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The NEMES Gazette

The Newsletter of the New England Model Engineering Society

President: Norm Jones, 28 Locust Rd, Chelmsford, MA. (978) 256-9268
Treasurer: Rob McDougall, 357 Crescent Street, Waltham, MA 02453, RCMcDougall@attbi.com
Editor: Mike Boucher, 10 May's Field Rd. Lunenburg, MA 01462-1263, BandM3714@hotmail.com
Event Editor: Bill Brackett, 29 East Main St. Northborough MA 01532, wbracket@rcn.com
Publisher: Bob Neidorff, 39 Stowell Road, Bedford, NH 03110, Neidorff@TI.com

NEMES web site: http://www.NewEnglandModelEngineeringSociety.org

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Next Meeting

Thursday, February 6, 2003
The Charles River Museum of Industry
154 Moody Street
Waltham, Massachusetts

Annual dues of $25 covers from Jan to Jan. Please make checks payable to NEMES and send to our treasurer. (Address in masthead).

Reminder: Dues are due! Check your address label to see if you owe your 2003 dues!

Missing a Gazette? Send mail or email to our publisher. (Address in masthead).

The Editor's Desk

Mike Boucher

Inspiration: The ancient Greeks had their muses which inspired poetry, music, dance, theatre. The word "inspiration" itself is based on a Greek word meaning "the god within". Wherever your inspiration comes from, it compels you to act.

I sit and write this just a few days after returning from the 7th Cabin Fever show. This is my 4th trip to the show, and if there's one thing I get out of the trip every time, it is inspiration.

There were some amazing pieces of craftsmanship. There were beautiful R/C steamboats running around a manmade pond. There were multiple-cylinder gas engines built from gleaming brass, with chromed pieces. There were miniature steam engines slightly larger than a quarter, and model hot-air engines that were several feet tall.

I don't know how you can go to such a show and not be inspired. You could decide to resume work on a project set aside long ago after seeing a finished example. You could realize that the finish on the model you're working on could be better. You could see a new casting set and realize it's exactly what you've been wanting to build. You could talk to the builder of an engine

and learn how to machine the part that you've just looked at and scratched your head.

Personally, I listened to all of the above muses at Cabin Fever. I started digging through my project pile to find all the parts of something. I'm going to clean up the castings on my current projects better. I bought yet another set of castings for the future. I saw a fixture that was exactly what I needed to make a part. I came home tired, but truly inspired to do more, better work in my shop.

I don't know if you could ask for anything more from a show.

Hopefully, we'll inspire others with the displays at our show in a few weeks. Hope to see everyone there!

C'ya
Mike

President's Corner

Norm Jones

The Meeting

The February meeting will feature one of our own members, Carl Mikkelsen, speaking on the subject of Hexapods. His talk will answer some of the following questions. What is a Hexapod and why would anyone want one?

Hexapods are ungainly looking machine tools. They have no ways. No gibs. Nothing that looks like an X or Y axis. They can't be run by hand -- they require a computer to control them. Why was the National Institute of Science and Technology studying them? What do they do well? Why haven't they replaced conventional machines? Carl will address these questions, as well as why he has built one, and is building another. There will be plenty of time for questions.

Cabin Fever Expo Follow-up

I would like to express my thanks to Rob McDougall for once again organizing our annual trip to the Cabin Fever Expo. Thirty-nine enthusiastic participants made the bus trip on the January 18-19 weekend. Ron Ginger and Larry Twaits, our advance scouts, provided up-to-the-minute information on road conditions, enabling us to avoid an accident on the highway, and therefore potentially longer travel time to the show.

Gary and Jared Shoenly once again did a superb job of organizing this huge event. The cargo compartments on the bus were packed with many exhibits and newly acquired goodies. I never managed to take in the entire show. There was so much to see and so many wonderful friends to converse with that time just flew by. I think that everyone would agree that we had a great time.

Museum Access

The museum closes at 5:00 PM on the day of our meetings and thus has to be reopened for us to enter. Either Rob or I must go around to the back of the building to gain entrance. The front door will be accessible shortly after 6:00 PM. Please keep that in mind so as not to have to stand out in the cold waiting for the door to be unlocked.

Our Model Engineering Show

Saturday, February 15 is the day of our Model Engineering Show at the museum. Remember that setup begins at 8:00 AM with doors opening to the general public at 10:00 AM. Please keep in mind that we can drive around to the rear entrance to unload our displays but that parking in that area is not permitted. The Embassy lot is probably the best place to park, but note that there is a very nominal fee in effect during the day.

Those of you who get there early will be able to take advantage of an opportunity to purchase Leadloy, and possibly Brass, from 8:00 AM until 10:00 AM from a fellow member, Richard Sabol. He will be located at the rear entrance (where we bring in our displays). Leadloy will be anywhere from 3/8" to 2-1/2" diameter in various lengths.

