



The NEMES Gazette

NEW ENGLAND MODEL ENGINEERING SOCIETY INC.

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June 2004

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Editor's Desk

Vic Kozakevich

Hi folks,

Well, my first issue has made it to press. That deadline came up really fast. Though I've always believed I work best against a deadline, I just wish I could stop trying to prove it.

Mike B. gave me the template file for the Gazette, and having looked under the hood, so to speak. I'm pretty impressed. One could almost say it puts the issue together all by itself, but I think I'll save that line until it's time to recruit the next editor.

Kay Fisher has contributed a very thorough article on the rebuilding of his Bridgeport, which begins in this issue. I hope that next month we can include a color page to show off the paint job of Kay's masterpiece. Looking at the color photos on my computer monitor is giving me mill envy, and it's only fair that everyone else experiences it too!

Vic

Next Meeting

Thursday, June 3, 2004

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

Membership Info

Annual dues of \$25 (via checks made payable to "NEMES" and mailed to our treasurer) for the calendar year are due by December 31st of the prior year.

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

Addresses are in the left column.

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President's Corner

Norm Jones

The Meeting

Our speaker for the June meeting will be Carl West. Carl will talk about making functional, medieval-style plate armor.

He'll touch on how he got involved, what it's for, how he learned, the tools and techniques he uses, and what he has learned from the experience.

He'll bring his own suit and a couple of extra pieces to pass around and will be happy to try to answer whatever questions come up.

Carl has a degree in sculpture and has been messing around with metal in one way or another since the early 70's, armor since 1981, and watch and jewelry repair since 2003.

A Jewel in My Own Backyard

You may recall that I mentioned the "Doors Open Lowell" event held at the Lowell National Historical Park in Lowell Mass in the May Gazette.

I was able to attend some of the events and found them to be most interesting. 2004 represents the 25th anniversary of the park. Up until a couple of weeks ago, I had not visited the park for many years. Lowell had a pioneering role in America's Industrial Revolution. The National Park Service has done a terrific job in developing many interesting exhibits relating to Lowell's past.

The Calendar section of the Boston Globe, under "Museums in Motion", in celebrating Nation Tourism Week, offered a marathon of activities beginning at noon and running through midnight, on Saturday May 15th.

I decided to visit the Boott Cotton Mills Museum. I had heard about the museum, in that the featured exhibit is an entire floor of looms actually operating, some of which are producing cloth.

You just have to see this! There are also video-taped interviews with people who actually worked in the mill. Their comments will give you an idea of what it must have been like to have worked there. Among the many exhibits on the second floor, there is a beautiful scale model of the entire mill as it was, when in full operation. We have come a long way! Needless to say, it will take many more trips to the park to see all that is offered and you can bet that I will be returning again soon.

New Gazette Editor

Thanks to Victor Kozakevich for coming forth to assume the position of Editor of the Gazette. I believe that the Gazette is the single most important part of our organization. Many thanks are also extended to Mike Boucher for his many years of service as Editor of the Gazette.

Central Mass Steam, Gas & Machinery Association Show

This is the largest and I think one of the best shows in New England. Dates are the 26th and 27th of June. As usual, I will be attending once again. I wish to extend an invitation to anyone who would like to join me there. I will have my canopy set up with lots of table space available.

See you on June 3rd

Norm



The Meeting

Max ben-Aaron

Our speaker for the May meeting was John McNamara, a self-described train nut, representing the Wiscasset, Waterville and Farmington narrow gauge railway in Alna Maine.

Part one of the presentation was a video about the WW&FRY produced by the company Restoration Stories. Part two was John's talk accompanied by a computer hosted slide show. Back in the 1800s, this area of Maine knew that they needed a railroad to help the economy, but could only afford half the cost, hence the two foot gauge. The trains hauled potatoes, apples, milk and school children, among other things.

One hundred years ago, narrow gauge railroads thrived. The trains worked hard and were suited to rough terrain. Despite their success, they were all gone by 1940, a victim of the growing trucking industry. The WW&FRY, begun in 1894 and scrapped in 1937, is now being rebuilt. The goal is to bring back the railroad as it was in 1910-1920, and give visitors the complete picture of what it was like.

