

# SOFA SOUNDS

APRIL/MAY 1987

**SOFA**  
SOUTHERN OHIO FORGE & ANVIL

**Artist-Blacksmiths Association of North America**

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NEWSLETTER EDITOR/1987 QUAD-STATE

COORDINATOR:

Ken Scharabok (513-429-3967)

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**MARK YOUR CALENDARS:** Unless otherwise noted, all meetings will be held at the Studebaker Family Homestead on Rt. 202, four miles north of I-70. Please don't park on the grass or block access to the production buildings. The public and guests are invited. Donations for the newsletter support raffle are always welcome.

April 4th, 1 PM

BUSINESS MEETING followed by a demonstration by Dick Franklin on making hinges.

April 11th, 9 AM

May 16th, 9 AM

June 13th, 9 AM

July 18th, 9 AM

Work on the homestead gate wings. Hot dogs and beans lunch to be provided by SOFA. This is an excellent opportunity for members to learn intermediate-level blacksmithing on a complete project.

May 2nd-3rd

Annual conference of the Northwest Ohio Blacksmiths at the Seven Eagles Lodge near Toledo. Contact Don Witzler at 419-874-6576 for details.

May 2nd-3rd

Annual conference of the Indiana Blacksmiths Ass'n in Nashville, IN. Contact Danny O'Brien at 317-675-4807 or Ron Porter at 317-689-8450 for details.

May 9th, 1 PM

BUSINESS MEETING (including election of vacating board of directors seats and officers) followed by a demonstration by Ken Scharabok on making ram's head pokers.

June 6th, 1 PM

BUSINESS MEETING followed by a demonstration by Ed Hulihan on "BACK TO BASICS" highlighting basic blacksmithing skills.

July 11th, 1 PM

BUSINESS MEETING followed by the group making hardie tools from jack hammer bits at several work stations. We need four volunteers to supervise the stations.

September 26th-27th

1987 Quad-State Blacksmithing Round-up. See details inside newsletter on the demonstrators lined-up.

## MEETING NOTES:

Prior to the demonstration, several items were covered in the business meeting:

- Hans Peot reminded ABANA members that votes for the ABANA Board of Directors had to be in by mid-February to be counted. SOFA has two members running for the board, Hans Peot and Ken Scharabok.

- Several items were passed around for viewing, including a newspaper article on a large gate Dave MacDonald had made for a private estate near Findlay, Ohio.

- Ham Hammond reported he had received some initial information on the possibility of a SOFA demonstration/sales booth at the next Montgomery County Fair over Labor Day. This will be reviewed by the Board/Officers prior to the next meeting.

- Plans for the next Quad-State are proceeding. We have received acceptances from two demonstrators and have sent a follow-up inquiry to the other two. The fifth demonstrator will be Hans Peot on basic blacksmithing, which has been moved to Sunday this year.

- Owen Vance brought along some back issues of The Anvil's Ring for display. These were circulated.

The newsletter support raffle brought in an additional \$83.50. The results of the income produced by these raffles, and comments by members when renewing that they would like more "tips and techniques" in the newsletters accounts for this issue being double the normal length with at least half dedicated to tips and techniques. The results of the raffle were: (To all donators - thank you!).

### Winner:

Joe Abele  
Duane Wegley  
Cheryl Dupps  
Ben Wunder  
Bob Beckett  
Lynn Spallinger  
Hans Peot  
Larry Gindlesperger  
Henry Smith  
Ed Hulihan  
Larry Cruikshank  
Casey Alexander  
Tom Zeigler  
Brian Thompson  
Andrew Holly  
Ron Van Vickie  
Ben Wunder

### Item:

Brass Water Tank Dipper  
Head Work Holder  
Kitchen Knife  
Large Tongs  
Punches  
Punches  
Wax Block  
Large Farrier Rasp  
Punched and Framed Picture  
Used Files  
Cable Length  
Large Hacksaw Blade  
Wax Block  
Shovel Head  
Caster Cups  
Battery Tester  
Folding Stand

### Donator:

Keith Sommer  
Dave MacDonald  
Owen Vance  
SOFA  
Henry Smith  
Henry Smith  
Keith Sommer  
Ken Haines  
Casey Alexander  
SOFA  
Scott Shoemaker  
Lynn Spallinger  
Keith Sommer  
Keith Sommer (?)  
Emmert Studebaker  
Art Wolfe  
Ken Scharabok

Following the business meeting Larry Gindlesperger (a full Colonel at Wright-Patt.) demonstrated making a B-B-Q set of a spatula and meat fork. Since they involved basic steps, he concentrated on "what not to do" steps.

- When upsetting, hit with the smallest hammer possible to move the metal. A large hammer will cause it to bend rather than upset.

- Don't leave the metal in the fire unattended as he demonstrated how to make a sparkler out of his piece. Fortunately, he was able to work out the burn marks since he was using mild steel. High carbon steel would have been ruined.

- To make the plate of the spatula, he folded over about 2" of the 1/4" x 1/2" stock he was working with, faggot welded it, and drew it sideways on the power hammer. He pointed out that the power hammer has rounded dies, therefore he had to work from the side to avoid lengthening the plate more than desired.

- When he had rough size of the plate, he took a piece of paper about index card size, folded it over and then cut out the shape of the plate desired. When opened, this ensured both sides were even. He then used the template to trace the design on the rough plate and ground off the excess.

- On his meat forks, he upsets the area at the end of the cut and then fullers in slightly from both sides. He has found the fullering to help in avoiding folds once the tines are folded sideways.

- He varies the pattern in the shanks saying his guide was that the two should be close to the same and the spatula and fork should be the same length. He finishes the back end by splitting and curling.

- He uses a vegetable oil finish on these since they will be used with food items.

Following the meeting Ed Hulihan displayed a pair of andirons he made using Danny Boone's style of dragon head with the curved tail serving as the rear support base. They were beautifully done and I hope he displays them at the next Quad-State.

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During the March 7th business meeting several items were presented:

- Plans for the next Quad-State Round-Up are being financed with the slate of demonstrators set up. See details elsewhere in this issue.

- The group will make a purchase of 1/4", 5/16" and 3/8" square hot rolled steel. Order form and details elsewhere in this issue.

- A catalog for the Penland School (Penland, NC 28765) 1987 summer courses was passed around. They will be offering several blacksmithing and related courses.

- Larry Wood announced he will hold another beginners class as soon as he lines up two more people. If interested, contact Larry at 233-6751.

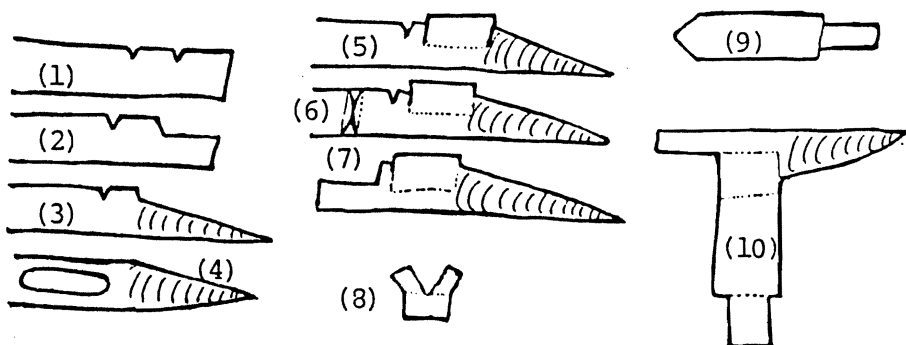
- The results of the 1987 ABANA Board elections were announced. Apparently only about 1/3rd of the ABANA members bothered to vote. Neither your Editor or President were elected.

Someone paid their renewal at the meeting and I forgot to write down their name. Will this person please give me a call at 429-3967.

Following the business meeting, Hans Peot and Larry Wood made a hardy bick similar to the one they did last year. The main difference is they used 2 1/2" diameter this time.

There is probably a rule of thumb that as the diameter of stock increases arithametically, the difficulty in working it increases geometically as it wore out both Hans and Larry.

They started by cutting off the length for the bick, squaring it and cutting in grooves



from one side as illustrated (1). The shaft end was then drawn out to form a flat bottomed point (2) and (3). The shaft was then turned over and a crease fullered in with the sides drawn out (4) and (5). This crease will be for forge welding to the hardy shank. The top piece was then cut off of the shaft leaving enough stock to draw out a heel (6) and (7). When completed, the "V" groove looked something like (8) when viewed from the back of the heel. For the hardy shank a groove was put around back from the end and drawn out into a hardy hole tenon. When completed the proper length of shaft was cut off and tapered as shown (9) to match the "V" in the top piece. The two pieces were then forge welded together to form the complete tool (10). The hardy hole shoulder was squared off by hitting it down into either an anvil or swage block hole of the appropriate size. Member Andrew Holly demonstrated his striker abilities doing this. The comment was made that Larry and Andrew would make an excellent team for SOFA for the tongs competition at the next Round-Up.

The newsletter support raffle brought in an additional \$67.00. Results are:

<u>Winner:</u>	<u>Item:</u>	<u>Donator:</u>
John Jacobs	Quad-State tongs	SOFA
Jim Campbell	Blower	SOFA
Ron Van Vickle	Air Valve (nice one)	Ray Armstrong
Richard Knopp	Hammer Head	Ken Scharabok
Ken Haines	Twisting wrench	Ken Scharabok
Joe Abele	Sal Ammoniac	John Jacobs
Bruce Fryman	Chipping Hammer (Homemade)	Ralph Van Buskirk
Dave MacDonald	Files	SOFA
Andrew Holly	Lead	Ray Armstrong
Ralph Van Buskirk	Telephone	Joe Abele
Ralph Van Buskirk	Grinder warning sign	Ron Porter
Bill Fleckenstein	Hinges	Ken Scharabok
Ron Thompson	Grinder warning sign	Ron Porter
Art Wolfe	Grinder warning sign	Ron Porter

#### REFLECTIONS ON THE WORK OF SAMUEL YELLIN:

About 25 members and guests attended the exhibit of some of Samuel Yellin's work at the Allen Memorial Art Museum in Oberlin, OH on February 14th. Approximately 50 individual pieces or test items were on display. In addition, Yellin did a number of pieces for the Museum and nearby Oberlin College.

The quality of the work ranged from exquisitely detailed to somewhat crude. A large dragon head looked like something the boys in the shop did after a couple of pails of beer. The section from the Children's Chapel at the Washington Cathedral literally overwhelmed you with the details included.

It must be remembered that Yellin worked with only the best wrought iron, which is a different animal from today's mild steel, and that he was the guiding force in design and execution, doing, I understand, little forge work after he became established. This was left to the best European blacksmiths he could hire and also had an extensive apprenticeship program.

Some work you could readily identify as Yellin's since he like to use animal heads extensively in his work, often having them pop out of floral arrangements. However, even in his best pieces, close examination showed quite a bit of inconsistency in the work. As an example, small scrolls obviously made by an individual blacksmith might have a fishtail effect on one end and a tapered, pointed tip on the other. It looked like what it was; production blacksmithing based on a detailed, recurring design. The massive entry gate for the Packard Building in Philadelphia was basically 192 panels held together by a framework.

I still have trouble believing one gate there was even Yellin's work since it was held together with screws rather than rivets, tenons or banding. It seemed totally out of character with the other work displayed.

I am, in no way, downplaying Yellin's work. It's just that I now have a different perspective and admire it more for the originality of design rather than the quality of blacksmithing involved.

I wonder what the Museum staff thought of the group. Most people came in, looked around, said "Gee, that's nice" and left in about 15 minutes. Several in our group spend about five hours there going over each piece in detail, taking many photographs and notes, and examining construction techniques.

The exhibit will run through March 29th.

