

The Anvil's Horn

A Publication of: The Arizona Artist Blacksmith Association

Issue No. 149

March 2011



*Tomahawks by Ray Rybar. See page 2 for the description.
You have to see this photo in color at www.AZ-blacksmiths.org*

President's Message:

Well, the best Super bowl in a long time is over, great game, some pretty darn good commercials and lots of good food with awesome friends, what could be better! Hope you had a good time too.

The January demo featuring Pep Gomez was awesome to say the least. Pep showed everyone how to persevere when almost nothing goes right, I kept telling everyone "he really does know how to forge weld a billet" or something to that effect but the demo gremlins kept creeping up on him! Pep you did a great Job! At least the Thermite pour went as planned maybe even a bit better.

The SWABA conference is coming up fast, Feb 19, 20 in Las Cruces. As in the past few years AABA helps out in this effort by taking both sets of bleachers down there. This year's demonstrator, Brent Bailey, will be a hit as always. Brent makes some of the best hammers, some of them even polished. He also is a master with pattern welding as well as other tooling helpful to us blacksmiths. I hear that he will dress hammers if you bring them that weekend.

The next hammer-in will be held in Tucson at Harold Hillborn's new shop. I'm disappointed I'm gonna miss it, but have something a little more important to attend. If you haven't heard, Jason and Amber are getting married that same weekend. Sounds like Paul has set up a great group of demonstrators to answer those all important questions that we all need answered about our work.

And one last thing, there will be a BOD meeting at John Sylvester's house on Feb 26 at 3:00 pm. After the meeting John has been gracious enough to host a BBQ. John is supplying the meat and everyone else is asked to bring a dish to share. Members are invited also, we need all the input we can get to keep this organization strong as well as fun. One item that is going to be brought up is getting a AABA page setup on facebook, so watch for that!

Keep the sparks a flyin'

Grizz

Cover photo details

Three Damascus Tomahawks forged for a client as Christmas gifts to his sons. Each had curly maple presentation cases.

The non-Damascus tomahawk at the top of the picture is one of several models forged for a client desiring a pipe tomahawk in a multi—feather mosaic pattern.

Ray is an AABA member who lives in Camp Verde.

For more information about Ray's work visit www.Rybarknives.com

AABA OFFICERS and BOARD OF DIRECTORS

PRESIDENT: Roger LaBrash 1329 W. Lincoln Phoenix 85007 602-716-9660 grizz@grizzlyiron.com

VICE PRESIDENT: Paul Diefenderfer P.O. Box 8094 Cave Creek 85327-8094 602-509-1543 dief@phoenixrockgym.com

SECOND VP: Mary Ann LaRoche 1775 E. Ocotillo Road Phoenix 85016 602-279-6702 maryann.laroche@cox.net

SECRETARY: Terry Porter 2310 E Melrose Street, Gilbert 85297 480-988-2070 trp555@prodigy.net

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WEB MASTER: Paul Diefenderfer P.O. Box 8094 Cave Creek 85327-8094 602-509-1543 dief@phoenixrockgym.com

LIBRARIAN: Pat Clark 4149 E. Hampton Circle, Mesa AZ 85206 480-924-5582 pclark26@cox.net

EDITOR: Dan Jennings 2522 W Loughlin Dr. Chandler 85224 phone: 480-510-3569 danshammer@cox.net

DIRECTORS: Pat Clark, Bill Ganoe, Sarah Harms, Harold Hilborn, Ivan Hill, Ron Kinyon, Doug Kluender, Jason LaBrash, Kristin Loving, Clark Martinek, Rick Miller, Bill Morris, Peter Sevin, Jim Sheehan, Ira Wiesenfeld.

Demo: March 19 at Harold Hilborn's, Holy Hammer Ironworks in Tucson. Located at On The Tuller School Campus. 5870 E 14th ST Call (520) 603-6723 with any questions.

Gates open 8:00 am. Demo starts at 9:00 am . Lunch 12:00 pm to 1:00 pm. Iron In The Hat 1:00 pm

Cathy Borthwick and **Brain Hughes**, are the featured demonstrators.

The morning will start off with Cathy sharing her 30 plus years of experience in the retail and craft fair market. She will be demonstrating some of the items she sells and projects for backyard blacksmiths.

Brain will handle the afternoon shift. He will fire up the power hammer and demonstrate some of the elements of the stair railing on the January Anvil's Horn cover. He will be assisted by Mike Riemer. Mike will show us a few tricks also. *Ed note: Mike demonstrated for us a few years ago; he is a very fine blacksmith in his own right.*

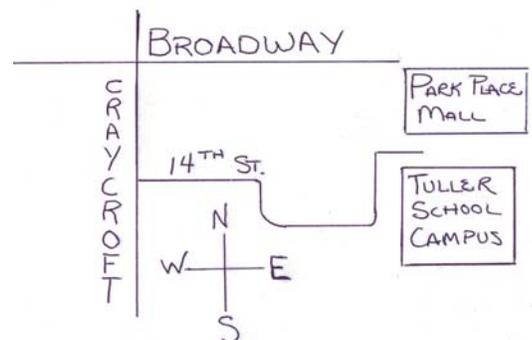
These artist blacksmiths have over 60 years of experience in our trade, there will be lots to be learned from this demo. Make sure you say Hi and introduce your self to them at the breaks.

