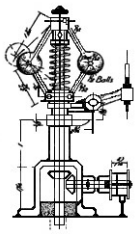

The NEMES Gazette

NEW ENGLAND MODEL ENGINEERING SOCIETY INC.

No. 221 September 2014 © 2014 NEMES

Presidents Corner

Victor Kozakevich

Our meeting space is booked by another event for Sept 4, and the Appleton Room (lounge along walkway) is not available to us.

I've reserved the lecture room at the Waltham Library for the evening of Sept 4. It is 3 blocks away, and the metered lot behind it should be free by 6PM; additional parking at a lot around the corner as well as street parking. The address is 735 Main St, about 2 blocks west of Moody St and the museum. Spring St., to the right of library, leads to rear lot; or take right off Spring to Middle St and public garage.

The talk for September will be on machining a complex part from an aluminum forging as would be carried out in a typical home shop. We will view segments from a DVD of the process and commentary will be provided by several of our more experienced members. Audience participation is welcome. The point is to consider one way of doing things, and discuss alternatives or improvements. I'm looking forward to an interactive session, and hope we all come away with some new ideas.

Thursday, September 7th, 2014

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 Baker) Annual dues are for the calendar year and are due by December 31st 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
OCT	SEP 18, 2014
NOV	OCT 22, 2014
DEC	NOV 21, 2014

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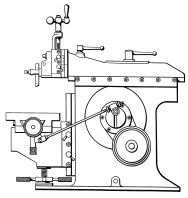
Shop Talk

Bob Bober

My son-in-law's snowblower was throwing belts. I looked and saw that the engine pulley was offset from the blower pulley and tilted. Further examination showed that this was caused by the engine being lifted at the back. It had ripped the thin sheet metal of the housing structure. I replaced the two rear mounting bolts with longer ones. Then I made a couple of brackets that I mounted underneath. The engine mounting bolts threaded into a tapped piece (0.063 thick) underneath. The floor had ripped on either side. The engine bounced on this spring when it ran. I mounted my brackets with a lock washer and nut. When I pulled them tight, the engine was now snug on the floor. The load is now spread over a much larger surface area and the belt runs true.



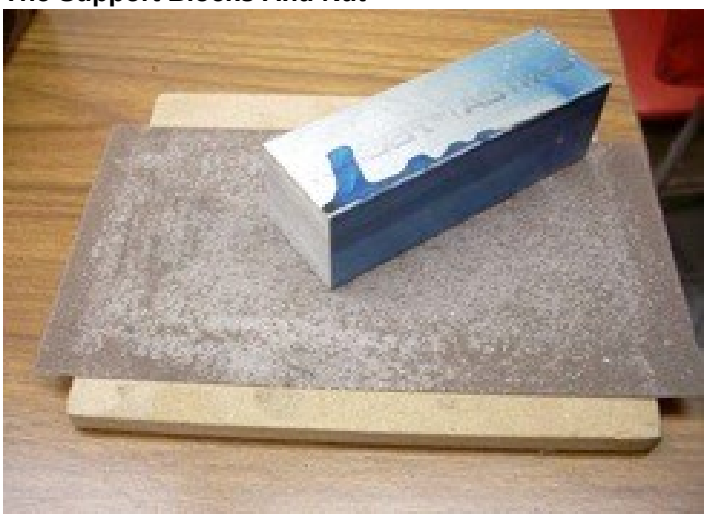
Metal Shapers

Kay Fisher

R. G. Sparber's Gingery Shaper - Part 53

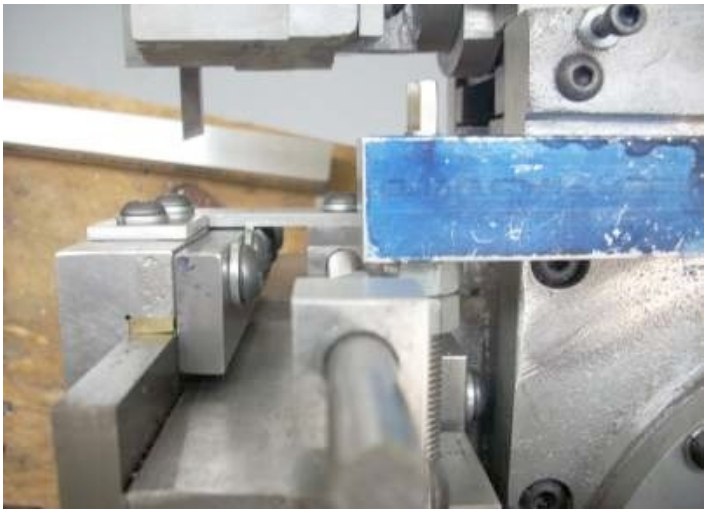
The Vertical Screw Assembly (2 of 3)