#### LETTER TO THE EDITOR:

"I have been very much involved and enthused about educating interested parties, the public and members alike, in the field of blacksmithing. One of the things I like about our craft and the people involved is the open, honest, no-holds-barred attitude of our membership - being willing to readily share ideas, information and sources, to increase awareness and skills in blacksmithing, and to educate the public.

I was very disappointed at our January meeting concerning the boldness of a member. After sponging up every tidbit of information from the rest of the members, not only in the very educating demonstrations, but in the many questions he asked directly to members, expecting and getting all the answers willing, being asked a question and answering with "...it's a trade secret!". I hope this isn't a trend we will see in the future in the smithing trade. If so, it will surely pull us down, sucking the energy from our united membership.

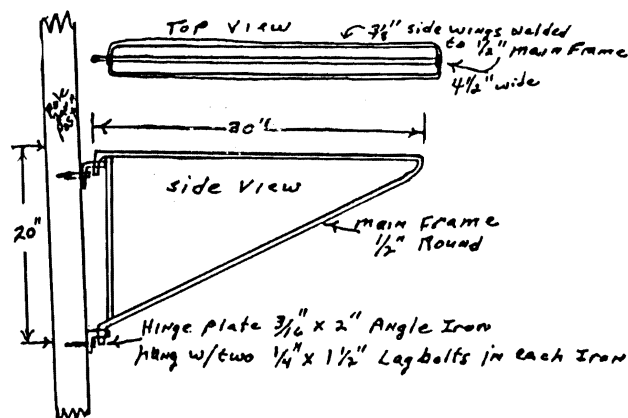
We should not allow another smith to sell a product of lesser quality because we kept a "trade secret". How can we grow in the public's awareness and ask the prices we should if we don't have all the information available to do the best job possible? We have to stick together and not be so competitive or we will fail in today's market."

Signed: Larry B. Wood

#### SPACE SAVING TOOL RACK (submitted by John Jacobs):

While reading the article on the tool rack in the Feb-March, 87 newsletter, it reminded me I made a hammer and tong rack quite different from the one described because it takes up a lot less room. The blacksmithing part of my shop is located in the corner of a pole barn and I really have a space problem (this from collecting stuff for over 45 years and it's all valuable to me).

I made my tool rack's main frame (see drawing) out of 1/2" round with the side wings out of 3/8" round welded on top of the main frame. This creates grooves to hang two rows of tools. I used 3/16" x 2" angle iron for the hinge places, lag bolted to the post. The rack swings on the angle plates like a gate. Be sure to use care in setting the plates to post so it hangs plumb, otherwise it won't stay where you stop it.



I am pleased with my gate rack as I can swing it out when necessary to select a tool and then swing it back to the wall out of the way. I even have tools hung on the wall

behind the tool rack. The biggest objection I have with the rack is that it's now too small, as I have 17 wooden-handled tools on one side and 18 pairs of tongs on the other. Now I'm out of room.

#### 1987 QUAD-STATE BLACKSMITHING ROUND-UP REPORT:

All demonstrators contacted have accepted our offer to demonstrate. Lined up are Russ Swider (Rowe, NM) who will do 1 1/2 days of Architectural Ironwork Techniques (highlighting time saving techniques) and a half-day workshop on using air powered tools in blacksmithing. Ed Small (Keyser, WV) will do one day on making tomahawks, axe heads and other related items and one day on basic bladesmithing. Paul Kuenle (Beavercreek, OH) will do one day on traditional craft items, such as candelabras and fireplace stands. Kathy Morgan (Clarksville, GA) will do one day on contemporary craft items in forged brass and copper and the use of coloring in the end product. Hans Peot (New Carlisle, OH) will do one day on basic blacksmithing (on Sunday this year to accommodate people who have to work on Saturday).

The tongs competition this year will be slightly different in that a fixed time will be given (probably 45 minutes) and the completed tongs judged on quality and ability to handle 3/8" stock.

If you have criticisms on last year's event or suggestions to improve this year's event, please contact any of the group officials.

In the way of demonstrator background, Francis Whitaker said of Russ Swider that his work comes closest to that of Yellin he has seen. Ed Small's work has appeared in knife magazines. Kathy Morgan was selected based on photos of her work in an ABANA chapter newsletter. Paul Kuenle and Hans Peot are SOFA members who have demonstrated in the past for us.



#### HEAR YE! HEAR YE! HEAR YE!

The next Southeastern Regional Blacksmiths Conference will be held on May 15th-16 in Madison, GA at the Lion's Club Fairgrounds. It is sponsored by the five southeastern ABANA chapters. Primary demonstrators will be Danny Boone (renowned for his dragon heads), Travis Daniel, Charlie Fuller, Russ Maugans, Nol Putnam and Dorothy Steigler, plus six additional stations. They are also planning an extensive spouses program. For further information see the last issue of the newsletter.

The Kentucky Blacksmith's Ass'n is now in full gear and I encourage SOFA members south of the Ohio River to also join that group (and others as well). Membership is \$10 a year payable to K.B.A. c/o Cecil Winders, Rt #6, Box 238, Mt. Washington, KY 40047. They plan on having several regional meetings a year with a workshop theme.

Larry Wood will be conducting another "Introduction to Blacksmithing" class when enough people sign up. Contact Larry at 223-6751.

FOR SALE: Cast iron cone mandrel about 4' high - \$80.00. John Martinson, 619 S. Dodge St., Galena, IL 61036 - 815-777-9591.

FOR RENT: Completely furnished blacksmith shop, all tools, forge, etc. A real turn-key operation in a high tourist traffic area. Rent is very reasonable and building has been a blacksmith shop for 100 years. Contact John Martinson, address above.

Electronic etchers are available from Unicorn Forge, Rt. 1, Box 50, Barneveld, WI 53507 - 608-795-4541 for \$37.50 postpaid. Includes starter kit with instructions.

IMPORTANT NOTE: We have located a source of 1/4" square hot rolled steel. If there is enough interest, we will make a group purchase of 1/4", 5/16" and 3/8" square for resale to members. Included with this newsletter is a separate order form. If you would like to order this size, complete it and return it to the Editor no later than April 11th in order for the steel to be available for pickup at the May 9th meeting. The prices on the order form are estimates as final price will depend on the quantity ordered. It is recommended you stock up while this size in hot rolled is available.

Dick Franklin is offering sets of the photos he took of the Yellin Exhibit (35 photos for \$25). These are near professional quality. Contact Dick at 233-4878.

Think you're good with a power hammer? During a meeting of the Upper Midwest Blacksmith Ass'n, Paul Lundquist drew out a piece of 1/2" x 6" rod to 38 1/4" in one heat as part of a contest.

Prescription didymium lens glasses are available from The Optical Shop, 6717 N.W. 11th Place, Gainesville, FL 32605. Cost is about \$45.00 for single vision and \$110.00 for bifocal. Telephone number is 904-373-1933.

Uniontown, PA member James Campbell sends word there is a very good article on Samuel Yellin in the Pennsylvania Heritage magazine, P.O. Box 1026, Harrisburg, PA 17108-9990. Cost is \$2.50 per copy. He didn't provide month.

POSITION ANNOUNCEMENT: Assistant Director of the Arrowmont School of Arts and Crafts. Responsibilities include operational, management and staff supervision of educational program. Coordination/facilitation of workshops, conferences, seminars and community outreach. Exhibition coordination/installation. Photographic documentation. Related degree and work experience. Salary competitive and commensurate with experience. For application information write: Arrowmont School of Arts and Crafts, P.O. Box 567, Gatlinburg, TN 37738, Attn: Sandra Blain, Director.

According to a recent issue of the newsletter of the Florida Artist-Blacksmith Ass'n, FOXFIRE 9 includes a 53 page chapter on Jud Nelson making a two-horse wagon from scratch.

Fred Caylor says his dog is a blacksmith. Seem he came into Fred's shop, Fred dropped a piece of hot metal on his tail, and the dog made a bolt for the door.. (From the newsletter of the Appalachian Area Chapter - ABANA).

The January 1987 newsletter of the Northwest Blacksmiths Ass'n contained three articles which may be of interest to members. The first is a seven page article on designing a gas forge, including construction considerations. The second is a two page article on "Build Yourself a Low Bucks Power Hammer" based on one about 50 years old. The third is one page on how to take slides for competitions, grants or other awards. For a copy, send a 22¢ stamp per article.

In the December 1986/January 1987 newsletter, I noted that round stock is 80% of the weight of the same size square stock (e.g., 1/2" square vs 1/2" round). It has been pointed out to me that the actual comparison is 78.54%. I never did do well at higher math.

For a copy of the current SOFA membership list, send a 22¢ stamp to the Editor.

Lindsay Publications (P.O. Box 12, Bradley, IL 60915-0012) sells mostly reprints of turn-of-the-century technical books. Among those on metal working are: Elementary Forge Practice (1908) and Blacksmith Shop & Iron Forging (1906). Catalog \$1.00.

The Hammer's Arc (newsletter of the Tullie-Smith House Blacksmith Guild) is back in publication under a new editor and it is excellent. Page after page of descriptive notes on items made during their meetings and elsewhere. The March/April 87 issue

contained articles on making a knife from a file, a heart fork, a potatoe grabber, cant hook and an improvised vise. Membership cost is \$3.00 per year to Clay Smith, 3007 Leafwood Dr., Marietta, GA 30067.

Attention demonstrators/craftsmen! The response to the proposal to have a SOFA demonstration/sales booth at the next Montgomery County Fair (Labor Day period) has been less than overwhelming. We need a strong show of support/participation before we press on with this. If you are interested in demonstrating and/or selling your blacksmithing-related items, contact Ham Hammond at 254-0501 as soon as possible. We are nearing a go/no go decision on this.

Workshop on the Industrial Archeology of Ironmaking: Spring 1987, Bloomery Symposium, Colonial Williamsburg. March 7-9, 1987. Registration \$30.00. Topics: Making iron, shaping iron, using iron. Contact Linda Wagner, Crafts Program, The Colonial Williamsburg Foundation, P.O. Box C, Williamsburg, VA 23187.

ABANA is organizing a group trip to the British Artist-Blacksmith Ass'n Conference, August 11-15, 1987, in Hereford, England. Several options for travel are being considered. For further information, send a 22¢ stamp to the Editor.

Please note that your Editor now has a Beaver Creek phone number (513-429-3967). I'm in the process of adding on a 22'x34' extension to the existing garage for a workshop.

FOR SALE: 100 lb and 200 lb Little Giant power hammer. Both in EC. W.A. Kimbrough, 1542 Green Oak Place, Kingwood, TX 77339 - 713-358-0230 or 2339.

SHOP TIPS AND TECHNIQUES: The following were, for the most part, extracted from other group newsletters. They have been rephrased from the write-up or illustrations for consistency of format. While all are considered to be valid, neither SOFA or ABANA bear any responsibility for any adverse results from their use.

TIPS FROM RUSS SWIDER: (From a demonstration write-up in the newsletter of the New England Blacksmiths' Ass'n)

Russ is located near Santa Fe, which is one of the largest concentrations of commercial ornamental ironwork shop and the home of several well known blacksmiths. As such, he has no time for sacred cows in blacksmithing. We have all seen two or three pound hot sets and accept them as the best cutting tool. After all, they have been in use for hundreds of years. Russ points out that since tool steels have changed in the last few decades, steel tooling can change substantially in response. Russ has chosen three steels for all of his own tooling. He suggests you find a few steels, get to know their properties, and stick with them. Who can afford to stock several sizes of ten different steels? Russ has chosen these:

- For battering tools, dies, bending forks, etc., he uses 1050.
- For cutting cold tools and hot tools of heavy cross section, S-2 Solar from Carpenter Steel Co.
- For hot tools of thin cross section, S-1 Atha Pneu from Crucible Co. This one is an extraordinary steel. Rather than weighing two pounds, Russ' hot cutters are made of 3/4 hex Atha Pneu and weigh a few ounces, making them very easy to drive. They have an incredibly thin cutting edge, yet he splits 1" square with these. The tool sometimes comes out of the cut at a red heat, yet not distorted or dull. He air cools them after forging and never quenches them in use. Instead he sometimes uses two tools, allowing one to air cool while he continues the cut with the other.