In 1985, Harry Percival bought the right of way to begin the recreation process and founded the museum in 1989. The same flatcar that was used to rip up the old track is being used to lay down new track. There is one original coach left, and a new caboose was built from old plans. The plans had not been used to build from before, so the caboose is the first of its kind. Engine Number 9 is original to the WW&F, the last one left and being leased from its owner.

One latter-day engineer interviewed in the video remarked that he enjoys returning to the 1900 era by building the railway and running the locomotive, offering that it seems to him a time when people worked together and cooperated. A ride on the train comes complete with a conductor and ticket punch. The railway hopes to extend its line, currently at 1.4 miles.

The first slide John described was taken in winter, a kind of Victorian era Christmas scene, a snow covered meadow cut by the two curving black lines of the rails. The next slide showed the process of laying the rails, bringing in the crushed rock ballast by train and using an air hammer to set the ballast. One of the locomotives at WW&F is Number 10, a 1904 Vulcan from a sugar farm in Louisiana, that had spent time on the Edaville Railroad. While Number 10 was in Edaville, it was gauged to 24 inches, and later moved to the former Pleasure Island amusement park in Wakefield MA. During this service it had been

"amusement park-ized" with the addition of a balloon stack, brass boiler bands and red paint. The WW&F bought Number 10 from Edaville where it had gone when Pleasure Island closed, and trucked it to Maine. The locomotive sat with its boiler taken off for retubing and storage, while other work progressed. John described how the tapered wheels provide the same effect as an automobile differential when centrifugal force slides the wheels to the outside of a curve. The connecting rods had been bent-in at Edaville when the engine was regauged. It was decided to replace them and new rods were forged and machined. The railway's shop was able to buy some large-scale machine tools from a machine shop in Gardner, MA that was closing. Among items purchased were a belt driven drill press and a lathe. A #2 Cincinnati vertical mill was given to the shop as a gift. The shop also owns a shaper.

Another locomotive in the lineup is an 044T of Forney design. The tank and coal bunker at the rear are part of the frame. The engine has its original 30-inch ash pans. Back on Number 10, the smoke box needed to be replaced and a new original-style stack fitted. The shop made the patterns and had a New York foundry cast them. The restoration team test fit the smoke box door ring with bolts, then removed them and air riveted the part on with hot rivets. As of one month ago, the engine received its new stack and smokebox, the cab is being rebuilt and the new connecting rods are on. The engine should be ready in six weeks. Visitors are invited to stop by the shop and watch the progress.

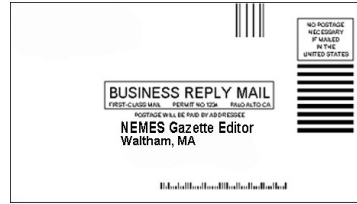
The WW&F railroad operates Saturdays year round and from Memorial Day to Labor Day runs Saturday and Sunday from 9 AM to 5 PM. The WW&FRY is located at 97 Cross Road Alna, Maine. Telephone is 207-882-4193 and the website is <http://www.wwfry.org>

Vic Kozakevich (filling in for Max)



Treasurer's Report

Rob McDougall



Letters to the Editor

Treasurer's Report

As of 4/30/2004

Balance as of: 3/31/2004	\$8,071.87
Dues Received for 2004	100.00
Interest Income	.65
Gazette Production Expense	-211.58
Guest Speaker Fee	-50.00
Balance as of: 4/31/2004	\$7,910.94

Rob

Puzzle Time

Answers to May puzzle:

S	H	E	S		S	L	A	N	T		A	S	P	S
L	A	P	P		O	I	L	E	R		S	P	I	N
U	S	S	I	A	N	B	L	U	E		K	I	L	O
S	T	O	N	E	S		A	T	E	N		N	O	R
H	E	M	E	R		W	Y	E		E	L	I	T	E
			T	O	T	O		R	A	V	E	N		
O	A	F	S		R	O	N		D	E	E	D	E	D
U	V	A		C	A	L	I	P	E	R		E	L	O
R	E	C	O	U	P		P	U	P		A	X	I	S
			E	N	T	E	R		S	T	A	T		
T	E	P	E	E		O	T	S		S	T	I	R	S
A	L	L		R	A	T	E		S	P	I	R	I	T
M	E	A	T		H	A	N	D	S	C	R	A	P	E
P	C	T	S		E	R	E	C	T		E	T	O	N
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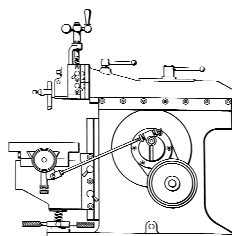
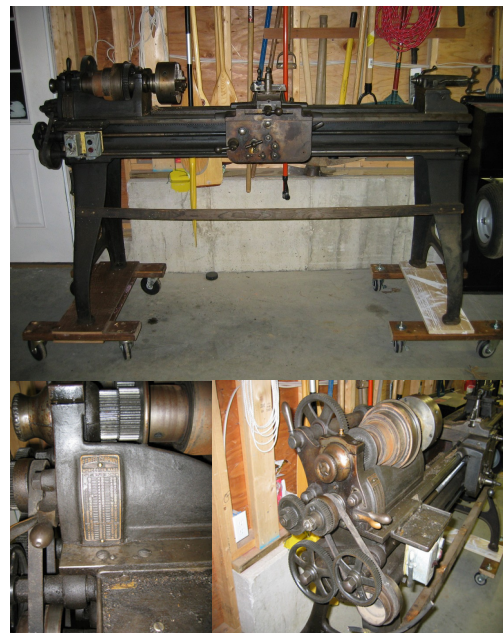
Please let me know if you're interested in seeing more puzzles in the Gazette.

Bob Neidorff

NEMES Gazette

I found your web page, NEMES, by asking a machinist at work about a Reed lathe I just received. I'm trying to find more information about it. He mentioned that there might be people in your society who have information about old machinery, especially since this one was made in Worcester, MA. Any leads would be appreciated.

Thanks,
John Ingwersen email: ingwersenj@ll.mit.edu



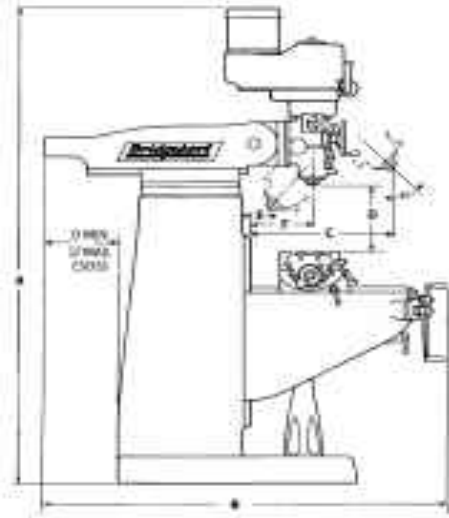
Shaper Column

Kay Fisher

(Due to page count limits, Kay's article, beginning on the next page, will be published in three parts. – Editor)

Bridgeport Mill

By Kay R. Fisher



Acquisition

At the September 2001 NEMES meeting, Ken Malsky offered an old M-head Bridgeport mill for sale for \$300. I figured that it would go fast. At the October 2001 meeting I asked Ken if he sold the mill. To my shock he had not. I told him that I would take it on two conditions. One - it had to fit in my basement. Two - I would need some time to move it since I had done no planning. We shook hands on the deal.

After some email exchanges it was determined that it would indeed fit in my basement exactly where my current mill (a Clausing 8520) was sitting. The old round ram M-head Bridgeports are the shortest mills that Bridgeport ever made. This one had a 32-inch table (the smallest Bridgeport ever produced) and a 9-inch knee instead of the now more common 12-inch knee.

The Bridgeport came with a home-brew 1->3 phase rotary converter. This was an idler style arrangement with a large heavy motor. Ken also offered free a replacement C-face single-phase motor and an aluminum plate suitable for mounting it and a few Morse #2 collets (1/2", 3/8", 1/4").

I passed on the motor accessories. I knew that I would want to power the mill with a VFD so

that saved me hauling away the two extra heavy motors.

Moving

We lightened the mill by removing the head, the motor, and the table. The head and motor came off easily. The table caused us some head scratching. First we removed the original Bridgeport longitudinal power feed assembly, which I did not intend to use. Then we thought we would just slide the table off the end. What we didn't account for was the extreme wear. As the table moved off center, it tightened up considerably. After we discovered how to loosen the adjustable gib, it came off easily. I managed to put the motor, head, longitudinal power feed, and table in the trunk of my Mustang.



