Saltfork Craftsmen
Artist-Blacksmith Association
February 2015

Loop Weld Heart Handle - R.B.

3/8” mild steel rod.

Upset an area at about 10” or 12” from the end. Then upset and scarf the end.

Bend scarf flat against upset area, heat, clean and flux.

Forge weld joint and then flatten out the remaining loop.

Forge a blunt taper on the end of the loop. Keep to the outer end as much as possible to avoid thinning the loop sides.

Begin spreading loop with a chisel. Avoid stressing the weld. Gripping weld with tongs while spreading can help if needed.

Continue spreading on the anvil horn. Spread the outer end most.

Bend outer 1/3 of loop on rounded edge of anvil then turn over and roll point in on anvil face until you have a flat heart shape. Fine tune curves on the horn as required.

Happy Valentines Day!

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Editors notes…

As a new editor, one thing I am beginning to learn is how much of a challenge it can be to figure out the best mix of articles in each issue that will provide the greatest benefit to the most SCABA members. Other than the meeting notes an SCABA business items, my plan is to provide a mix of how-to and informational articles to cover the wide range of interests and experience levels as much as possible. The actual content will be dictated, to some extent, on what material is available to draw from in other organizations' newsletters and any original material submitted by our own members.

Your feedback could be a great help in directing the content. This is your newsletter. If you are not seeing the type of content you would like to see, please let me know. If it is available, I will try to get it.

And, as I mentioned in the January newsletter, please consider submitting an article of your own creation. Even a simple article might provide just the right inspiration that another member is needing. For example, I have seen photos in past newsletters of trade items and often wished to know more about how they were made. If you are working on a trade item or other project (or just have a good idea in general), consider taking some photos along the way at key points and submit even a brief text explaining each one. (And yes, i-phone photos are fine. Just try to get them in focus and with a contrasting background if possible.) It will probably be more interesting and beneficial to others than you realize.

Special thanks go out to Gerald Franklin and Jim Carothers for providing some good material to jump start us with original member content. You can look forward to some gold nuggets of shop wisdom in this and upcoming issues...

Russell Bartling - Editor

The Saltfork Craftsmen Artist-Blacksmith Association, a non-profit organization Our purposes are the sharing of knowledge, education and to promote a more general appreciation of the fine craftsmanship everywhere. We are a chapter of the Artist-Blacksmith Association of North America.

Visit our Saltfork Craftsmen Website:
www.saltforkcraftsmen.org

President's notes:

You all better get something made, (or bought!) for the sweeties in your world. Valentines day will be here before you know it. I think most folks appreciate something you made rather than something you bought, so there's a good reason to get out there and hammer!

Gerald Franklin has been moving from Duncan to Norman. He has already built a new shop building, and I have been helping him and Bruce Willenburg move his shop to its new home. It's been fun, because Bruce and I have been getting to spy and see what all he has. We've moved most all the heavy stuff, so don't be afraid if he asks you to help. Bruce and I have decided, that Gerald has quite a bit of stuff!

Spring will be here before we know it. I am looking forward to the weather warming up a bit, and getting to see you all at the meetings, and demonstrations.

- Byron

Work Shop Schedule

May 9th there will be a beginning Blacksmithing workshop at the Murray County Antique Tractor & Implement Association Grounds outside Sulphur Oklahoma. JJ McGill is hosting the class. Cost will be $35.00 and registration Opens May 1st. Class is limited to 6 students. Attendees MUST be members of SCABA or join during the class.

May 30th there will be a beginning Blacksmithing workshop at Temple Oklahoma. Ricky Vardell is hosting this workshop and assisting teaching. Cost will be $35.00 and registration will open May 1st. Class is limited to 6 students. Attendees MUST be SCABA members or join during the class.

NW region workshop/play day schedule:

May 30th– Workshop—Hammer Class– Elk City Museum
August 29th– Play day– hosted by Don Garner at 23713 E. 860 Rd. Thomas, Ok. 580-661-2607
October 31st– Workshop– pattern welded steel by Gerald Brostek at the Blacksmith Shop at the Elk City Museum Complex.

If you are interested in attending either a play day or workshop in the NW Region please contact Bob Kennemer or the host of the event. Regular monthly meetings are always open to anyone that wishes to attend.

Diana not only keeps track of the workshops but the monthly meetings. If you want to host a meeting in your area you need to fill out one of the host forms in the newsletter and get it mailed in as soon as possible. Consider having a beginning blacksmithing workshop in your area. We have a lot of new members that need a little guidance getting started. A one day workshop will give many of them just the encouragement they need. Let me know if you would like to plan a workshop in your area.

-Diana Davis 580-549-6824 or Diana.copperrose@gmail.com

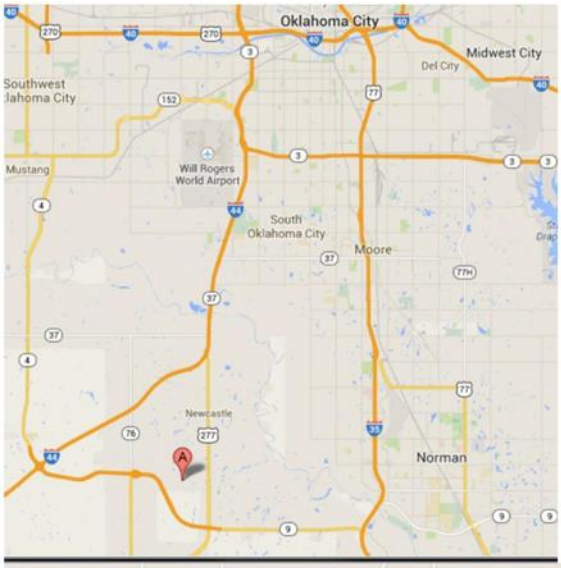
February Regional Meeting Schedule:

- SE regional meeting February 7th (Open)
- NE Regional meeting February 14th (Open)
- SC Regional meeting February 21st Tony Cable at his home north of Blanchard. Depending on your direction of travel. Take highway 62 into Newcastle to Southwest 24th street. Turn west and go 1 mile to MacArthur and turn left and go south about 3/4 of a mile to 7533 on the west side of road.
- NW Regional meeting February 28th will be hosted by Bob Kennemer at the Route 66 museum in Elk City. The trade item is a cross. Lunch is provided but bring a side dish to help out. You can contact Bob at 580-799-1878 or bob.kennemer@sbcglobal.net

2015 meeting dates….

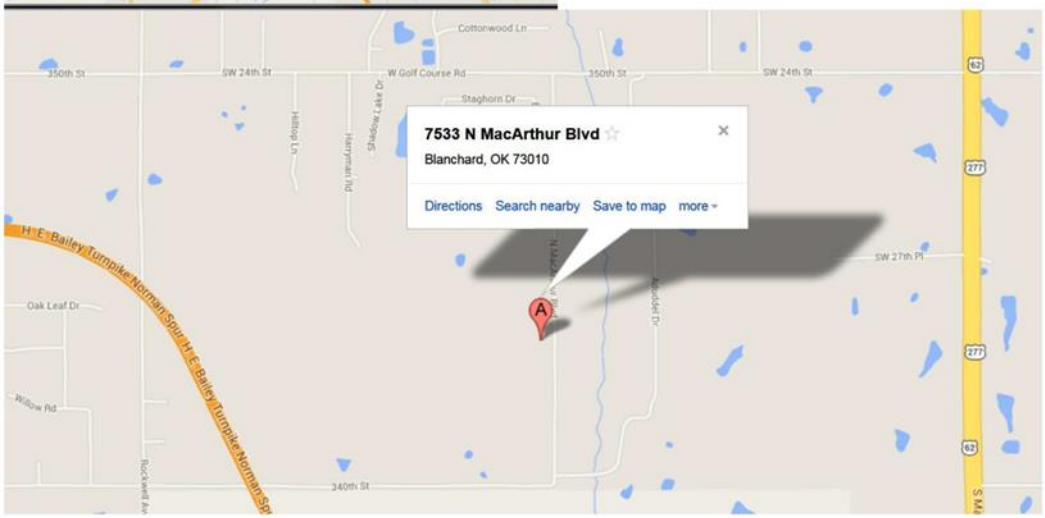
SE Region (1t Sat)	NE Region (2nd Sat)	SC Region (3rd Sat)	NW Region (4th Sat)
Jan.3rd	Jan 10th	Jan. 17th Byron Doner	Jan 24th Gary Seigrist
Feb. 7th	Feb. 14	Feb. 21st Tony Cable	Feb. 28th Bob Kennemer
March 7th	March 14th	March 21st	March 28th Mandell Greteman
April 4th	April 11th	April 18th	April 25th Monte Smith
May 2nd	May 9th Ed McCormack	May 16th(JJ McGill)	May 23rd Terry Kauk
June 6th	June 13th	June 20th(R. Vardell)	June 27th Don Garner
July 4th	July 11th	July 18th(Larry Mills)	July 25th Gary Seigrist
August 1st	August 8th	August 15th	August 22nd Dorvan Ivy
Sept. 5th	Sept. 12th	Sept. 19th (Jim Dyer)	Sept. 26th Roy Bell
Oct. 3rd.	Oct. 10th	Oct. 17th	Oct. 24th Cheryl Overstreet
Nov 7-8 conference	Nov. 14th	Nov. 21st	Nov. 28th Mandell Greteman
Dec 5th	Dec. 12th	Dec. 19th	Dec:26th (Merry Christmas)

Meeting hosting form can be found on the last page along with membership application form.



SC Regional meeting (February 21st): Will be hosted by Tony Cable at his home and shop at 7533 N. MacArthur in Blanchard, Ok. Lunch of beans & cornbread will be served but bring a side dish to help out. Tony has chosen a blacksmith's knife as the trade item. If you need more info. cell # 405-306-5766 or the house # 405-392-3925

Directions: From South OKC take I-44 south to the Newcastle Casino, continue south on 62/277 through Newcastle to SW 24th (5 miles). Turn and go west one mile to MacArthur and turn left and go south about 3/4 mile to address 7533 on west side of road. From Norman, take highway 9 west to Newcastle exit. Take 62/277 north approximately 2.5 miles to SW 24th street. Turn west and go one mile to MacArthur, turn left and go south about ¾ mile, house on west side of road. 35°12'32.5"N 97°37'07.4"W



Around the state…

NW: The December Meeting for the North West Region was hosted by Ted Culver and Mike McFall at the Blacksmith Shop in Elk City, Oklahoma. There was a great turn out for the meeting. About 25 members were on hand. As always, some travelers stopped by and looked around.
The trade item was something made from a rail road spike. Everyone enjoyed sharing their ideas and helped each other out. Some were making hammer heads, crosses out of bolts, even a fork was made. Outstanding lunch was served. We had homemade stew and homemade chili, salads, corn bread, and those outstanding deserts.

- The Gretemans

NE: No meeting was held in January.

SE: No meeting was held in January.

SC: South Central January Meeting:

It was blowing hard, but other than that, the weather was good to us on the 17th,of January. I (Byron) had been asked if I would host the meeting, since no one else had signed up for it. Danny Cowart put out a mass email to let folks know about the meeting. I apologize to anyone who might of missed the meeting because they didn't know about it.

