



SOFA SOUNDS

SOF&A
SOUTHERN OHIO FORGE ANVIL

Artist-Blacksmiths Association of North America

FEBRUARY/MARCH 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.

February 3rd, 1 pm Business meeting followed by a demonstration by Ken Scharabok on the making of a OCTOPUS COAT HANGER. Ken showed the design he is going to follow to produce this underwater creature and it looks like the finished product will be a great conversational piece.

March 3rd, 1pm Business meeting followed by a mystery demonstration by Keith Summer. For those of you who know Kens unique background and knowledge of blacksmithing and history, all must agree, that the drive to the Studebaker Frontier Homestead will be well worth it.

NOTE FROM THE EDITOR: Well here we go with a brand new year not to mention a brand new decade for our fine organization. I'm sure there are a lot of you who can reflect back over the past ten years and reflect on just how far S.O.F.A. has come. I for one have seen great strides in the couple of years that I have been around. I feel that our world is headed for a new way of thinking, call it a renaissance, as we approach the new century. Perhaps some of this new thinking will really be some of the old forgotten ways that need to be reshaped. I have a special word for this movement. It is called ***BLACKSMITHING***.

I did not make it to the December meeting and demo, so I missed out on the fine efforts of Larry Gindlesperger and Emmert Studebaker on the making of the Gordian Knot. To make it easier, I pulled the following material from Ken's June/July 1986 SOFA SOUND and the May/June issue of the ROCKY MOUNTAIN SMITHS FORGE FACTS. I snagged a video copy of the demo provided by Denny Bishoff, took it home, stuck it in my VCR, and enjoyed the demo like every one else who made it to the meeting. Remember the old saying, "Whats good for the gander".

Chapter of ABANA goose is good for the

1

The Gordian Knot (also known as the Clayton Knot since the English blacksmith who developed it lives in Clayton, England). The Knot is named after the Knot solved by Alexander the Great by slicing through it with his sword. Emmert commented that, even though Alexander the Great could neither read or write, he founded the Great Library at Alexandria, Egypt (in which most of the ancient written history was lost when it burned down later).



STUART HILL'S CLAYDON KNOT

STEP BY STEP —

Don Butler
Salamander Forge
Eureka, Ca

Illustrated by Michael K. Jones

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

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

Knot Uses:

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

Materials List:

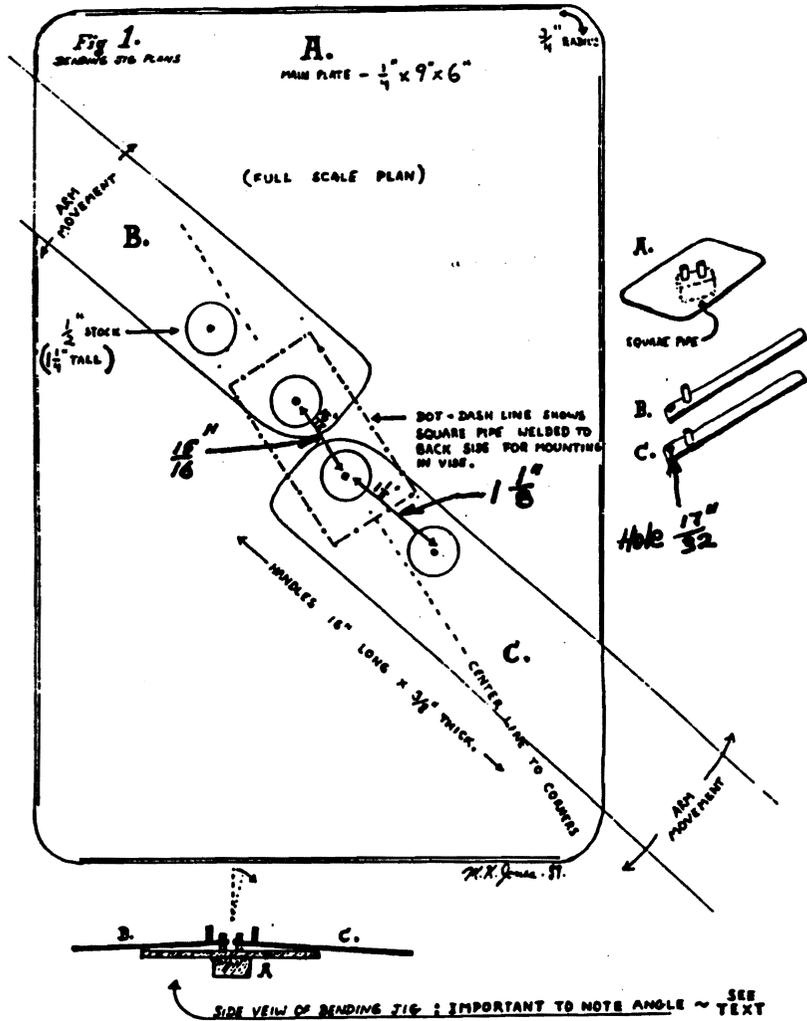
Modeling clay- Plastaline 1 pound
9" pie pan - metal
1/4" x 6" x 9" plate
1" x 2" x 2" tube
3/8" x 1-1/4" x 32" bar
1/2" round mild steel 5"
7 pcs. 1/4" round mild steel 10"
2 pcs. 1/4" round mild steel 1"