- Camping in the playground and lots of dry RV parking is available for Friday and Saturday night. For people who wish to spend the night without camping there is a empty guest house available where you can bring a sleeping bag and crash dorm style.
- Or you can bunk at Ira's. If you'd like to stay with Ira give him a call: 520-742-5274 or email: treeira@hotmail.com
- A BBQ Lunch on Saturday will be provided for a nominal \$5.00 fee by the Tuller School PTO. All proceeds will go to the kids at the school. Menu: Hamburgers, or beer bratwursts, potato salad, cowboy beans, bottled water.
- For those who wish to stay Saturday night . We will BBQ or order pizzas and fire up the forges.
- Tailgating—bring your stuff and your money.
- Remember to bring something for Iron in the Hat
- Show us what you have been working on, bring something for Show and Tell.

Directions to Tuller School and
Holy Hammer Ironworks.

*Mapquest is wrong! If you use Mapquest and are lost
call Harold 520-603-6723*

- Take I-10 to Tucson
- Exit 258 Broadway Blvd. Go East about 6 miles.
- Turn right (North) on Craycroft Rd. about .3 miles.
- Turn left (East) on 14th St. (14th curves to the right and bends to the left. And left again



As always, safety glasses are required.

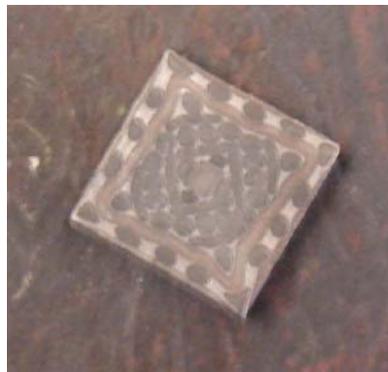
January Demo Report: Pep Gomez

This was one of the most intense, information packed demos I have ever attended. Pep talked almost non-stop for 2 long days plus Friday evening. He brought a ton of tools, billets and pattern-welded samples and items. He concentrated on pattern welding, but there was sure a lot of additional information that any blacksmith could use and even find life changing..

It was also one of those demos where almost nothing went right. Things he had done a 100 times didn't work. The power hammer was just a little shorter than his, which made his tooling not function as he was used to. His forge was dialed in for 5000 feet and was running a little lean, which matters when forge welding is being attempted. Of course, he made everything work in spite of the problems.



Above: Billets Pep brought to weld—he came prepared



Above: A few of the samples he brought



*Pep Made a hammer from a Damascus billet.
Left: the tool used to spread the outside of the eye.
Right: Pep has a drift inside the eye while using the spreading die.*





Left: die used to shape the round end of the rounding hammer and the eye drift

Below: James McLaughlin strikes for Pep. They are punching the slot for the hammer eye.



Above: 2 views of a power hammer hack with its own kiss block



Left: What a great turn out. Most folks stayed until the end both days.

2010 Auction Report

By Jason LaBrash
Photos By Wally Warnke

The 2010 auction and banquet was a huge success! Anyone who attended can tell you that there was great food and good times with old friends. Thank you to Ivan Hill and John Silvestre for cooking the meat for us, for all of you that brought your homemade dishes and to blacksmithing's greatest auctioneer, Geoff Gifford.

Also, thank you to all of those who brought pieces for the auction as well as those who purchased them. With your help we were able to raise over \$2100 for the Read Carlock Memorial Scholarship Fund. This scholarship money is available to all members who want to take blacksmithing or other related metalworking classes. For information on how to attain a scholarship, please visit the AABA website.

Winners of the awards this year were Kristin Loving and Eli Kane in the Novice category, Pat Clark in the Intermediate category, Mo Hamburger in the Advanced category, and Rodger LaBrash for the People's Choice award.

If you would like to help with next year's auction please contact me at 602-716-9660 or at jason@grizzlyiron.com.



Chris Contos



Doug Kluender

Auction items continued



Rodger LaBrash



Kristen Loving And Eli Kane

Kristen Loving



Len Ledet



Mo Hamburger

Auction items continued



Paul Diefenderfer



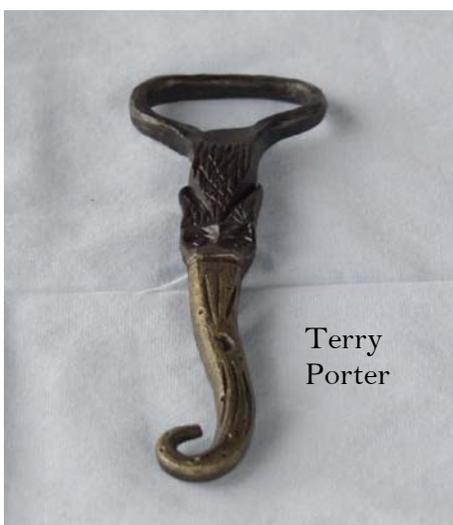
Peter Sevin



Pat Clark



Peter Sevin



Terry
Porter



Ray Brown

Propane Forge Efficiency: Forging on a Budget

By Dan Jennings

Several years ago some of us experimented with jet size on two burner, AABA style atmospheric forges. These forges use 3/4" black pipe with a 1 1/2" reducer for the venturi. We found that the forges like a jet size of .028" and later used .023 mig tips, which measure about .028. What we never were able to figure out was how tip size and pressure related to propane consumption.

After the first couple of weeks of blacksmithing classes at Mesa Community College, we found we were using too much propane – the program would spend more than it took in, which would have meant its demise.