The trade item was a wall hook/wall hanger. I counted 12 trade items on the table. Wade Stewart worked on his trade item most of the morning. Just before lunch, and then for a while after lunch, JJ McGill worked at making some acorn spring swages on the hydraulic press. As in most forging, some made a good part and some did not make the cut. I think he had more good than bad, so he was happy. He texted me a few days later, wanting to know where to buy one of those hydraulic presses!

Brawk Haddick had asked me the same question at the meeting. He had been using the hydraulic press along with the 25 pound little giant power hammer forging on a sword blank he had brought with him. He told me that it was Harley Davidson motorcycle chain and cable with another piece of steel wrapped around it. It was obvious to me, that he had already spent a lot of time forge welding it all together. For those of you that haven't been around Brawk, just let me say that he doesn't mind forge welding about anything, and the size of the iron, does not matter either.

We had a few newbies show up too. I think there were approximately 30 people at the meeting.

- Byron

(SC January Meeting Report continued on next page)

January's South Central Meeting Report - (continued)

The meeting for the South Central Region was hosted by Byron Doner at his home in Norman. He could not have had a better day for it considering we are in the middle of January. We arrived about 9:00 AM and there are already about a dozen people milling around the shop and getting forges fired up or already at work on a project. Brahk Hadick, past member that just renewed his membership at this years conference, was working on making some pattern welded stock for a sword. Wade Steward was also busy working at a forge.

Bill and I didn't stay all day because I had some errands to run in the City. Carol cooked Settlers Beans and I know there were lots of deserts so I'm sure everyone had a good time.

The next meeting for the SC region will be at Tony Cables place. Look for information on the meeting page.

Diana Davis

Christmas on the Chisolm Trail

Gerald Franklin

On December 13, 2014 Bruce Willingham and I demonstrated at John Nichols Scout Ranch near Mustang, OK. The event was a Christmas program for scouts (male and female) aged 14 to 19. There were about 40 scouts and probably 15 adults in attendance.

Folks started coming by about 9AM and we had a pretty steady flow past the forge all day. The weather was a bit cool and windy but the sponsors had us set up in the "ell" of a building so we were out of the wind pretty much. Bruce demonstrated a forge weld for a flux spoon that he needed and I did a beam hook, a strap hinge and a horse head wall hook. Folks were very interested in Bruce's weld and it generated a lot of questions.

We had a separate anvil set up for the kids to use to stamp Christmas designs on brass tags. I made the stamps up ahead of time out of sucker rod. I welded handles onto the stamps so the kids could get a better lick on them to put the design into the brass. We had stamps for a tree, a candy cane, and a bell. I tried to come up with a snowflake but couldn't make it work.

We were fed well by the staff at both breakfast and lunch. By 3PM we had cycled everybody through the site so we were able to load up and get on the road by 4PM.

Patch Knife

Franklyn Garland
The Hammer's Blow, Winter 1993-94

This knife is made out of an old file --recycled. Some folks forge the blade first, then the handle I find the shorter, smaller, forged handle easier to hold for forging the blade. But sometimes, depending on the maker, it's easier to forge the blade with the handle half finished. Complete the handle when the blade is finished.

1

2

3

4

5

6 Forge the point.

7 - Curve into cutting edge.

8 - Pack (thin out) edge. Blade will straighten, and also widen, as edge is forged.

9 - Anneal entire piece in wood ashes, lime, or sand. After annealing, clean up the profile and grind the cutting edge. DO NOT grind cutting edge any thinner than approx 1 mm.

HEAT TREAT: For best durability, heat treat as follows.

Using acetylene torch, "paint" the cutting edge with flame until non-magnetic. Note: magnet will not stick -- it's a full orange color.

Quench in light oil.

Clean off all excess oil and temper in a household oven at 450 degrees for 30 minutes.

Grind and hone to final edge.
A wire brush finish looks good.

Patented Sept. 21, 1926. **1,600,602**

UNITED STATES PATENT OFFICE.

GEORGE SCHRADE, OF BRIDGEPORT, CONNECTICUT.

POCKETKNIFE.

Application filed October 6, 1925. Serial No. 60,731.

Fig. 1

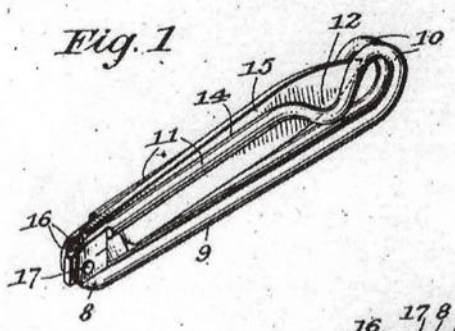


Fig. 2

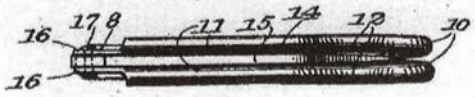


Fig. 3

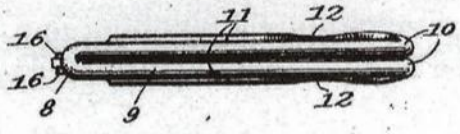


Fig. 4

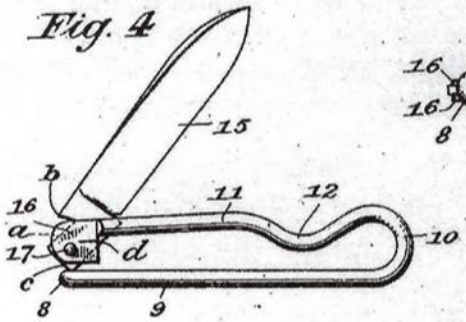


Fig. 6

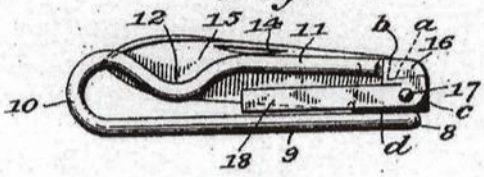


Fig. 7

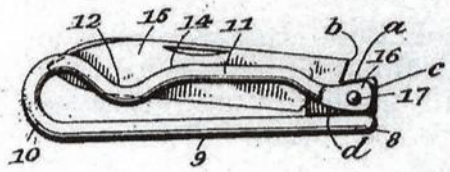
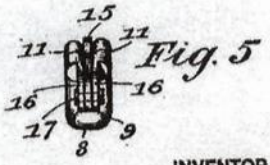


Fig. 5



INVENTOR
George Schrade
BY
Chamberlain & Newmann
ATTORNEYS

Editors Note: The entire patent can be seen on the US Patent website:
www.uspto.gov
-search by patent number.

Excerpts from the patent text.

Fig. 1
shows a perspective view of my improved form of pocket knife;

Fig. 2
is an edge view of the same;

Fig. 3
is a back view as seen from the opposite side of that shown in Fig.2

Fig. 4
shows a side view of the same knife with the blade in open position;

Fig. 5
shows an end view as seen from the near end of Fig. 1;

Fig 6
shows a side view of the knife illustrating a slight modified form of wire handle, and

Fig. 7
Shows a further side view of knife including a simplified feed form of handle.
As before suggested the handle is formed throughout of a single piece of heavy wire, that is bent and shaped to form a handle.

Finding the U.S. Patient reminded me of this small pocket knife that was made by Brent Cole, a MABA member-
The blade is made of L-6 (a band saw blade) and 5160 for the spring handle.

Photo and text by Steven Spoerre

SCABA Library Titles:

Robb Gunter Basic Blacksmithing parts1,2,3 and the controlled hand forging series
Clay Spencer SCABA conf.2013 pts. 1,2 and 3
Jerry Darnell 18th century lighting, door latches and hinges
Brent Baily SCABA conf. 2011
Mark Aspery SCABA conf. 2011
Robb Gunter SCABA conf. 1998
Robb, Brad and Chad Gunter 2009 joinery, forging, repousse, scrollwork, etc.
Bill Bastas SCABA 2002 pts. 1 - 6
Jim Keith SCABA conf.2007
Power hammer forging with Clifton Ralph pts. 1 - 5
Doug Merkel SCABA 2001
Bob Alexander SCABA 2008
A. Finn SCABA 2008
Bob Patrick SCABA 2004
Gordon Williams SCABA 2010
Daryl Nelson SCABA 2010
Jim and Kathleen Poor SCABA 2001
Ed and Brian Brazeal SCABA 2006
Ray Kirk Knives SCABA 2002
Frank Turley SCABA 1997
Frank Turley SCABA 2003
Bill Epps SCABA 2003
M. Hamburger SCABA 2007

When I copy a set for someone I make three copies. Best time to contact me is in the A.M. by phone. - Doug Redden, Librarian

Shop Tip

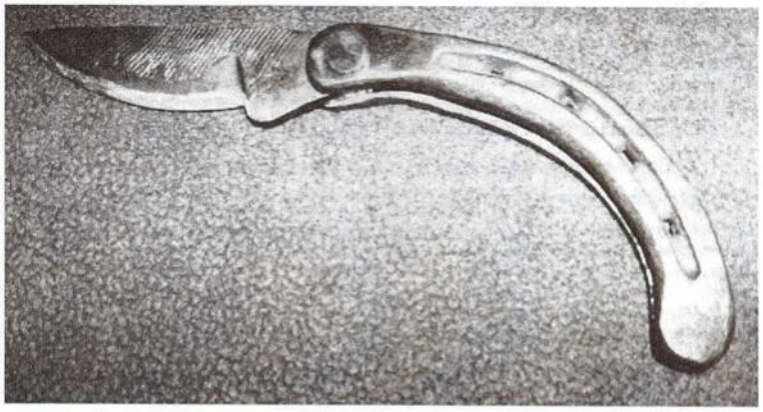
Gerald Franklin

I heard Frank Turley say years ago that "If you want to become a better smith, get somebody to teach you to draw". It can be difficult in some areas to find an art teacher but check with local arts groups for help. A good book to learn from is ***Drawing on the Right Side of the Brain*** by Betty Edwards. The book has been around for several years and is in several editions. Any edition will get you started. Both new and used copies are available on Amazon.

This 4 -1/2 page article reprinted from the Hammer & Tong-May-June 2008

Horseshoe Handle Folder

By Bill Clemens



This knife is actually a prototype that I fixed in the open position. I am currently working on a horseshoe handle folder with a Damascus blade but didn't complete it in time for the newsletter. If you follow the instructions in the article you should not encounter the problems I did with this first attempt.

When I first saw the instructions for a simple blacksmith folding knife in the New England Blacksmiths Newsletter it sparked the idea to make a folding knife with a horseshoe handle. I had been looking for something to make out of the horseshoes my nephew's father-in-law had given me when I visited with them in Missouri on the way back from the ABANA conference in Seattle in 2006. I had a Cable Damascus Knife with me and he also gave me some old cable he had. I promised that I would make him something in return for his generosity. I knew when he gave me the cable, that he was hoping for a cable Damascus knife, and I wanted to incorporate one of the horseshoes he had given *...continued on the next page*

Thanks to Don Startin and the newsletter of the Vancouver Island Blacksmiths Association for the original article on which this article is based.