Brass, if available, will be in 3/4" and 1" diameters.

Please bring some refreshments to supplement the selection of goodies that Gail Martha and her crew will be providing for us during the day. They provide a critical service for us. Please help them out.

Remember that tables and chairs will be provided as well as compressed air (1/4" pipe fittings) for running steam engines. We will be permitted to run gasoline engines. Bring a fire extinguisher if your display involves any kind of combustion. Firing steam boilers will not be permitted. Displays of projects in progress as well as photographs are encouraged.

Come along and join in on the fun!

See you on Feb 6

Norm

The Meeting

by Max ben-Aron and Bob Neidorff

Editors Note: There being no December meeting, I wasn't expecting a write up. After we went to press, I got a note from Max asking why I didn't publish what he wrote. It got lost in the internet, and as I didn't expect one, I didn't think to ask for one. So, here's TWO months for the price of one…

December meeting

It was a dark and stormy night... to coin a phrase. The roads were in deplorable condition. When I arrived at the Museum for the meeting, a small group of die-hard members were congregated under the shelter of the public garage to decide what to do. Venerable President Norm Jones announced that the speaker had, quite justifiably under the circumstances, opted out. It was still snowing hard so the consensus was that the meeting should be cancelled - for the first time ever. Members drifted off, leaving only the Venerable President, Howard Gorin, Frank Stauffer and yours truly.

Howard was in no mood to go home, so he insisted that the meeting adjourn to the nearby Watch City Brew Pub. I went along because if there was going to be a meeting, it was my duty to be recording secretary as usual.

The four of us participated in a far-ranging discussion for a couple of hours and many cups of coffee, under the watchful ministrations of a very pretty and understanding waitress. I have to say that the level of conversation was commendably high. Most of the topics were germane to NEMES concerns. As far as I was concerned, the meeting was a complete success.

I was so impressed that I would like to make a suggestion for some future meeting, particularly if the speaker doesn't show. We could split up into groups of, say, six or eight to a table and a topic would be announced, which would then be discussed at each table. Fifteen or twenty minutes later, every second participant round the table would move to another table, to scramble the participants, and a new topic would be announced. And so on for about an hour.

In this way, members who are too shy to get up and talk can have their say and the meeting could be a social event. Perhaps this format could be combined with 'show and tell'. Who knows, we might even learn the names of some our fellow members, and get to know them better in this way.

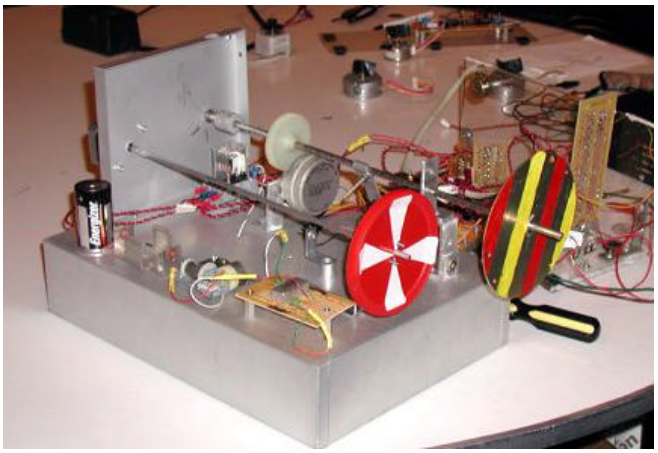
Max

January Meeting

January's meeting was a "poster session" with lots of show-and-tell. Although no one really brought a poster, we had quite a few unique displays of finished projects and "works in progress".

Larry Keegan brought a number of stepper motors and some home-made electronics to drive

them based on the Allegro UCN5804B integrated circuit. He showed us many of these motors running at different speeds.



Larry Keegan's electronics **Errol Groff photo**

Dick Koolish brought in a homemade 3D camera and some prints from the camera. He also brought in "The View Magic 3D Viewer" for us to use while looking at the prints. The 3D effects were amazing!

Dick's camera is a dual "pin-hole" camera, made from an old rectangular cookie tin. He used scrap anti-theft tags punched with a 13mil needle as the irises. This gave him an camera with a lens opening of approx. f250. To get good 3D effects, the exposures from the two pinholes need to be the same, so he tried his best to make the holes exactly the same size. The camera contained a cardboard separator to keep light from one iris away from the other film, but was otherwise empty inside. The shutters were large squares of black tape. Exposure time for common film in broad daylight is 6 minutes.

Dick also brought in some catalogs from companies selling 3D photo equipment. If you'd like to learn more, contact one of these companies:

?? Berezin Stereo Photography, Mission Viejo, CA
?? Reel 3D, Culver City, CA
?? Rocky Mountain Memories, Austin, Texas

See "Web Sites of Interest" for URLs for these companies.