We found that the forges were using .045 mig tips, which measure about .052. We replaced those tips with .023, and did not notice a reduction in forge temperature. Propane consumption went down, but we didn't know how much was due to the instructors making students aware of the situation and getting them to conserve propane and how much was due to the smaller jet size.

Also, we have always wondered how much increasing pressure affects the propane consumption. Do smaller jets at 15 psi equal larger jets at 10 psi?

We decided that installing a flow meter before the regulator on one of the forges would provide a comparative measure of gas flow, but not the actual amount... This was a pretty easy task due to the manifold system that feeds the forges and the fact that there was an extra flow meter in the cabinet.

Here's what we found out:

| | | | |
|--------------------------|-----------|------|----|
| .045 mig tips (.052 dia) | at 10 psi | read | 55 |
| .023 mig tips (.028 dia) | at 10 psi | read | 30 |
| .023 mig tips | at 15 psi | read | 35 |

The flow meter shows a 45% reduction in propane use with the smaller tips. The numbers seem to indicate that for every 1 pound of pressure over 10, propane consumption increases by about 3%.

Theoretically, the .023 tips should create a leaner or more oxidizing atmosphere, however there seems to be little or no difference in the amount of scale on the work.

We also got rid of the heat absorbing, leaky bricks and replaced them with refractory (Cer-Wool) lined doors. The forges heat faster and get hotter than before.



Flow meter at top, regulator bottom left



One of 13 forges with doors at the MCC blacksmith lab

CALENDAR 2011

| | | | |
|-----------|-------------------------------|-----------------------|--------------|
| March 5 | Open Forge | Holy Hammer Ironworks | Tucson |
| March 5 | Open Forge | Grizzly Iron | Phoenix |
| March 19 | Demo | Holy Hammer Ironworks | Tucson |
| March 26 | Iron In The Desert II (Doves) | Stagecoach Village | Cave Creek |
| April 2 | Open Forge | Holy Hammer Ironworks | Tucson |
| April 5 | Open Forge | Grizzly Iron | Phoenix |
| May 21-22 | Demo | Bar-U-Bar | Skull Valley |

Welcome New Members

Jay Griffon
Tyler Adams
Nick Lamb
Jim Krider

AABA BOD Meeting

February 26 we will have a board meeting at John Silvestre home. 3:00 for the BOD meeting. John will host a BBQ after the meeting. John is supplying Steak or Chicken. Bring a Side dish to share. Families are welcome.

Address; 4879 N Monterey Dr.

Apache Junction 85120

Nearest Cross roads are Idaho and Canyon

Please RSVP with choice of meat and # of people to grizz@grizzlyiron.com cell-602-717-1458

CALL FOR IRON

Interested in demonstrating and or selling your blacksmith products at the Arizona Renaissance Fair, in February and March? Show your work to 10,000 people a day.

Products will be juried.

For more info Contact Irene Marson at

i.marson@yahoo.com or (480) 993-6981 Thanks!

Ed. Note: Last issue we inadvertently cut off the contact info. Sorry for the inconvenience.

AABA Publications

Most of the Best Tips Project Ideas Patterns from ABANA Chapter Newsletter, aka The Tips Book, is 291 pages of all those things organized so you can find them. It is bound in a 3-ring binder so you can add info as you get it. Available at demos for \$25.

The Blacksmith and His Art by Jess Hawley. Many feel this is still the best basic blacksmithing book available. Plus it's got pictures and a bit of history. Available at demos for the wholesale price of \$12, Or from Pieh Tool or Blue Moon Press for \$20.00

Iron in the Desert II

The **Iron in the Desert II** event is coming up again on March 25, 2010. It will be held at Stagecoach Village in Cave Creek, AZ. This event helps support the DOVES Program, a local organization that is part of the Area Agency on Aging. They assist victims of late-life domestic violence and elder abuse. This is a chance for us as blacksmiths to sell our wares to the public. Any AABA member that would like to participate may set up a table or two to sell to the attendees of the fundraiser dinner as well as demonstrate some live forging. The event starts at 4 pm and continues until about 9 pm. Participants are encouraged to arrive early and set up early as Stagecoach Village is a public venue with businesses during the day. Participants are also asked to make one piece to donate for the auction designed within a specific theme, of which has yet to be determined. If you would like more information or to find out when the next meeting is, contact Grizz at grizz@grizzlyiron.com or 602-717-1458.

Deadline: April 3 for the May issue of the Anvil's Horn. Earlier would be greatly appreciated. Articles, photos, notices, and ads can be emailed to: Dan-shammer@cox.net or mailed to AABA 2522 W. Loughlin Dr. Chandler, AZ 85224

Education Committee Needs Your Input

Peter Sevin, your new education coordinator would like suggestions from the membership for classes you would like to attend or teach.

Whatever your interest let Peter know. 602-320-2384 or email: psevin7@cox.net

AABA Website: AZ-blacksmiths.org

2011 Dues were Due January 1

Don't forget to send yours in. Thanks!

Open Forge: Phoenix

Grizzly Iron is hosting their monthly open forge on March 5. Peter Sevin will do a demonstration. 8:00 am until around noon

Grizzly Iron, Inc
1329 W Lincoln St., Phoenix, AZ 85007

Open Forge: Tucson

Harold Hilborn of Holy Hammer Ironworks will host open forges in Tucson on the first Saturday of each month through April. Hours: 9:00 am—1:00 or so.

