

The NEMES Gazette

NEW ENGLAND MODEL ENGINEERING SOCIETY INC.

No. 170

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Editor's Desk

Frank Hills

Mini Machine Tools.

Over the last few months I've been trying to get to know some of our members better. I'm not interested in the breed of their cat or what color their house is, though some are really weird. I'm interested in their...interests. They range from antique cars to gardening, steam engines to computers, wood working to watch repair. The one common interest we all have is in our tools. I haven't found anyone whom didn't have some. A great many, reasonably, considering the nature of NEMES, have power and/or machine tools. They range from electric hand drills to full blown CNC turning centers. Put us all in a room on a Thursday night and you can find just about anything.

The types of tools we have reflect our interests, our capabilities and our circumstances. I don't know too many people living in apartments with CNC. Surprisingly, they could! There is a huge selection of mini machine tools available today. They range from milling machines you can pick up with one hand to bench-top units weighing a half ton.

-Continued on page 2

Next Meeting

Thursday, June 3, 2010

7:00 PM. Meetings held at:
Charles River Museum of Industry
154 Moody Street
Waltham, Massachusetts

Membership Info

New members welcome! Annual dues are \$25 (mail applications and/or dues checks, made payable to "NEMES", to our Treasurer Richard Koolish, see right) Annual dues are for the calendar year and are due by December 31st of the prior year (or with application).

Missing a Gazette? Send mail or email to our publisher.

Addresses are in the left column.

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Editor's Desk

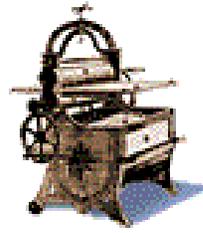
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And for every make of mini-machine, there is a company selling computer controls that will fit it. Of course you may have to make your own mounting brackets, but that's what the machines are for! I've been watching the trends of this mini world for years. There are lathes, milling machines, drill presses, router tables, profile copiers (for making things like propellers), and numerous others. It's amazing what people have been able to do with them. Home made hand guns, engines, clocks, even other machine tools have been produced. Their only limitation is size and the extent of human imagination.

I do have a word of warning for those looking to fill that hole on their shop bench however. These mini machines are not pint size versions of their larger brothers. They can be accurate, but they need to be massaged to get it. They're stiff enough to create the tiny parts they were intended to make, but they can easily be pushed too far. Many have come to call these machines "kits" because they require a bit of work to get them to function consistently and well. The ways are probably rough machined as delivered. Adjusting features are more than likely bolts re-machined for the purpose. Fasteners are probably the poorest of quality. But don't be dismayed. A little time, a little work and these machines can produce excellent results, and do so for a fraction of the cost and space of professional units. Yes, even the apartment dweller can have a machine shop.

I was inspired to write this article as I met more and more people without their own shops, yet wishing they had one. Some didn't know these little machines were available. Others were afraid they didn't know enough to get started. The beauty of these machines is that they open a new world to your creativity. They're relatively inexpensive and easy to use. Experience is the only thing lacking, and you can't get that without starting.

Next Month...Early TV.



NEMES Gazette Editorial Schedule

<u>Issue</u>	<u>closing date for contributions</u>
July 2010	June 18, 2010
Aug 2010	July 23, 2010
Sept 2010	August 20, 2010
Oct 2010	September 24, 2010



President's Corner

Dick Boucher

All of us would like to offer Dick our greatest and most sincere thanks for five years of sweat and toil as President. It was a great honor to have him leading us and watching over us. Thanks Dick! Great job!!!

The Meeting

Our own Dick Husher will be our speaker this month. Following up on John Goodman's talk last month on about a 365-day clock, Dick will be talking about Simon Willard's clocks from a design standpoint. Dick says, "Simon Willard has been called the father of American Clockmaking, a mechanical genius and he was thought to be completely original. (That reminds me of John Goodman's calculations to obtain the gear ratio for the earth's rotation and relationship to the orbit around the sun). During his innovative period from 1780 to 1820 Simon pioneered many styles of small clocks which supported a very active colony of clockmakers around Boston. Little was known about this actual clockmaking activity other than from his two poorly written patents. By dissecting his clocks and comparing the pieces with European clocks of the same period I will explore his design approach although it will cost him his genius reputation."

Miscellaneous Ramblings

The following was actually written for the April Gazette but some of you might have noticed

my column was missing last month. It was totally my fault. I just failed to get it written and submitted to Frank in a timely manner so I am submitting it again this month as most of it is still relevant.

