NWBA
CHAPTER OF ABANA

Hot Iron News

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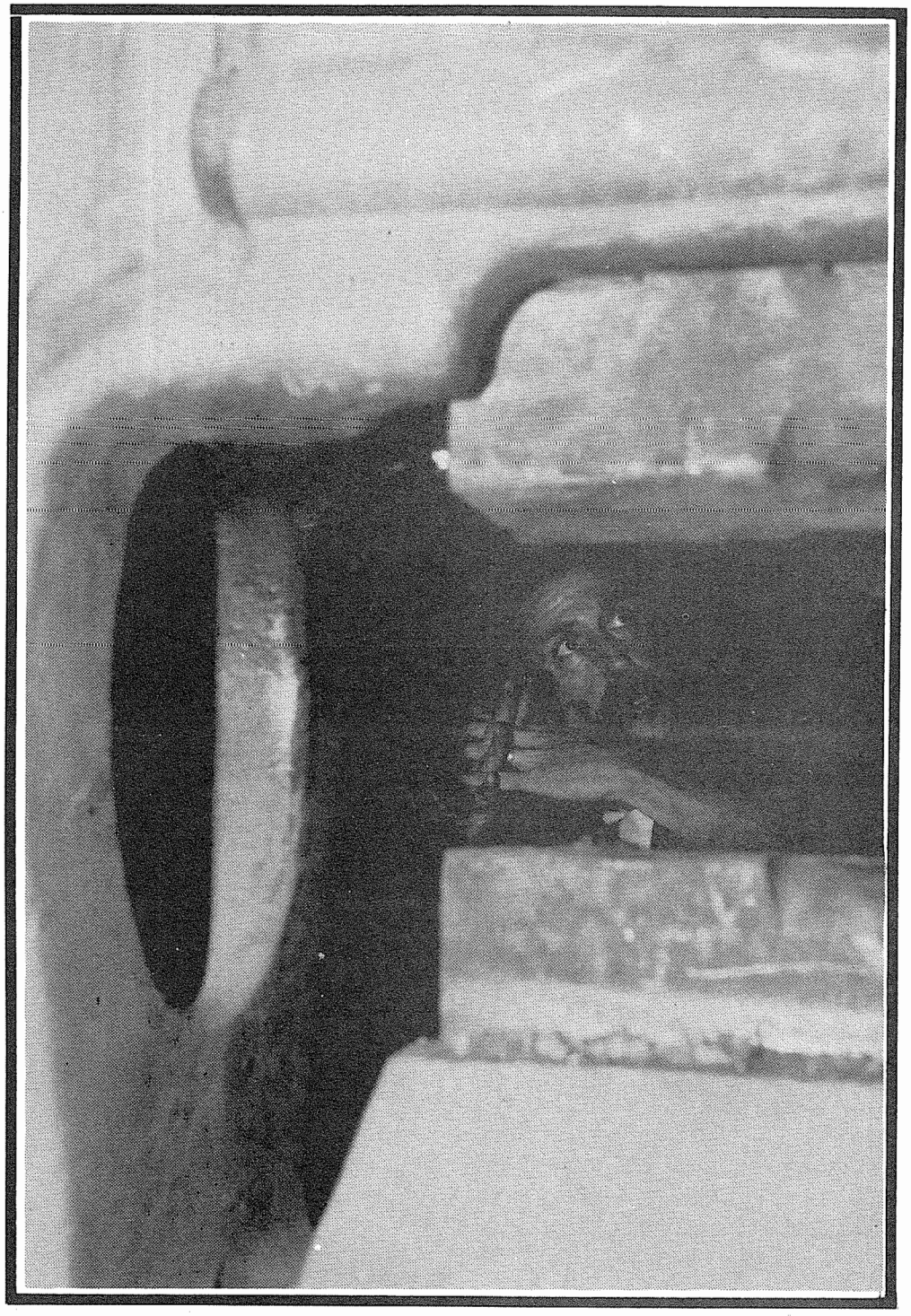
-- Voice of the Northwest Blacksmiths Association



JUNE 1990

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HOT IRON NEWS is the official quarterly publication of Northwest Blacksmiths Association. Submission of materials for the magazine is eagerly encouraged. Deadlines for submission are February 15th, May 15th, August 15th and November 1st. Please send materials for the magazine, comments, requests and questions about the magazine to the editor. Other ABANA Chapters, Canadian and Australian blacksmiths associations, and non-profit educational metals oriented groups have permission to reprint material found within the covers of HOT IRON NEWS as long as credit if given to the authors, the magazine and NWBA.

COVER: Jay Burnham-Kidwell. Photo by Don Blair

TO THE MEMBERSHIP

Once again we had a real fine Spring Conference. 83 people showed up and enjoyed some excellent demos from Jay Kidwell and Joe Elliott. The Saturday evening banquet turned out its usual excellent roast beast and fine side dishes. The weather could have been nicer but, as it was, we worked around it.

I want to commend all the participants for their efforts on the "non-smoking and gossiping" during the demos. You all did very well on that issue and it made the demos more enjoyable for all.

Our thanks to Kent for hosting the show again, to Jerry and Ina for the fine food preparation and to all the other people who gave their time, labor, food and support to make a real fine conference.

There is going to be a Board meeting July 28th at my shop in McKenna, so if anyone some issue they would like brought up please contact me or your nearest Board member. Members are welcome to attend.

The Fall Conference is being worked on although things are still not nailed down. Tentative plans are for the 2nd weekend in October with Bruce Northridge from New Mexico for one of the demonstrators. Bruce has done the Renaissance Fair for a number of years and has all kinds of neat products and tricks to show. He also is one of the best horseshoers around.

We are thinking about Bill Carrell's shop in Maple Valley for the site.

Full details with costs and firmer dates will be in the next newsletter.

Thanks again to all for their efforts on our Spring Conference.

Smokey Adams

N.W.B.A. SPRING MEETING

April 27th, 28th and 29th, Corvallis, OR

The organization can mark up another successful event. In spite of copious quantities of rain, everyone had a good time. Someone had a chat with the blacksmiths gods and they turned the faucet off during the banquet Saturday night. That was very thoughtful.

Anyone who has not participated in a N.W.B.A. potluck banquet has missed a major event in their life.

The auction, though fairly small in size, was once again a financial success. Many fine items found new homes. When you have to battle and bid against others to buy an item, it always seems more precious and valuable.

Kent Rudisill again proved to be a gracious host, providing whatever and everything that was needed to make the event a pleasure. The association certainly owes Kent a vote of thanks.

Northwest Blacksmith's Association
P.O. Box 81041 • Seattle, WA 98108

PRELIMINARY

TREASURER'S REPORT FOR SPRING '90 CONFERENCE

CREDITS		DEBITS	
ATTENDANCE FEES *	2039.00	DEMO FEES	600.00
AUCTION	1913.50	TRAVEL EXPENSES (DEMONSTRATORS)	534.39
SHIRT ETC. SALES ①	143.00	FOOD - MEAT	184.03
		FOOD - MISC.	104.25
		SUPPLIES - MISC.	150.49
* 87 PAID ATTENDEES		PROPANE	20.25
		VIDEO TAPE	170.00 (EST.)
① TO BE APPLIED TO FALL CONFERENCE INCOME		ABANA VIDEO (RENTAL)	47.00
		SANI-KANS	100.00 (EST.)
TOTAL CREDITS	4095.50	TOTAL EXPENSES	1910.41 (EST.)

CURRENT BALANCE (5-24-90) #9326.88

OUR SPRING '90 CONFERENCE HAS BEEN A GREAT SUCCESS; THANKS TO YOUR GREAT ATTENDANCE, AND SUPPORT FOR THE DEMONSTRATORS AND THE AUCTION.

THE PRE-REGISTRATION WAS WELL RECEIVED AND HELPED SIMPLIFY THE PAPERWORK AND BUDGETING FOR THIS EVENT. THANK YOU!

T. M. Graham TREASURER.

MINUTES OF THE N.W.B.A. BOARD MEETING, APRIL 28,1990
Corvallis, Oregon

Present: President Smokey Adams, Treasurer Tom Graham, Editor Karen Wagner, Secretary Mike Falk.
The minutes as published from the last meeting were approved.
The conference and workshop forms as devised by Ike Bay were approved.
A discussion was held concerning the keeping of the official record. At present, they are in several different places with no central location for all of the records.
Smokey moved and Tom seconded that pre-registration be required for all workshops with a two week deadline prior to the workshop. There would be no walk-in registrations. Passed.
Mike reported on the sound system. The most effective part of the report was that the system was working. It solves the problem of people not hearing much of the demonstrator's dialogue. In addition, the demonstrators found that their voices lasted longer, because that did not have to talk above the roar of the furnace.
Smokey reported that Ike Bay had procured a large size coffee maker.
Smokey reported that a membership roster was forth coming for all members. New members will be announced from time to time and it will be up to each person to maintain their copy so that it will be current.
Karen said that the Hot Iron News will be published four times a year with the copy deadline three weeks before publication date.

Respectfully submitted
Mike Falk, Secretary

PRE-REGISTRATION DEADLINES FOR N.W.B.A. WORKSHOPS

The association's insurance carrier is requiring more accurate information concerning our N.W.B.A. sanctioned workshops, if they are to continue coverage without an increase in premiums. The workshop coordinator must have an accurate headcount, two weeks prior to the workshop so Tom Graham can make the insurance arrangements.

This deadline will also work to the advantage of the workshop host. It will enable the host to accurately arrange the necessary logistics for the event with less guessing (food, lodging, supplies, etc.). This lead time will also allow for the host to obtain advance funds from the organization to defray current, out of pocket expenses. Unless a person has hosted a workshop, they do not realize the financial cost and mental strain required to make a workshop a success. This certainly helps lead to HOST BURNOUT.

It should not be too much to ask workshop participants to plan ahead and make their commitment to the event, two weeks prior.

Mike Falk, Secretary

Joe Elliott made his debut as a demonstrator and carried it off with all the flair and showmanship of an old time pro. When you combine Joe's innate sense of humor with his more than obvious blacksmithing abilities, you have a natural demonstrator. In addition to showing how to make the workpiece of the demonstration, Joe takes the time to show how to make the tools, holdfasts and other necessary things. Lets encourage Joe to give us more in the future.

Jay Burnham-Kidwell had a tough act to follow but certainly was able to do it. Jay personally is a very interesting person with a very interesting background. His combination of fine metal working techniques (gold and silver smithing) and German blacksmithing makes a fascinating combination. Jay opened a number of doors to follow for different design techniques. Also the combination of different metals, including gold leaf, with iron creates many more design possibilities.

Jay and Joe both have the ability to involve the audience in their work.

A major advantage of attending the N.W.B.A. Conferences is the acquiring of new ideas and the reworking of old ideas to create new and different work.

Mike Falk
Black Fens Forge

5/5/90

Dear NWBA,

A short note to thank you all for inviting me up to demonstrate at your Spring Conference. I was impressed by your membership - their enthusiasm, questions, sharing, work and responsiveness, and friendship - a quality not to be taken lightly. Thank you's are in order to Smokey Adams, Bro' and Prez, Nancy Adams - a wunnerful woman friend, Joe Elliott - who taught me a lot and evidently is as strange as the rest of us are, Jerry Culberson - whose cooking is unparalleled as are his ties, Karen Wagner - who wrote me a great dog and pony presentation to your newsletter and helped us make mokume, Nahum Hersom - a man I've admired from afar for some time, it was great to get to talk with him, Mike and Fletcher Falk who filmed and gave out punch great lines , Kent Rudisill for his help, place and access to his stuff, and all those I've left out and of course thank you to Wayne Goddard and Gene Chapman.

The hospitality shown me was greatly appreciated and I repeat, if you're in the neighborhood, stop in. I've enjoyed seeing y'all at home. The rain was a wonderful change from our usual at-home desert weather, and sure enough, it was rainy when I got home. I'm currently winding down the semester,a shop to build and summer courses to teach. Good luck to all and thanx again. Keep growing, and, remember, Do it with a hammer!

Sincerely, good luck,
Jay Burnham-Kidwell

NEW ABANA DEMONSTRATORS LIST

The new Demonstrators List is being compiled by Clayton Carr. If you wish to be included in the list or know of someone who should be, please contact Karen Wagner as soon as possible at (206) 385-0256 after 7 p.m. Deadline for inclusion is the end of July so hurry. Let's let ABANA and the rest of the world know what fine blacksmiths we have out here in the Northwest by showing them what we can do! Call Karen!

WORKSHOPS, CLASSES AND CONFERENCES

NWBA SPONSORED

For more information about the workshops and registration, please contact Ike Bay at 13105 N.W. Ridgetop, Portland, OR 97229-3639 or call (503) 645-2790.

Joe Elliott is hosting one more workshops in 1990. It is limited to five participants and fees are $150 for the two day workshop. Materials and lunches will be provided. There is still one more space available in the final workshop. For more information, contact Joe Elliott at 128 E. Antler, Redmond OR 97756 or call (503) 548-2564 or 548-8895.

JERRY CULBERSON July 21st and 22nd
Jerry is planning a garden gate using traditional joinery and forging techniques and possibly and animal head draw bolt. The workshop will be hosted by Joe Elliott in his shop in Redmond, Or. The workshop is limited to 5 participants.

GRANT SARVER August 17th, 18th and 19th
Power Hammer and Industrial Forging Workshop at Apex Forge and Tool Company in Tacoma WA. The cost is $50 per participant and there is no participant limit. The course outline will depend on the number of people who sign up. A small class will have more hands-on experience. As Ike Bay says, "This is a great opportunity to get to know hammers and their use. The shop has everything from a 50 pound hammer to a 1150 or so. If you have a hammer and are not getting the most out of it, this is your opportunity. If you think you may want to buy one in the future, here is the opportunity to really look and get to know before you shop. Don't feel you need experience and a hammer to qualify. Everyone is welcome. The class will cover the care, set-up, operation and repair of various hammers and forging techniques." Grant sarver is an expert with over 15 years experience and his workshop is a rare opportunity. Your payment of $50 will assure you space in the workshop. No meals will be offered and lodging is available nearby. It may be possible to camp nearby also. Use the registration form enclosed in the magazine. For information contact Margaret or Grant at Apex (800)873-8831.

MIKE FALK September 7th, 8th and 9th
Mike is planning a Non-Ferrous Casting Workshop at Black Fens Forge and Foundry, near Lake Stevens, Wa. The participants will learn the basics of investment casting (lost-wax) and green sand casting from patterns. Gravity, vacuum and centrifical methods will be utilized. All aspects of operating a primitive foundry will be discussed and demonstrated. In addition to each person making and casting their own small personal items, the entire group will work on a larger piece. The foundry can pour 120 pounds of metal at one pour. The workshop will cost $125 for the three days. This includes all necessary materials (except silver and gold if used by the participant). Lunch will be furnished each day as well as dinner Saturday evening. There are good restaurants nearby and motels in Everett and Marysville. There is adequate cleared space for camping and parking R.V's or campers. There is also an 18 foot tepee that can be used for sleeping. Mike is requiring a minimum of 10 participants and maximum of 12 participants for the workshop. The deadline for registration is July 21st. No registrations will be accepted after that date.

WAYNE GODDARD AND GENE CHAPMAN have proposed a workshop for December 1st and 2nd at Old Cedar Forge in Allyn, WA. Demo and hands-on bladesmithing. More information will be provided in the September issue of Hot Iron News or call Ike Bay.

VANCOUVER ISLAND BLACKSMITH'S ASSOCIATION
C/O Saanich Historical Artifacts Society
Box 134
Saanichton, B.C. CANADA V0S 1M0

DARRYL NELSON October 27th and 28th
Costs are $60 for non-members and lunches are $4 a day extra. Contact VIBA for information about registration and lodging.

ARROWMONT SCHOOL OF ARTS AND CRAFTS
Box 567
Gatlinburg, Tennessee 37738 (615) 436-5860
Write for a complete list of classes.

NATIONAL ORNAMENTAL METALS MUSEUM
374 West California Avenue
Memphis, Tennessee 38106 (901) 774-6380
Write for a complete list of classes.

ROCKY MOUNTAIN SMITHS
Ray Rossi, President
1652 S. Vaughn Street
Aurora, Colorado 80012

MOUNTAIN SMITHS BLACKSMITHING CONFERENCE August 23 - 26
To be held at the Francis Whitaker Blacksmith School in Carbondale, Colorado. Featuring forging clinics, a window grill project lead by Whitaker and demonstrations by Robb Gunter, Russ Swider, Ken Hambell, Will Perry, John Hoffman, Ray Rantanen. Lodging and meals available at the site or nearby. For a registration packet and full details, contact Ray Rossi.

PENNLAND SCHOOL
Pennland, North Carolina 28765
Write for a catalogue

JOHN C. CAMPBELL FOLK SCHOOL
Brasstown, North Carolina 28902
Write for a catalogue

JIM BATSON, CLAY SPENCER, IRA DEKOVEN, JOHN ROBY, JERRY DARNELL, DAN EASLEY,CLAY SMITH, JOE MILLER, CHARLES ORLANDO, CHARLIE FULLER, ELMER ROUSH, BOB BECKER, NOL PUTNAM, AND MICHAEL J. SAARI will all be teaching this year.

NEWEST NWBA MEMBER

Jerry Henderson of St. Helens, Oregon is more than a proud new grandpa. He has started his new grandson out right! To insure Brandon's future as a blacksmith, Jerry enrolled him in NWBA! Brandon Michael White was born June 8th, 1990.

POTLUCK COOKBOOK

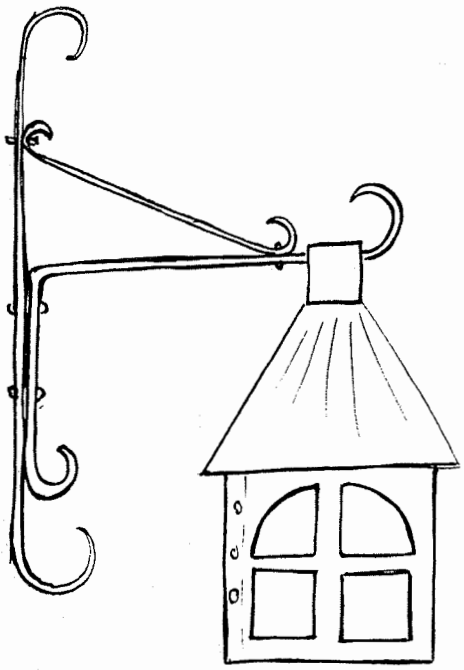
There has been some interest in producing a cookbook featuring the recipes sampled at the NWBA potlucks. To make the cookbook more than a "food-book", recipes for making kitchen equipment, photos of ironwork and cooks, and comments have been suggested additions. If you are interested in participating, please contact Karen Wagner at 711 Taylor St., Port Townsend, WA 98368 or call (206) 385-0256.

THE KID WHO SHOULDN'T WORK METAL?

Nahum "Grandpa" Hersom

The story of the lanterns sure brought back some memories. I still get a lump in my throat every time I look up at them hanging in my office. The brackets are slightly askew. The cut-outs permit the light to shine out jagged as we didn't have aircraft snips in those days. The rivets are headed off center and some corners are as sharp as razors. But I guess because they are mine, they are beautiful. Maybe not quite as beautiful as sentimental.

I was 14 years old when I was in the 8th grade of Junior High in Davenport, Iowa. We had metal shop and after the usual cookie cutters, dust pans and a small bucket were made of tin for our required projects, we were allowed to make anything out of a book the instructor had made patterns from.



I chose a pair of lanterns, to put on the front of our small cabin in Wisconsin. Since we had no electricity there, I revamped the pattern to hold candles. This irritated our teacher because I was not following the pattern, but then I didn't quite follow any of the patterns he had. It seems the latent craftsman in me wanted to do his own individual expression, so my projects were finished differently than the other students' work.

Anyway I did manage to pass the course but with the teachers admonition that I was the most exasperating student he had ever had. He doubted that I would ever make things in metal that were worth anything. So he reiterated that perhaps I should do something else as my life's work.

The lanterns were hung for only one summer on the cottage and then packed in a box for storage. This was my last summer there.

Today these lanterns hang in the so-called office I have in my shop. They are reminders of the kid who shouldn't go into metal. If the teacher could only see me now!

ABOVE: Drawing of one of the lanterns, made of black iron with the riveted construction as per so much work of the 1920's and 30's, 5" square by 5" high.

ADVANCE NOTICE
SECOND WORLD CONGRESS OF SMITHS IN AACHEN
MAY 13, 1991 TO MAY 19, 1991

The Aachen Chamber of Crafts and Trades is carrying out the Second World Congress of Smiths in Aachen in 1991. Not only artisan smiths from all over the world are invited to participate, but also gold- and silversmiths, as well as all metal designers who process material by forging.

