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THE FORGE FIRE

The Newsletter of the Indiana Blacksmithing Association, Inc.

An Affiliate Of The Artists-Blacksmiths' Association of North America, Inc.

IBA is a Not For Profit Indiana Corporation recognized by the IRS under section 501(c)(3)

9:30 AM is the regular meeting time for IBA Hammer-Ins
with beginner training available at 9:00 AM.
PLEASE MAKE SURE TO ASK FOR HELP!

**If you would like an IBA membership application form,
please contact Farrel Wells, Membership Secretary
(765) 768-6235.**

BULK LOTS ARE AVAILABLE TO DEMONSTRATORS,
SHOPS, SHOWS AND OTHERS WILLING TO MAKE THEM AVAILABLE.
WE APPRECIATE YOUR HELP.

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More nearby resources and organizations for blacksmiths:

Rural Smiths of Mid-America:
Meetings are on the first Saturday of each month
Call Ron Gill
317-374-8323 for details

IBA MEETING SCHEDULE

Check the latest *Forge Fire* for monthly IBA revisions.

| | |
|-----------------|--|
| Aug 12-13 | SUTTON-TEROCK REGIONAL CONFERENCE |
| Aug 20 2022 | SNAKE ROAD FORGE |
| Sep 30 Oct 1 | BUNKUM VALLEY REGIONAL CONFERENCE |
| | |



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Hammer In

Sept 30 / Oct 1
Bunkum Valley
Regional
Conference

Editors Message

Last week I got some bad news that Farrel Wells has had some health set backs. For many years Farrel managed two roles as IBA Treasurer and Membership Secretary. Farrel has expressed an interest to relinquish the Membership Secretary position. Mike Mills has agreed to accept that task. If you would like to contact Farrel or send a card, he can be reached at: Farrel Wells, 8235 E 499 S, Dunkirk, IN 47336-8807; ph: (765) 209-4198.

As I am writing this column, we are few days away from the regional conference hosted by Sutton-Terock. It should be a wonderful event with the weather forecast being near perfect.

Bunkum Valley is deep in planning for the Regional Conference at the end of September. Check of page 4 for details and schedules.

ABANA NEWS

Got an Awesome Photo? We're looking for blacksmithing images to feature on our new website (launching at a later date). Think action shots, completed projects, historic ironwork, events, and so on! Email your submissions to socialmedia@abana.org

The National Curriculum and You ABANA's National Curriculum is a national standard for blacksmith education which teaches beginning, intermediate, and advanced skills (Level I, Level II, and Level III) using traditional projects. The program is intended to raise the quality of blacksmith skills nationwide and to give certified smiths a competitive advantage in finding jobs, acquiring clients, and securing commissions.

ABANA cannot be everywhere (nor do we want to be). Our goal is to assist local affiliate groups in attracting new members and providing a greater level of value for the existing members. Most of the teaching and certification for the Level I and Level II curriculum can be done at the local level and we're happy to assist your organization in getting started!

Across the US, there are already 24 certified instructors who are members of affiliate groups just like yours. If you are an experienced blacksmith with an interest in helping others to become certified blacksmiths (or even instructors), we can help. If your affiliate is interested in offering National Curriculum workshops, we can help.

The Upper Midwest Regional Blacksmith Conference (hosted by Upper Midwest Blacksmith Association and Illinois Valley Blacksmith Association) will host a workshop in October.