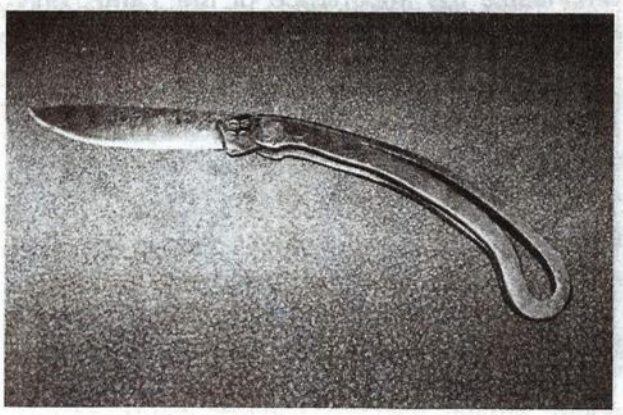
This 4 -1/2 page article reprinted from the Hammer & Tong-May-June 2008

to me. So a Folder with a Cable Damascus blade and a horseshoe handle would be just perfect.

First I folded the horseshoe in half leaving a gap for the blade. I then forged a spring that I inserted into the back edge of the folded horseshoe, forge welding it in place at the folded end. All seemed to be going well, but rather than go straight to a cable damascus blade, I decided to make the first one with a blade forged from an old file.

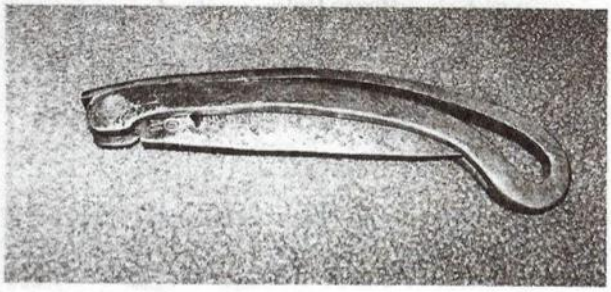
As I fitted the blade to the handle using a bolt in place of the rivet, all seemed well. With the blade finished and hardened, I riveted it into the handle only to discover that when open the blade was not held in place but flopped up and down, the tip moving almost ½ inch. After reviewing the article and doing some additional research on the internet I understood the reasons for the floppy blade, unfortunately I had used a rather large rivet and could file the back of the knife blade to correct the problem. After some careful thought, I fixed the blade in an open position by hammering the rivet tight and closing the edges of the handle that protruded below the blade. I call this knife a fixed position Folder Prototype.

Using the lessons I learned from this attempt, I made a folder that was more like the one in the article with the handle formed by splitting a piece of steel and then drawing the end out an folding it back to form the spring. Here is a picture of that knife, which I currently carry as my pocket knife.



The one significant difference between this knife and the one in the originally published in the Vancouver Island Blacksmiths Association is the curve of the handle. I curved the handle to match that curve of a folded horseshoe just to make sure that the curve didn't cause any unforeseen problems.

Here's a picture of the knife in the closed position:



What follows are instructions for forging a folding knife similar to the one above but with a straight handle. Following that are instructions for forging a folded horseshoe handle with an inserted and forge welded back spring.

Here is a drawing of the simple slip joint folder with a forged one piece handle.

Here's the knife shown in the folded position. Note that the blade does not rest against the back spring but is held off by bump, called a kick, on the bottom edge of the tang.

Before proceeding further, let me show some terms associated with knives in general and some specific to folders. In the following drawing which is a expanded version of the area where the blade and handle are joined

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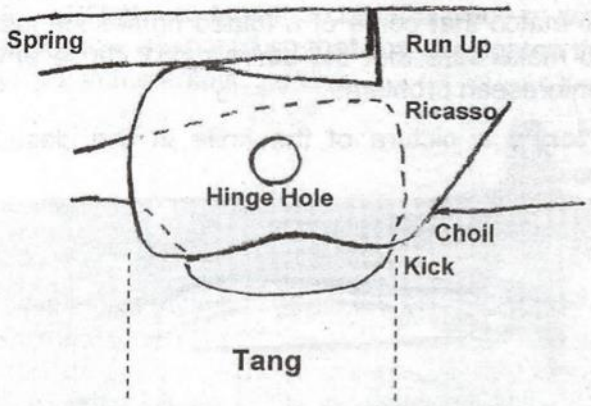
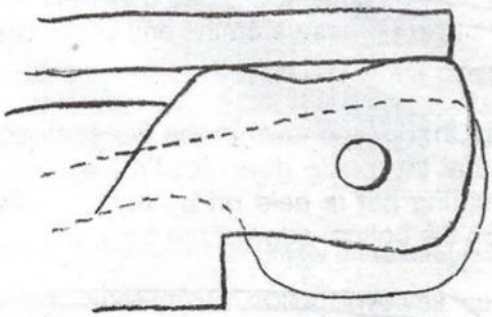
from the first drawing, you can see the terms that apply to specific parts of this joint.

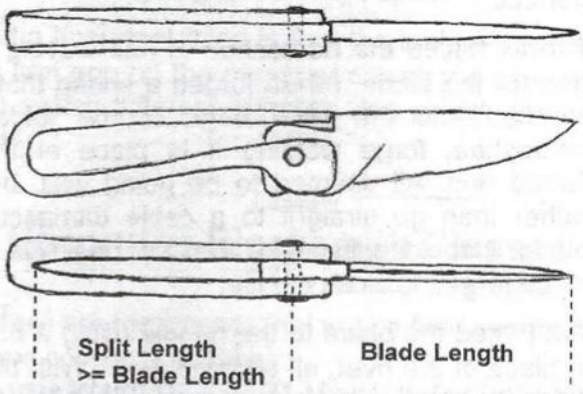


The key to making a folder that works is this joint. In the open position shown above note that the **Spring** touches the blade in two places, the square end of the **Spring** is seated tightly against the **Run Up**, and the top back end of the **Tang** is resting against the **Spring**. Note that the **Spring** does not touch the **Tang** anywhere else. The pressure of the **Spring** pushing down on the back edge of the **Tang** holds the **Run Up** tightly against the end of the **Spring** keeping the blade open



In the closed position shown above, the **Spring** also touches the Blade in two places, the bottom back of the **Tang** and the **Kick**. Pressure is applied to the Blade on the back edge of the **Tang** forcing the blade closed until the **Kick** comes to rest against the **Spring.** The **Kick** keeps the blade from touching the **Back Spring**

Here along with the side view drawing of the folder are top and bottom view to assist you in forging the handle.



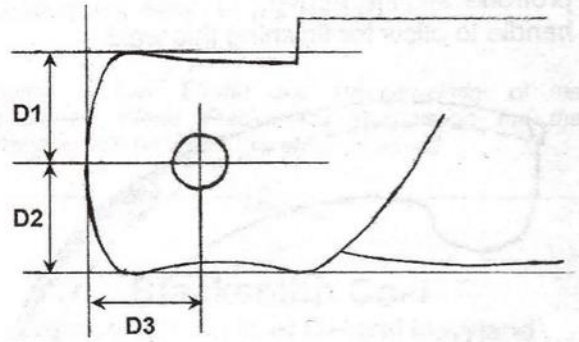
Forge the handle in the shape shown and the correct size for the blade you are making. The original article says that you can use mild steel for the handle/spring but I used spring steel for the horseshoe folder and made both the handle and blade of the other folder out of a round file. While I hardened and tempered the blade, I left the handle/spring in the as forged state. I did heat it one last time when I finished forging it and laid it aside to normalize it to relieve any stress introduced in forging.

I forged the Blade first and made the handle to match but I had made a drawing first, which I would recommend so you can see the relationship and relative size of the two parts. In the case of the Horseshoe handle knife the handle was made first as it is dependant on the size of the shoe that I used.

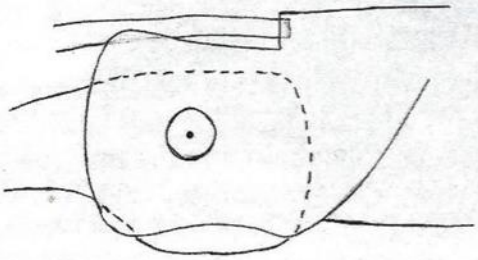
One important note is that in the drawings, the depth of the **Run Up** has been exaggerated to emphasize the importance of the **Tang** only touching the **Back Spring** at the end of the **Tang.** Similarly, the dip between the bottom back of the **Tang** and the **Kick** has also been exaggerated. The important point is the that the points of contact must be the only points of contact for the joint to work properly.

Once you have both pieces forged you are ready to begin the final fitting and assembly. The position of the **Hinge Hole** in the **Tang** of Blade is important and should be drilled first. The hole should be centered on the three points shown here. This will insure proper

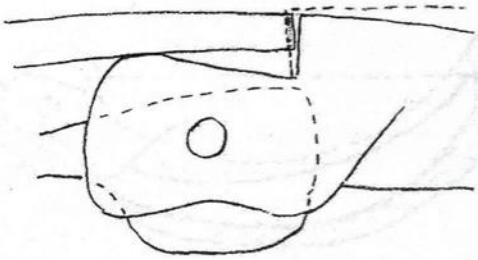
operation of the knife and equal pressure from the spring to hold the knife open and closed and also in the half open position.



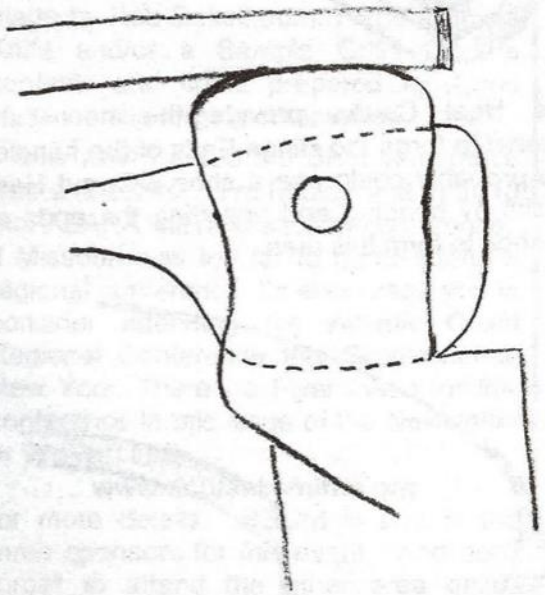
To drill the hole in the handle lay the blade on top of the handle. This is so you can position the blade with the spring a little longer than it needs to be to allow adjustment for a perfect fit when assembled. Also position the **Tang** overlapping the **Spring** slightly to insure that when assembled the Spring will apply pressure to the **Tang.** Use a spacer the same thickness as the **Tang** between the two halves of the handle and drill the **Hinge Hole**.



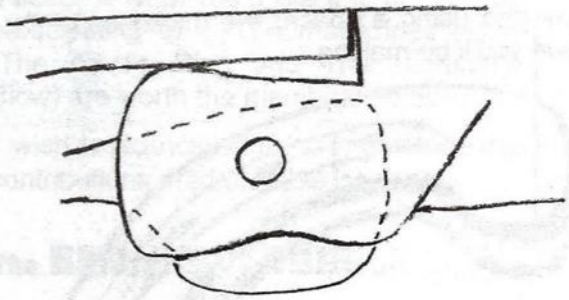
Assemble the knife using a bolt through the **Hinge Hole**. Since the **Spring** is too long the knife will not completely open as shown here. You can should also check the Blade in the Closed and Half Open positions. You can adjust the length of the **Spring** but don't adjust it completely until you rivet the part together.



Once you're satisfied with the fit replace the bolt with a rivet. Use a paper spacer when riveting them together. I use a piece of 110 lb card stock. Once riveted, burn the paper out with a propane torch, being careful not to overheat the blade and make sure the blade more freely and do the final adjustment to the **Spring**. You can file the **Spring** by putting the blade in the Half Open position.