If you have a project you want to work on, a welding repair, or just want to stop by and have coffee with some friends, please attend. Some dates could be canceled due to scheduling conflicts, so please call to verify. Address: 5870 E.14th St. Tucson. The shop is located on the Tuller School Campus.

For directions or questions give Harold a call at (520) 603-6723. Hope to see you there!

Vern Lewis Welding AABA Discount

Vern Lewis Welding Supply, Inc has a great discount program for AABA members. Delivery is available at the low price of \$8.00 per order.

Vern Lewis Welding Supply, Inc: www.vernlewis.com or contact Chris Perella @ 602-319-7693

Examples of Discount pricing

Oxygen - \$12.30 (LG Cylinder) 75/25- \$39.38 "

Pieh Tool Educational Opportunities

Beginner/Intermediate Blacksmithing Classes with Gordon Williams

Class Dates:

Mar. 11-13

Apr. 8-10

May 6-8

\$455 per 30 hour class. All materials and equipment are provided.

Bill Pieh Resource for Metalwork at Pieh Tool in Camp Verde, Arizona. Contact: 928-554-0700 or www.piehtoolco.com

MCC Blacksmithing & Welding

The MCC blacksmithing program is one of the best deals around - over 60 hours of instruction for just under \$450 and that includes material and propane! Saturday (Jaime Escobedo instructor) and evening classes (Dan Jennings instructor) are available. Blacksmithing is WLDI03.

TIG, MIG, Arc, Gas, and Art classes are all available, as is certification in any of those welding methods at Mesa Community College, Southern and Dobson in Mesa.

Classes fill early so it's not too early to be thinking about fall 2011.

AABA New Member and Membership Renewal Form

Name _____

Address _____

City _____ State _____ Zip _____

Phone _____ Email _____

Professional blacksmith _____ Hobbyist _____ Farrier _____ Blade smith _____

Your main blacksmithing interest _____

Occupation or skill _____

Please check one:

Regular membership (\$30) _____

Family membership (\$35) _____

Mail to: Terry Porter
2310 E. Melrose St.
Gilbert, AZ 85297

Make Check Payable to AABA

Jake Brookins

Flagstaff blacksmith, Jake Brookins, died on December 21 after struggling for several years with ALS. Those of you who have been part of AABA for a LONG time will remember Jake as the one who hosted our summer hammer-ins in Flagstaff for many years until Flag Forge took over in the mid 1980's. Jake had been part of the art scene in Flagstaff since 1969 when he moved here to start teaching at NAU. In 1977 he started an art institute in conjunction with the Museum of Northern Arizona that sponsored some great seminars and workshops.

Jake's long art career covered many continents, media, and ideas. He was fascinated with culture, anthropology, and how humans interacted with each other and their environment and he expressed his ideas in metal, ceramics, glass, and painting. His art took him to Africa (as part of the Peace Corps), Korea, Japan, and New Zealand. Here in Flagstaff he was a mentor to many artists.

Through March 27, there is an exhibit of his art at the Museum of Northern Arizona in Flagstaff. Titled "Dreams: Realizations: Contemplations: Fantasies", the exhibit includes work from the different media that Jake worked in over the years and is a good representation of his ideas and personality. If you never knew Jake, this is a good way to find out about him; if you did know him, a visit to the exhibit is a good last visit with him.

Jake is survived by his wife, Jean Libby Brookins. If you would like to send her a note her address is : 6351 N Cosnino Rd., Flagstaff, Az 86004.

FORGING AND TOURING THE HOLY LAND

Tsur Sadan and Amit Har-Lev (who have toured and demonstrated throughout the US and were demonstrators at our recent Memphis ABANA Conference) have invited us to visit Israel where we will attend a four day smithy workshop, followed by a six day tour of the Holy land. Under consideration is the first week in October of this year.

The workshop will be held in Sharona, Israel, a village overlooking the Tabor Mountains with a stunning olive grove. Please note, both Tsur and Amit studied with and worked for Uri Hofi for many years. The tour will be guided by our own professional tour guide. The fee for the workshop and tour (ten days) including hotel stays, breakfasts, pick up at airport and all tour entrance fees will be \$2,600 per person. This does not include airfare. If you have an interest in this trip and need more information, please send me an e-mail at (lledet@earthlink.net), Len Ledet /Scottsdale, Arizona. In the e-mail subject please put "Israel Trip". For those that attended the Memphis ABANA Conference, I was "mister" Iron-In-The-Hat.

The following is a brief description of the proposed tour:

First DayHistorical Sites in The Galilee...
Second DayNazareth to Jerusalem...
Third Day.....Jerusalem and Beit Lechem...
Forth Day.....Jerusalem – Masada – Kibbutz
(Dead Sea/hot mineral pool & mud)
Fifth Day Tsur Blacksmith and Desert Experience...
Sixth Day..... The Red Sea and to Airport
OptionalOne or two days to visit Petra (the Nabataeans ancient capital) and Wadi Rum in Jordan

This seems like a great way to visit the Holy land, enjoying the sites and have much fun with fellow smiths. Once again please let me know if you are interested in attending this tour.

Len Ledet Scottsdale, Arizona

Book Review: Edgar Brandt Art Deco Ironwork

Review by Dan Jennings

Edgar Brandt Art Deco Ironwork by Joan Kahr, copyright 2010 Schiffer Publishing Ltd. ISBN:978-0-7643-3666-9

Typical of Schiffer books, this book is packed with high quality color photos that do a fine job of making the reader feel like he is actually looking at the art instead of a photo. However, the author wasn't afraid to use lesser quality, old black and white photos from the early 19th century to show the shop and provide a sense of the working conditions of the time.

