



# SOFA SOUNDS

**SOFA**  
SOUTHERN OHIO FORGE & ANVIL

Artist-Blacksmiths Association of North America

AUGUST  
SEPTEMBER 1990

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MARK YOUR CALENDARS: Unless otherwise noted, all meetings will be held at the Studebaker Frontier Homestead on Rt. 202, about 4 miles north of I-70 near Tipp City. Please don't park on the grass, or block access to the production buildings. Donations of items for the newsletter support raffle are always welcome. Please bring your work or tooling for display. The public and guests are welcome. Finger food and cold drinks to be provided on a break-even donation plate basis. The forges at the homestead are available before or after meetings for individual projects.

September 8, 1990 1:00pm Business meeting followed by a demonstration to be announced. Open forges before and after the meeting.

September 29 & 30 1990 QUAD-STATE BLACKSMITHING ROUND-UP

The 1990 Quad-State Round-Up will be held on September 29 & 30th, at the Studebaker Frontier Homestead. Demonstrators will be:  
Jim Batson - Wizard Heads and Bladesmithing,  
Ivan Bailey - Ornamental Ironworking,  
Jerry Darnell - Hand-forged Hardware,  
Charlie Fuller - Beginning and Intermediate level Blacksmithing,  
Robb Gunter - Tool Making and Animal Heads.

We will have five demonstration stations going both mornings and afternoons on both days. The Saturday evening activity will be a nail making contest for prize monies, (volunteers for a SOFA team are needed).

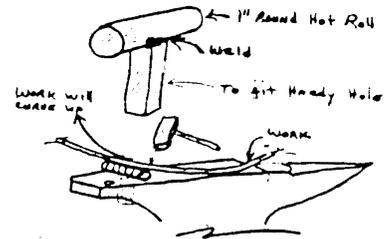
As usual, the Saturday evening supper will be catered by the West Charleston Church group. U-forged stations will be available for do-it-yourself projects. Volunteers for Friday morning set-up and Sunday evening/Monday morning takedown and clean-up will receive a partial or full registration refund. We still need striker/go-fer volunteers for some of the demonstrators. Tail-gate sales will start Friday afternoon. A concession wagon will be on the grounds all weekend.

If you have not received a registration package, please contact Dick Franklin at 7158 Kylemore Drive, Huber Heights, OH, 45424. **ADVANCE REGISTRATION IS STRONGLY ENCOURAGED.** We will gladly provide a refund if your plans change at the last minute!



SHOP TIPS  
BY KEN SCHARABOK

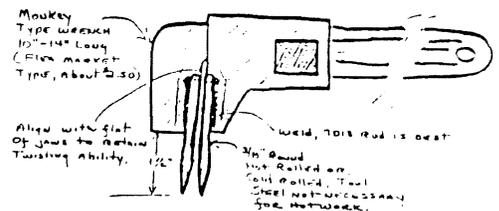
**- BENDING HELPER:** Bending large pieces on the anvil is usually done between the table and the cutting platform. This is sometimes hard to do if the piece is long or the bend is acute, as the horn of the anvil is in the way and has a tendency to make the work move side to side. This jig will help with these complicated and simple bends - and it works great for bending cold stock. It consists of a hardy shank welded onto a piece of 1" round hot rolled.



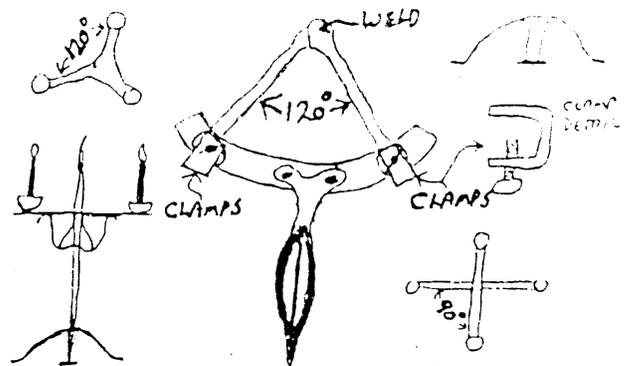
(By Stan Strickland from the newsletter of the Tullie Smith House Blacksmith Guild).

**- ADJUSTABLE BENDING FORK:**

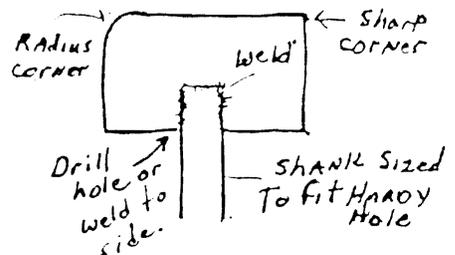
Most of you have 14 bending forks as I used to have, but never the right size for work which varies in many sizes. Scroll alignment in your finished work is important and this tool with the help of an acetylene torch will allow you to align your work in any plane. The ability to twist and bend any curve is readily adjustable with this tool. Everyone should have one in the shop. Also it will get you good comments from the "old" blacksmiths, like, "You sure messed up a good wrench". It is made by welding on two pieces of 3/8" round hot rolled or cold rolled to a 10"-14" long monkey wrench (about \$2.50 at flea markets). Welding with 7018 rod is best. (By Stan Strickland from the newsletter of the Tullie Smith House Blacksmith Guild).



**- CANDLESTAND LEG WELDING ALIGER:** This device is for holding the legs of candlestands so they can be welded at the proper angle. This will work for three or four leg stands. The foot of the leg is clamped on the curved portion of the jig then the other leg is clamped into place on the opposite side of the curve. In this fashion three piece stands can be done in two welding heats and four leg stands can be done in one welding heat. Note that three legged stands are welded at 120° angles and four legged stands are welded at 90° angles. (By Steve Gossett from the newsletter of the Northwest B-S Ass'n).

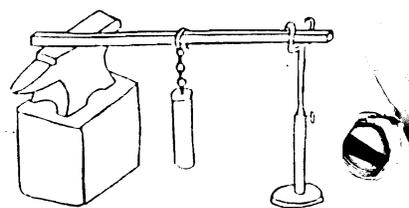


**- HARDY RADIUS BLOCK:** Here is a handy tool which keeps you from hunting for that right edge on your anvil top. Use a clunk of 2" stock or whatever you have handy. Weld a shank suitable to fit your anvil's hardy hole. Keep one edge of the stock sharp and radius the other three edges to different radii. Just turn the radius you need away from you. (By Steve Gossett from the newsletter of the Northwest Blacksmith Ass'n).