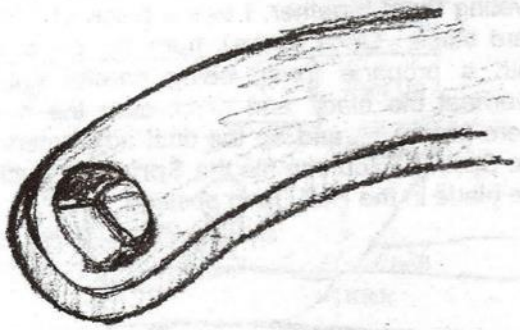


Work slowly checking the fit frequently until the blade opens completely and is held there by the **Spring** pressure on the end of the **Tang**

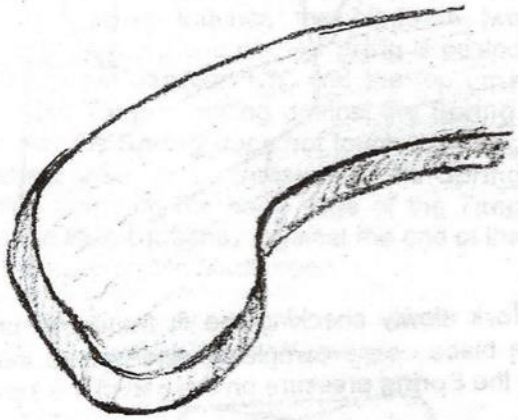


This 4 -1/2 page article reprinted from the Hammer & Tong-May-June 2008

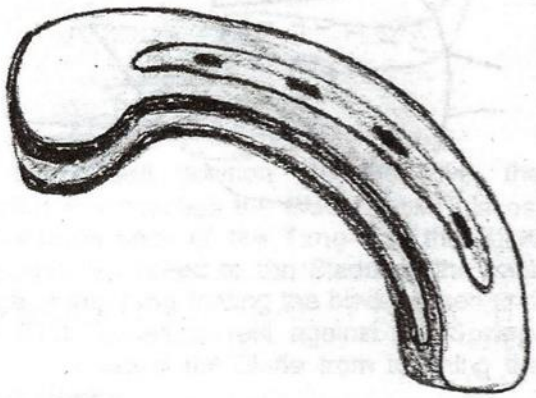
To make the Horseshoe Handle Folder, I started with a Shoe with Heel Caulks:



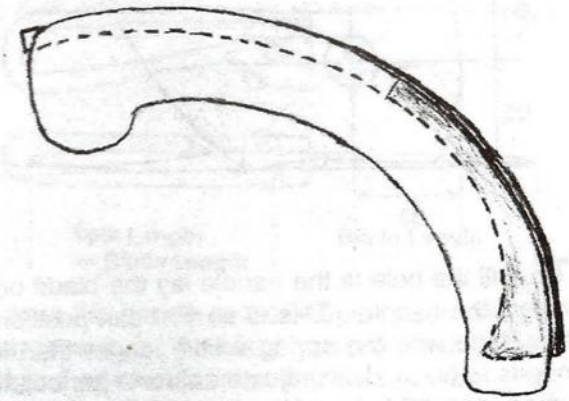
The Heel Caulks provide the necessary material to forge the Hinge Ends of the handle. You probably could use a shoe with out Heel Caulks by bending and upsetting the ends of the shoe to form this area.



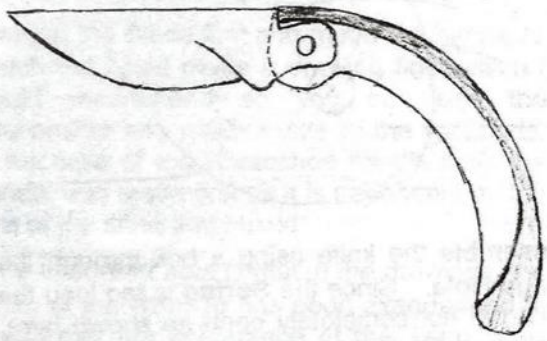
Next fold the shoe in half, lining up the Heel ends and using a spacer the thickness of the Blade you'll be making.



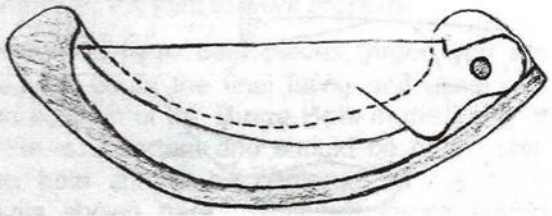
Next forge a Spring to fit into the back of the handle as shown. The shaded area is the portion that will be forge welded an should protrude slightly above the back edge of the handle to allow for finishing this weld.



Once Welded forge a blade to fit the Handle as shown here. I actually drew and cut out a Card Stock paper blade to check the fit in both the open and closed positions.



The shape of the handle must be taken in to account when designing the blade so that it will fit into the slot in the handle and protect the edge of the blade when closed.



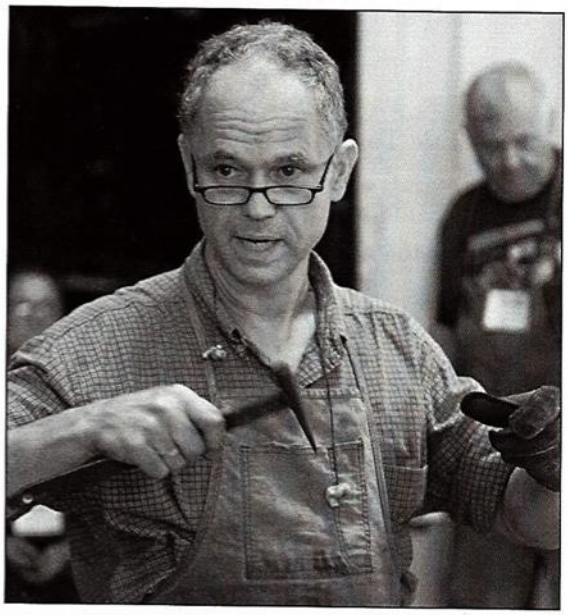
Final fitting and assembly should proceed as for the basic folder above. The final adjustment of the spring length will take a bit more patience and care as the spring is seated between the sides of the handle.

Folded Eye Tenon Joint

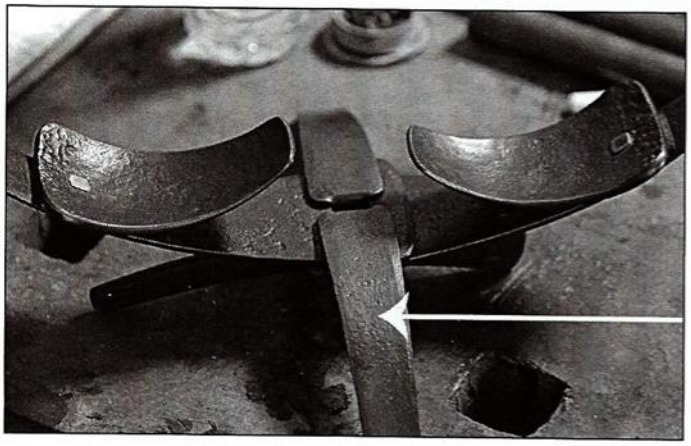
A Technique Taught by Daniel Miller

story, photos & drawings by Kacy Ganley, Arcata

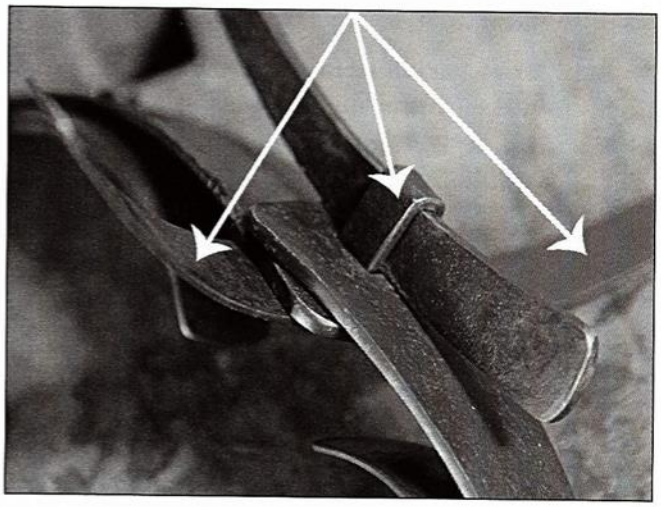
Prior to departing for Southern Illinois University, Kacy received a scholarship from CBA to attend Daniel Miller's workshop in Loomis earlier this year. This article was prepared to fulfill requirements of this scholarship. The work shown in the photographs are demonstration pieces made by Daniel.



Daniel Miller



This leg and joint are being described.



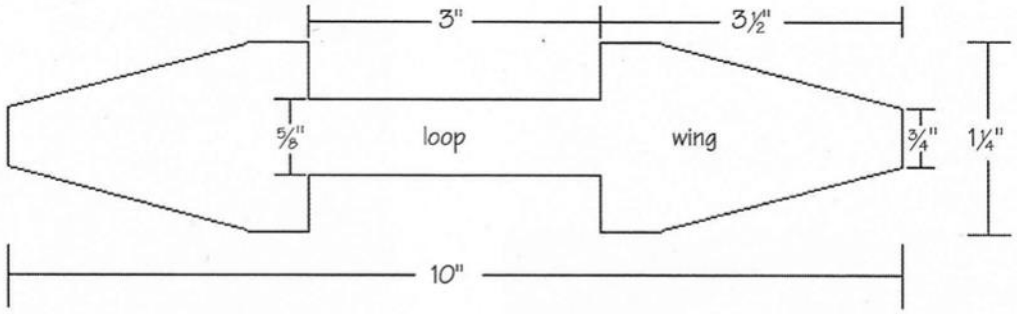
My introduction to Daniel Miller's work was at the 2011 Oktoberfest. I was immediately captivated by his complex and refined joinery and, in particular, the line quality of his work. These characteristics bring a new dimension to what, in his own terms, "is easier than it looks." Daniel's work is intriguing to say the least. He often highlights joinery as an artistic composition, more than just a purely functional means of attaching elements.

Daniel's workshop at John McLellan's shop this past June covered a few different versions of joinery to practice. There was also the opportunity to gain experience with the fly press. Here, I will be focusing on the folded eye tenon joint that was utilized on the candle holder we made at the demonstration. The joint is fairly easy to accomplish, and Daniel uses it frequently in his work. Rather than slot punching a hole in a tenon to accept a wedge pin, an element is formed and folded to become the tenon and friction catch for the pin.

1. The first step in this particular element is the forming of what will be the tenon and primary legs of the candle holder. The piece is cut from $\frac{3}{16}$" plate. The plate is 10" long and $1\frac{1}{4}$" wide and cut so that there is a 3" long by $\frac{5}{8}$" waist in the middle. This will become the loop of the tenon. The legs or wings are $3\frac{1}{2}$" long and taper from the waist to tip. The end of the taper is $\frac{3}{4}$" wide and starts $\frac{3}{4}$" away from the waist.