Usually when I get books like this, I look at the photos and read the captions, but never quite get around to reading the text. Since I was doing a review on this book, I actually took the time to read much of the text and found it not only interesting, but it answered the questions I had about Brandt.

In 2001 we took an ironwork tour sponsored by ABANA to Spain and France. Everywhere we went in France - hotels, public buildings, monuments, stores - was ironwork by Edgar Brandt. Later, I saw more of his work in Eastern American cities and saw photos of work in places like Mexico City. How did he build such a huge body of work?

Over the last few years I have seen jewelry, lamps, vases and other small items that were by Edgar Brandt. I was never sure if it was the same Edgar Brandt, but now I know that it was. Then there is a WW1 mortar, which revolutionized weaponry of the day, designed and built by Edgar Brandt.

Much of Brandt's work has very technically difficult and, to me, impossible to forge details. How did they do it? Many of the smaller items have incredible patinas - are they bronze, or iron. Did they really forge lamps from silver? What was the deal with jewelry, how do you make fine jewelry and 20,000 pound railings?

The answers are in the text. I'll give you a few teasers.

In 1903 the first oxy-acetylene torch (called autogenous welding gun) was produced by a French inventor. "Brandt mastered the autogenous welding gun and was one of its earliest champions." The text goes on to explain that much of Brandt's work would have been an "...arduous technical challenge to a smith using forge weld-

ing." Interestingly, Brandt's contemporaries were "disdainful".

How did he amass such a large volume of work? Brandt had a host of designers and detailers. Even though he did most of the designs himself and often forged samples of his vision, he was not saddled with producing working drawings, layouts or manufacturing techniques. He had staff to do that.

The atelier (which, in my mind means studio) had several departments, including: forging, welding, machining, assembly, finishing, jewelry, plating, casting, and designing/detailing. Of course, since Brandt was a proficient self-promoter there was an elaborate salon (showroom).

Brandt's work seems to obliterate the line between Art Nouveau and Art Deco, if there is one. I am inspired by his organic designs juxtaposed into traditional scroll work where every detail flows naturally into the next element.

It is a great book, well worth the investment.

R: The pine cone and needles on this stair rail would have been difficult to accomplish without the use of an oxy-acet torch. Neither of the scans show the real quality of the photos.



L: Photos like this provide me with ideas of things I could make. This piece has a bronze patina, probably achieved by plating.

Cam Action Rivet Cutter.

by Eric Harmon

From "Forge Facts" Rocky Mountain Smiths newsletter

There are about as many types of rivet cutters as there are blacksmiths. Many smithing books show different variations on rivet cutters - a simple one is shown in Donald Streeter's book "Professional Smithing". But if you don't have one, you find yourself using bolt cutters and then having to file or grind the cut flat or you use a cold chisel and then hunt for the cut rivet in dark corners, both a waste of time.

Here is my variation, using a simple round cam to multiply the leverage for shearing. It can be put together in less than an hour using scrap pieces of just about any grade of annealed tool steel and a few pieces of mild steel, a couple of rivets, and two 3/8" bolts and nuts.

Materials List:

The dimensions of the steel pieces are not critical - use what you have. I used a couple of anonymous pieces of tool steel for the shear plates, just making sure they were annealed. A36 would probably work fine, but might not last quite as long as tool steel.

- 1 1/2" x 2 1/2" x 5" tool steel - annealed
- 1 3/8" x 3/4" x 5" tool steel - annealed
- 1 1/4"x1"x10" mild steel
- 1 2"-round, 3/4" thick mild steel
- 2 y4"x1 1/4" rivets
- 2 3/8"-16 x1 1/2" Grade 5 bolts
- 2 3/8"-16 nuts

A handful of washers for use as spacers in cutting rivets to length.

Procedure:

Make sure the steel you're using for the shear plates are flat.

If you are using tool steel, ANNEAL it: get them up to a good even bright cherry heat, then immediately stuff them down into your ash bucket or lime box (you DO have one of those, right?) and leave for 12 to 24 hours to cool as slowly as possible.

Center-punch and drill the holes in the two pieces of tool steel, and in the handle and round cam piece as shown in the drawings and photos. The positions of the holes are not critical, but leave plenty of meat between - I left 1/2" or so between each hole. Note that the largest rivets will be cut nearest the pivot bolt of the shear plates where they are subject to the greatest shearing force.

Drill 3/8" holes for the pivot bolts, and then choose your rivet sizes and drill those holes. Drill one of the tool steel shear plates, then use it as a guide to drill the holes in the second plate to make sure the holes are aligned. I chose 3/32", 1/8", 3/16", 1/4", and 5/16" holes which are the rivet diameters I use most often. Clean shearing action depends on having holes of the right size (do not drill oversize) and clean, sharp shoulders on the holes.

Bolt up the top and bottom pieces of the cutter, making sure each size hole aligns with its mate on the other piece. You want the pieces bolted snug enough to minimize any play, but still allow the top and bottom plates to slide smoothly across each other. Bolt the cam to the bottom plate of the rivet cutter, again snug but not so it won't move.

