



On the Anvil NEWSLETTER

PHILIP SIMMONS ARTIST BLACKSMITH GUILD

<http://philipsimmonsartistblacksmithguild.com>

From the President's Anvil:

May 2015



We had our April meeting at Magnolia Plantation and Gardens with attendance a bit off due to the weather, but the clouds and rain didn't dampen our spirits. We were able to stay dry under the shelter and had 30 to 40 people in attendance. Josh Weston was to perform the demo but due to sickness he was unable to attend. Thinking fast, an alternate plan was devised to have 3 (count 'em, 3) demonstrators; Ray Pearre did a pineapple twist on a railroad spike, explaining all the steps to success using good details and producing a great looking and useful embellishment for a knife handle or a picket for a railing. I did a dropped tong forge weld on a 1/2" square bar that stuck the first time

(that surprised even me!). Most folks didn't see that I was holding the wrong piece with the tongs, I dropped them anyway and nobody seemed to notice. Bill Creek demonstrated some general forging techniques, fullering, tapering, and taking a square bar to round. We had a good lunch of Ray's best fried chicken with everyone bringing enough sides and deserts to feed the group, there was food left over.

In the afternoon, we instructed some new folks that couldn't resist the urge to mash hot metal with a hammer and anvil, fueling ourselves with leftovers from lunch.

Thanks to Ray and Bill for setting everything up on Friday, having a successful hammer-in, demonstrating and providing the entre for lunch for the Saturday meeting.

For the August meeting, we are having a class with Sheldon Browder on Friday, 8/7 and Sunday, 8/9. Shel will be demonstrating for the meeting on Saturday, 8/8. The class will be on a colonial-style divider called a square head compass and, if time allows, kitchen utensils. Sign up with Ray. Price to be determined, but we will keep it reasonable.

Our new members include: Gerald Atkinson, Curtis Blackmon, Kevin Cook, Derek Croucher, Rick Ogletree, and Bryan Clevenger. Welcome!

Iron-in-the-Hat was very good for the small crowd we had due to the weather: \$591.00! We had lots of forged items made by our members, not bad for a rainy day. Thanks to our generous members!

June 13th will see us at the Marcengill's in Westminster! We are still looking for the right demonstrator.

Jesse

Iron in the Hat

Item	Donated by	Won By
Bolster/Header	Phil Rosche	Charles Meyer
Center Finder/Scribe	Perry Thomasson	Tavis Ferrell
Leather Gloves	Perry Thomasson	Joe Marsh
Leather Gloves	Perry Thomasson	Walter Beard
Leather Gloves	Perry Thomasson	Hayward Haltiwanger
Bucket o' Coal	Johnny Marks	Chuck Baldwin
Bucket o' Coal	Johnny Marks	Andrew Ward
Bucket o' Coal	Johnny Marks	Joe Marsh
Square Steel	Johnny Marks	Barry Myers
Files	Johnny Marks	Clyde Umphlet
Dutch Oven and Griddle	Ed Sylvester	Richard Lynch
Bell Jar	Ed Sylvester	Carl Kisner
Candle Holder	Ed Sylvester	Charles Meyer
Square Candy Jar	Ed Sylvester	Tony Etheridge
2 squeeze bottles	Ed Sylvester	Charles Meyer
Anvil Belt Buckle	Charles Meyer	Peter Mueller
Hatchet	Todd Elder	Jim Pender
Tool Holder	Todd Elder	Johnny Marks
Viking Knife	Todd Elder	Billy Creek
Scroll Saw	Joe Marsh	Gerald Alsbrook
Nicaraguan Coffee	Al Jenkins	Jesse Barfield
Floor Lamp "pattern"	Al Jenkins	Calvin Battle
Rubick's Cube Oyster Knife	Ray Pearre	Richard Lynch
Box o' Spikes and anchors	Jim Pender	Charles Meyer
Misc Steel and Hammer Head	Carl Kisner	Al Jenkins
Jar o' Cash	Clyde Umphlet	Richard Lynch
Flint and Steel	Chuck Baldwin	Caleb Battle
Vaughn Axe Head	Steve Allen	Richard Lynch
Kukri Knife Blade	Steve Allen	Braxton Brazell
Tasting Spoon	Barry Myers	Chuck Baldwin
3 Nice little hooks	Andrew Ward	Caleb Battle
Farrier Files	Mackey Bryant	Tony Etheridge
Farrier Files	Mackey Bryant	Charles Meyer
Farrier Files	Mackey Bryant	Hunter Smith
Farrier Files	Mackey Bryant	Hunter Smith
Farrier Files	Mackey Bryant	Peter Mueller

Have You Got the Right Cutting Edge?- John Steel

It is very important to have the correct rake angle on a drill bit for maximum cutting ability. You might like to check your collection!