Folded Eye Tenon Joint

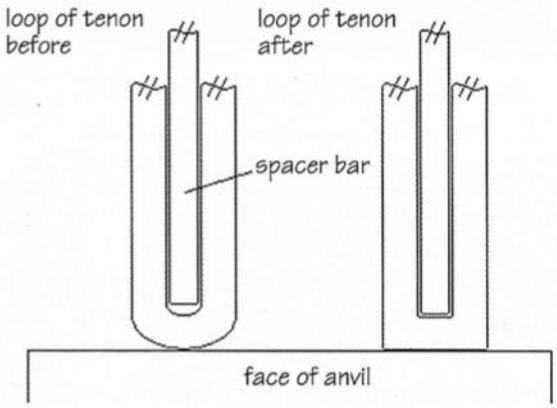
Cutting pattern for legs (wings) and loop



2. After the stock is cut, the wings are drawn out to 5½" in length. This should produce a taper in thickness from 3/16" near the waist to 1/16" at the tips. The full thickness of the plate is maintained at the base of the wings where they meet the future joint. The top edges of the wings can also be beveled at this point.

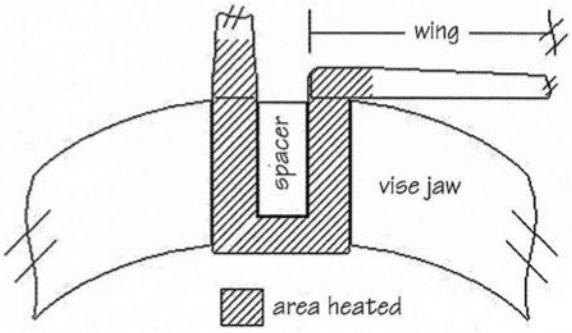
3. Before bending the tenon loop, mark the center of the piece with a punch on what will be the inside of the loop.

4. The wing is then folded in half, taking care that the wings are even, leaving at least a ¼" space between the halves. If the space is a little over, that is okay. It can be fixed, but if it is too small, it will need to be pried open for the next step.

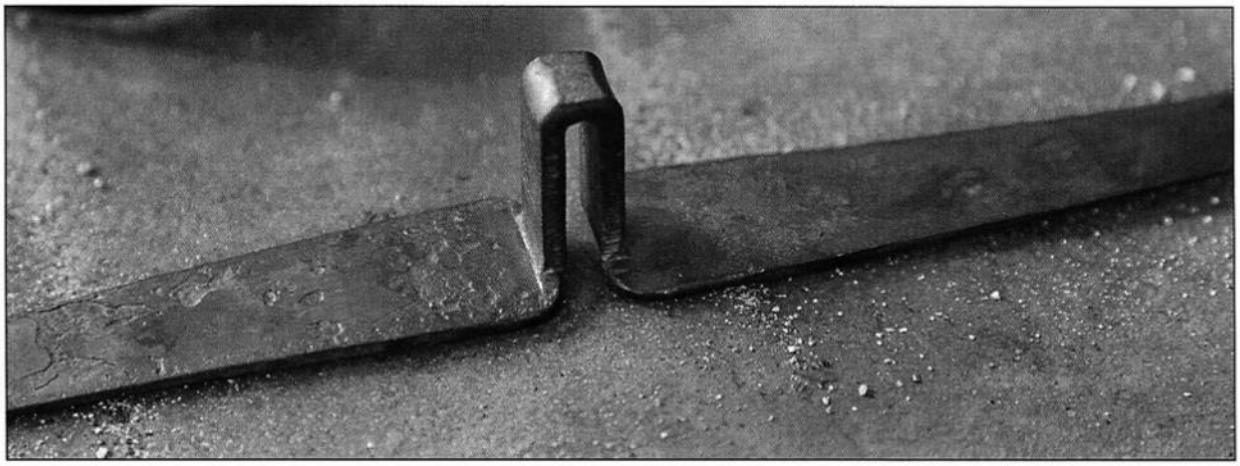


5. The bottom of the bend is then made square with the aid of a spacer bar. The spacer bar is ¼" thick by 1¼" wide and 10" to 12" long. The length is for clearance of the hand from the wings when it is used as a chisel to square the bend on the face of the anvil.

6. The wings are now bent down and perpendicular to the tenon. To keep the loop in the tenon true, the spacer bar is used again, this time on its side. The piece is set in the vise so that the wings are flush on top of the vise jaws. The jaws of the vise must line up properly so that the bend is straight. When heating for the bend, it is best to heat the whole joint from the bottom to about ¾" up the wings. This is done so that the jaws of the vise won't heat sink too quickly where the wings are to be bent.



7. After the wings are bent, the joint and its transitions to the wings are made true by use of another spacer. The spacer is ¼" thick by ⅝" wide and 1¼" long. The base of the joint is heated up into the wings and dropped into a ⅝" square hole. The spacer is then dropped into the gap in the tenon. With everything in place, the transitions are hammered true. At this point, it is fairly easy to add texture to the wings as well.



The loop should look something like this.

8. The body of the candle holder consists of two separate additional wings. These are made slightly larger than the wings on the joint, but out of the same thickness plate. Each is punched and drifted with a ⅝" hole to accommodate the tenon, and then drawn out in the same manner as the previous component. The dishes for the candles themselves are made out of much smaller wings that are riveted to the body components.

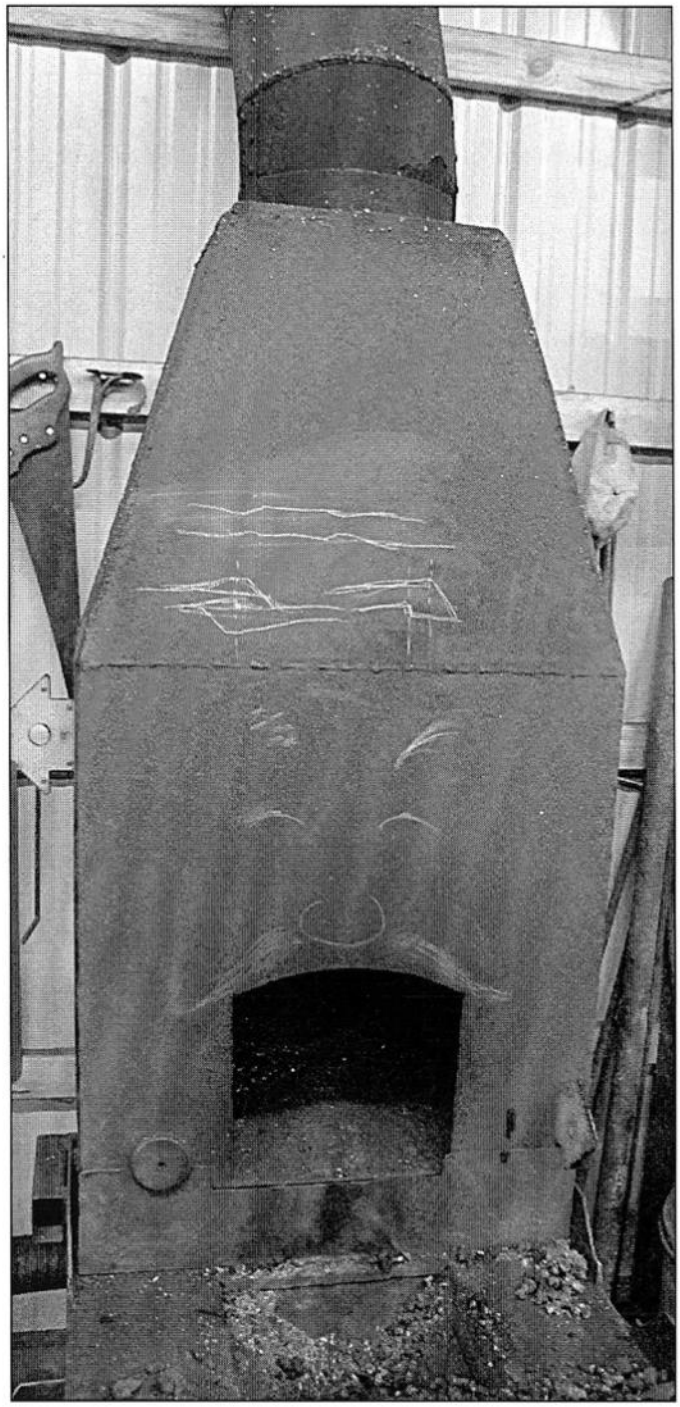
9. Once the body is punched and drifted, the wedge pin can be made. The pin is made to match the tenon at ¼" thickness. The pin must taper in such a way as to allow the pin and the legs to sit flush with each other.

This article illustrates the forming of the tenon in the joint and allows for its further use and development. I intentionally did not go into detail on many other aspects and possibilities. ♣

Kacy (right) and friends at Daniel's workshop.

Side Draft Chimney

story & photos by Chad Gagnon, Crescent City



When he was here for a Hammer-In last summer, Rod Plew told me I should write up my coal forge side-draft chimney. I've been very happy with it ever since I designed and built it several years ago, so here goes.

I needed a good way to get smoke out of my shop but didn't want to lock myself in to a brick chimney/forge. So I went online and found as many designs as I could for a sheet steel chimney, trying to understand the principles of good chimney design and any critical design parameters that needed to be followed.

I found about three or four write-ups that seemed to make sense and were pretty much in agreement, and a couple that just didn't make as much sense. So I decided to distill the nuts and bolts of those three or four, and came up with a design I knew I could build with a cutting torch and MIG welder. A brake would have been nice, but alas.

A first principle is that the flue needs to be as large as possible, minimum 8", but preferably 12" or even 14". You're not dealing with a clean-burning, efficient, closed-box home fireplace, but a relatively small, cool and very smoky, open fire, so you need a big draw.

Also, the top of the flue must be at least 4' higher than the roof peak, to prevent any errant breeze from blowing across the peak and down into the flue.

I chose 10" pipe because it was the largest I could find at the local junker. He had plenty of it, and it was cheap. So I had no problem going high enough for a good draw.

Now for the design parameters for the chimney box. First, I needed to build in a smoke shelf, and second, there are three measurements that need to be close to the same:

- the area of the smoke inlet at the front of the chimney by the fire pot,
- the cross sectional area of the throat created by the smoke shelf, and
- the area of the flue.

My feeling is that the smoke shelf is the essential component. Its sizing is critical to make this work. If all three are the same, the thing should work like a charm. This seems to be the key factor, along with a tall, large flue.

Side Draft Chimney

I started with my 10" flue pipe, which has a cross-sectional area of about 75 square inches (πr^2) or approximately 3×5^2. That was the given that the other two had to match. So working backward from the flue, the throat of the chimney must also be about 75" sq. Since my forge is 24" wide at the fire pot, I wanted to build the chimney box that wide. 75" sq ÷24" = 3⅛" for the throat depth.