He punches the most used of this cutting tools for a wood handle. The handle projects at 45° from the plane of the chisel so the smith's hand is not over the work whether he is slitting or cutting off. Most of his tools he simply fullers with a



spring fuller under the power hammer to accept either a wrapped rod handle or a pair of light link-type tongs which tightly grip the fullered section and are held shut by a ring at the end of the reins. This latter method allows one to store dozens of tools in a small drawer.

Russ makes extensive use of .680 air chipping hammers for hot work. The tooling is very similar to hand punches. When he wants to drive a drift or handtool, he uses an air tool with a large upset on the end with a cup forged into the end of it. Most of his air chisels are made of S-2 Solar which he oil quenches. He does not temper these.

On how he is doing competing against fabrication shops by using traditional joinery he noted, "It's been going well. In fact, several of the major projects in Santa Fe which we bid on against fabrication shops we won the bids. Some of the work, of course, is a compromise. There are hidden arc welds and things like that, but it is not the cut and glue kind of ironwork which is so abundant nowadays. It is still hot scrolls and forged baulusters. Tenons make an important impact as far as the designs go. With good equipment and proper tools like spring swedges for pulling tenons and handheld air hammers for punching holes, you can start to become competitive. We don't always try to be competitive as far as price goes, but when we present our proposals of both designs and price, I make sure I ask the architect if he has seen prototypes from any of the other shops in town so he has a valid means of comparing this difference in price. So even though we're not necessarily always the lowest price, we have been winning bids. In fact, the last job we did we were the highest bidder, but we still got the job because of the samples we brought by."

On what advice he would give to someone who wants to make a living at his type of blacksmithing he noted, "I would say - don't be a follower. If you want to make a statement in anything, take the things which you have learned you feel apply to you and take them a few steps further. I am not the first person to use handheld air hammers to speed up my work. Some years ago I saw someone use one and I have taken it to the point where I have several hundred tools I use with them. By all means don't be a follower. You have to do something different, I think, to be successful, especially in ironwork. At the price of steel nowadays you can afford to experiment and throw a few pieces away if they don't work. You're really not throwing anything away. You keep something in your mind which will help you form ideas later. So scrap isn't really scrap, it's just the dues you pay for learning."

- KEEPING END CUTS: A can full of short pieces, 1" to 4" long of all thicknesses of flat stock angle and square tubing, can be of great help in shimming up projects which need different levels of height. Keep them together in a large can so they don't get thrown away as trash. (By Bill Calloway from the newsletter of the Arizona Artist-Blacksmith Ass'n).

- CLEAN FILE TEETH: You can keep filing from clogging file teeth by rubbing it with a piece of regular blackboard chalk. The chalk dust which sticks between the teeth will not affect its filing qualities, but will keep metal filings from packing the teeth. Another technique involves scratch brushing the file and greasing it with olive oil before its first use. A file prepared in this manner lasts longer, does not become so quickly filled with filings and can be conveniently cleaned with an ordinary rough brush. (From the newsletter of the Kentucky Blacksmith's Ass'n).

- You can use commercial chain to make decorative chain by slipping a single link to the forefront, holding the other two links back out of the way. One half the link is cold forged under the power hammer. The link is turned 180° and the other half is forged, leaving a link which is flattened on both ends and round in the middle. Small chain could be forged like this by hand. (From a demonstration by Manfred Bredohl (of Aachen, W. Germany) as written up in the newsletter of the New England Blacksmiths' Ass'n).

- One tip for those with flat belt driven power hammers which use the belt as clutch with treadle operated idler. In most flat belt applications, slippage is unwanted and the belts have a dressing applied to stop this slipping. With the power hammer slipping is desired in order to give a smooth engagement and a full range of speeds. The trick is to put a little baby powder on the belt. Try it and see the difference. (By Bruce Johnson from the newsletter of the New England Blacksmiths' Ass'n).

- If your hands get really dirty with ground in dirt, try using one of the new non-metallic scouring pads, such as Scotch-Brite or O-CEL-O. Just pour some laundry detergent (not dishwashing liquid) onto the pad and scrub your hands. Dirt, grease, grime and even dried paint will usually quickly disappear without skinning your hands. (Tip from The Family Handyman magazine).

- SMALL TONGS: An easy way to make tongs for small stock is to use 3/8" rod. After determining the length required for the jaws, flatten an area 2" long to one-half thickness. Use a slitting chisel (a chisel which is rounded across the bottom edge, and is tapered at the sides and sharpened all around) one and one-third to one and one-half the diameter of the hole you wish to punch. Drive the chisel about two-thirds through one side at a yellow heat. Flip the stock over, carefully align the chisel over the first cut and drive it through (the stock of the chisel needs to be the diameter of the hole desired or you can drift it further). Now finish and align jaws and handles. This is an excellent method to use for tongs made from small stock or any job requiring a hole without removal of any material which would weaken the joint. (Combined item from the newsletters of the Upper Midwest Blacksmith Ass'n and North Carolina Chapter of ABANA).

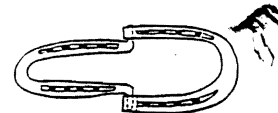
- COLD HANDS AND HAMMER HANDLES: When working in cold weather, put some bees wax on the handles of your hammers, etc. It acts like rosin to keep the handles from slipping when the cold dries your hands out. (By Clay Smith from the newsletter of the Tullie-Smith House Blacksmith Guild).

- TRAVELERS: Everyone who has ever tried to measure curved lines on a plan or piece of ironwork knows the value of a traveler. Engineer's map measures are available at draftsman and surveyors supply houses for \$35 to \$55. However, dual faced map measurers can be obtained through mailorder from International Reforestation Supplies, P.O. Box 5547, Eugene, OR 97405 for \$10.25 plus \$1.75 S&H. Order Catalog Nr. GRS2741, Silva Dual Faced Map Measurer. (By Doug Rochon from the newsletter of the Florida Artist-Blacksmith Ass'n).

- TEMPERING/OIL TANK: A good tempering or oil finishing tank can be made by using a 30 gallon barrel. Cut it lengthwise about 1/3rd of the way down. After you have finished cutting clean edges with a grinder, install two hinges on one side. On the opposite side install a handle. Now hook a chain on both ends to keep lid from going all the way back. A set of legs can be forged and welded to the barrel or a frame made to set the barrel on. A screen basket can be installed in tank to lift in and out to retrieve small parts. This is a very good tank with the length and dept to handle most pieces and it is sale as the top can be closed if the oil flares up. (By Ron Porter from the newsletter of the Indiana Blacksmith Ass'n).

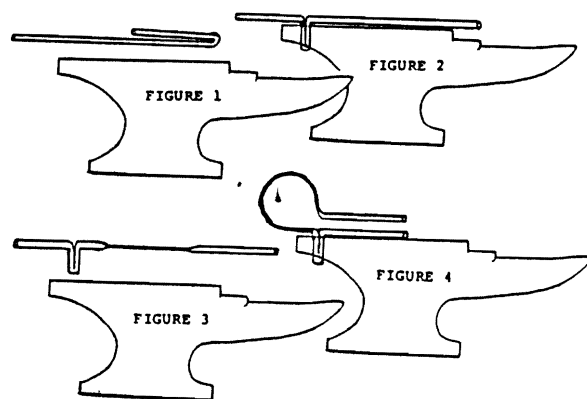
- ALIGNING TRIPOD STANDS: If you've made a tripod stand for something, but you can't get the legs equal so the stand will be straight up and down, try banging the whole stand against the floor (concrete or steel). If you haven't quenched the legs during forging, this should work! (By Mike Shaffer from the newsletter of the Tullie-Smith House Blacksmith Guild).

- HORSESHOE HINGE: An interesting hinge for a stable, etc. can be made from old horseshoes. On one, draw out the legs and fold them over into a sleeve. On the other, adjust its shape to fit inside the first, draw out the legs into pins and bend at 90° angles. Heat center of either shoe, insert pins in sleeves and finish to the proper shape. (Adapted from a photo in Countryside magazine).

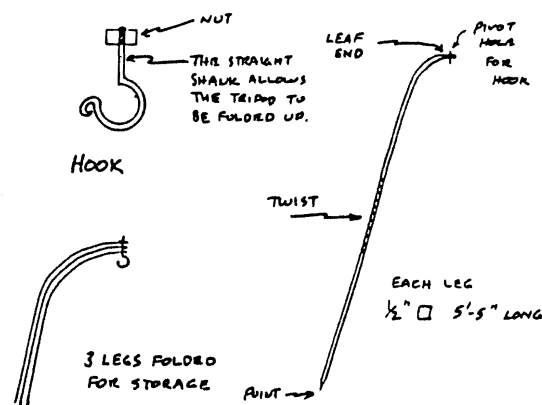


- HOW TO MAKE HAMMER HANDLES TIGHT: Two of the important steps in making hammer handles tight are to shape the handle with a drawknife to fit the hammer head and to soak the head (after putting in the wooden and metal wedges) in antifreeze for two days. The drawknifing is important since some forged hammer heads have weird eye dimensions. The antifreeze will cause the wood to expand and not dry out. (By Wilbur Gaedtka from the newsletter of the Illinois Valley Blacksmith Ass'n).

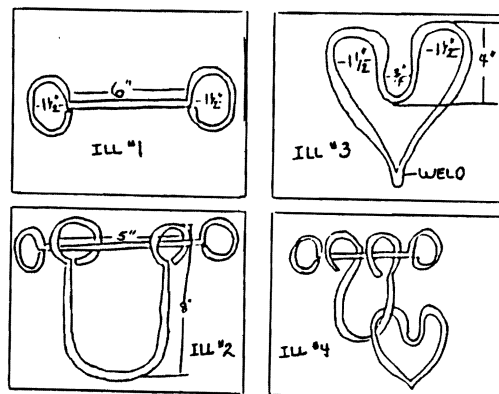
- MAKING A SPRING FULLER: Fred Caylor had me make a  $3/8"$  spring fuller at the blacksmith school held locally. I found it to be a useful tool for top and bottom fullering. However, I also found a need for a larger one, so I made one out of  $3/4"$  round stock 30" long. Heat and bend  $180^\circ$ , 10" from one end. Reheat and forge the bent end to a snug fit for your hardy hole (Fig. 1). Take another heat on the bent end, put it back in the hardy hole and forge it back straight (Fig. 2). Flatten a length for about 12" on the long end. This flattened section will become the "spring" (Fig. 3). Form the flat spring section into a loop on the anvil horn. If one end is longer than the other, you may want to cut off the long end in order to even them up. (By John Cross from the newsletter of the Florida Artist-Blacksmith Ass'n).



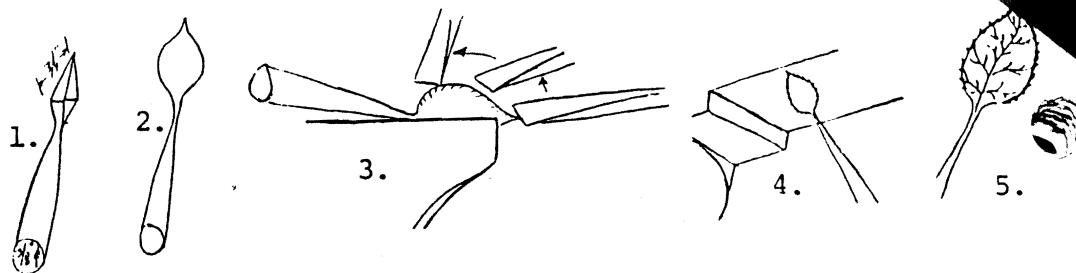
- NORSE COOKING TRIPOD: The design of this tripod is based on the tripod found in the Gogstad Grave Ship. The design dates back to about the tenth century and was still in use during the Civil War. Materials required are three lengths of  $1/2"$  square, 5'5" long. Forge a square point on one end of the bars. Twist the middle of the bars for decoration. Flatten one end of the bars and vein with a chisel to make leaves. Punch or drill a hole through the leaves to accept the bolt for a pivot. Put a bend in the pivot end of the bars to make legs which give a 36" diameter base. Note how they stack on each other - align the holes in the leaves. Cut the head off of a bolt and forge it into a pot hook as illustrated. (By Brent Van Arnam from the newsletter of the Florida Artist-Blacksmith Ass'n).