The Support Blocks And Nut



Deburring Photo by R. G. Sparber

I chose to use 1"x 1" aluminum bar for the support blocks and nut rather than casting them. "Darryl from Olympia/Portland" recommended deburring aluminum using 120 grit emery cloth glued to a flat board with paraffin wax rubbed into it. This worked quickly and accurately. Thanks Darryl! But this does not work well with 320 grit.



Top Support Photo by R. G. Sparber

The top support is dry fit first. I don't want it to hit the cross feed screw's nut.

Support & Table Nut Photo by R. G. Sparber

After drilling a close fit hole in the upper support, I clamped it in place. Note that the nut, already drilled and tapped, has been clamped to the cross slide ways.

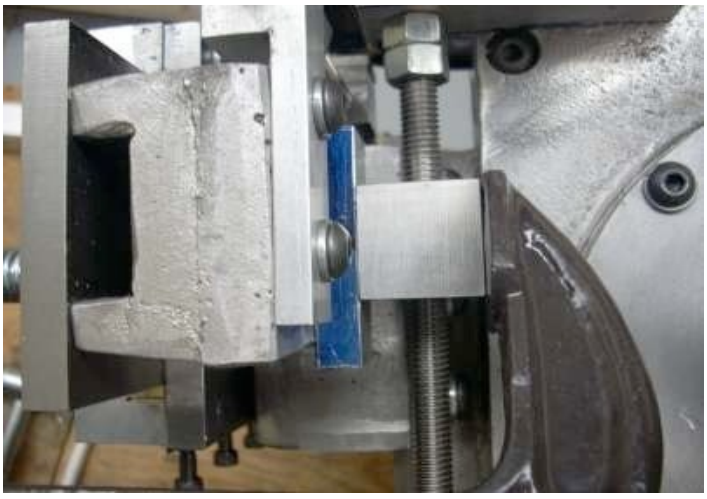


Table Nut Photo by R. G. Sparber

From this trial fit, I found that the nut needs to be ¼" out from the cross slide ways. But later I found that I didn't

need to do this.

Clamping the lower support in place actually bent the threaded rod. This is another over-constrained system. My first inclination was to machine all surfaces that would contact the support blocks and nut. That should help them all align.

Machining Lands for the Support Blocks and Nut

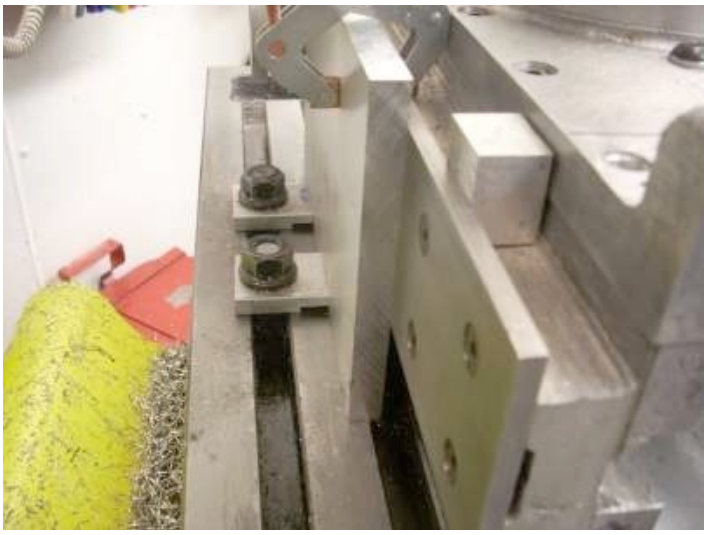
Before I realized I had an over-constrained system, I wanted the parts to line up as close to perfectly as possible. The problem was that Gingery wanted me to bolt my support blocks and nut directly to cast surfaces. My castings are just not that true. So I decided to machine lands for the support blocks and nut.