Well it has been an exciting month since I last wrote this column. First it was the heavy windstorm leaving many of us with no power for some time. I was talking with a fellow who works for National Grid and every tree through a power line he encountered was a pine tree. Most of the damage from that storm was in the North Shore area but it sure was exciting that night.

The next major weather event was the torrential rain of last weekend. My road was closed for four days because of rapid water flowing over it from the Parker River. It sure is peaceful here when the road is closed. I didn't suffer any property damage or flooding in either storm but the Charles River Museum got 10 inches of water in the first floor exhibit area. The damage is substantial with all the office area torn out and all the sheetrock walls removed up to two feet from the floor. In other words the museum is a complete mess.

The oil can crew along with the bicycle and watch groups have been busy spreading all the water soaked artifacts on the museum floor, photographing them and doing their best to clean and preserve them to prevent mold growth on them. Arrangements have been made to move everything to a storage area when it is cleaned and then we have to start rebuilding the rooms. A professional crew was on the job with the knowledge of properly doing the job and a number of very large dehumidifiers to dry out the areas. They are the ones that tore out the office and the amphitheater. Dick Koolish has posted photographs at:

http://www.dickkoolish.com/rmk_page/pictures_032010.html

Many of you have seen the museum and as you can see, the need for funds is still with us. I will be leaving a basket on the table in the front of the room and if anyone wants to drop a buck or two into it to help with the museum rebuilding it would be greatly welcomed. Many thanks to all who contributed to the basket passing last month. Eln is really pushing to try to get funding so she can get started on the rebuilding of the rooms in the museum and I am

sure she is very appreciative of anything we can do to help in that respect.

Dick B.

A Word About Our Home!

Dear Friends of the Charles River Museum of Industry and Innovation:

We want to let you know about the very stressful last few weeks at the Museum. As you probably know, the Charles River flooded in Waltham, and the Museum suffered serious damage, especially during the first flood, March 15th, but water also came into the Museum again, in the second flood on March 29th through the 31st.

With Arthur Nelson's essential support, we immediately engaged Munter's, an outstanding restoration company, to begin flood clean-up and damage-control after the first flood. Their crews worked vigorously to pump out the water and dry the floors and all the objects. Their experts carefully surveyed the damage in all areas of the Museum. To avoid the development of mold, Munter's removed all the carpeting, and cut out sections of dry wall all over the Museum, to a height of two feet in some places and four feet in other places. All the soaked and damaged material was removed from the Museum, and questionable waste was carefully tested for toxicity (none was found), and then properly discarded. All the office files and computers were taken to safe places, and the office furniture and other portable artifacts are in storage, thanks to friends of the Museum who made these spaces available to us during the crisis. The entire Museum has been thoroughly cleaned and disinfected. All these steps required more than a week of work by a large crew.

The Management Committee especially thanks Eln Hagney for her resourcefulness, hard work, and constant presence during and after both floods. The staff, Eln and Kim Kalen, have continued to work in a temporary office in the Public Internet Center, along with our interns and office volunteers. The Oil Can Crew and many other Boiler House volunteers have worked long hours, moving shelving and equipment, cleaning and disinfecting hundreds of small and medium-sized artifacts, and cooperating with the Munter's team. To add to the Museum's distress, our Executive Director resigned after the first flood to take a new position.

The Management Committee is committed to

restoring the Museum, to reopening it as soon as possible, and to finding a new Executive Director to help lead us to the next level.

We are appealing to the Museum's many friends to support these efforts with an extraordinary contribution at this time. Your financial help will be put to work promptly to support our recovery from the flood and to rebuild the Museum. We intend to use this unexpected and unwelcome demolition as a chance to make the Museum even better than before. If you can donate to the Museum at this time, your help will be part of our effort to rebuild and strengthen the Charles River Museum of Industry and Innovation.

With hope and determination,
The Management Committee
Arthur Nelson, Doug Waybright, Marcia Folsom,
and Kim Washisko



Shop Tips

Vertical-Plane Ball Turner

Dick Kostelnicek is one of the officers of the Home Metal Shop Club of Houston, and shares with us one of his recent projects.

A Vertical Plane Ball Turner

by Dick Kostelnicek

Here are the construction details and operating procedures for a lathe attachment that turns spherical balls from round bar stock. This Ball Turner swings a tool bit along an arc that lies in the vertical-plane that is parallel to the lathe's axis. As the lathe's cross slide advances, the manually swung bit cuts chips from the rotating bar stock. A finished ball supported by a short nub results when the tool bit's arc is directly above the lathe's axis.

