

FEB./MARCH 1990

# Newsletter <sup>of the</sup> Blacksmiths Association of Missouri



DON ASBEE

## VOL. 7 NO. 2

The Blacksmiths' Association of Missouri is a chapter of The Artist-Blacksmiths' Association of North America. This organization is devoted to preservation, advancement, and communication between blacksmiths of Missouri and surrounding areas. BAM's newsletter's goal is to support these ideas. Letters to the editor, tech tips, tools for sale, or any ideas which further these ends will be considered for publication.

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## BAM MEMBERSHIP APPLICATION

Name: \_\_\_\_\_:

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State: \_\_\_\_\_ Zip: \_\_\_\_\_:

Telephone: \_\_\_\_\_:

New Member: \_\_\_\_\_: Renewal: \_\_\_\_\_:

Dues are \$15.00 per year, which includes a subscription to the bimonthly BAM newsletter. Please make checks payable to Blacksmith Association of Missouri.

SEND CHECKS TO: Steve Austin  
44 N.E. Munger Road  
Claycomo, MO 64119

### MEMBERSHIP RENEWALS

Be sure to check the date on the label of your newsletter. This is your membership renewal date. We will include a renewal reminder in your copy of the newsletter when your membership is due to expire. If the date on your newsletter label is not correct, please notify Bernie Tappel as soon as possible.

# ABANA Membership Application

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_

Phone: ( ) \_\_\_\_\_ Zip: \_\_\_\_\_

New Member

Renewing Member

How did you learn about ABANA? \_\_\_\_\_  
\_\_\_\_\_

Regular Member .....\$35.00 yr

Family Membership (one Vote) .....\$40.00 yr

Senior Citizen (age 65) .....\$25.00 yr

Overseas Membership .....\$45.00 yr

Contributory .....\$100.00 yr

Library .....\$25.00 yr

I \_\_\_\_\_ hereby apply for membership  
in the Artist-Blacksmiths' Association of North America and enclose  
\$ \_\_\_\_\_ as my annual membership dues for one year.

MasterCard

VISA

Check/Money Order

Card Number

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Exp. Date (Required)  /

Checks must be in U. S. currency

**SEND RENEWAL TO:**

**ABANA**  
P.O. Box 1181

(812) 988-6919  
Nashville, IN 47448

Dues Distribution:

1 Year Subscription Anvil's Ring: 68.5% \$24.00

Adm. Offices & Other ABANA projects (Conferences etc.): 31.5% \$11.00

BLACKSMITHING WITH FRANK TURLEY  
at  
Bear Mountain Outdoor School  
Hightown, Virginia  
703-468-2700

Frank Turley will be teaching a short course (June 24-30) which will introduce students to the basic skills used to produce traditional strap hinges, door latches and other types of hardware as time permits.

Students will learn the uses of the forge, anvil, and accessory tools.

Frank Turley is from Santa Fe, where he has operated his school since 1969.

The cost for this workshop will be \$450.

Write or call Bear Mountain for application, catalogs and details concerning Frank's and other courses offered this summer.

## MISCELLANIOUS AND AMBIENT NEWS

Stan and Vicky Winkler are enthusiastic parents of a baby boy - Andrew.

Bert Francis-Elliott is having an exhibition of her work at the Associated Artists Gallery in Carbondale, IL. Bert says the show is made up of things she has never done before, one of a kind pieces. The show will be up through March 3rd. Gallery hours are 10 to 5 Tuesday through Saturday.

The exact dates are not finalized but Bert will be having a one person show in Highland, IL. in April. Call her for the specifics.

## TWO DAY WORKSHOP WITH PETER ROSS

March 24-25

Our annual 2 day workshop will again be held in Tom Gipe's sculpture studio on the campus of the University of Southern Illinois at Edwardsville. Peter Ross, head blacksmith at Williamsburg, will be our demonstrator. Peter is a recognized master smith who's speciality is 18th century hardware and tools.

You have by now (or very soon) received your pre-registration packet. The cost will be \$25 for one day or \$40 for both if you preregister. It will cost you \$30 for one day or \$50 for both days if you wait until the last minute and sign up at the door.

Family members will be admitted for half price.

### 8th ANNUAL NEW SALEM HAMMER IN

Dorothy Stiegler will be the demonstrator at the Lincoln New Salem Hammer In, April 7-8. Lincoln New Salem Historic site is located at Petersburg, IL (about 20 miles N.E. from Springfield). Camping is available at the park.

This years event will be held in the park maintenance building, with electric lights and modern facilities. The fee is \$10 a day, which includes a dinner on Saturday evening for those who register before April 7.

To register write,

Jim Patton

Linclon New Salem State Historic Site

R.R. 1 Box 244 A

Petersburg, IL 62675

## A Brief History of BAM's Workshops

At Lost Valley Lake, Francis Whitaker spent a week working with us on an entry way to a resort in central Missouri. We got to see the orderly manner in which Francis thinks out a architectural project. His careful calculation, measurements, site checking and masterful forgery were wonderful to experience.

Frank Turley spent 2 days in March of 1988 reminding us just how important the basics really are. His demo included tool making, forging, and a spiritual approach to everything he is involved with. Frank's wit and wisdom made his demo both educational and informative.

Daryl Meier spent a day with us at Stan Winkler's shop forging a damascus billet and discussing a few of the many possibilities of pattern welded steel. Fire building, stories, and a genuine mastery of forge welding, kept our undivided attention.

At Edwardsville, in March of 1989 we tapped into the talent of our own organization to do a two day workshop which dealt with wholesaling, design, drawing, self promotion, art fairs, damascus steel and countless other aspects of developing a business.