Joe Donahue brought in a large hand-cranked drill attached to a scrap of hollow rectangular steel tubing and showed how this simple muscle-powered drill was able to drill a 5/16" hole through a hardened steel automobile leaf spring using a masonry carbide bit. Joe said that soft bits were best for hard materials. Hard carbide isn't practical because it would crack, but the carbide used in masonry bits is tough and drills nearly anything. The casting on Joe's drill says *Cole Tool Inc* on one side and *St. Anne, IL* on the other. [Editors Note: Cole drills are available through Guy Lautard, publisher of the Machinist's Bedside Reader]

Errol Groff teaches shop and had two weeks off at the end of the year, so he devoted those two weeks to doing what he loves most: repairing the tools that his students use. Errol said that the students are very hard on collet drawbars because they use collets for material that is too small for the collet, and pull too hard on the collet. This strips the threads on the drawbar. Errol brought in a damaged 5C collet drawbar and another 5C drawbar that he had repaired.

To repair the drawbar, Errol got a piece of 1 3/8" aircraft tubing with 0.095" wall (the perfect size for a 5C collet drawbar) and chased 1¼-20 threads in it within a few mils of final dept with a single-point tool, then finished the threads with a 1¼-20 tap. (Note: my Hardinge 5C collet drawing shows that the threads are 1.253-20, not 1¼-20. *Bob*)

Next, Errol made an alignment tool from a rod that was threaded 1¼-20 on one end and smooth turned to the ID of the tube on the other. This alignment tool allowed him to accurately position the new threaded end to the end of the old drawbar so he can weld it in place. Errol's welding looked flawless.

This year, Errol's freshmen are going to make the *Stephen Lovely* whistle from 0.485" tubing, so Errol bought a 0.485" 5C collet. Now he is sure that the right sized collet is available. Of course, having the right collet available won't insure that the students use it, but it helps.

Errol also showed us a chuck and faceplate rack for their shop's Southbend lathes. Errol's design has two stubs of pipe on one side to allow you to hang the chuck and faceplate. The other side has

two solid rods with shoulders. These rods allow the rack to hang right on the cast iron legs of the lathe.

Errol said one NEMES member commented that this would be a problem, because the chuck and faceplate will sit near floor level, and require someone to lift it up to spindle height. Errol replied that this didn't matter, because his students are young kids.

Alan Bugbee is making ornamentally-turned kaleidoscopes. He starts with a board of attractive wood and cuts 12 identical trapezoidal slats from the board, then glues the trapezoids together into a 12-sided tube. Then he turns the outside of the tube and finishes the job by mounting three glass mirrors in the tube. Alan brought in one assembled and turned tube as well as his first prototype.

To make the 12 identical slats, Alan uses his table saw and a very precise jig. The jig consists of one sliding piece to hold the board and another piece to precisely align the board into position before he slices it off. Alan brought in his Beall Inclinometer, a pendulum and protractor device to indicate the angle of the blade on his table saw. He also brought in a precision machinist's protractor to measure the finished slat and confirm that he got the angle that he wanted.

Henry Szostek brought in a homemade jig to help him make bellows for hexagonal accordions and another jig to skive leather for the accordions.

Todd Cahill made George H. Thomas' *Universal Pillar Tool* and brought it in to show. Todd made his from Hemmingway castings and seemed to keep exactly to plans, complete with beautifully turned double-ball handles. Todd also brought along his tapping attachment, staking attachment, stamping attachment, and an array of collets, all made to make the tool more versatile. Todd claims that he hasn't broken a tap since he made this tool, and he regularly taps 0-80 with it!

Todd Cahill's pillar tool **Errol Groff photo**

Ed Rogers brought in a small diesel engine that he built from scrap. He said that he picked this design because he loved the look of the dome-shaped head. Being a diesel, it doesn't require a spark to ignite the fuel. Ed actually ran it for us for a few seconds.

Fred Widmer brought in some small tools that he got from the Elgin Watch Factory. These appear to be shears, benders or stakers of some sort. They are extremely precise, universally adjustable, and beautifully made. Even Fred wasn't sure that they were for, but his best guess is that they could be used to shear and/or form the end of a wire for a tiny spring. The tools still moved smoothly, mated precisely at the tiny tips, and showed no sign of wear.

Fred Jaggi is working on Benson's Vertical Engine and brought in some parts from it. There's a lot of very fine machining required for the tiny parts of this steam engine.

Fred Jaggi's Bensons Vertical **Errol Groff Photo**

Coincidentally, Norm Jones brought in a casting from his Jerry Howell Hot Air Engine, another very small engine requiring some very small parts and precise tolerances. Norm explained that the first holes he drilled in the casting were slightly off position, but due to fortunate choice of drill size, he can barely get by with the incorrectly placed holes. Some people have all of the luck!