IBA website: www.indianablacksmithing.org **IBA Facebook page:** www.facebook.com/groups/IndianaBlacksmithingAssociation/

IBA Satellite Groups and News

1) Sutton-Terock Memorial Blacksmith Shop

Meet: 2nd Saturday at 9 AM
 Contacts: Fred Oden (574) 223-3508
 Tim Pearson (574) 298-8595

2) Jennings County Historical Society Blacksmith Shop

Meet: 2nd Saturday at 9 AM
 Contact: Ray Sease (812) 522-7722

3) Wabash Valley Blacksmith Shop

Meet: 3rd Saturday at 9 AM
 Contacts: Bill Cochran (812) 241-8447
 Max Hoopengartner (812) 249-8303

4) Fall Creek Blacksmith Shop

Meet: 4th Saturday at 9 AM
 Contacts: Gary Phillips (260) 251-4670

5) Maumee Valley Blacksmiths

Meet: 2nd Saturday
 Contacts: Clint Casey (260) 627-6270
 Mark Thomas (260) 758 2332

6) St. Joe Valley Forgers

Meet: 4th Saturday at 9 AM
 Contacts: Bill Conyers (574) 277-8729
 John Latowski (574) 344-1730

7) Rocky Forge Blacksmith Guild

Meet: 2nd Saturday at 9 AM
 Contacts: Ted Stout (765) 572-2467

8) Meteorite Mashers

Contacts: Mike Mills (812) 633-4273
 Steve King (812) 797-0059
 Jeff Reinhardt 812-949-7163

9) Whitewater Valley Blacksmiths

Meet: 2nd Saturday
 Contact: Keith Hicks (765) 914-6584

10) Bunkum Valley Metalsmiths

Meet: 1st Saturday
 Contacts: Jim Malone (812) 725-3311
 Terry Byers (812) 275-7150
 Carol Baker (317) 809-0314

11) Covered Bridge Blacksmith Guild

Meet: 1st Saturday
 Contact: John Bennett (812) 877-7274

12) Snake Road Forge

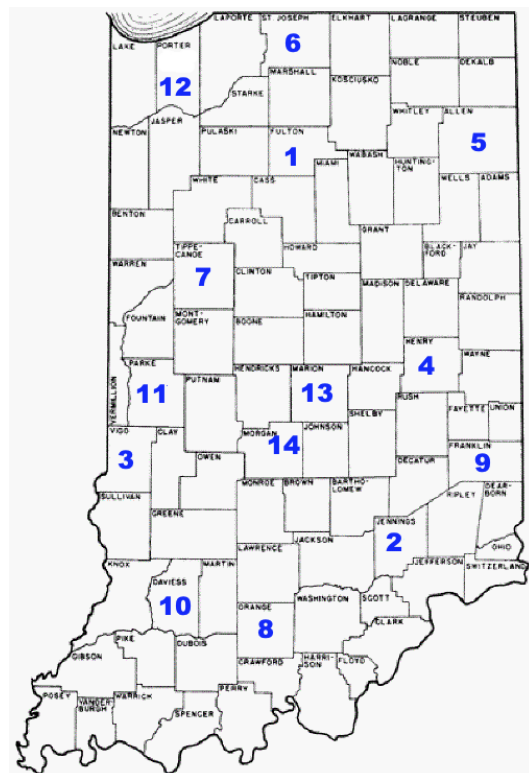
Meet: 1st Saturday
 Contact: Rod Marvel (219) 241-0628

13) Satellite 13

Meet: 4th Saturday
 Contact: Darrin Burch (317) 607-3170
 Doug Wilson (317) 439-7684

14) Old Town Waverly Blacksmiths

Meet: 2nd Saturday
 Contacts: Mike Lyvers (317-728-5771),
 Kenny Hale (765-318-3390),
 Mike Jackson (317-509-9115).



Meteorite Mashers

July's meeting was held at Jason Bowman's shop in Elizabeth Indiana. Mike Mills helped a beginner make a knife from a rasp, and helped another guys make a spatula on his Bradley from 1/2" square stock. Lunch was hotdogs. The next meeting is at Jeff Reinhardt's shop in Floyds Knobs. The plan to to carve a big wizard from a roughly 5" square chunk to make an anvil. So the BFH hotter then the gates of hell forge should be in good use.