Soft Metal Drills— 118° Steel and Hard Steel— 135°, Cast Iron and Hard Wood— 90°, Soft Wood— 60°, Regular Point Steel—118°, Heat Treated Steel— 125°, Aluminum, Brass, Copper—125°.

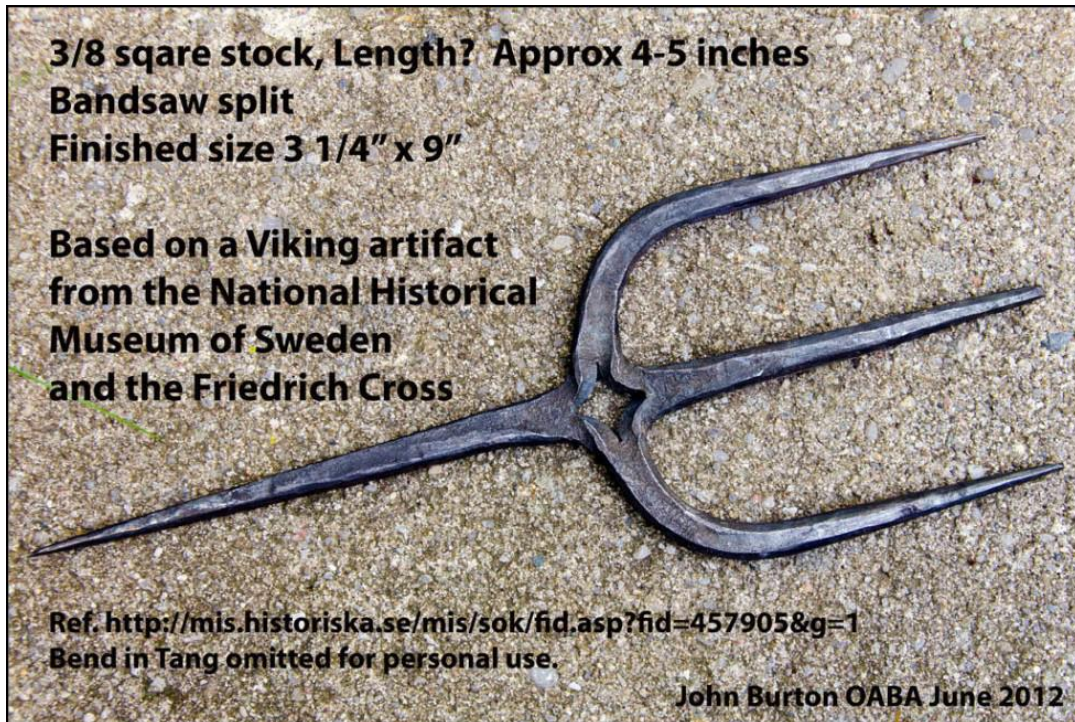
Reprinted from the Pittsburgh Area Artist Blacksmith Association



This is a picture of an antique tool that I saw on line; no one knew what it was. I think it was cement or plaster working tool. Didn't have a top view, but I thought it looked so cool!

Here is a site that gives the size of pump and cylinder needed for your hydraulic press:

http://www.baumhydraulics.com/calculators/cyl_calc.htm

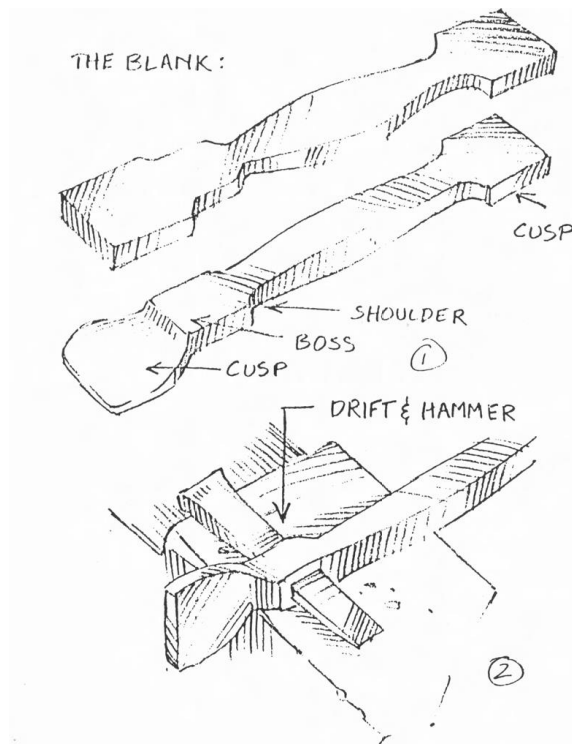


Here is a gig I saw on the Ontario Area Blacksmith Association. I think that you could make it unlike the Friedrich Cross if you don't cut so that the two cuts do not cross. I saw a pitch fork made that way at the ABANA Conference in Delaware last year. Barry