This March Peter Ross, of Williamsburg will present us with a historical approach to forging iron.

In the Spring of 1991 we'll be dipping into our ranks again, for more home grown talent. Several Bammers are accomplished bladesmiths and have enthusiastically volunteered to conduct a two-day knife making workshop.

# January '90 Meeting

## January Meeting Report

Our January meeting was held in Londell, Mo. at Jerry Hoffmann's Shop. Jerry's shop is always a treat to visit. His tools and jigs speak of clarity of thought, a sense of design and an imaginative approach to the problem of moving iron. Those of us bold enough to look under the wraps of work in the store room were treated to several fire screens and head boards.

Our guest speaker for the meeting was Sue Greenberg, executive director of SLVLAA, St. Louis Volunteer Lawyers and Accountants for the Arts. Sue came well prepared with a wealth of knowledge on the tip of her tongue as well as handouts and a bibliography which was assembled especially for us. The bibliography is printed elsewhere in this newsletter.

The documents handed out by Ms. Greenberg included:

1. Copyright basics.
2. A reprint from the St. Louis Post Dispatch, which discusses a copyright horror story concerning a nativity scene, homeless persons, the supreme court and others. You have to read it to believe it.
3. Basic facts about trademarks.
4. Guide to business assistance.
5. SLVLAA's own brochure which outlines its goals and services.

Ms. Greenberg conducted a lively question and answer session after her presentation. The question of copyright seemed to be the most popular subject.

Copyrights, contracts, collecting money through small claims court, tax workshops and health hazards were some of the subjects touched on by Ms. Greenberg.

The St. Louis community college has a series of courses that might be of some interest to us. Write the college for a list of courses under the heading Strictly Business.

For more information contact:

Sue Greenberg  
329 N. Euclid  
St. Louis, Mo. 63108  
Ph. 314-361-7686

## JANUARY BUSINESS MEETING

President Steve Baker called the meeting to order. Steve noted many new faces in the crowd of 45 smiths. He welcomed them and invited them to join our ABANA chapter.

Ken Rehmer of Cole Camp, Mo. again reminded us that he has a clean covered space to store coal if enough of us are interested in a bulk purchase. Ken has started a list of folks who want to get in on the bulk buy. Send him your name and how much coal you want. When he gets approximately 22 tons spoken for he can get a price, collect money and arrange for the shipment. Ken's address is Rt. 3, Cole Camp, Mo. 65325 Phone 816-668-2371.

Ken Rehmer brought up a good idea (which received membership support) for fund raising. Everyone is asked to bring a tool, piece of iron work or other blacksmith related artifacts to the Peter Ross workshop. The objects, will all be auctioned off sometime during the workshop to help cover expenses and generally fatten BAM's coffers.

Walt Hull, project director for our food preparation center, brought us up to date on the progress. The legs are finished and several of the "sea horse" forms are forged.

Jim Waller proposed that BAM have bumper stickers printed that sing the praises of blacksmithing in general and BAM in particular. The goal - fund raising. Jim is looking into the cost and will report to the membership.

Treasurer Steve Austin reported that we have \$4100 in the bank.

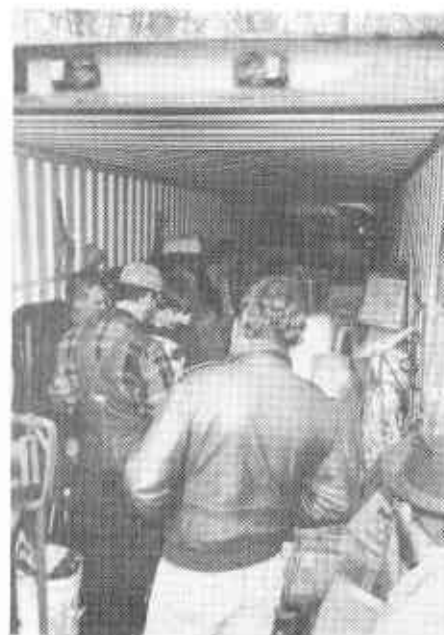
The idea of a 2 day knife making workshop in 1991 was approved by the membership. J. V. McCrackin, R. Warden, A. W. Dippold and S. Winkler will be the workshop chairmen. More on this as it develops.

The Peter Ross Workshop will cost those who preregister \$25 for one day or \$40 for both days. Or \$30 at the door for one day and \$50 for both days. Family members will be admitted for half price.

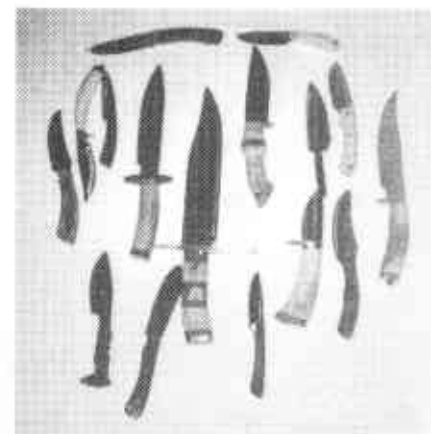
The meeting was adjourned and we all returned to doing whatever it is we do at these shindigs.



January's trade item was a hammer or top tool.



A view of the boxcar full of tools just 1 mile from our January meeting place.



Some knives by the Bammer's that will be doing our 1991 2-day work shop.



Some of the many blacksmith tools dragged out of the boxcar for a better look.

# Future Meetings

The May 12th meeting will be at Colin Campbell's shop in Union, Missouri. Colin is hoping to have Ken Woods present to demonstrate the Dillon Torch system. The trade item will be a set of hinges (2). This is a timely trade item, being that Colin's meeting follows our 2 day workshop with Peter Ross.