- THE HEART AND SHACKLE PUZZLE: This puzzle is a simple forging exercise which can be fun and challenging. To make it, you will need three pieces of  $1/4"$  rod: 1 - 15", 1 - 23" and 1 - 36". Illustration 1, take the 15" piece and forge a  $1 1/2"$  I.D. eye on each end. Illustration 2, with the 23" piece, forge  $1 1/2"$  I.D. eye on each end, leaving the bottom of the eye open so the first piece will be able to fit into the eyes. Now heat the center of the second piece and bend it into a horseshoe shape. Place the first piece through the eyes of the second and close eyes. These two parts are the shackles. Illustration 3, the last part of the puzzle is the heart. It is made by heating the 36" piece in the center and bending around a  $3/4"$  rod. Again, heat the bend approximately 4" towards the ends. Cool the bend approximately 1" back. Bend the ends away from each other to form the heart. A bending fork is useful when making the heart. After the heart is formed, weld the ends together. When the puzzle is put together, it should look like Illustration 4. (By Stuart Smith from the newsletter of the Southwest Artist-Blacksmith Ass'n). (Editor's note: the illustrations show the eyes on the second piece open but I believe they touch the shaft).



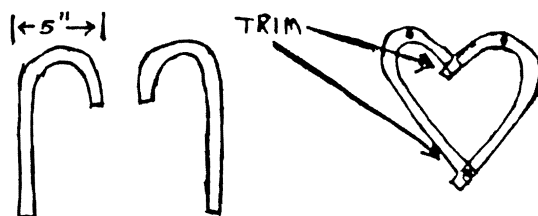
- LEAF TRICK: At the 1986 SWABA State Fair Exhibit, Andreas Mader showed me a trick which his grandfather had shown him for putting "serifs" on the edges of forged leaves. This trick has saved me a



tremendous amount of time in forging rose and other leaves. Start with 3/8" round stock and isolate the leaf mass first. Short taper to a 3/4" point, neck and thin out for the stem (Fig. 1). Forge leaf to 3/4rds of final thickness and finish stem. Stay away from tip of leaf with you hammer so as to leave it pointed (Fig 2). At a yellow heat, clamp in vice, chisel small cuts in edge of leaf (keeping chisel tangent to contour), reheat and chisel the other side. A chisel forged out of H-13 tool steel works best for me (Fig. 3). Heat again and spread to final thickness leaving the center thicker than the edges (Fig. 4). Add center and tributary veins, shape for contour, wire brush to a shine, and wax for a very realistic leaf (Fig. 5). (By Robb Gunter from the newsletter of the Southwest Artist-Blacksmiths' Ass'n).

- MAKING A DRAWKNIFE FROM A FILE: Take an old file - either leave rough or, if you prefer, grind the file smooth. Heat to a cherry red and draw out one handle tang. Important: Do not heat beyond a cherry red as this will cause the file to crumble when hit; do not work the file at a light heat as this will break the file. Reheat and draw out a corresponding tang on the other end. Heat again and curve the file in a slight arc, it will straighten when you sharpen the inside edge. Reheat and form the edge, using light hammer blows. If you hit too hard there will be dents along the edge which will be hard to get out. Heat to a cherry red and air cool. This will return the original temper to the file. Grind the edge, being careful not to get the edge too hot as this will ruin the temper. Make handles for the tangs and the draw-knife will be complete. (From a demonstration by Stan Strickland as reported in the newsletter of the Appalachian Area Chapter - ABANA).

- TWO PIECE HEART TRIVET: Start with two pieces of 1/4" x 1" x 16" flat stock and forge a 1/2 circle with a 5" outside diameter on one end, using a bending fork. After forming the first piece, make the other to match using the first as a template or form. Lay the two pieces in a heart shape, grip the bottom with something like a vice grips, and forge weld the upper overlap. When welded, do the same to bottom overlap. Trim off any excess on the overlaps after welding. The feet can be formed in any design you wish. They are placed at the point of the heart and at the top of each side. (By Ron Porter from the newsletter of the Indiana Blacksmithing Ass'n).



Trim off any excess on the overlaps after welding. The feet can be formed in any design you wish. They are placed at the point of the heart and at the top of each side. (By Ron Porter from the newsletter of the Indiana Blacksmithing Ass'n).

- WISE-GRIP TONGS: Dan Boone advised welding on a small section of angle iron to the lower jaw of a pair of vise-grips. This gives a terrific grip to hold on to round rod from the end. Use a stainless steel welding rod and remove the spring from the pliers before welding so you don't de-temper it. (From the newsletter of the Mid-Atlantic Smith's Ass'n).

- When I worked with Pete Happny last summer, I noticed he had some aluminum vice jaw covers. He said, "Make friends with them". I didn't then, but I have now! They don't leave those ugly marks on your hot metal. Take 3/16" thick or so aluminum and bend it over both jaws. (From the newsletter of the New England Blacksmiths').

- Old straight jaw tongs are plentiful but hardly seem to get used. Take them apart, draw out the ends, forge them into different shapes, and you have useable tongs cheaply. (By Dave Little from the newsletter of the New England Blacksmiths').

BEFORE THE ANVIL RINGS (by Jerry Hoffman from the newsletter of the Blacksmiths' Ass'n of Missouri):

As artists (or designers) we must take our inspirations through a process which refines that fragments of a composition until it becomes a complete design. Putting thought on paper in the form of sketches brings clarity to what we have imagined. A blacksmith with drafting skills can greatly increase his or her potential for transforming ideas into reality; recording these ideas leads to further inspiration so that successive layers of design can mature into new concepts.

A designer/blacksmith has the ability to see and move towards a complete composition. This gives him or her the motivation to work towards that end. However, details which are unclear need to be worked out through a series of drawings before work can begin.

First, ideas are quickly recorded in sketches showing mostly structure. Once an idea has been satisfactorily worked out, more detail and embellishment can be added to the sketches. These sketches can be shown in third dimension to capture the look of the finished product. Engineering details can be worked out at this point by showing cross sections and relevant views of the object. Once the design comes together, a rough mechanical or architectural drawing can be made. It is drawn to scale within the framework specified by the project requirements. It also enables the designer to view the composition in its entirety, and correct errors not seen in previous sketches.

For the artsmith, sculpture or traditionalist, drawing need not always be as exact as those used by the architectural smith. The number and accuracy of drawings depends on what works best for each individual. However, one must stay within specific guidelines when drawings are required by architects, contractors or clients.

#### DESIGN CONCEPT:

Generally, our composition in ironwork stem from technique. It is the way in which various elements interweave and fit together which make a piece unique.

The first sketches are like "test pieces" made in the shop. They are made quickly with little detail and show a variety of possibilities. These sketches are redrawn from the originals and show some of the ideas which worked. The concern here is not to make a fine drawing, but to show the trial and error progression of ideas which lead to the final design.

#### DRAFTING:

A rough drawing is made to scale at this point in order to work out the final details. These drawings are made on a drafting table using architects' (divisions in feet and inches) or engineers' (divisions in inches and 16ths of an inch) scales. They may be used as shop drawings if finished drawings are not required by others.

The finished drawings have all of the curves and shapes accurately drawn so that they may be easily transferred to full scale on the layout table. Dimensions are kept to a minimum so that only those necessary for completion of the project are shown. These drawings should be on drafting paper.

Most drawings show one or two views of the assembly, and detailed views of various parts. The assembled view gives general dimensions and is void of hidden lines and excessive detail. The detail drawings show parts and assemblies requiring detailed information.

#### ASSEMBLY SKETCHES:

It is sometimes helpful to sketch the order and way in which a piece will be assembled. These sketches are for the blacksmith to refer to during forging and assembly. They make it easy to keep track of progress and minimizes confusion and error. Notes can be recorded on these sketches during assembly and used for further reference.

#### FULL SCALE DRAWING:

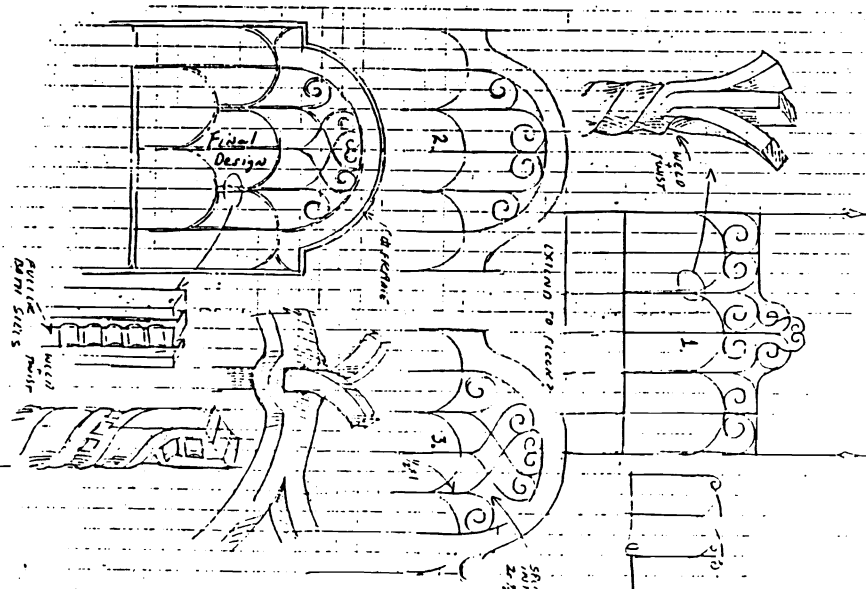
Drawing to full scale on the layout table marks the official beginning of a project. Light colored pastel pencils work very well for this - they make very consistent lines on steel, and are easy to resharpen. Square grids transferred to full scale from shop drawings makes plotting curves easy.

This brief outline is not intended to be a step-by-step guide to drawing, but rather an example of one way to organize project drawings.

The fundamental purpose is to explore media of expression which help us to become artists, and move blacksmithing towards acceptance as a true artistic technique.

It is aptly stated in a quote by Otto Schmirler: "Who is an apprentice? Everyone. Who is a journeyworker? One who has skill. Who is a master? One who creates."

Example of preliminary sketches. Note transition of idea (single bed headboard) through three stages.



(This headboard won first place at the 1985 Juried Exhibition, Sloss Furnaces National Historic Landmark).



# A Polar Bar with Francis



gate  
During the workshop at Lost Valley, Francis took time after lunch one day to answer some questions for us. He gathered us together and handed out Polar Bars (ice cream sandwiches). He is such a clear speaker, that we were able to transcribe this for you here with almost no editing.

Sit down--don't be scared. Sit in the front row.

John has some questions: How to get more done in the course of a day?

You have to have your shop organized so you know where every thing is. You have to have good tools. You have to have a good supply of steel and a good rack. You have to have good working conditions and a good layout table if you're talking about a job like this.

What I do on any job like that; if I'm not sure, like that scroll, I make a test piece. I measure the length of the piece that I'm making the test piece on and I write it down. Then I can go back and say it takes so much material to make this test piece and that is a reference thing.