The congress is combined with a designing competition, for which the participants can register their workpieces in advance. A jury will decide which workpiece will be exhibited and awarded prizes.

In addition, every participant will be able to exhibit his own workpieces outside of the competition.

The charge for each participant will probably be about 450 DM and include participation in all of the events of the congress, the congress and exhibition programs, other conference literature, as well as evening meals from Monday untill Thursday. The official languages of the congress are German and English.

Participants may register in advance already at the Aachen Chamber of Crafts and Trades, Press Office, P.O. Box, D-5100 Aachen. The binding registration forms and further information will then be sent to interested persons in good time.

SECOND WORLD CONGRESS
OF SMITHS IN AACHEN
MAY 13, 1991 TO MAY 19, 1991
ADVANCE NOTICE

PROGRAM DRAFT
SECOND WORLD CONGRESS
OF SMITHS IN AACHEN

Monday, May 13, 1991

morning: Registration of participants in the central office of the congress – the »Handwerksstudio« of the Aachen Chamber of Crafts and Trades

afternoon: Opening event: The official welcome in the Coronation Hall in the City Hall of Aachen

evening: Welcoming party in the »Vulkanschmiede« of M. Bredohl, Aachen

Tuesday, May 14, 1991

morning: Introduction of the participants in forging demonstrations and lectures

afternoon: Technical lectures followed by discussions

evening: Informal meeting in the vocational training center of the »BGE«

Wednesday, May 15, 1991

morning: Introduction of the participants in forging demonstrations and lectures

afternoon: Technical lectures followed by discussions

evening: Informal meeting in the »BGE«

Thursday, May 16, 1991

morning: Introduction of the participants in forging demonstrations and lectures

afternoon: Openhouse of the Academy of Designing Trades of the Aachen Chamber of Crafts and Trades and introduction of the tasks and aims of the Compagnons du Devoir (Gut Rosenberg)

evening: Presentation of the congress competition and announcement and honouring of the prize winners (Stadtsparkasse)

Friday, May 17, 1991

The gold- and silversmiths and smiths of Aachen open their workshops; furthermore, excursions and visits in and around Aachen will be offered outside of the congress program

Saturday, May 18, 1991

morning: Public forging demonstration at the market-place in Aachen

afternoon: Farewell in the »Ratskeller« and at the market-place

From:

Name:

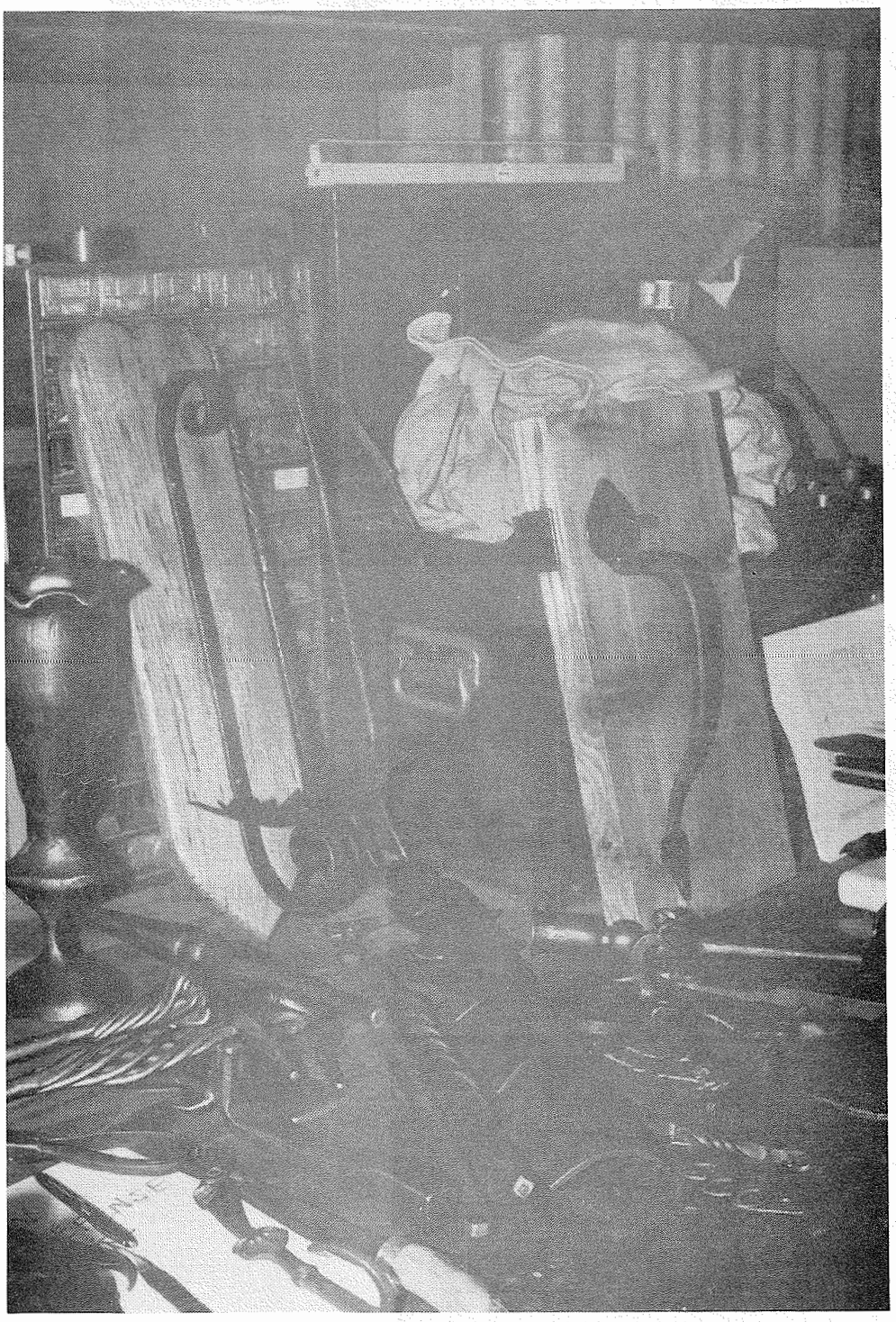
Street:

Town:

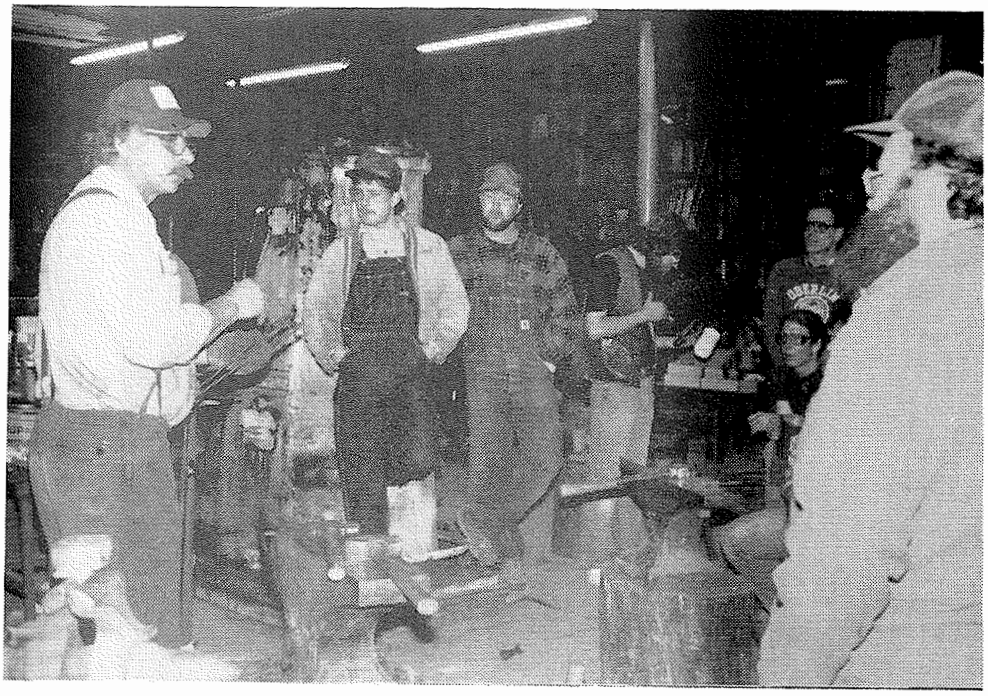
State:

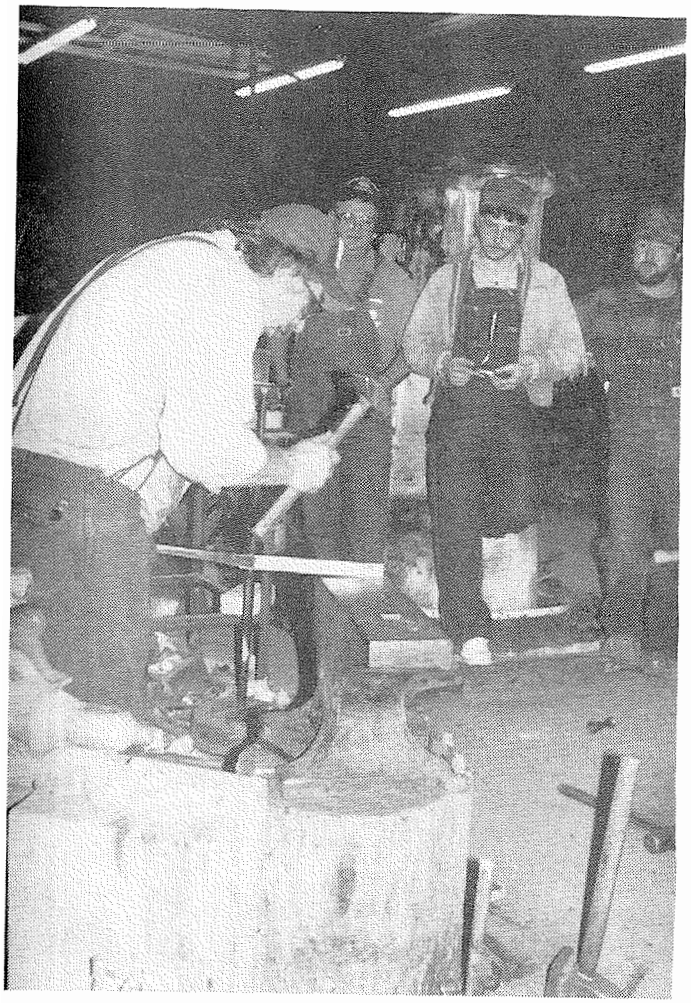
I'm interested in participating the congress. Please send me further information in time.

