

Ornamental Turning International
Newsletter Supplement – February 2020

The 2020 OTI Symposium
Northbrook, Illinois
September 24-27

President's message

I am pleased to invite you to Ornamental Turning International's 2020 Symposium. This unique biennial event provides an opportunity for the ornamental turning community to gather, learn and share each other's company. With our membership being so dispersed geographically, the Symposium offers a rare opportunity to meet your fellow OT enthusiasts and see their work firsthand. We have assembled a group of speakers for the Symposium that will leave your head buzzing with new designs and techniques by the time you leave. Fred Armbruster, Al Collins, Wes Pilley and others will be generously sharing their knowledge, both from the podium and more informally in conversation. Ornamental turning is generating enthusiasm not only for traditional techniques, but also for new approaches using modern technology. John Moe's article in the following pages will give you the flavor of his

group's adventures with their MDF rose engines. Vendors will be in



attendance to put temptation in your path. We will have several machines available with operators to demonstrate a variety of techniques. All in all, it will be a great time for anyone interested in OT. Come join us!

Treasurer's message

Thank you for your past membership to Ornamental Turners International. The link to join or renew membership can be found at the OTI website <http://www.ornamentalturners.com/>. The annual membership fee is still \$35. If you find it more convenient, you can now join or renew your membership for 2 years with a \$70 payment.

Your membership fees go to support the following:

The biennial Ornamental Turners International Symposium.

The 2020 Ornamental Turners International symposium. Registration is now available via the OTI website.

The Ornamental Turners International Forum / Website – <http://www.ornamentalturners.com>

A significant benefit from your membership is full access to member-only content on the website, a rich compendium of reference material related to ornamental turning, guilloche, CNC, Rose Engine machines and related topics. The Resources,

Forums, Photo galleries, and Sub-group links provide access to a tremendous amount of educational information.

Many thanks to Jeff Edwards for managing recent software upgrades and improvements to the forum and the other on-line sites. This has been no small effort and, while there is still some work to be done, we're doing our best to make it all easy to use.

YouTube -

<https://www.youtube.com/channel/UCsSM2TJctvm6KKtSdM-sI4A>

The Ornamental Turners International YouTube channel has been established and we have begun to add educational videos. Presentations from the 2018 Symposium and other events have been posted. Please provide feedback on video content that you would like to see added.

Facebook -

<https://www.facebook.com/groups/1509604172399116/>

New content is being posted here almost every day. I'd like to thank everyone who has participated in posting content and comments.

Thank you for your membership, and I look forward to your feedback.

Richard Vanstrum
OTI Secretary/Treasurer

2020 OTI Symposium

General Information

The 2020 OTI Symposium will take place September 24 – 27, in Northbrook, Illinois. The venue is the Crowne Plaza Hotel. This facility will offer us the opportunity to provide a spacious meeting area along with plenty of room for vendors and demonstrations. Hotel Reservations can be made with the direct link to the Hotel provided here or by telephone. Registration for the Symposium and payment can be made online and paid for through PayPal or by check. You can use your regular credit card to make a payment through PayPal even if you don't have a PayPal account. Please select one of the methods of payment and complete the online form. Once the form is completed, you will be redirected to the PayPal site for payment or you will print the form and mail it with a check to our Treasurer, Richard Vanstrum.



Symposium Registration

Symposium registration is accomplished online below. Select your preferred method of payment and follow that link. If you choose to use PayPal you can pay through the PayPal interface and you do not need a PayPal account. You may use the credit card of your choosing through PayPal.

Membership in the Ornamental Turners International is a requirement for anyone wishing to attend the symposium. Dues have remained unchanged at \$35 per year. You can now pay your dues either for a single year at \$35 or, perhaps more conveniently, \$70 for 2 years

If you have not paid your 2020 membership dues you can do so below.

[PAY MEMBERSHIP DUES](#)

[REGISTER BY CHECK](#)

[REGISTER WITH PAYPAL](#)

Hotel Reservation

The 2020 OTI Symposium will be held at:

**Crowne Plaza Chicago-Northbrook
2875 North Milwaukee Avenue
Northbrook, Illinois 60062**

- Reservations can be made by Phone, (847) 298-2525 or by following the “Book Hotel Reservations” link below.
- Online via the link below, use the group code, “Ornamental Turners International” to receive the preferred room rate of \$109 + Tax. If you register by phone, please be sure to mention “Ornamental Turners International” to get the preferred room rate.
- Use date format: 07/23/2020

[BOOK HOTEL RESERVATIONS](#)

Crowne Plaza is a full service hotel with an attached conference center located in the northern suburbs of Chicago, about 20 miles from O’Hare Airport. The hotel

offers a shuttle bus to and from O'Hare for \$12 each way. The hotel also has many amenities including:

- Complimentary Parking
- Fitness Center
- Swimming Pool
- Outdoor Tiki Bar and Lounge
- Full Service Restaurant
- Sports Bar with Pizza Menu

Meal Options

The Crowne Plaza Hotel Does Not Allow Any Food From the Outside To Be Consumed In The Common Areas.