Jennings County Historical Society Blacksmith Shop

The Vernon blacksmiths started our meeting with the pledge of allegiance. This was followed by Kevin Welsh making a pineapple twist handle on a back scratcher, which he put in the iron in the hat. Josh Simson worked on a forge welded chain which he made several links. Nathan Pelter made a beautiful broach, which could also be a hair pin. 13 signed in but some may not have. August meeting will be at Dave McNult, 7620N CR 400W, Scipio, IN 47273. Hope to see you on the 13th. Paul Bray

IBA Satellite Groups and News (continued)

Bunkum Valley Metalsmiths

The Bunkum Valley Metalsmiths met Saturday August 6th and it was hot! We worked on our draft for the upcoming conference. Also worked on was our plans next month's monthly meeting and the White River Valley Antique Show. We will be meeting on our regular 1st Saturday of the month, September 3rd and helping to load for the show.

The White River Valley Antique Show begins Thursday September 8th and runs through the next Sunday until about 2pm. More information can be found at <http://wrvaa.org/> We will be demonstrating daily in the Blacksmith shop please stop by and say hello! It is a really great family event!

Tentative Agenda for the **Conference September 30 - October 1**

Bunkum Valley Metalsmiths
14586 N 1100E
Odon, IN 47562

Demonstration Schedule

| | | | |
|----------|-------------|---------------|-----------------|
| Friday | 4pm and 7pm | Sand Casting | Randal Kinnaman |
| Saturday | 9 or 9:30am | Forge Welding | Aaron Baker |
| Saturday | TBD | Damascus | Aaron Baker |
| Saturday | TBD | TBD | Steve King |

Saturday Iron in the Hat

Open forges will be available during the conference

Food vendors for the conference

| | |
|----------------|------------------------------------|
| Friday evening | Bicknell Trail Life Scouts |
| Saturday | Serena's Food Hut available 11-6pm |

We will provide a final flyer next month in this newsletter and we will be posting in the Blacksmithing FB group

Please mark your calendar and plan to join us, we look forward to seeing you!

An Introduction to Foldforming

by Kim Maas

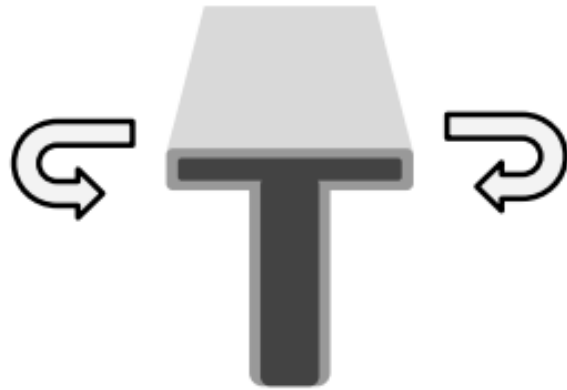
Reprinted from *The Guild of Metalsmiths*, primarily from Wisconsin and Minnesota.

Foldforming is a way of creating distinctive, three-dimensional forms out of sheet metal. It is a unique approach to metalsmithing that allows the artist to work in conditions that aren't suited for more expansive, forge-based techniques. Foldforming is most commonly used to make sculpture and jewelry by applying "folds" such as the name suggests, to various types of metal until they are formed to the desired shape.

An uncomplicated way to think of it is like folding a piece of paper. In fact, this is something foldforming artists use all the time to plan their work. There are several ways to experiment just by folding sheet metal onto itself. Metal being more durable, but also malleable even allows for organic tool markings to be left behind by the artist.

Common metals used in foldforming fall into three categories: precious metals, base metals, and steel. Precious metals include fine silver, 20k+ gold, and platinum. Base metals include brass alloys, nickel silver, and copper. Also, titanium, which must be worked hot. Steel must also be worked hot. Otherwise, these metals can be worked at room temperature with tools as simple as a hammer and a vise.