Handwerkskammer Aachen
– Pressestelle –
Sandkaulbach 21
D-5100 Aachen



Work shown at the Spring Meeting by NWBA members
Photo by Don Blair





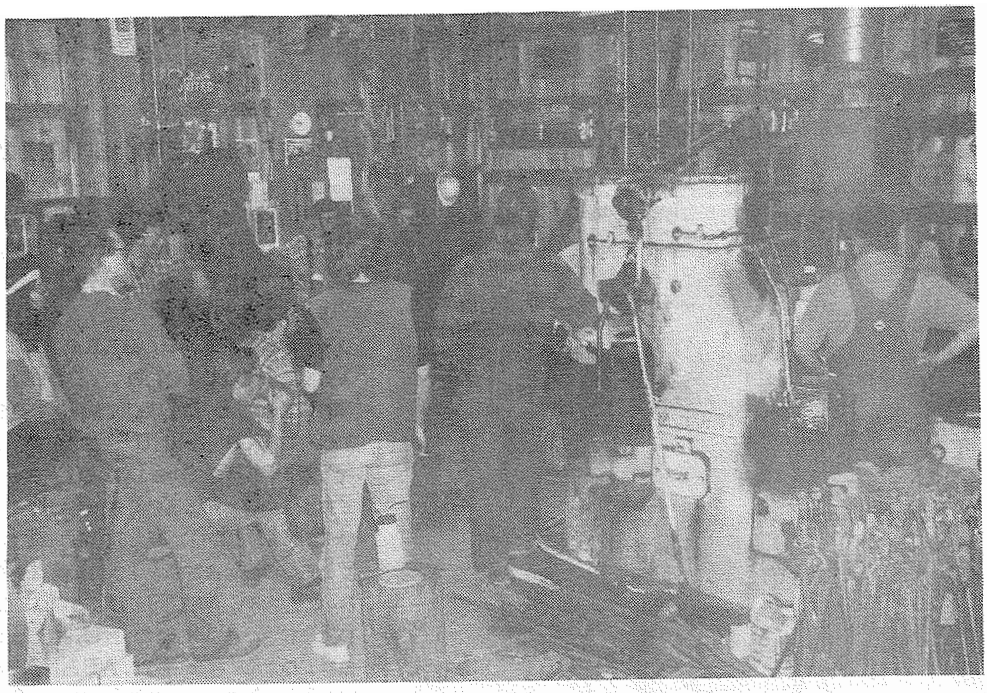
FEBRUARY 1990 NOVICE WORKSHOP

Old Cedar Forge in Allyn, WA

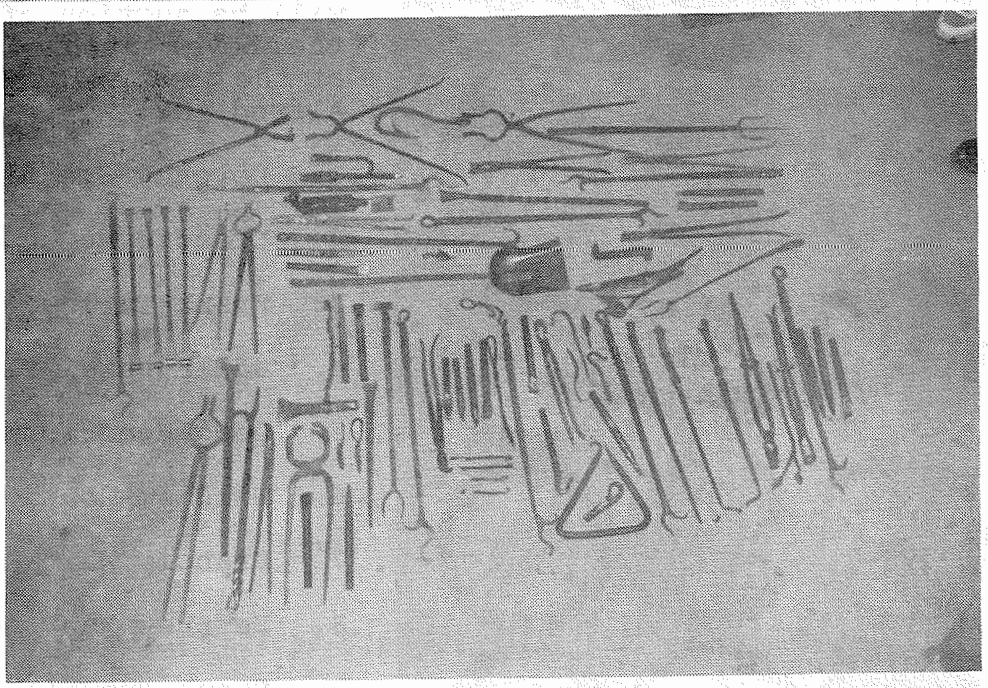
Demonstrations by
Jerry Culberson

Photos by Ina Rattenbury

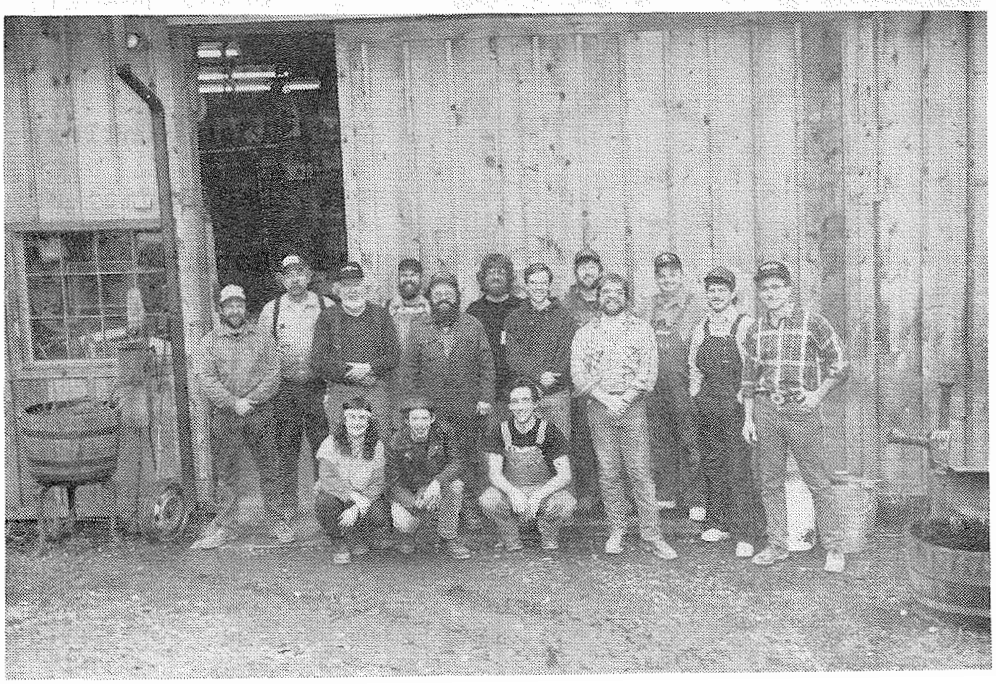
Lectures

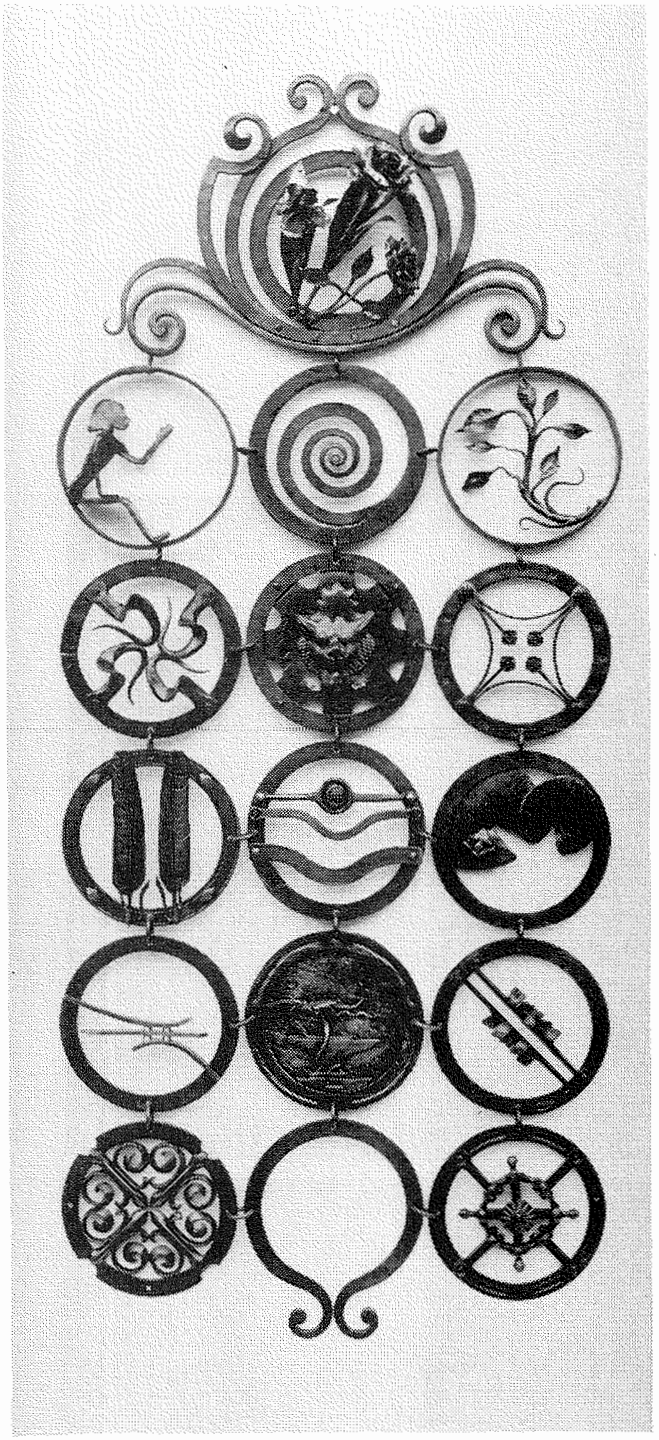


Projects



Graduation





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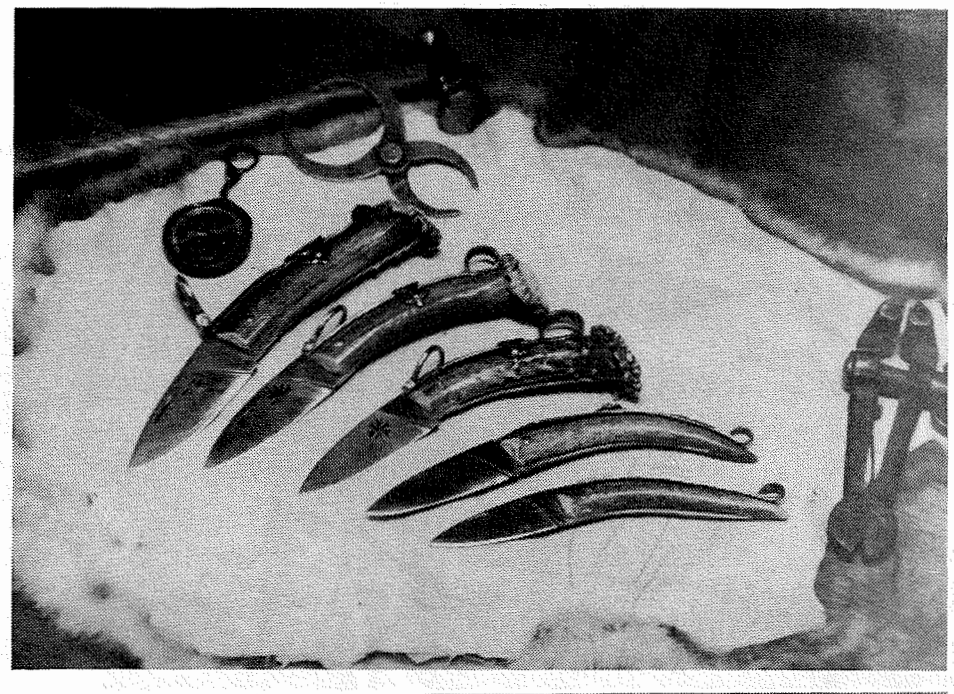
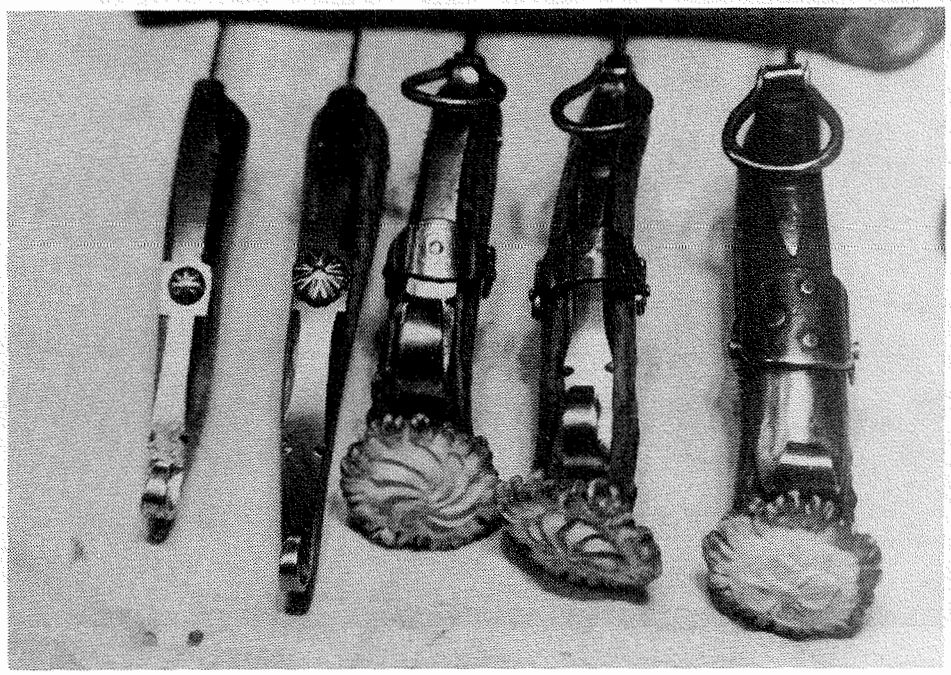
ABANA MUSEUM COMMITTEE PROJECT

In an effort to find a way to raise money for the National Ornamental Metal Museum and the Yellin Foundation and yet not directly donate to these two institutions, Doug Hendrickson wrote 15 blacksmiths asking them to take a 10" ring and fill it. With the help of several of his fellow Blacksmiths Association of Missouri members, the filled rings were linked together and a crest was forged to finish the piece. Doug Hendrickson's last effort as an ABANA Board member will be auction off to benefit the above mentioned institutions at the 1990 ABANA Conference in Alfred, NY.

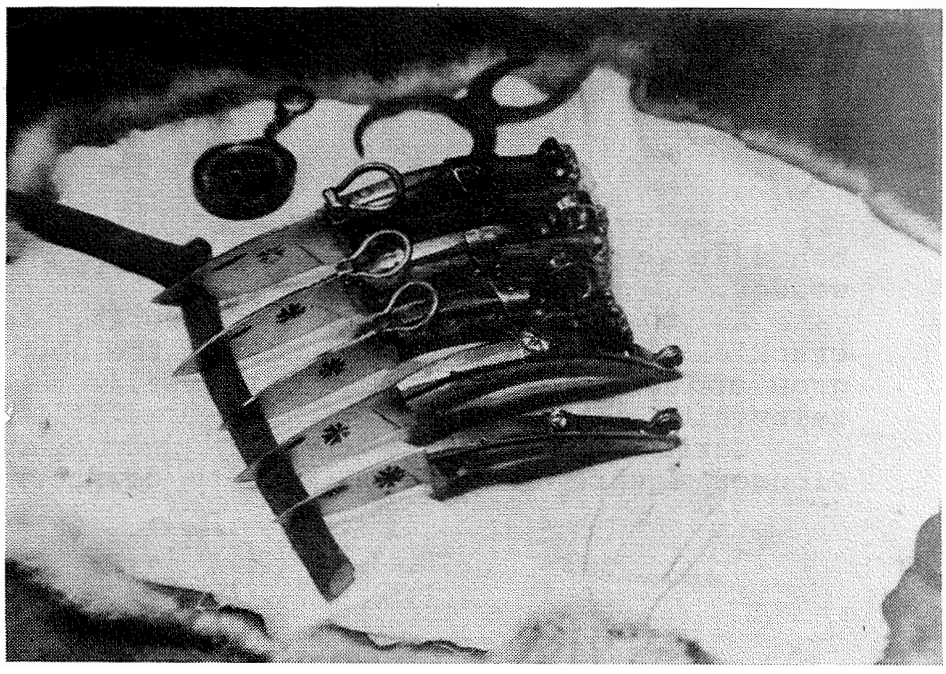
1. Dorothy Steigler, WA
2. Claudia McCue, VA
3. Frank Turley, NM
4. Nol Putnam, VA
5. Doug Hendrickson, MO
6. William Roan, CA
7. Francis Whitaker, CO
8. Jeffrey Funk, MT
9. Frank Trousil, CA
10. Jim Fleming, CO
11. Stan Winkler, MO
12. Dan Boone, MD
13. Robert Owings, CA
14. Jerry Hoffman, MO
15. Empty ring, symbol of all smiths
16. Carl Jennings, CA





MOUNTAIN MAN FOLDERS

Gene Chapman



Photos by
Gene Chapman

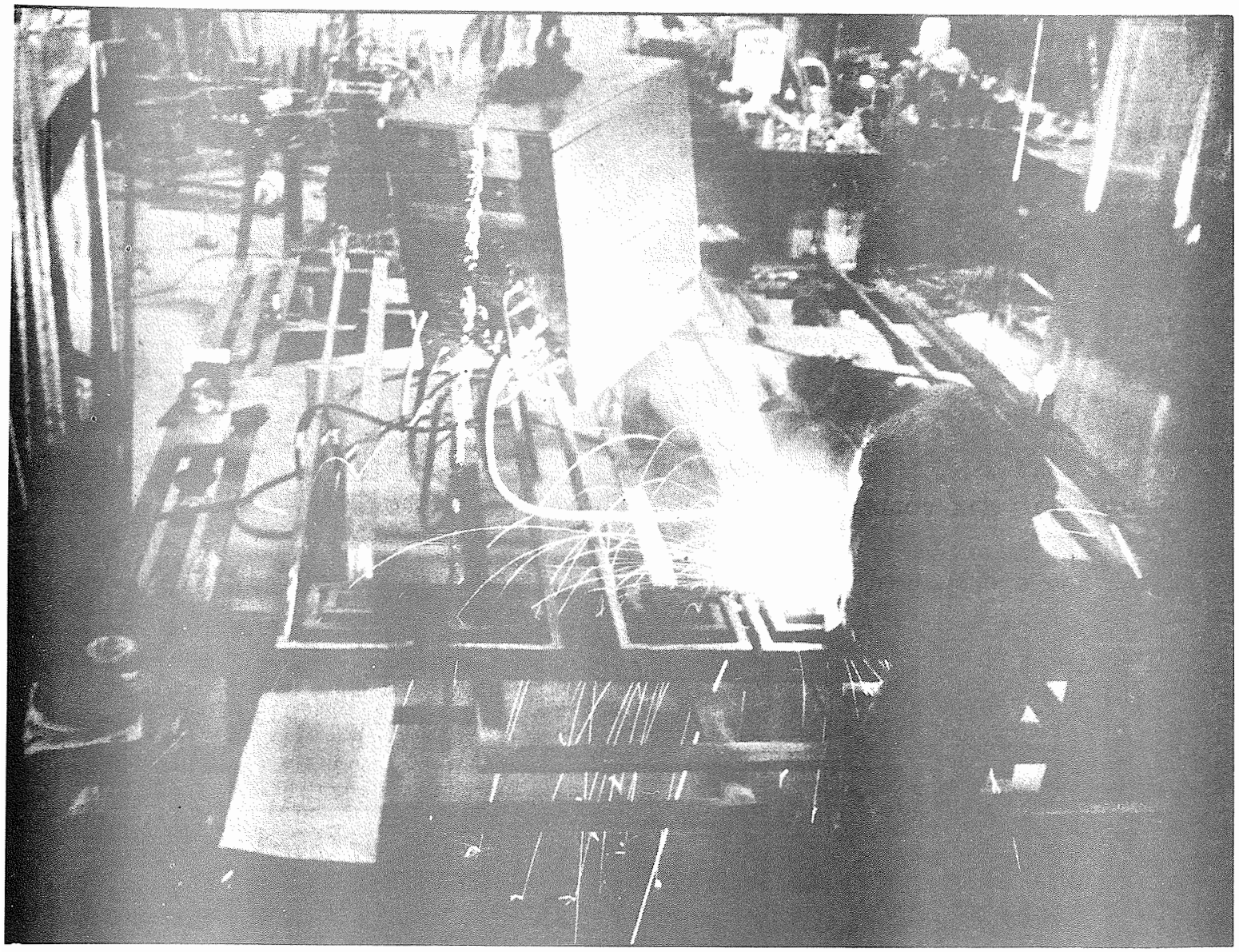


photo by Ralph Radford

IRONWORKER JIM GARRETT takes a torch to a section of the gate he's creating for one of the stations of Metro's downtown bus station.

METALSMITH FORGES ARTISTRY FROM ALLOYS

Tim St. Clair

Seaview resident Jim Garrett flips down his welding hood and bends at the waist to lay down a bead of molten metal with an arc welder.

As the metalsmith designer works, the electric spit and crackle send a sparkling cascade to the shop floor. Jerky shadows grow and shrink instantly on the walls as if a huge, brilliant television set had run amok.

Garrett is building elegant, massive steel gates for the new Pioneer Square Station in Metro's downtown bus tunnel. He was

selected in a national competition for the job, said Carol Valenta, arts program coordinator for Metro. He's one of 16 artists preparing works for the new bus tunnel stations.

A resident of West Seattle for the past seven years, Garrett has been creating art in metal for 15 years. He studied art and architecture at Syracuse University in New York.

He works in a commonplace shop on Southwest Dakota Street near the Duwamish River. Garrett share the building with a crew that makes anchors and other marine hardware. Another tenant machines parts for race cars.

GARRETT'S GATES will stand at the James Street entrance to the Pioneer Square Station between Second and Third avenues. They will rise 12 feet and span 20 feet. Each of the three sections will weigh two tons.

He's also designed the railing and grill work that will be installed outside the station along James Street.

"I wanted a vertical, uplifting feeling like fireworks or a celebration," Garrett says of the design. "I just think things should feel that way. When you're building something, you should try to make a positive statement."

The upright composition of the gates comes partly from the terra cotta detailing on the nearby Lyon Building, Garrett says. He walked the neighborhood of the new Pioneer Square Station with a camera in hand as he searched for artistic inspiration.

AS IDEAS for the design percolated through his head, Garrett also drew from art deco jewelry and the work of a Spanish artist named Eduardo Chillida. The latter gave him ideas for the square spiral designs, known as keys, that he's included in the new gates.

It took more than 100 drawings to refine the work. "I did about 30 drawings just on the keys," Garrett says. Garrett used part of an I-beam that had helped support Third Avenue while the tunnel was being dug. In fact, the process of forging is what intrigued Garrett at the start of his career in art.

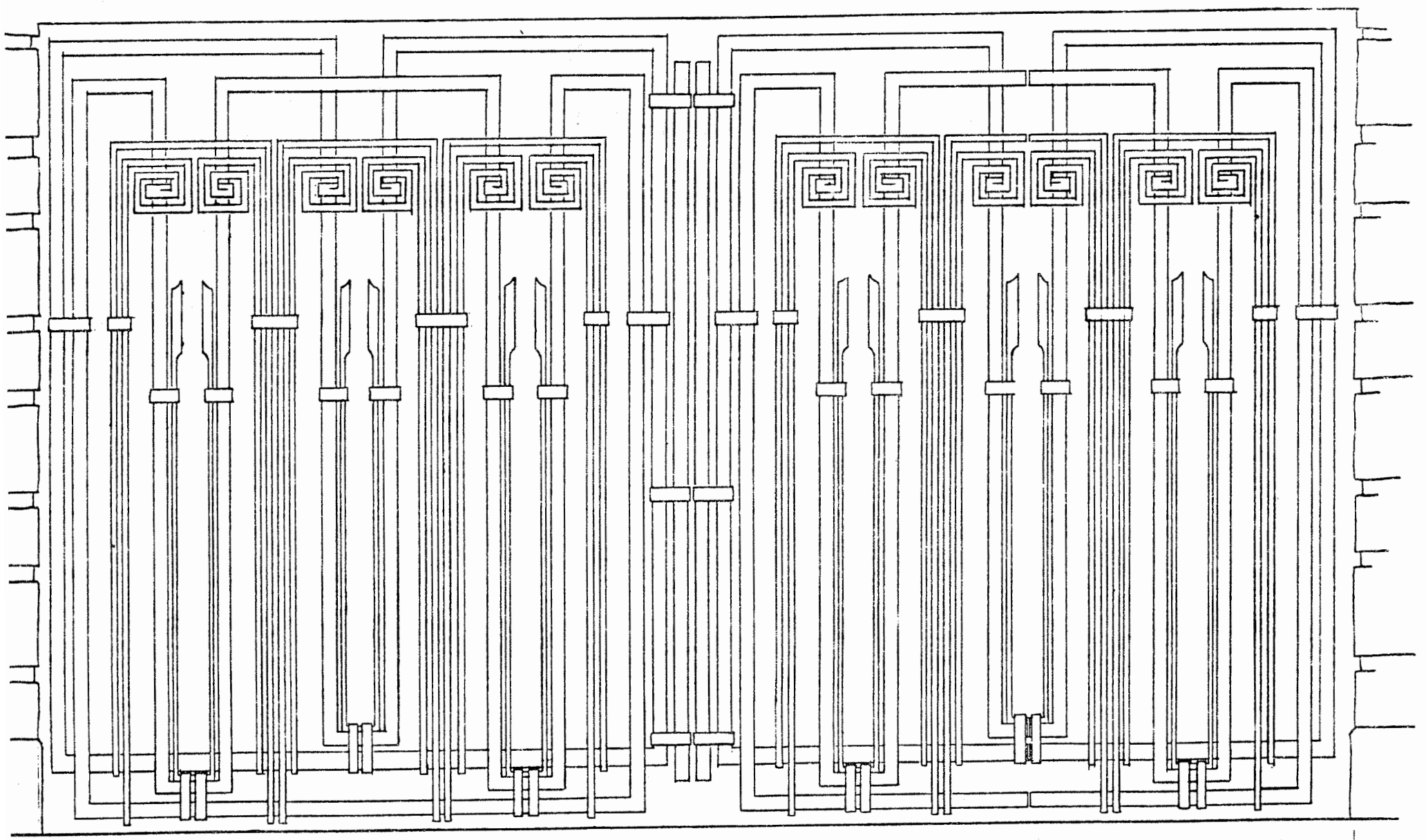
"I really got excited about working with steel because of forging," Garrett says. "It was simple to start. You don't need anything, just something to pound with, and you start making shapes. It just kind of pyramids from there."

ASSISTING GARRETT in the project is Burien resident Nate Anderson. An art school graduate, Anderson grinds down a lot of the welds Garrett make. Anderson also is into an art form that's at the other end of the spectrum from metalsmithing; namely origami, or Japanese paper folding.

"You need someone who can see if things are square, flat, and have a true radius," Garrett says of Anderson. "It helps if you have someone with visual training."

Garrett has other metal works around Seattle that he's created. He recently completed work on a piece for the Washington State Convention Center that was commissioned by the Weyerhaeuser Co.

Another gate project is at Merrill Place on Post Alley in Pioneer Square. Another gate is at Market Place north of Pike



METRO - LYON BLDG.

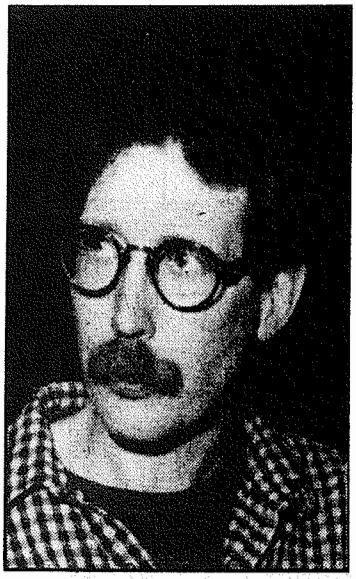
ENTRY GATES

JIM GARRETT
28 OCT 57

19' 9"

Place Market. He also worked on the fused glass walls in the lobby of Market Tower.

Some of Garrett's work is in West Seattle, but it's inside of houses. He's built metal support hardware to hold timber columns in West Side homes.



JIM GARRETT

HIS SPECIALTY though, is office furniture. Metal desks. Credenzas. He's been working with a Ballard firm to develop a strong, lightweight concrete for desk tops.

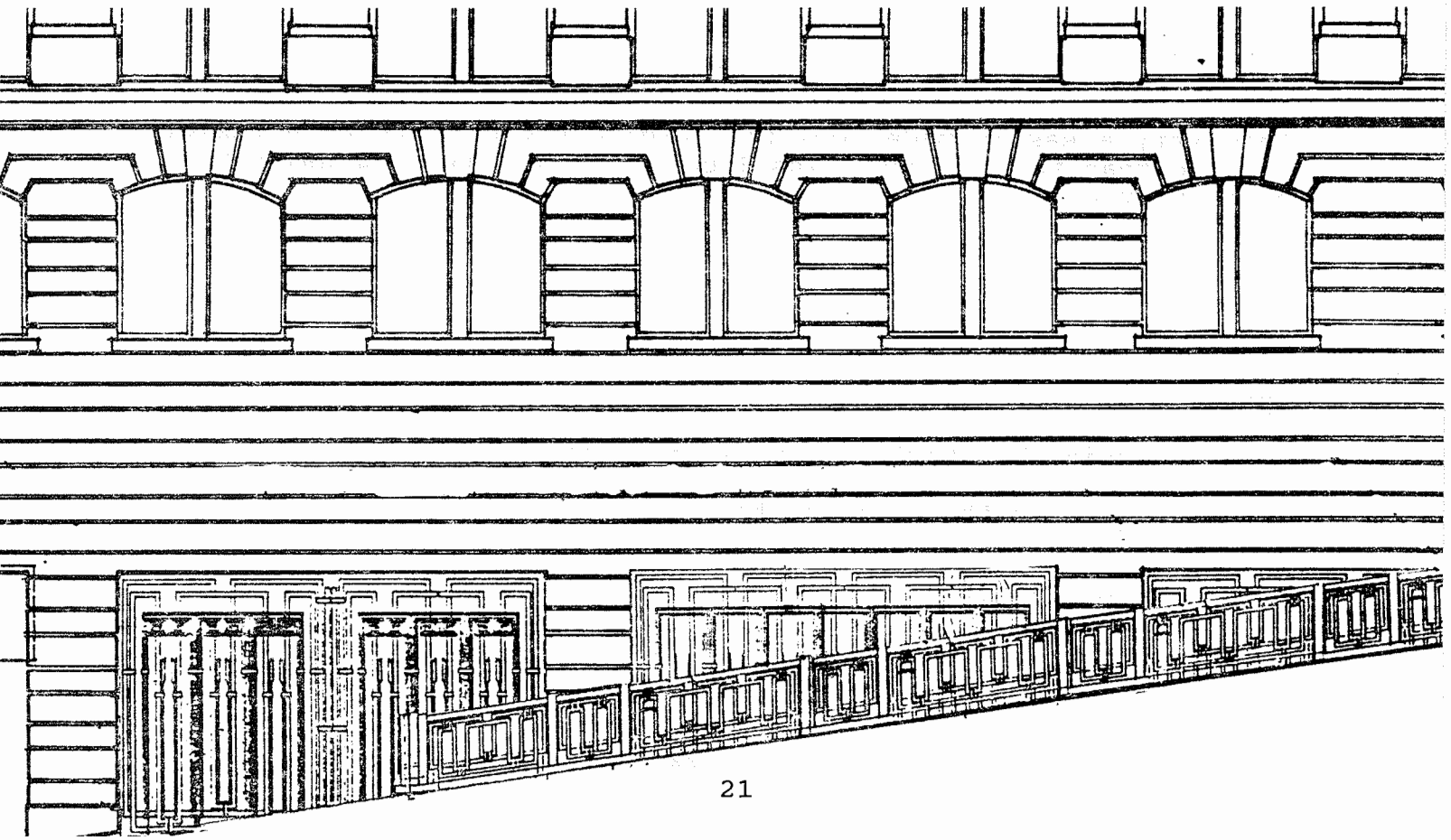
But he doesn't come cheap. Metro, for example, is paying him $48,500 for the bus tunnel-gates.