You can see this ball turner in operation on the video at this website:

<http://www.homemetalsclub.org/hints/videos/video.html>

An Aloris style boring bar holder secures the Ball Turner to the lathe's tool post and serves as a bearing for its rotation. A standard box end hex wrench is used as a lever arm to rotate the Ball Turner mechanism. Many of the parts are made from off-the-shelf hardware such as nuts,

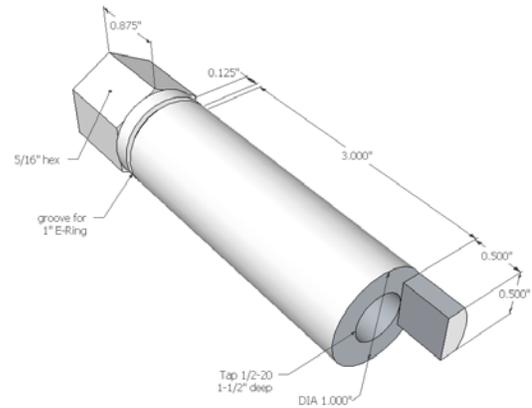
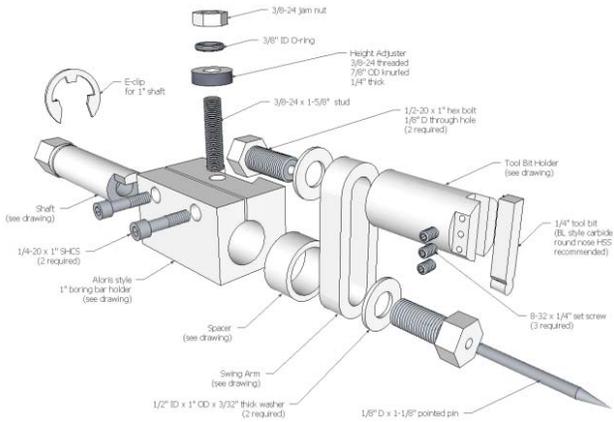


bolts, washers, threaded rod, setscrews, an E-clip, and an O-ring. If you already have a 1" Aloris style boring bar holder, you need only make 4 parts: Shaft, Spacer, Swing Arm, and Tool Bit Holder. Details for machining those parts are shown in the drawings below.

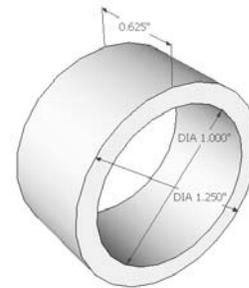
Here's how to set up and operate the Vertical-Plane Ball Turner, Refer to the above photo and exploded parts diagram on the next page. The drawings were made in GOOGLE SketchUP.

1. Adjust the Tool Bit Holder's orientation and the Swing Arm's length so that the shank of the tool bit is vertical at the left most rotation of the tool bit (see photo above). This is where the finished ball's nub attaches to the bar stock.
2. Extend the Pointed Pin that's located on the turner's axis of rotation.
3. Slide the cutter in the Tool Bit Holder until the distance between the cutter's edge and the Pin's point equals the ball radius. A slightly larger radius setting will allow for a final clean up pass.
4. Set the height of the Boring Bar Holder so the Pin just "kisses" the point on a tail stock dead center.
5. Move the lathe's carriage toward the headstock till the Pin's point advances past the end of the chucked bar stock a bit more than the radius of the ball. Alternatively, use the bit's tip to gage the end of the bar stock.
6. Lock the lathe carriage to the bed and tighten down the compound-slide gib.
7. Swing the Ball Turner Shaft in half circle arcs while advancing the cross slide into the spinning bar stock.
8. When the ball is fully developed, lock the Shaft's rotation at the left most swing

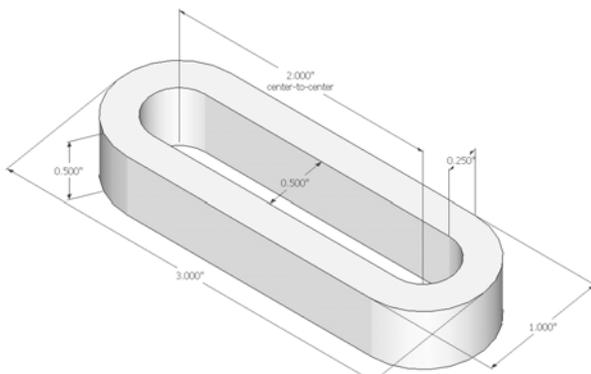
position with the SHCS pinch bolts in the Aloris style boring bar holder. Move the carriage toward the headstock to generate a nub shaft on the ball. An outboard carriage stop (right of the saddle) will allow you to accurately reposition the Ball Turner back on center.



