

# The NEMES

NEW ENGLAND MODEL ENGINEERING SOCIETY INC.

# Gazette

No. 212

December 2013

© 2013 NEMES

### Gazette Staff

Editor George Gallant  
Publisher Bob Neidorff  
Events Editor Bill Brackett

### NEMES officers

President Victor Kozakevich  
Vice Pres. Jeff Del Papa  
Treasurer David Baker  
Secretary Todd Cahill  
Director Steve Cushman

### NEMES web site

<http://www.neme-s.org>

### Contact Addresses

George Gallant, Editor  
571 Chestnut Street  
Ashland, MA 01721  
[editor@neme-s.org](mailto:editor@neme-s.org)

David Baker, Treasurer  
288 Middle St.  
West Newbury, MA 01985  
[treasurer@neme-s.org](mailto:treasurer@neme-s.org)

Bob Neidorff, Publisher  
39 Stowell Road  
Bedford, NH 03110  
[publisher@neme-s.org](mailto:publisher@neme-s.org)

Bill Brackett, Event Editor  
29 East Main St  
Northborough MA 01532  
[events@neme-s.org](mailto:events@neme-s.org)

Errol Groff, Webmaster  
[webmaster@neme-s.org](mailto:webmaster@neme-s.org)

### Contributors

Bill Brackett  
Rolly Evans  
Kay Fisher  
George Gallant  
Victor Kozakevich



## President's Corner

Victor Kozakevich

Our speaker this month is TBA.

A little humor for the month; of course, none of these apply to NEMES members.....

### THE MODERN TOOLBOX:

**Hammer** - In ancient times a hammer was used to inflict pain on ones enemies. Modern hammers are used to inflict pain on oneself.

**Screwdriver** - The drink ordered at the local bar after you call in a professional repairman to undo the \$500 in damage you did while trying to change out a light socket with your handy screwdriver.

**Phillips Screwdriver** - The bar drink that you order when the damage estimate is over \$1,000. Contains twice the vodka.

**Pliers** - A device used to extend your reach the necessary few inches when you drop a one-of-a-kind screw down behind the new wall it took you two weeks to install.

**Multi-Pliers** - Contain a handy assortment of sharp and dangerous tools. Best left in its leather sheath and worn on a homeowners belt to increase testosterone levels.

**Electronic Stud Finder** - An annoying device that never goes off when you point it at yourself.

**Halogen Light** - A work light that lights up your backyard with the incandescence of a football stadium, causing you to cast a heavy shadow over the area you're working on so that you need to use a flashlight anyway.

## Next Meeting

Thursday, Dec 5th, 2013

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 David 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

JAN	DEC 18, 2013
FEB	JAN 23, 2014
MAR	FEB 20, 2014

## Table of Contents

President's Corner.....	1
Metal Shapers.....	2
Shop Talk.....	4
Editors Desk.....	7
Upcoming Events.....	7

**Cordless Drill** - A device that lessens your chance of electrocution 90% over a standard plug-in tool.

**Cordless Telephone** - The handyman's 911.

**Air Compressor** - A mechanical device similar in principal to harnessing the power of your mother-in-laws nagging complaints and using the resulting airflow to blast old paint off the side of the house.

**Chainsaw** - Allows you to cut your way out of the shed that you accidentally built completely around yourself.

**Vise Grips** - A pair of helping hands that doesn't critique the job you're doing or offer advice.

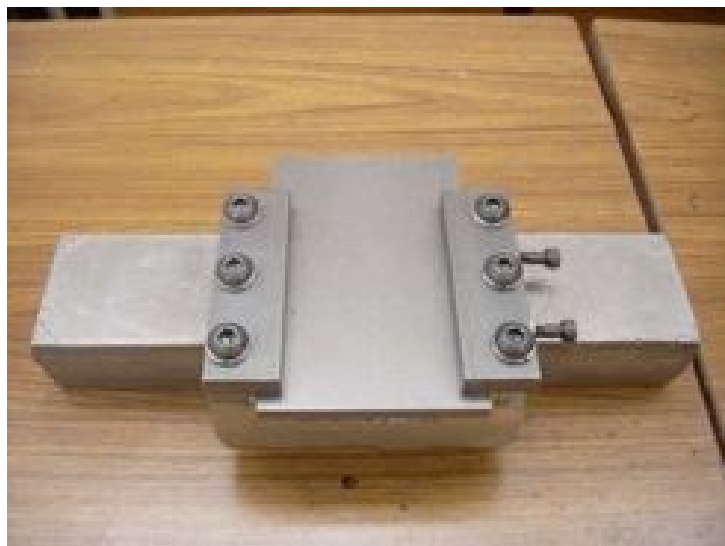


## R. G. Sparber's Gingery Shaper - Part 43

### Fitting the Vertical Slide on the Cross Slide Casting

#### Part 1

The vertical slide clamps and gibs are essentially the same as those on the downfeed head.