"Most of the things I do are labor intensive'" Garrett says. "There are a lot of details. It takes time."

Metro is getting a bit anxious about how much time it's taking to complete the gates for the Pioneer Square Station. "We wanted to have them before now," Valenta says. "The bus tunnel is scheduled to open in September and we were hoping to open the Pioneer Square Station in June for a sneak preview."

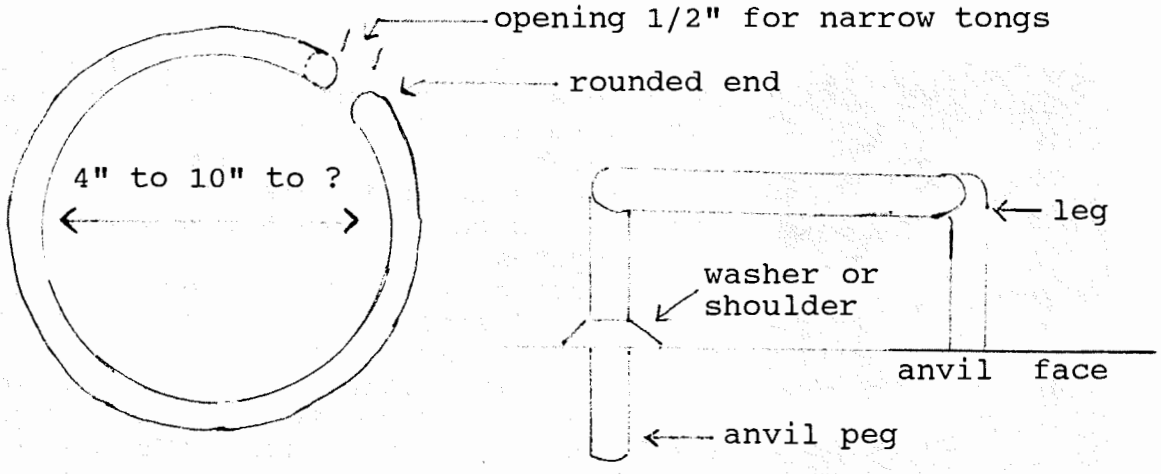
Even though it's taking longer than anticipated, Valenta is confident the Garrett gate will put a lovely frosting on the new bus tunnel station.

from: West Seattle News-Herald, April 25, 1990. Reprinted with the permission of Tim St. Clair

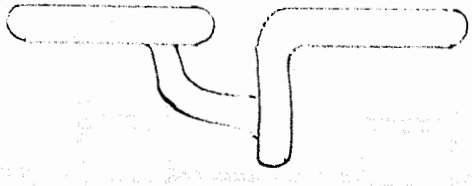


JAY BURNHAM-KIDWELL'S BOWL RING

Nahum "Grandpa" Hersom



Material: 3/4" round stock
Opening: whatever - 4" to 10"
Larger forgings may need a larger diameter of round stock
You may have to weld rounded end to leg with a gusset to preserve tong opening and to reduce springing action:



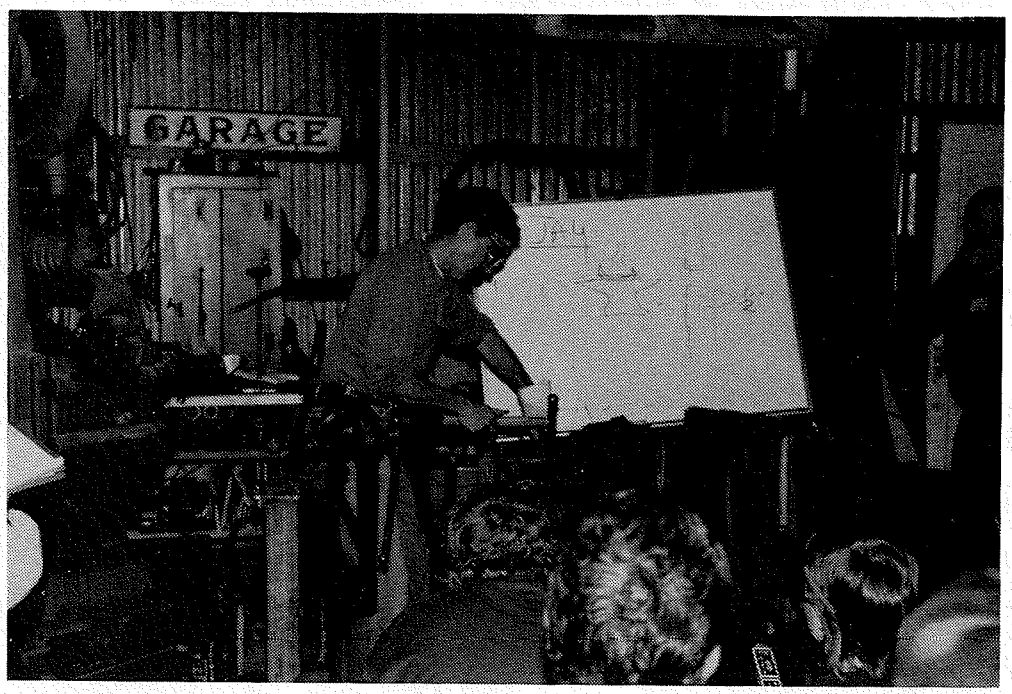
This very a easily made tool for forging bowls. Its much easier to make than the old bowl jigs I copied that were originally made of cast steel.

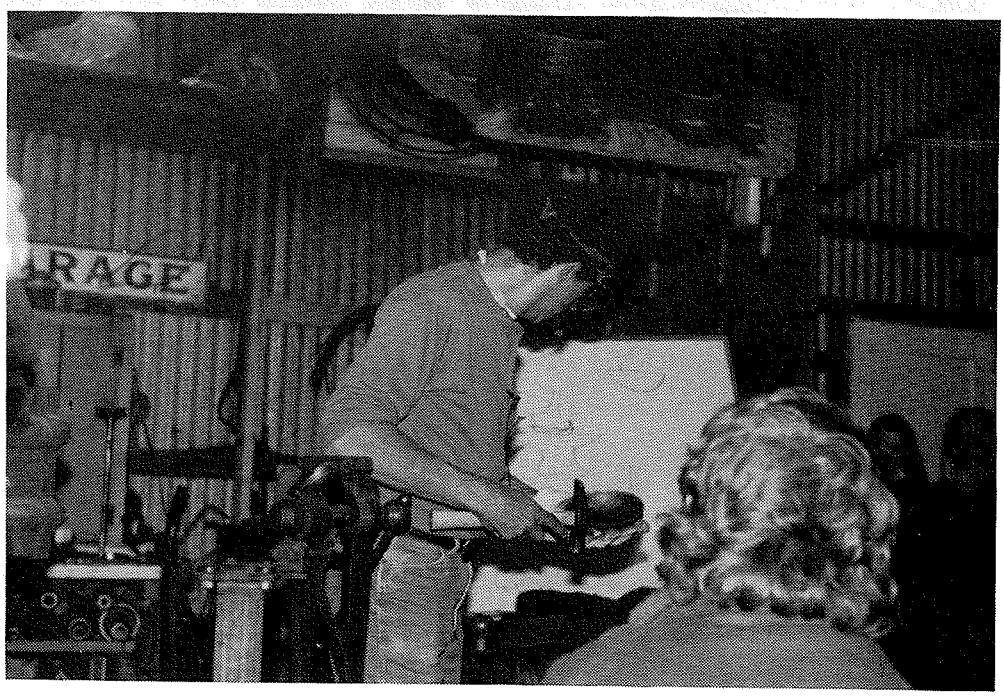
Opposite -

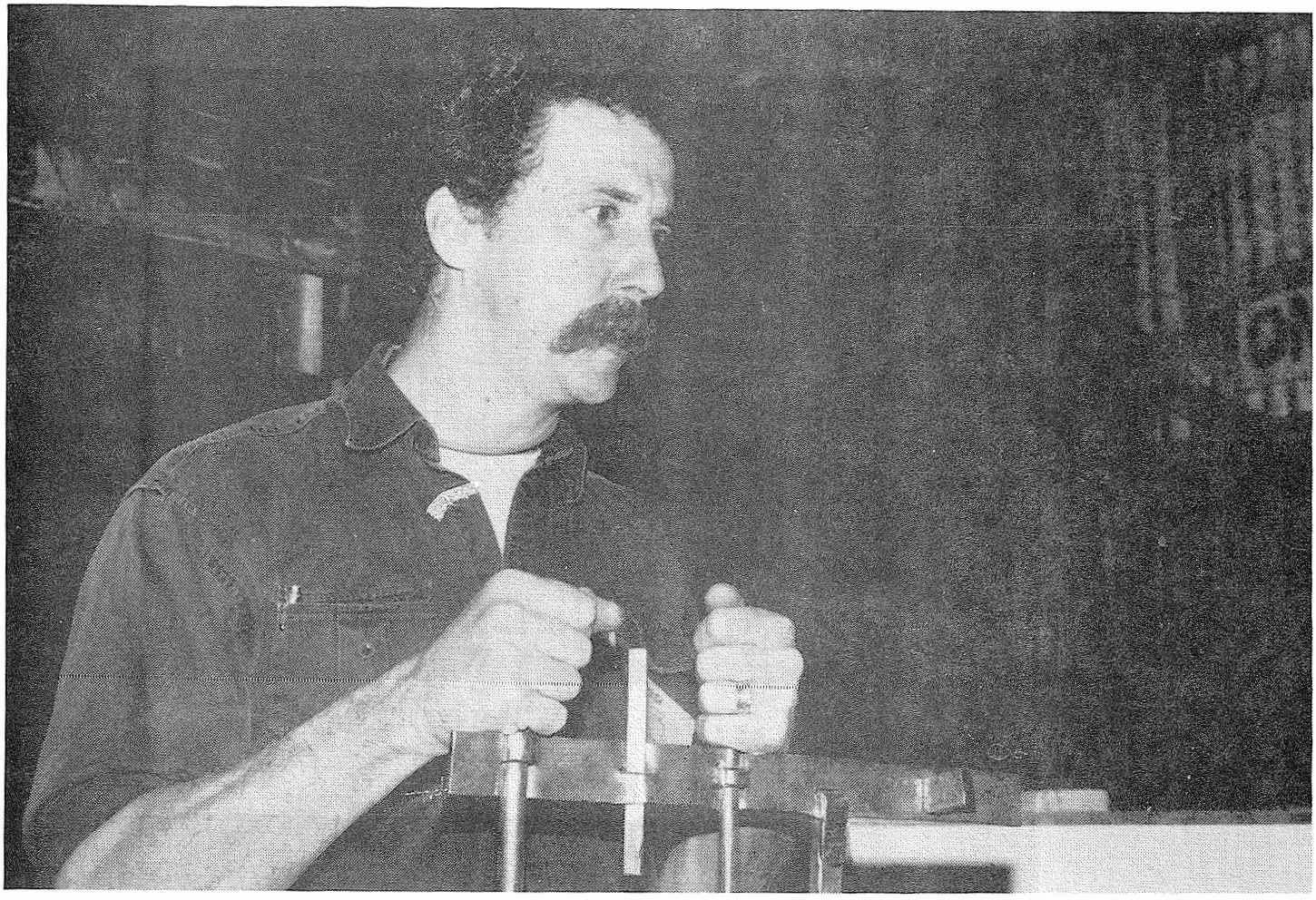
Top: Jay using his bowl ring to form a dish

Bottom: Jay with the finished bowl

Photos by Don Blair

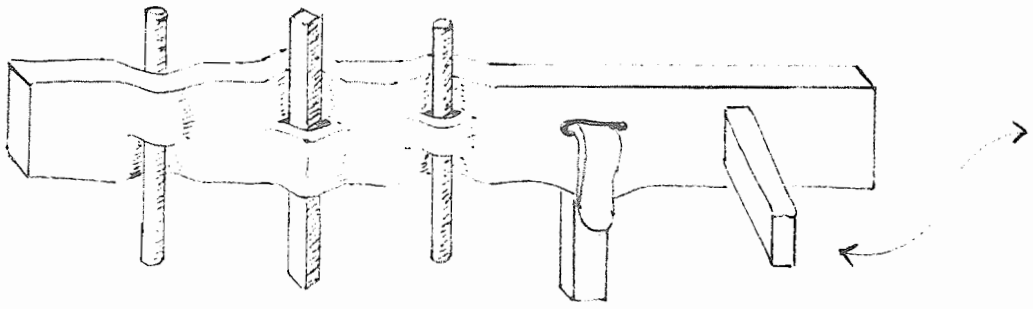

GARAGE


RAGE



JAY BURNHAM-KIDWELL

Above: Jay with sample bar illustrating German joinery techniques



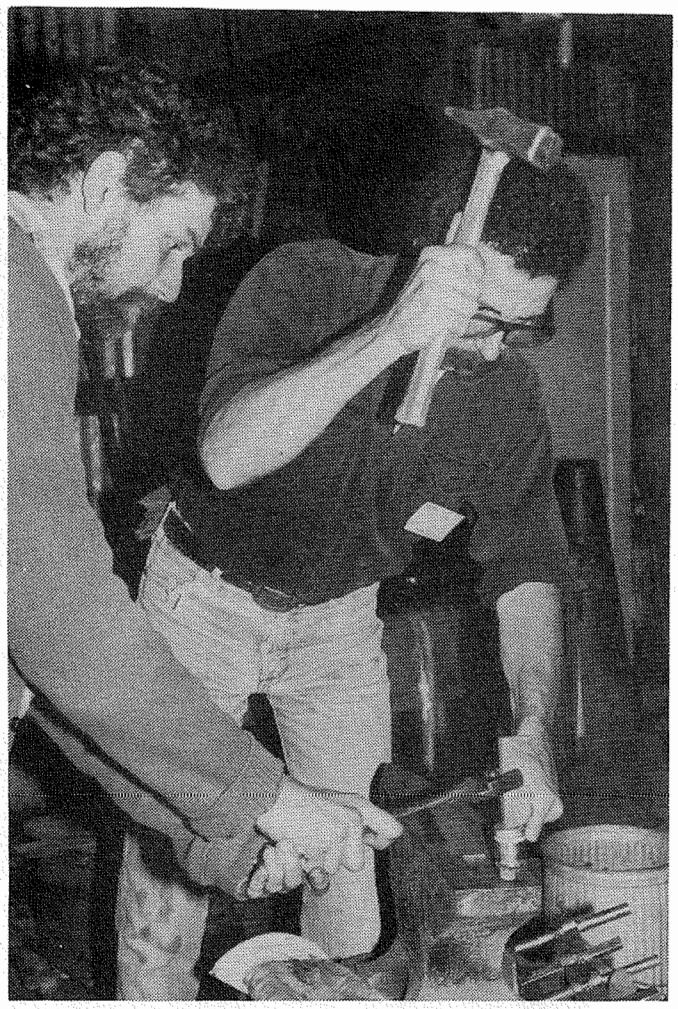
Opposite page -

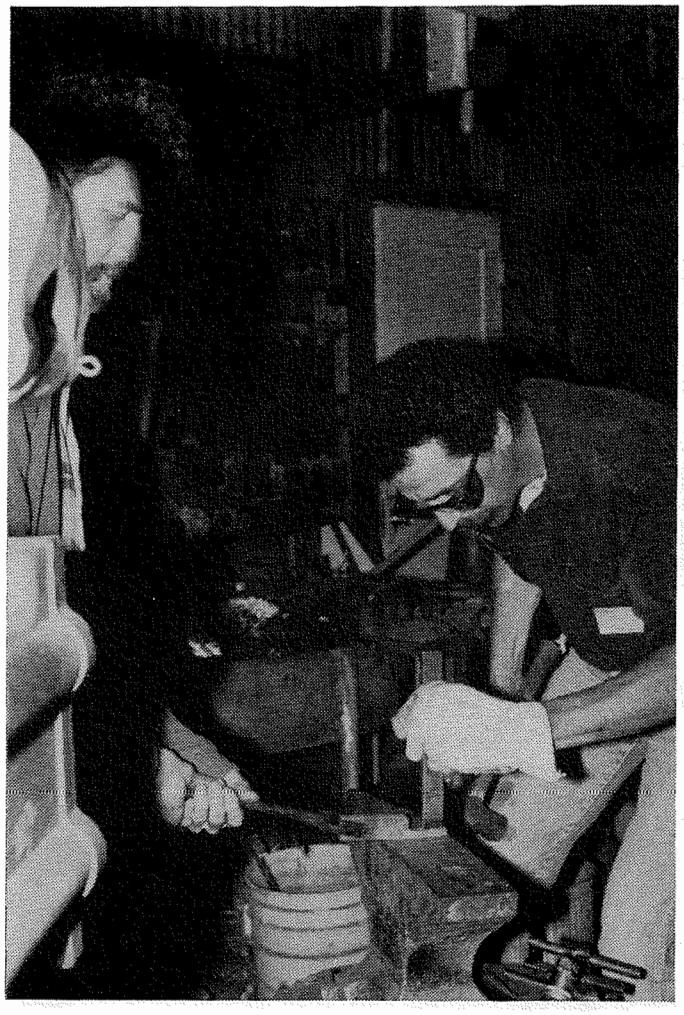
Top left: Dressing up square tenon on flat bar using a tool made from a socket