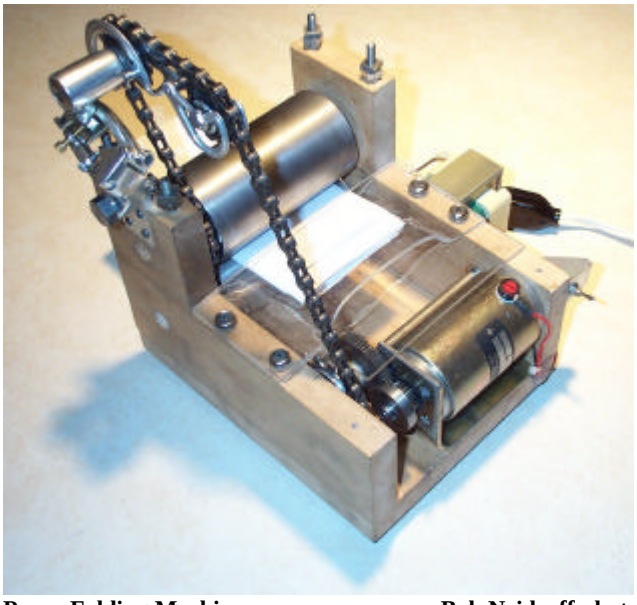
Ed Wlodyka brought in a Comber Radial Engine made from wood! Well, he cheated and used a brass piston rod, but other than that, the rollers, the cylinder, and everything else were wooden. The plans for the engine came from Modeltec magazine, but Ed had to modify them so that they would work with wood. Ed brought along a tank of compressed air and was able to demonstrate the engine running.

Bill Brackett saw an advertisement for a rolling ball clock that uses multiple balls to display time, like the Mayenschein and Arrow clocks, and decided to make a working model of it out of aluminum. All he had to work from is a tiny photograph, so he's reinventing the clock as he goes. Bill has already drawn up each part and made the ball track and some of the curved ball guides.

These clocks run from an electric motor, so Bill found a nice brush motor with a set of planetary gear reducers that allows you to select motor speed by selecting the number of reducers. Bill will use a microprocessor to control the motor and is working on the electronics now.

Frank Dorian brought in a novel hand-crank drill, similar to the "egg-beater style" hand drill. However, this drill was unique in that it clamped on the edge of the bench and the chuck protruded up at an angle to vertical. He challenged us to figure out the use for it.

Bob Neidorff brought in another newsletter folder. This one uses an electric motor for drive, two heavy rollers to press the folds into the newsletter, two gears for speed reduction, chain, derailleur, and sprockets from old bicycles to transmit power, and a formed Plexiglas paper guide. When he shoved a curled newsletter into the front, the rollers grab it, crease it, and toss it out the other end. "My first prototype directly drove the rollers from the electric motor, but it ran so fast that it threw the newsletters across the room. To slow it down, I added one stage of gear reduction with some gears from an old electric drill. Now it runs at a more sane speed."



Paper Folding Machine **Bob Neidorff photo**

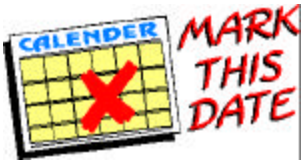
Bob

NEMES Show Door Prizes

by Steve Cushman

Each year at our annual show, we try to award a series of door prizes to the exhibitors. Many of these prizes are contributed by various businesses that have supported us generously. Others have been contributed by members. We all know that the current financial climate is not the best it's ever been and the contributions from businesses are much reduced. It would be great if we could all look around our shops and see if there are any items we are no longer using which would make good door prizes. Please let me know what you find.

Steve



Paquette Open House

Every spring, Jim Paquette invites the NEMES membership to his house in Uxbridge, MA, for an open house. Jim has quite a collection of steam engines, and there's usually also tooling and other cool stuff for sale.

This year, Jim is giving us advance notice as to when the open house will be. Due to the graduation of his grandson, May 10 is his only open Saturday in May. So, mark this date in your calendar, and plan on being there.

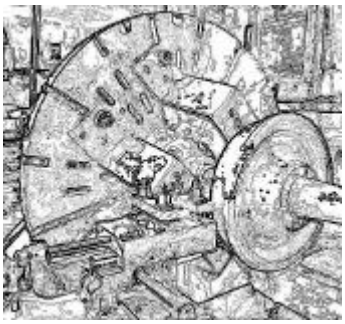
More details, and directions, will be published in the Gazette before the event.

The Tool Shed

Some years ago Ed Kingsley convinced Andy, at the Tool Shed in Waltham, to remain open late on the evenings of our meetings. Occasionally, Ed also reminded the group of this.

We have been told that for the last several months, very few members had come during that time. This makes it hardly worthwhile for Andy to stay open the extra time. He asked us remind the group that he is open late on meeting night. The tool shed is on Main St, at the junction of Newton St, right near the KFC.