Vertical Slide Assembly Photo by R. G. Sparber



Column Photo by R. G. Sparber

The clamps are holding a piece of scrap  $\frac{1}{4}$ " x 3" CRS plate that was left over from the part screwed onto the front of the shaper column. When assembled, the vertical slide will engage this plate.

The clamps are made first and set aside. Gingery calls for  $\frac{1}{4}$ " thick stock but I could only get  $\frac{3}{8}$ ". I had to make many substitutions as I was buying CRS but none have been a problem.



Hold Down Pads & Clamps

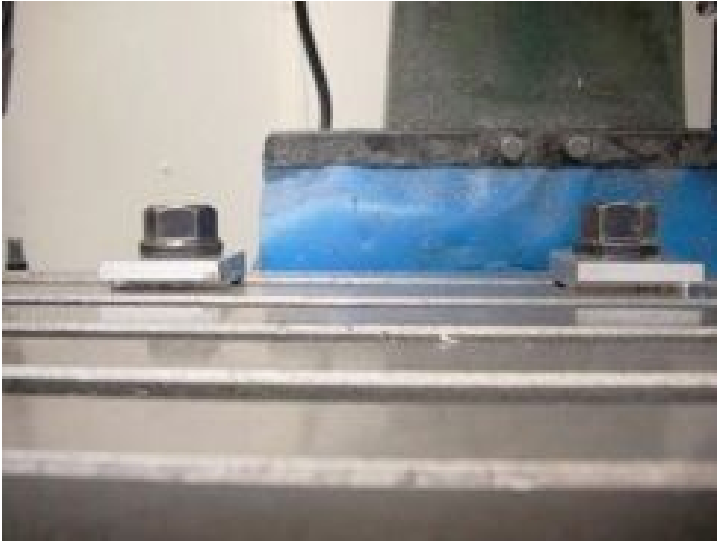
Photo by R. G. Sparber

The accuracy of the shaper will depend on having a cross slide that is true. The best way to get this is to machine supports in place, clamp down the casting, and then verify all is bedded right with a DTI.

The back pads have been cut to have a true vertical face and horizontal face. The front pads have just a true horizontal face. You can see the ragged edge where the end mill stopped. These front pads are held in place with hold-down bolts and small nuts. These bolts will later also hold down clamps.

But this setup doesn't work. My casting does not have a machined surface where the left back pad must contact it. Lesson re-learned: trial fit the casting in the unaligned fixture

before putting in any work on the fixture.



New Pad Layout Photo by R. G. Sparber

This time I got it right. I'm using the table as my bottom reference plane. It will contact what I call "primary reference 1" on the casting. After a trial fit of the casting, it was clear that I can turn two of the pads from my last fixture upside down and clamp them on the table. Both contact "primary reference 2". After tightening the bolts, I took a light cut with my end mill across the vertical faces. The space under this face permits me to fully cut the face and not risk hitting my table. I now have a pair of precise vertical reference stops.



Casting Mounted on Mill Photo by R. G. Sparber

Next came a careful cleaning of all surfaces both on the mill and on the casting. I pressed the casting against the back supports and against the table before tightening the clamps. There is a lot of contact area so there is no need to tighten too hard. That would just distort the casting and could crack it.

One spec of swarf can completely throw off the alignment. Using my DTI, I verify that my "secondary reference 2" plane is aligned with the X axis of my mill. You can see part of the DTI which has been secured to the spindle. It would have been possible to just move the casting around until the DTI

reads zero all the way across the plane but it is more accurate and, for me, less frustrating to use the DTI just for verification. I know from past verification that my secondary reference 2 plane is parallel to my primary reference 2 plane which is contacting the back stops. Since the DTI reads a steady zero, I know that the casting is in full contact with the two stops.