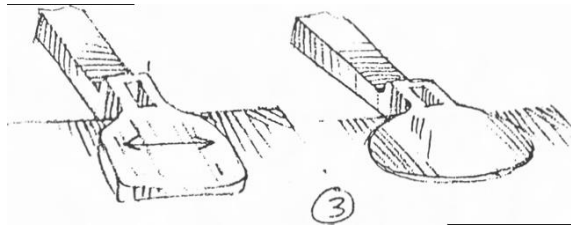
Not seeing the content you want?

Submit requests for the kind of info and articles you are interested in, or better yet,
Submit an article yourself.

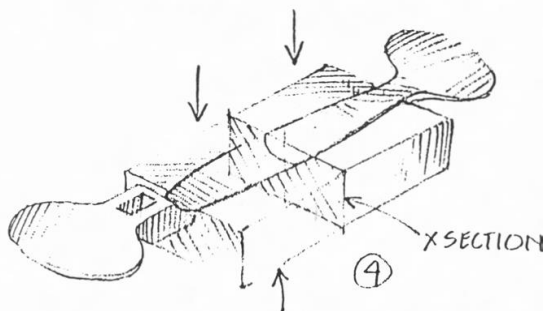
Peter Ross' Suffolk Latch Workshop Notes



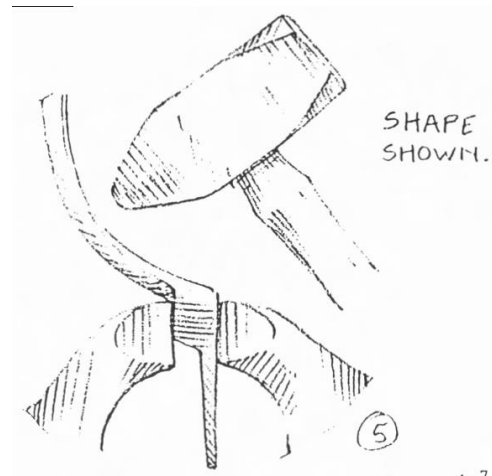
Punch the boss and gradually drift to size. While hammering on the side to thicken—leave the drift in during this step



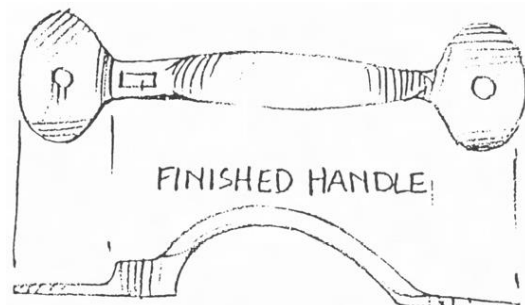
Cross peen from center to edge, flatten and refine.
HAMMER OUT CUSP ON BOTH ENDS



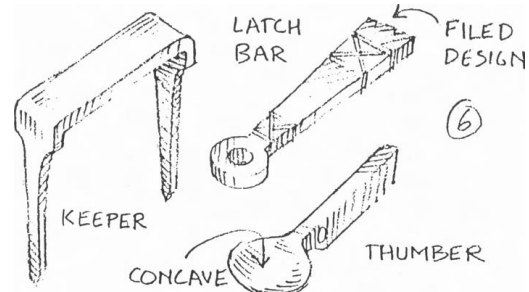
PETER USES A SWEDGE BLOCK TO FORM THE HANDLE SECTION.



Shape first half of the handle as shown, reverse and finish other end



Forge the keeper, latch bar and tumbler



Notes by the late Doug Hendrickson, Illustrations by Jerry Hoffman. Reprinted from the Blacksmiths Association of Missouri's March, 1990, workshop from their April-May, 1990, newsletter

Jeff Hatfield demonstrated this at his shop once, he showed how to form the curve in top of the handle as in #5 above. It was worth the price of admission. The handle bent just as shown. Perfect! Barry

Hammer Control: Force of Impact vs. Pounds per Square Inch

Story & illustrations, Mike Chisham, Petaluma

I am a farrier and also a blacksmith by trade. I have done extensive research on the subject of handheld forging hammers, techniques and hammer control. My information comes from many different teachers, hours of forging and paying close attention. Describing the forging process is complicated. Forging is basically physics, and physics is a science based on mathematical calculations. This makes it very complicated to explain a physical process in theoretical terms.