And speaking of the tool shed, the original owner, Al Davis, has opened a new shop in Worcester, MA. Its at 578 W. Boylston (Rt.12), and he's open Wednesday through Saturday from 1-5 PM.



Shop Hints

Compiled by
Mike Boucher

Powder-coating at home

By Dave Audette

I've known about powder-coating since seeing it in the Hot Rod & 4x4 magazines I started reading back in the early 80's. It's always been appealing for its durable finish that is so resistant to wear and fade. Coating offers a finish that conventional painting just can't match. It also has the ability to "fill in" and smooth out the rough surfaces of many of the small castings that I plan to work with. Small errors in the surface finish are easily hidden.

A while back, I picked up a home powder-coating setup from the Eastwood Company. I've seen them for quite some time and finally the price came down enough that I was able to afford it.

You'll need three things to get started.

1. You need a powder-coating kit; this will include the spray gun, powder and electronics.
2. You'll need an air compressor. I have a small Campbell-Hausfeld compressor that's portable and convenient. When powder-coating you'll use no more than 10psi, I

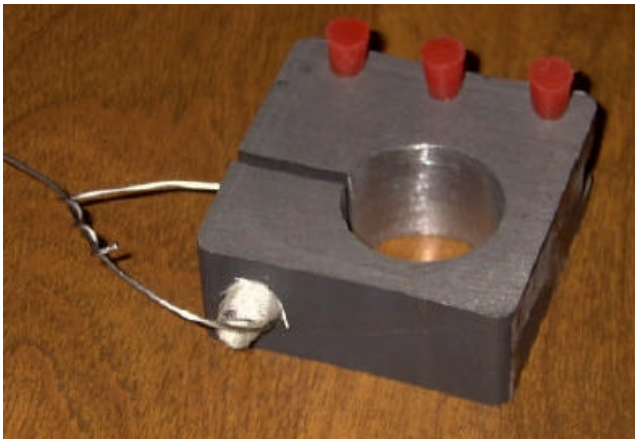
usually use about 8psi when spraying the powder.

3. You'll need an oven of some sort that's capable of going to 400°F. An old kitchen stove would be ideal but I use a small toaster oven for right now. Whatever you use becomes a dedicated shop stove; you can't cook your French fries in it after powder-coating.

I have less than $125.00 into the whole affair. I found the kit on sale, bought the compressor used, and was given the toaster oven. For a single Dad on a fixed budget, low cost is paramount. I still haven't had the need to buy any powder beyond what I initially purchased. I would like to add a few more colors to the choices on the shelf though.

I'd been waiting for a suitable victim to come along when I happened to cross paths with a nifty little toolholder. I kept several colors of powder on the shelf for just such an emergency. The toolpost spends most of its time on the Homer lathe, which is a dark blue, so I figured I'd give Ford Dark Blue a whirl.

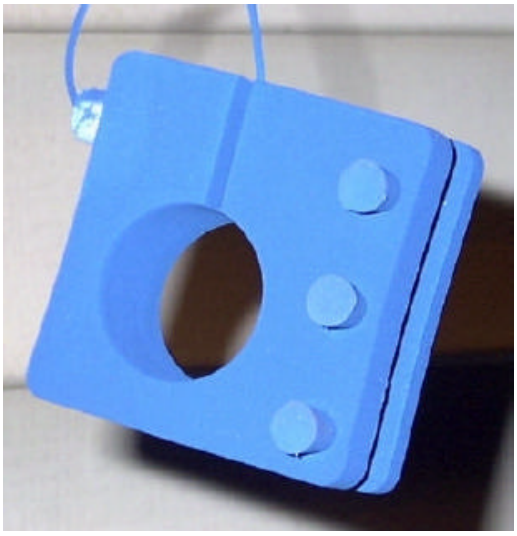
Here's a picture of the toolholder with the holes plugged to prevent powder from getting into the threads. The tape used in the cross-hole is a high temperature fiberglass tape that I bought through Eastwood. The wire is stainless steel safety wire that came with the kit.



Tool holder prepped for coating **Dave Audette Photo**

After getting it ready, it was hung outside. A ground wire is run to the workpiece, I use the stainless wire and attach the ground clip to that so that I don't have to ground to the work directly. A plastic jar containing the powder is attached to the gun and everything is plugged in.

Spraying the powder is a two-handed job, you have to hold a switch and depress a trigger button with one hand (this sends an electrical charge through the ground strap to the work piece) and use the other to trigger the powder and spray the item. The powder is electrically charged and is drawn to the item. Once it's been coated with powder, the coating on the item is very fragile. The powder can be easily wiped or blown off.