The July 28th meeting will be in Rocky Mount, Missouri, on the Lake of the Ozarks, at Vernon and Eunice Fischer's shop. Details in a future newsletter.

Editors note - Is this enough notice for a change?

## ELECTION OF OFFICERS

At the July meeting at Vernon Fischer's we will hold elections. The office of Vice President and newsletter editor are up. Be thinking about who you would like to fill these two jobs. The terms are two years.

## WANT ADS

Ken Valdejo is looking for a large bellows  
Call 618-332-0883.



Blacksmiths Association of Missouri 1990  
Bibliography

Borchard, William. *Trademarks and the Arts* (1989) \$12.00

Conner, Floyd. *The Artist's Friendly Legal Guide* (1988) \$15.95

Crawford, Tad. *Legal Guide for the Visual Artist* (1985) \$16.95

DuBoff, Leonard. *Business Forms & Contracts (in Plain English) for Craftspeople* (1986) \$14.95

DuBoff, Leonard. *The Law (in Plain English) for Craftspeople* (1988) \$7.95

DuBoff, Leonard. *The Law (in Plain English) for Small Businesses* (1987) \$8.95

Faux, Marian. *Successful Freelancing: The Complete Guide to Establishing & Running Any Kind of Freelance Business* (1983) \$7.95

Jefferson, Brian. *Profitable Crafts Marketing: A Complete Guide to Successful Selling* (1987) \$10.95

McCann, Michael. *Health Hazards Manual for Artists* (1985) \$7.95

Messman, Carla. *The Artist's Tax Workbook* (1989) \$16.95

Weinstein, David. *How to Protect Your Creative Work* (1987) \$16.95

# Dear ABANA Members,

## PRESIDENT'S MESSAGE

February 1990

Dear Friends,

We are in full swing as we enter 1990. We are currently working with Conference Site Chairman, Charlie Orlando to finish the 1990 Conference packages. Charlie has earmarked mid-February as mailing date. There will be a substantial savings to those who pre-register, so watch your mail box.

Ham Hammond has resigned from the ABANA Board as of January 1st, 1990 and we are in the process of selecting a replacement for this position. We will be reviewing the candidates from the last election as well as any suggested by the current board members. ABANA is severely overloaded with work and we will be looking for a person who can help with this load. I will update you as soon as the ballots are counted.

We have chosen Allan Flashing from Texas to be the 1990 Conference photographer. Allan documented the Cardiff conference for ABANA and did a very impressive job. We are expecting a very professional documentation portfolio from Allan on the ABANA 1990 Conference to be held at Alfred State College.

Overall Conference Chairman, Mike Bondi, reports the 1990 auction challenge is in full swing with several chapters signed up to participate. Each chapter is trying to outdo the other with a project designed and executed by its members. I can hardly wait to see these projects. If your chapter wishes to participate, please contact Michael Bondi, 1818 Shore St., Oakland, CA 94607 - phone: (415) 763-1327.

I urge all of you to be thinking of who you would like to represent us on the ABANA Board in the 1990 fall election. There will be five positions open and I know you all have people in mind for these slots. I urge you to consider the large workload that each member must shoulder. We need people who are currently in a time frame to deal with this vast amount of work.

Watch your mailbox for your pre-registration packet! I'll see you next month for an update.

Warm regards,

*Dorothy Stiegler*  
Dorothy Stiegler

DES/jrg

# Conference Donations

ABANA 1990  
Conference Donations  
Auction and Iron-in-the-Hat

Attention: All Chapters, Presidents, Editors, Members and Friends of fine metal work. The following information is for the needs of our conference auction. We are asking for your help to build our funds that will keep future conference's alive and well. If you are in need of more information or help please contact me at:

James Robarr	or	Charles Orlando
4472 Plank Rd.		Box 37
Lockport, NY		Belmont, NY
14094		14813

Ph 716-433-8564

Ph 716-268-7383

1. Can you donate an item for the "Auction" and/or "Iron-in-the-Hat" drawing?

2. If you want to send donation(s) ahead please forward to:

Charles Orlando  
Box 37 Ackerman Hill Rd.  
Belmont, NY 14813

3. We will be happy to accept donations at the conference (prior to auction). If you carry your donation please contact me at the conference site. A secure area is available for all donations.

4. If the size of your donation may be a burden please contact me so we can overcome any problems.

5. In closing I want to thank every person that has helped to make a successful conference (past & future). The more I work on this committee the more I realize that all our chapters and members are really the success that makes our conference work! Again I thank you.

*Thanks,*  
*Jim Robarr*



# Tips & Techniques

The late hangers-on at our Jan. meeting got into a discussion about Stuart Hill's Claydon knot. Jim Fleming, the Rocky Mountain Smith's, newsletter editor, published the following article in Forge Facts last summer. I thought you might like to see it step by step.



## STUART HILL'S CLAYDON KNOT

STEP BY STEP

Don Butler  
Salamander Forge  
Eureka, Ca

*Illustrated by Michael K. Jones*

We owe thanks to Stuart Hill of Claydon Forge, U.K. for dreaming up this delightfully functional item.

The illustrations accompanying this article were done by my artist friend Michael Jones. Michael is familiar with blacksmithing and often critiques and assists with design. I find an artists contribution to be most helpful.

### Knot Uses:

Fire tool handles, door knockers, door handles, drawer pulls, gear shift knobs, walking stick handles, clappers, ear-rings, whatever.