Let's think about how a hammer contacts a piece of hot metal during the forging process. First, we need to discuss the difference between hammering and forging. Hammering is when you hit an object with a hammer with hope of a desired outcome that comes from skill or luck. When you hit a nail on the head with a hammer, you want the nail to go into the material without bending over or deflecting. You also hope you don't miss and hit your thumb or put unwanted marks in the material into which the nail is being driven. When you forge, you are using a hammer to either change the form or the shape of hot metal with a predictable outcome that comes from experience, instruction or knowledge. When you grip a hammer and hit the hot metal in a predetermined way, the heated metal will conform to the same contour as the face of the hammer – similar to pressing your hammer head into a piece of clay and then checking out the depression that was left.

There are only five basic marks that one can make with a hammer. They are as follows: (*Figures 1A-1E*) a flat hammer mark or a straight down hit, a left mark or the hammer head tilted to the left, a right mark or tilted to the right, a tilted forward or toe mark and a tilted back or heel mark. There are no other marks that you can make with a hammer. Everything you can do with a hammer is a combination of these five marks. I will admit that the outcome of the forging process has many variables to consider: The size of the hammer. The length and size of the handle. The height, weight or size of your anvil. The location of your fingers or how you grip the hammer handle. The shape of your hammer's face. The list goes on and on.

I would like to talk about force of impact as compared to pounds per square inch. When I drop a 20-pound block of metal on a marshmallow, it goes squish. No matter where the marshmallow contacts the hammer face, the weight coming down is still 20 pounds. The force of gravity and velocity do come into play, but for all

practical purposes, we will eliminate that for now. If the shape of the falling block is round, square or whatever, it doesn't matter; it still weighs 20 pounds. (*Figures 2A-2C*) The circumference of the marshmallow is about one inch around. Let's call it one square inch for now. The 20-pound weight will contact the marshmallow with 20 pounds per one square inch. If you change the form of the falling weight into a shape that has a larger top diameter and a bottom diameter that is one square inch, the weight will still contact the marshmallow with 20 pounds per square inch. No matter what the configuration of the falling block, the weight of the block does not change, nor do the pounds per square inch. The falling weight has a force that is great enough to squish the marshmallow under it.

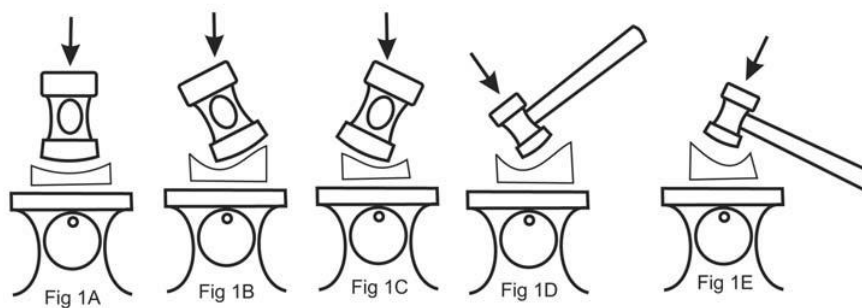
This is an important concept to think about. If the weight is not heavy enough, the marshmallow will absorb a percentage of the falling weight and the results will not be the same as with a heavier weight. The same idea is true with a lighter hammer versus a heavier hammer. A lighter hammer will not move the metal as quickly as a heavier hammer.

Now let's change the marshmallow to a solid metal piece of the same size and shape. The same rules still apply. But, certain things can and will change the outcome. If you contact the one-square-inch piece directly in the middle of the falling weight, you will have 20 pounds per square inch of force contacting it. If the weight contacts the piece somewhere on its outer edge, do things change? Yes, they do. Let's say that the bottom face of the weight, or let's call it a hammer, is 4" in diameter. As the hammer makes contact, the piece, unlike the marshmallow, does not change form very easily. It resists change because of its density. The hammer is still contacting with 20 pounds of force and 20 pounds per square inch if you contact directly in the middle of the hammer face. If the face of the hammer does not contact the piece directly in the middle of the hammer face, the outcome will be very different. If the hammer contacts the piece off center (*Figures 3A-3B*), the falling weight of the hammer will have a tendency to tilt off to one side or another immediately after the initial contact. This sideways movement of the hammer head (continued following the next page.)