Tool holder after spraying **Dave Audette Photo**

The part is carefully hung in a preheated oven at 450°F. After a couple of minutes the temperature is turned down to 400°F and the part will stay there at that temperature for approximately 30 minutes while the powder melts and flows across the surface. I haven't had any problems with drips or sags. Multiple coats can give various effects but I haven't gotten fancy and tried any yet.

To make hanging the parts easier I drilled a few small holes in the top and side of the toaster oven that allow me to just take the work off a hook and pass the wire through the hole in the oven and secure it while the part bakes.

I was thrilled with my first try. The finish came out smooth and hard and almost all of the jaw-marks and surface flaws are completely covered up.

Finished tool holder **Dave Audette Photo**

I was so pleased with the results that I tried again with a larger project. This was where the shortcomings of the toaster oven became apparent. If you have the room to set up an old kitchen range, then I would strongly advise you to do so. The added capacity will make many more projects possible.

I explored the maximum capacity of my toaster oven with the drawtube for my 3C collet adapter for the 7" lathes, as described last month. I wanted to try a different color and decided that a Hammertone Gray would suit this particular tool just fine. The 5" handwheel was just about the largest thing that would pass through the oven door. Powdercoating it presented no difficulties, but transferring it unscathed into a 450^{o}F toaster oven was no small task.

Fortunately for me multiple layers of powder-coating can be laid down to build up tolerances or to repair mistakes. I bumped it a couple of times and rubbed some of the powder off. I'll probably do it again when I find a larger oven to use, but it still came out very nice overall.

I really like the way the Hammertone came out. When I see powder on sale again, I'm going to buy a pound or two to use on other shop tooling and accessories like this.

I recently stumbled across some manganese Parkerizing solution that I'm eager to try out on some replacement lathe parts.

Harbor Freight recently had their system on sale for $75 and at that price it's just a no-brainer. I haven't seen the HF rig in person, and from the catalog photo it appears to have a gravity fed hopper on the top of the gun. If someone has one, drop me a line and we can compare notes.

I've had the chance to coat several more items and I continue to be pleased with it. I powder-coated both of the steam engines I've built and I'm really pleased with the results. The first engine was the PM Research 2A steam engine. The base is a piece of anodized aluminum. I sprayed the powder directly over it with no surface prep at all. I also used a punch set to stamp the date of completion and my initials on the base. I was concerned that the powder would fill the stampings and cause them to blur but it came out just great.

PM Research steam engine **Dave Audette Photo**

Here's another engine that I recently finished. You can see the hammertone pattern on the frame and base. I used high temperature fiberglass tape to mask off the flywheel and get the powder down into the groove.

Dave Audette Photo

I also experimented with powder-coating the boiler that I'm using for this engine. It's made from copper and after soldering it all together it would have taken quite a bit of work to polish it back to a shine. I decided to take a shortcut and powder-coated the whole thing. The coating is cured at 400°F so I don't think the surface temperature of the boiler will get that high. When the boiler is finished only the powder-coating on the top will be visible because the rest of it will be wrapped in brass and oak lagging. Like I said, it's an experiment.

Just like anything else, there's a learning curve to powder-coating at home. As you use the equipment you learn more about the process. I've been very fortunate so far. Everything I've tried has come out very well. I don't know if that's a testament to going slowly and taking your time or maybe this is just an idiot-proof system.

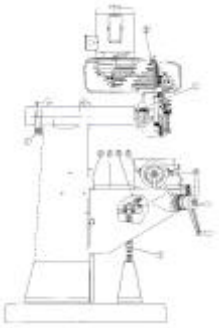
Before coating a part, I usually clean it up with carburetor cleaner or something similar. I don't spend a lot of time on surface prep and haven't had any problems yet. When I spray the powder onto the part, I try to keep the powder bottle at least ¼ full. I've found that keeping a "minimum" amount of powder in the bottle gives me a better spray pattern. When the powder gets low, the mist of powder produced by the gun gets thinner. Whenever I try to get close to the part, I get a large spark that arcs to the part. This doesn't appear to effect the powder distribution at all but it's unsettling.

So far I've powder-coated aluminum, brass, copper and steel. I haven't had any sort of adhesion problems and I haven't "burned" any of my pieces. So far my biggest problem has been either bumping or rubbing-off spots while transferring parts into the toaster oven.

I've been working with a bare bones system. I'd like to get a small regulator/gage to put on the powder gun. Every time Harbor Freight has them on sale I order a few and they automatically cancel the order because it's out of stock and costs less than $10. For now I'm just connecting directly to the compressor and dialing back the compressor output to the minimum. I don't know how recommended it is but it's been working just fine for me so far.

I've started looking for a larger oven to use but I still want something portable. Since I bake the pieces out on my patio I need something I can move easily which is why I haven't gotten a kitchen range yet. I'm hoping to find an old counter-top convection oven. They're more than twice the size of toaster ovens and really provide a lot more room to work.