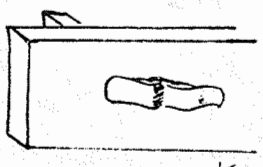
Top right: Splitting the tenon

Far right: Opening split tenon after inserting it through slit in sample bar

Photos by Don Blair





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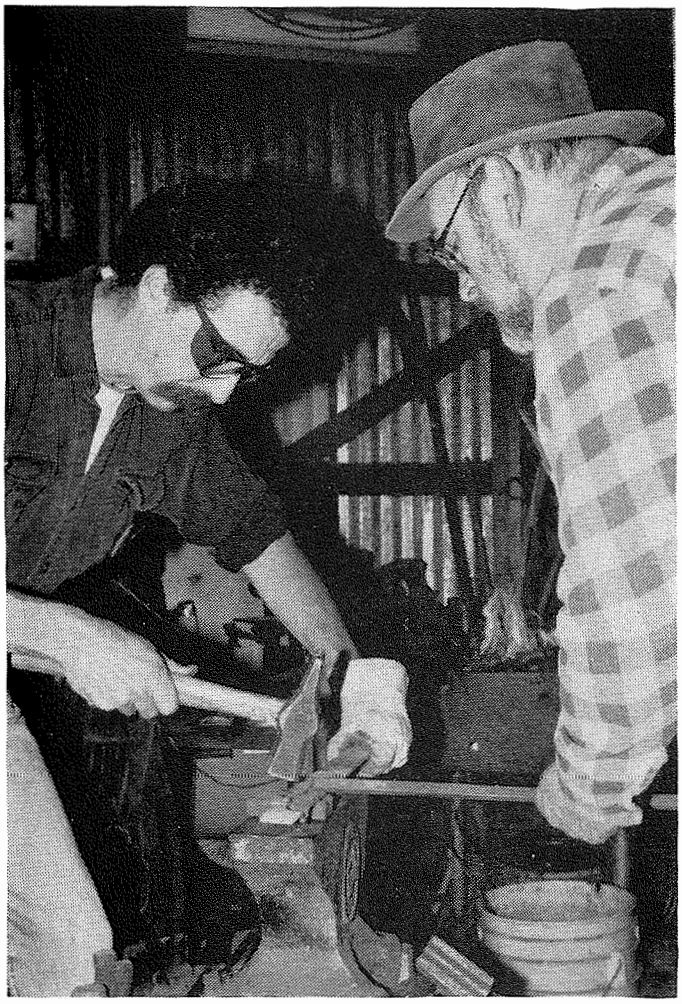
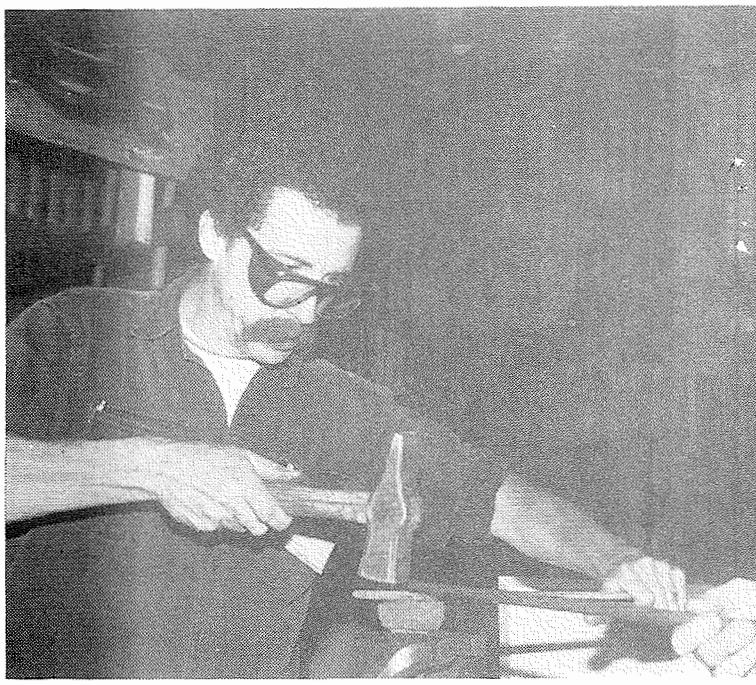




Above: Opening slit to fit square stock using V bottom swage

Above right: Opening slit to fit round stock using half round bottom swage

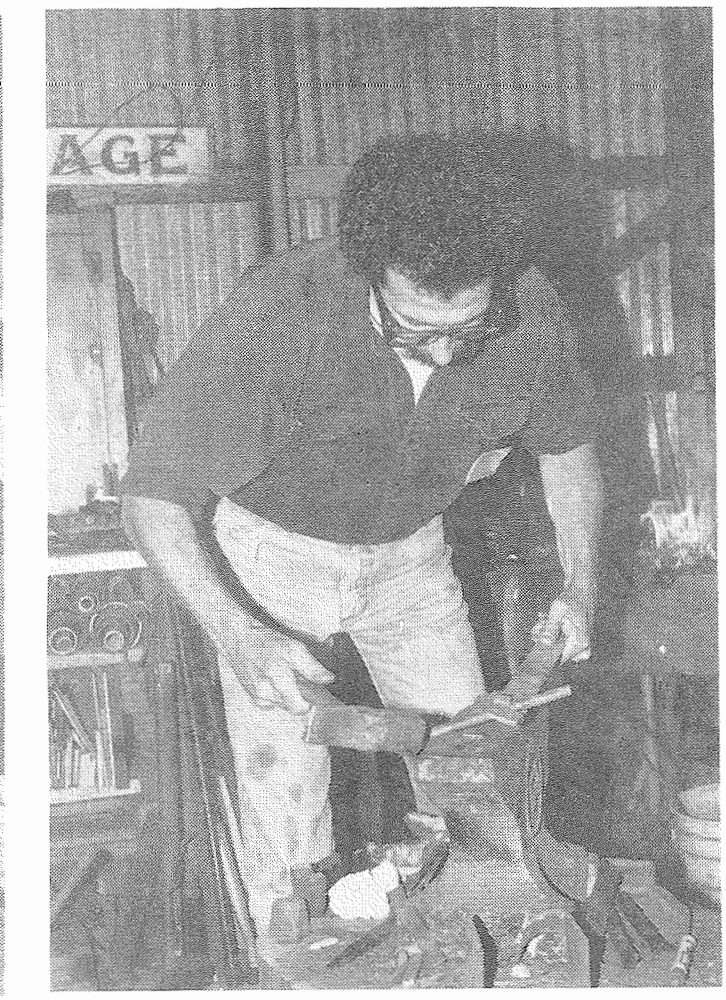
Right: Dressing open slits with a drift

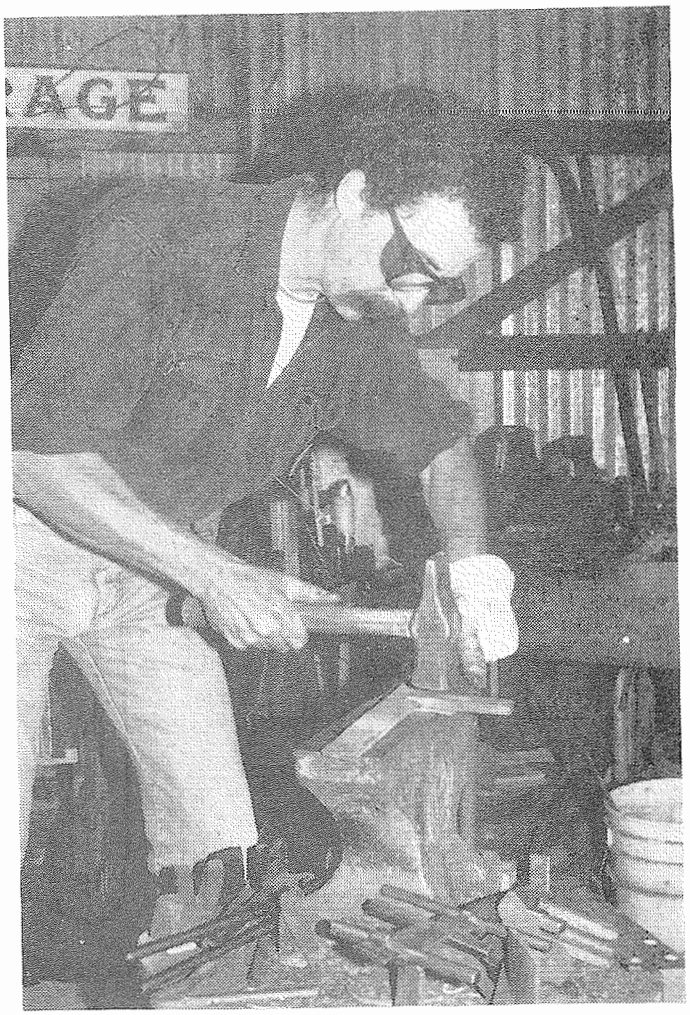
JAY BURNHAM-KIDWELL

Below left: Fitting round stock into open slit

Below right: Closing drawn and folded flat stock through slit

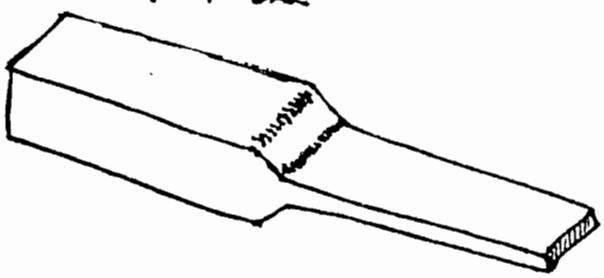
Photos by Don Blair





ANVIL SWEDGE BLOCK

1" × 1" BAR



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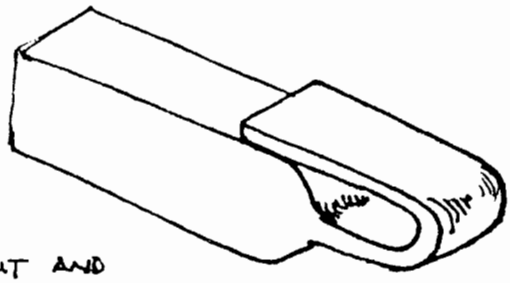
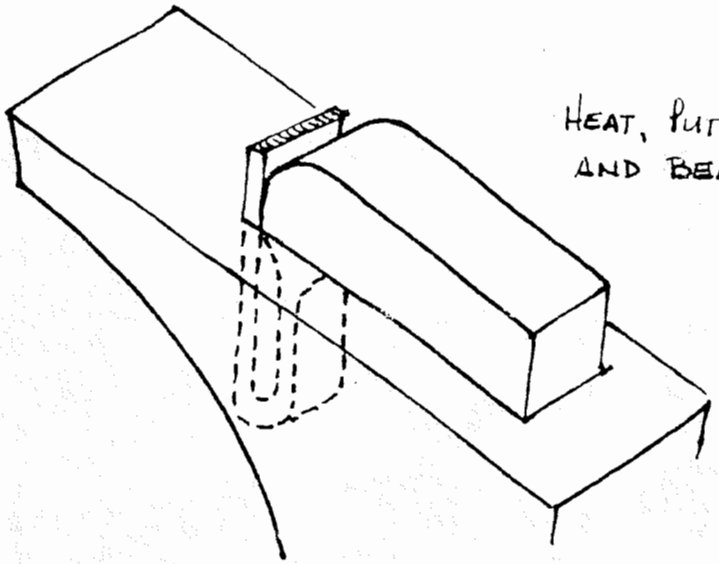


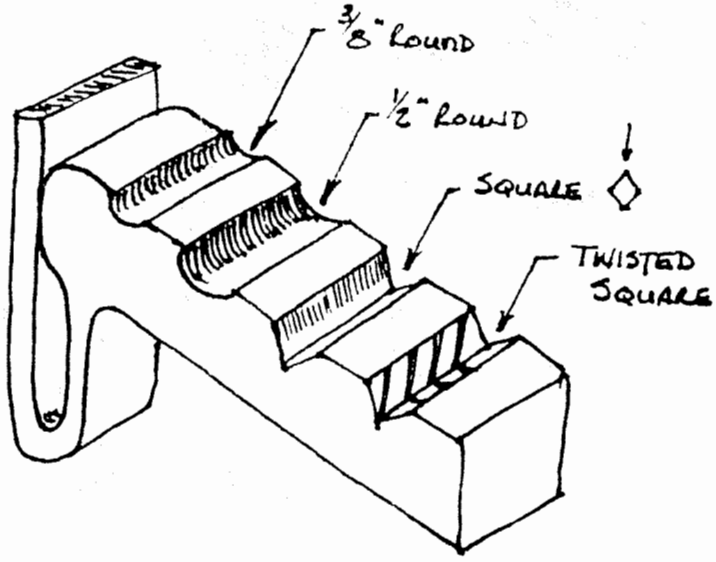
FULLER, DRAW-OUT AND FOLD OVER TO FIT HARDIE HOLE

(3.)



HEAT, PUT IN HARDIE HOLE AND BEND 90° TO ANVIL FACE

(4.) HEAT AGAIN, AND WITH COLD BARS, HAMMER IN DESIRED SHAPES – QUENCH AT A RED HEAT AND USE.



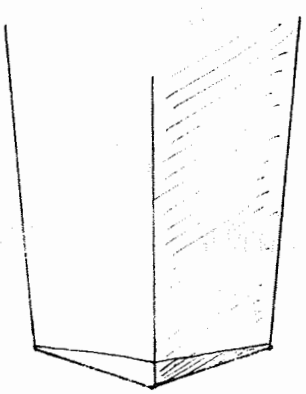
Demo by Bob Patrick of Bethel, MO at the '89 Quad-State Roundup

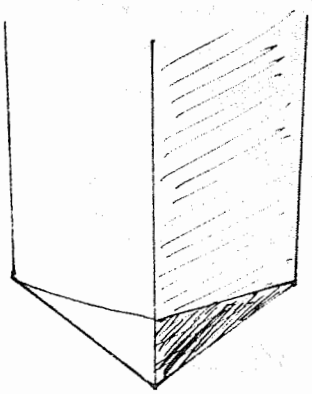
from: Michigan Artist Blacksmith Association, The Upsetter, Nov.-Dec. 1989

CENTER PUNCHES FOR HOT CUTTING

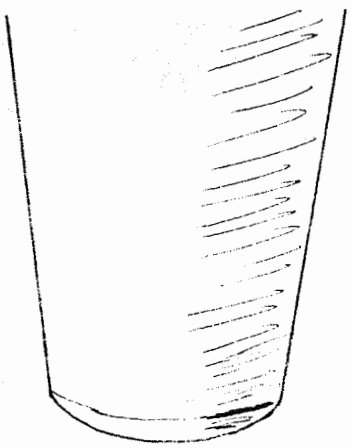
Nahum Hersom

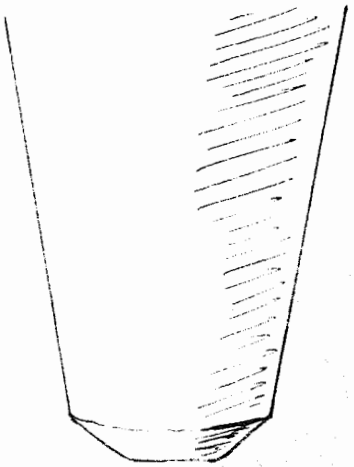
Marks made in metal for hot cutting slits sometimes seem to get lost. Often, iron has many dimples and rough spots that look like center punch marks when the iron is hot. Making center punches with square points, instead of round, helps eliminate the problems seeing the marks.





Make a square punch. Grind the point rather flat or short instead of long. Even a round center punch point should ground flatter and not sharp. It should have a rounded point or flat spot. These punches all make marks that are easier to see on hot metal.





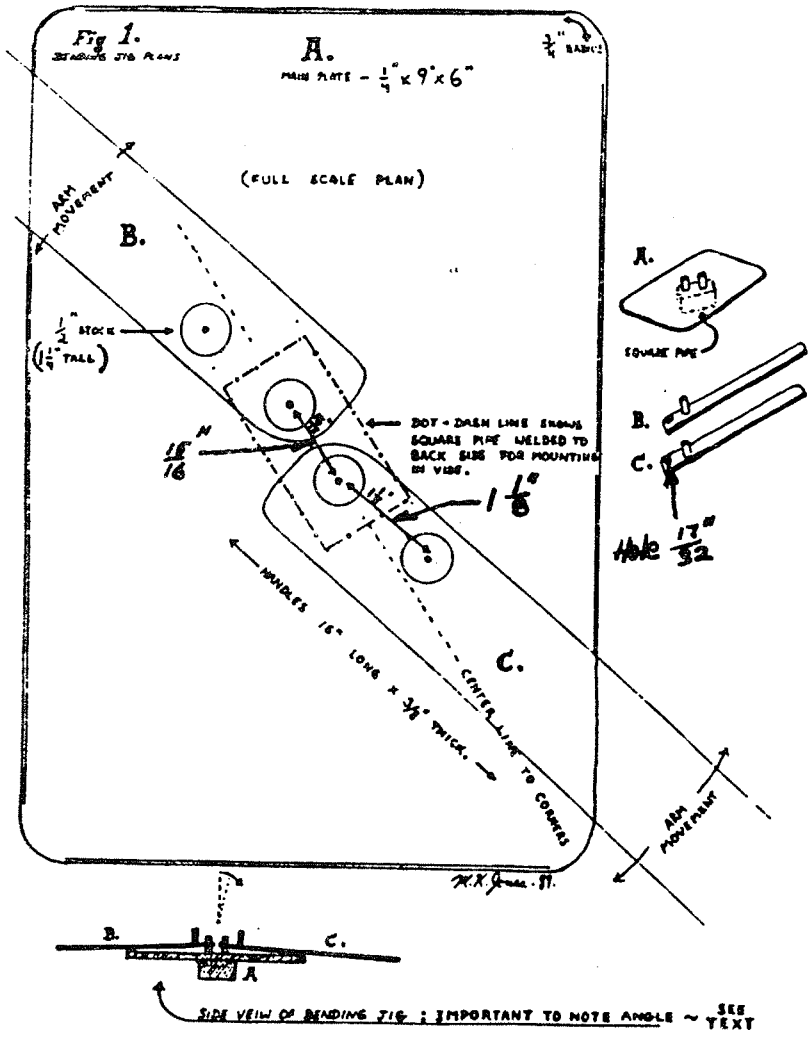
STUART HILL'S CLAYDON KNOT

STEP BY STEP

Don Butler
Salamander Forge
Eureka, Ca

Illustrated by Michael K. Jones

Fig 1.

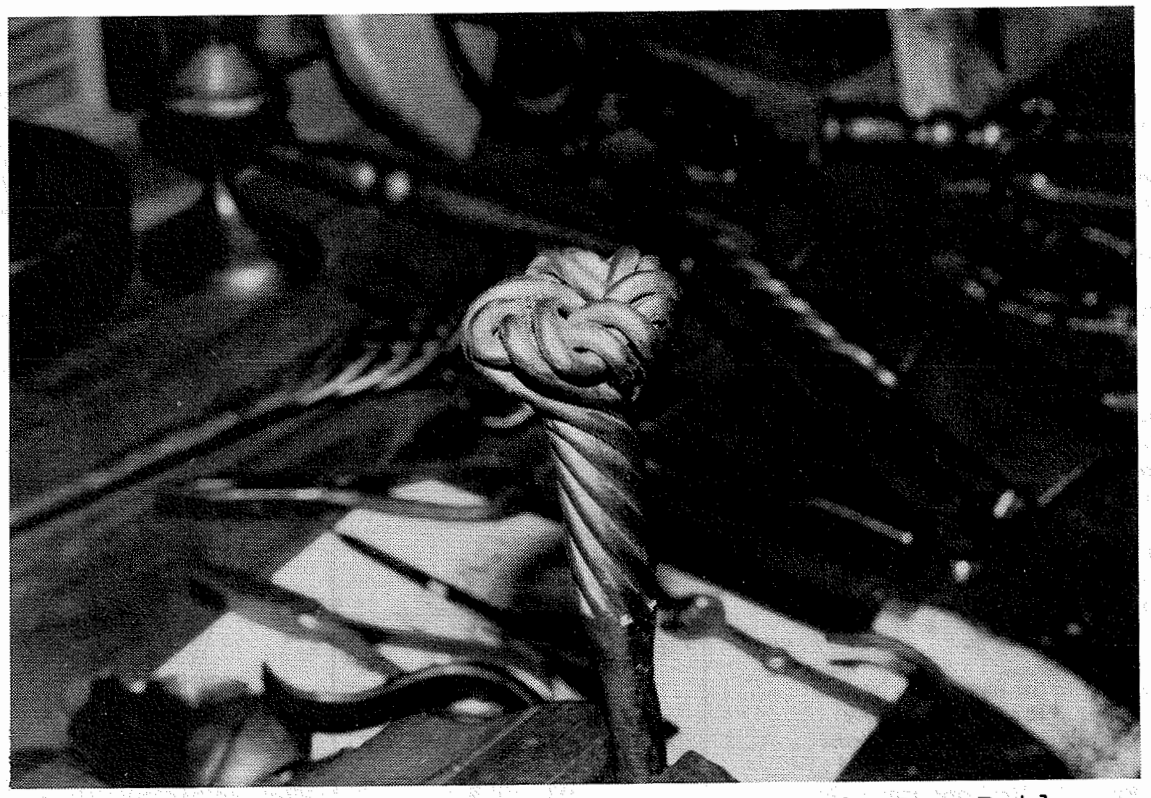


We owe thanks to Stuart Hill of Claydon Forge, U.K. for dreaming up this delightfully functional item.

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"



Claydon knot used for a handle on a poker by Don Butler
photo by Don Blair

Procedure:

Step 1:

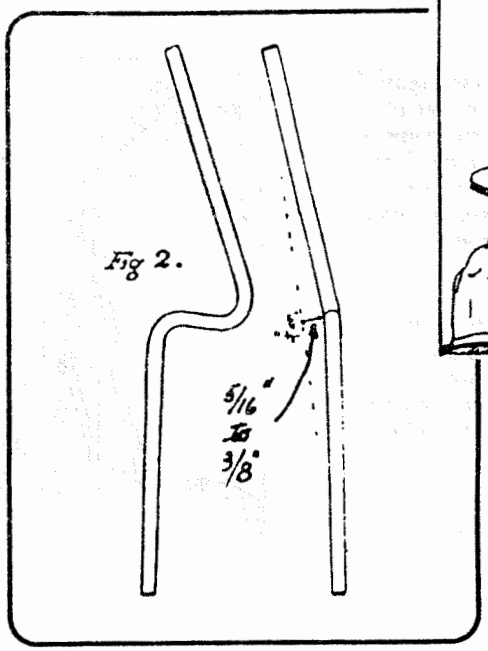
Make your jig the same as Figure 1. Take note of how arms B and C tilt in the bottom illustration. That angle is important in that this is what will give your pieces a helpful offset or cant.