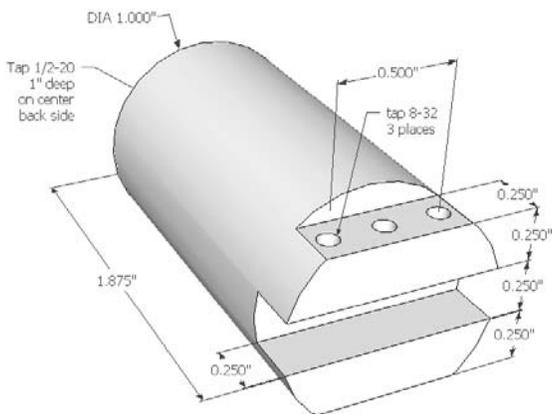
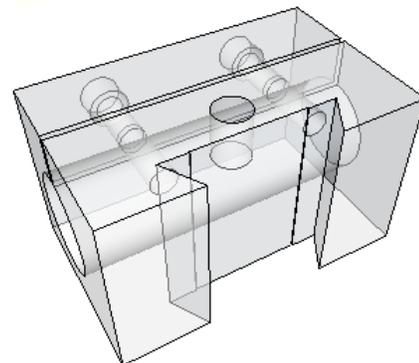
Shaft



Spacer

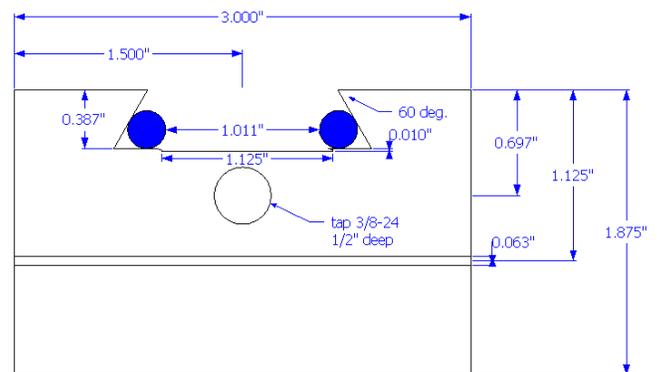


Swing Arm

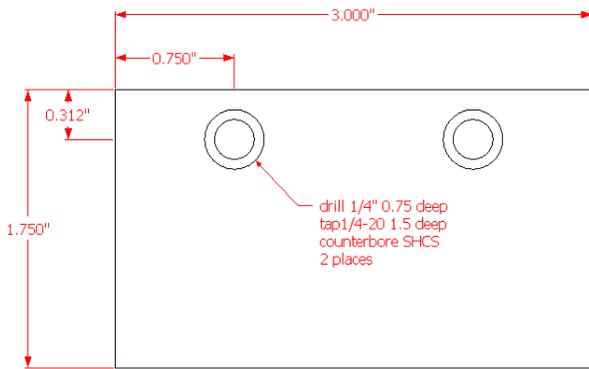


Tool Bit Holder

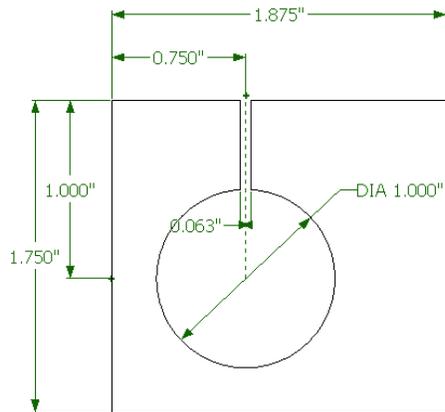
An Aloris Style 1" Boring Bar Holder acts as a base of rotation for the Vertical-Plane Ball Turner.



Two 1/4-inch dowel pins gage the dovetail width.



Dimensions of the Boring Bar Holder



Many thanks to Dick for letting us reprint this excellent article.