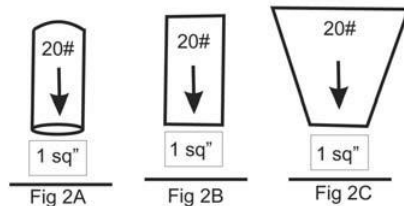
Mike Chisham led several workshops at Oktoberfest 2009. Here he points out the hand position on the hammer handle girth (left) and demonstrates the length of the hammer relative to the blacksmith's forearm. Mike has had tandem careers as farrier and blacksmith for about three decades. He is looking forward to organizing a team forging contest at the Ferndale conference. Photos by John Graham



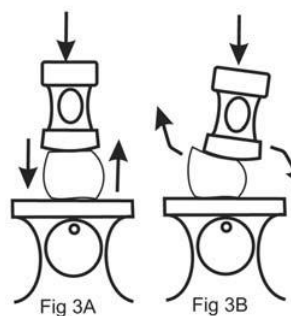
Five Basic Hammer Marks



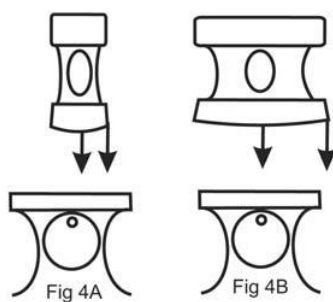
Falling weight



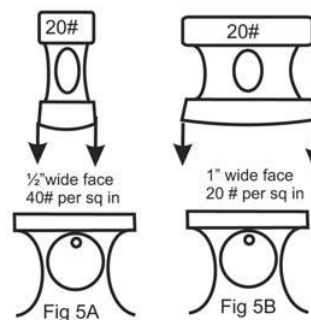
Direction of Impacting Force



Size of Hammer Face



Pounds per square inch



will dramatically lessen the force being transferred into the piece. The hammer will still contact the piece with 20 pounds. Unfortunately, the force of impact will be greatly diminished. Because of the piece's resistance to change, it will also take repeated blows to change its form or shape as much as it did when the hammer was able to contact it directly in the middle of the face of the hammer.

Let's put this into perspective as it relates to the forging process. If a hammer has a larger diameter face, it will require more precise hammer control to contact the metal in the exact center of the hammer face in order to transfer maximum force of impact into the piece. Forging is a balancing act. Hitting the metal anywhere except in the center of the face of the hammer will set up wobble, vibration and unequal rebounding.

If your hammering is off to one side or the other, you will not transfer your maximum pounds per square inch of force into the metal. You will need to hit the metal again and again to get the results you want, especially if your aim is really off. Again, the weight coming down does not change. You still have the same amount of weight contacting the metal. The difference is that the force is being dampened or lost because of the sideways deflection. The impacting force is deflected away from and not directly into the metal. The closer to center of the hammer face the contact is, the more dramatic the result. Some refer to this as the *sweet spot*. Also, various smiths claim it's preferable to hit a rounded head punch with the rounded hammer face. Two rounded faces have a tendency to make up for poor hammer control.

Now let's take the same weight hammer and make the diameter of the face smaller. Let's say a 1" diameter instead of 4". The possible contact area has now become much smaller. (Figures 4A-4B) Even if you contact the metal on the outer edge of the smaller hammer face, you will not get as much deflection or wobble as you did with the hammer with a larger diameter face because the edge on a 1" face is still closer to center than the outer edge of the 4" face. The 20-pound weight is contacting a much smaller surface area. That creates more pounds per square inch of striking impact because of a smaller face. (Figures 5A-5B) It makes it less likely to lose force of impact by not contacting directly in the middle of the hammer face. Avoid wasting time and energy with too small a hammer, by having to hit too hard or too many

times to achieve your desired results. Avoid excessive work because of poor hammer control, too light a hammer or a hammer with too large a face. You will be spending more energy trying to control the wobble or sideways deflection.

A smaller face on your hammer actually makes working easier in some ways but not others. Unless you totally miss the metal all together, all you have to do is hit the thing as close as you can to the middle of the hammer face. The key to increasing the force of impact is the velocity of the hammer head just before contact. The further away from the hammer head you grip the handle, the greater will be the force of impact because of increased leverage and gained velocity. You will be more efficient in completing your work because more of the impacting force is going directly into the metal and not rebounding off to one side. It will require less muscle, less time and less energy to accomplish your task. A smaller and lighter hammer head alone does not increase the pounds per square inch though. It just makes it easier to transfer the force of impact more efficiently by lessening your chances of a mislaid hammer blow because of poor hammer control and not contacting in the center of the hammer face. You will have to hit the metal more times to obtain the same results that were accomplished with a heavier hammer and proper hammer control. Therefore a mislaid hammer blow with a smaller face will be easier to correct than a huge hammer mark from a larger faced hammer.

But you will have to hit the metal many more times to get the same results. The more hammer blows you make, the more chance for a bad hammer mark from an unwanted hammer blow. The smaller hammer face works well if it is not too small to do the job.

Just making a smaller face on your hammer and increasing pounds per square inch, won't make you more efficient. The only way to effectively increase pounds per square inch when you are forging is to either increase the velocity and/or the weight of the hammer or decrease the size of the metal being forged.