Some folds often used in foldforming include the line fold (below), and the

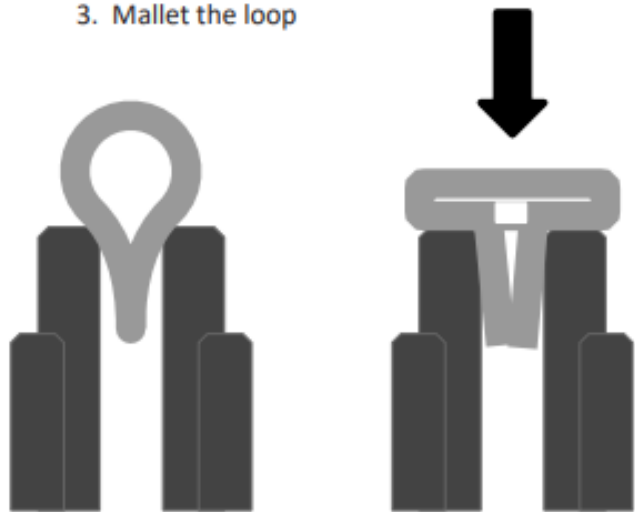


T-fold (above). The **line** fold is made with four basic steps:

1. Fold sheet metal over onto itself
2. Mallet the fold to tighten the fold edge
3. Unfold the sheet
4. Hammer the raised line, confirming it

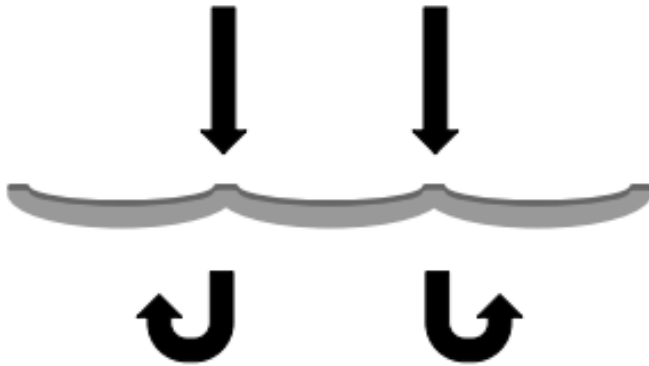
The **T-fold** can be completed with the following steps:

1. Bend the metal into a soft loop
2. Position the folded sheet legs into a vise, so the loop stands above the jaws
3. Mallet the loop



Once the loop has been flattened by a mallet into a T-fold, it can be worked in a variety of ways before being opened. The way a T-fold is opened is going to influence the form that results.

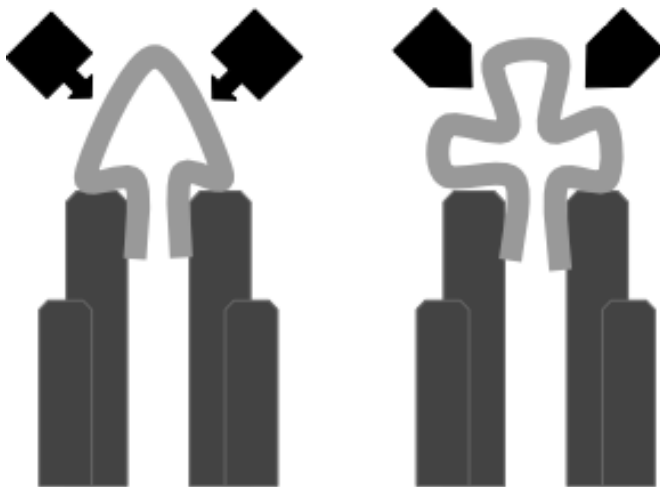
For instance, opening a T-fold completely flat will leave two parallel ridges. If confirmed by hammering straight down on these ridges this will leave behind two classic line folds.