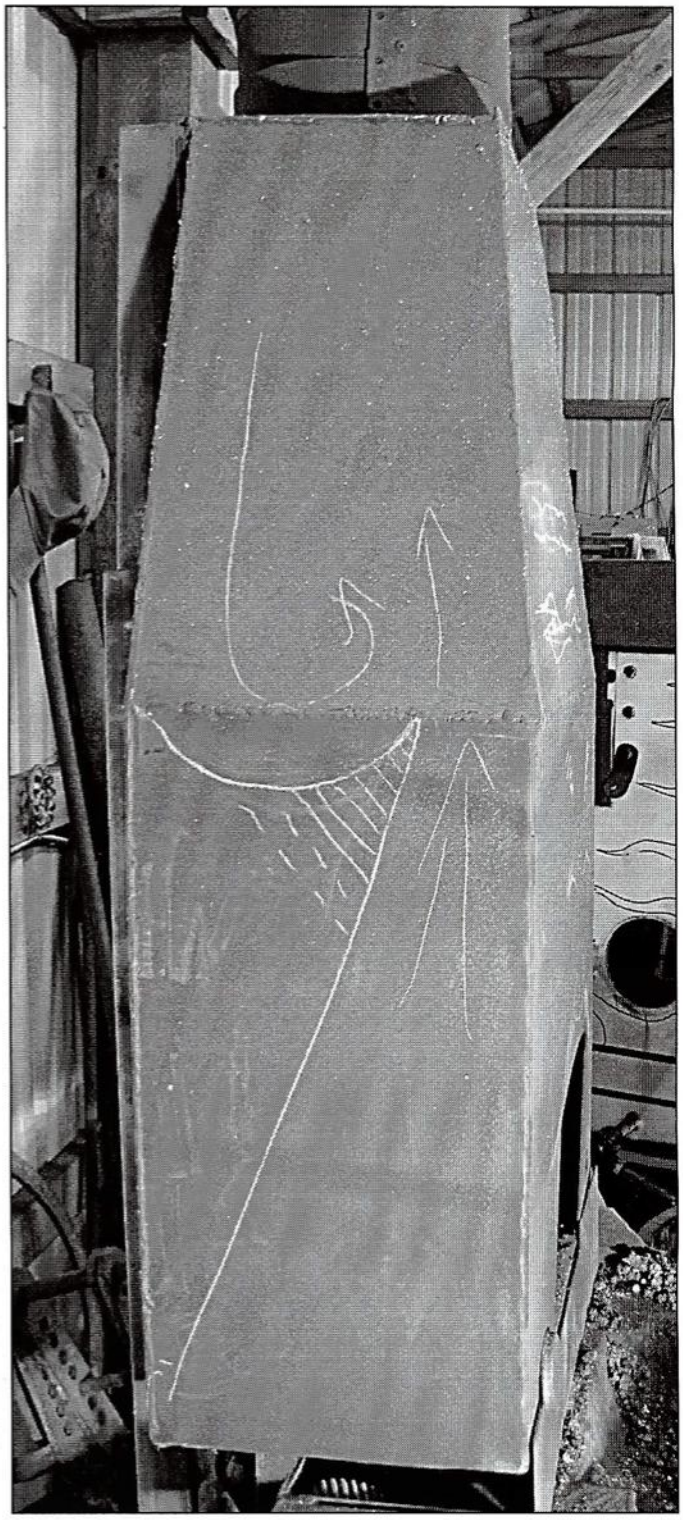
And an inlet of just about a 10"diameter seemed about right. So there were my parameters!

Using ⅛" sheet steel, I started by building a box 24" wide x 24" tall x 12" deep, with the back and sides extending up 20" more, narrowing as shown in the drawing. The bottom, front and top were left open till I could weld in the false back that angled from the back bottom corner up to 3⅛" back from the top front corner. This was made of thinner sheet that I had around, as was the smoke shelf itself. See the side photo for the soapstone-drawn side view of the false back and smoke shelf.

As you can see in that drawing, the smoke shelf is concave along its width, forming a kind of long trough. One article I had read said this shape curls and redirects any cool air trying to come down, back in an upward direction. I'm not sure if that really works or is even necessary, but it wasn't difficult to do, and I'm happy with the result.

Once the false back and smoke shelf were in, the bottom was added and the front was welded on. Note how the top 20" of the front and the sides are bent inward as they narrow up to 12" wide at the top, by 10" deep. The back has no bends, but remains vertical. A 10" x 12" flat top with a 10" round hole was welded to the top, completing the box itself. To attach the flue, I welded on a 2" tall ring.

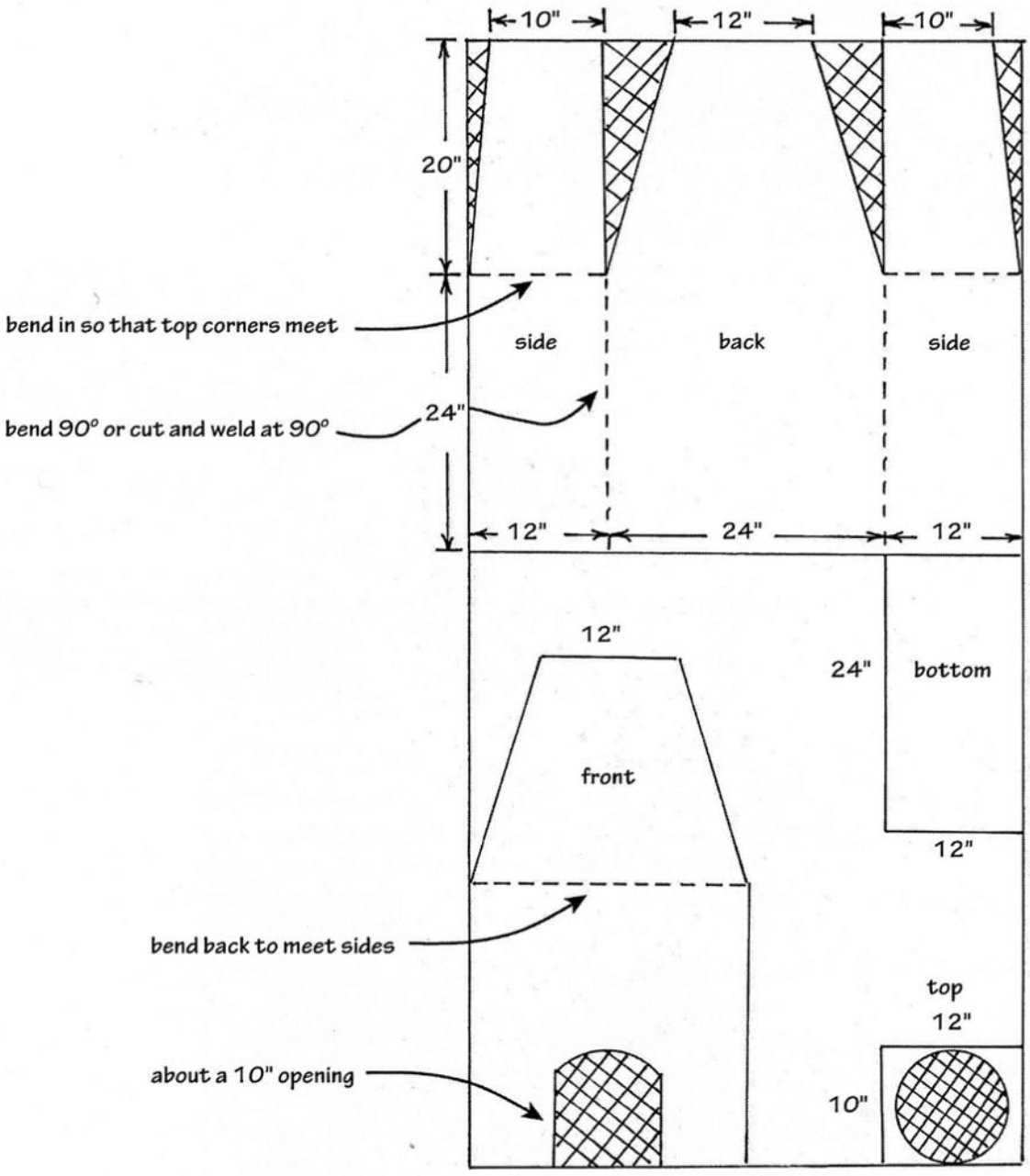
I welded mounting hardware onto the back of the chimney box to hold it in position over my forge and ran the flue up through the roof. Because of the flue's height, I added some rebar braces from the roof to the upper portion of the flue and added a cap.



Side Draft Chimney

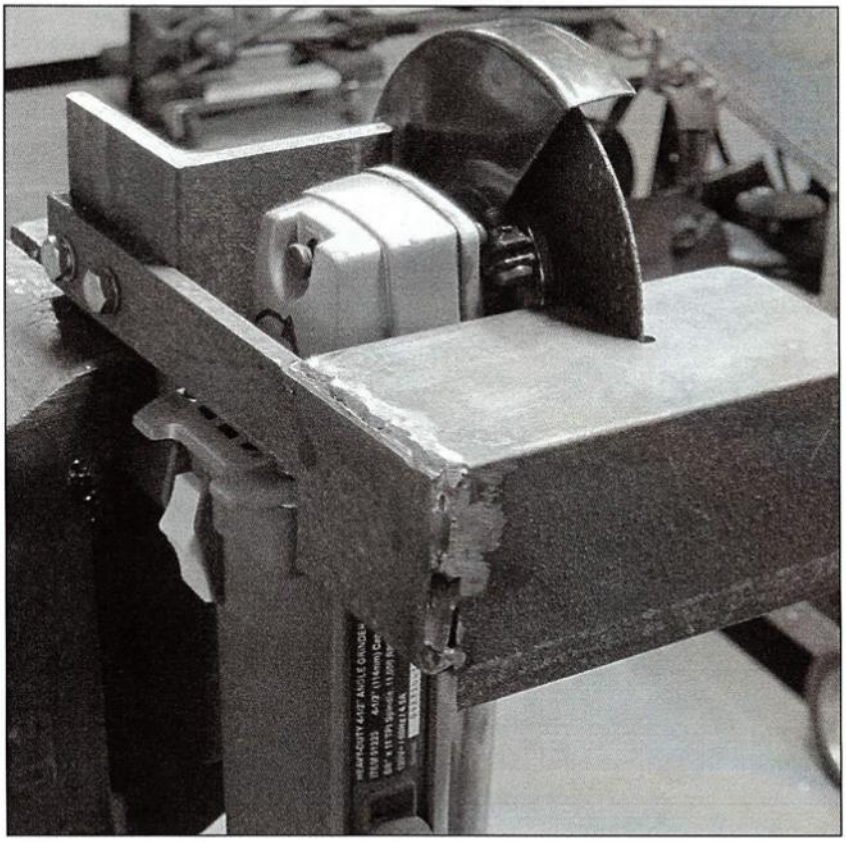
Note. Chimney code calls for the top of the chimney to be no less than 3' higher than the highest point of roof penetration. But for optimum draw, the chimney should be even taller than code minimum.