Restaurants at the Crowne Plaza Hotel.

Willows Restaurant – This is a full-service restaurant at the hotel that serves breakfast, lunch and dinner. Seating for about 100 people.

Scoreboard Pub at the hotel will be open for lunch and dinner and serves pizzas.

Options outside the Hotel within 1.5 miles

McDonalds – 1200 S Milwaukee Ave., Wheeling. Turn right onto Milwaukee Ave. and go .9 miles. \$

Wendy's – 4610 W Lake Ave., Glenview. Turn left onto Milwaukee Ave. and go 1.2 miles. \$

Burger FI – 1735 Milwaukee Ave., Glenview. Quality burgers fast. Turn left onto Milwaukee Ave. and go 1.2 miles. \$

P.J. Moon Doggies – 1702 Milwaukee Ave., Glenview – Quality sandwiches including, beef, hot dogs, sausage, gyro and much more. Turn left onto Milwaukee Ave. and go 1.3 miles. \$

Empire Szechwan- 3580 Milwaukee Ave. Turn left onto Milwaukee and go .7 miles. \$\$

North Branch- 4520 W Lake Ave., American sandwiches and entrées. Turn left on Milwaukee Ave. and go 1.2 miles then turn left on Lake street. \$\$

Rocky's American Grill – American restaurant and Pub – 698 Milwaukee Ave. Turn right onto Milwaukee Ave. and go .7 miles. \$\$

Restaurants within 5 miles

Boston Fish Market – 412 N. Milwaukee Ave., Turn left on Milwaukee Ave and go about 4.5 miles. \$\$

Tuscany Wheeling- Italian Restaurant – 550 S Milwaukee Ave., turn left on Milwaukee Ave. and go 2.5 miles. \$\$\$

Bob Chin’s Crab House – A very popular Seafood restaurant. Turn left onto Milwaukee Ave. and go 2.6 miles. \$\$\$

D’Agostino Pizza- Chicago style Pizza – Turn left onto Milwaukee Ave. and go 2.8 miles. \$\$

Benihana’s – Japanese – Turn right on Milwaukee Ave. and go 3.4 miles \$\$\$

Coopers Hawk winery and restaurant – American Entrees. Turn right on Milwaukee Ave. and go 3.9 miles. \$\$\$

Spears – Burgers, beer, sandwiches. Turn right on Milwaukee Ave. and go 4.0 miles. \$\$

Attractions Nearby

There is a complimentary bus to any location within 5 miles of the hotel. Ask at the front desk to schedule a ride.

1. **Golf Mill Shopping Mall-** An indoor mall with both large and boutique shop and a food court. Turn left onto Milwaukee Ave. and go 4.0 miles.
2. **AMC theater Niles** – Located in Golf Mill shopping center. A multiscreen theater to see your favorite movie.
3. **Lynfred Winery** – Illinois winery tasting room. Turn right onto Milwaukee Ave. and go 4.7 miles. <http://www.lynfredwinery.com/>
4. **Chicago Botanic Garden** – 365 acres of beautifully landscaped gardens and greenhouses. 100-year-old bonsai, exotic plants, walking trails or take a hop on/off narrated train. A gem of the Chicago north shore. Entrance is free but cost is \$30 per car. Located 10 miles north of the hotel. 1000 Lake Cook Rd., Glencoe. www.chicagobotanic.org/
5. **Rivers Casino** – A full-service casino 8 miles from the hotel. 3000 South River Road, Des Plaines, IL www.riverscasino.com/desplaines
6. **The Grove.** Step into the past at the area’s most unique 145-acre outdoor history and nature museum. Venture out on trails through mature oak forests past wetland pools and stop to watch a family of turtles sunning themselves on a log. Learn firsthand about the Native American tribes who lived on this land and the settlers who followed them. Turn right onto Milwaukee Ave. and go 1.8 miles. www.glenviewparks.org/thegrove/