Another fundamental fold in this practice is the **cross-fold**. The cross-fold is slightly more complicated than the T-fold:

1. Bend the metal into a soft loop
2. Position the folded sheet legs into a vise, so the loop stands above the jaws
3. Tap along the pillow at a 45° angle on either side until a triangular cross section appears (see bottom left)
4. Take a rounded, blunt hammer peen and knock in the middle of each angled side of the triangle (bottom right)

After this, the cross shaped cross section that gives this fold its name should be apparent. When opened, this will create three ridges, which can be confirmed into line folds.



Tools commonly used for these foldforming techniques include:

Anvil: a piece of railroad track, steel block or traditional smithing anvil

Hammers: forging, raising, planishing, chasing, and specialty. Different hammers also have different peens

Mallets: leather, wood, paper, and horn are good options. (Nylon, Delrin, and plastic can be problematic.)

Vises: a mounted bench vise is very versatile. Also, a blacksmith's post and leg vise

Pliers: including chain nose, flat, and wide jawed



Other tools such as knives and screwdrivers can be used for prying, while snips and hand shears are used for trimming and sizing sheet metal.

The more these tools get used, however, the more the metal becomes "work hard" and unmalleable. Work hardening occurs when repeated physical processes like hammering or rolling alter the metal by strengthening it. By reducing ductility work hardening increases the chances of a brittle failure.

The solution for this is annealing. Annealing is the process of heating metal, then allowing it to cool slowly. Annealing will change the physical properties of the metal, making it more workable by softening it. This can be done by laying the metal in fire brick and taking a handheld torch to it.

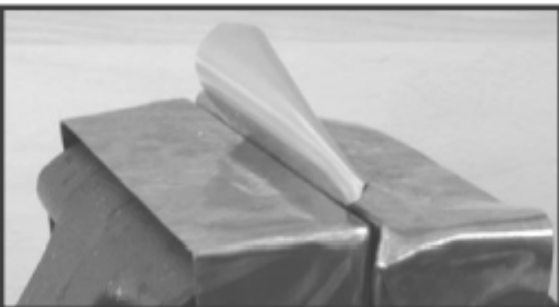
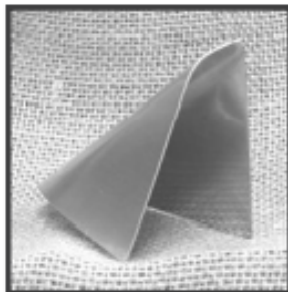
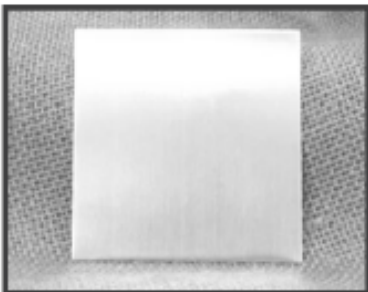
Different metals and alloys will each have their own annealing point. Watching the flame color is a good way to determine the correct temperature, especially for precious metals and jewelry alloys. The flame turns distinctly yellow-orange when the surface of the metal reaches approximately 800°F

(425°C). The metal will need to cool to below 500°F before it can be quenched.

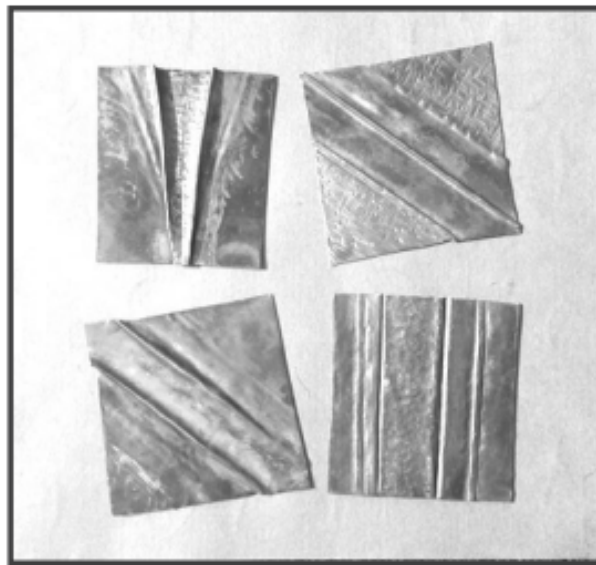
Some metals, like pewter and niobium, are effectively always annealed because they are so malleable at room temperature. Other metals, such as steel, can only be worked hot. In this case, annealing means once the steel is red hot it must be allowed to cool slowly to room temperature. While precious metals can be worked at room temperature, they will eventually need to be annealed and quenched to maintain ductility.

