

# The NEMES

NEW ENGLAND MODEL ENGINEERING SOCIETY INC.

# Gazette

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## Presidents Corner

Victor Kozakevich

The speaker for May 7th will be one of NEMES' own, Rollie Gaucher. He'll be discussing work fixtures with photos of many examples from jobs and projects over the years. Bring your questions, your ideas and your imagination; as I hope we can all agree, there is always another way.

Fixtures, while they may require some extra time to make, can be a blessing when it comes to holding an odd shaped part for modification, as well as when a part becomes increasingly difficult to hold as more material is removed. Fixtures can also add to safety, as some parts want to jump out of the vise or chuck if the cut is just a bit too deep. And of course, fixtures can speed production and increase uniformity if you're making more than one of a part.

It finally feels like spring, and that means summer is just around the corner. So, I hope we can all squeeze in just one more shop project before yard work and outdoor engine shows call us away. Sound like I'm thinking about the July show-and tell-meeting? I hope to have an interesting speaker for June, so stay tuned.

And if anyone saw something extraordinary at Cabin Fever or NAMES, please share at the meeting, we're always glad to get some new ideas.

## Thursday, May 7, 2015

Waltham Library  
735 Main 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 Baker) Annual dues are for the calendar year and are due by December 31<sup>st</sup> of the prior year (or with application).

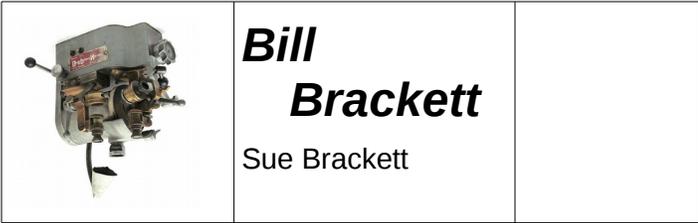
Missing a Gazette? Send a US mail or email to our publisher. Contact addresses are in the left column.

### Issue Contributions Due

JUN	MAY 21, 2015
JUL	JUN 18, 2015
AUG	JUL 23, 2015

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Just a quick note to let you all know that Bill passed away yesterday afternoon. He was ready to go since he was unable to do the things he loved.



**R. G. Sparber's Gingery Shaper - Part 61**  
**Fitting the Table to the Cross Slide (part 2 of 2)**

The pivot pin was made from 1" water-hardened drill rod. I chose this material because of its nice finish. The uncut rod was fit through the cross slide casting and the cube slid on top. This was followed by the front plate. I then measured an additional 1.1" and marked it for sawing.



Pivot Pin Photo by R. G. Sparber

After squaring off the end, I used a parting tool to cut a groove for the D ring.



Groove Cut Photo by R. G. Sparber



Drilling Pivot Pin Photo by R. G. Sparber

I then drilled a  $\frac{5}{16}$ " holes 1" deep and tapped it  $\frac{3}{8}$ " -16 to accept the locking screw. This was a mistake as I found out later.



Locating Pivot Pin Center Photo by R. G. Sparber



Slot Cut in Pivot Pin Photo by R. G. Sparber

Above you see the finished slot in the pivot pin. My plan was to drill a 1/2" hole at each end of the slot and then use my 1/2" two-flute end mill to clean out the slot in 0.1" deep steps. All went well with the drilling of the first hole until I hit the cross drilled hole. The drill then grabbed so hard it pulled the drill chuck from its tapered shank. I ended up having to step drill this hole in 1/16" steps from 1/4" up to almost 1/2". I was then able to switch to the end mill set in an end mill holder and finish the hole. The second hole was through solid metal so was a lot easier. In hindsight, it would have been much easier to cut the slot first and then drill the hole for the screw. I also could have made a shorter slot, but I think it is harmless.



Pin on Box Photo by R. G. Sparber

The parts fit together fine so far. To compensate for the weakness of the back plate, I next made thick washers for the bolts that attach the cube to the cross slide casting.



Making Washers 1 Photo by R. G. Sparber

I had some 12L14 of the correct diameter. After facing off, I drilled a 3/8" hole about 1" deep. The cutter was then used to mark off slabs 0.3" wide.



Making Washers 2 Photo by R. G. Sparber

The first washer has been cut. One side was faced on the lathe and the other face is rough and probably not true.



Making Washers 3 Photo by R. G. Sparber

I am using the drill to hold the washer and a set of parallels to set it true in the chuck. The parallels are removed before the lathe is turned on. The face of the washer is then trued.

Before I saw off the next washer, the bar is put back on the lathe and the next face squared up. The cycle is then repeated for 3 finished washers.



Washers in Use Photo by R. G. Sparber



Box Mounted Front View Photo by R. G. Sparber

Here you can see how easy it is to loosen these bolts. The bolt heads are the same size as all other bolts needing adjustment in the shaper. The extension is long enough to clear the pivot pin.