Question: Do you keep that as a notebook then, or do you just do it for each job?

I can go back thirty years. If somebody sees a picture of a candelabra they want, then I've got every piece listed and I have all my time listed on it and the weight of the material, then you translate that for inflation and you know what it costs.

When I start on a job like that, I would have every single piece listed before I cut any of them. When I cut them, I would cut them all. Then I would forge them all and then I would either forge weld them together or I would fit them together. That way you can do all your forging at one time and you get a better picture of what you are doing. You don't wind up having eight collars when you need sixteen, because you've taken it all off the full size drawing and listed it.

You go to the shear once or to the cut-off saw once and cut up everything. If it's real complicated you can number it, even if you stamp it with numbers, number your parts. If I'll lose that the first time we wouldn't have had the max up on the length on some of those scrolls. If you find yourself running back to the forge and to the steel rack and to the shear half a dozen times, you're not going to get as much work done as if you had everything organized.

And if I'm a tyrant about tools, I'm a tyrant about tools, because tools are what enable you to do the work. If your tools are not good, your work isn't going to be good. It's just that simple. (Otto) Schmirler has a wonderful book on tools. Maybe some of you have it.

But you have to look at these things closely. When somebody comes into my shop to work with me, half the time I'll say, "You need a magnifying glass to look at this and see the difference between what you're doing and what I'm doing." Sometimes it's that close a point. To go back to the bending fork: sure you've

got a bending fork, but it's not the way it should be and the way it should be makes a difference in how your work turns out.

Next question, how to proceed through a long project? I think I've covered that. If you've got any questions about the first two items?

Question: On this job, would it have been better to put the layout table nearer the center of the shop?

To go back on forging those scrolls or any other scrolls, if you will mark on the layout table the various stages you go through: the first taper, the first curve, the finish curve; then you can go back and you can forge another piece just like the first piece, because you've got a pattern to go by. If you don't, if you go ahead and make the whole piece and you start the next one, you don't remember or you have no guide to know 'Just how much did I taper it, how long did it get, how thick was it?', or the curve before you start to flatten it and scroll it around. You have to be systematic and accurate.

My layout table is as far away from my forge as this one is, because I added onto the shop, it wasn't big enough. But I have back where the layout table is, a fifty pound bench anvil and I've got a vise bolted right on the end of the table, so I can work there very efficiently.

Modern versus traditional methods: The methods we're using on this gate are what's been used since 1850. You can use some of the modern techniques. My rule is: I'll use all the modern things I can as long as it does not influence my design. If you can use the cutoff saw and the arc welder and the acetylene torch for specific reasons and it doesn't influence your design and you turn out good work, go ahead and use them.

So often you see things designed you can't make with traditional methods. So if you want to go into fabricating, go into fabricating. If you want to be an ornamental artist blacksmith then design your work so you can do it with the forge and the anvil and the collar and the tenon and the rivet and the forge weld. As you can see and I can see, going around the country, there is no limit what you can do using the traditional methods. You are limited by your own imagination and your own ability. You look at the people like Eric Moebius, or Tom Joyce, or [Gerakaris] Dimitri or our friend over here in the orange shirt [Jerry Hoffman], he's come up with an original design. He uses traditional methods.

Business Practices? I hope you noticed when the little gal at the restaurant brought that extra sandwich out and gave it to John and said, "That's my mistake." You pay for your own mistakes. Don't try to charge the customer for your mistakes. Pay for them yourself.

Until you get better than I am, you'll always have something that's learning time, making test pieces, making mistakes. You'll never get rid of the fact that you don't know it all and you never will. So maybe half your time, when you start in, will be learning time. Mine is a very small percentage. Like that big curved railing, I spent a whole day working out ideas, working out the problems. This goes back to the beginning question. If you don't work out the problems before you start the job, they are going to come up and trip you from behind. You've got to work them all out and that means all of them. You have to study your work and figure 'How am I going to make this, how am I going to put it together, am I going to leave those little horseshoe things on the shaft or am I going to leave them off?'. That's why at Yellin's we had a written contest when we got all the pieces made. We had a written exam to see who could say which piece goes first, which comes second, which comes third, what the sequence of putting things together is. If you're making all your parts and it's hard, with a dozen people making different parts, if you make all your parts, you have a picture of how it goes together. You save yourself a lot of time that way.

Question: How many people were working at Yellin's when you were apprenticing there?

Two Hundred. He had them all working to a degree you can't get now-a-days. Because I was one of the young apprentices, I was told, I wasn't asked, to come in half an hour early, clean out the forges, and when I learned to build a fire without a lot of smoke, I was allowed to build the fire, get the tools ready for the job, have the drawing there, know which tongs or some of the tools we had to get from the stockroom, go to the stockroom. That was an extra half-hour. Then when the smith came in, hit the time clock, and came to the forge, everything was there. He worked eight hours a day for eight hours pay. You can't get that any more. I averaged six productive hours.

I think maybe I've told you, I've told it so many times, about one of the top men in Daniel's Construction Company, with 45,000 employees, figures four and a half hours, productive hours, per man. That's three and a half hours down the drain. A lot of this goes back to starting off right. If you start off on the wrong foot, you're in for trouble.

I've found, again modern versus traditional methods, I can make a forged tenon and riveted railing as economically as someone can do it with the arc welder and it's better. Because most of the ones you see, they don't grind, chip the slag off, they don't take the berries off. Where the rail warps where it's welded, they don't straighten out the welding, the warpage. Mine is straight and true, just like that railing I showed you from New Zealand.

Business practices: Oh, There's so many things to learn! I imagine you have lots of problems in business practices. You know it's so hard for a small shop with two or five employees. You have to have a bookkeeper to keep track of everything. Your overhead now is, with Social Security, and Unemployment Insurance, medical care and paid holidays and paid coffee breaks. It drove me crazy, I gave it up, I refused. I took the same kind of oath You're going to take, to hell with all the red tape and all the non-productive stuff that you have to do. For instance, Worker's Comp. I believe in. I believe workers should be protected. My insurance company said, "We can't handle this anymore, you'll have to go to the state compensation fund." So I went to the state. About a year later I got a notice that said, "All directors of all corporations must now be on the payroll at the rate of \$13,500 a year minimum." Portia's a director. A very good friend of ours who runs a restaurant, is a director. He never comes near the shop except to buy something. But I had to carry him on the payroll at \$13,500 a year and Portia the same way. I could see our Workers Comp. going from \$400 to about \$1500 a year, absolutely no reason. So this is what your are up against. If you can work by yourself or if you can work out a partnership, you can avoid a lot of all that red tape.

You have to buy your material efficiently. I buy mine five ton at a time, minimum, because I get a better price than I do on 2000 pounds or 1000 pounds or 500 pounds. The money I save will pay for the freight.

Then I have enough in my steel racks so almost any job I do, I can pull it right out of the rack. Make a note of it on the want list and when it gets up to 5000 pounds, order another batch. Once you get there it's easy to keep your stock up. I'll admit it takes quite a bit of capital to do it in the first place. Buy your fasteners in bulk, buy your rivets in bulk. I buy welding compound in hundred pound drums, because I have to pay a hundred pounds minimum to UPS. Any of those things you can buy efficiently, buy them. Sure it takes capital, but once you have them, they are paid for.

Advertisement and publicity: I've advertised, I think, about six times during my career. Your best advertising is your work and your customer relationship. One of the best ways I've found

to get good public relations, if someone comes in with a job like that, and you don't know what it's going to cost because you've never done one quite like it before, you figure out your material and you figure out your time, I do that and then I add ten percent. I give the person a guaranteed top price. 'Your gates will not cost over \$2400.' If you can't estimate within ten percent you haven't had enough experience. If you tell someone, "Your gates will be \$2400, and you do it for \$2320, they'll never forget they got a first class job for less. Don't ever ask anybody for more money. Swallow your mistakes. The more you swallow the less you will like them. The better estimator you'll become.

On a big job, you should get a down payment, a progress payment, twenty-five percent, thirty-three percent and final payment within thirty days. I don't worry about that any more because the people I deal with say, "Mr. Whitaker, will you do this and send me a bill?" The only people I have problems with are the locals. When somebody comes from out of town and says, "Will you take my out of town check from Kansas City?" I say, "I'll be delighted. The only checks I'm afraid of are the locals." And that's the truth.

Money and Art: There's plenty of money for good craftsmanship and good artistry. I was talking to one of my friends and I said, "I just can't imagine anyone paying \$10,000 for that fifteen foot railing." And she said, "Why not? People pay \$25,000 for a painting to hang on the wall. Why shouldn't they have a good example of good craftsmanship?"

There's lots of room at the bottom for poor work, poor design. The top is very, very lonely. If you can get to the top, you can command your own price. In between, it's a struggle. The better work you do and the more you apply yourself, the more you learn from your mistakes. The better you organize your shop, the better tools you have, the better craftsman you'll be and people will appreciate it.

The quality is where the market is. All the years I've been doing this kind of work, there's always been enough people who will pay the price for quality and appreciate it. That's my advice. I think the architectural field is the best. When they see something ready-made hanging in your shop- I have very little to show- if they see a lot of things hanging on your wall, they expect a ready-made price. If you have just a few pieces to show the quality of work you do and good photographs, you get a different clientele, people who are looking for quality and don't know where to get it.

Let's finish the job.

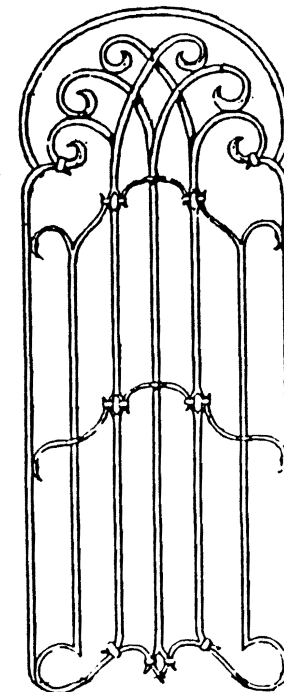
LOST VALLEY LAKE RESORT

OWENSVILLE, MO.