When I start a fire, I always throw some crumpled paper into the chimney and light it a short while before actually lighting the coal fire. Helps get the draw started and minimize the smoke in the room. But it's really impressive how well the chimney sucks the fire and smoke sideways almost immediately. And after that, the shop is smoke free. Hope this helps anyone looking for a good design. ♣



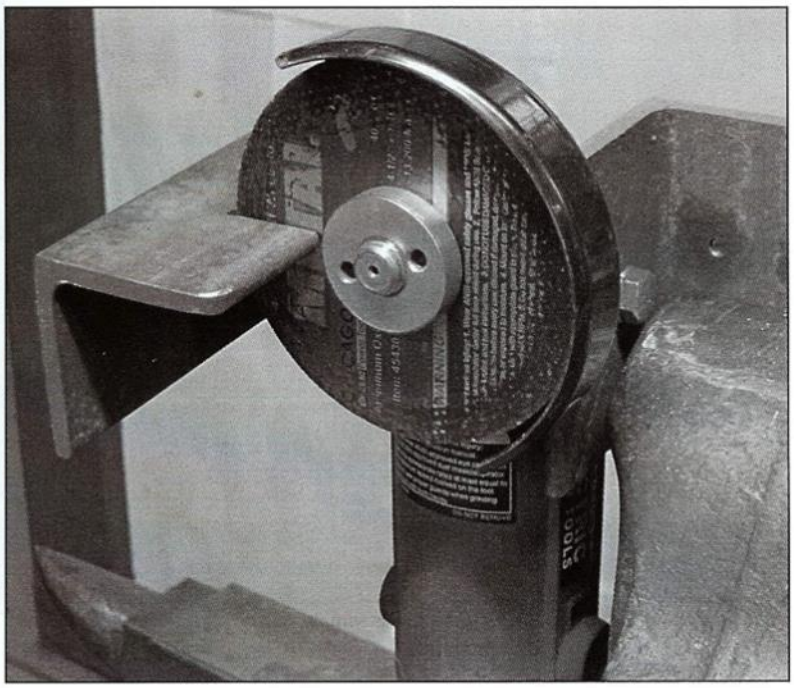
Mini Abrasive-wheel Table Saw

Mario Baggiolini, Sonora



I came up with this idea because I needed to cut out 38 oak leaves from 16 gauge steel. I have no plasma torch; chisel cutting would take forever, and water jet was out of the question. So with $21 for a 4½" Harbor Freight HD angle grinder Item #91223, some bits of 2½" x 2½" x ¼" angle iron, a piece of flat bar and some bolts, I came up with this mini abrasive-wheel table that uses 1/16" x 4½" abrasive cut off wheels (Harbor Freight also, item #454300). The nice thing about this grinder is it has a slide switch on/off instead of a paddle switch with spring return, so it can be kept running.

When using this tool, follow all the grinder safety rules including hearing protection.



To make the leaves, I made a pattern out of 16 gauge steel. Using this pattern, I traced the outline onto the sheet steel. Then I rough sheared the blank out with a plate shear. Moving over to the mini abrasive-wheel table saw, I followed the scribed lines of the leaf. Go slowly. The wheel can be very aggressive and can cut quickly. Next, wire brush the burrs and touch up with a file. I then used my veining tool to give the leaf some character.

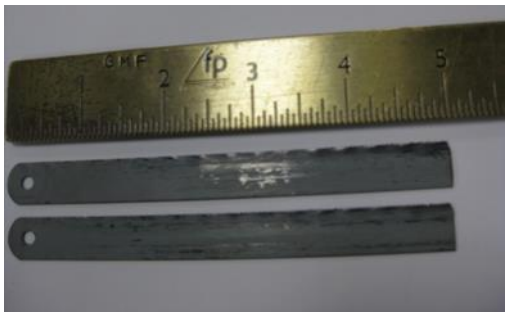
A sketch of the parts and assembly *(see page 21)* shows dimensions are close, so some fitting may be required. Ideally, the top of the table should be at the center line of the grinder or slightly below. ♣

This article provided courtesy of California Blacksmith Newsletter. Of course, as with any grinder or abrasive wheel machine, the wheels operate at very high speeds and sometimes break or launch flying work pieces that get caught up in the wheel. "Safe" operation dictates that the operator remain outside of the plane of the wheel and behind the guard(s) as much as possible to minimize the risk of injury. - Editor

Quick Projects – Simple Divider

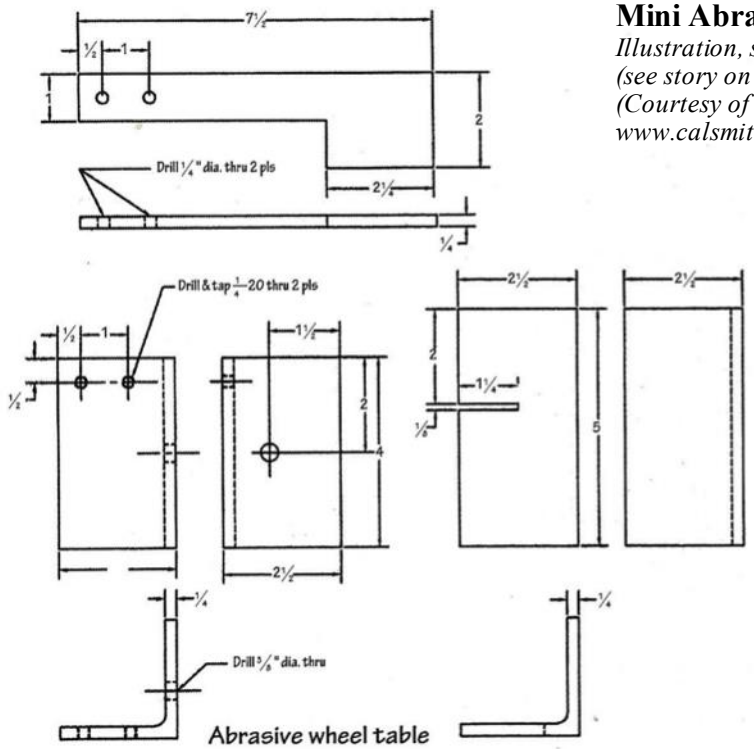
Gerald Franklin

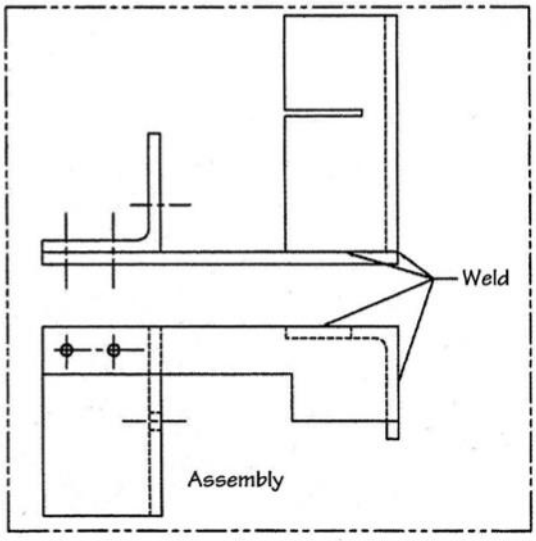
This divider is made from a worn out or broken hacksaw blade. It's a pretty straight forward process. Just trim two equal lengths of blade, rivet them together, and then grind to shape. The rivet needs to be snug enough to provide some resistance when setting the divider.



Mini Abrasive-wheel Table Saw

Illustration, story and photos by Mario Bagglioni
(see story on previous page)
(Courtesy of California Blacksmith Newsletter Nov/Dec 2013
www.calsmith.org)





Horseshoe Heart

Drawings and text by:
Steve Alling, A MABA member

1. Find the center of the horseshoe, open out and hammer the center into a dull point.

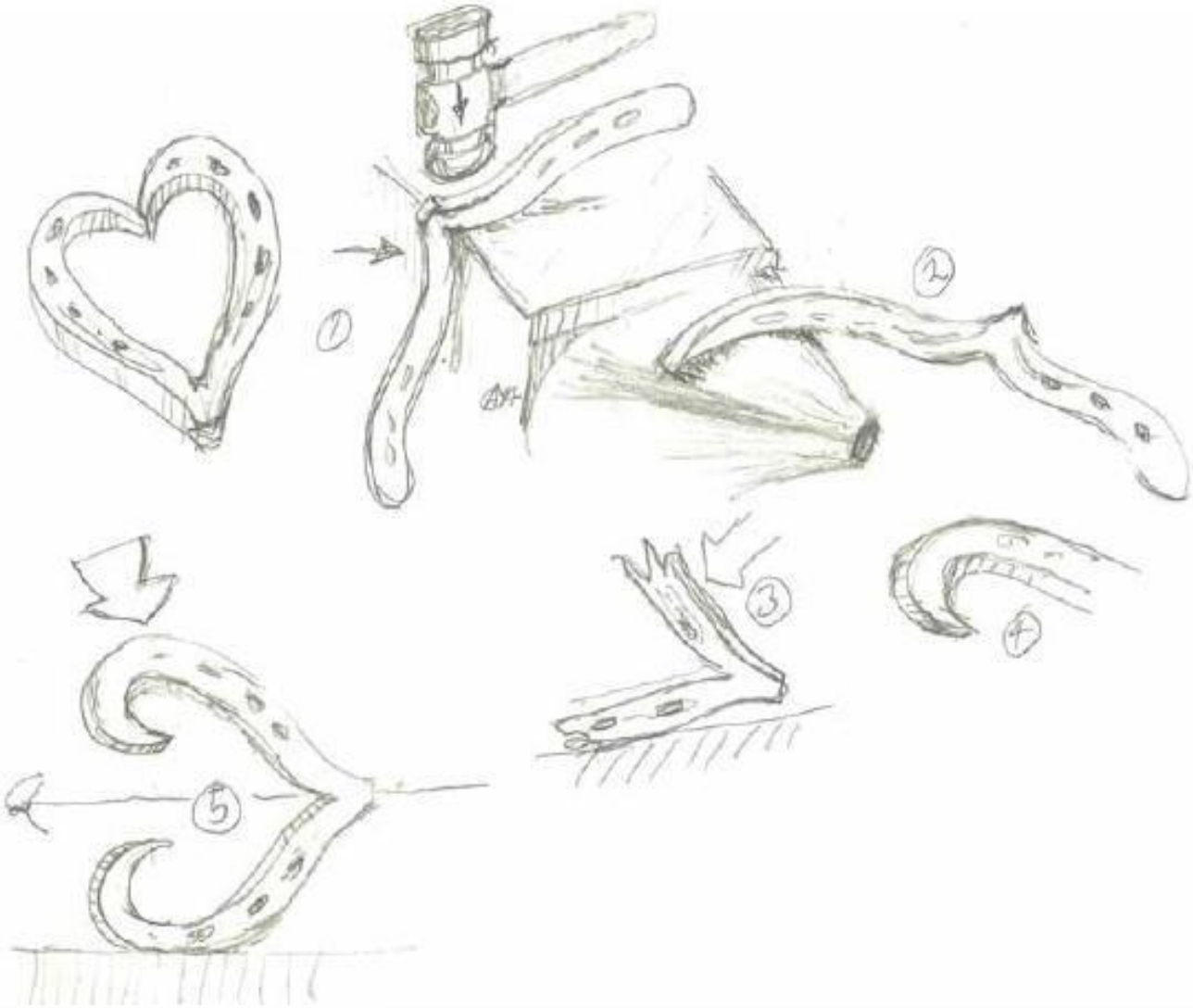
2. Taper the two ends.

3. Close the center to sharpen the point.

4. Curl the ends.

5. Tap the curled ends closed.

Note: If the shoe has any protrusions they need to be cut off and some shoes are not symmetrical and finding the center can be tricky. Also I found that all my used shoes have been worn unevenly from side to side. When you do the taper in step 2 because of the different mass it makes it a little difficult to make the two halves the same length. If the shoes are terribly worn getting the two halves drawn out equally is a problem. I found that the hearts looked better if they were obliviously not symmetrical than just a little bit unsymmetrical. So I purposely make them that way. The holes in the shoe can be used to attach it so have some appropriate nails to go with the shoe. Or it can be made into a trivet with the addition of legs.