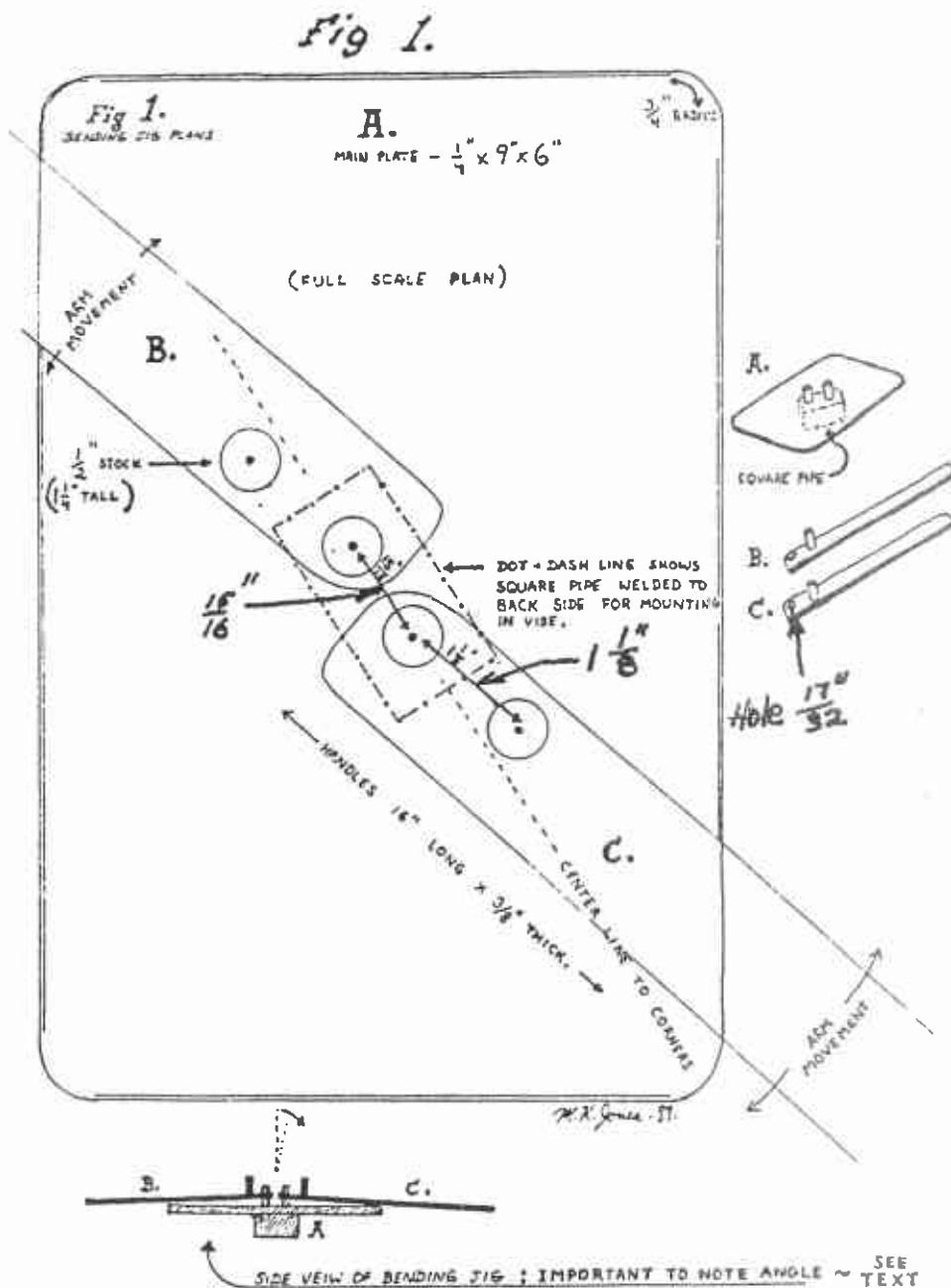
### Materials List:

Modeling clay- Plastaline 1 pound  
9" pie pan - metal  
1/4" x 6" x 9" plate  
1" x 2" x 2" tube  
3/8" x 1-1/4" x 32" bar  
1/2" round mild steel 5"  
7 pcs. 1/4" round mild steel 10"  
2 pcs. 1/4" round mild steel 1"

### Procedure:

#### Step 1:

Make your jig the same as Figure 1. Take note of how arms B and C tilt in the bottom illustration. That angle is important in that this is what will give your pieces a helpful offset or cant.

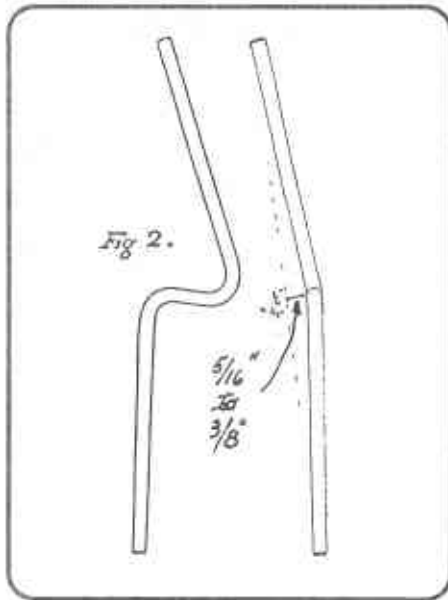


**Step 2:**

Cut 7 pieces of 1/4" round mild steel 10" long. Mark the centers with a scribe. Do not use a punch because the punch marks would show on the finished piece. Place the first piece in the jig with the center mark equal distance between the two posts. Look at Figure 3. Use the handles and bend this piece cold. Make your piece look like Figure 2. Mark your jig where this z shape occurred. That mark will be your stop. Now, bend the other six pieces to your stop. Set each piece aside in an orderly fashion with the same end pointing the same direction each time. This orderliness will make the interlocking step easy.