Checking Side to Side Photo by R. G. Sparber

To verify that primary reference 1 is in contact with the table, I want to check from side to side and from front to back on secondary reference 2. The bump I get from falling off of one top surface can cause error in my DTI reading so I prefer to take a known good parallel and place it on both horizontal faces. Then I can run the DTI all the way across without any bumps. It read all zero. I moved the parallel to the back and read zero all the way across there too.

I then ran the DTI from front to back. I set zero on the front and 0.0006" on the back. Given that all other readings showed proper bedding, I decided to accept this and not disturb the set up. This hopefully is just error in machining. If it is not, then this error will be canceled when the shaper cuts its own table top.



Milling Vertical Slide Photo by R. G. Sparber

Milling the vertical slide went well. My main concern was that the right clamp support was close to  $\frac{5}{16}$ " wide rather than the  $\frac{1}{2}$ " specified by Gingery. This was due to excessive taper in the pattern. I had plenty of metal for the support pads so milled down the top faces until I had at least 0.02" of metal around the sides of the holes. I'll say more about this later.

Once I cut enough metal to get this width, I fed the end mill down 0.240" and cut the support pads. This gives me 0.01" for shims under the clamps for final adjustment.

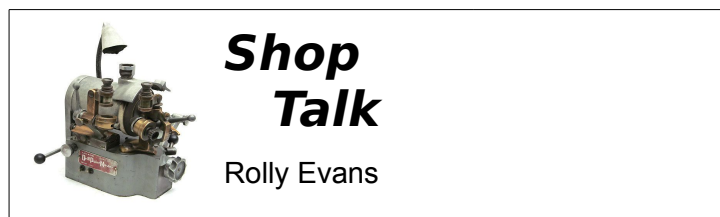
Stay Tuned for part 44 from R. G. Sparber next month.

Keep sending me email with questions and interesting shaper stories.

My email address is:

[KayPatFisher@gmail.com](mailto:KayPatFisher@gmail.com)

Kay



## Spoked wire wheels For Stanley steam cars

While reading Kit Foster's book and the early Stanley catalogs I realized wire wheels were available and optional equipment for all Stanley's.

All the early carriages used wire wheels. In Kit Foster's book there are photos of the G, DX, H, and the K with wire wheels. Wire wheels were deleted from the catalog in 1908 but they must have still been available, as further on in the book are photos on 1915, 16, and 17 condensing car's with wire wheels.

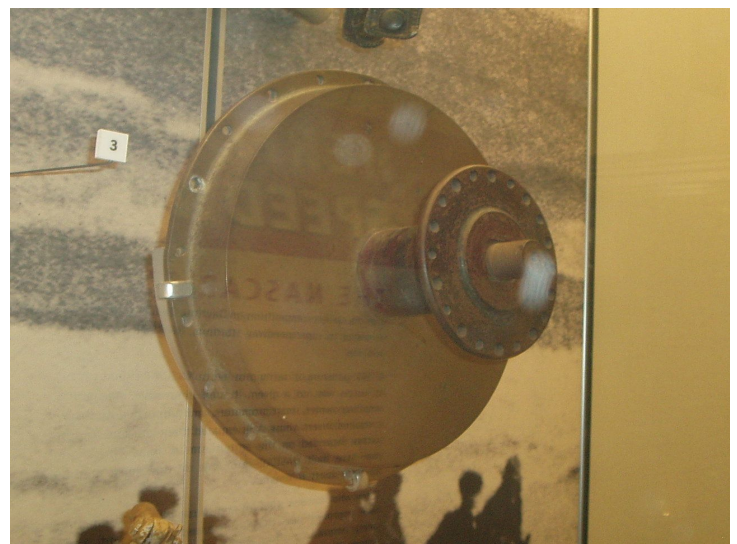
I have never seen a photo of a Model EX with wire wheels; they were the cheapest of the cars to purchase, but I can't imagine out of all the 1000 EX cars sold at least one or two would have had wire wheels.

Wire wheels run truer and are lighter in weight. This can be attributed to the fact that all the race cars are seen with them. The model H, the Vanderbilt cars, and of course the Rocket.

I visited the NASCAR museum on the way to Florida, as it was not too far from my son's house and on the way to my next stop on my trip south. They have the wheel hubs for the Rocket on display.



