

Model Engine Builder™

Newsletter-Number 1

Welcome to the first *Model Engine Builder*™ Newsletter

Editor's Note: We intend to evolve this newsletter to fit your expectations. So your feedback is of primary importance and you can do that by clicking on [Contact MEB](#) and send us your message. Clicking on the above link will take you to a Contact MEB page on our Web site where you can type and send your message.

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TIPS

Where to start? Maybe with some basic information that many of us know but beginners may not:

Files - You know, that tool some of us reluctantly pick up to smooth or deburr metal? It is actually a very elegant tool and capable of much more.

1. The first tip is to only purchase and use *good quality files*. Why? Because poor quality files do not cut well, may be bent, may wear quickly and in general are difficult to use. Poor quality doesn't always come from 'bad' suppliers. Even good quality suppliers can turn out poor quality tools. So when you get one, test it. Especially for straightness if it is supposed to be straight. Many of us try to flatten a bit of metal and find only the near and far edges are being cut. That could be the metal or it could be the file.

I just went out and laid my favorite file, made in Japan, on a straight edge. Surprise! It is thicker midway (Belly) along its length than at the Point or Heel ends. That is probably why I like it and why it seems to cut so well. But it doesn't flatten metal very well for obvious reasons

How expensive are 'good' files? Figure good files will cost more than a few dollars (U.S.) probably

around \$15 or so . . . each. Good sets of, say, Swiss Files may cost upwards of \$200 (U.S.)

I could go on, but Cooper Tools, the company that owns Nicholson Files among other name brands, has a great booklet named *THE GUIDE TO FILES AND FILING*. So click on the following link if you'd like to download that file click on:

[Get the Nicholson booklet](#)

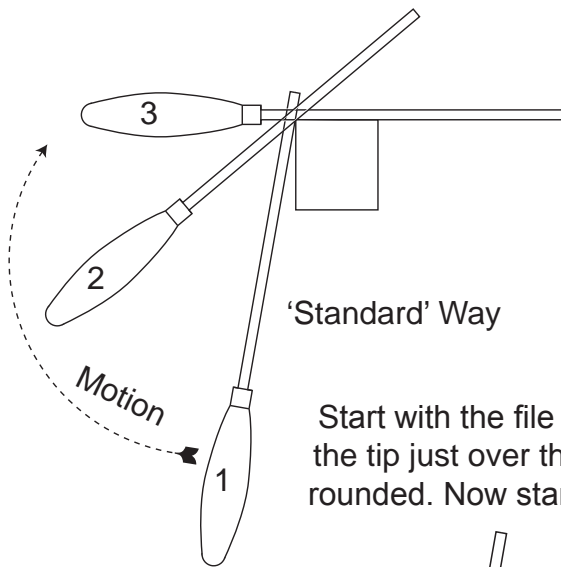
There you will find out about Lathe Files, Foundry Files, Aluminum Files, Brass Files, and more. Pay attention to the warning to **use only files with proper file handles**. Otherwise you may have an accident and find a file tang driven into your hand or other body part.

However, the next paragraphs are worthwhile I think:

Files are made from hardened Carbon Steel so you can damage them by getting them too hot. Like using a file on a workpiece turning at a high speed in a lathe. If you see a silver streak on the file, you may have destroyed the teeth in that streak. The harder the metal, the slower should be the speed at which you file. *THE GUIDE TO FILES AND FILING* will give you the maximum speed for filing.

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2. Want to use a file to round over an edge? The first inclination will be to hold the file somewhat vertically with the tip close to the edge to be rounded, the handle down and then push the file up and over the edge, rotating its length to

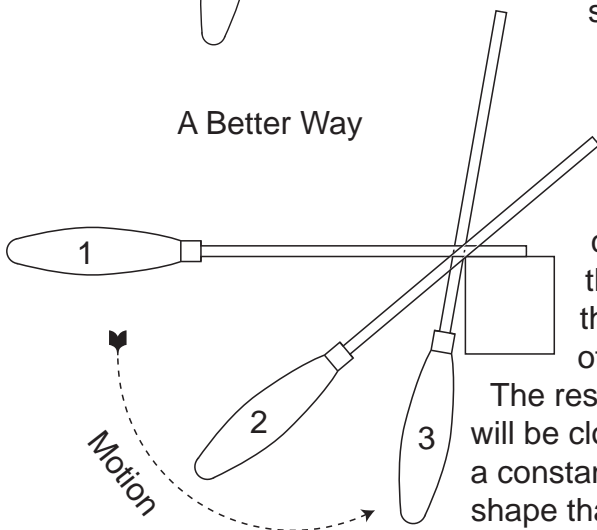


'Standard' Way

a horizontal position to finish the stroke. Yup, that will work, but my Machine Technology Instructor taught me a better way:

Start with the file horizontal, with the tip just over the edge to be rounded. Now start the filing stroke and rotate the file vertical,

A Better Way



maintaining contact with the work over the length of the stroke. The resulting curve will be closer to a constant radius shape than with the other method.