Block Marked Up Photo by R. G. Sparber

I trial fit the support blocks and nut and then marked the areas to be machined flat. In the photo above, I am ready to true up an area on the cross slide casting. I want to take enough off to get a surface that is parallel to the cross slide ways' face.

After One Cut Photo by R. G. Sparber

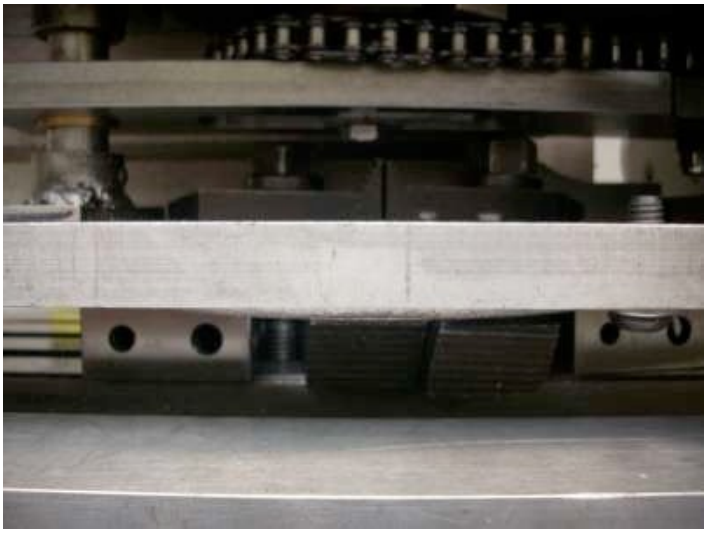
The area cleaned up nicely with a 0.005” deep cut.



Column on Mill Photo by R. G. Sparber

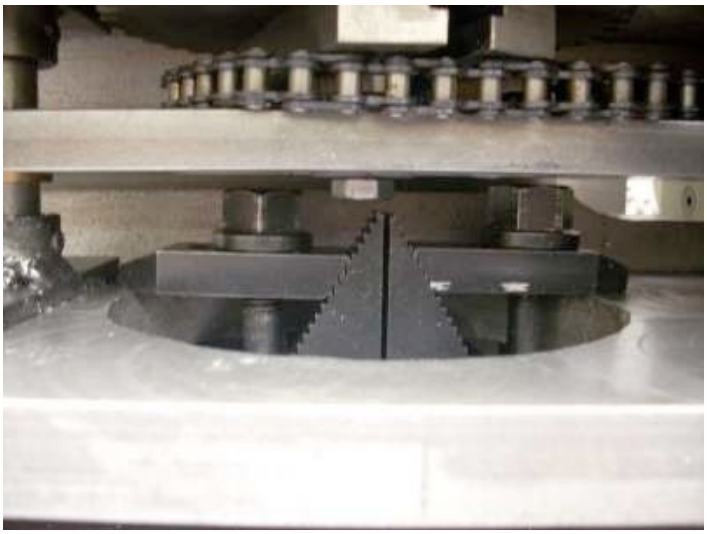
Cleaning up the side of the column was a little harder because I had to remove a few parts and wrestle the remainder onto the mill. This shaper is starting to get heavy!

You can see my precision vertical surfaces in contact with a plate that has been clamped to the cross slide ways. It is not essential that the areas being machined are true but it was easy to do.



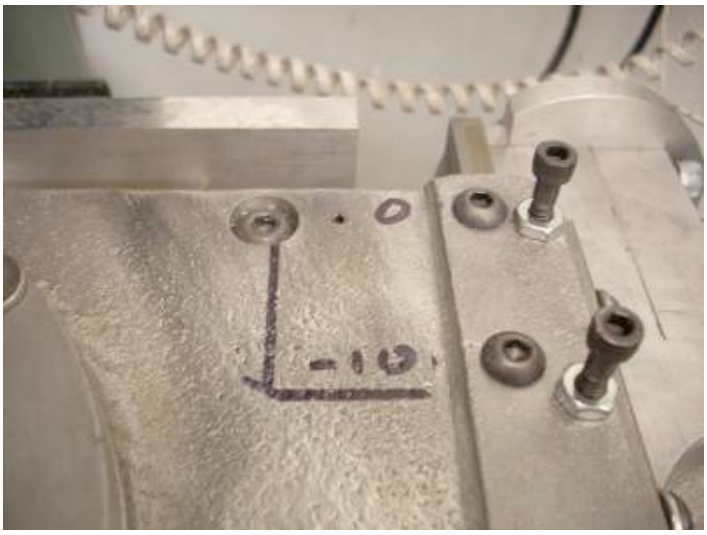
Top View Photo by R. G. Sparber

Above is a view of the non-crank face of the column facing down on the table. I have it up on two 1-2-3 blocks that contact the bolt ring face. This puts the assembly close to true.