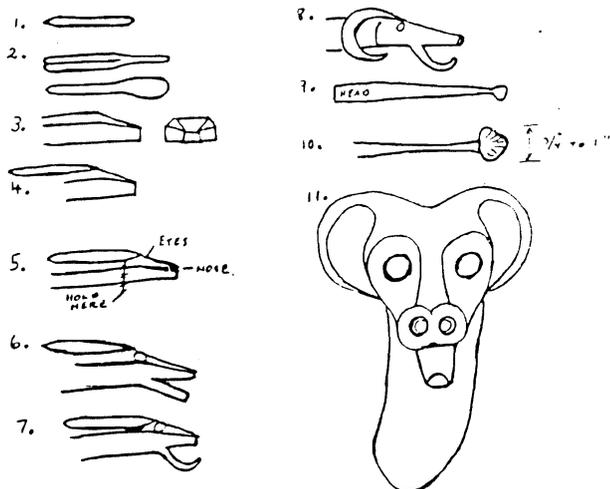


**- RESTARTING FIRES:** When you have left your fire unattended and it will not be revived no matter how hard you crank it, try this. Sprinkle a handful of sawdust over the still hot coke. If you haven't cooled it with your frantic cranking, it will burst into flame. It will take some fussing, but you will be back in business soon. Darryl Nelson of Washington showed me this trick. (By Doug Hendrickson from the newsletter of the Blacksmiths Ass'n of Missouri).

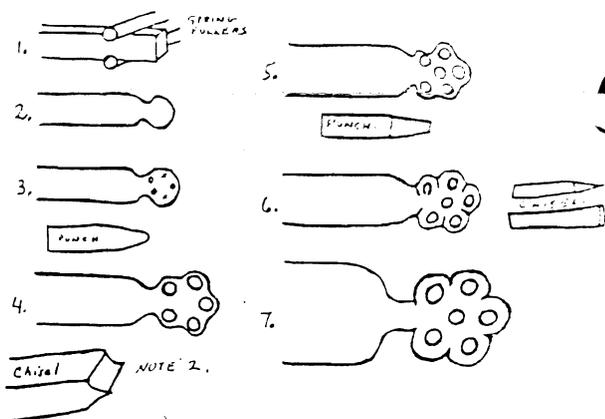
- ANVIL HOLDDOWN: John Lane made a very good third hand from a 1" square bar with a weight on it. He had a hunk of about 3" round iron on it and it held very well. You can adjust the weight on the bar by adding more or taking off some. Very handy to hold things when you work alone. (From the newsletter of the Upper Mid-West Blacksmith Ass'n).



- DRAGON'S HEAD BOTTLE CAP LIFTER: Material required: 3/4" round, whatever length you want the body, and 1/4" x 3 1/2" round for horns.  
 1. Heat and point both ends of 1/4" round for horns. 2. Heat and bend double. At doubled end flatten and scarf preparatory to welding. 3. Heat and hammer 3/4" round to general shape of head. 4. Weld on the horns at this point. Be very careful as the 1/4" round will burn easily. 5. Heat and hold in vise. Punch eyes and nose. Marks of vise make a gill-like accentuation on the side if done in a regular vise. 6. Heat and chisel mouth. 7. Heat, taper and form lower jaw over edge of anvil. 8. Heat and bend horns to shape. 9. Heat and draw out bar from head back tapering evenly. Leave upset knob to draw to shape as a tail. Heat and make a generally spearpointed tail. (From a demonstration by John Little as reported in the newsletter of the Ontario Artist Blacksmith Ass'n).

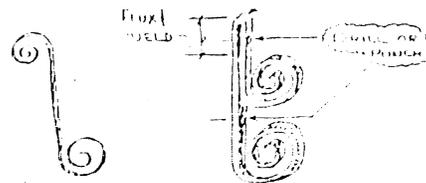


- FLOWER MOTIF: Material required 1/2"x2" flat bar. 1. Take a heat and spring fuller to shape. 2. Take a heat and hand hammer to the basic shape illustrated. 3. Take another heat and use a medium radius round end punch to put in the first three dimples. Put two more between, then repunch all five. Make them as equal as possible. 4. Take another heat and use a larger ball end to enlarge the dimples. 5. Take a heat, lay piece flat on the anvil and use a flat end round punch in the center. Drive it in deep. Turn over and drive out with a center punch. This gives a domed effect to the center. Heat, put on anvil, use a flat radius chisel to accent a groove between the petals. 7. Heat hold in postvise and chisel further around between petals to accentuate further. The dimples may require repouching from time to time due to distortion from the chiseling. (From a demonstration by John Little as reported in the newsletter of the Ontario Artist Blacksmith Ass'n).



- WELDING RODS FOR ANVILS: The Eutectic-Castolin Company recommended welding rods for anvil surfaces either damaged or workworn. They recommended two electrodes as a cushion and one as the surfacing rod. CEC9598 (ac-dc reverse) was their preference as a cushion. It is a high alloy electrode and reasonably priced. Ferrotrode 2B (ac-dc reverse) was the second choice for a cushion or for heavier buildup of badly swaybacked anvils. It work hardens from RC28 to RC31. It is about twice as expensive as CEC9598 but may be required in some instances. Eutectrode CPH-002 (ac-dc str. or rev.) is a high impact and heavy loading electrode. This is the recommended electrode to resurface the anvil. It work hardens from RC13 to RC43. It can be hand finished with a grinder and sander. (By Gary Paterson from the newsletter of the Ontario Artist Blacksmith Ass'n).

- WALL HOOK: Cut a length of 1/2" x 1/8" flat M.S. 20" will yield an average sized wall hook. Forge a scroll at each end as shown; note that the lower end has a more open, larger diameter scroll. Take an orange head, bend as shown, flux and prepare to weld. Drill or punch two holes for screws. Finish to suit (i.e., paint, wire brush, etc.). Forge actual diameters on the scrolls to your taste - experiment! (By Joe Farina from the newsletter of the Florida Artist-Blacksmith Ass'n).