Foldforming works with metal using the characteristics of the metal. Serendipity is going to drive much of the process, but it's important to understand the limits of each piece being worked with. A crude but useful experiment when working with a new piece of metal is to hammer it until it cracks. This is finding its plastic limits. Plastic deformation occurs when the pressure is such that the form of the metal has been altered. Copper, for instance, can take a lot of abuse before it cracks. Whereas stainless steel is never very malleable, even when heated.

Words such as ductility and malleability refer to a metal's ability to withstand stress. In the case of ductility, this means the ability for the metal to be pulled from opposite ends before it snaps, while, malleability is the amount of compressive stress (e.g. hammering) a piece of metal can take before it fails. Malleability is different from hardness. Hardness is self-explanatory. It refers to the ability of the surface to withstand denting.



24 gauge
copper

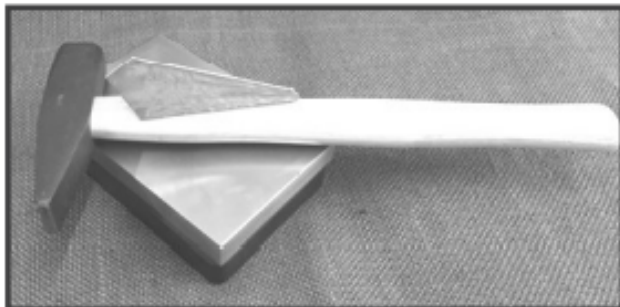


Copper is famously malleable, ductile, and soft. The above image shows examples of some of the aforementioned foldforming techniques as applied to copper. The metal has been subjected to folding, annealing, unfolding, and texturing, while still maintaining its integrity. This image also shows some of the variability in folds and textures to be experimented with.

And truly, there are an infinite amount of ways to experiment with foldforming. This article is meant to be a brief introduction. The information here barely scratches the surface of what is possible. Charles Lewton-Brain has a much more comprehensive book entitled *Foldforming* in which even more folds, metals, tools, and textures are explored.

Lewton-Brain has been working with foldforming as an art since the 1980's. His book was originally published in 2008. He is considered to be the driving force behind the recognition of foldforming as a new way to work metal. Much of the information in this article was sourced from a combination of Mr. Lewton-Brain's book, website, and YouTube videos.

Illustrated and edited by Amanda Zon Maas



Journeyman's Notebook

By David Sandlin

I hear and I forget. I see and I remember. I do and I understand. — Confucius

Guillotine tools are great things to have in the shop, especially for the smith who has to work alone. For those of you who've never seen one, a guillotine tool is simply a frame that holds a bar of tooling that slides up and down. Jerry Hoffman's Smithing Magician is a good example. But at \$150 for the frame and another \$70-\$90 per set of dies, buying one is a bit pricy [see [Smithing Magician \(blacksmithsupply.com\)](http://blacksmithsupply.com)].

Of course you can make one, and there are several plans on the Internet.

For example, I drew this in sketch up (right).