Column cleaned and chipped

photo by Kay Fisher

I arranged for help from a friend with a flatbed trailer that he uses for moving cars. Ken Malsky's neighbor has a brand new backhoe. We rolled the mill out of Ken's garage on the homemade pallet with four casters. His neighbor wrapped a chain around the ram, picked it up with his backhoe, and sat it on my neighbors trailer. We were a little anxious while the backhoe laid

the mill on its back, but it went over without any fuss.



Column being stripped photo by Kay Fisher

After we drove the trailer and chained down mill to Orange, I called a local tow truck. For \$35, he picked up the mill with a line around the ram and slid it down the basement bulkhead stairs on two 2x10 planks.

At this point I had the mill in my basement and proceeded to take it “completely” apart. After many hours of work on the mill I was given the chance to take an early retirement package when Hewlett Packard bought out Compaq. So we sold the house and moved to Mesa Arizona. Again, I hired the local tow truck operator. He picked up the base column turret and ram as one assembly and sat it in my driveway. I rolled it into the garage on its homemade pallet. The fellow who bought my house had access to a large truck with a lift gate. On moving day, we put it on his lift gate and raised it to the moving van and rolled it in. After we got settled in Arizona and the movers arrived, we used a bobcat with a forklift front end to pick it out of the van and place it in my new workshop.



Column after painting photo by Kay Fisher

To maneuver it around the basement and shop I raised the edge of the base unit with a crowbar and placed steel rods under it so I could roll it around.



Column after Painting photo by Kay Fisher

The base unit weighs around 900 pounds and the complete milling machine around 2200 pounds. The base unit and the knee were the only two pieces that I could not pick up alone.

Documentation

Bridgeport manuals are readily available on the Internet, on eBay, and from friends at NEMES. My current favorite manual is part of a CD that I got from Errol Groff for \$10.

Errol sells a CD that started out devoted to shapers but has expanded to many other types of machines. Included on it is the M-105H Bridgeport Series I Milling Machine Installation, Operation and Maintenance Manual. A total of about 450 Meg of information for \$10.00 shipping included.



Knee Before photo by Kay Fisher

Errol accepts cash, check, money order and PayPal. He has shipped out about 150 copies and has yet to have anyone ask for a refund.

Latest CD Contents as of 14 Jan 2003

Bridgeport Manuals

- 1981 Programming Manual
- 1983 Programming Manual
- R2E3 Manual
- Series II NC Programming Manual
- Student Manual
- Bridgeport Series 1 Install, Operate and Maintain Manual
- Quick Change Tooling for the J Head

Brown and Sharpe

- No. 3 Mill Manual

Fundamentals of Machine Tools

Grinding and Lapping

- 1907 Treatise on Grinding and Lapping

Grinding Dressers

- J and S Fluidmotion
- Optidress Manual
- Selecting the Right Grinding Wheel (Norton)
- Tangential Wheel Dresser

Jacobs Chuck

- Jacobs Rubber Collet Chuck

Leblond 15 and 19 Inch Lathes

Leblond Manual

Machinery Repair

Odds and Ends

Thread Elements Jones and Lamson

Shaper Work

Shapers - Chapter 1 and 2 Machine Tool Operation

Errol Groff
180 Middle Road
Preston, CT 06365 8206

Errol Groff
Instructor, Machine Tool Department
H.H. Ellis Technical School

(860) 774-8511

Home Page:

<http://pages.cthome.net/errol.groff/>

One source for Bridgeport information is the Yahoo group "Bridgeport_Mill" which you can join at <http://groups.yahoo.com/>.

Another is Tony Griffiths' machine tool information website. This site has information about many machines, including lathes and mills. The Bridgeport area includes descriptions of accessories that haven't been made in years:
<http://www.lathes.co.uk/bridgeport>



Knee after Painting

photo by Kay Fisher

Serial Numbers

This chart is a cross reference from Bridgeport serial numbers to date of manufacture including an estimate of the number produced each year:

Round Ram		
Year	Serial Number Range	# Made
1938	BH-1 thru BH-39	39
1939	BH-40 thru BH-252	213
1940	BH-253 thru BH-656	404
1941	BH-657 thru BH-1549	893
1942	BH-1550 thru BH-2943	1394
1943	BH-2944 thru BH-4105	1162
1944	BH-4106 thru BH-4997	892
1945	BH-4998 thru BH-5930	933
1946	BH-5931 thru BH-7235	1305
1947	BH-7236 thru BH-8814	1579
1948	BH-8815 thru BH-10381	1567
1949	BH-10382 thru BH-11378	997
1950	BH-11379 thru BH-12750	1372
1951	BH-12751 thru BH-14489	1739
1952	BH-14490 thru BH-16700	2211
1953	BH-16701 thru BH-19367	2667
1954	BH-19368 thru BH-22732	3365
1955	BH-22733 thru BH-26962	4230
Start V Ram		

1956	BR-26963 thru BR-31618	4656
1957	BR-31619 thru BR-37278	5660
1958	BR-37279 thru BR-42110	4832
1959	BR-42111 thru BR-46938	4828
1960	BR-46939 thru BR-52598	5660
1961	BR-52599 thru BR-58552	5954
1962	BR-58553 thru BR-64987	6435
1963	BR-64988 thru BR-71981	6994
1964	BR-71982 thru BR-79538	7557
1965	BR-75939 thru BR-88180	8642
1966	BR-88181 thru BR-98089	9909
1967	BR-98090 thru BR-108351	10262
1968	BR-108352 thru BR-118640	10289
1969	BR-118641 thru BR-131778	13138
1970	BR-131779 thru BR-138139	6361
1971	BR-138640 thru BR-143350	5211
1972	BR-143351 thru BR-149294	5944
1973	BR-149295 thru BR-157909	8615
1974	BR-157910 thru BR-167652	9743
1975	BR-167653 thru BR-174083	6431
1976	BR-174084 thru BR-180697	6614
1977	BR-180698 thru BR-188559	7862
1978	BR-188560 thru BR-196987	8428
1979	BR-196988 thru BR-206296	9309
1980	BR-206297 thru BR-216473	10177
1981	BR-216474 thru BR-227523	11050
1982	BR-227524 thru BR-231700	4177
1983	BR-231701 thru BR-235985	4285
1984	BR-235986 thru BR-241350	5365
1985	BR-241351 thru BR-246659	5309
1986	BR-246660 thru BR-248551	1892
1987	BR-248552 thru BR-250531	1980
1988	BR-250532 thru BR-252874	2343
1989	BR-252875 thru BR-255463	2589
1990	BR-255464 thru BR-257888	2425
1991	BR-257889 thru BR-259897	2009
1992	BR-257898 thru BR-262188	2291
1993	BR-262189 thru BR-264586	2398
1994	BR-264587 thru BR-267635	3049
1995	BR-267636 thru	

The main serial number, shown in the above chart, is located on the top of the knee in the front. Mine is #7365, which did not include the "BH" prefix. To expose the serial number, crank the saddle back towards the column until the chip guard plate slides back an inch. My Bridgeport was manufactured in 1947 – the same year I was born.

The door contains the full serial number BH7365, which matches the knee. It also has a patent number 2275291, which matches one on the table.



Knee after Painting

photo by Kay Fisher

The Saddle has a serial number on the left side next to the table lock handle. It should match the table serial number. Mine is #527.

I don't remember where the table serial number is. I suspect it is under the left or right bearing bracket. It really doesn't matter as it was used during assembly at the factory to insure the surfaces that were hand scraped match up on the same machine. The table also has a patent number on the front center. Mine is #2275291. If anybody knows for sure where the table serial number is please let me know and I'll update this paragraph.



Pedestal Before photo by Kay Fisher

Each dial and handle is stamped with an A, B, C, or D. The left handle and dial are A. There is also an A on the front left of the table. The right handle and dial are B. There is a B on the front right to match. The cross feed (Y axis) handle and dial are C. The elevating (Z axis) dial is D. They are machined to match and won't fit anywhere else.

The M-Head serial number is on the left of the quill housing. Mine is #M21472. It should match the serial number on the belt housing.



Pedestal After photo by Kay Fisher

The belt-housing serial number is on a label fastened to the front of the housing. Mine is #M21472. It should match the M-head serial number.

Not all motors have serial numbers. They changed type and manufacturers of motors over the years. Mine has a serial number on a label on the front of the motor. It is #3064.