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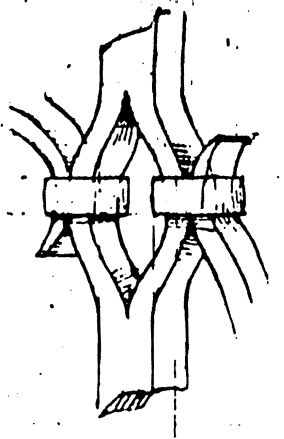
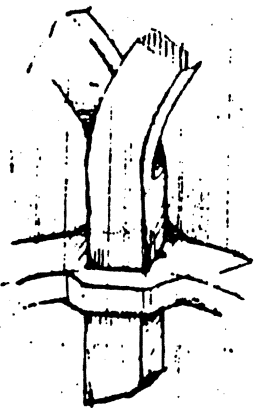
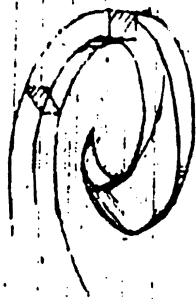
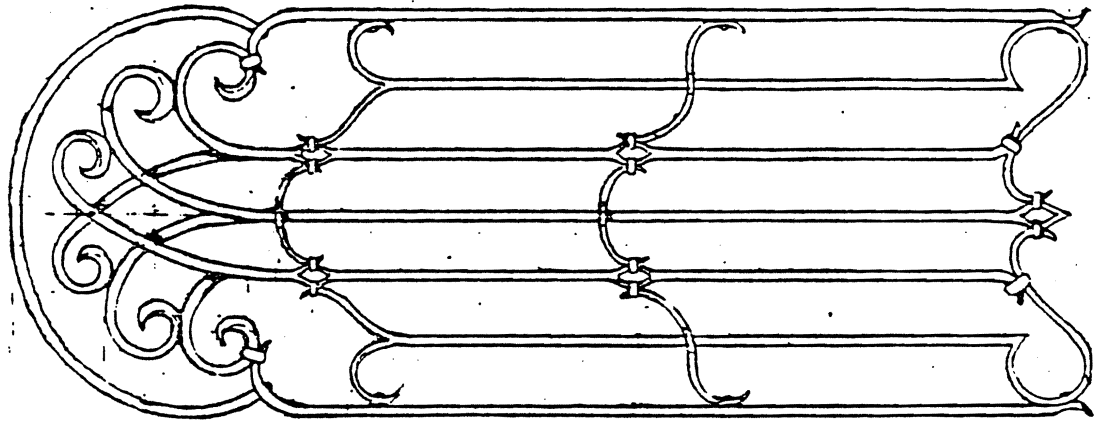
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BLACKSMITH ASSN. OF MISSOURI

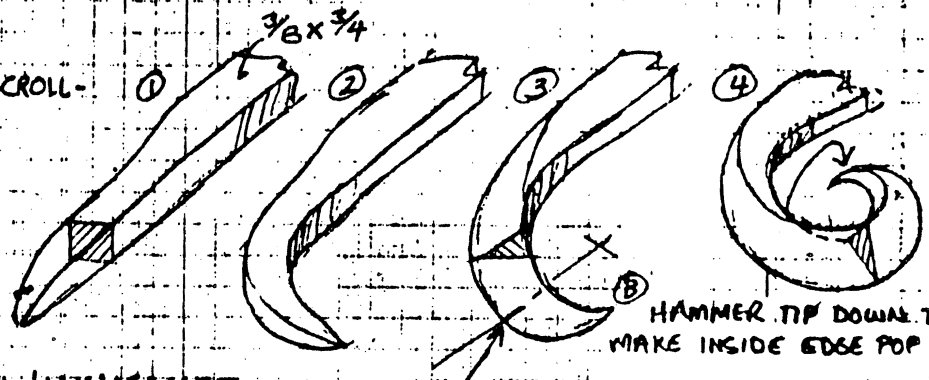




(FRANCIS WHITAKER GATE PROJECT with the Blacksmith Ass'n of Missouri. Gate design by Jerry Hoffmann for the Lost Valley Lake Resort)

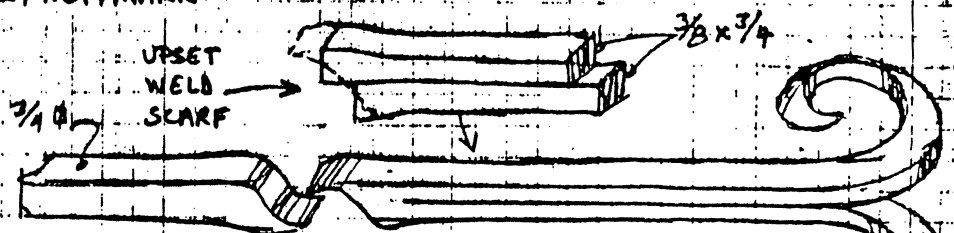


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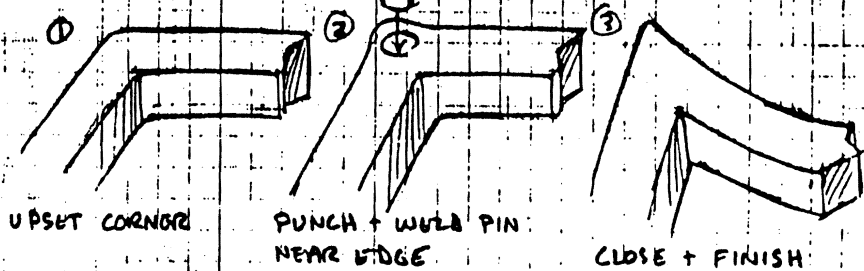
LVL/WHITAKER  
WORKSHOP NOTES  
DESIGN BY  
JERRY HOFFMANN

① SCROLL W/ OUT OF SQUARE  
BLOWS TO MAKE IRON  
SPIRAL AWAY FROM HAMMER



- SCROLL TO BALUSTER WELD -

- WHITAKER SHARP CORNER -



UPSET CORNER

PUNCH + WELD PIN  
NEAR EDGE

CLOSE + FINISH



## How Not to Finish a Knife

On December 8, 1985, I was finishing a knife intended as a Christmas gift for my brother. I was in the process of stamping my logo on the end of the handle. I had to lift the blade tip slightly in order to rest the tapered end of the handle flat on the anvil face. I did this by resting the tip of the blade on my right thigh. When I struck the metal stamp the knife squirted out between the stamp and the anvil and drove through my leather apron into the upper inside of my right thigh. The blade penetrated 3½ inches and cut across the grain of the muscle. All that was sticking out was the handle!

A trip to emergency and then to Swedish Hospital resulted in surgery requiring an additional 3 inch incision to access and stitch up the bleeding vessels. Shock set in a couple of times, especially when the doctor at Swedish stuck his index finger all the way into the wound. (He had assumed that the emergency center in Castle Rock had deadened it. They had, but only the surface.) Three days in the hospital, a lot of limping and \$2,500 later I can report that, except for some minor nerve damage, I am OK.

Thanks to my daughter Echo, who drove me to the hospital, I made it. Also, if the cutting edge of the knife had been facing left instead of right, it would have severed the femoral artery and I wouldn't be here today. Because of this incident I am having an apron made with chain mail on the inside and a light layer of leather on the outside that covers the area from my navel to just above my knees. It may sound funny but believe me, the accident was not. The lesson here is **THINK AHEAD, BE CAREFUL, STAY SAFE!**

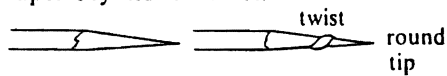
*Ray Rantanen, Iron Anvil Forge  
Castle Rock, Colorado*

## A Truly Talented Fireplace Poker

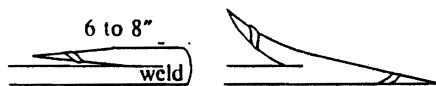
Some years ago, I came up with a poker style which has since become my favorite. It has a "talon" end which can pull logs at the back of a fire forward and also push logs at the front towards the back. Traditional poker shapes aren't as well suited to both of these tasks. The following steps show how to make a talon poker and offer some variations that turn it into a traditional or other style poker.

1. Use ½" to 1½" round or square stock. Square taper the end gradually about 3 or 4 inches. Put a ¼ turn

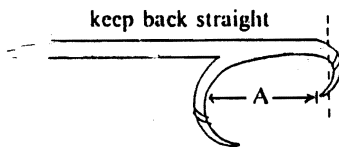
twist about 1 inch from the end for decoration. Round out the tip of the taper beyond the twist.



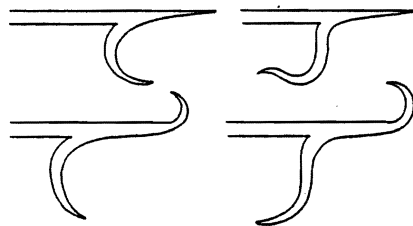
2. Fold 6 to 8 inches of the end back on itself; heat, flux and fagot weld about 1½" of the bend. Draw the weld out to a nice, continuous taper. Put a twist in this new end and round out as before.



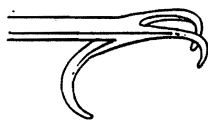
3. To make a talon poker, bend the tip over the anvil horn and then curve the backwards-facing point forward. The distance between the front tip and the curve of the back talon (A), depends on log size and the angle the poker will be used relative to horizontal. The front tip should barely point back toward the handle; just past the vertical centerline. Don't curve the point of the back talon too far forward. It should extend well below the front tip so logs can be pushed without interference from the front tip.



4. Variations are possible after the weld and second tapering are complete.



5. A double clawed end on the talon poker can be made by flattening the end during welding and then splitting it and drawing out two separate end points. This style looks nicer and works well with coal fires and as a clinker remover.



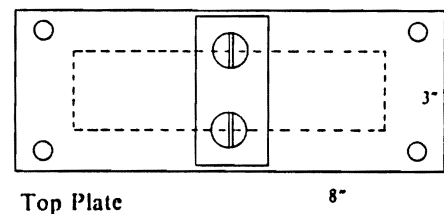
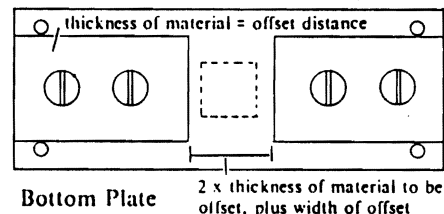
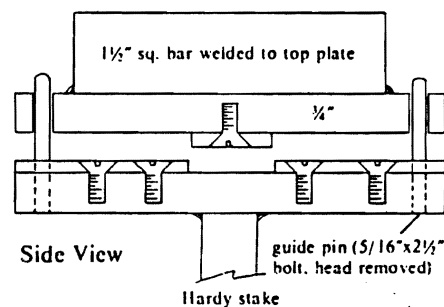
*Ray Rantanen, Iron Anvil Forge  
Castle Rock, Colorado*

## A Universal Offsetting Tool

We have here some drawings for a universal offsetting tool that has not been thoroughly tested but has worked well with the ¼"x1½" stock that has been run through it. The theory is that the plates can be changed to accommodate a variety of offsetting requirements. The limit of the tool shown here would be a 3½" offset on a 2" piece of strap. If your requirements are for larger material, then build the tool from wider stock.

### Material List

- 1 - 1½"x1½"x6½"
- 2 - ¼"x3"x8"
- 1 - hardy size x 4"
- 4 - 5/16"x2½" machine bolts, heads removed
- 5/16" machine bolts



It is important that the tapped holes for the offset plates are carefully centered for ease of making future plates. The hole spacing should be easily reproducible, even, round measurements.

I was worried at first that the machine screw heads would leave an impression on the material being offset but this did not happen.

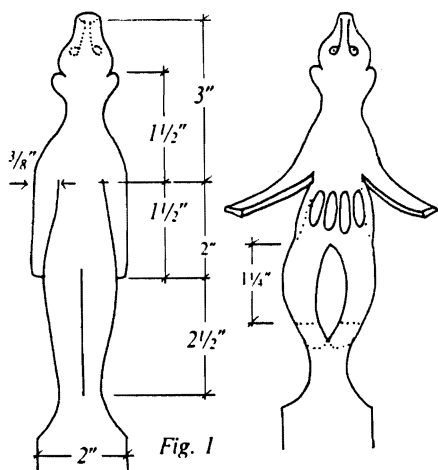
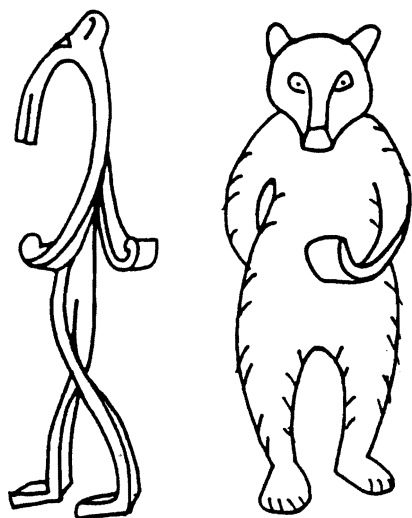
To use the tool, mark your stock 4" from the center of the offset then slide the heated bar between the two plates of the tool until the 4" mark lines up with the edge of the tool. Center the

strap in the tool so the offset is square and then give the tool one good blow in the middle. Voila, you have an offset!

John Hoffman

## The Schmirler Dancing Bear

The plans for this whimsical dancing bear were sent to Ken Hambel by Richard Pozniak in Chicago.