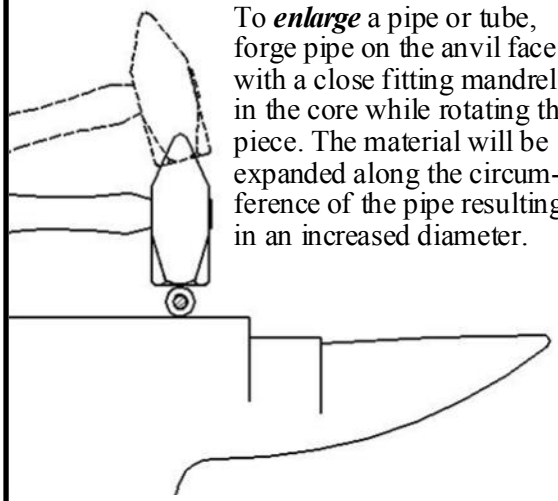
Punching Tip

When I punch holes I use a Pritchel Plate so my work piece does not flair out on the back side. What I found really helps is to scribe a cross hair over the hole on the Pritchel Plate. This aids in lining up the punch with the hole. It keeps the edge of the hole in the Pritchel Plate from getting buggered up and it keeps the punch from being damaged from hitting a solid surface and not the hole.

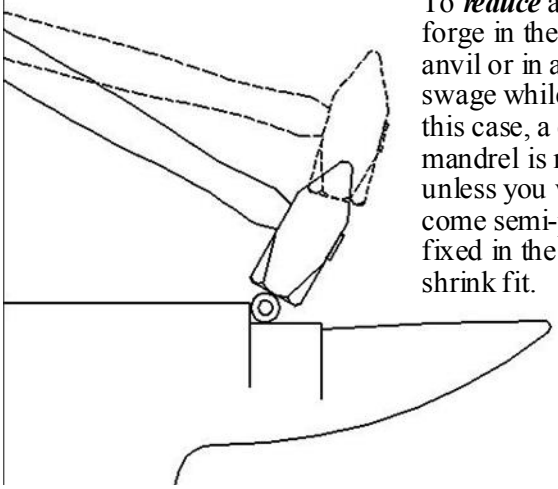
This tip provided by the Bonneville Forge Council Top of the Anvil newsletter Jan/Feb 2014

Reducing/Enlarging the Diameter of a Forged Pipe or Tube

This tip was demonstrated by Bob Patrick at the 2012 SCABA Annual Conference while fine tuning a short section of forge welded gun barrel… *-Editor*



To ***enlarge*** a pipe or tube, forge pipe on the anvil face with a close fitting mandrel in the core while rotating the piece. The material will be expanded along the circumference of the pipe resulting in an increased diameter.



To ***reduce*** a pipe or tube, forge in the step of the anvil or in a V-shaped swage while rotating. In this case, a close fitting mandrel is not needed unless you want it to become semi-permanently fixed in the pipe with a shrink fit.

January Newsletter Puzzle Correction:
If you worked the crossword puzzle in the January newsletter and had any difficulty, you may be interested to know that it was pointed out to me that there are two errors in the answer key.

Number 12 Across is "Traveller" with two "l's." In the answer key, it is shown with only one "l" which will not fit. Also, number 15 Down is "Post" vice, not "Leg" vice as shown in the answer key.

But its all ok. I have already taken "Crossword Puzzle Maker" back off of my resume. -Editor

Center Finder / Bisecting Gage

By Jim Carothers

I recently needed to scribe a line down the center of several long flat bars. The tool shown in these notes was shown to many of us by Artist-Blacksmith Tal Harris at the 2006 Saltfork Craftsmen ABA Annual Conference. A very similar tool is shown in Plate No. 410 of **507 Mechanical Movements Mechanisms and Devices** by Henry T. Brown (first published in 1868).

Since this is a tool, I used cold finished bar stock and was very careful in my layout and drilling so as to produce an accurate piece. As shown here this tool will work on flat bar up to about 2" wide or just a little over.

Materials:

1/2" square bar cut 3-1/4" long (one piece)
3/8" square bar cut 2" long (two pieces)

Hardware:

1/8" to 3/16" diameter rivet 1" long (two required)
(I used 16 penny nails to make the rivets shown)
Pan Head screw #10-32 NF x 1/2" long (two required)
Hex Nut #10-32 (used as a jam nut) (two required)
Carbide scriber point – Wholesale Tool Item No. 6800-030 (one required)

Fabrication:

Start the layout work on the 1/2" square x 3-1/4" long bar by locating and center punching on the bar center line a mark 1/4" in from each end.

Next very carefully locate and center punch on the bar center line a mark exactly half way between the two end center punch marks. I used a dial caliper as a "divider" to get this "true-center" mark within a few thousandths of the exact center dimension between the end punch marks.

2015 price is $2.94. The model number is still good. - Editor

Using a drill press, drill the end holes for a snug fit on your rivets. I was able to find a Number Size drill bit that was basically the same size as the nail I used to make the rivets. The actual drilled holes provided very good alignment but also allowed smooth rotation. Use your drill press as a lathe to file the rivets slightly if necessary.

Drill the center hole 1/8" diameter by 3/8" deep to the drill point. Drill on through the bar with a 5/64" bit – just oversize enough to let the carbide tip of the scriber point pass through. Alternately you can drill the 1/8" hole all the way through. However, I by using the 5/64" bit, the scriber point cannot fall out the bottom of the tool.

Slightly counter sink all the holes to remove any burrs.

Turn the 1/2" x 3-1/4" long bar a quarter turn and locate another center punch mark in line with the 1/8" hole just drilled. Measure down from the top of the bar 3/16" and center punch for drilling. Carefully cross-drill and tap completely through No. 10-32 NF. The tap drill size for a No. 10-32 NF thread is a "number size" bit (No. 21 @ 0.159" dia.); I used about 1 to 2 number size bits larger (No. 19 @ 0.166" dia.) than the handbook standard to help avoid breaking my tap.

Check fit the carbide scriber point in the 1/8" hole. Since cross-drilling and tapping through this hole, it is likely that you will have to run the 1/8" bit in again to remove some internal burrs. Be careful not to over drill the original 3/8" depth of this hole.

Start the layout work on the 3/8” square x 2” long bars by locating and center punching on the bar center line a mark 1/4" in from one end.

Again using a drill press, drill the end holes in these two parts for a snug fit on your rivets. I used the same size drill bit for these holes as I did for the ones in the end of the 1/2” square bar.

Slightly counter sink the holes to remove any burrs.

Assembly:

Break all the sharp edges and lightly round all the ends of the bars. Dry fit the parts to ensure that everything aligns as intended and rotates smoothly. If all is well and after checking to make sure that the hole for the carbide scriber point is located correctly (large part of the hole **UP**), lightly hammer the rivets to form the upper ends. I used a very small drop of Loctite (red) at the top of the rivets before hammering. The rivets will be locked against rotation in the 1/2" bar after the Loctite sets up.

Cut the excess length off the scriber point. I trimmed the one shown here to about 11/16” overall length.

Center Finder Use:

To set the tool up for use, simply stick the carbide scriber tip out about 1/64”. Gently snug the two pan head retaining screws with a small screw driver and tighten the two jam nuts. The first tool I made had only one pan head screw and no jam nut. The carbide scribe would not stay in place.

The tool is shown here on a piece of 1” wide project stock; it will work OK on stock up to about 2”. It is most accurate when the 1/2" square (main) bar is used angled across the project stock being marked. For best results run the tool down your project stock and mirror the tool and make another run. This gives a layout from both sides of the stock. The exact center of the bar will be half way between the two lines. Hopefully your layout and fabrication work will result in both lines being only a few thousandths of an inch apart.

I have yet to wear out the scribe point in the tool I use regularly. This bisector works best on long pieces of stock. I hold the stock in the vise, grip the tool against the sides, and pull it toward me. On some of my more rusty stock, a quick wire brush job and some oil helps with the sliding.

As an example, when I start one of these coat racks, the first thing I do after cutting the bar to length is to run the Center Finder down the back side.
Even in the finished piece after forging and brushing, you can still see the layout line left by the scribe point and my punch mark in the right-left center of the bar.

I use the Center Finder on bar stock used to make Chris Friedrich crosses before cutting the parts to length.
For example, 60” of 5/16” sq. bar will make 20 of the crosses as I make them; the center finder saves a lot of layout work.
The scribe lines disappear in the finished cross.

Some of these center finders are made without the guide bars and instead use pins or bearings for the guides. If I were going to make a bisector with bearings, I’d use skate board wheel bearings. They are small, cheap, and have very little slack. I’d also likely extend the bar to make a handle.
You might need to spread the “pegs” a little to allow for the bearing diameters. - Jim C.

This article is revised and updated from an article originally published by Jim in the April 2007 SCABA Newsletter. The scribed lines from using this type of tool are fast and accurate to produce and are useful for a number of tasks including locating holes, providing saw and chisel guidelines, etc. - Editor

SCABA Shop and Swap

For Sale:

6” round nosed pliers (great for putting scrolls on small items) $5.00 each.
Brooms tied, $20.00 on your handle Please contact me for help with handle length.
Contact Diana Davis at Diana.copperrose@gmail.com

For Sale:
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Contact Larry Roderick at 940-237-2814

Wanted:
Advertising Coal Hammers, Contact Mike George at 1-580-327-5235or o Mike-Marideth@sbcglobal.net

Club Coal

Saltfork Craftsmen has coal for sale. Coal is in 1-2” size pieces The coal is $140.00/ton or .07 /pound to members .**No sales to non-members.**

NW Region coal pile is located in Douglas, OK. If you make arrangements well in advance, Tom Nelson can load your truck or trailer with his skid steer loader for a fee of $10 to be paid directly to Tom. Tom has moved his skid steer and must now haul the loader to the coal pile to load you out, hence the $10 charge. You may opt to load your own coal without using Tom’s loader. The coal can be weighed out at the Douglas Coop Elevator scales. Contact Tom Nelson (580-862-7691) to make arrangements to pick up a load. Do not call Tom after 9 PM!! Bring your own containers and shovels. Payment for the coal ($.07 per pound) should be made directly to the Saltfork Treasurer.

NE Region coal location: Charlie McGee has coal to sell. He lives in the Skiatook, Oklahoma area. His contact information is:
littleironworks@gmail.com or (home) 918-245-7279 or (cell) 918-639-8779

S/C region coal location: Club coal is now available at Norman at Byron Donor’s place. Call Byron to make arrangements to come by and get coal.

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SCABA swage blocks
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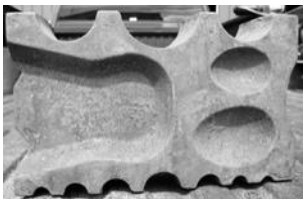
Contact Bill Kendall for more information



SCABA Floor Cones are now available from Bill Kendall, Byron Donor and Gerald Franklin. The price is $200 plus shipping and handling.

We have SCABA t-shirts available. They are a grey pocket “T” with the SCABA logo on the pocket. Contact Diana Davis for information. The t-shirts cost $15.00 each. Free shipping is you buy 2 or more. Add 2.00 for shipping of only one shirt. (Anything larger than 3X is considered special order and will take up to 2 weeks and will be at extra cost.)

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