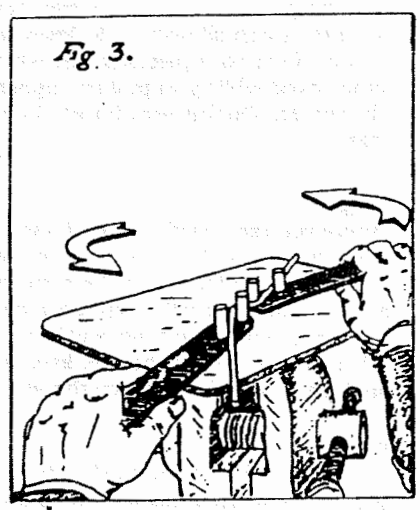
Step 2:

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.

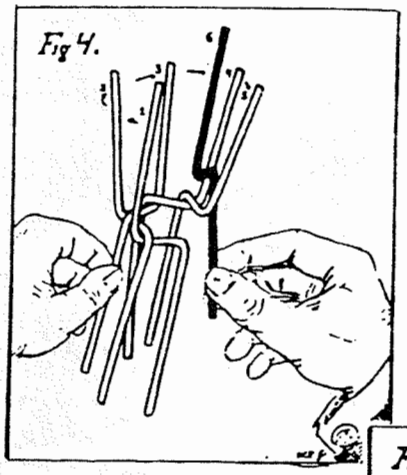
Step 5.
Look at Figure 5. See how the seventh piece goes under the first leg and over the sixth leg. Insert your seventh piece likewise and you move it rotating it 180 degrees. This rotation will interlock all seven pieces. What magic, just how did Stuart Hill figure this out? Now, press one end of this into your modeling clay tart. You now have what looks like Figure 6.

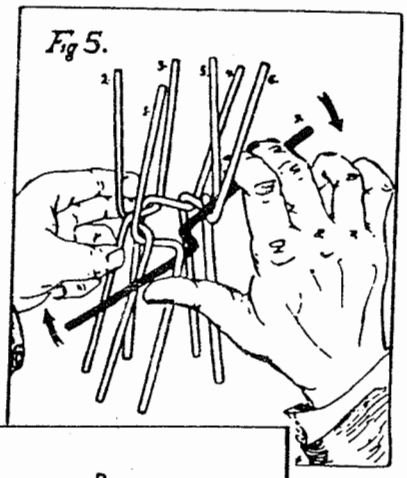
Step 6:
Snug the pieces into the modeling clay tart. Look at the center of the knot and move things around until the center looks symmetrical. Notice how Michael illustrated the flame in Figure 7. Heat one arm at the low point of the elbow and gently pull it to the center. Applying heat low on the elbow 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.

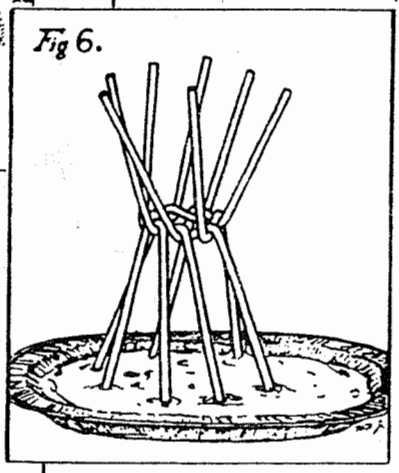
Step 7:
Before you tack-weld that end like Figure 8 take one of your 1/4" round 1" pieces and set it in the center where the arms come together. This plug will keep the arms from collapsing when you forge weld the end. When you tack-weld the top, keep it clean, don't let the weld run down the sides.

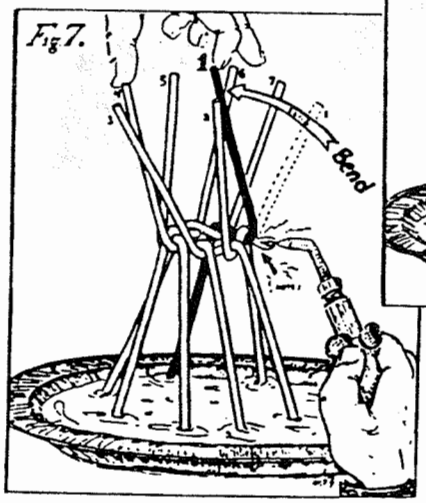
Step 8:
Clamp the welded end in the vise. Or, drill a 1-1/4" hole in a block of wood and set the closed end in the hole, then clamp the block of wood to the vise. Follow Figure 9, bend all the arms in, add the other plug and tack-weld.

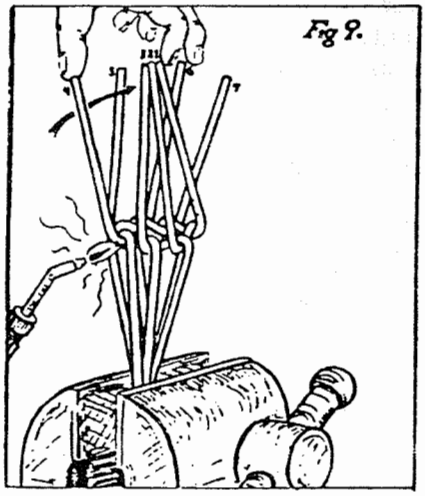
Step 9:
Forge weld both ends for about 1-1/2". Square both ends as in Figure 10.

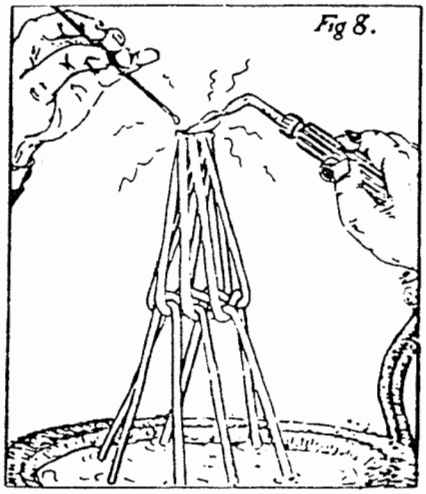


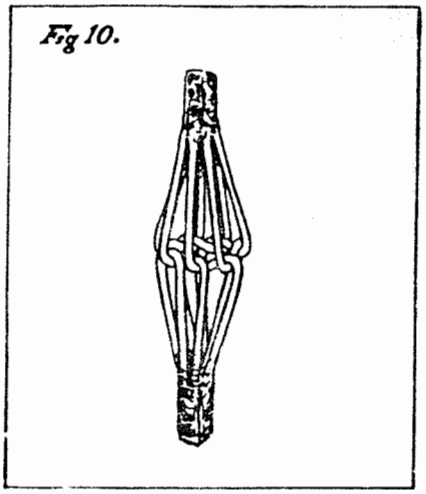


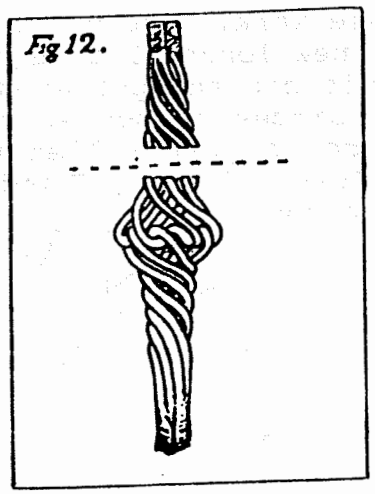


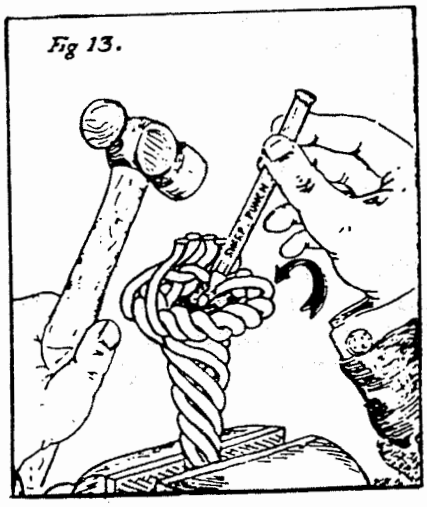


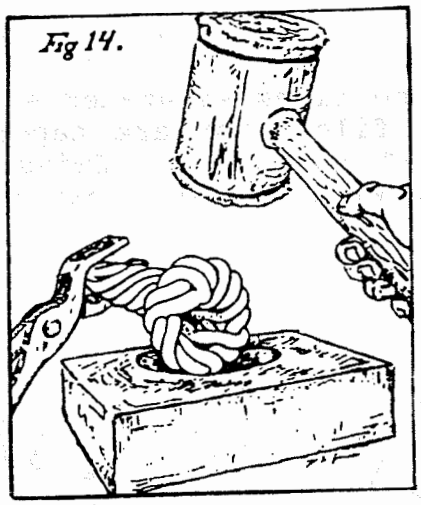












Step 10:
Set the jaws of your vise and twisting wrench to fit the square ends of your knot. Take a slow even heat over the entire piece. Remember you are twisting seven pieces. Take a yellow heat, then pull your piece from the fire and, placing one end in the vise and your wrench on the other end, twist 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 wil 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!

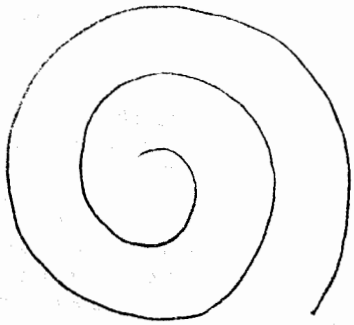
from: CBA, California Blacksmith, May 1989

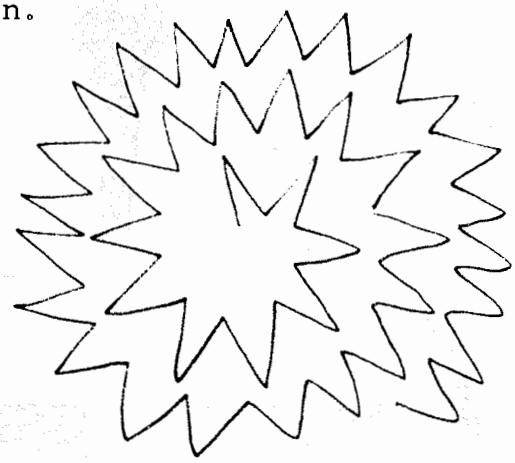
FILE HOLDER

Nahum "Grandpa" Hersom

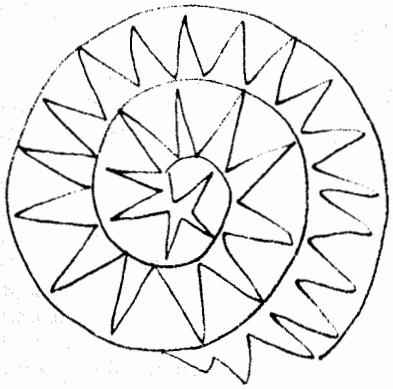
Have any of you bought files lately? The last weekend I was in Portland I went to a hardware store with Jerry Henderson and found just what I needed for repousse work. The price knocked me out of my tree! So to keep my files new longer I thought of this holder.

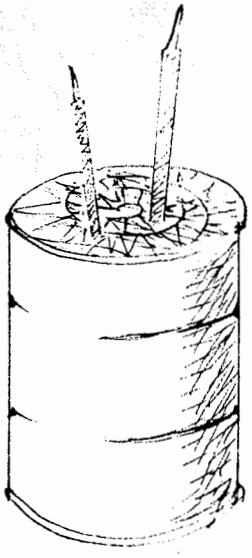
I took a pineapple tid bit can and put about 3/8" of lead in the bottom. Then I took two pieces of poster cardboard and made a rolled up insert. One piece is just rolled up and the second piece I bents on 1/2" line before rolling. I put the two together and inserted the roll into the can.





The cardboard keeps the files separated so they don't scuff together. This works for files that are tapered. Use smaller bends in the cardboard (1/4" - 5/16") for Swiss files. Spray the cardboard insert with lacquer to resist wear after inserting it into the can.



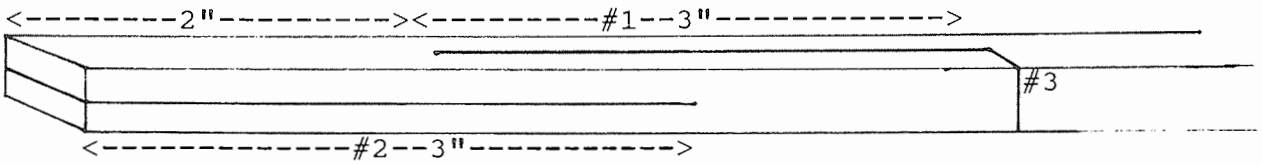


BLACKSMITH'S CROSS

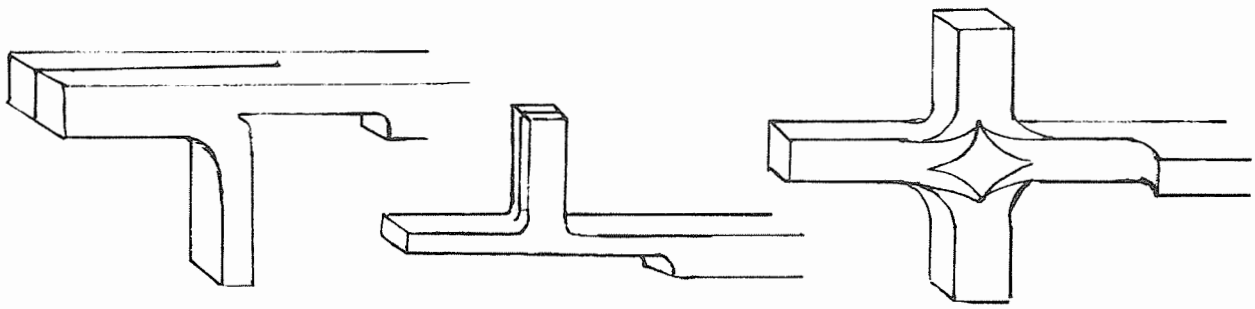
Nahum "Grandpa" Hersom

Joe Elliott demonstrated this at our spring gathering in Corvallis, April, 1990.

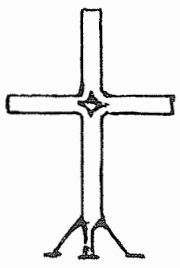
Use any size square stock preferred. Measurements given here are for 1/2" stock.



#1 - First, split 3" long section (through bar) 2" from one end of the bar. Use a rag out tool to clean up ragged edge left by the splitter. Close up the split.
#2 - Split end of the bar 3" long overlapping the first split (#1) by 1". Clean out the ragged edge. Close second split and square up bar if necessary.
#3 - Cut half way through the side of the bar at the end of cut #1. This releases the top end of the cross.



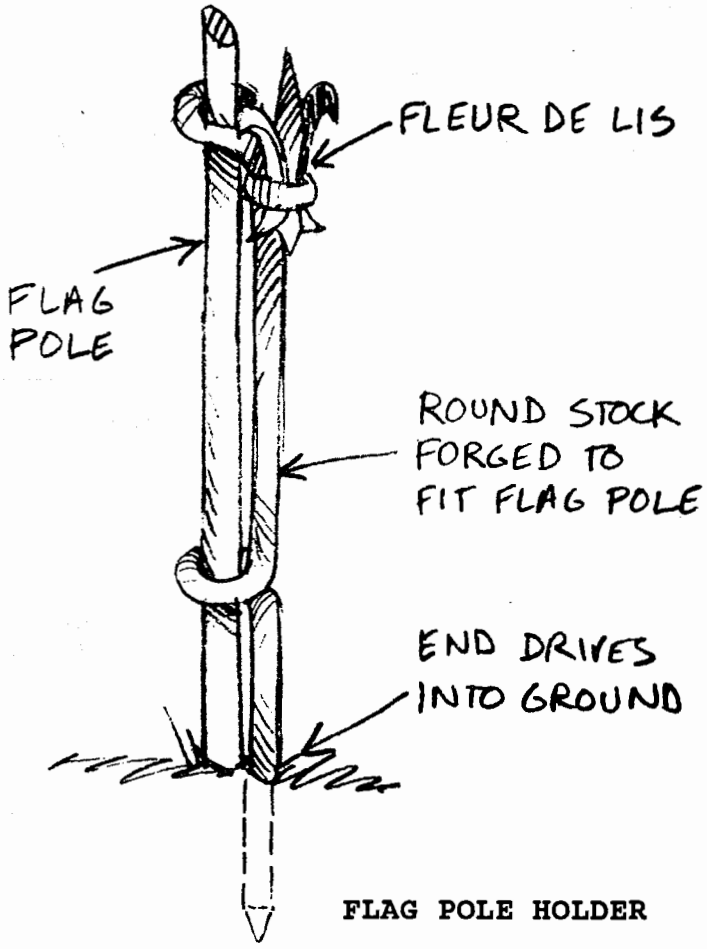
#4 - Heat and spread cut #2 out 180 degrees to make a T shape. Pull up cut #1 at cut #3 to a vertical position. This will make your cross. In the center a square will form with a twist in each of the square's side legs.



Forge all arms to desired shape. I cut the bar off 2" below cut #3 and split it both ways to make 4 legs for the cross to stand on. I flatten the ends of the legs to form feet.

A brass piece could be mounted in the center space of the cross with I.H.S. (in His service) engraved on it. The arms of the cross can be decorated with tool cut lines.

For a larger cross, make splits in the same proportions but longer. Splits #1 and #2 can overlap by any length to increase or decrease the center hole size (you need the hole).



FLAG POLE HOLDER

Ken Valdejo

Jerry's fleur-de-lis made a nice finial for a flagstand that I made for an 18th century French Militia.

In the re-enactment biz there are a lot of Military units; English, Spanish and French. Everyone knows someone who is French, wants to be French or has been French-kissed. The Boy Scouts also claim the fleur-de-lis as their emblem. As you might have guessed, there is a market for it.

Start off with 4' of 1/2" stock, round or square as you like it. At one end make a 2" loop. Point the other end. Come up from the point about 12" and make another loop. Now you've got a basic flagstand. Put your foot on the bottom loop and push it into the ground.

Next is the fleur. Sorry to say, I haven't discovered a quick and dirty way to knock these out. You'll have to get Jerry's secret. Anyway, use a piece of 1/4" or 5/16" for the belt. It looks nice if you twist it. You can consider mixing round and square in the spine of the flagstand, and you're in business.

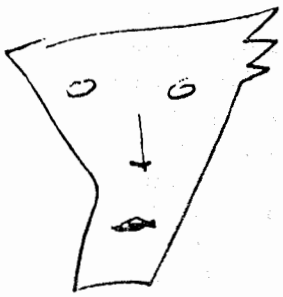
I think that these would be good accents to dress up signs or andirons.

from: Newsletter of the Blacksmiths Association of Missouri, Dec.-Jan. 1990

MASK MAKING

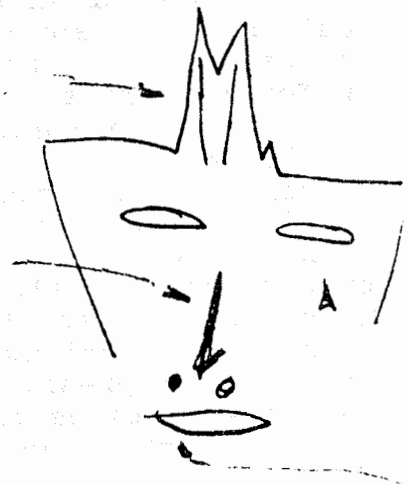
BRIAN HUGHES
SPRING DEMO

USE 16 GAGE
SHEET STOCK



SKETCH ON STOCK

USE CHISEL TO CUT DETAIL
& GRINDER



FILE ALL SHARP EDGES

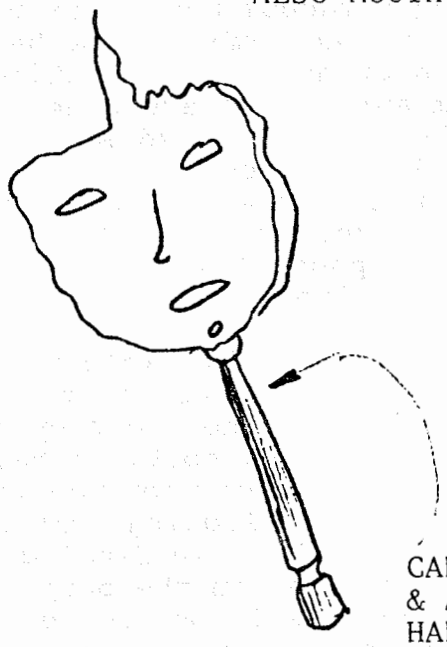
CHISEL LINES

RAISE NOSE WITH FORMING CHISEL

CUT OPEN EYES & RAISE ALSO MOUTH

FORM EDGES ON STUMP EDGE

SPRAY PAINT BOTH SIDES: YELLOW
GREEN
RED
BLACK



CAN ALSO FORGE
& ATTACH MASK
HANDLE

Sketches by Leonard Ledet

from: Arizona Artist Blacksmith Association, Anvil's Horn, May 1990

TUMBLER FOR IRONWORK

John Smith

My tumbler is built entirely of steel from a scrap yard. It could be built any suitable size (within reason) depending on what you can get your hands on. Of course, what you are going to use it for is a factor - mine had to take stands for fireplace sets, so I made it big enough to take several at a time. Two things are really important. One is that the tumbling material moves around enough to cause lots of impact. This is a function of diameter and speed. My tumbler turns at 24 rpm and takes 30 minutes. Another I know of turns at 60 rpm and takes 15 minutes. I know of another that turned too slowly - about 15 rpm - and didn't work properly. My guess is that the smaller the diameter, the faster it should turn. The tumbling medium (in my case about 100 pounds of plugs from a punch press, 1/2"to 1" diameter) has to bombard the ironwork hundreds of times to knock the scale off and polish the steel.