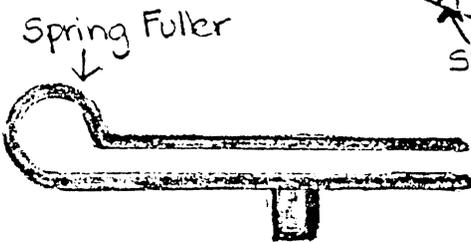
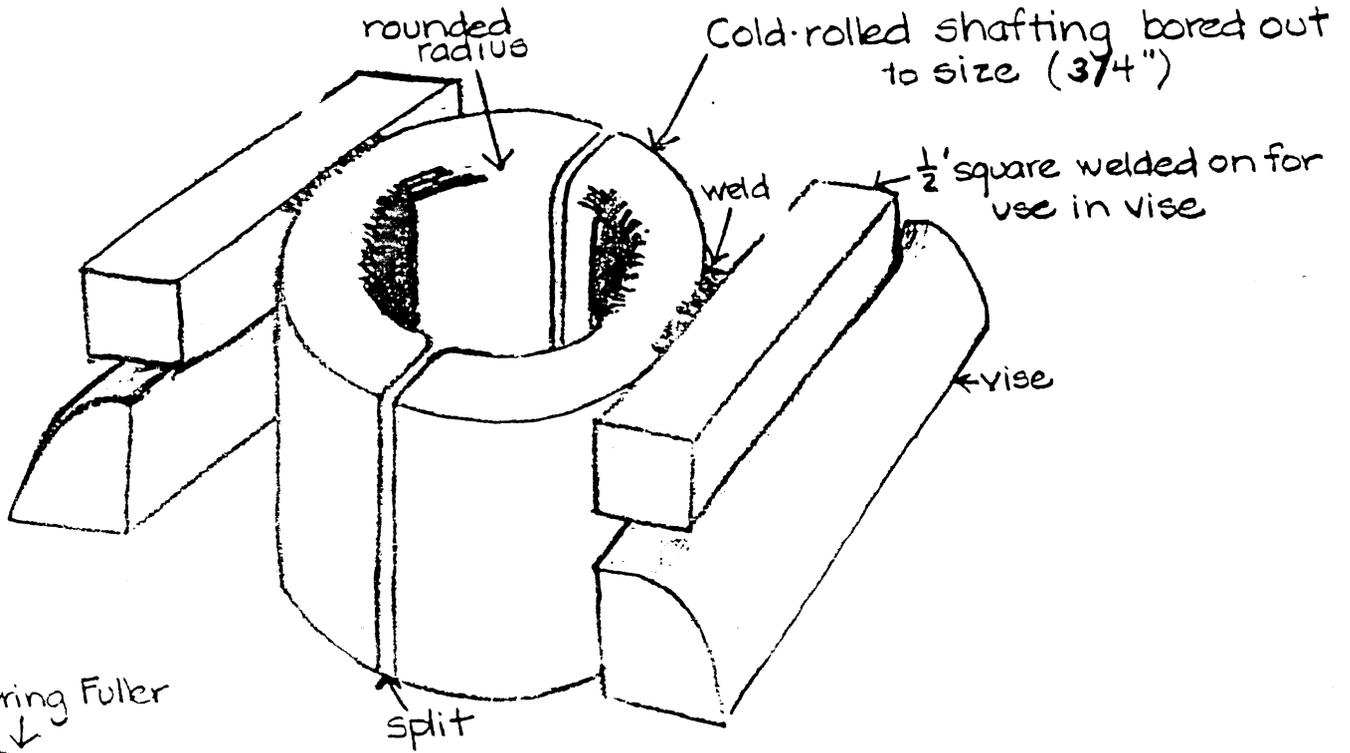
- GRINDING WHEEL SHARPENERS: Ask companies which drill and saw concrete for their broken diamond saw blades and core drills. Try to get some with 1/4" or so of the thicker, diamond-bearing matrix on a few of the teeth. Break the teeth off at the bottom of the gullets with vise-grips. The diamond matrix can be used to dress the hardest grinding wheels or break the glaze on angle grinder stones. Hold a tooth by its steel part with vise-grips, and apply the matrix against the stone. You can see the stone turn lighter where the diamond chips in the matrix are cutting it. The shape of a stock grinding wheel can be easily changed to round or pointed for special shaping jobs by shaping with a diamond dresser. ALWAYS WEAR SAFETY GLASSES WHEN DRESSING GRINDING WHEELS! (By Brad Silberberg from the newsletter of the Blacksmiths' Guild of the Potomac).

SHOP TIPS  
from Lonnie Stafford      The Hot Iron Sparkle July 1989  
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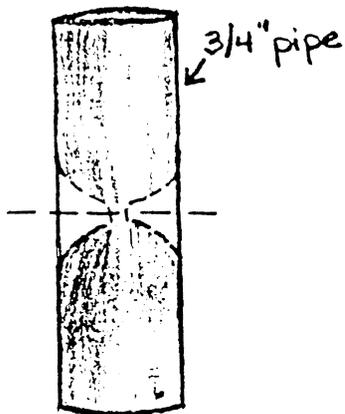
1. When scale forms on your thin stuff, you let it cool down and then take a torch and put a fairly good flame on it and you'll see the scale fly off.
2. Don't wash your hands in your slack tub using soap. (no soap ever goes in the tub). It makes an unbalanced of mother nature. Your iron want cool off as well if soap is in the tub. I know, I've tried it.
3. These hot dry days of summer are hard on handles. Problem is the air is hot and dry and the % of moisture in the wood gets lower. The eyes get loose. Don't put in more wedges, just wrap their heads in a wet towel overnight or soak in a little water in a bucket overnight.
4. You ever thought about going back to last months newsletter and reading again the good stuff about how to put a finish on iron.
5. How many of us figure in hidden cost on a job. Your light bill, coal, bee's wax, paint, etc. We could go on. You are going in the red fast if it's not figured in.

When hammering a lot makes your forearm start to ache, try using a lighter weight hammer with a longer handle. This will lessen the muscle strain without losing much power from the hammerblow. You'll have good control after getting used to it . (re-printed from the Florida Artist-Blacksmith Assoc. by Jerry Grice.