**Step 3:**

Fill your pie pan with the modeling clay.



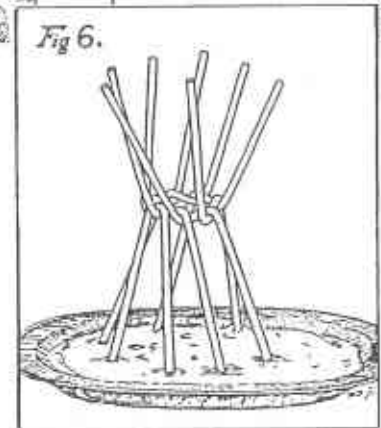
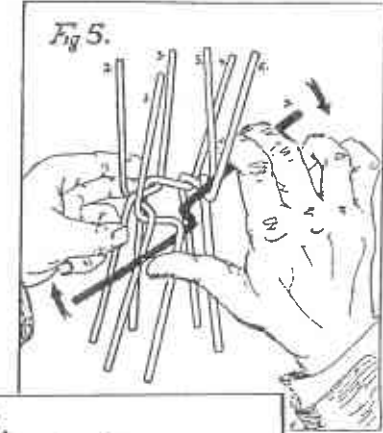
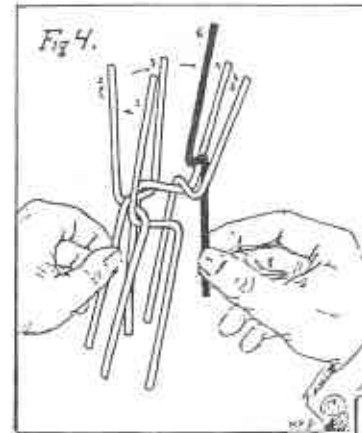
You can buy modeling clay at any art supply store. Incidentally, modeling clay is useful for working out difficult forging steps. It moves like metal and can serve as a test piece.

**Step 4:**

Study Figure 4. Relax, take a deep breath, this step is much easier than it looks. Stack the pieces like you were stacking chairs in a circle. Make certain you hold these stacked pieces with only one hand. You are going to need the other hand free for the next step. Stack six pieces in this manner and practice this a couple of times. You want this step to feel comfortable before proceeding.

**Step 5:**

Look at Figure 5. See how the seventh piece goes under the first leg and over the sixth leg. Insert your seventh piece likewise and you move it rotating it 180 degrees. This rotation will interlock all seven pieces. What magic, just how did Stuart Hill figure



this out? Now, press one end of this into your modeling clay tart. You now have what looks like Figure 6.

**Step 6:**

Snug the pieces into the modeling clay tart. Look at the center of the knot and move things around until the center looks symmetrical. Notice how Michael illustrated the flame in Figure 7. Heat one arm at the low point of the elbow and gently pull it to the center. Applying heat low on the elbow will help make for a tight knot. A couple of words of caution are in order here. First, be certain to keep the torch pointed away from the modeling clay as it has a low melting point. Second, you may need to shut the torch off and set it down so you can hold the base pieces stable with the other hand while you pull the upper arm to the center. Do this step for all the upper legs.

**Step 7:**

Before you tack-weld that end like Figure 8 take one of your 1/4" round 1" pieces and set it in the center where the arms come together. This plug will keep the arms from collapsing when you forge weld the end. When you tack-weld the top, keep it clean, don't let the weld run down the sides.

**Step 8:**

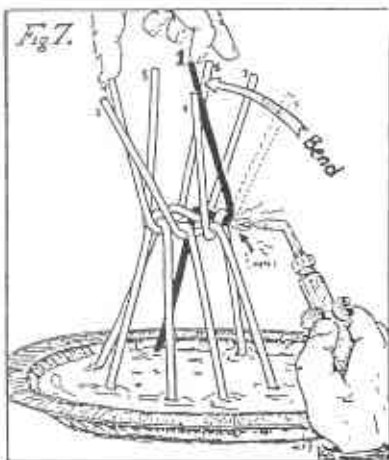
Clamp the welded end in the vise. Or, drill a 1-1/4" hole in a block of wood and set the closed end in the hole, then clamp the block of wood to the vise. Follow Figure 9, bend all the arms in, add the other plug and tack-weld.

**Step 9:**

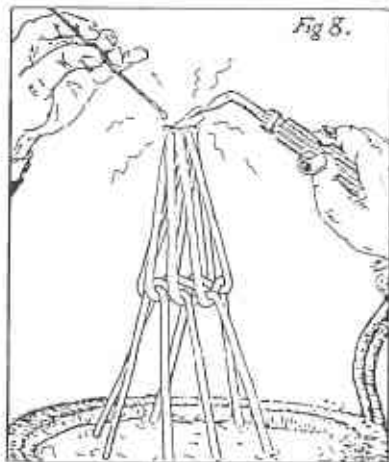
Forge weld both ends for about 1-1/2". Square both ends as in Figure 10.