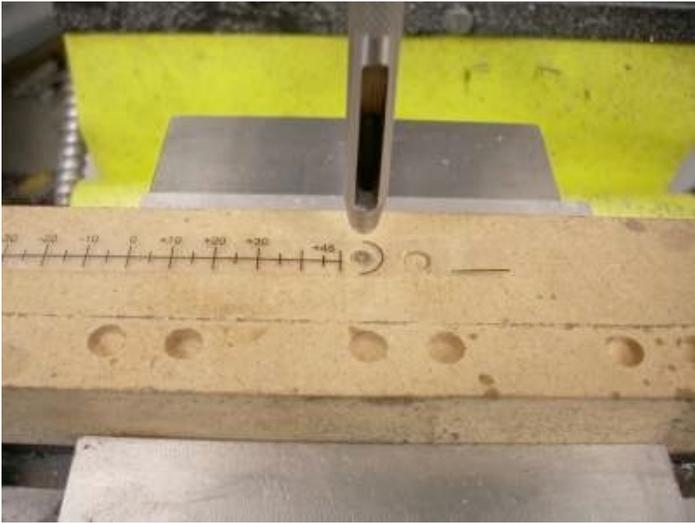
When done with these bolts, the front plate is slipped onto the pivot pin and the 1/2" support rod slides into the pivot pin's slot. Tightening the pivot pin screw locks the support rod in place and locks the front plate to the front of the table. I will find out if this is solid enough when I start to cut the table with the shaper.



Box Mounted Side View Photo by R. G. Sparber

The support rod design is not done yet. I may add a sliding tube on the bottom end of this rod to allow for vertical table travel. However, if I can stand having the rod stick above the table, then I will keep it simple and leave it that way.

Of minor note is the protractor scale. I made it at the same time that I made the down feed dial.



Punching Hole in Scale Photo by R. G. Sparber

I have a punch fitted into my drill chuck and the plastic gage resting on MDF. Using the downfeed, I was able to punch decent holes. After the fact, my friend Larry suggested I try nylon as the support block. It worked much better.



Aligning Head Photo by R. G. Sparber

To locate the scale, I first set the head true with respect to the cross slide. You can see my square clamped in place and the head touching it.



Scale Attached Photo by R. G. Sparber

The scale was then attached to the protractor using 6-32 screws.

Stay Tuned for part 62 from R. G. Sparber next month.

Keep sending me email with questions and interesting shaper stories.



My thanks to Dan Eyring who was very kind to me. He sent me a 'copy' of an old (year 1940) "Model Engineer" magazine that had an article in it about perpetual motion, and suggested that the topic might make for an interesting article for the Gazette. This article, unfortunately, was too late for the April issue of the Gazette.

By the way, I am open to other suggestions for articles from other members too (hint).

The facsimile issue of the "Model Engineer" he sent me was very interesting. This was before the editors were overwhelmed by live steam clubs and continuous and annoying model railroad and "IMLEC" rubbish. It has been downhill all the way since then.

I actually invented a practical 'perpetual motion' device, but I have not yet made a working model. I intend to do so as soon as my cure for Alzheimer's Disease is published, assuming that that event happens before I succumb to AD myself.

Perpetual motion! Perpetual Poppycock you say! Perpetual motion is impossible!

No, it is not. It is known to happen in biological systems at the molecular level.

You know, of course, about Maxwell's Demon. The eponymous Demon can open a gate when an energetic molecule of gas approaches it, and close it against a slow molecule, thus separating a gas into its hot and cold components, creating a temperature gradient that can be used to provide energy. Maxwell's Demon is alive and well at molecular levels, and is used by biological organisms to ratchet up power to perform molecular operations in living cells.

The first thing to do is to realize that the idea that perpetual motion is impossible is to realize that the prohibition derives from outdated classical physical ideas. Let me explain how it can be achieved in a macro-physical system.

You know that a Möbius strip has only one side. If you were to take a strip of paper and twist it before joining the ends, you would get a Möbius strip, transforming a two sided surface into one that has only one side and one edge. The Möbius strip is not just an apparently useless mathematical construct; all of us depend on it every minute of our lives. Brains perform, as a tour de force, the equivalent trick, with the internal models and our perception of the (real) external world, creating, metaphorically, a one-sided Möbius strip, with the inner

and outer worlds blending together, apparently seamlessly. (Actually, it may really be like a Klein bottle, which is a generalization of a Möbius strip, and is also one sided, without separation between the inside and the outside.)

You have also heard, I presume, of Faraday's ice-pail experiment that shows that a charge put on a metallic surface will tend to stay on the outside because of the mutual repulsion of the constituent electrons. This is why a Faraday Cage is the safest place to be in a violent thunderstorm.