# Herm Leukhardt's Candle Cup Jig

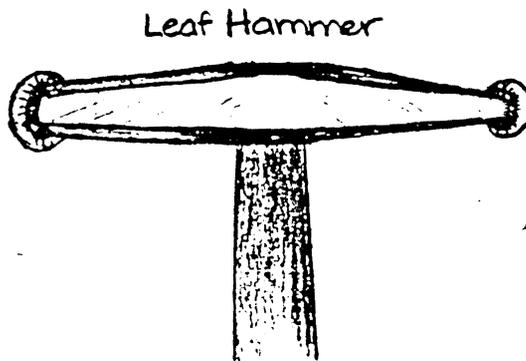


② Heat top edge of pipe



①

Use fuller to neck a piece of pipe, creating an appropriate size for your candle cup.



③ Place heated pipe into jig. Using leaf hammer work top edge over rounded radius of jig.



## Tongs by Jim Fleming

Tongs are used by the blacksmith to remove metal from the forge fire and hold it at the anvil. The number of tongs in a well equipped smithy exceeds even the number and shapes of chisels and hammers. Tongs used for a variety of purposes to fit all sizes of stock have been developed over the millenium.

In the late Bronze Age and early Iron Age, about 500 BC, the first tongs were developed to handle white hot blooms of spongy pillow iron in the foundry. Metal was precious to the smith and his tongs were few and simple. The blacksmith often had to deal with only two or three pairs of tongs. To accommodate their many uses these few tongs were repeatedly shaped and reshaped to fit the work at hand. Their basic shape, however, has remained unchanged for at least 2500 years.

Tongs are composed of several named parts. The reins, or handles, are separated from the jaws, or working end, by a pivot joint formed thru the boss. To give mechanical advantage, securing the work safely, the reins are usually four or five times longer than the jaws. See Figure 1.

Present day smiths often rely on collections of old tongs for their work but these

are often worn out or in poor condition. They almost never seem to come in the right size or shape. It is therefore an extremely important and fundamental skill that the smith must develop to fashion his own tongs, to suit his own needs. A finely crafted pair of tongs is a beautiful object to hold and to behold.

Refitting and rebuilding old tongs is an important way to achieve an understanding of their design as well as increase the number of functional tongs in the shop. Remove the old rivet by grinding off the smaller head and driving out the remainder with a punch. If the hole is worn oblong it must be drifted to a larger round size for a larger rivet. Always heat the area to be worked. Rework the jaws, boss, and reins as needed, cool, and rivet. Reheat and fit to the work in hand. Some tongs are made out of medium or even high carbon steel. While these can be heated, they should not be quenched from red hot or they could be ruined. Use a spark test to determine an unknown alloy.

Tongs can be classed into several categories according to their use. First there are tongs used for moving metals around either the fire or the shop. These are generally too light to hold metal for forging. Then there are forging tongs for holding work on the anvil under the hammer. These come in several weights according to the job to be done. The final class of tongs are specialized for unusual tasks, including those used for non smithing uses.

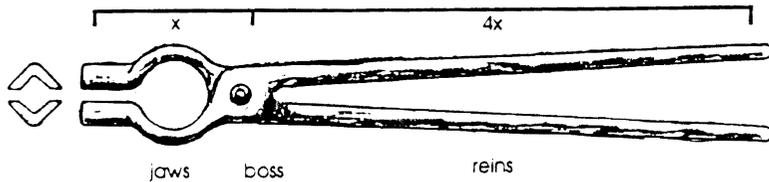
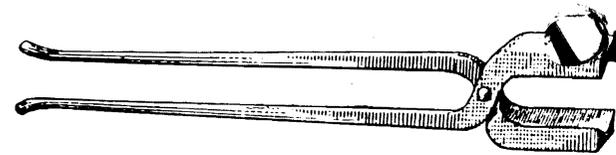


Figure 1. Tong nomenclature

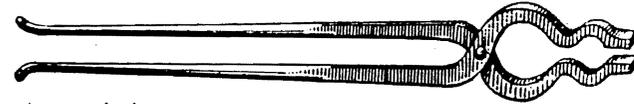
### tongs used for smithing



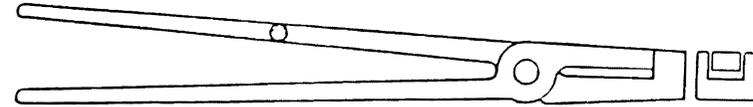
Common flat-jawed tongs for light, flat, round, and square stock. All flat jaw tongs should be grooved with a V or an oval. This allows the Smith to hold any shape stock that comes his way. This indentation should only be part way along the jaw so as to support the end of the work. Tongs grooved in this way will grip better.



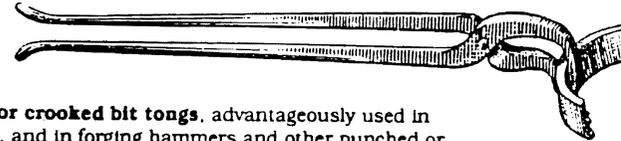
Hollow bit tongs for heavier round and square, or rectangular stock. These are developed from flat jawed tongs but the jaw is more exaggerated to enclose square or round stock



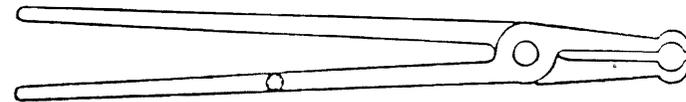
Anvil or pick-up tongs, which serve principally to pick up hot pieces and for holding short pieces of heavy round or rectangular stock while upsetting, but not for holding work while forging. Heavier weight pickup tongs are useful for setting collars.



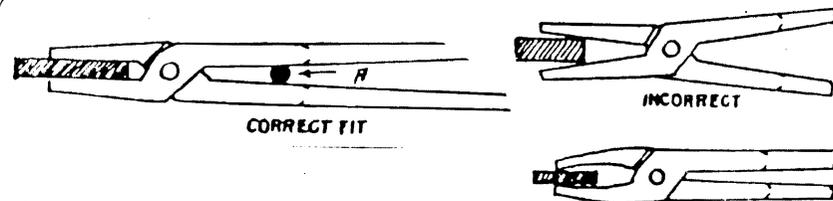
Clip tongs, used advantageously in forging steel tools, because the bent back jaws furnish a side protection.