Don't work harder, work more efficiently. Less work means less time and that means more money.

Happy hammering!

Reprinted with permission from the California Blacksmith Association

"The most essential thing to look after is form; the work looks best when it shows handwork and is not mechanical." Thomas Googerty, *Art Smithing*, Industrial Arts Magazine, 1914

Incising Tool

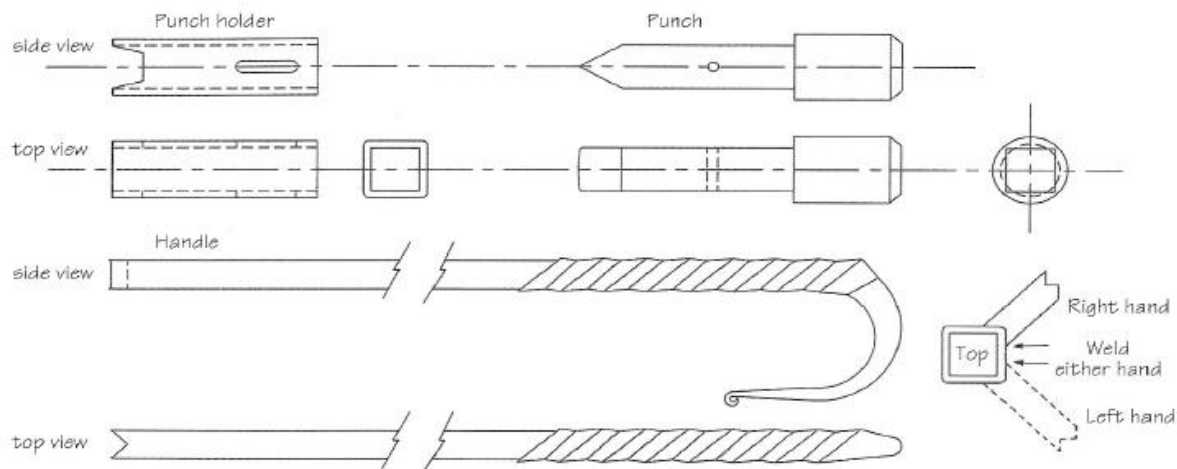
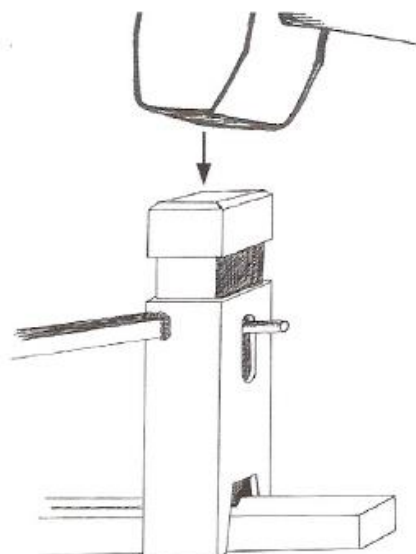
by Mario Bagglioni, Sonora, California

incise (in siz'), v.t. **-cised, -cising**. to cut into; to engrave.

I made this tool because I got frustrated attempting to chisel a straight line down the center of square stock in order to make a decorative twist. The chisel would invariably drift off when holding it by hand while trying to locate the mark before the material got too cold. The V opening at the bottom of this tool keeps the stock centered as you move down the bar.

The tool holder is a piece of $\frac{3}{4}$ " square tubing about $2\frac{3}{8}$ " long with a .090" (approximately) wall thickness. File all the burrs and the weld seam on the inside. You can use a mill to cut the V slots and the $\frac{5}{32}$ " slots for the roll pin that holds the chisel. Or use a saw and file for the V slot. Drill a series of holes, and file the roll pin slot. This tool will do $\frac{3}{8}$ " square as well as $\frac{1}{2}$ " square material. For larger material use a larger size of square tubing.

The punch is made from 4140 (sucker rod) because that's what I had on hand. It can be forged or milled down to a square and filed to a sliding fit in the tube. The chisel edge is approximately 60 degrees, with a slight edge radius in the vertical direction so that you don't get a step mark as you move along. I also stoned the cutting edge to soften it a bit. Drill a $\frac{1}{8}$ " diameter hole for the roll pin, and heat treat the cutting end. For the handle, I used $\frac{3}{8}$ " square. You can weld the handle to the tool to accommodate use by either the left or right hand. (For a full AutoCAD-LT® schematic of this tool, contact the editor) ♣



This too was reprinted with permission from the Californians! Think how easy Ray's project of the pineapple twist on that railroad spike would have been had he had one of these. Mark Aspery's smash-o-matic is made in a similar way.