Procedure:

Step 1:

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

Fig 1.



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.

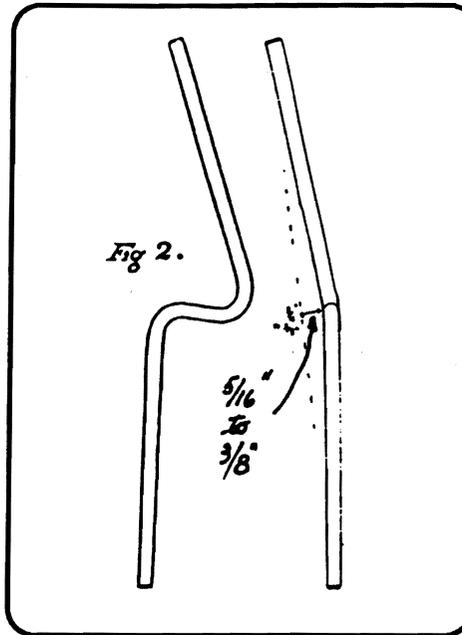
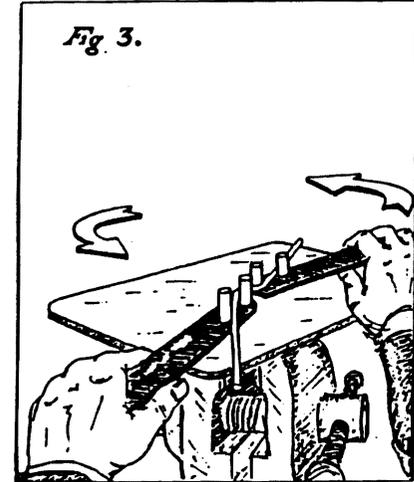


Fig 3.



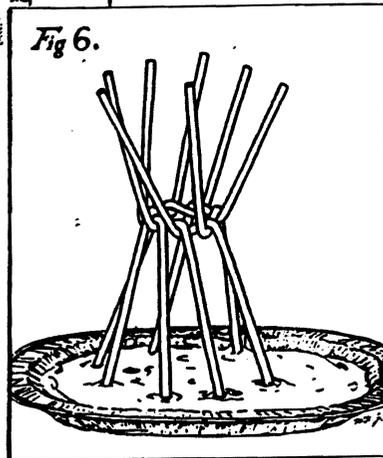
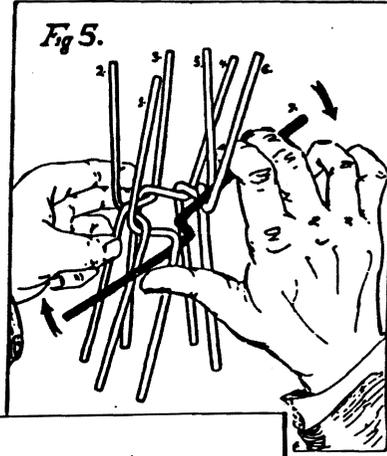
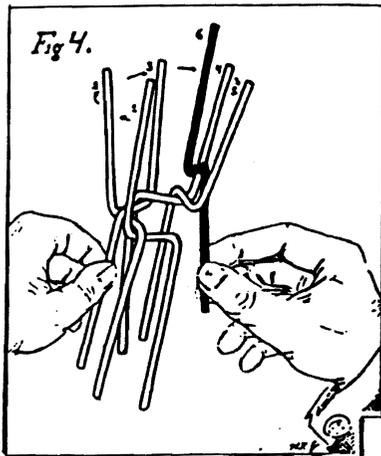
You can buy modeling clay at any art supply store. Incidentally, modeling clay is useful for working out difficult forging steps. It moves like metal and can serve as a test piece.