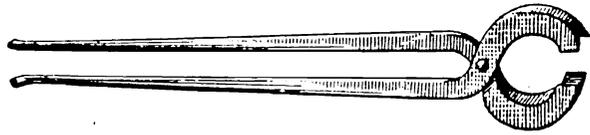
Bill tongs or crooked bit tongs, advantageously used in scroll-work, and in forging hammers and other punched or pierced tools. These are also useful for holding hoops of band iron such as wagon rims and pot racks, and for bending iron on the flat.



Link tongs, used in forging chains (links) and round iron rings.



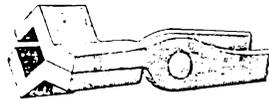
Tongs for short pieces, which must fit accurately, that is, the jaws should lie parallel to the piece they hold.



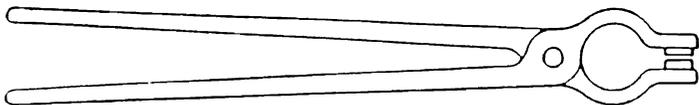
Tongs for bending iron flatwise.



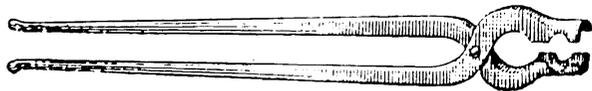
Tongs with bent bits are for work that cannot be held in an ordinary pair of flat tongs on account of the bits not being long enough. The bits are bent at right angles, so that the work will pass by the joints.



Tongs used in bending iron on the edge has the lip bent on one of the bits preventing the iron from pulling out of the tongs.



Eye tongs used in sharpening chisels or for holding any such tools while being repaired.



Tongs used in making bolts of round iron have the ordinary hollow bit, with a piece cut out of each bit crosswise to hold the round iron in upsetting. The swell in the bits allows the head to be taken in while straightening the other end.

## Construction of tongs

1. Select stock from 3/8" round or square for very light tongs to 7/8" or 1" for heavy tongs. Jaws should be made in pairs side by side to ensure a good match. The bars can be long enough to hold in the hand while forging.

2. Determine the amount of material needed for the jaw shape desired. Mark or mentally note this distance on the bar. At a light welding heat place the piece over the near rounded edge of the anvil and strike half face blows forging a rounded shoulder 1/2 the thickness of the parent stock. This portion will become the jaw. See Figure 2

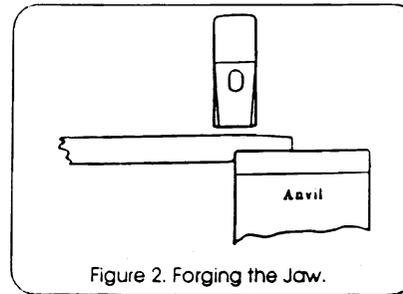


Figure 2. Forging the Jaw.

3. Again at a new welding heat extend the jaw portion over the far edge of the anvil and rotate the bar counterclockwise one quarter turn and swing it to the left 30 degrees. Again using half face blows reduce 1" of the stock to half thickness as shown. See Figure 3. This will become the boss, or pivot point. (To form tongs for a left handed blacksmith rotate the bar one quarter turn to the right instead of the left)

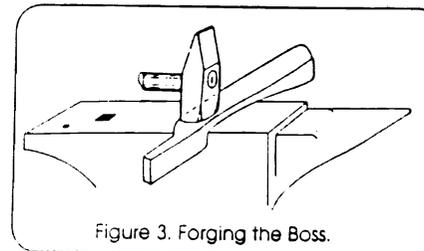


Figure 3. Forging the Boss.

4. At a third light welding heat give the bar another quarter turn to the left and at the far edge of the anvil, perpendicular to the edge, forge a third shoulder one inch or so from the first shoulder and on the opposite side. This defines the size of the boss. See Figure 4.

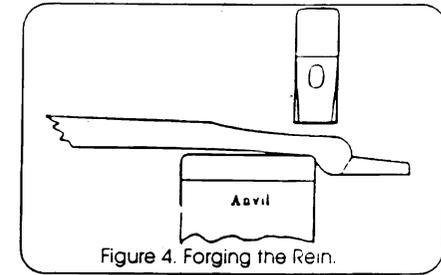


Figure 4. Forging the Rein.

5. Reduce the size of the stock behind the boss to begin forming the rein.

6. At a yellow heat repeat all steps in order to square and true up shape.

7. Repeat all steps for the second jaw which is formed identically to the first.

8. Either draw out the reins to size or scarf and forge weld the jaws onto separate reins. Unless the reins are drawn under the power hammer it is easier to

make a forge weld here since the jaws need to be made from much heavier stock than the handles.

9. Punch the boss for the rivet by fore-punching on the outside of the tong at the edge of the anvil with a round punch. See Figure 5. Follow by back punching over the pritchell and drifting to the final size in this position. It is not advisable to drill these holes as all strength possible is needed at this joint.

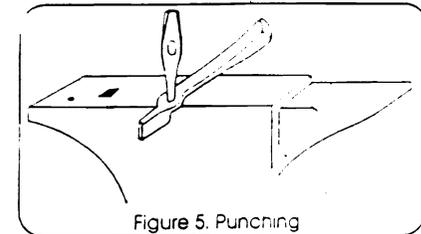


Figure 5. Punching

10. Line up the second jaw over the first in their finished position and mark for the second hole to be punched. In this way the tongs will fit properly together when riveted.

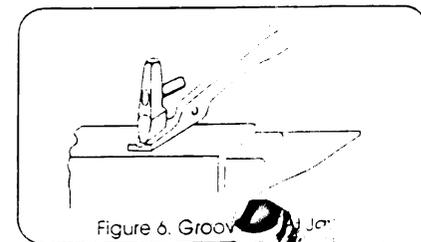


Figure 6. Groove the Jaw

11. Finish the jaws to the shape needed. In every set of tongs should be set to a particular size of stock or job. The importance of using only properly fitting tongs can not be overstated. Work not held almost perfectly is not only unsafe but forces the arm to strain and robs the hammer blows of their effectiveness. The jaws should be grooved with a fuller before assembly, but if you don't have the size required take a piece of round iron and hammer it down in the heated jaws to make the groove. See Figure 6.