NEMES clothing

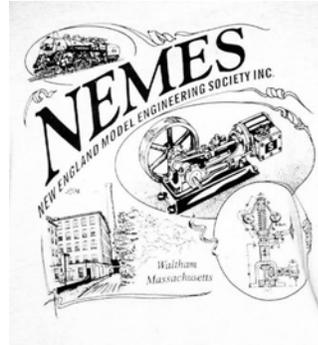
NEMES Tee Shirts

NEMES tee shirts and sweat shirts are available in sizes from S to XXXL. The tee shirts are gray, short sleeve shirt, Hanes 50-50. You won't shrink this shirt! The sweat shirts are the same color, but long sleeve and a crew neck. Also 50-50, but these are by Lee. The sweat shirts are very comfortable!

Prices:

	Tee Shirts	Sweat Shirts
S - L	\$12.00	\$22.00
XXL	\$14.00	\$24.00
XXXL	\$15.00	\$25.00

Artwork by Richard Sabol, printed on front and back:



Rear



Front

Add \$5 shipping and handling for the first tee shirt, \$1 for each additional shirt shipped to the same address. Sweat shirts are \$7 for shipping the first, and \$1.50 for each additional sweat shirt. Profits go to the club treasury.

Mike Boucher
10 May's Field Rd
Lunenburg, MA 01462-1263
mdbouch@hotmail.com

NEMES Shop Apron



Look your best in the shop! The NEMES shop apron keeps clothes clean while holding essential measuring tools in the front pockets. The custom strap design keeps weight off your neck and easily ties at the side. The apron is washable blue denim with an embroidered NEMES logo on top pocket.

Contact Rollie Gaucher 508-885-2277



**MARK
THIS
DATE**

Upcoming Events

Bill Brackett

To add an event, please send a brief description, time, place and a contact person to call for further information to Bill Brackett at thebracketts@verizon.net or (508) 393-6290.

Bill

June 3rd Thursday 7PM
NEMES Monthly club meeting
Charles River Museum of Industry
Waltham, MA 781-893-5410
<http://www.neme-s.org>

June 19th-20th Custom Vehicles & Antique
Aeroplane Show
Owls Head Transportation Museum Owls ME
<http://www.ohtm.org/>

June 19th-20th Vermont Gas & Seam Engine
Assoc show
Brownington Stomhouse Mueseum
Old Stone Rd off 191 exit 26 Brownington VT
Gail Norman 802-485-8224
gailnorman@trans-video.net

June 19th-21st Father's Day Meet
Pioneer Valley Live Steamers
Southwick MA.
<http://www.pioneervalleylivesteamers.org>

June 20th 9th Annual Van Brocklin Meet
Waushakum Live Steamers
Holliston MA
http://www.waushakumlivesteamers.org/?page_id=8

June 20th 9:00am The Flea at MIT
Albany Street Garage at the corner of Albany
and Main Streets in Cambridge
<http://www.mitflea.com/>

June 26th-27th Orange Show
Orange Airport Orange MA
Grover Ballou at 413-253-9574

June 27th NEMES display at the
North Shore Old Car Club
Topsfield Fair Grounds, Topsfield, MA enter main
gate
Ed Rodgers (781) 233-3847

June 19th-20th Custom Vehicles & Antique
Aeroplane Show
Owls Head Transportation Museum Owls ME
<http://www.ohtm.org/>

July 1st Thursday 7PM
NEMES Monthly club meeting
Charles River Museum of Industry
Waltham, MA 781-893-5410
<http://www.neme-s.org>

July 3rd Antique Engine Meet & Tractor Pull
Boothbay Railway Village
Rt 27 Boothbay ME
www.railwayvillage.org

July 3rd-4th Fabulous 50s, Sensational 60s &
Antique Aeroplane Show
Owls Head Transportation Museum; Owls ME
<http://www.ohtm.org/>

July 11th Pepperell Show
RT 111 Pepperell, MA Ken Spalding 978-433-5540

July 18th 9AM The Flea at MIT
Albany Street Garage at the corner of Albany and
Main Streets in Cambridge
<http://www.mitflea.com/>

July 17th-18th Trucks, Tractors, Commercial Vehicles
Antique Aeroplane Show
Owls Head Transportation Museum Owls ME
<http://www.ohtm.org/>

July 23rd-25th Eliot Antique Tractor & Engine Show
Raitt Homestead Farm, Rt 103
Eliot ME. Lisa Raitt 207-748-3303

July 24th-25th Wings & Wheels Spectacular &
Aerobatic Airshow
Owls Head Transportation Museum Owls ME
<http://www.ohtm.org/>