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:

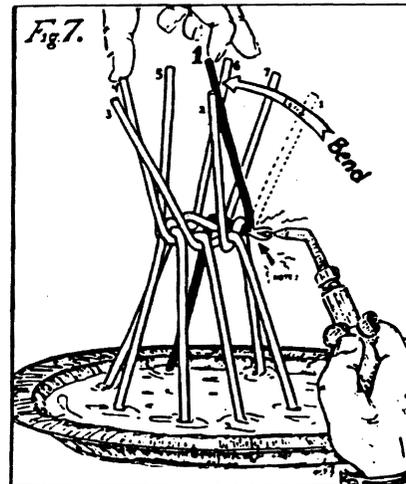
Clamp the welded end in the vise. Or, drill a 1-1/4" hole in a block of wood and set the closed end in the hole, then clamp the block of wood to the vise. Follow Figure 9, bend all the arms in, add the other plug and tack-weld.

Step 9:

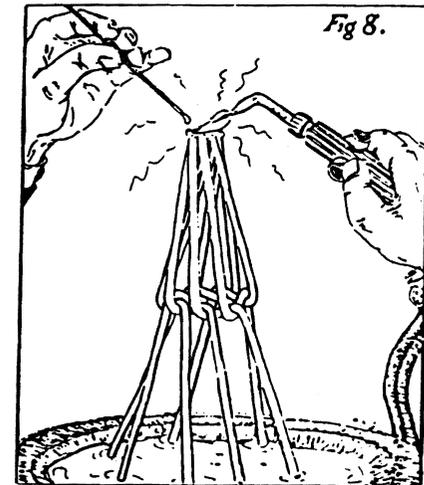
Forge weld both ends for about 1-1/2". Square both ends as in Figure 10.

Step 10:

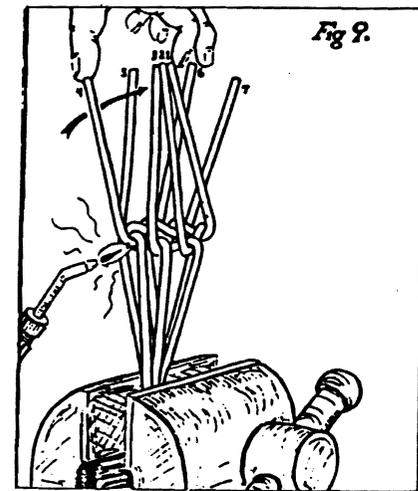
Set the jaws of your vise and twisting



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.



DEMONSTRATION: JANUARY

What a way to start out the year! The house was full and there was an exceptionally interesting demo. Larry wood, Hans peot, and Ron Van Vickle repaired a post vise with a broken moveable jaw. Larry had provided the post vise, one that he had picked up at a sale, for just such an occasion as this.

You could tell that they had a plan of action before they got started. This was obviously a necessity due to the large amount of material to be shaped, and having it end up matching the upper jaw.

They started with a 2 inch square bar about one foot long. The first step being to weld the bar onto the moveable body of the vise. Several heats were needed to insure the proper bonding of the bar to the knotted body of the vise.

Next came the shaping of the body of the moveable jaw itself. This forging effort must match the stationary jaw perfectly. This one step took a considerable amount of effort from the demonstrators. It took some juggling to hold a 2 inch by 1 foot long mass of orange/yellow steel and form it into the right shape. It's true, that a lot of the forming was done on the 50 lb. power hammer; but still a major portion was done the old fashioned way, by hand. "What took us the better part of 2½ hours could have been done in 15 minutes in the days when they were made by a die under a heavy hammer." said Larry.

