

TURNERS ANONYMOUS

An Association of WoodTurners in Western Pennsylvania

NEWSLETTER

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NEXT MEETING:

Saturday, December 16th.

Location: Max Peterson's Workshop

Time: 9.30 am. Coffee & Donuts from 9.30

Bill Groll our segmental turning specialist will explain how he sets about designing these works of art and how he cuts the myriad component pieces accurately to the required shape and how they are held for the all important laying up and gluing processes. He promises to have some completed pieces on hand together with others in various stages of completion.

SHOW AND TELL: Bring along any Christmas Ornaments that you have turned and give us a chance to see them and learn from your expertise or mistakes.

TOPS FOR CHILDREN: Now that you all know how to turn tops and what fun it can be, please bring along some (or all) that you have made and possibly coloured that can be presented to a Children's Christmas Charity. Our aim is to present at least 100 tops Note! they should NOT be able to fit into a 35 mm Film Container, such a size restriction is to prevent small children from swallowing them.

LAST MEETING:

There was a gratifying number of tops brought in by almost every one of the members attending this successful meeting; and they ranged from heavy knuckle busters to minute pieces of art. (I refer of course to the tops and not to the members!)

6 Teams competed to see which one could turn the most tops in a 10 minute period and the winning team led by Jack Brown completed 9 tops before the raucous Cow Bell sounded the end of the competition.

After the Florida style Ballot papers had been counted and re-counted, the new committee was announced without any help from the legal profession.

Jack Brown

Rich Evans

and

Kent Miller

being elected to serve as Directors together with the new officers shown at the head of this Newsletter.

Members then returned to the lathes and much useful instruction was given to some of our new members, no one being allowed out of the door until they had turned a top!

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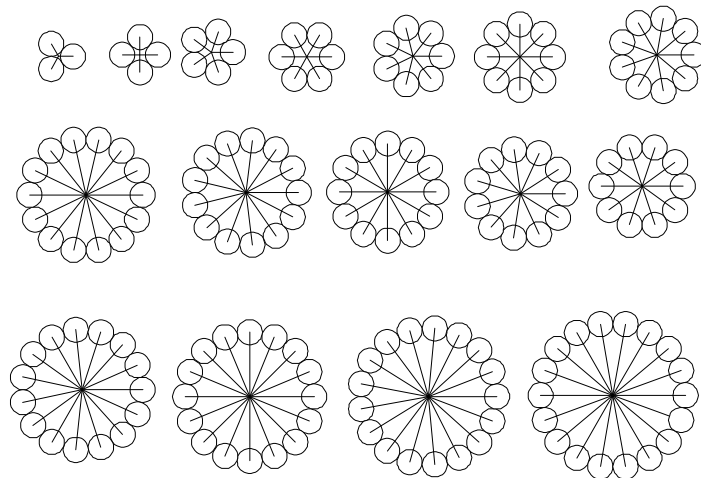
THE SOFT TOUCH:

ONE (Contributed by Methuselah)

Many years ago before many of you were born I was involved as a young student to study ways of improving the machinability of wood. We placed samples in a suitable container to which a vacuum could be applied and at the same time immersed the samples in hot melted paraffin. When the vacuum was released the paraffin was sucked into the wood cells, achieving almost 100% penetration in permeable species. Allowed to cool, the resulting product was found easy to machine and brittle woods no longer splintered.

TWO (Contributed by Jim Vandzura)

Do you prefer your bowls boiled or fried? Well I don't know about frying, but boiling is a definite option according to Steven D. Russel who has recently finished a painstaking experiment on 1500 bowl blanks. You may have read about his experiments in the wood turning news group. If you are interested to learn more, I have reprints available, or will ask John to print them in the January News Letter.



(Contributed by Jim Vandzura)

Snowflakes? Ornaments? Well that wasn't the intent, but why not? After all, the show and tell for December is ornaments. Actually the patterns above were created using the equation that I used to lay out the magnet perimeters in my "levitated" top. For those not at the last meeting, this top would stay upright even after the spinning ceased. The top stayed upright due to opposing magnetic fields created by magnet rings that were implanted in both the top and its accompanying base. One of the members (we'll just call him John) was quick to point out that I should refer to it as the "Viagra" top. I'll let you think about that one.

Anyhow, I promised that I would pass the equation along for anyone who was interested in making his/her own top. Note that it is not really critical to cram the magnets so close together as shown. The top will still work just as well with gaps between the magnets. I just wanted to optimize the fields and available real estate, hence, the equation. If nothing else it can be used as a starting point for your design. Also note that the equation can be used for other designs as well. For example the top that Jack Brown made with the ring of marbles would be an excellent application. Or possibly, you are doing inlays and need an exact layout pattern. How about some ornaments for the next meeting?