7. **Bahá'í House of Worship.** One of seven Baha'i temples in the world and the oldest. Features a 135-ft. white-stone dome completed in 1953. 11 miles from hotel. 100 Linden Ave., Wilmette www.bahai.us/bahai-temple/
8. **Downtown Chicago.** The Chicago lakefront is full of things to see and do. Navy Pier, Millennium Park, many museums, a fantastic architectural boat tour thru the Chicago river, and much more. 26 miles from the hotel. https://travel.usnews.com/Chicago_IL/Things_To_Do/





STEPPING UP

THE MDF

In 2012 Jon Magill incorporated a stepper motor into his rose engine and started to demonstrate it locally as well as at the OTI

Symposiums. The attraction to stepper motors are based on their characteristics: low cost, high torque at startup and low speed, precise positioning and reliability. These features make them ideal for ornamental turning i.e. indexing, very low speed for better cutting and a very reasonable price (\$30 versus \$200 for a gear motor that does not index). While several of us were intrigued, the control of motors through software programming and the world of online shopping for parts we could barely identify served as seemingly impossible roadblocks.

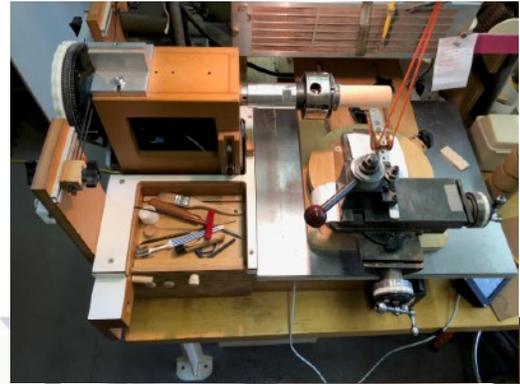
We made a couple of halfhearted attempts at learning software (C/C++) but quickly decided it was a bit much for a couple of us dinosaurs. So we waited, hoping for a miracle.

Lo and behold out of the East a savior came in the form of Ed French who recently retired from Microsoft and possessed not only programming skills but was very well versed in design, machining and fabrication— —and could understand Jon as they discussed visions, concepts and theories. Once they settled on an approach, they were able to quickly translate ideas into hardware whether it was steering us through online purchasing or local manufacture.

With this willing new resource a couple of us committed to adapting our MDF rose engines to stepper motors to power the spindle and also gain an indexing capability.

The first step was to acquire and assemble hardware in the form of stepper motors (NEMA 23), stepper motor driver (Polulu DRV 8825), Arduino compatible micro controller (Teensy 3.2), touchscreen (Nextion 4.3" HMI LCD enhanced), 24 volt DC power supply, toothed timing belt (GT3-5mm) toothed pulleys, switches, headers, wire and of course solder. To assemble we also acquired soldering stations and crimping tools.

Once we had our hardware, we held several group training/assembly sessions, built electronic controls and modified our MDFs in my shop.



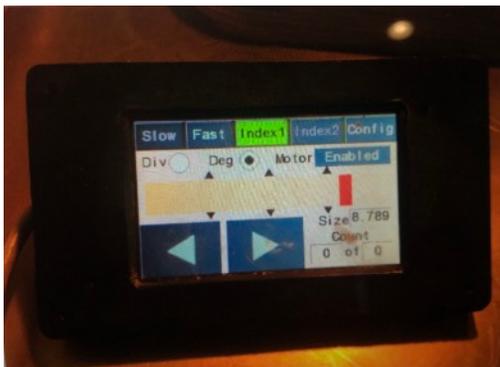
As the motors are quite small, it was fairly simple to incorporate them inside the headstock .



The installation did however require a minor modification to the MDF body.

To insure positive control, we added the toothed pulley and belt with an idler to facilitate belt

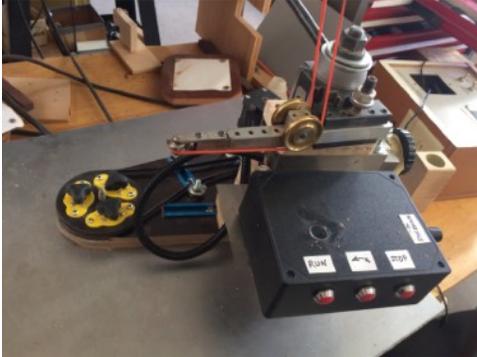
replacement and tension adjustment.



In no time at all we were up and running albeit with slightly different configurations due to different component purchase and individual design preferences. Fortunately the software was able to accommodate the differences.

At this stage our touchscreen looked like this and controlled speed, direction and indexing.

This was the configuration at the Seattle Symposium. We also added features such as:



. A spherical apparatus along the lines of the design Jon demonstrated in Denver.