Knee being Installed

photo by Kay Fisher



Knee Installed

photo by Kay Fisher

Spare Parts

Spare parts for Bridgeport mills are available from many places. My favorite for new parts is High Quality Tools.

High Quality Tools, Inc.
34940 Lakeland Boulevard
Eastlake, Ohio 44095
(877) 372-9227

<http://www.hqtinc.com/>

They have an excellent catalog. You have to order from "High Quality Tools" through a distributor. I have ordered through:

Rice Machinery
(401) 781-3010

<http://www.ricemachinery.com>

In the past, experts at Rice Machinery answered my technical questions and have provided good service.

There are always parts for Bridgeport mills for sale on eBay:

<http://www.ebay.com/>

Select the category "Business & Industrial" then select the sub category "metalworking". Then search for "Bridgeport".

Column Knee & Pedestal

The column was the largest single piece of the mill. I kept it on a homemade pallet skid and did all my refurbishing right where it landed from the move – at the door to the basement bulkhead. I put the knee on the column with a chain hoist because I could not pick it up by myself. Before I did this, I spent many hours hand scraping the dovetail precision surfaces and the adjustable gib. The inside of the knee was by far the most messy part and not at all fun to clean up. I would wipe out goop and swarf and spray in some WD-40 and wipe some more then scrape gunk off. I thought it would never end.



Old and New Bearing Cap photo by Kay Fisher

When I took the knee apart I discovered one broken part - the bearing cap. I priced one thru High Quality Tools at \$31.50 and decided to build my own.



Ram Before photo by Kay Fisher

The only other part that I had to make was a table lock plunger, a little part about the size of a pencil eraser. Somehow, I managed to lose it during disassembly, moving, and reassembly.

Refinishing

The above photos show the refinishing of the column and knee. The procedure is simple enough: clean it up, chip off the bad paint, and apply new paint. The devil is in the details.

This is the way Bridgeport finished their cast iron parts in 1947. First they apply a layer of black shiny stuff that is very thick and acts much like our present day Bondo although with a considerable better finish. I cannot say that Bondo will last 57 years or more in a shop but I can say that the skim coat that Bridgeport applied was starting to lift in areas that had seen some stress and in protected areas.



Turret Before photo by Kay Fisher

I removed the old paint and their skim coat mostly by hand. I would have liked to just blast it off with some easy method. I tried various sanders and wire brushes but in the end what worked best for me was chipping with an old worn out straight slot screwdriver. My second favorite tool was a very nice wood chisel. Do not cringe. I have a Tormek Supergrind and am perfectly capable of restoring the edge on the wood chisel to better than new condition.



Turret Bearing Ring Before photo by Kay Fisher

I did not take any photos of the Bondo steps. I liberally applied a layer of Bondo brand body filler over the entire column, knee, and pedestal. At that stage it was all pink. Next I sanded with power sanders and by hand for hours.



Turret After Paint Scraping photo by Kay Fisher

Then I filled all the imperfections with Bondo brand glazing and spot putty. Now it looked pink with dark red spots. Then I hand sanded again, filled with glazing putty again and repeated this cycle three or more times until perfect.



Turret After Glazing Putty photo by Kay Fisher

The last step was applying paint. The paint I chose to use was Rust-Oleum gloss protective enamel (smoke gray) from Wal-Mart. I can't swear that it is extra hard or lasts a long time when exposed to grease but it was darn handy to buy and so far I have no complaints.



Turret After Wire Brushing photo by Kay Fisher

Then I sprayed Rust-Oleum automotive primer (light gray) on the surface. Invariably this would expose more imperfections that I had not seen so I would again apply glazing putty and hand sand. Then I added another coat of primer, more glazing putty, and more sanding another three or more times.



Turret After Glazing Putty 2 photo by Kay Fisher

To bring out the shine of some of the cast iron surfaces – such as the graduations on the bottom of the turret, I used a combination of a wire brush and an abrasive flap wheel. I could get the best finish with the flap wheel but they wore out fast and good replacements were hard to find.

.....continued next month.

My mailing address is:

Kay R. Fisher
101 N. 38th St. #129
Mesa, AZ 85205

My e-mail address is:

KayFisher@att.net

Kay



For Sale

Shaper, Grinder, Lathe

Before I stopped working I gathered a number of retirement projects. I haven't attended meetings for the past 2 years while recovering from my illness. I now realize that I can't handle some of these projects and wonder if any in the group are interested.