It is not necessary to harden the cutter plates - remember you will be cutting soft iron or copper rivets. I have cut hundreds of rivets with this tool, and have not had to dress or re-drill any of the holes.

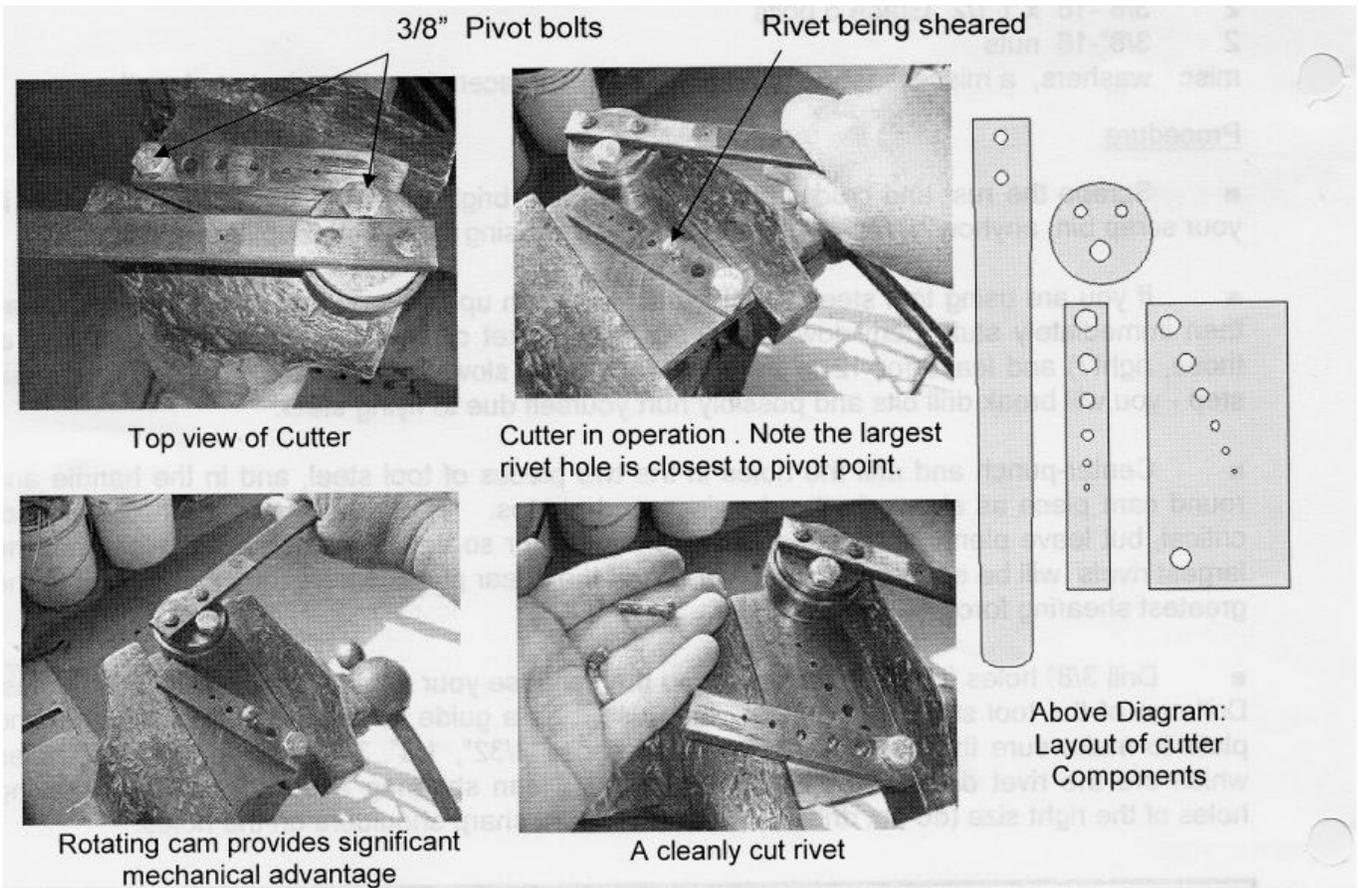
Rivet the round cam to the handle, and be sure to clean up any sharp edges on the handle or the heel of your leverin' hand will regret it. (You will see on the photos that I used a ring of steel

loosely fit on the outside of the cam to make a sort of outside bushing. You can do this too, or just omit the ring. I'm not sure it helps much in reducing friction of the cam on the top shear plate.)

Operation:

Using the tool is pretty self-evident. Just clamp the bottom plate of the cutter in a well-anchored vise, set the rivet in the proper size hole of both shear plates to the desired depth, and give a good pull on the handle.

The shortest rivet length you can cut is equal to the thickness of the top shear plate. You can be fancy and make spacers of various sizes if you want. I just stack up a couple of washers on the top shear plate until the washer stack height plus the shear plate thickness equals the rivet length I want. Happy cutting!

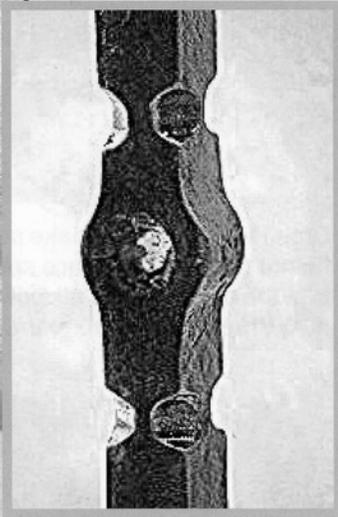


Losing Your Marbles?