12. When fitting the jaws together file as little as possible from the bosses. Check the fit temporarily with a stubby bolt of rivet size and a nut. A steel washer placed between the bosses before the rivet is set will offer smooth movement even when the surfaces are not perfectly parallel.

13. Rivet the tongs together. Select a rivet 1-1/2 times the hole size longer than the boss assembly is thick. Place the hot rivet through the assembly and hammer up on the anvil.

14. Reheat the jaws and boss and make final adjustments. It is often helpful to place in the jaws a sample of the work they're intended to hold. After the jaws are adjusted to the work the reins should be oriented so that the hand can grip comfortably without the reins touching together when squeezed normally. If they are too far apart squeeze them while at heat with stock in place, or if too close together place the jaws loosely in the vise and separate the reins to the correct distance. Never fit tongs cold!

● When first riveted together tongs may be stiff, even impossible to move without bending the reins. An anecdote found in Holmstrom's 1907 book Modern Blacksmithing addresses this phenomena:

"The following story will suggest to you how to finish the tongs.

An apprentice once made a pair of tongs when his master was out, and when he had them riveted together could not move the jaws. As he did not know how to make them work he laid them away under the bellows.

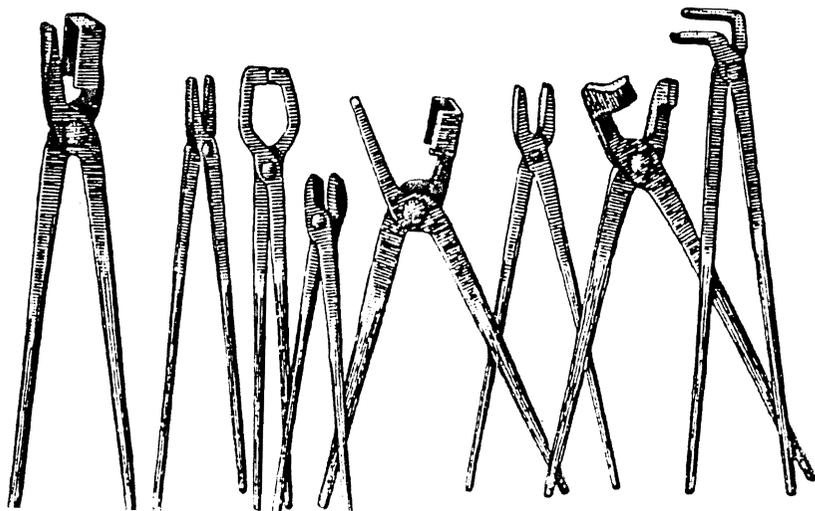
At the supper table the apprentice told his master the following story: An apprentice once made a pair of tongs and

when he had them riveted together he could not move the jaws, and as he did not know what to do he simply threw them away, thinking he must have made a mistake somehow.

"What a fool," said the master, "Why didn't he heat them?"

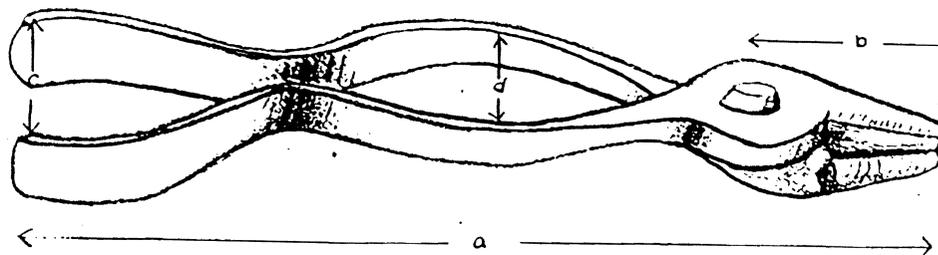
At the next opportunity the apprentice put his tongs in the fire and when hot they could be worked very easily."

Do not do this on medium or high carbon steel tongs as they may crack, but I would add that it also helps to quench the hot tongs in the slack tub while vigorously opening and closing them throughout their range of movement.



From the newsletter of the Pittsburgh Area Artist-Blacksmiths Association:

Mike Kudzinski's Tongs-



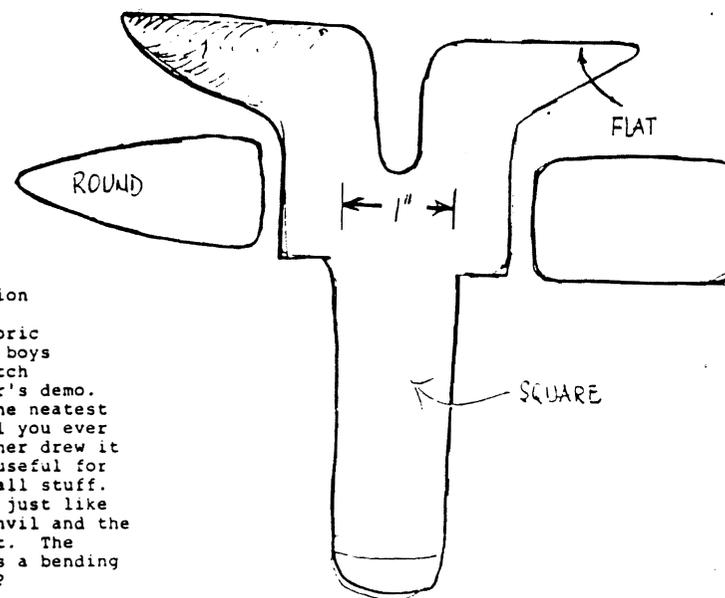
After seeing Dan Boone's scroll tongs or pliers at the workshop in October, Mike went home and made his own version. These were quite well received at the November Hammer-in, so here they are. With one hand grasping the middle section and the other hand at the end of the handles, these pliers offer two handed control and improved torque. Great for fine tuning scrolls made out of

larger stock or for tightening the inside radius of a curve. Mike says the tongs have a wide variety of applications. They can function like an adjustable bending fork. He recommends using good steel at least 1/2" thick to construct them. Make sure the hinge area is heavy and that there is a large bearing surface, because you'll want them to stand up well under heavy use.