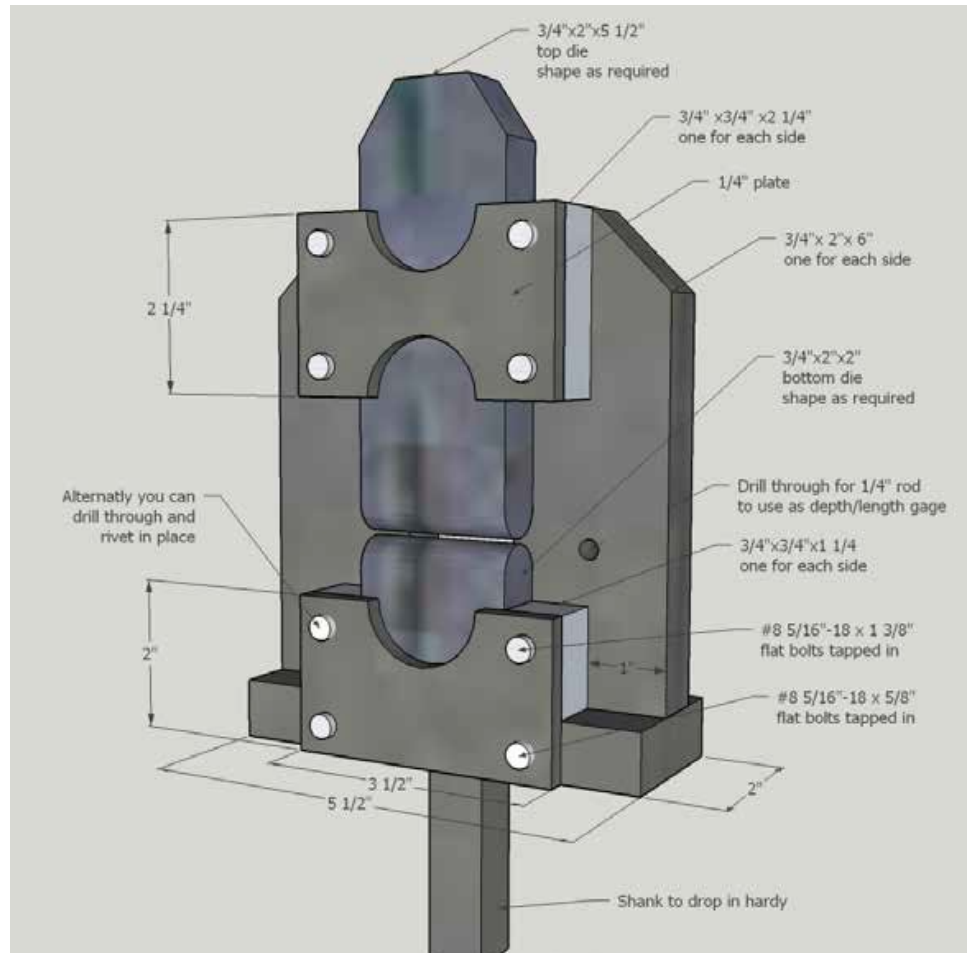
However the level of complexity and the time required for the build might put you off. Perhaps welding and rivets are better than bolts?

Bill Epps offers a variation on the guillotine tool that is much simpler to build. It can be made from regular old mild steel, but that would not last as long as a good lawn mower blade or leaf spring.

If you do use mild steel be sure your work is at least red HOT and then keep a spray bottle of water handy to spritz the tool between uses.

Below are two variations of the Bill Epps Style guillotine tool.

Having the top bar a bit long (bottom left picture) allows you to lift the top with your hammer as you put the work in with the other hand.



Shop Tip -- Cleaning Scrolls by Jim Carothers

Cleaning fire scale out of a blacksmith made scroll can be difficult. Paint or other finishes applied over scale often flake off later making your work look bad or making more work for you.



Photos 1 & 2: I use a die grinder and a shop made mandrel to remove scale from the inside of my scrolls. A piece of emery cloth or sand paper is put in the mandrel slot; the free end of the emery held; and the mandrel rotated in the same direction the tool turns to form a flapper type roll.



Photo 3: The mandrel is a piece of 1/4" cold finished round bar. It has a band saw or hack saw slot cut in one end.

This flapper type sander is also good for cleaning the inside of candle cups, tubing, etc. Be sure to wear safety glasses and a face shield when using this set up; a reduced air pressure and speed of the tool are good. You really don't need 10,000 rpm to clean off scale and rust.