Dave



Product Reviews

Compiled by
Mike Boucher

Harbor Freight Digital Caliper

by Bob Neidorff

I have a set of micrometers, but find myself using my dial caliper most often, especially if the measurement isn't really critical. My dial caliper is made in China and has served me very well for 5 years or so until recently, when I dropped it on the concrete floor. Since then, I haven't been able to

get the needle to point right and there are now two rough spots in the travel. Anything I do to fix it seems to makes it worse, so I decided to splurge and buy a new dial caliper.

Before I sent in the order for another imported dial caliper, I got a Harbor Freight sale catalog. If you're familiar with Harbor Freight, you know that they sell quality, name brand tools as well as their own brand, lower-quality imported tools. They use brand names like "Chicago Electric", "Pittsburgh", "Cen-Tech", "Central Pneumatic", "Central Hydraulics", and "Central Machinery" for their imported tools. These brands tend to be engineered for the lowest possible cost as long as the tool actually functions.

I've bought quite a few of these imported tools in the past and, in general, I've been satisfied, although never impressed. For example, I bought their heat gun, and it works. But the insulator that holds the heating element in place broke within a week of getting the tool so the heating element is now at risk of damage. I also bought their 4½" angle grinder and grinding wheels, and they also work. The grinder is very noisy and runs rough. Also, the wheels are punched off-center, so they vibrate more than good wheels. The list goes on. But these tools do work, so for my infrequent use, they are adequate.

Back to the story: Harbor Freight is now selling a "Cen-Tech 6" Digital Caliper" for $19.99. This is nearly the same price as the imported dial caliper, so it was tempting. It can be switched between metric and imperial units, and can be zeroed in the middle of the travel to directly measure offset. They claim that it is accurate to 0.001" and reads to 0.0005". Also, it's digital, so it has to be good!

The flyer also says "fluid resistant, stainless steel frame, precision ground jaws, and it has a printer output port. So instead of ordering a new dial caliper, I ordered this caliper.

If you've bought from Harbor Freight before, you've learned that they do business in a few "novel" ways. For example, they offer "Free Shipping!" on orders over $50, and then, in tiny print, they tell you that they charge $5.95 for handling. Also, they are often out of stock on items and you can expect to wait a month or longer for items to come in. As I should have expected, the digital caliper was out of stock when I ordered, but it came in 6 weeks later and now I have it.

So what do I think?

It works. It seems to be as accurate as specified, too. I am able to measure some precision gage blocks and get the right measurements, but only if I clean the jaws well and get it "just right". Otherwise, it reads high. It might be a bit less fussy on a precision cylinder. But my dial caliper wasn't so touchy.

The zero-button is a very handy feature. In some cases, it saves you some math. The switch between metric and imperial is also handy. The "feel" of the caliper is good, too. It isn't quite as silky smooth as a Mitutoyo, but it is satisfactory.

I read the fine print again, and noticed that it has a "stainless steel frame". So it should never rust. But it came with a covering of VPI (rust retardant) paper. This leads me to believe that the frame is stainless steel, but the anvil and other parts may not be stainless steel.

It took a while, but I finally found the advertised printer port. However, I still haven't figured out how to use it. If you're thinking of bolting this to a quill and connecting it to a remote display or computer, you're might need to do some fancy adapting.

Now about it being digital…honestly, I miss my dial caliper. Perhaps it's just nostalgia, but I found the dial easier to read. Also, it gives me that…how can I explain it…analog indication. In other words, it shows you that you're close or far away with a needle, like an old fashioned voltmeter. I miss that.

The display is easy to read, with main digits approx. 0.29" high. The "half-thousandth" digit is a 5 that is either on or off and is only 0.14" high, but it is still quite clear.

The caliper has an on-off switch, but this only turns the display on and off. It continues to remember offset and it keeps track of position, even if it's moving when the switch is off. The caliper uses one size SR44 silver-oxide battery. This is a very common size that is available from many places (Radio Shack, drug stores, etc.) for under $3.00. When it breaks, there's no way that I'll be able to repair this caliper, but experience shows that I was unable to repair my dial caliper, either.

I like this caliper and will use it whenever I don't need micrometer precision. But when I ruin this one, I'll probably buy a replacement dial caliper instead. Harbor Freight sells them, too.

Harbor Freight Tools
1-800-905-5220
http://www.harborfreight.com

Cen-Tech 6" Digital Calipers; Item 47257-3JJD; Regular price $39.99, on sale for $19.99

Bob

Treasurer's Report

Rob McDougall

[Editors Note: Once again, two months for the price of one!]