Rocket Front Hub

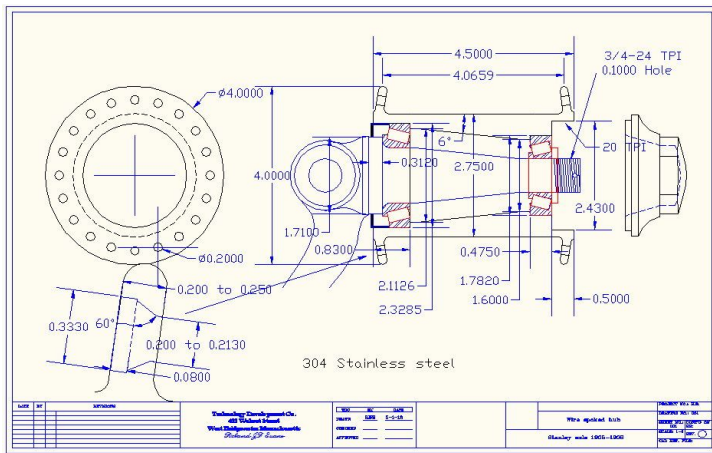
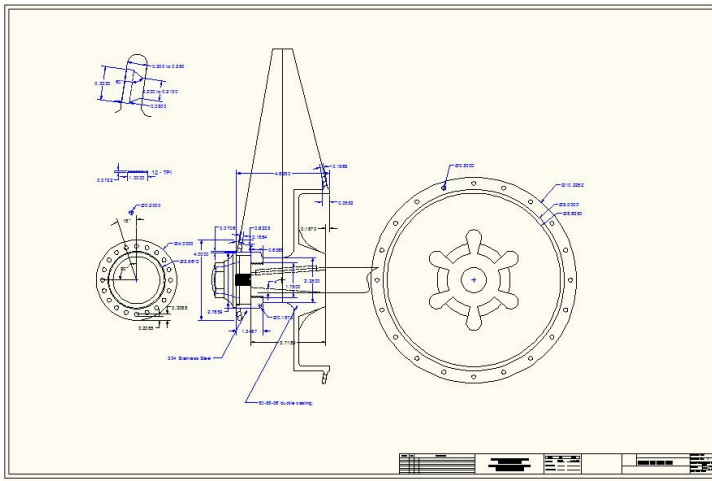


Rocket Rear Hub

Only one rear and one front, I wonder where the other two are?

I realized all you need is the hubs designed for your axles with the appropriate flanges drilled for the required spokes. Stanley wheels used 40 spokes. Studying wire wheels I learned you could have many groups of spokes, 40, 60, 80, 100, 120, the more you use it gets kind of crowded on the hub. You wind up with two rows of holes in the flange. I talked to a few shops that make rims and supply spokes. One spoke of what they call a 7-8 gage can hold 3000 Lb. unbelievable. The 40-spoke wheel can easily hold the weight of a non-condensing Stanley. There are also different spoke patterns two spoke cross pattern; three spoke cross pattern, ect.

While in Florida I decided to design some hubs to fit my Stanley EX.



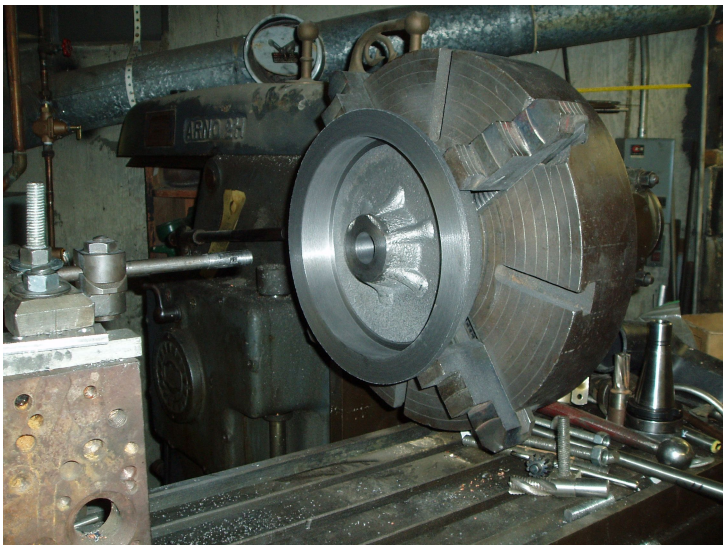
They looked OK and when I returned home I ordered a four-inch diameter piece of 304 SS. I made a pattern for the brake drum with a flange and cast them in 80-55-06 ductile iron. This would make the drum and flange much stronger than would be needed but it made me feel better. The outer flanges of the rear hubs are stainless as are the complete front hubs.



