumping rosettes are installed in the same manner as the standard rosettes except with more spacers in between for the needed clearance. The spring is installed in seconds by simply removing the back shaft collar, sliding the thrust bearing and spring on, and then setting the spring tension with the shaft collar.

Rebuilt Hardinge Cross Slides

These are used Hardinge tool slides purchased from the surplus used machine market, rebuilt, and put on a base manufactured by us to accommodate the Lin-dow White rose engine.

The base is made with a dovetail slide to match the Hardinge lathe bed allowing for adjustment. It also utilizes T slots across the bottom in both directions to allow for easy clamping. The bed is made of steel and the base is made of aluminum to reduce weight.

The double nut system used by Hardinge insures a minimum in backlash. The slide is guaranteed to operate smoothly along the entire travel. Hardinge produced the best compounds ever made in the USA, and they sell new for over $5000.

The rebuild on the cross slide includes removing wear from the ways by milling, grinding and scraping and replacing any worn bearings. The slide is also completely dismantled and cleaned.

The toolpost is not included, but a T nut for mounting the tool post is included along with a bolt to match.

Engine Turning Tool Holder

The engine turning tool holder is designed to allow traditional engine turning or guilloche work to be done using a tool slide and quick change tool post. It incorporates the traditional cutter (high grade Mirco 100 carbide) with a guide (geed) immediately next to it. The cutter is ground with a front angle of 10 degrees off each side and a relief angle of 20 degrees. The guide is adjusted by means of a thumb screw which in turn sets the depth of the cutter. The cutting tool is made from extremely close grain carbide of the highest quality and honed to a mirror finish for exceptional cutting and a highly reflective finish cut. The tool holder will accept ¼” square cutters for additional tool profiles.
The owners of traditional ornamental lathes usually had boxes of cutters in various shapes and sizes. You can see photos of these cutters in the ornamental turning books such as *Ornamental Turning* by T D Walshaw and others. Unfortunately, at the moment there are no commercial makers of either the convex or concave cutters, but with some effort and machine shop work you can make your own.

One of the first questions was why are we using oil quenched high speed steel for these cutters when we have heard that tungsten is best? The answer is in the type of cutter. If we used carbide we would not be able to contour it in a concave shape without very specialized grinding equipment. Even can be shaped with a file and sand paper. Also HSS will take a sharper edge.

The LWRE cutting frame takes cutters with a round shank of 3/16 inch diameter. David prepared blanks (Photo 1) in advance. He started with various diameters of oil hardening rod stock cut to length with one end turned to 3/16 leaving the other end at full diameter to make the cutter. The first step is to remove about half the diameter of the cutter stock. This was done using a fixture on the mill which allowed us to mill six blanks at once (Photo 2). The blanks were then deburred on their ends and taken to the turret mill which allowed the rough shape to be placed on the ends and sides of the blanks. Grinding burrs were then removed on a belt or stone making the blanks ready for polishing on the Accu-Finish machine (Photo 3). Achieving the best possible finish before hardening is faster and easier than doing this after hardening. The next step is heat treating. This is simply done by heating the cutter to cherry red in a propane or MAP gas flame and then quenching it in oil. Used motor oil can be used and some people recommend olive oil. In either case make sure you have enough volume of oil for the volume of metal to be hardened. Using too little oil is likely to start a fire. Make sure heat treating is done in a safe area with a fire extinguisher available. The cutter should now be cleaned using sandpaper, and polishing stones. If the cutter is hardened a file will skate across it rather than cut. The cutter is now hard, but brittle and needs to be tempered. After the oxidation is removed from the surface, the cutter is brought gently to "straw" color using a torch, or it can be put in an oven at 350-400 degrees for one hour. In either case it is allowed to cool slowly. The hardened, cooled blank is then ready for final sharpening and polishing (Photo 4).

David recommends sharpening these cutters after each project. There are multiple opinions on sharpening methods. Unless the cutter has been damaged the simplest method is to hone the top surface which will expose a sharp edge ready for use with the next project. However you will eventually lose the centerline using this method so when the center line gets too eroded just make a new cutter. Other turners insist on using sharpening cones to regrind the cutter edges. This will maintain the centerline, but care must be taken not to change the profile. This is certainly the method of choice for an antique cutter.

When making a half round cutter it is easy to make it with a return curve. However, that shape impedes the cut and changes the curve that will be produced (Fig. 1). Using the same example of a half round cutter you may not want to make both flat and pointed cutters as shown in Fig. 2. To keep your versatility and decrease the number of cutters needed you could make only half round cutters with pointed tops. Then if you require a flat next to your half round cut you could easily make a second cut using the appropriate width of flat cutter.