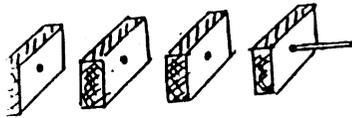
The next step involved the shaping of the neck area below the vise plate area. This is the part where the eye (hole) for the screw will go through. Remember when you upset any material, you must leave yourself plenty of material to form the shape. This goes back to step #1, study the object before you start. Only after determining the direction of the old hammer blows will you be able to gauge the material needed for this.

The final process is to punch the eye for the screw. This hole must be the proper size. Study the original object. If this eye is not correct, your entire efforts will have been wasted. Remember to use some crushed coal dust to keep your punches and drifts from sticking, and to cool your tools from time to time.

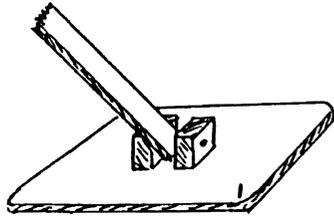
Throughout the demo much care and effort was given to insure squareness of the work. Unique tools, such as mandrels, tapered axles, flatting hammers, large heavy duty tongs, and large chisels were used to remove the metal. It is not often we get to see such a large amount of material being forged. Before dealing with such a mass consider your own physical abilities and follow safety rules to the tee.

Three great tips from the demo:

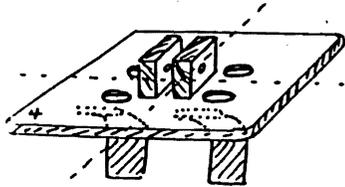
- 1) Hans said you need loose handles when you use flatting hammers. This helps reduce the shock of impact. To keep the handles secure, but loose, fill the gap between the handle and the eye of the hammer head with silicon sealer (caulk/dap).
- 2) When working with tongs, make sure it fits your work. This makes the job easier and much safer.
- 3) From start to finish, keep your material **TRUE TO THE WORLD SQUARE** at all times. Your finished moveable jaw will hold nothing if the two vise plates do not match up.



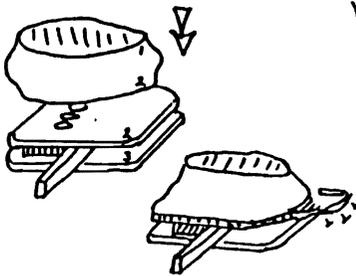
Cut four pieces of 1" x 4" about 4" long. Drill a hole in the center of each piece.



Nail two pieces in the center of Board Number 1. Put them far enough apart for a piece of 1" x 4" to fit loosely inbetween.

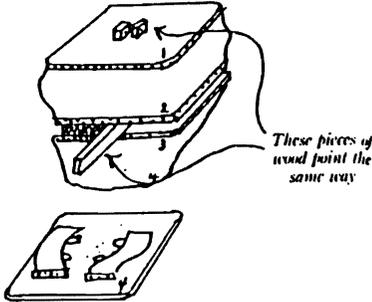


On the BOTTOM of Board Number 4 (side away from the flaps) nail two more pieces the same way.



Put Tube Opening Number 2 over Board Number 1. Use short nails to nail through the steel banding to the edge of the plywood. Put the nails about 1" apart. Nail Tube Opening Number 3 over Board Number 3 the same way.

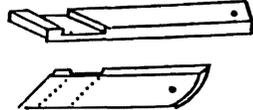
Nail Board Number 1 into Opening Number 1 the same way. The sides of the boards must be parallel. The short pieces of wood with the holes are on the outside.



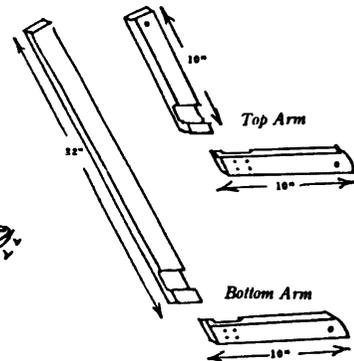
These pieces of wood point the same way

Nail Board Number 4 into Tube Opening Number 4 with the small pieces of wood to the outside. All boards are parallel to each other. All flaps are inside the tubes.