Top View 2 Photo by R. G. Sparber

Hold-down clamps inside the bolt ring are holding the assembly to the table. There is not much room in there to work.



Upper End of Column Photo by R. G. Sparber

Next, I assessed what needed to be removed. Using the DRO, it was easy to set zero as noted above and then move around and find the contour. I'm down 0.010” at the point shown above.

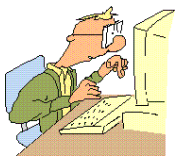
Lower End of Column Photo by R. G. Sparber

The lower end of the column had some shrinkage so it was down 0.033”.

Cutting Lower End Photo by R. G. Sparber

I took 0.01” deep cuts because I didn't trust the clamping arrangement. I removed a total of 0.034” on both areas. I didn't want to have to recut these areas later so went 0.3” wider than the bar stock and about 0.5” longer.

Keep sending me email with questions and interesting shaper stories.



Editor's Desk

George Gallant

I have been a true believer in the 90/10 rule. You spend 10% of you resources doing 90% of the project or 90% of your resources doing 10% of the project. This also seems to extend to using any new tool that promises to make life easier.

An excellent example occurred this summer when I tried to connect a low cost radio to two popular low cost development systems, Raspberry Pi and Arduino. The $35 Raspberry Pi has a relatively fast 32bit ARM processor that runs Linux while the $20 Arduino has a 16MHz 8bit CPU. Both devices are perfectly capable of performing the task. I have used these radios for many years so understanding their operation was not terribly reverent to the overall effort.

The Pi allowed me to rapidly build the code to transfer messages to/from the radio while still communicate with the rest of the world. I could readily send complete messages over the hardware SPI bus but toggling a single I/O pin required an act of congress. Never mind getting a interrupt upon completion.

The Arduido was a piece of cake to toggle I/O pins and completion interrupts were doable. Keeping the rest of the system going in the background was the grief.

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

Sept 5th – 14th Annual Lee's Mills Steamboat meet
Moultonburough, NH
http://www.steamboating.org

Sept. 13,14: 10am to 3pm
Pioneer Valley Live Steamers Fall Meet
108 Hillside Road, Southwick, MA
Telephone: 413-569-0438
Web Site: www.pvls.org

Sept 21th 9:00am The Flea at MIT
Albany Street Garage at the corner of Albany
and Main Streets in Cambridge

Sept 26th-28th
Connecticut Antique Machinery Museum Fall Festival
http://www.ctamachinery.com/

Oct 1-2nd Design-2-Part Show
Royal Plaza Trade Center
Marlboro Ma.
Free admission at http://www.d2p.com/ShowInfo

Oct 4th 8:00-4:00 The Original Yankee Steam-Up
The New England Wireless and Steam Museum, Inc.
1300 Frenchtown Road East Greenwich, RI
http://www.newsm.org/index.html

Oct 5th 12:00-5:00 Roland's Shop visit
90 S. Spencer Rd. Spencer Ma.
508-885-2277

Oct 2nd Thursday 7PM
NEMES Monthly club meeting
Charles River Museum of Industry 781-893-5410
Waltham, MA

Oct 4th -5th
Foreign Auto Festival & Antique Aeroplane Show
Owls Head Transportation Museum Owls ME
http://www.ohtm.org

Oct 19th 9:00am The Flea at MIT
Albany Street Garage, Cambridge MA

Oct 11-12th 8:30 to 4:30 Battle for the Airfield
The Collings Foundation
137 Barton Road in Stow, MA Cost at gate: $20 Adults
collingsfoundation.org/cf_OpenHouseEvents12.htm

October 25th 9-5 American Precision Museum
15th annual Model Engineering Show
Windsor Community Center, Windsor VT
www.americanprecision.org 802-674-5781