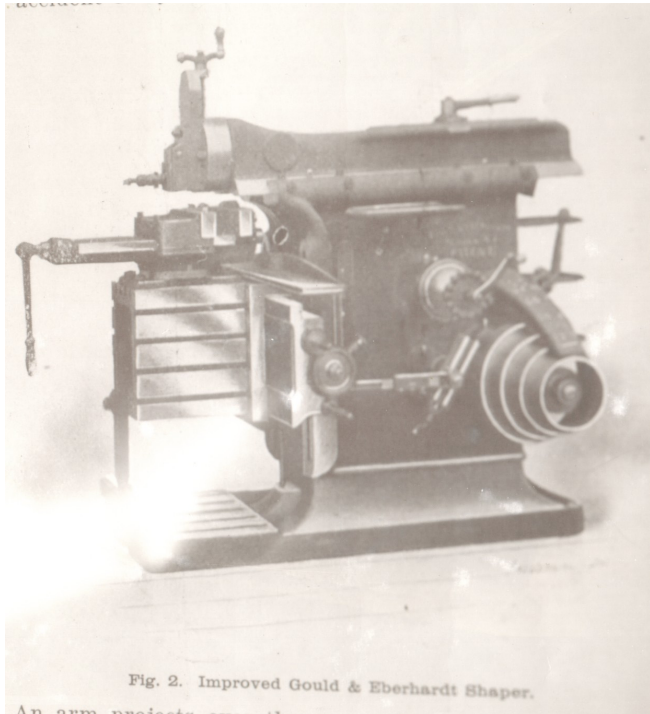
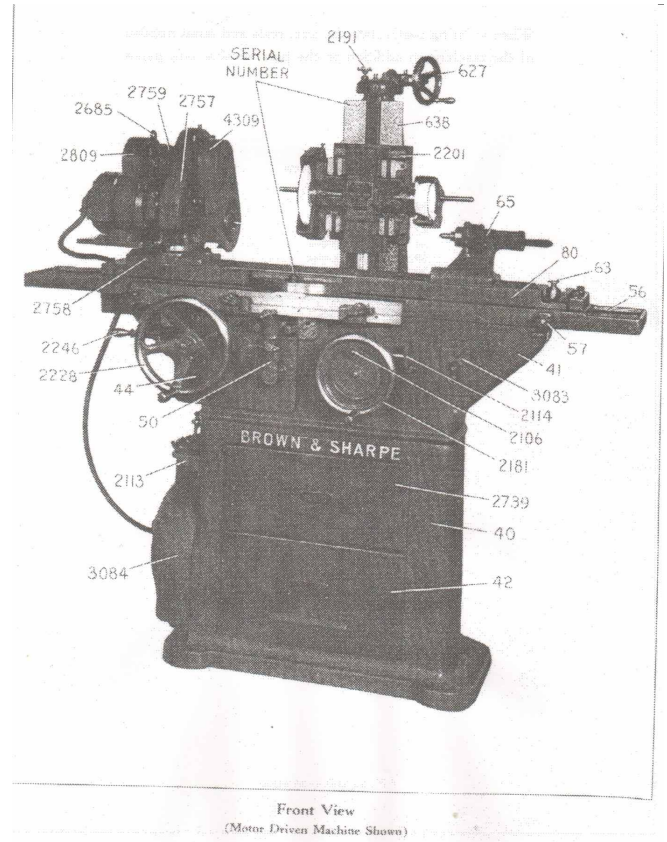


Fig. 2. Improved Gould & Eberhardt Shaper.

1. A Gould & Eberhardt 14" shaper. This has been stripped down and sandblasted and partly repainted and is ready for reassembly. It has a rotary work vise. I have \$250 invested in this and would like to get my cost back.

2. A Brown & Sharp #13 universal grinding machine also disassembled and partially sandblasted. The wheel spindle has been rebuilt. I would like to get \$200 (my cost) for this unit.



3. My Boley German metric high-speed tool room lathe is completely rebuilt and refurbished with numerous accessories. Must be seen to be appreciated. It is in good operating order. This is not a cheapie....I am asking \$4000 for this.

Please come and visit my shop to see these items or call me for details.