Candlestick with Marble Inlay
By Jerry Allen



Photos by Lisa Allen



3/4" sq. stock, 12" tall
1/4" x 4" x 4" base

1. Drift hole in stock slightly smaller than marble diameter
2. Lay stock, with marble on top of hole, over the forge fire
3. Bring heat up slowly. Marble will turn red and slowly melt (like chocolate) into the hole. Don't panic—this takes a while.
4. When marble has melted into the hole, remove stock from fire and cool slowly.



Marble Melt — Tips and tricks:

Buy a cheap bag of marbles at the toy shop. You'll need them to practice with.

Constant, slowly increasing heat is best so that the metal expands as the glass marble melts. The same with cooling—let the work piece air cool slowly. The metal will clinch the marble in place. Cool it too quickly and you'll crack the glass.

You'll want to shop for old marbles—you will be surprised how elegant the older marbles are compared to new ones. Check your local yard sales and flea markets for games like Chinese Checkers that use marbles. Some antiques shops sell old marbles, especially if you visit a town that had a glass marble factory.

Though harder to find, 'Cat's Eye' marbles are superior for translucence. They are the ones that were made for reflectors and road-way signs and are slightly larger than playing marbles.

Whether it's a door handle, set of fireplace andirons, fireplace tools, or whatever, marbles can give that heavier stock a very elegant touch.

Andirons are a great project since the fire backlights the marbles.

Jerry Allen and Dave Allen collaborated on this article.

When making the candlestick (pictured), Jerry ran into a problem with the marble. The marble apparently was coated with a metallic oxide which turned jet black at low heat. A higher heat burned off the oxide. However, the marble lost its color when this happened. The marble was a 'new' one. You probably won't have this problem with a marble with interior color swirls. Like most everything else, the older stuff has quality. At any rate, this was the first time either of us saw this happen.

Dave Allen has left a thin 'mushroom' cap on some projects rather than melt the marble all of the way into the hole—especially with solid color marbles. The effect is more dramatic than a total inlay. However, he said that one 'cap' on an exterior door pull popped off and left a crystallized face. He still recommends that you try this 'marble melt' both ways. Even if the marble cap fractures, the pattern still looks interesting. You can always melt it out and do it again.

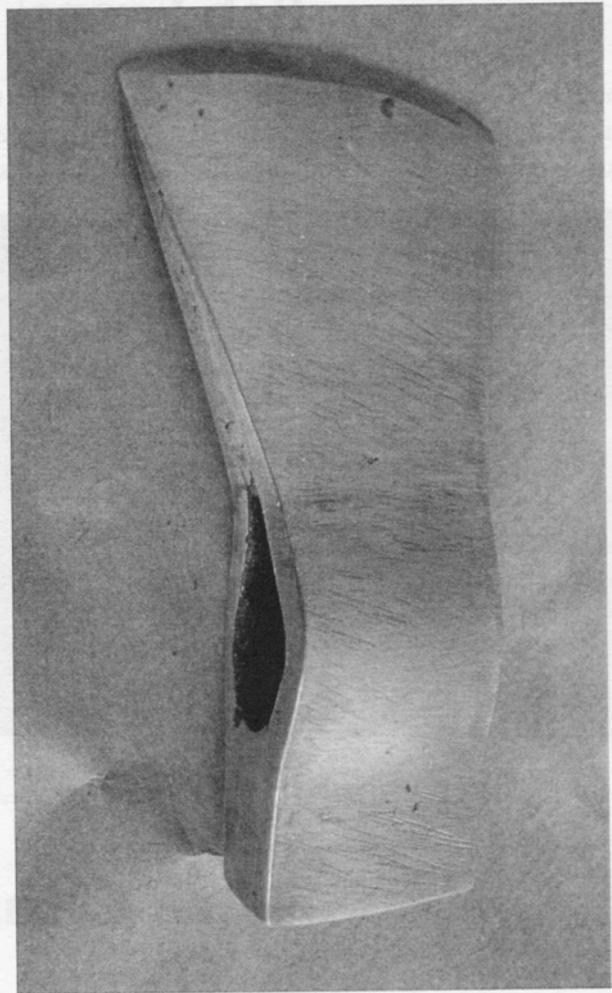
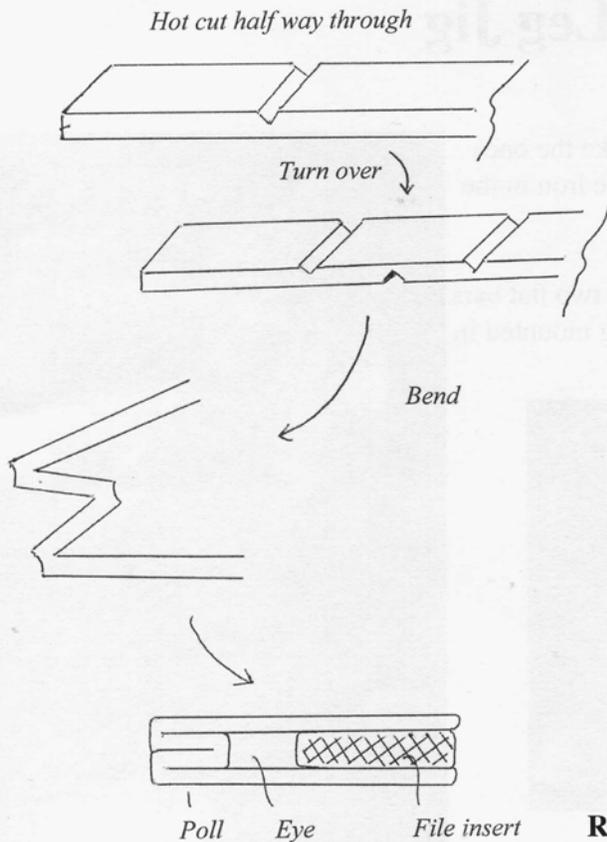
Originally appeared in the December 2001 ABA Newsletter