Rivet Header by Phil Travis

Cut and weld together forming into a "U" shape-clamp in drill press vise with thick (3 index) card thick), card stock in center. Drill Holes, grind relief grooves between holes for hammer.

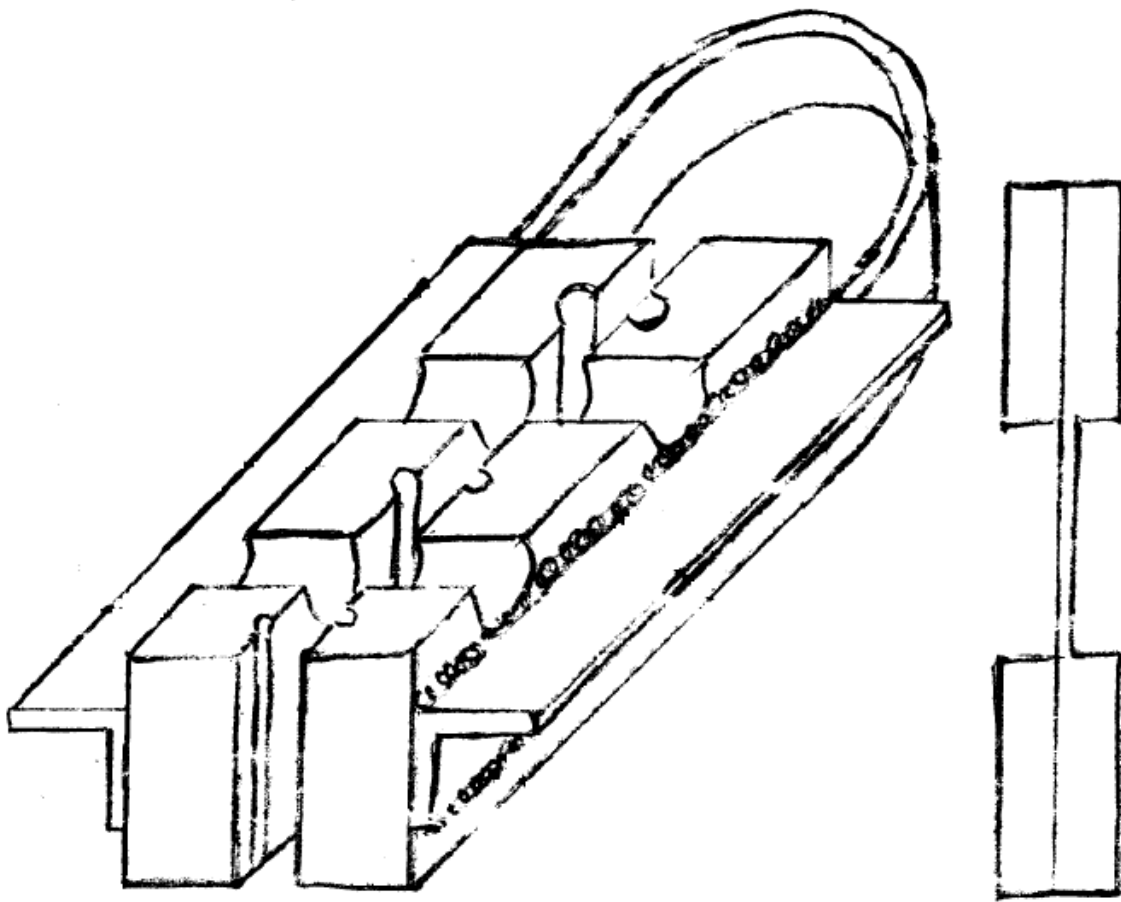
Adjust so sides spring open slightly.

In use: Set in jaws of post vise, heat end of rod stock, place with 1 1/2 X diameter of stock above and tighten vise. Upset head with hammer and rivet set tool to form head of rivet. Remove and cut to length.



*Phil Travis —
A Riveting Character*

Editor's Note: Phil has contributed a number of projects to our newsletter, try one of his projects and improve your skills!



I had trouble putting in the verbiage on the picture. Use 1/2"x1" mild steel for the blocks. The holes are drilled for 1/8", 3/16", and 1/4" rivets. Cut the spring from 1/2"x 1/2"x12" angle iron. Remove the center 4" section and weld the blocks to the remaining two 4" sections. Keep the weld 1/4" down from the top.