Don Strang
25 Warren Ave
Harvard, MA 01451

(978) 456-3611

Zero-Backlash Right-Angle Gear Reduction Box.

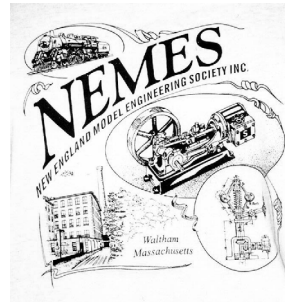


This box reduces 20:1. It comes with an input shaft coupler to compensate for slight shaft misalignment. Input shaft size is 0.375". Output shaft is 0.625" with a keyway. This gearbox is used but in excellent condition. It turns extremely smoothly. It would be great for reducing hand crank to a tool for very precise control or for any use requiring small motions. \$25.00 Bob Neidorff neidorff@ti.com or phone 603-472-2237.

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

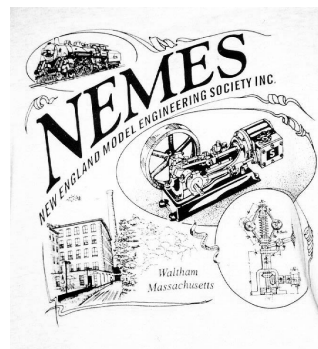


NEMES clothing

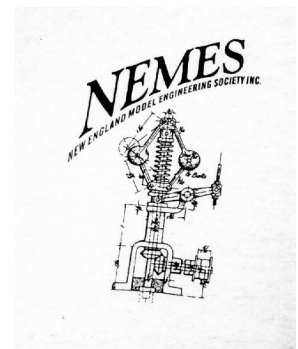
NEMES Tee Shirts

NEMES tee shirts 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!

Artwork by Richard Sabol, printed on front and back:



Rear



Front

Prices:

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

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



**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 wbracket@rcn.com or (508) 393-6290.

June 3 - NEMES Monthly club meeting
7PM -Charles River Museum of Industry
Waltham, MA (781) 893-5410

**June 5-6 Cranberry Flywheelers show
and swap**
Plymouth Airport Dave Moore 508-697-5445

June 5-6 Dave Dearborn's show
W. Campton NH Rt 3 603-726-3257

**June 13 Hot Rods, Customs, Stock Cars
& Antique Aeroplane Show**
Owls Head Transportation Museum
<http://www.ohtm.org/>

**June 12-13 Green Mountain Flywheelers
Engine Show**
Hinsdale NH Rte. 119
Doug Wood 802-254-6758

June 12-13 MAPA show at fairgrounds
Skowhegan, ME Joe Kelly 207-862-2074

June 20th Sun 9AM MIT Swapfest
[Albany Street Garage](#)
corner of Albany and Main Streets in Cambridge
<http://web.mit.edu/w1mx/www/swapfest.html>

**June 26-27 Central Mass gas and steam
show**
Orange MA Dave Songer 978-544-5295

**June 26 International Motorcycle Show
& Auction**
Owls Head Transportation Museum
<http://www.ohtm.org/>

July 1 NEMES Monthly club meeting
Charles River Museum of Industry 781-893-5410
Waltham, MA

July 3-4 Antique Engine Meet
Boothbay Railway village
Boothbay, ME
www.railwayvillage.org

**July 3-4 The Fabulous '50s, Sensational
'60s & Antique Aeroplane Show**
Owls Head Transportation Museum
<http://www.ohtm.org/>

July 11 Pepperall MA show
Town field Rt 111 Kim Spaulding 978-433-5540

**July 16-17 Cranberry Flywheeler's swap
Meet**
Shurtleff's Old Mill Lot on East St.
Middleboro, MA Dick Shurtleff 508-866-3109

July 18th Sun 9AM MIT Swapfest
[Albany Street Garage](#)
corner of Albany and Main Streets in Cambridge
<http://web.mit.edu/w1mx/www/swapfest.html>

July 24-25 Raitt Homestead Farm Show
Rt 103 Eliot, ME Lisa Raitt 207-748-3303

**July 24-25 13th Annual International
Submarine Regatta**
Johnston, Rhode Island
<http://www.subcommittee.com/Events>

**July 24-25 Trucks, Tractors, Commercial
Vehicles & Antique Aeroplane Show**
Owls Head Transportation Museum
<http://www.ohtm.org/>

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