The equation calculates the radius of a major circle that can accommodate an integral number of minor diameter circles around the major circle's perimeter. You can see this from the figures. The patterns increase in size relative to the number of smaller circles contained within. The smaller circles are adjacent to one another with no extra space in between. The smaller circles are centered on the major circle's perimeter.

The equation is: $R = r ((\tan(180/N)^{-2} + 1)^{0.5}$

Where:

- r is the radius of the smaller circles (magnets),
- tan is the tangent function,
- N is the number of smaller circles (magnets),
- R is the resulting radius of the layout circle on which the smaller circles are placed,

The (-2) and (0.5) factors are just the square and square root functions respectively. Actually the (-2) is the reciprocal of the square.

This probably looks more complicated than it really is. (There may be a way of reducing the equation further with some trigonometric identities, I don't know nor did I try.)

Let me run through a quick example here. Suppose that you have a batch of 3/8" diameter magnets and want to form the tightest ring possibly using 10 of these magnets.

Then:

$$r = 3/16 \text{ (half the } 3/8 \text{ diameter)}$$

$$N = 10$$

First calculate tangent term, $180/10 = 18$. Punch 18 into your calculator. Hit the tangent key (make sure your calculator is set on degrees and not radians). The result is 0.32492. Next, multiply that number by itself to obtain the squared term (result = 0.1055728) and take the reciprocal (divide into 1). The result is 9.472136. You've just calculated the $(\tan(180/N))^2$ part of the equation.

Add 1 to this value (10.472136) and then take its square root. The result is 3.23606. We're done with the $((\tan(180/N))^2 + 1)^{0.5}$ part of the equation.

Multiply this by 0.1875 (r, the radius of the magnet) and the result is 0.60676.

This is the radius (R) of the layout circle. Just set your compass to this length and scribe your circle. Obviously you won't get it set to this precision (your pencil width alone is probably greater than 0.02 inches) so just ballpark it, round up before rounding down. Using 64ths, a close approximation is 39/64ths.

Now that you have this scribed circle you can layout your magnets around its perimeter. They should be centered on this line. If you are having trouble centering the magnets on this line or if you are planning to cut a groove, then establish two boundaries, an inner and an outer boundary. Just add the magnet's *radius* to the calculated radius' value and scribe a new outer circle. Then subtract the magnet's *radius* from the calculated radius' value and scribe a new inner circle. The magnets can now be laid between these two newly scribed circles. They should fit. The inner and outer circle radii in this example are 0.42 and 0.79 respectively.

Hopefully I haven't confused or discouraged you by now. Give it a try, it's really not that difficult. Finally, for the mathematically challenged or unadventurous, I have a spread sheet that will do the calculations for you. If you'd like a copy or even a table of values for a given configuration let me know and I'll get it to you.

Famous Turners

Most of you will have seen pictures of those wonderful Faberge Easter Eggs made for the Russian Czars. Fewer will know that Peter the Great was himself a competent wood turner and helped design several complex lathes in his quest to modernise his backward country. It was said that no shipwright dare drive a nail unless approved by Peter who used this detailed practical knowledge as well as political and fighting skills.

Help! Help!

Either through ignorance or having a 1994 computer, the result is that your Editor is failing to read attachments sent to him via e-mail. He can download them using aol.com but needs help, education and guidance from some member with know how, time and patience. Any Offers?

For Sale

Hardwoods or softwoods, for turning or carving, Steve Morovich has them all - well nearly all! Give him a call at (412) 341 1980

JET LATHE Model #1236. Variable Speed, Swivel Head, Stand, Face Plate, Spur Center, Live Center, Tool Rest Base and 12" rest, Base Extension. John Colombini has just bought a new lathe with ornamental turning attachment and says that the JET is only 3 years old and barely broken in. \$ 350.00
Call him at (412) 881 2234

DELTA RADIAL ARM SAW \$650.00
POWERMATIC 12" PLANER \$800
Call Loman Smith at (740) 942 4951

Coffee Cups. (Contributed by Max Peterson)

As some of you may know, I am something of an environmentalist, not a fanatic mind you. but just concerned with the direction of our materialistic excesses. In order to cut away at these I would like to propose that those who have a travel mug of some kind, and are of a mind to do so, should bring it along to the Turners Anonymous meetings. This is not an economic issue for us. Styrofoam is cheap and the Club can afford it. We will still provide disposable cups for those who forget or who don't want to bother. I use them myself when they are convenient. We may not be able to prevent raping the Alaskan wilderness, pillaging our National Forests, or allowing corporate greed to pollute our air and water but each one of us might make a small difference in our own way.

"We cannot do great things on this earth. We can only do small things with great love"

Mother Teresa