The front hubs would take a lot less time if they were a casting but as I only needed the two I opted for the labor in reducing a fourteen-pound slug of stainless down to four

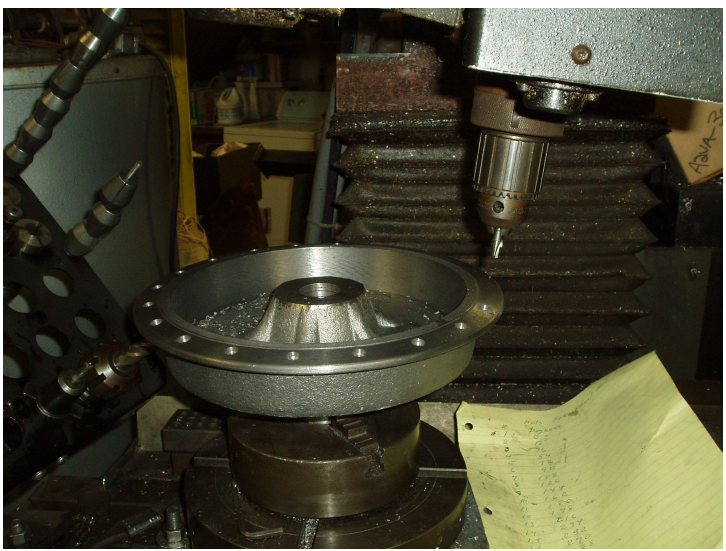
pounds.

I am using my universal Arno mill as a lathe boring the tapped axle hole for the rear brake drum as I had another project setup in my 16 inch lathe. With this setup I can bore a very long tapped hole. For those not familiar with a universal mill the table rotates.



Machining the four inch 304 stainless blank for the front hub

Wire wheel hubs can be spoked as most bicycle wheels with the spoke laced from each side of the flange. I chose to make mine laced only from the backside of the flange with the head of the spoke recessed.



Drilling the spoke holes in the new rear drum using a rotary table on my Bridgeport.



Drilling the spoke holes in the finished front hub using the rotary table on the Bridgeport mill.

I thought they had a better look to them.

I ordered rims from John McLaren, McLaren MFG INC. He makes the clincher rims for the 30 X 3 tires from 1018 - 12 gauge steel sheet that fit the Model EX. And since I have never spoked a wheel I talked to my local motorcycle shop to spoke them, at first they said no problem but when I brought the hubs and rims they asked where are the spokes. I said you need to order them to fit my wheels. That was a problem they did not know how. When they do a motorcycle wheel they can order the spokes from the manufacturer of the wheel.

I found out about a company called Buchanan spoke & Rim in California, <http://www.buchananspokes.net/>, talking to them I learned they make spokes for any kind of wheel. They also have a computer program that you enter the dimensions of the wheel, hub and the spoke pattern that the rim is punched for and it gives you the length of the spoke. Their specialty is respoking antique wheels. I sent my hubs and rims off to them. They know what they're doing.



Finished Front Hub



Finished Rear Hub



Rear wheel before mounting tire



Front Wheel with Tire



Finished wheels on my Stanley Model EX



## Upcoming Events

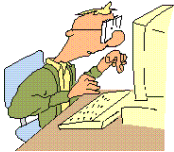
Bill Brackett

Dec 5th Thursday 7PM  
NEMES Monthly club meeting  
Charles River Museum of Industry 781-893-5410  
Waltham, MA

Jan 1st - New Years day run  
Waushakum Live Steamers  
Holliston MA.

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

Jan 25-26<sup>th</sup>  
Amherst Railway Society  
Big Railroad Hobby Show  
Eastern States Exposition, West Springfield, MA.  
<http://www.amherstrail.org/>



## Editors Desk

George Gallant

If some of the text and pictures of Rolly's article are out of sync, blame me. My composing software, Open Office, thinks that the pictures can go on top of others only to be uncovered when a new line is inserted!! In all probability, its my lack of how to use the tool. If you can, please inert pictures in the text where you want them.

Our columns are 3.75" wide. Ideally pictures should be 3.75 x 2.81 inches. Open Office usually shrinks to column width and I manually expand.