**Step 10:**

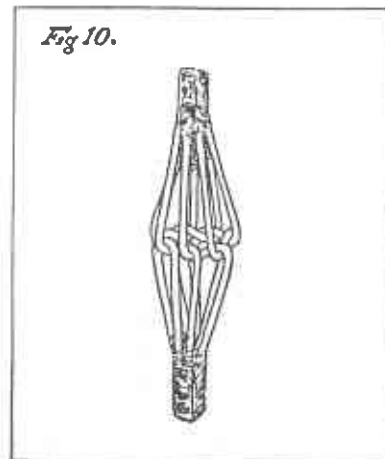
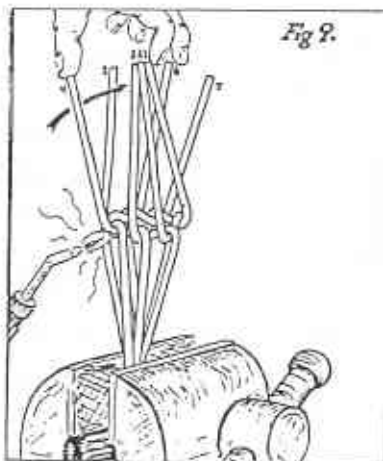
Set the jaws of your vise and twisting



wrench to fit the square ends of your knot. Take a slow even heat over the entire piece. Remember you are twisting seven pieces. Take a yellow heat, then pull your piece from the fire and, placing one end in the vise and your wrench on the other end, twist as in Figure 11: you have plenty of heat so be deliberate and don't hurry. Keep everything parallel and twist until the ends

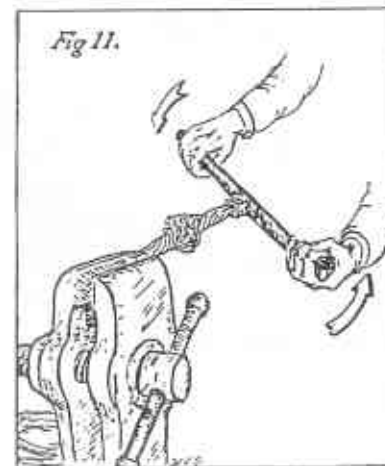


are tight and the center has good form and is flush. If you want a decorative element such as in a fireplace stand or candle holder you could use this element as it is now.



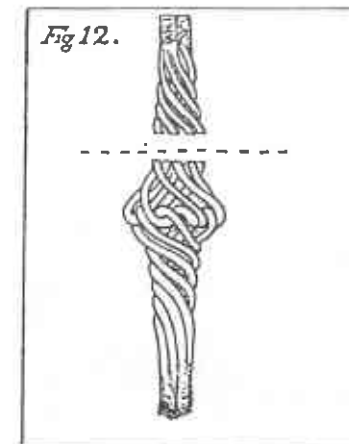
**Step 11:**

Cut off one end leaving 3/4". See Figure 12.



**Step 12:**

You are now going to tuck in the strands. You will need a sharp pointed punch with a long handle. Do one strand at a time. Heat one strand with a torch and punch it down inside. You will feel the punch bite the



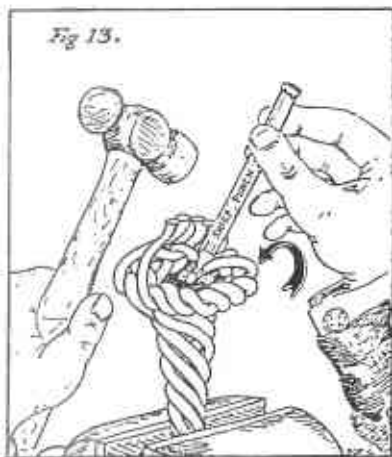
material, this will help you manipulate it where you want. Keep a pair of needle nose pliers on hand, you may need them to pull the bent over strand tight against its neighbor. Don't be surprised if it takes a couple of heats with the torch to get each strand where you want it. Proceed around the piece in an orderly fashion.

**Step 13:**

You did it and it is beautiful. It was even easier than it first appeared to be. At this point you can stop. Or, if you want to close the knot, heat it and place it in a concaved swage, rotating it as you hit it with your wooden mallet. See Figure 14.

**Variations:**

I've made these from coat-hanger wire to 7/16" round. The next pair will be dainty silver ear-rings. To experiment take a piece of stock the size you are going to use, and bend it into a U shape. Have the distance



between the legs be a little greater than the diameter of the piece you are going to use. Clamp the U-shaped piece in the vise, heat a sample piece and bend it to your z shape. You know how to do the rest. Finally, vary the number of pieces. Try six or four or as many as you can hold in one hand. Good Luck!

# Peter Ross Demonstration on Making a Set of Dividers

## PETER ROSS'S SET OF DIVIDERS

No set dimensions were given because as the dividers are forged the length can be changed.

He first drew a taper on a 3/8 inch square bar of approximately 4 inches to a point. The taper was filed to remove the hammer marks. This is to be the pattern that will be sunk into the bottom swage made earlier. This was done by heating the swage very hot (white heat) and driving the pattern into the swage. The legs of the dividers are to be flat on one side and rounded on the other so the pattern was driven only half way into the swage.

He sinks the pattern across the width of the swage because the hammer, being as wide as the swage, can do no more work than its width of its face. He then drove a conical shaped punch on the end of the swage to one side of center.

After the swage cools he files the edges carefully so it will not leave marks. He also filed very carefully a groove in the edge of the swage into the conical shaped hole.

This is to be used in making a washer for the rivet. I'll explain later.

At this point he started to make the divider. The joint of the dividers are made up of 5 leaves.

He started with 3/8 inch square, forging flat a leaf on one end by first indenting approximately 1/2 inch to 3/4 inch from the end of bar over the anvil. He then indented on the bar approximately three inches from the first indentation and cut off approximately 1/2 to 3/4 inches from indentation



He flattened the second end and forged the center section down to approximately 1/4 inch thick like this.