Balance as of: 10/31/02	**$4,736.18**
November	
Dues Received	100.00
Cabin Fever Bus Fare Rec.	311.00
Interest Income	.58
December	
Sale of Dave Bono Plans	11.00
Dues Received	200.00
Cabin Fever Bus Fare Rec.	248.00
Interest Income	.46
Less	
November	
Gazette expense	-196.94
Gift Expenses	-146.69
Copies of NEMES Flyer (500)	-57.75
December	
Brush Hill Tours Fare	-2,195.00
Gazette expense	-208.57
Balance as of: 12/31/02	**$2,802.27**

I would like to take this opportunity to thank the many members who write me a nice note with their dues payments. Sorry that I cannot respond to you all directly, but I do appreciate your encouraging comments. Best wishes for a prosperous 2003 to everyone.

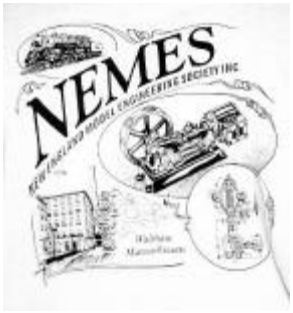
Rob

For Sale

Shaper Work CD

Put out in 1944 by the New York State education Department this 326 page manual is chock full of valuable tips and information on using the King of Machine tools....The Shaper. Covered is everything you need to know about the care and feeding of the shaper, use of the shaper, even how to sharpen tools for the shaper. Scanned and saved in Adobe Acrobat format. $5.00 shipping included.

Errol Groff
180 Middle Road
Preston, CT 06365 8206
errol.groff@snet.net

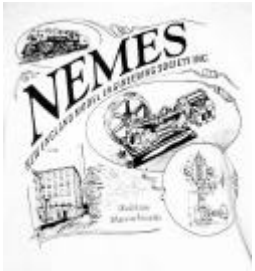


NEMES clothing

NEMES Tee Shirts

NEMES tee shirts are available in sizes from S to XXXL. These are gray short sleeve shirt, Hanes 50-50. You won't shrink this shirt! Artwork by Richard Sabol, printed on front and back.

Artwork:



Rear

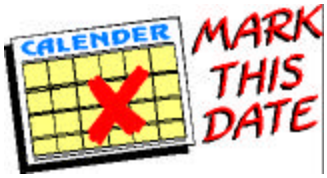
Front

Prices:
S, M, L, XL $12.00
XXL $14.00
XXXL $15.00

Add $5 shipping and handling for the first shirt, $1 for each additional shirt shipped to the same address

Profits go to the club treasury.

Mike Boucher
10 May's Field Rd
Lunenburg, MA 01462-1263
BandM3714@hotmail.com



Upcoming Events

Bill Brackett

Feb 1-2 - Amherst Railway Society
Model Railroad show at the Big E, Springfield
http://www.amherstrail.org/show/show.htm

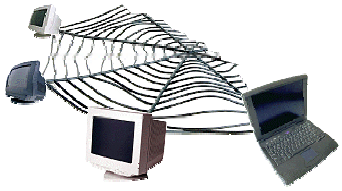
Feb 6 - NEMES Monthly club meeting
7PM. Charles River Museum of Industry, Waltham, MA (781) 893-5410

Feb 15 - NEMES Model Show
Charles River Museum of Industry, Waltham, MA (781) 893-5410 or Norm Jones (978) 256-9268

Mar 6 - NEMES Monthly club meeting
7PM. Charles River Museum of Industry, Waltham, MA (781) 893-5410

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

Bill



Web Sites of Interest

3D Photography Suppliers

Berezin Stereo Photography
http://www.berezin.com/3d

Reel 3D:
http://www.reel3d.com

Rocky Mountain Memories
http://www.rmm3d.com

Rolling Ball Clock

For more information on the Rolling Ball Clock Bill Bracket is working on (as mentioned in the meeting notes), here's the company catalog and a collector's website.

http://www.timesavers.com
http://home.carolina.rr.com/stusinger/ballclock.htm

Tailstock Power Feed

Here's a way to use the carriage power feed to drill holes...

http://terrapin.ru.ac.za/satrain/lathe/tailpow.html

Yearly sundial

Interesting sundial where the shadows falls on the boundary of an analemma on the hour. The entire year is represented, using lines across the analemmas for specific astronomical events, like the solstices and equinoxes.

BTW - dictionary entry for analemma - A graduated scale in the shape of a figure eight, indicating the sun's declination and the equation of time for every day of the year and usually found on sundials and globes.

http://www.uwrf.edu/sundial/howtoread2.html

Web based Vernier

A nifty program which simulates a vernier reading and tests entered responses. It is for a simplistic decimal scale. But it's a great start to vernier scale reading. Most of you know how to read one, and don't need the lessons. But, it's worth checking out.

http://www.phy.ntnu.edu.tw/java/ruler/vernier.html

Metalworking Links

Australian site of a LOT of "only" metalworking links. Very comprehensive, and way too many to list here!

http://www.busprint.com.au/metalwork_links.htm