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For Sale:

- **Fire Bricks – Brand New, Industrial Grade.** \$1 ea. Ed Sylvester 803.414.2487
- **185 Joy Air Compressor, Diesel, John Deere, \$3000.** 185 Sullivan Diesel Air Compressor \$2000, Both the Joy and Sullivan for \$4500 obo. Two Milwaukee portabands, \$100 ea. Lincoln flux core Pro-Welder Mig w/2 extra rolls of wire, \$250. Steam Cleaner – Steam Jenny Model 200 Plus 115 Volts, Diesel Fuel, \$150. Trailer, 20' bed, 3' tongue, 2 axles, needs wheels, \$250 Trailer for backhoe, 13' Bed, 2' Dovetail, 4'6" tongue, No Ramps, 3 axles, \$500. Wilton 6" Bench Vise, \$100 obo. Emglo Shop Air Compressor, 5 hp, 230v, \$500. Contractor's toolbox, 48"x60"x30" w/locks, \$550 obo. Hypertherm Plasma Cutter, Max 42 w/20' torch, \$700 Half inch chain 4 sections of 20 each, 4315 # working load \$50 ea. Compact Metal bender with dies for scrolls \$85, 2 steel boxes, 24"x24"x30" (high) \$280 ea. Charles Meyer, 843-729-5861
- **Blacksmith Classes:** John Boyd Smith is offering an instructional blacksmithing program at his smithy near Spartanburg. John is internationally known for his realism in forged steel. Call 912-655-9448, email flemingsmith@aol.com, or website JohnBoydSmith.com.
- **Tire Hammer Plans:** Send check/money order for \$30 to Clay Spencer, 73 Penniston Pvt. Drive, Somerville, AL 35670-7013. Includes postage to US and Canadian addresses. Other countries e-mail clay@tirehammer.com for price. 256-558-3658. Tire Hammers for sale contact me for current price. Also, **Beverly Shear Blades Sharpened**, \$41 includes return shipping in US. Remove blades and ship to address above. Extra cost for deep nicks or blades sharpened at wrong angles.

Upcoming Events

- Ryan Calloway is offering Saturday workshop Introductory Welding and blacksmithing class at Creative Iron Works at 12 Andrews St., Greenville S.C. on **May 23rd and 30th**
- Ryan is also having the Young Blacksmiths Association meeting also at 12 Andrews St., Greenville. Sunday **May 31st, 2-4pm**
- June meeting, The Marcengill's **June 13th** Demonstrator to be determined.
- August meeting, **August 8th**. The Camden Meeting will be a class with Shel Browder **August 7th and 9th**, with the Shel demonstrating at the Guild meeting on the 8th.
- **October 17th** is At Tommy Taylors Shop with Chris Herron demonstrating, Johnsonville.
- **December 12th** at John and ML Tanners home in Swansea.
- **February, 2016.** Meeting at the Paul Farm in Conway. Walter Hill is host.

A GUARANTEE

FROM THIS ON GOES WITH EVERY

PETER WRIGHT PATENT SOLID WROUGHT ANVIL

WITH SPECIAL STEEL FACE



WHILE other makers recognize the Peter Wright as the Standard Anvil of the World by claiming that theirs is "just as good," this anvil has never before been warranted, for the reason that the makers cannot make a better anvil under a guarantee than they have always made without. The guarantee which will hereafter go with every Peter Wright Anvil is designed to satisfy the most exacting of customers.

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Patent Office of Trade Mark

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Membership Application

___ New Member___ Renewal

Name: _____ Address: _____

City: _____ State: _____ Zip: _____ Phone: _____

email: _____ Sponsor _____

Dues are \$15.00 per person/family, per year. Please remit to: C. Ray Pearre, Jr.
4605 Durant Ave.
North Charleston, SC 29405

ACKNOWLEDGEMENT AND ASSUMPTION OF RISK

I acknowledge that blacksmithing and related activities are inherently dangerous and involve risks and dangers to participants and spectators that may result in serious injury or death. I have considered these risks and I knowingly assume them. I agree that I am responsible for my own safety during Guild events, including wearing appropriate clothing and protective gear and remaining a safe distance from all dangerous activities. I agree to hold Philip Simmons Artist Blacksmith Guild and guest demonstrators of our craft harmless from liability and expenses arising from my actions and/or omissions.

When was the last time you paid dues?

There is a note below your address on the last page of our newsletters.

It will say something like...

“Dues Last Paid – 2014” or “Dues for 2015 are due”

This note is updated for each newsletter. We appreciate your prompt payments.

JUNE 13th, 10 AM

The June Meeting will be at the Marcengill's in Westminster.
132 Ringing Anvil Drive, 864-647-1132

Roger and Gail and Jerry and Bessie Fowler are our hosts. We are still deciding on who will be worthy to demonstrate for you!

Bring a side, drinks or dessert to contribute for the lunch. Also, bring something nice, maybe something forged for iron in the hat.