NICK AND FOLD

He cut the piece almost all the way through, folded and forge welded.



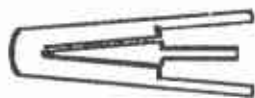
WELD

Because in his research he has not found a pair of dividers that were made with only one forge weld he forge welded a piece of 3/8 inch square onto the leaf section. I think you could make the section between the leaves longer and only make one forge weld.

Make the second set of leaves the same way. Add to it a third leaf on a short tapered piece lie this.



Then put this piece inside the second set of leaves like this



WELD

and forge weld. He then forge welded another 3/8 inch square stock onto it.

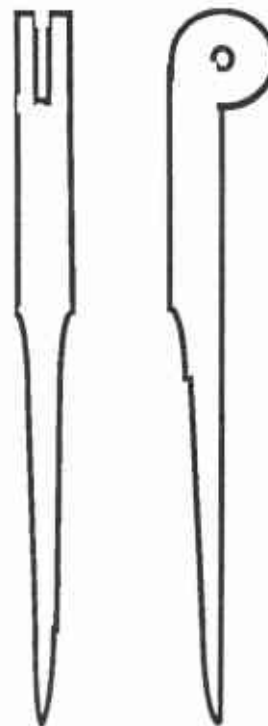
On a reducing heat he tapped all leaves together so that when you file them they won't chatter. After the leaves cool, file them so that they are the same width, the length is not crucial.

WIDTH



These must be very close to the same width. Don't worry about the length.

He drew out a taper on the pieces then put in swage working between the two grooves. When using the swage tool, take the piece to a pretty high heat so as to make the swage last. Start the taper approximately 2 1/2 inches from the bottom of the leaf creating a square portion on the legs. Make sure the inside of the legs are flat like this



with a cross section like this.



END VIEW

Reheat the leaves so you can spread them apart by using a thin hot cut. Put the leaves interlocking to forge to final thickness. With the leaves together he forged lightly to get all in the right position. When forging the leaves to the same thickness as the arms. Heat all the leaves together.

He has found that when heating to forge, the outside leaves become hotter than the inside leaves. This causes the outside leaves to become thinner. He came up with the idea of cooling the two outside leaves between a flatter and the anvil. This cooling lets you forge all the leaves to the same thickness and the same overall thickness as the legs.

The notch on the ball part of the swage is actually a spoon. The spoon serves not for excess material but actually to hold the button washer on the bar stock.



He estimates by trial and error the amount of material needed to make a button washer (he made several tries before he actually used one)

He almost cut the material off with a hardie and then forges the material in the button washer impression of the swage.

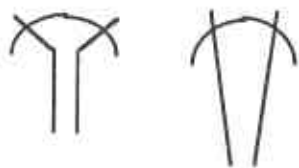
He then made a punch out of early american car spring (Buick, I think) to punch a hole in the button washer. It was approximately 3/16 inch diameter. He did quench the tool at a low black heat to cool the tool but did not harden or temper.

With the button washer still on the material (held by the spoon) he placed it in the depression and drove the punch in from the flat side. He flipped it and drove the plug out. Work quickly -- a couple of blows then get the punch out.

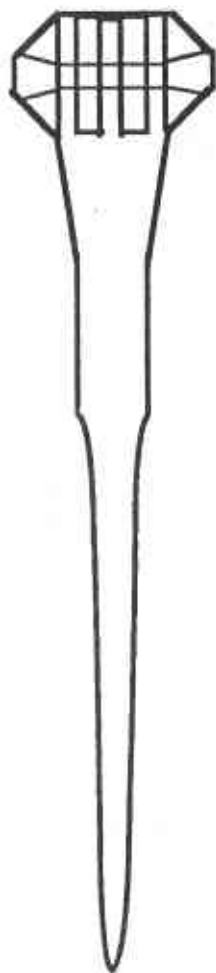
He then cleaned up the button washer with a file; don't worry about a perfect circle just get close. Flatten the back of the button washer with file. He has found that using the tapered punch instead of drilling works out better. The reason is in the taper.

If you drill a hole, counter sink it and then rivet and file it you lose a good deal of you head.

Where as if you use a tapered punch for the hole when you file you don't lose the gripping power.