Poll Hatchets

Drawings, photos and text by:
Steve Anderson, a MABA member



Stock size: 1/4 x 1, 1/4 x 1-1/4, 1/4 x 1-1/2 or 1/4 x 2



Because there are so many different styles of hatchets, to determine the original stock length needed and to decide the measurements for the second set of hot cuts, pick one style you like and use those proportions for the poll, eye and blade.

Forge weld the poll and blade, shape, drift eye, grind and temper.

- Grind edges instead of forging to maintain the tool steel center.
- When tempering, quench the bit to within 3/4" of the eye, then let the residual heat in the poll draw the temper to blue/straw.
- If you already have a drift or axe handle made, make the eye to match.

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The Upsetter, Sept/Oct 2010

Contrasting Steels for Pattern Welding

From Pep Gomez' Demo notes

Bright lines:

L-6 is a high nickel content carbon steel. It is commonly used in sawmill band saw blades, but not always. It can be purchased in round stock. It combines well with carbon steel for a highly reflective, high contrast billet. L-6 is known as an extremely tough steel and adding it to the billet will only enhance the performance.

15N20 is the Swedish version of L-6. It can be bought in thin stock from Kelly Cupples and is an excellent steel with consistent quality.

ASTM 203E is a nickel bearing low carbon steel. It is commonly used in making up fittings, but can be used as the low carbon element in Damascus blades. Nice contrast and high reflectivity. You can buy this in sheet from American Alloy Steel Houston, TX 1-800-231-3502.

Nickel for the brightest contrast. Pure nickel is often used. I do not recommend it for blade steel. Nickel is a carbon blocker and in the finished billet the soft nickel layers will typically end up on the edge and affect performance. It is best used in fittings for really high contrast, or in architectural/decorative metalwork.

Dark Lines:

The dark lines in Pattern welding come from the low alloy carbon steels. You can get colors from light gray to dark black by varying the carbon content; the lightest being regular hot rolled low carbon. Adding low carbon to the billet will lower the overall carbon content of the finished piece of steel and you need to take it into account as you construct your billet if it is to be used for a knife.

Some of my favorite carbon steels to use in Damascus are:

1095 is a good knife steel and has a slightly higher beginning carbon content and contrasts nicely with 15N20 or L-6

1084 has slightly lower carbon content and is more forgiving in the heat treat. 1084 Makes a good blade steel and is easy to weld but has become increasingly difficult to find.

5160 is an oil hardening steel and has been called fool proof steel because it is very forgiving while forging and heat treating. A lot of makers really like this steel. I don't use it much, but not a bad choice, especially due to how easy it is to find (leaf and coil spring).

52100 is an alloy steel, and once you learn how to heat treat and forge it, it has exceptional qualities. It is not for the novice and you really need good controls for proper heat treating, but is worth the effort in terms of performance. It is easy to find in junkyards as bearings and bearing races.

W-2 forges nicely and heat treats well. It has added vanadium and is a fine grain steel. The only problem is they don't make it any more or at least I can't find it, so it isn't readily available.

O-1 is a common tool steel. It is sensitive to heat and will crumble if overheated, but by the same token can be welded cleanly at lower temperatures.

There many other steels that are possible combinations for making Damascus including some stainless and powdered metals. One consideration when you are combining different steels is their forgeability. If one steel moves easily under the hammer and another one does not, their weld will shear when you attempt to draw them out. A lot of the stainless steels have this problem and it should be taken into account.

Pep's favorite source:

Kelly Cupples, 2807 Butterfield Rd., Yakima Wa. 98901 PH # 509-949-5231
octihunter@charter.net Suppliers of metal powder, 15n20, and anhydrous borax.

Classifieds

Classified ads are free to members and can be submitted by email to: danshammer@cox.net

For Sale at Boyles' Tool Service

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Call Jim Lewallen, Jr.
602-510-0808

Keller power hack saw for sale, west side of Tucson, \$200 or best offer (or trade?).
Contact Joel Paris:
joel@kxci.org
Ph 520-975-6280

Sources

Rocky Mountain Smiths have videos available of their conference demonstrators. Most of these are high quality edited, multi-camera videos. For more info go to:
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Examples: Oxygen - \$12.30 (LG Cylinder) 75/25- \$39.38

Arizona Artist Blacksmith Association
Attn: Dan Jennings
2522 W. Loughlin Dr.
Chandler, AZ 85224
Address Service Requested

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For membership info or address change, contact: Terry Porter 2310 E Melrose Street, Gilbert 85297 480-988-2070 trp555@prodigy.net

Cathy Borthwick, one of the demonstrators in March



I borrowed these photos from
Cathy's website:

www.flagforge.com.

Go there to find out more
about who she is and what she
does. You won't want to miss
this demo!