Take a Möbius strip made of a conductive material at a low-enough temperature at which it becomes superconductive (i.e. it loses all its electrical resistance) and squirt a burst of electrons onto it (readily done with a vandeGraaf machine, say). The electrons will repel each other and try to go to the outside. But the strip has no 'outside'; it has only one side, so the electrons must keep running around and around endlessly, forevermore, because, as far as they are concerned, they cannot find any 'outside'.

But we have wisely wound a coil around the strip, so there must be, by Faraday's Law of Induction, a perpetual current running through the coil, which is also superconducting, of course.

Viola! a permanent current provided by the coil, with no further input. Perpetual Motion achieved!

I have to admit that I am a bit loath to actually make a working model of my perpetual motion device because such an infinite source of energy will be irresistible to greedy industrialists. Produced in industrial strength, it will generate huge amounts of energy that will overheat the environment and exacerbate the current tendency (no pun intended) to climate warming, which we can ill afford.



## Upcoming Events

Errol Groff

To add an event, please send a brief description, time, place and a contact person to call for further information to Errol Groff at:

events@neme-s.org

May 2 CAMA Spring Power Up  
Route 7 Kent CT

John Pawlowski President P.O. Box 1467  
New Milford, CT 06776

<http://www.ctamachinery.com/2014-spring-power-up.html>

May 1-3

Allis-Chalmers Connecticut Gathering of the Orange  
Feature: Allis-Chalmers.

In conjunction with the Quinebaug Valley Engineers  
Assn. Zagray Farm Museum., Colchester CT  
Contact: Dave Clausen, 471 70th Ave. City. Rd. J, Clayton,  
WI 54004; 715-268-4632  
email: [oldallisnews@amerytel.net](mailto:oldallisnews@amerytel.net)

May 3 Western Mass. Chapter A.T.C.A. Antique Truck Show  
Deerfield, MA At the Yankee Candle Corporate  
Headquarters, Yankee Candle Way. 11th Annual Antique  
Truck Show, Free Shuttle to the Yankee Candle Store, Raffles,  
Flea Market. Free Admission, and Registration. 7am to 3pm.  
Held Rain or shine. Info Craig 413-834-1677 or Doug  
413-665-4735 Vendors contact Craig  
[maggie101racing@hotmail.com](mailto:maggie101racing@hotmail.com)

May 3 New Hampshire Power of the Past Collectors  
Dunstable Show  
Dunstable MA Rts.3 and 113, 1 mile west on Rt. 113 follow  
signs.

Contact: David Beard  
584 South Mammoth Rd.  
Manchester, NH 03109; 603-623-2217

May 7th Thursday 7PM NEMES Monthly club meeting  
Please see Presidents Corner for details  
See NEME-S.ORG for details.

May 12-14th 9:00-5:00 EASTEC at Eastern States Expo  
West Springfield MA  
800-733-4763 [www.sme.org/eastec](http://www.sme.org/eastec)

16 May Cranberry Flywheelers Spring Show  
Plymouth Airport, Plymouth MA

May 17th Spring Steam-up Waushakum Live Steamers  
Holliston MA  
<http://www.waushakumlivesteamers.org/>

May 17 Hillside Tractor Ride  
Cummington MA Rt. 9 to Fairgrounds Road to Cummington  
Fairgrounds.  
Contact: Francis or Linda Judd,  
145 Berkshire Trail w.  
Goshen, MA 01032  
413-268-3264.

May 16 Bob Wallace Steam Engine Show  
Moultonborough NH  
Contact: Bob Wallace  
Moultonborough, NH 03254  
603-476-5685.

May 16-17 Scantic Valley Antique Engine Club 38th Annual  
Antique Engine, Tractor and Machinery Show  
Somers CT Four Town Fairgrounds, from Rts. 83 and 190,  
Rt. 83 south 1/4 mile, right onto Field Road, which becomes  
Egypt Road, show on right.  
Contact: Duane McDuffee, 860-684-4329; email:  
[dmcuffee@cox.net](mailto:dmcuffee@cox.net) [www.svaec.com](http://www.svaec.com)

May 23-24 Bernardston Gas Engine Show and Flea Market  
Bernardston MA Rt. 91 exit 28, Rt. 10 N.  
Contact: Vickie Ovitt, PO Box 542  
Bernardston, MA 01337; 413-834-0103;  
email: [whojr3@yahoo.com](mailto:whojr3@yahoo.com)  
[www.unitedchurchofbernardston.org](http://www.unitedchurchofbernardston.org)

May 23rd American Precision Museum opens  
<http://www.americanprecision.org/>

28-30 May ATHS National Convention York, PA  
At the York Expo Center.  
[www.aths.org](http://www.aths.org)  
816-891-9900 [membership@aths.org](mailto:membership@aths.org)  
May 29 & 30 Railway Prototype Modelers Meet  
Collinsville CT Show Flyer [HERE](#)