Using  $\frac{1}{4}$ "x2" flat-stock, cut the bear out as shown in Figure 1 with a hot chisel. The upper part of the bear is completed while still attached to the parent bar. Cut the bear's nose wide and hammer it sideways to thicken the end. Use a cross peen to widen the body at the midsection. Open the bear's back legs out sideways by drifting with a punch. Apply hair marks to the edge of the body and legs with a slightly curved, fine, punch-like fuller. Use other small tools to apply details to the face and then bend the head down so that the ears remain erect. Bend the front legs forward or backward and form paws by forging

down the ends. Cut the bear from the bar and bend the feet at right angles to the legs. Bend the legs, neck, midsection to suit the personality of your dancing bear.

## Mark It!

One of the most frequently asked questions when I am demonstrating is "where did you get your stamp?" I designed a simple logo a few years ago to mark my work and drew it on the back of a business card and sent it to the Henry A. Evers Company. The logo consisted simply of an anvil with my initials inside, and I included some dimensions which, I think, were  $\frac{1}{4}$ "x $\frac{1}{2}$ ". In about a week, I received my stamp and it was of outstanding quality. They had transformed my crude drawing into a tool that fit my requirements exactly and that was a damn site better than my drawing!

I have been using this same stamp for over five years now, and it is still as good as new. Well, almost. I did screw up once and stamped a piece of H-13 that was not quite hot enough and it widened the horn of the anvil a bit but not enough to require a new stamp.

Most of the time I mark my work cold but it is perfectly acceptable to stamp hot iron. Another hint; braze over the mark and then file it down and your mark will appear in the color of the filler rod.

To get your stamp send your requirements along with a sketch to Henry A. Evers Co., Inc., 72 Oxford Street, Providence, RI, 02905, (404)781-4767. They will send you an order form and price quote for your own personal stamp.

Ken Hambel

## Book Review

by Ray Rossi

*Methods of the Artist-Blacksmith* and *Artist-Blacksmith Illustrated*

Those of you wishing to add to your library of blacksmithing books should consider two excellent books by Wolf. The first, titled *Methods of the Artist-Blacksmith* (German title *Kunstschmiedelehraxis*) is 80 pages in length and contains 152 photographs illustrating techniques for making leaves, candle holders, hinges, flowers, ears of wheat, birds and door handles. The second, titled *Artist-Blacksmithing Illustrated* (German title *Kunstschmieden in Beispielen*) is 132 pages in length and contains 340 photographs illustrating

the techniques used in making decorative twists, a rose, fireplace tools, window screens, collars, human figures, clothes hooks, drapery rods, lanterns, tables, and numbers and letters.

The text of both books is written in German and French which is only a minor inconvenience as the required process for making the various items is illustrated in a step by step manner with excellent black and white photographs.

Both books are available from:

Norman A. Larson  
5426 Highway 246  
Lompoc, CA 93436  
(805) 735-2095  
(after 5 pm)

*Methods of the Artist Blacksmith* \$15.50

*Artist-Blacksmith Illustrated* \$20.95

Postage . . . \$1.35 for the 1st book,  
\$.45 for each additional book.

## Nol Putnam on Anvils

Much is made of square corners, of how to redress the anvil, of what rod to use, and how the devil do I get it true again. Yes? It is more important that the anvil be correct for you in size. That you feel comfortable around it. Take the time to make a good set of hardy tools. These should include a squared hardy tool - large enough not to bounce, with edges ground to different radii.

In our shop, each of us is now working on the Swedish Kohlswa. Mine is five years old, Dave's is about three, and Claudia's is brand new. We worked them very gently for at least two years; never with cold stock, for they tended to be a little soft from the factory, but they work hardened very well.

We are all right-handed and all our horns point to the right. It drives traditionalists crazy. But it sure is easier to work things around the horn - you don't have to lean across the anvil and to the left to see where things are going. And second, with fear and trepidation I ground the leading edge of the far side of my anvil to a good  $\frac{1}{2}$ " bevel back three inches from the "so-called" cutting plate. (This from Bill Gichner.) When putting a sharp bevel on a piece I need not fear if I miss, for neither the anvil nor my hammer will be dinged.

The newsletter of the Blacksmith's Guild of the Potomac, February, 1986

**QUALITY**

**BLACKSMITHING**

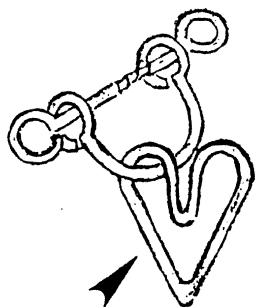
— is like buying oats —

If you want nice, clean, fresh oats,  
you must pay a fair price;  
however, if you can be satisfied  
with oats that have already  
been through the horse,  
that comes a little cheaper!

RG.

## IRON PUZZLES

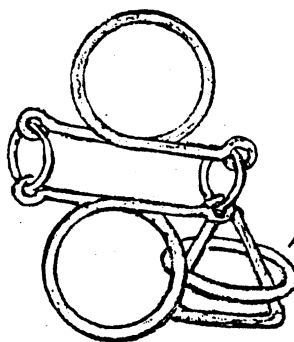
### Designs available:



#### **Iron Heart**

One of the earliest and most common forms of hand-forged puzzles. The heart motif is from the Pennsylvania Dutch influence.

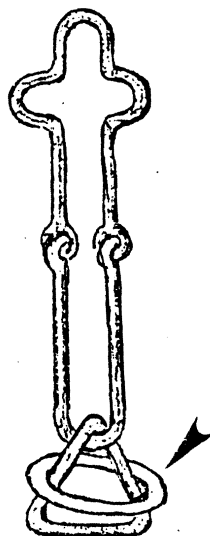
*Object:* Remove heart.



#### **Lyon's Loops**

Original found in private collection, Philadelphia, PA. Named after famous 19th century blacksmith, Patrick Lyon, c. 1840.

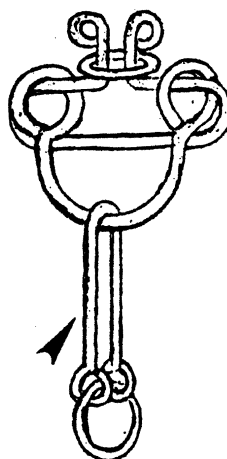
*Object:* Remove large ring.



#### **Conestoga Playmate**

Original artifact is in the collection of the Pennsylvania Farm Museum at Landis Valley, PA, birthplace of the Conestoga covered wagons.

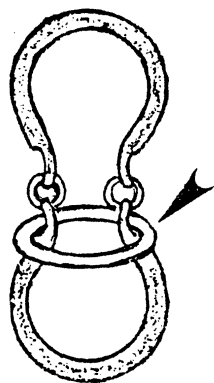
*Object:* Remove ring.



#### **Satan's Stirrup**

Developed by a contemporary Long Island blacksmith. Only a fiendish mind could develop something like this!

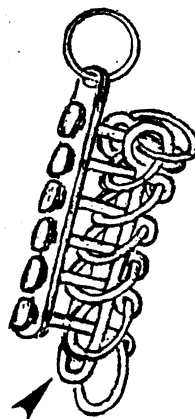
*Object:* Remove long, U-shaped round-stock bar.



#### **Shackled Ring**

Patterned after simple leg irons once produced by blacksmiths. This puzzle is not as simple as it looks; the real test is getting the ring back on.

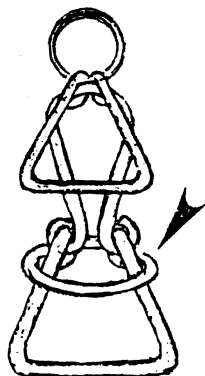
*Object:* Remove large ring.



#### **Patience Puzzle**

Centuries old, probably of Chinese origin. A real challenge; the name implies what is necessary to solve this puzzle.

*Object:* Remove long, U-shaped bar.



#### **Iron Maiden**

According to 18th century harvest customs, the last bit of wheat from the fields was shaped into the figure of a girl and was called "the maiden of the harvest." Here she is in iron.

*Object:* Remove large ring.



#### **Display Stand**

The mahogany base stand can be used to highlight individual puzzles as interesting examples of American folk art. The stand is compatible with all the Tavern Puzzles.

*Object:* Hang any puzzle from hook.

(From the newsletter of the Michigan Artist-Blacksmith Ass'n)

(20) The Above are available From Blacksmith DENNIS SUCILSKY, TUCKER-JONES HOUSE, 9 main st., SETAUKET, N.Y. 11733

- SAFETY TIPS BY FRANCIS WHITAKER: (From the newsletter of the Appalachian Area Chapter - ABANA)

- All black iron is hot until proven otherwise.
- Do not saw or drill hot iron.
- Paint ends of all steel other than mild steel with identifying color.
- Wear eye protection.
- Tongs are better than gloves, but must fit the work.
- Use extreme caution - flying work pieces are dangerous.
- If you hand anyone a piece of metal hot on one end, pass the cold end or use tongs.
- Give warning of forge welds.
- Don't quench steel and put it in the scrap pile, let it cool on the floor.
- Don't quench your work except for special reasons.
- Keep hot pieces on the floor and cold pieces on the bench.
- Always use the back of the hand to check for heat before picking up any piece.

If you use your palm side, the natural tendency is to close your fingers around the piece.

- When cutting with a chisel, either hot or cold, beware of flying pieces. They are almost like bullets. Cut almost through, then break off.
- Keep heads of striking tools free of battered edges which can break off and fly.
- Don't use the anvil table for cutting, it is used for tapering of flared work.
- Use a small block (e.g., 1/4"x3"x3" or 1/4"x4"x4") on top of the anvil for cutting.

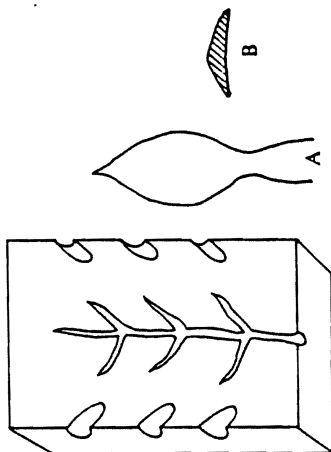
- Long twists and tapered twists: The ideal way to get an even twist in a bar is to get just the right, even heat, so little or no cooling is needed. However, on a long twisted tapered bar, there is no correct heat, and difficulty is had in blending the heats together. I recently had occasion to twist a number of tapered bars, four feet long, tapered from 7/8" square at one end to 1/2" square at the other. Instead of using the traditional method of cooling the part which is twisted enough and continuing the twisting with rapidly cooling metal, I tried applying local heat with a large acetylene tip. The results were miraculous. Instead of having to heat rapidly, with the addition of local heat, I could easily complete this difficult twist. The heat can be applied to just one single twist, or spread to cover a larger area. The results were a beautiful, even twist throughout the entire length, with still enough heat to straighten the bar. Perhaps not all know the trick of straighten the twist by using the vise. Mine has six inch jaws, which is good for that purpose. With a smaller vise, two pieces of heavy angle iron, six or more inches long, make excellent straightening jaws. Put material on the diamond first, then on the square for the final straightening. (By Francis Whitaker from the newsletter of the Appalachian Area Chapter - ABANA).

- Welding Tips: 1) you can weld anything with Fleetwood 180, 2) if it's worth welding, it's worth cleaning and painting, 3) if it doesn't look right, grind it out and do it right, 4) cleaning before welding pays off, 5) the thicker the plate, the more likely you are going to get cracks, 6) the thicker the plate, the more you should preheat, 7) when welding thin gauge material, don't make the welds too big!, 8) when welding thick plate, don't make the welds too small, 9) don't be too proud to use a grinder to remove a defect or to pretty it up, 10) never knowingly make a bad weld, 11) with the right size pipe, the right size hammer, and Fleetwood 180, you can build anything, and 12) be careful, don't violate good safety rules - welding can be dangerous to your health. (By Jerry Hinkel, a 43-year employee of Lincoln Electric, as reported in the newsletter of the California Blacksmithing Ass'n).