The other important detail is that the powdered scale is sucked out with a vacuum cleaner as the tumbler is running. The powder is extremely fine - like black talcum powder - and the vacuum cleaner has to be quite powerful and have a good filter system. I am using an industrial Shop-Vac, which has a cloth filter that fits on the top of the canister. I have used it a lot in the last 9 months and it is holding up fine. Very little dust is produced, so a large capacity is not necessary, but the suction power must be good.

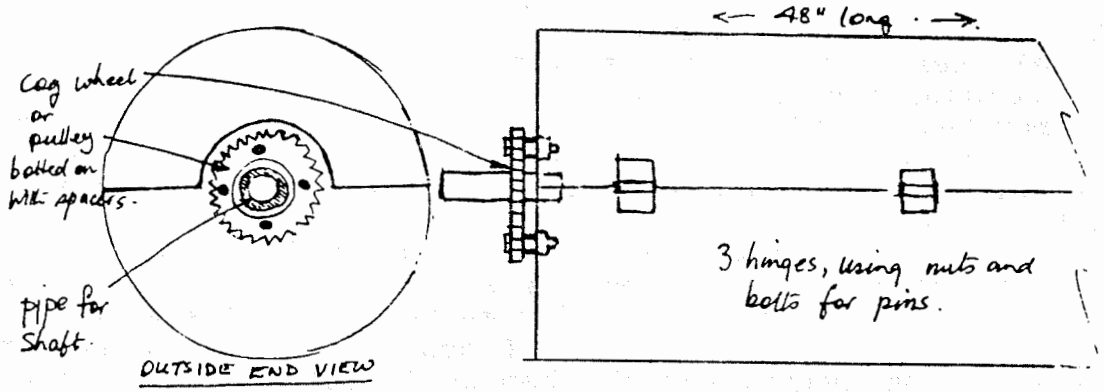
Having a vacuum hooked up means that you have to use pipe for the shafts of the tumbler, and have a way to hook up a non-rotating vacuum cleaner hose to a rotating shaft. The method I used works well - I'm sure there are other more sophisticated ways.

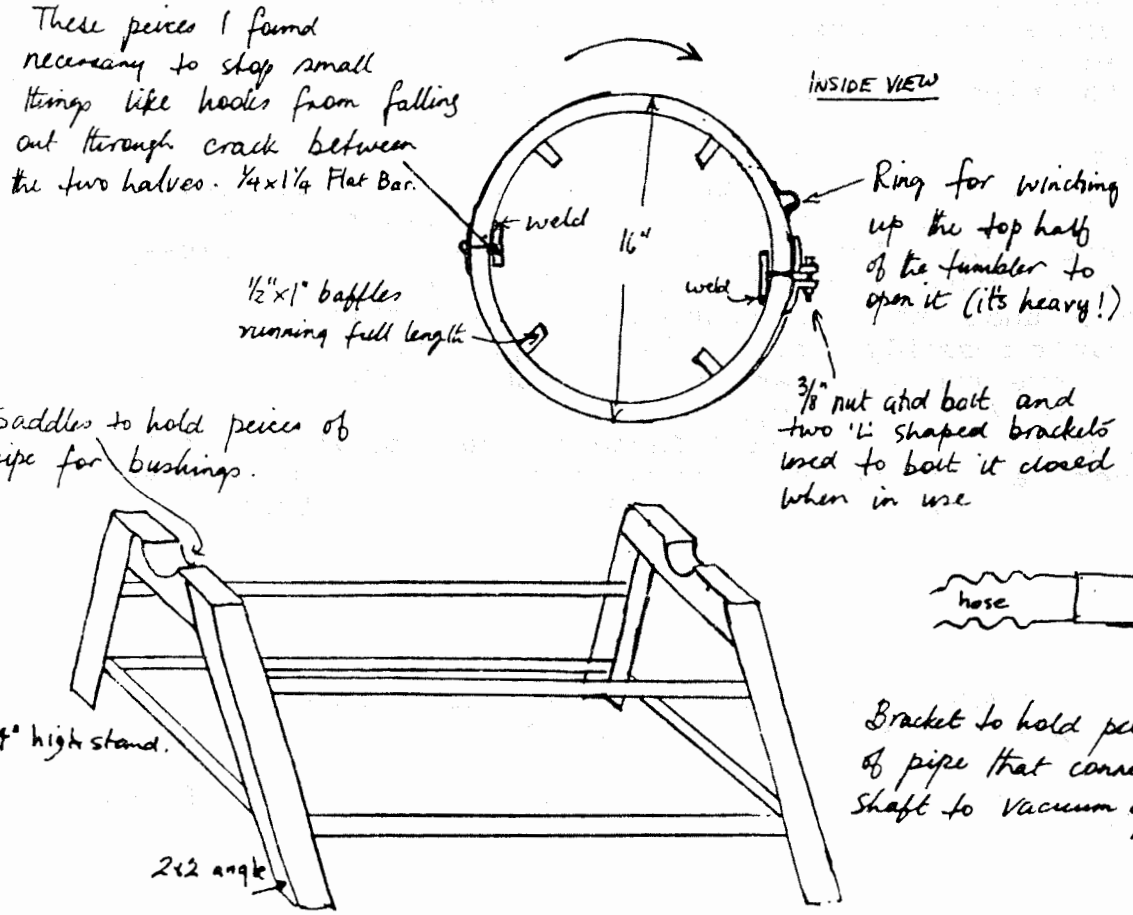
For bearings, I used short pieces of pipe the right size to fit over the pipe used for the shafts (which was 1" heavy wall pipe) and put grease fittings on them. They rest in saddles on each end of the stand. Pillow block bearings would have been better, I suppose, but my cheaper method seems to be holding up fine. I can always replace my bits of pipe with bearings when I need to.

I would recommend welding a thin piece of rod across the inside end of the shaft to stop punchings from getting in there. This happens with mine and they fall into the vacuum cleaner hose and collect in a low spot. I have to dump out the hose every few days. You will notice when the vacuum is not working properly; the ironwork comes out looking very dull.

I was very lucky in finding a used motor with a built-in gear box and a cog wheel on the output shaft, running at 48 rpm. I put a matching cog wheel, but twice the size, on the tumbler, to bring it down to 24 rpm, and connected the two with a chain. Other tumblers I have seen have used a combination of pulleys and V belts to bring the speed down. A 3/4 h.p. motor should be enough to run it.

Use heavy enough pipe for the tumbler to last, as it is getting constant wear inside. Mine is 5/16" thick. Cut the pipe to length, cut it in half, and weld on ends from some plate steel,





I made a wooden shelf to fit on the bottom braces. This holds the motor, the wrenches for the bolting it closed, and a garden cultivator – ideal for finding leaks buried in the machinery

cutting around the shaft as shown. Then weld in some baffles to cause good agitation. To get the two shafts in line I used one piece of pipe and cut the center section out after welding both ends where they pass through the end plates. Remember to put a wooden plug in the unused shaft. Actually only one shaft needs to

be pipe, unless, like me, you wanted to make it possible to put the vacuum cleaner on either end, depending on its location.

My tumbler is banished to the woodshed. It converts electrical energy into noise, so put it where it won't drive you or your neighbors nuts. A friend tried lining his tumbler with tire rubber held on with dozens of bolts, but it doesn't work very well. Things like pokers keep getting stuck in the rubber and don't tumble properly, and general there is not enough impact to polish things well.

Tumbling does change the look of ironwork; it gives it a texture that makes it look hundreds of years old. It knocks off sharp corners and smooths out hammers marks, giving the work a much softer look. A few things I make I don't tumble as I like the sharp corners on twists and the hammered surface, but for most things I really like the effect of the tumbler. It saves an enormous amount of time, and eliminates a dangerous job (on the wire wheel) and a major cause of dust in the shop's air.

A tumbler the size of mine is heavy. I used three hinges on one side of the pipe, and used nuts and bolts for pins, so I could separate the two halves and move the thing in pieces. I have a block and tackle system attached to the woodshed rafters to open the tumbler up, as each half of the pipe weighs about 150 pounds. A hook on the bottom block fits into a ring I welded to the top half of the pipe, just above the brackets where I bolt it closed. I also have a bar hanging down from the rafter, with a hook on one end, that hooks under the top front edge of the tumbler when it is open, so it can't possibly close accidentally. Such an event, when you were in there rummaging around for hooks, could finish your blacksmithing career in a hurry.

My tumbler cost me about $600 Canadian (half of which was the vacuum cleaner) and a couple of days work, and next to a power hammer is one of the best investments I've made in my business.

from: FORGE, Vancouver Island Blacksmiths Association, April 1990.

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Finishes for Metalwork

by Jim Fleming

When the smith has finished a forging, the creation must be preserved and protected from the elements of weather and time lest in good time no solid part remains.
Very few pieces still exist more than 1000 years old, and those were generally protected within such long standing structures as cathedrals, churches, and public buildings. Even the best kept of these remnants are generally in poor condition if not regularly refinished and kept up.

That examples have survived of the early iron age is due more to the nature of the material itself than to any secrets of preservation. Wrought iron, used since antiquity for articles and architectural treatments, right up until the late 19th century, has locked up within its very structure the secret of its longevity. For wrought iron, unlike metals which are melted and cast from ores (gold, silver, copper, ect.), requires too much heat for the ancient smelters, and could only be softened to a semi-molten condition rather than to a liquid, and remains full of all the contaminants found in the ore and the fuel, including silica, or common sand.

Silica is trapped within the hot metal mass, called a bloom, or pillow, and is removed by forging the white hot, spongy bloom as it cools and is formed into a rough bar. Pockets of silica remain in the bar and are drawn into long strings of glass inside the metal. Even triple refining the bar still leaves up to 5% silica dispersed throughout the bar, and eventually throughout the finished piece as well. When the finished product eventually rusts, iron flakes away from the surface, revealing a silica layer which of course will not rust, or even oxidize, forming a protective layer over the iron below. This relationship can be best seen on a well weathered wrought iron bar as a wood grain looking pattern which is nothing but the strings of silica once inside the piece, now exposed. This layer can provide a protection which outlasts all modern finishes, probably by hundreds of years, since it is distributed throughout the bar.

Eventually processes were developed to produce large quantities of iron from its ore by fully melting the ore, fluxes, and other agents in a crucible and pouring the resulting liquid into molds, forming ingots, which were rolled into bars and other finished shapes. The casting process afforded far greater control of quality for the iron and its alloy steel, all produced in vast quantities for ever increasing demand and uses. By the beginning of the 20th century, wrought iron was no longer produced, and was generally thought an inferior curiosity of the past. However, the new product lacked the wrought silica inclusions and was lacking in rust protection. What developed instead were many new alloys which would resist the elements better than iron alone. Nickel and chromium alloys make stainless steels, but are too expensive and difficult to work with to be practical in general use.

For the blacksmith the only option was to find a surface treatment for the finished product which would withstand the elements and protect the forging underneath. Finishes for iron fall under several categories: waxes and oils; paints and polymers; chemical patinas; plating, covering and hot dipping with other metals; and combinations of these processes. Preparation of the surface prior to applying the finish is as important as the finish itself.

The following recipes contain many traditional methods, some individual's favorites, and few departures for new horizons. Try any of these with common sense and caution, observing safe practices (i.e. ventilation, eye protection, gloves, ect.), when dealing with inflammable, caustic or dangerous chemicals. Your experience, comments, or additions are welcome to *Forge Facts* and would help a future article be more broad based.

SURFACE PREPARATION

•*Sand Blasting*

Possibly the best method for removing scale and rust from ironwork. Requires compressed air and an isolated work area to recycle the sand and protect machinery. Leaves the surface a flat steel gray color with all hammer marks still intact.

•*Bead Blasting*

Similar to sand blasting except that the abrasive medium is made up of tiny glass beads. The surface is left smoother and less chopped up, therefore somewhat brighter in color, though still gray.

•*Filing and Scraping*

Files and hard metal scrapers will remove scale, rust, and surface irregularities leaving a shiny metal surface the texture of which is determined by how fine a file is used or the size and cutting power of the scraper. This surface preparation was known as armor brighting in the Middle Ages, and was how all armor was brought from the forged state to finish. Removes all hammer marks while emphasizing any deep pits or hammer marks. This surface can be made even smoother with metal cutting sand paper. The wet type used with water works fastest and lasts longer because it resists clogging in the pores of the paper.

•*Wire Brushing*

Hand brushing a finished forging while it cools will remove most scale and flux, ect from the metal, leaving a dark finish. A knotted cup wheel brush on a hand held grinder will remove all scale from hot metal as it cools and leaves a burnished dark color. If the cup wheel brush is used at a red heat the surface of the metal itself is removed and hammer marks and scale pits can be brushed right off of the surface.

Once cool the hand brush is rather ineffective and a wire wheel on a stationary grinder or a knotted cup wheel on a hand held grinder works best. The surface is smoothed and polished to a bright steel color.

•*Pickling*

For complex shapes or simply to save time and effort, a chemical rust and scale remover will prepare a surface for further finishing with little hassle. The chemical bath is prepared and stored in non-corrosive containers and can be reused many times. The chemicals used in pickling are hazardous, producing burns to all exposed body surfaces including the eyes and lungs. Use protective clothing and proper ventilation, read instructions on the containers, and be prepared with a plan to

react to a spill or injury. Acids are generally neutralized with baking soda, so have some on hand. And, never! add water to acid or it could erupt in your face!

The following recipes will not only descale and derust, but will etch the surface and make it more suitable to hold the finish. The piece will usually be darker and duller when removed, but after rinsing and neutralizing it can be easily wire brushed if a brighter result is desired. Care must be used with timing the dip as these chemicals can etch and pit very deeply if given enough chance. Since the timing varies with concentration(which changes with use) and the temperature(hotter generally works faster), the proper exposure must be developed by practice.

1. Hydrochloric acid	1 gallon
Water	1 gallon
2. Sulfuric acid	1 cup
Water	1 gallon
3. Phosphoric acid	1-2 cups
Water	1 gallon
4. Sulfuric acid	1 cup
Hydrochloric acid	1-1/4 cup
Water	1 gallon

WAXES AND OILS

Some Notes on Finishes by Tina Chisena
From a round robin discussion at a Tom Joyce blacksmithing workshop at Haystack in 1987. From Blacksmiths Guild of the Potomac Newsletter.

•Hot Waxing

Wire brush the piece while warm. Then apply paste wax while the piece is between 300-400 degrees F. A small amount of smoke is acceptable, but if the piece smokes too much, then the wax is only evaporating. The wax will dry as the piece cools, and then it can be buffed with a rag. Try to prevent an accumulation of wax in the deep places.

•Linseed Oil

Combine a mixture of 50% linseed oil, 50% turpentine or mineral spirits, and a tiny amount of "Japan drier" to accelerate drying. It can be applied to cold stock or hot work. If applied to hot work, a slight amber color may happen and may be uneven. Two coats are usual.

•Oil and Wax Combination

The formula for this mixture is approximately two parts linseed oil, two parts turpentine, one part paste wax, and a tiny amount of japan dryer. It is prepared by warming the linseed oil, the paste wax, and the japan dryer in a double boiler. When this mixture is even and fairly hot, remove it from the flame. Add the turpentine, and stir it to a consistent mixture. Tom applies this stuff to cold iron, but uses the mixture while it is hot. Once the piece to which it is applied has dried, you can buff this surface out. It comes out a bit brighter and tougher than paste wax alone.

•Wax and Dirt Antique Finish by Barry Berman

Taught to me by Russ Le Croix Van Norden, an 82 year old blacksmith and a fine friend.

Take an old tin can and melt some beeswax in it- then pour in some turpentine and mix it up, about two parts wax to one of turpentine. Be careful pouring turpentine into can, so it won't explode. When the mixture hardens, you have a good paste. What Russ did was to rub the paste on the piece with his fingers, using an old tooth brush for the hard to get spots. He then would rub the whole piece in very fine Humboldt County dusty dirt. Then he'd take an old nylon stocking and rub the piece down, it would look like it was 300 years old. I've seen some of the pieces, 10 years old, they still looked fresh, like he just finished them. The secret is having the proper fine dirt. From *The Anvil's Ring.*

•***Liquid Floor Wax*** such as "Liquid Gold" and "Future" work tolerably well as interior finishes on iron as they harden to a strong layer and apply easily to cold iron.

•***Paste Waxes*** most mentioned are Johnson's and Carnuba.

PAINTS, POLYMER COATINGS AND SEALERS

Sealing Compounds

•***Tectyl 151A*** from California Choice Company, Anaheim, California. Seals steel containers on sailing vessels. It is 25 years durable, not a brittle as lacquer, nor as plastic-like as urethane. To use, wire brush the surface and apply by spray or brush. Somewhat thick to apply, and may not be wear resistant.

•***Penetrol*** is a product used to seal garden furniture and fences. This product is thinner than Tectyl 151A. It needs three coats or so for an exterior finish. The appearance is similar to that achieved with linseed oil.

•***Val Oil*** is a brand name for a mixture of varnish and linseed oil. It looks glossy and plastic-like when sprayed or brushed, and flat matte when rubbed in with a cloth while still wet. This is a good sealer which usually requires only one coat.

•***XIM Clearcote*** is used by Detroit to seal chrome bumpers and trim. It requires Xylol to thin and may be brushed or sprayed. It dries quickly to a semigloss finish and one coat usually does the job. Available in gallon cans with a short shelf life once opened.

•***Tru-Test "Enrich"*** is a non-toxic polyurethane finish made for wood but protects ironwork well. Available in shiny, satin, and dull "hand rubbed" finishes.

PAINTS

•***A New But Old Finish*** by Bill Calaway

While at a blacksmithing conference in Great Britain I saw a number of works that had a graphite shine. After talking with several British smiths I found that indeed this is a graphite finish and very similar to the stove polish many of us have used. They apply the graphite with a brush over fresh wet paint. The particles of graphite adhere to the wet paint and when the paint dries they rub briskly with a soft cloth which brings out a nice shine. From *SWABA Newsletter.*

•***Unique Color Finishes from Joe Pehoski*** by Cathy Borthwick

Clear Shellac	1 part
Denatured alcohol	10-15 parts
Mason colors	1 T/ pint

Mason colors are what potters use to color clay and masons use to color concrete and can be purchased in small quantities in pottery supply houses. You can get the pigment in blues, pinks, whites, grays and browns and depending on how you apply it, you can add a subtle or intense dash of color to your work. This wash needs to be applied to painted metal and shows up best on a black surface. Depending on the look you want the wash can be sprayed, brushed or sponged on. You can then put on a clear coat of lacquer for interior use or urethane for outside applications. From *Arizona Blacksmith's Association Newsletter.*

•***Custom Color Finishes from Myers and Company***

Paint stores often mix pigments in various proportions to achieve any color or tint conceivable. These pigments can be purchased separately and mixed at the shop or job site. One distinct advantage is that these colors mix with any medium including urethanes, wax, oils, and water making them very versatile. A rust color can be obtained by mixing various amounts of yellow ocher, burnt sienna, and raw umber with the base. To add surface richness the fresh paint can be modeled with sponges, paper towels, feathers, ect. or contrasting colors may be sparingly applied over a dried surface.

Metal powders have been developed which can be dabbed onto the surface of wet or tack dry paint for interesting highlights. These powders are available in bronze, brass, copper and muntz.