- a) Overall length - 20 inches
- b) Length from center of rivet to end of jaws - 4 inches
- c) Width of handle ends - 4 inches
- d) Width at mid-point of handles - 2 inches

DOROTHY'S HARDY TOOL

Reprint -  
Upper Midwest Blacksmith Assoc



In April, there was a demonstration at Lincoln's New Salem State Historic Site. Four Iowa boys were there to watch Dorothy Steighler's demo. She had one of the neatest little hardy tool you ever saw. John Helscher drew it for us. Pretty useful for help in doing small stuff. One end is round just like the horn of an anvil and the back part is flat. The center is used as a bending fork. neat, huh?

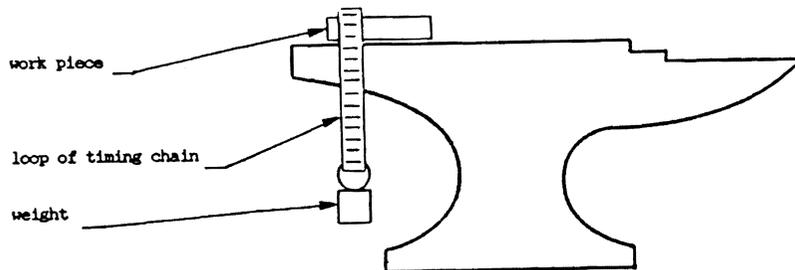
**ANVIL HOLD-DOWN**  
Walt Anderson

Use automotive engine timing chain in loop.

Slip loop over head of anvil on top of work.

Hang weight on bottom of loop or rig spring.

Flexibility of chain and its "teeth" will hold stock for cutting, splitting, veining, etc.



**SIMPLE HANDY WORK HOLDER**  
Walt Anderson

**Need:** square tube that fits your hardy hole  
drills, files, hacksaw

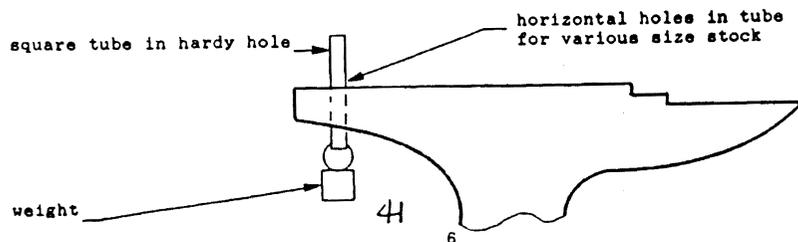
**Fabrication:** use about 8" of square tube drill and file holes through opposite sides of tube to fit various size stock

**Use:** put tube in hardy hole

lay work piece on anvil and insert end in proper size hole in square tube in hardy hole, and fit of stock in hole in square tube will keep work from skidding around while punching, cutting, veining, etc.

also will hold end of stock for twisting or bending

rig spring or have weight on bottom of square tube to hold tighter



# ABANA

Artist-Blacksmiths' Association of North America



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Executive Secretary, Janelle Gilbert

Office Hours: 7:30-11:30am & 1:30-4:30pm  
Phone: (812) 988-6919

**PRESIDENT'S MESSAGE**  
August 1990

Dear ABANA Chapters,

ABANA wants to thank the New York ABANA Chapter for hosting a very successful conference at Alfred State College. Charlie Orlando and his very efficient crew really pulled off an international event to be proud of. They have even extended an invitation to return to Alfred State College in the future if we wish to do so. A great time was truly had by all. Thank you New York.

In the next issue of the Anvil's Ring you will find your Board Election Ballot. We really need your vote so we can know who you want to represent you on the ABANA Board. Don't let the minority run the organization. Cast your vote please.

The annual Budget meeting will be held in November at the Studebaker Homestead, Tipp City, Ohio. Thank you Emmert and Jane. Dates are November 9, 10, and 11. Contact the ABANA Board member nearest you to get something on the agenda. You may also drop a line to me and I will see it is on the list for discussion.

Please respond to the update on demonstrators for the Chapter Liaison Committee. We need new and current information on demonstrators. Contact Clayton Carr to update -- RFD #2 Box 2911, Kennewick, WA 99337 -- eve. phone: (509) 586-9278.

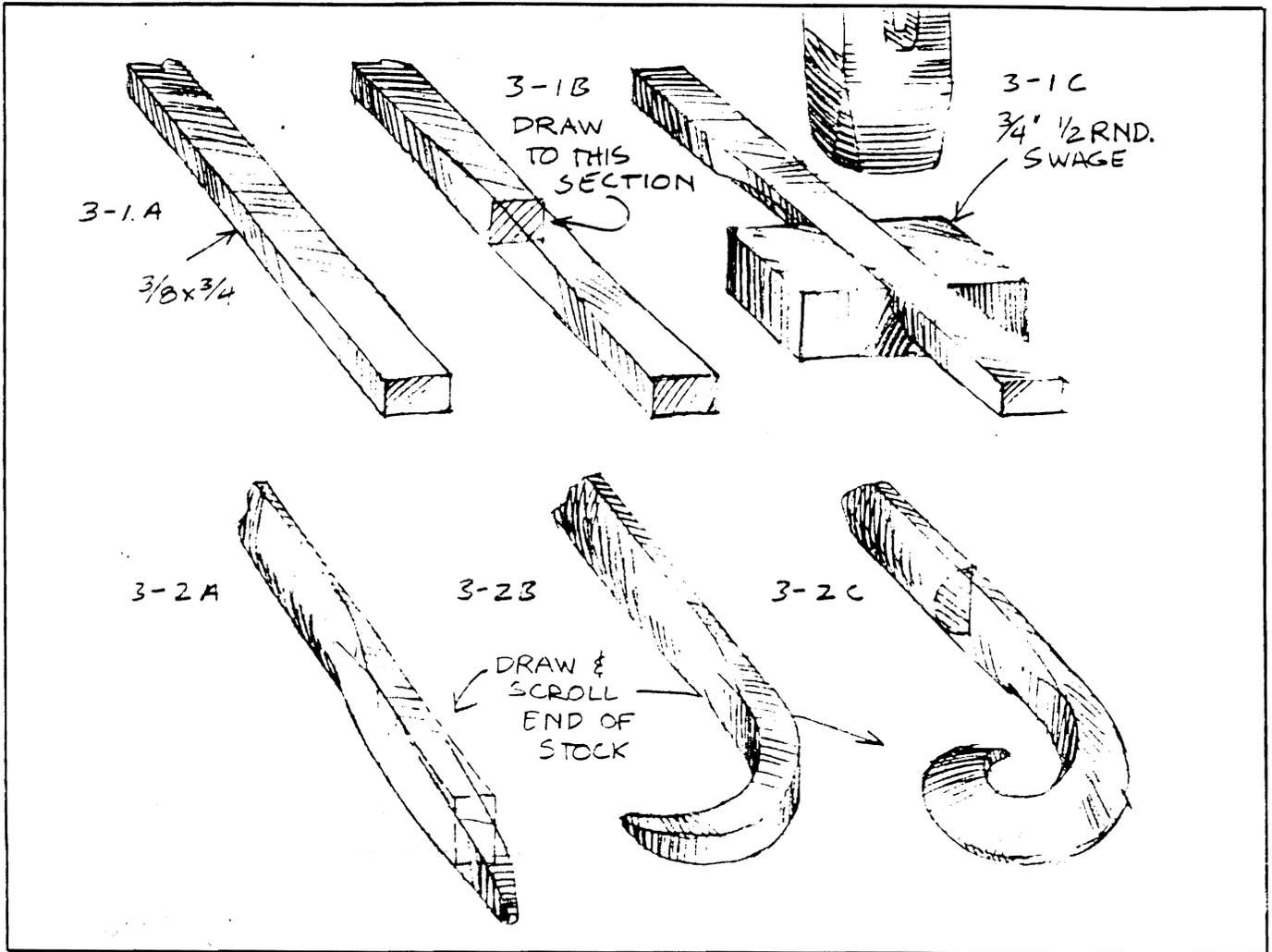
Have a great summer!