. Mechanical hand cranked threading attachment.



. A mechanical spiraling apparatus using a bicycle chain patterned after a Paul Fletcher article from the SOT Bulletin.

It was not long before the brain trust figured out that by adding two stepper motors to the slide rest we could gain the above features and more through software. Of course that included new multi axis boards, an improved enclosure for the touchscreen, an upgraded Teensy 3.5, two additional NEMA 17 stepper motors, a metal top to facilitate Magswitches for work holding and a couple of soldering sessions





As you can see from the photo, the new Nextion touchscreen has added many more pages and features which will be described at the 2020 Chicago Symposium.

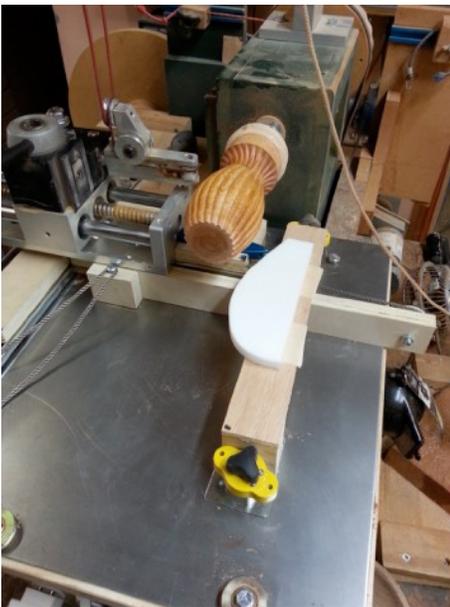
Basically the new setup will:

- . Cut threads and helixes of any description
- . Index
- . Cut Greek Key patterns around a variety of shapes



- . Produce Barleycorns in a circle or an ellipse on the face or around a cylinder
- . Produce reciprocating patterns on the face or around a cylinder
- . Move a precise distance in either axis





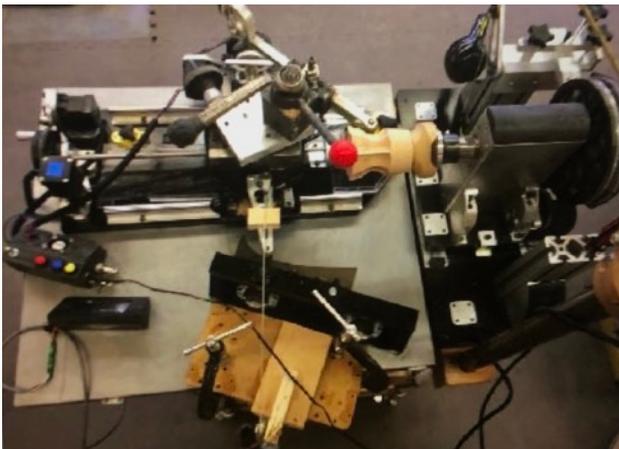
- . Act as a standard rose engine
- . Support a curvilinear or spherical device
- . Carve spirals on a curved surface

Each of these functions has a stand alone configuration page to set up



speed, describe pattern, set direction or number of patterns etc. The software for these is locally developed, taking advantage of open source libraries. Barleycorn calculations have been made easier by using Bill Oom's Excel spreadsheet. As stated earlier, we all have slightly different physical features; but we have maintained a common software configuration to support upgrades that are arising as we test and improve the product.

The most advanced of our rose engines is Ed French's metal rose engine that utilizes linear



bearings for the headstock in lieu of rocking motion to follow the rosettes as well as many other unique features. It is planned to be in Chicago in the demonstration room along with perhaps a couple of other MDF rose engines.

This article was meant to be an overview in hopes of generating interest in "stepping up" MDF's and not a detailed manual. It is also assumed that anyone desiring to follow this path will have to create or locate a local resource to overcome the technical issues. We have designed an open source circuit board and have an optimum parts list with sources on Github.

(https://github.com/elfren/RoseEngine_SpindleAndAxis) In addition we are planning a set up a troubleshooting guide.

It's a far cry from the original MDF rose engine kit and its hand crank for which we all owe Jon Magill (and Paul Fletcher) a debt of gratitude. It was a well thought out, designed , packaged and distributed piece of equipment that contributed significantly to the OTI as well as “set the hook” for our local group.

The whole experience of the MDF and later the stepper motor have truly had a great impact on my turning life. I'm thankful and stand in admiration of Jon's and Ed's abilities, patience, perseverance, initiative and

willingness to help us fledglings. My wife loved it when one of them said”Let me see if I can explain it in words you will understand”. That pretty much sums it up.