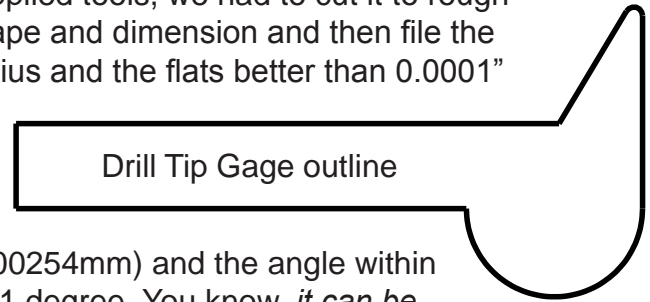
This also works very well to cut the raised metal from a drill shank after it spins in a chuck.

3. Now, how accurately can you file? Before I took the Machine Technology class, I would have said I can file a fairly good edge on a shovel or hoe. Maybe smooth edges on metal but not much else.

Our instructor handed us a piece of aluminum about 5" (127mm) inches long, 2" (50.8mm) wide and maybe 1/16" (1.59mm) thick, a radius gage, a straight edge, a hacksaw, a file and a

drawing of a Drill Point Gage and pointed us to a bench vise.

Our objective was to duplicate the gage, it was one-piece as shown below. Using just the supplied tools, we had to cut it to rough shape and dimension and then file the radius and the flats better than 0.0001"



Drill Tip Gage outline

(0.00254mm) and the angle within 0.01 degree. You know, *it can be done* and it didn't take all that long. Maybe 2 three hour class sessions (for most of us).

The U.S. Navy had a shipyard here in our hometown that mainly built submarines. Their apprentice program for machinists started out with a similar but more difficult project: They were given a cast iron block about 1.5" by 2" long and 3/4" thick, plus a file, scraper, surface plate, bluing and a combination square. They had to file the block square on all surfaces to better than 0.0001 and then scrape the all surfaces to more than 90% contact as shown by the transfer of bluing from the surface plate.

Why a straightness of better than 0.0001 inches? If you hold a true straight edge up to another edge or surface and shine a light on that mating line but on the other side from you, you can detect a gap down to ≈ 0.0001 inches. Seems good enough to me, eh?

My conclusion is that files are tools that deserve some practice on my part and more care than I sometimes give them.

4. Did you know that the thin nuts goes on the bottom and the thick nut on the top when you use a Jam Nut?

If you have a tip you'd like to see published either in the newsletter or in our magazine, please click on this link: [Contact MEB.](#)

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Model Engineering Internet Resources

Click on these to explore the Web sites:

<http://www.homemodelenginemachinist.com/>
<http://modelengineneeds.org/>
<http://www.floridaame.org/>
http://groups.yahoo.com/group/Min_Int_Comb_Eng
http://groups.yahoo.com/group/R_and_R_engines
<http://www.practicalmachinist.com/>
<http://bbs.homeshopmachinist.net/>
<http://www.cnczone.com/>
<http://forums.americanmachinist.com/>
<http://www.machinistweb.com/forum/>
<http://www.chaski.com/homemachinist/>
<http://www.machinetools.com/us/forums>

Do you have more links? Send them to us via this **Contact MEB** link.

Model Engineering Clubs

- Bay Area Engine Modelers
USA, San Francisco www.baemclub.com
- Chicago Model Engineers Association
USA, e-mail: edsmerz@webtv.net
- Colorado Model Engineering Society
USA, e-mail: jbeall303@juno.com
- Florida Association of Model Engineers
USA, www.FloridaAME.org
- Hamilton Model Engineering Club
Canada, www.hamiltonmodelengineeringclub.com
- Kansas Association of Model Engineers
USA, www.geocities.com/steammodel/index.html
- Model Engine Collectors Association (M.E.C.A)
USA, www.modelengine.org
- New England Model Engineering Society
USA, www.nemes.org
- Northwest Model Engineers Association (Chicago)
USA, dyoung1228@aol.com
- Portland Model Engineers
USA, tomten@easystreet.net
- The Society of Model & Experimental Engineers
UK, www.sm-ee.co.uk
- Southern California Home Shop Machinists
USA, www.schsm.org
- Toronto Society of Model Engineers
Canada www.tsme.ca

To add your club to this list, please send contact information by clicking on: **Contact MEB**

Events

See Us At

WEME

Has moved to the Agricultural Pavilion at the GoodGuys 25th West Coast Nationals
NEW DATE-Aug. 26 - Aug. 28, 2011
Alameda County Fairgrounds
Pleasanton, CA
www.wemeshow.com

GEARS

September 24 & 25, 2011
Kliever Armory
10000 N.E 33rd Drive
Portland, Oregon
www.oregongears.org

Other Events

Western Minnesota Stream Threshers Reunion

September 2-5, 2011
<http://www.rollag.com/index.php>

Blackhills Model Engineering Show

September 17 & 18, 2011
Rapid City, South Dakota
<http://www.blackhillsmodelengineeringshow.net/>

Estevan Model Engineering Show

October 15 & 16, 2011
Wylie Mitchell Building
Estevan Fairgrounds.
Estevan, Saskatchewan, Canada
<http://www.estevanmodelengineeringshow.com/>

MidEast Model Engineering Expo

October 21 & 22, 2011
Muskingum County Fairgrounds
1300 Pershing Road
Zanesville, OH 43701
<http://deboltmachine.com/id13.html>

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Great articles, big drawings on separate
sheets of 11 x 17 inch paper
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