Warm regards,

Dorothy Stiegler  
ABANA President

DES/jgr

# Welded Handle



## Welding Guide cont.

Weld is weak or separates when twisting or bending.

Continued hammering below a welding heat before the weld is fully bonded

Stop hammering when welding heat is lost and re-heat to a welding heat before proceeding.

Excessive hammering below a cherry heat after the weld is bonded

Limit hammering, that changes mass, to a welding heat. Straighten, chamfer, etc. at a cherry heat; bend and twist at a bright cherry to yellow heat.

Use of high carbon or alloy steel. Note: many alloy steels cannot be forge welded.

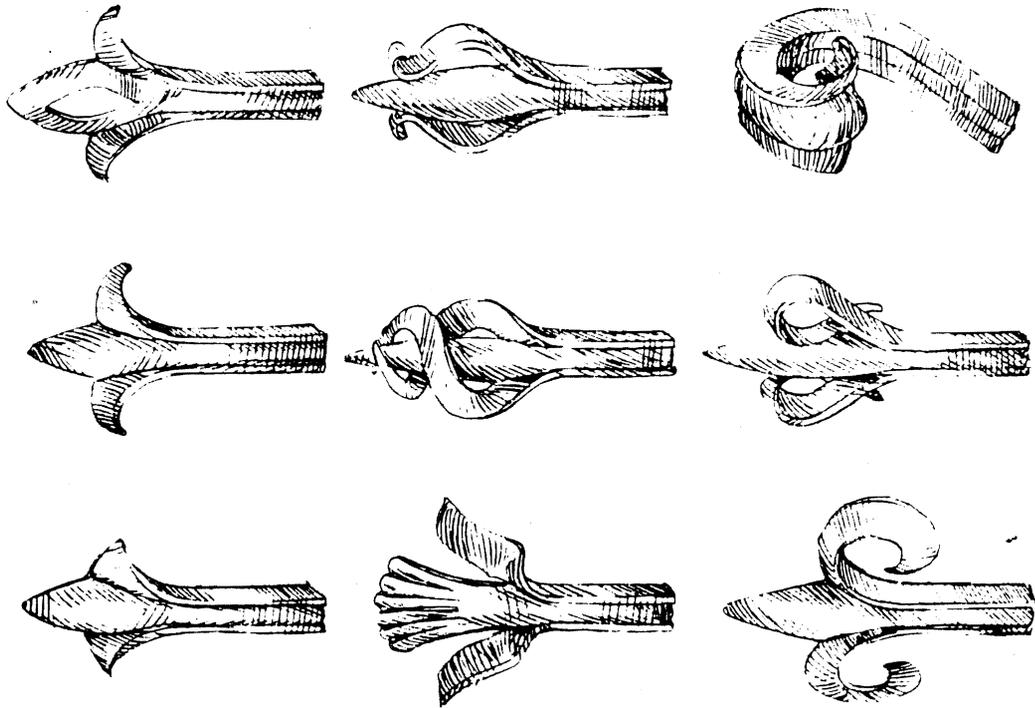
Know your material. Use new material of known alloy and carbon content.

Surface of metal becomes pitted or burned during welding process.

Excessive welding heat

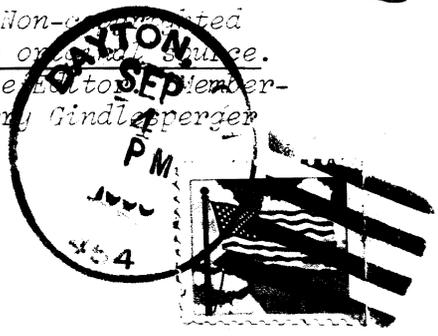
Bring metal to a welding heat slowly at first, then more rapidly; remove from fire before excessive burning occurs. Avoid over heating metal that has already been finished to size.

Featured in the September issue:  
 Did you know that 1½ x ½ channel isn't just for fences any more? Check out a few of the patterns it can be made into.



SOFA SOUNDS is the bi-monthly newsletter of the Southern Ohio Forge and Anvil (SOFA) Chapter of the Artist-Blacksmith Ass'n of North America (ABANA). Non-credited material may be reprinted as long as proper credit is given to the original source. Unless otherwise indicated, the material herein was provided by the Editor. Membership in SOFA is \$5.00 per year, payable to S.O.F.A. in care of Larry Gindlapperger, 7051 Peachview Place, Dayton, Ohio 45424, 513-233-6999.

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NOTE: YOUR SOFA MEMBERSHIP  
 EXPIRES WITH THE  
 DATE ON YOUR LABEL.

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Membership Expires: 6 / 91