This article reprinted from the July/August edition of On the Anvil, the newsletter of the Philip Simmons Artist Blacksmith Guild

WORKHORSE by Bruce Manson



How many times have you wanted to clamp something horizontally in your vise to position it for grinding, welding, drilling, sharpening,...or whatever? Do you need a sturdy surface to beat against or one that's a little bigger than your anvil face? How about a firm edge to clamp something to hold it for bending, torch cutting, or sawing? Having seen a display of knife making equipment and tools at Smokey Mountain Knife Works in Tennessee, with a little imagination, some scrap materials, and a bit of time, here's what you can do....

The inspiration came from a trip to Smokey Mountain Knife Works. A knife making display there includes a post vise mounted horizontally on a bench to allow the jaws to clamp a knife blade for shaping and sharpening. This might also be useful for saw sharpening.

The vise I used is a wagon tongue vise I acquired from Anthony Seniunas. I replaced the wagon tongue mounting bracket with a plate for horizontal mounting. If you have or can find a post vise with a broken post, here is a perfect way to salvage the vise's usefulness. I welded legs to a piece of 6" H-beam I found at the scrap yard (length is optional, mine is 32" long). The top of the beam is about 32" high, which is a comfortable working height for me and matches the height of my workbench. This makes a very sturdy surface for hammering on, clamping, laying tools, or a small work/assembly platform. It is portable (though somewhat heavy – about 80-90 lbs), so it can be moved to the worksite. It is handy to move outdoors and clamp metal onto it to hold for torch cutting.

Just wanted to share an idea that might also spark your imagination.....



This article re-printed from the February 2014 edition of Irons in the Fire, the newsletter of Central Virginia Blacksmith Guild

Some Additional Holding Options –

Photos and write up by Steven Spoerre



Needing something to securely hold work horizontally while filing and grinding, a wagon tongue vise (with mounting bracket and spring removed) is clamped into a bench mounted post vise.



A saw filing vise with an adjustable ball joint can hold sheet metal blanks (acanthus leaves, calyx, rosettes...) at a variety of convenient angles while cleaning up the edges after being chiseled out. Dan Nauman mentioned this vise during his ABANA

demonstration in 2010, and this one was found in an Ohio antiques mall on the trip back to Michigan, from SOFA.



This is a picture of a small, flat sided, machine vise clamped into the stock vise of a 4 x 6 metal band saw. The machine vise hold's the stock parallel to the saw blade for a safer, more precise cut. The machine vise screw handle only has a ball on one end so the machine vise can be opened and closed while still clamped in the saw's stock vise.



The machine vise clamped into a 4 x 6 metal band saw with the blade tilted up.



An adjustable angle machine vise clamped into a 4 x 6 metal band saw with the blade tilted up.



The *FORGE FIRE*

Newsletter of the
Indiana Blacksmithing Association, Inc.

Farrel Wells *Membership Secretary*

8235 E 499 S

Dunkirk, IN 47336-8807

First Class Mail

Address Correction Requested
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sender

August 20 Hammer In Snake Road Forge

38N 600W, Valparaiso, IN 46385

Directions: I-65 exit 249 (Crowne Point East 109th Ave). East 109th Ave becomes CR 100S. After about 7 miles turn left on CR 600W. Drive about 1.4 miles, shop is on the left.

Note: This part of Indiana is in Central time zone.

Forge Master: Rod Marvel ph: (219) 241-0628

September 30 / October 1 Regional Conference Bunkum Valley Metalsmiths

14586 North CR 1100 East, Odon IN

Directions: Take US 231 south and then SR 58 towards Odon. After the turn-off from US 231, go for 2 miles, and then turn right so as to head north on CR 1100. After another 2 miles, Jim's place is on the right.

Forge Master: Jim Malone ph: (812) 725-3311

(more details on page 4)