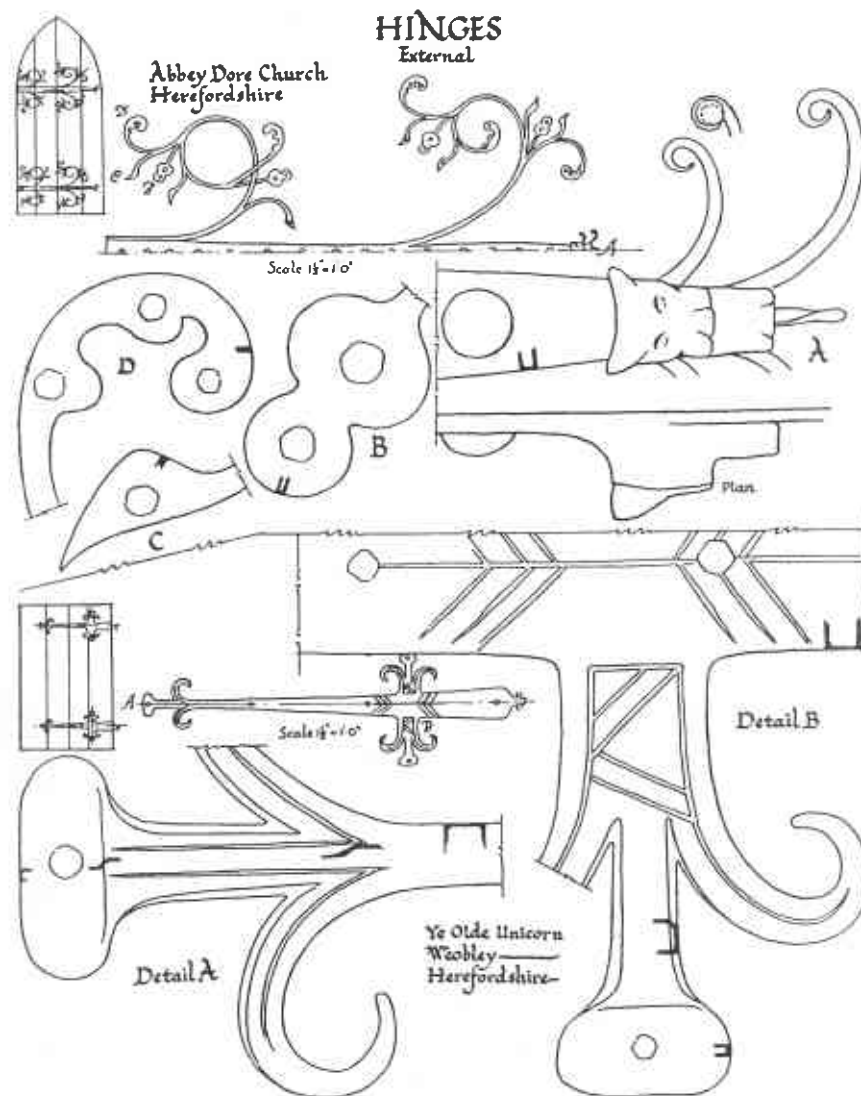
After setting the rivet through the button washer and all five



leaves saw all the excess material close to the washer so that you can file to shape.

It probably will be hard to open so after filing add oil to the joint. If you can't open up the legs put in the fire as a last result. Finish filing the legs to exact length. You now have a nice pair of dividers.

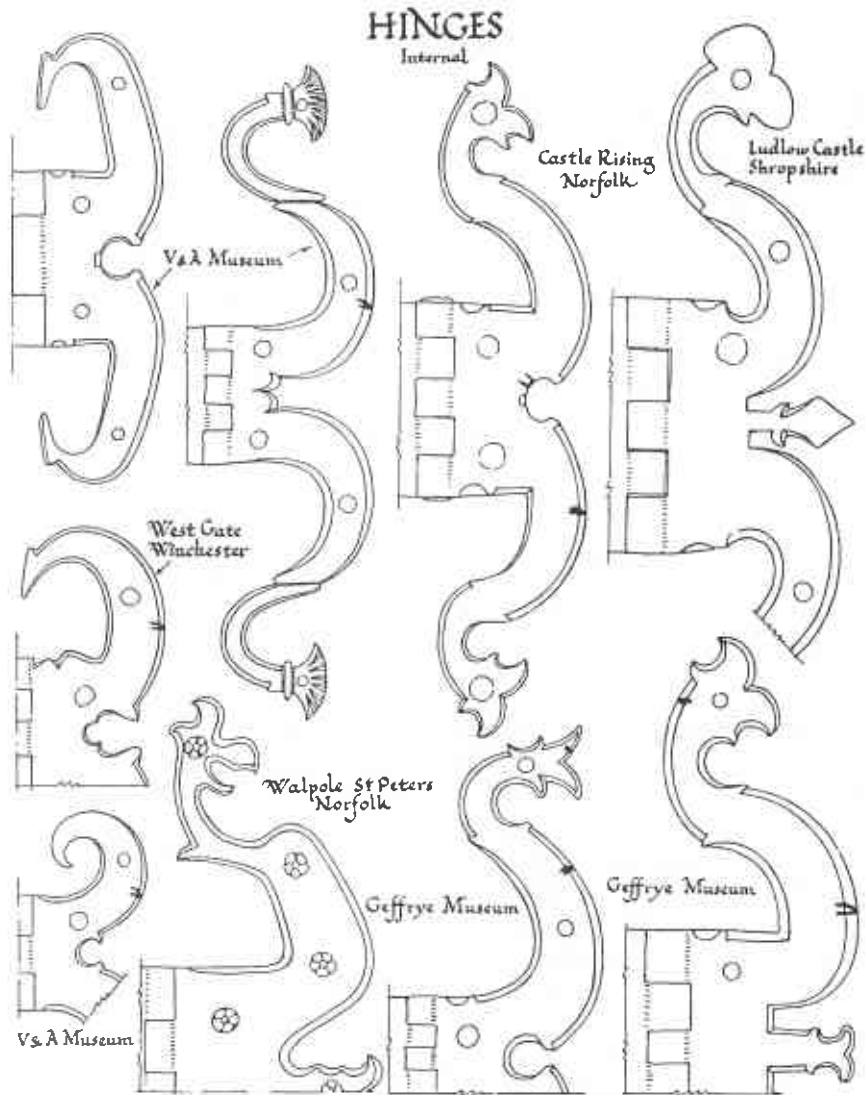
By Bob Taylor



External Hinges from Abbey Dore Church, Herefordshire, 13th Century; Ye Olde Unicorn, Weobley, Herefordshire, 16th Century.

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# 1990 BAM Membership



H-Type Internal Hinges from 16th and early 17th Centuries: Ludlow Castle, Shropshire; Almshouses, Castle Rising, Norfolk; Geffrye Museum; Walpole St. Peter's, Norfolk; Victoria and Albert Museum; West Gate, Winchester.

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