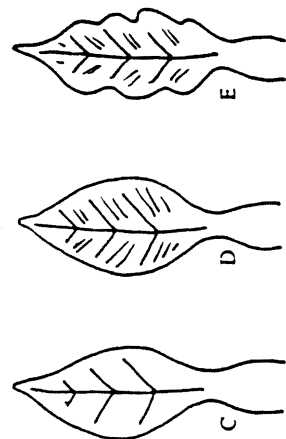
- Rubik's Twist: Starting with 5/8" square stock, cut an even number of hacksaw cuts 1/16" deep all the way around and 5/8" apart, laying out the cubes. Cut into the corners to round out the cuts and to avoid a shear plane when twisting. Bring to yellow heat. Clamping end of rod in vise, twist the first cube 1/8th turn. Holding that cube in place with a second wrench, twist the next cube 1/8th turn. Hold wrenches close together and avoid deforming cubes. Holding the last cube turned, proceed down the rod until all cubes have been turned. With an odd number of cubes, the square stock will line back up. (By Francis Whitaker from the Appalachina Area Chapter - ABANA).

## Leaf Jig

Illustrated in Figure No. 1 is a jig for raised-vein leaves. It is made by cold chiseling the center veining with the branches coming out. The little notches on the side are ground in and this one is made to fit the hardie hole on the anvil. Figure A with a  $\frac{3}{8}$ " rod, makes a leaf as shown. Figure B shows a cross section with the center raised.



Take a good bright red heat and lay the leaf, straight on your jig, raised side down. Give it several good blows with the hammer and you will have Figure C. Take another light heat and with a real sharp pointed hammer make lighter marks on the edges as indicated in Figure D. Take another heat and lay the edge of the leaf on the ground out spots on the jig and hammer leaf into the hollows. This will make the wavy sides of the leaf as in Figure E.



(By Paul Hubler, reprinted from the newsletter of the Upper Midwest Blacksmiths Association, Feb. 1986)

## TOOLS OF THE TRADE

PIONEER HOMESTEADERS BUILT THEIR HOMES WITH ONLY A FEW TOOLS. THE MOST IMPORTANT OF WHICH WAS THE FELLING AX.

THE FORGED IRON AMERICAN FELLING AX HAD A HEAVY POLL, A SHARP LIP, AND A STEEL CUTTING EDGE. THE HAFT (HANDLE) WAS STRAIGHT AND USUALLY ABOUT 3 FEET LONG. THE AX FELLED THE TREES.

THE LOGS WERE HEWED (SQUARED) WITH THE BROADAX. IT HAD A WIDE BLADE WITH A SINGLE-BEVEL EDGE AND A REVERSIBLE TWO-FOOT CURVED HAFT.

THE ADZE FOR SMOOTH FINISH WORK (FLOORS, ETC.)

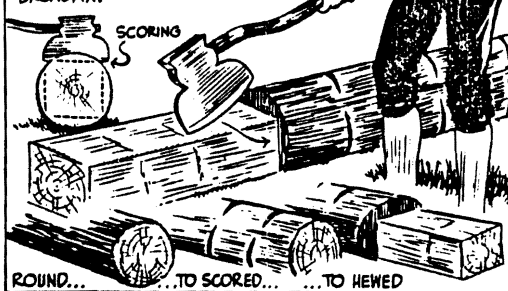
THE AUGER BORED HOLES FOR "TRUNNELS" (WOODEN PINS).

THE MAUL AND FROW (OR FROE) FOR SPLITTING CLAPBOARDS, SHINGLES, ETC.

## THE ART OF THE BROADAX

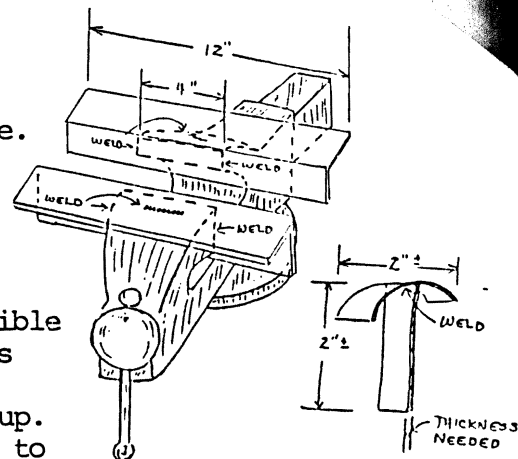
SECOND ONLY TO THE FELLING AX IN IMPORTANCE IN CABIN-BUILDING WAS THE BROADAX. THIS TOOL DID ALL THE HEWING AND SHAPING OF TIMBERS. IT COULD BE WORKED EITHER VERTICALLY OR HORIZONTALLY AND HAD AN OFFSET HANDLE TO PROTECT THE HEWERS KNUCKLES.

TO HEW, A LOG WAS "SCORED" ALL AROUND ABOUT EVERY FOOT; THEN, ONE SIDE AT A TIME, THE TIMBER WAS "SQUARED UP" WITH THE BROADAX.



(From Jim Baker's Historic Handbook Series. Provided by Emmert Studebaker. These tools would have been made by the village blacksmith, perhaps in barter, for the earliest settlers)

- **IMPROVED VISE FOR BLACKSMITH SHOPS:** This is not an original idea, but I made one years ago and it is the second most used vise in my shop. It is made by welding on 12" lengths of 3"x3"x $\frac{3}{8}$ " angle iron to a regular vise. The 4" overhang on each side allows you to work long pieces vertically and, if the vise is properly mounted, you have the length all the way to the floor. Next the 12" wide jaws are great for bending sheet metal, the angle not being scored keeps bad marks off of your work. The 3" vertical legs of the angle on each end makes possible return bends with  $\frac{3}{8}$ " openings, great for making collars and small brackets. Find an old but useable machinist vise, they are usually not expensive when jaws are beat up. Do not use cheap cast iron vises, they will not stand up to the hammering you will do. Align angle and clamp in vise so they are level, raise angle slightly or grind vise jaws on tap to account for small radius on inside of angle, be sure angle faces are together square before welding. I have found using Ni-Rod 55 electrodes produce a weld which has never failed. Another handy set of tools for this vise and any other is a set of "vise anti-cocking attachment" - a set of strips as illustrated of all thicknesses you will be working. When used opposite your work, they will keep jaws from cocking. Just weld up scrap pieces as shown, curved top insures you are on proper thickness of metal and does not require three hands to use them. (By Stan Strickland from the newsletter of the Tullie-Smith House Blacksmith Guild).



## MEMBERSHIP APPLICATION

Membership in ABANA includes a subscription  
to the Anvil's Ring ☐ New Member ☐ Renewal

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Contributory ..... \$100.00 per year  
Library Subscription ..... \$25.00 per year

(Please remit in U.S. currency)

mail to: ARTIST-BLACKSMITHS' ASSOCIATION OF N. AMERICA  
P.O. Box 303  
Cedarburg, WI 53012

CHECK MUST ACCOMPANY APPLICATION

(ALL SOFA MEMBERS ARE STRONGLY ENCOURAGED TO JOIN THE NATIONAL ASS'N)

THE BLACKSMITH'S COOKBOOK: Recipes in Iron, by Francis Whitaker is available for \$31.50 postpaid from the following sources: Centaur Forge, Ltd., 117 North Spring St., Burlington, WI 53105; Jim Fleming, Box 1212, Breckenridge, CO 80424; Bill Gichner, Iron Age Antiques, Ocean View, DE 19970; Norman Larson, 5426 Hwy. 246, Lompoc, CA 93439 or an autographed copy can be obtained directly from Mr. Whitaker at 1265 W. Bunny Ct., Aspen, CO 81611. All profits go to the Francis Whitaker Blacksmith's Educational Fund, now established under the auspices of ABANA.

\* \* \* \* \*

- Whenever I have a job which requires an oven-type closed fire in my forge, I simply drop a piece of scrap 2"x12" wood on top. Virtually any wood will do, green or dry. The wood will quickly char against the flame, but will burn only slowly with a small flame, no sparks, little if any smoke. It is surprising how long a piece will last. I usually get about a half-hour per chunk. It will burn through at the center, but they I just push the pieces together. When they are too small, I put on a new piece, and using the remaining charcoal for fuel. I have a lot of scrap wood, and find I can feed it into the fire with a real savings in coal, and have no fuss or muss. (From the newsletter of the California Blacksmith Ass'n).

- Do you have trouble with drill bits spinning in your drill chucks? Try the equal pressure method. Insert the bit in the chuck and hand tighten as usual. Now tighten all three of the chuck holes evenly. This keeps the back lash within the chuck equal and exerts equal pressure on all three of the chuck jaws. The bit will run more true and provide you with a better quality hole. (From The Modern Blacksmith as reprinted in the newsletter of the California Blacksmith Ass'n).

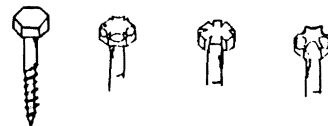
- After a long search, I think I have found the answer to a good, quiet, reliable and inexpensive forge blower. The unit is a Dayton Shaded Pole Blower, Nr. 1-4C448A, 465 cfm, variable speed with a Broan Model 72 solid state switch infinite speed control. The addition of an "ON/OFF" switch allows the blower to be turned on and off without having to reset the speed control each time. Total cost is around \$100.00. (By Francis Whitaker from the newsletter of the Appalachian Area Chapter - ABANA).

- A two pound brass hammer is excellent for use with the cut-off hardy. If you over-swing there's no problem with ruining the cutting edge of the hardy. (By Bob Walsh from The Anvil's Ring, March 1979).



- Be careful when you pour water on coal to assist in the coking action. Cold water coming in contact with the hot castiron sides of your firepot may cause it to crack. (By Larry Wood). ((If you water down your fire when you are through using it, the water can combine with the sulfur in the coal to create mild surfuric acid, also potentially damaging to your firepot. - ks)).

- ORNAMENTAL SCREW HEADS: With the use of a few small files (rounds, triangles, etc.), some very interesting effects can be achieved with a standard hexhead lag screw. The use of files does not damage or distort the hex shape of the heads, so the use of a socket wrench to drive screws in is still possible. Zinc coated lags should be placed in muriatic acid to remove the zinc coating. As with most chemicals, care should be taken. After filing and acid treatment, run lags through forge fire or torch to achieve oxide scale, and wax while still hot. You will be surprised at this quick and easy way of obtaining a "worked" look to the standard wood lag screws. Try on other different types of screws, wood or metal, and bolts as well. (By Rolando DeLeon from The Anvil's Ring, March 1979).



MURPHY'S LAW IN THE FORGE: (From the newsletter of the Arizona Artist-Blacksmith Ass'n). Additional contributions welcome.

1. If there is one hot spot on a project which has to be moved, the bare hand will automatically seek that spot out and grasp it firmly while moving the piece.
2. No matter how closely you measure the material, it will always be too short or too long. Old Chinese blacksmith say: Measure once, cut twice - measure twice, cut once.
3. If you designate a place to put your marking chalk, it will not be found there. Chances are it may never be found.
4. When using a hand grinder the sparks will always seek out a rug to start a fire, or your arm to burn, or burn anyone helping you.
5. Electrical cords which are moved aside while working with electric handtools will immediately return to the spot you're working on.

FOR SALE: Two 25 lb Little Giants, \$600 each, Bill Hahn, 419-668-5327; 50 lb Little Giant, \$900, Harvey Stansbery, 419-294-3141; 120 lb and 150 lb swage block, \$150 each, Mike Magee, 419-472-7811; 50 lb Williams-White, \$1,850 and wheelwright mandrel, \$200, Emmert Studebaker, 513-223-3102. (Sales ads in the newsletter are free!).

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