CHEMICAL PATINAS

•***Real Rust Finish*** Myers and Company

Sand blast or pickle to remove scale. Sponge, dip or brush straight hydrochloric acid, then wash off in warm water. Neutralize with baking soda, overnight if possible. Coat with hydrogen peroxide, repeating until desired rust is obtained.

•***Rust Finish*** by Will Perry

Copper sulfate/water 1:6
Hydrogen peroxide/dishsoap 25:1
Salt/water 1:16

Brush on copper sulfate solution to activate the surface. Apply hydrogen peroxide/soap solution and keep wet with a salt water spray. Keep in a warm and humid environment(like a plastic trash can) separated from the other pieces.

•***Rust in a Rush*** by Bill Morrow

Remove scale, oils, ect. Spray on hydrochloric acid and wash off with water. Warm the metal and spray on hydrogen peroxide, repeating the spray 4-5 times or until desired rust is achieved. A humid container will help the process.

•***Rust Pitted 100 Year Old Antique??*** by Robb Gunter

It's almost disgusting, but occasionally I've been asked for aesthetic reasons, to make my carefully wire-brushed forgings rusted and pitted to simulate a 100 year

old rust heirloom or piece of hardware.

My first attempts were very time consuming and produced less than satisfactory results. Now, however, after quizzing a chemist friend, I've been able to build up an authentic looking rusted and pitted surface in about 2 hours.

Take your beautifully forged part, free of any oils or fingerprints and dip it in hydrochloric acid (available from your pool and hot tub supplier). This activates the surface. Allow it to air dry. Next, submerge it in a concentrated salt water solution (1 cup of table salt dissolved in 2 cups of hot water) and allow it to air dry. The final solution is fairly nasty and requires some precautions in terms of ventilation. Mix 1 cup of granular chlorine (again from the pool supply) in 2 cups of tap water. Remember the fumes are deadly! dip your part and allow it to air dry again. Rinse your part off in water, blow it dry and wire brush it to remove any loose rust. A good finish is Johnson' Paste Wax. From *SWABA Newsletter.*

•Browning Finish Solution

Mix 6 ml hydrochloric acid and 8 ml nitric acid together with 1 tsp iron fillings. Add this mixture to 25 ml of distilled water. Let the solution sit until the fillings have dissolved. Thoroughly degrease the metal to be treated and apply the browning solution repeatedly at about 4 hour intervals until the desired color is obtained (usually 4-5 coats). Metal may be lightly rubbed with steel wool between applications. Finally, rub with steel wool and finish with linseed oil, ect. Treat this solution with the usual respect given to acids. From *The Newsletter of the Blacksmiths Association of Missouri.*

•Commercial Browning Solution

Antique Brown M-38 is available from:
The Birchwood Casey Co.
7900 Fuller Road
Eden Prairie, MN 55344
(612)937-7931

•Greenish Brown Finish Solution by E.A. Chase

The following formula is for a rich greenish brown finish;

Copper sulfate	50% by volume
Sodium thiosulphate	50% by volume
Water	

Add chemicals to water and bring to a boil. Apply the solution hot to preheated and well wire brushed iron. Iron should be hot enough to boil off water. Brush solution on with successive applications, keeping metal hot, until desired color is achieved. Rinse thoroughly with water and let dry. Be certain all solution is removed as it is corrosive. After drying, wax for indoor use or varnish with a good quality urethane for outdoors. The color will darken with final finish. From *The Anvil's Ring.*

•Red Rust Finish by Doug Carmichael

My most used finish for iron work I learned from Carl Jennings. It is very satisfactory for interior work.

Copper sulfate	1/4 cup
Water	5 gallons

Strong solutions on clean, wire brushed iron will do a light copper plating effect. Weaker solutions left for short time will just darken the iron; left for longer periods will turn the iron red. Wax for interior or urethane coat for outside. From *The Anvil's Ring.*

METAL COATINGS FOR IRON

•Metalizing Machines

Melt wire, and spray the liquid metal onto objects. The type of wire, distance from which it is sprayed, and the temperature of the object being sprayed can vary the results.

•Gold Leafing

This traditional finish for the highest quality ironwork is rarely used today, perhaps because of the expense of the gold leaf. The process, however is simple and yields some distinctly superior characteristics.

After the surface is cleaned and smoothed a coating of gold sizing is brushed or sprayed onto the surface to be gilded. Sizing is glue which holds the gold leaf to the surface and comes with different rates of drying. The slow drying type is best for surface gilding. The surface must dry out to a tacky state before the leaf is applied. The gold leaf is next laid over the area of interest and gently smoothed out with a soft brush. When all holes in the leaf have been patched and all the area covered, then the leaf is ready to be rubbed down and burnished. First, batten down with cotton to insure a good contact with the sizing. Then, rub briskly and lightly with absorbent cotton until all over laps and wrinkles have been removed. The resulting surface should not be varnished or otherwise coated as it needs no protection from the elements. Covering gilded surfaces with anything kills the brilliance unique to this finish. No gold paint will even come close in appearance to genuine gold. Silver leaf is also available.

Gold leaf is available from Art Essentials of N.Y. Ltd. (800)772-1212.

•Brass Brushing

A layer of brass can be applied to a finished iron piece simply by rubbing vigorously with a brass brush. The longer the process is applied, the brighter the coating. Warming the piece slightly (200-600 degrees) will speed up the transfer. The brush can be a wheel on a power grinder or bench grinder, or a handled variety. The resulting brass highlights are very thin and can be further protected with a clear covering.

•Electrolytic Plating

A thin layer of any conductive metal can be deposited on ironwork by electroplating. Jewelry supply stores carry the necessary apparatus to gold and silver plate small items, while larger pieces may be plated at industrial locations where plating is done in large tanks.

•Hot Dipping (Galvanizing)

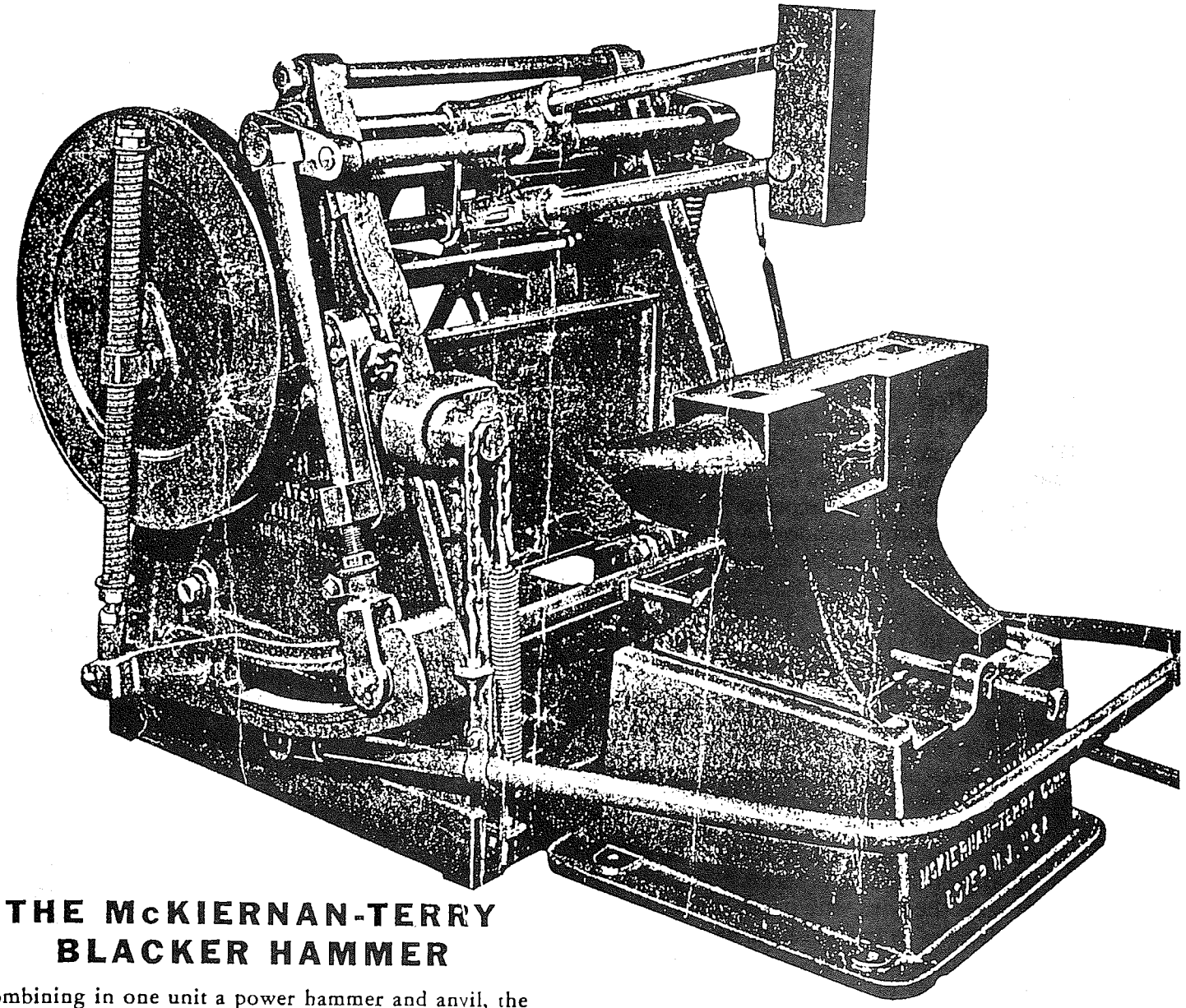
Freddy Haberman took a finished driveway gate to a galvanizing company where the entire piece was hot dipped in molten zinc. The surface was protected by the zinc from the elements. Paint was then applied to mask the bright zinc.

•Forge Bronzing by Malcolm Paine

A brass or bronze coating can be applied to a yellow hot piece which has been fluxed by rubbing at that heat with unfluxed brazing rod. The rod will flow out onto the surface, leaving a relatively thick deposit.

All of the smith's careful attention to detail, from original design to finished forging, will all come to naught in short time if no further consideration is given to finishing and preserving the surface of the piece from erosional destruction at the hands of time and the elements. Will the work of today endure effects of millennium?

from: Rocky Mountain Blacksmiths, Forge Facts, Spring 1990



THE McKIERNAN-TERRY BLACKER HAMMER

Combining in one unit a power hammer and anvil, the Blacker Hammer provides the smith with a tireless helper ready to swing a heavy sledge hour after hour with precision and efficiency, enabling the smith to produce better work in less time than with human helpers and more economically.

BLACKER HAMMER SPECIFICATIONS

Floor space, hammer and anvil	4′ x 6′
Approximate overall height	3′4″
Size of anvil	22″ x 6″
Size of hammer face	3¾″ x 5¾″
Length of hammer arm	24″
Maximum rise of hammer above anvil	20″
Lateral travel of hammer head	14″
Weight, hammer and anvil	2,500 lbs.
Weight of anvil	500 lbs.
Weight of hammer head	50 lbs.
Motor horsepower	1½
Motor speed	1200 R.P.M.
Blows per minute	140
Foot-pounds energy per blow	400
Maximum size of work handled	2½″ sq., 3″ rd.

FOR SALE: McKiernan Terry-Blacker hammer. All original, excellent working order, original manual. $2500. J. Dube, c/o Orleans PO Box 622, RR 2, Lake RD., Westmore, VT 05860 (802) 467-8353

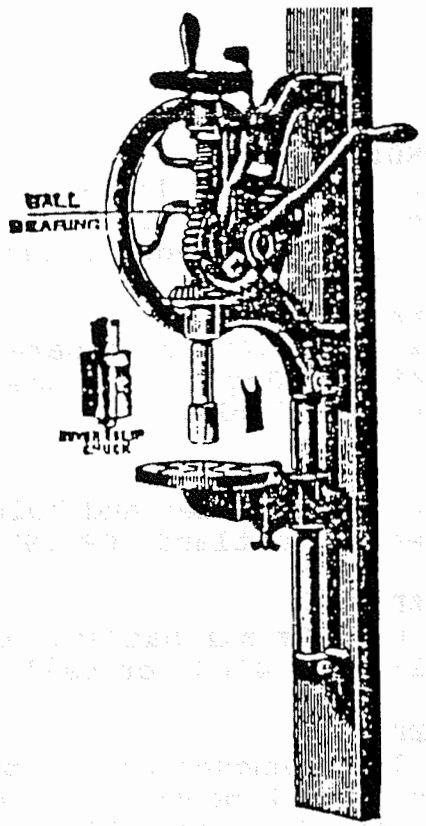
Every operation possible in hand forging can now be handled faster and better by one blacksmith alone, without need of human helpers. The fast, powerful, untiring McKiernan-Terry Blacker Hammer is taking old-time village smithy methods out of the modern blacksmith shop.

This unique combination of power hammer and hand anvil provides the "brawn" that formerly swung hand sledges. It utilizes the smith's regular hand anvil tools—not a lot of costly special gadgets. It gives the smith complete one-man control of an entire operation, eliminating delays, confusion, misunderstandings. It speeds operation to a point where jobs formerly requiring several heats may now be completed in one.

The Blacker is much more than a forging hammer. It is actually a mechanical helper, capable of delivering full 60-minute workhours.

It is highly adaptable, striking light blows or heavier-than-hand blows, single taps or up to 140 blows per minute, light or heavy as required—even alternating light with heavy. Does not slow down on light blows.

The *only* direct-geared, electric-motor-driven hammer made, the Blacker Hammer has none of the clumsiness or "uncontrollability" of ordinary belt-driven power hammers. Increased capacity, greater output and savings in time and labor quickly pay for the Blacker Hammer.



Ball-bearing, automatic self feed, back geared, slotted lathe turned table. Will drill to the center of a 12-inch circle. Spindle, ⅞ inch in diameter. Takes drills $\frac{4}{64}$ inch straight shank, ⅛ to ¾ inch. Greatest distance, table to spindle, 8¾ inches.

No.	Wt. each	Each
101	80 lbs.	$58.60

FOR SALE

Three Champion No. 101 post drills; unused in preservative and complete with all accessories including wrenches. Two in near factory new condition with 98%+ paint finish at $450. each. One with patches of light storage corrosion on cast iron body (steel parts are O.K.) and termite-eaten oak mounting board at $250. Misleading reference to "ball-bearing" in period advertisement below refers to a ball-bearing between the shaft and feed screw; as in all such drills, the shaft bearings are bored cast iron. Prices include careful packing and post office Parcel Post shipment; air shipment extra. Prefer selling to museums or working smiths, rather than tool collectors. For more information contact: Glen M. Winterbottom, Post Office Box W, Naalehu, Hawaii 96772. My telephone number is (808) 929-9080.

WANTED:
25# or 50# power hammer. Contact John Foltz at Comet Neon, 4889 Banner Rd., Port Orchard, WA 98366. (206) 861-0278. No phone in shop, leave message or call after 7 pm.

FOR SALE:
Kao-wool, $1.45 per square foot. Contact Jerry Henderson at (503) 397-4537. Jerry also has a new product similar to Kao-wool but better available.

WANTED:
Shear, tire bender and bolt header. Contact Ike Bay at 13105 N.W. Ridgetop, Portland, OR 97229 or call (503)645-2790.

WANTED:
200# to 300# air hammer. Contact Mark Bokenkamp at 10132 Liberty, Powell, OH 43065 or call (614)889-0819.

WANTED:
Articles, announcements, photographs, drawings and advertisements (free to all members). Send them to Karen Wagner at 711 Taylor St., Port Townsend, WA 98368 or call (206)385-0256 after 7pm.

WANTED:
25# power hammer in any reasonable condition. Contact Mark Kelz, Box 858, Cave Junction, OR 97523.

FOR SALE:
Flat dies for Little Giant 50# hammer, made of 4340, heat treated, $150 a pair. Dies for Chambersburg and other hammers also available. Contact Smokey Adams at P.O. Box 311, McKenna, WA 98558 or call (206)458-2777.

FOR SALE:
100 pound Howe hammer, $1500. Contact Floyd's in Fife, WA at 1-800-828-3322.

NORTHWEST BLACKSMITHS ASSOCIATION
PO BOX 81041 SEATTLE, WA 98108

MEMBERSHIP APPLICATION:____ NEW ____ RENEWAL ____ NEW ADDRESS?
ANNUAL DUES ARE $15 AND INCLUDE A SUBSCRIPTION TO HOT IRON NEWS.
PLEASE MAKE YOUR CHECK TO NWBA AND MAIL IT TO THE ADDRESS ABOVE.

NAME:_____DATE:_____

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CITY:_____STATE:_____ZIP:_____

TELEPHONE:(_____)_____

HOMEMADE BLACKSMITHS SOAP

from Nahum Hersom

Use only glass, stainless steel, un-chipped enamelware or ceramic containers and wooden spoons for stirring. Wear rubber gloves and eye protection while working with the lye.

Slowly melt 1 pound of lard in an appropriate container in an oven set at 150 degrees. While the lard is melting, read the cautionary statements on the lye container and measure out:

4 level tablespoons of lye and place in a small, dry container.
6 1/2 ounces of cold, soft or distilled water and place in a separate heavy glass container such as a quart canning jar.

After melting, cool the lard to 95 degrees (use a thermometer) by setting the pan of lard into another pan of cold water. While stirring the cold water in the glass container with a wooden spoon, slowly add the pre-measured lye (remember your gloves and glasses). Stir until the lye is dissolved completely. Since the temperature of the lye solution will have risen to about 120 degrees, cool it by setting the container in a pan of cold water and monitoring the temperature with a glass thermometer.

When the lye solution has reached 75 degrees and the lard has reached 85 degrees, start stirring the lard. Slowly add the lye solution to the lard in a steady slow stream while continuing to stir. Stir continuously for the first 5 minutes, then occasionally until the mixture is about the consistency of sour cream. Pour the mixture into molds or a plastic lined box. Drape a towel over the fresh soap to delay cooling.

After 24 to 48 hours the soap will be hard enough to cut. Remove from the box or mold and place on paper towels to absorb excess moisture. Cut the soap with a sharp, thin knife or a length of monofilament fishing line. Cure the soap a minimum of two weeks before using. Store the bars so that air can circulate freely around them, turning frequently. Air will neutralize any remaining lye. Before using the soap, test for free lye by touching the tip of your tongue to a bar. If it stings, age the soap longer. The older and drier the soap is the better it will be.

For an abrasive soap for extra dirty hands, add a tablespoon or two of cornmeal to the lard and lye mixture after the lye has been thoroughly mixed in. Or use a bowl of borax for for a soapdish. The bits of borax that will adhere to the soap will add an abrasive quality.

HOT IRON NEWS

711 TAYLOR
PORT TOWNSEND, WA 98368

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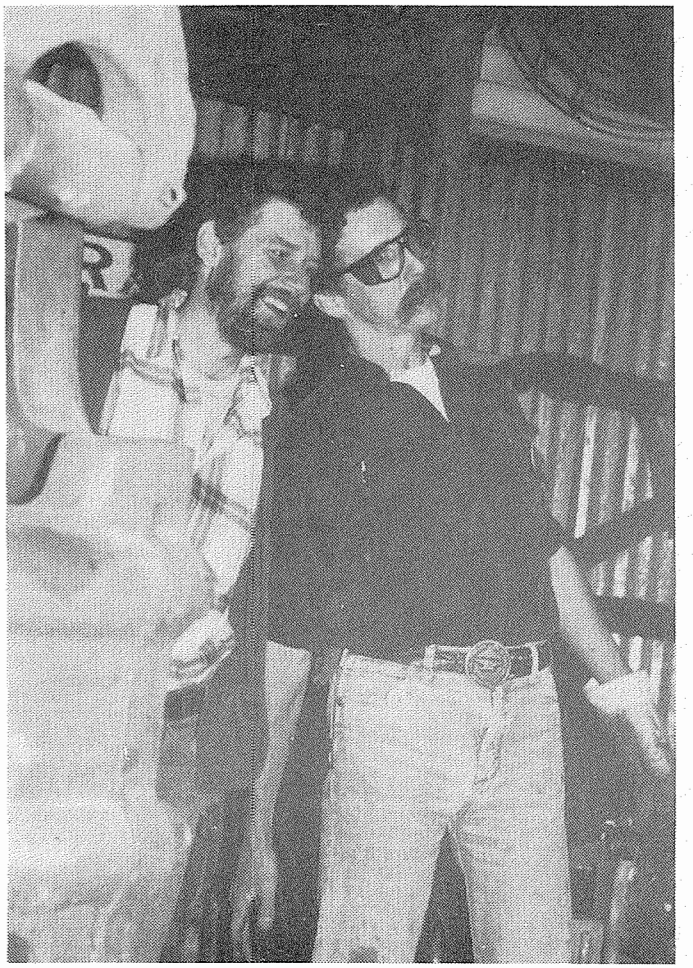

"The dreaded velcro effect"
Joe Elliott and Jay Burnham-Kidwell
Photo by Don Blair

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