MAKE ARMS FOR THE BELLOWS

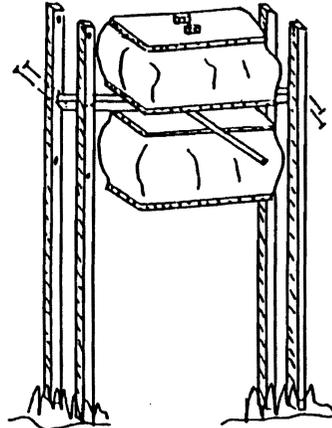


Upper Arm:
Use one piece 1" x 4" x 20" long
Cut at a diagonal in the center into two equal pieces
Make a mortice joint at the angled ends
Leave one piece square at the end and round at the end of the other piece
Drill 1/4" hole about 1" from the end of each piece
Nail together to form the top arm



Bottom Arm:
Make bottom arm the same way but use a long piece of wood and make the square ended piece an additional 12" longer

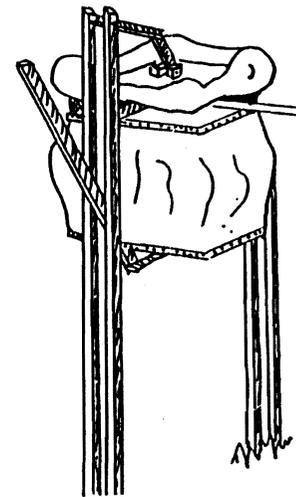
Make supports to hold the Bellows. Put the metal outlet pipe at a convenient height for the forge.



When you start to use the Bellows the top tube has no air in it. The handle pushes air up from the bottom tube into the top tube. The flaps keep the air in place.

The bottom tube drops and refills with air while at the same time the top tube continues to supply air to the outlet pipe.

The finished Bellows looks like this. The Bellows will furnish a continuous flow of air. A stronger flow of air can be obtained by putting weights on the top board.



HOMESTEAD-SCALE BLACKSMITH SHOP

By Ken Scharabek

During an unusually warm Saturday in January, I was cutting off a large limb over my chainlink fence. Miscalculating the drop, the butt end landed on the fence's top rail bending one section at about a 45° angle and breaking the next section off at the threaded coupler. Rather than having to buy new sections, I was able to heat the bend in my forge and straighten it out and to salvage the other section by welding the coupler to it. My repair cost was a few cents worth of coal, less than one-third of a welding rod and a bit of touch-up paint.

This incident points out the variety of uses a forge can serve on a homestead. If used only occasionally, it need not be very elaborate.

To construct a simple forge, scrounge up an old brake drum from a truck. It will be about 6" high, 14" in diameter and have a 3" hole in the bottom of the pan. Scrounge up or buy one 3" to 2" pipe adapter, three 2" pipe nipples — 1-12", 1-6" and 1-3" — one 2" pipe end cap, 3 or 4 3/4"-36" lengths of 1/2" pipe or rod stock for legs, and some type of blower — a hair dryer with multiple speed settings will work nicely — and a piece of sheet metal about 8" square.

Assemble by having a welder weld the 3" side of the adapter to the bottom of the drum over the hole under the drum. The legs can either be welded to the side of the drum or bolted there so they can be removed for storage. Next assemble the 2" pipe nipples, tee and cap as illustrated. The 12" nipple goes under the drum to keep the blower away from the heat of the firepot (drum). The 3" nipple goes between the tee and the cap and the remaining 6" nipple goes on the side of the tee to connect to the blower device used. A tool rest table is optional but is recommended.

To keep larger chunks of coal from falling down into the pipe assembly, cut the sheet metal to fit the inside bottom of the drum and then drill several 1/4" to 3/8" holes over the pipe area. This will allow the

airblast to be dispersed. Smaller coal chunks and ash will still go through this grate, but can be cleaned out via the bottom cap.

The above is a suggested set-up I have seen work well. You can use other materials as they are available.

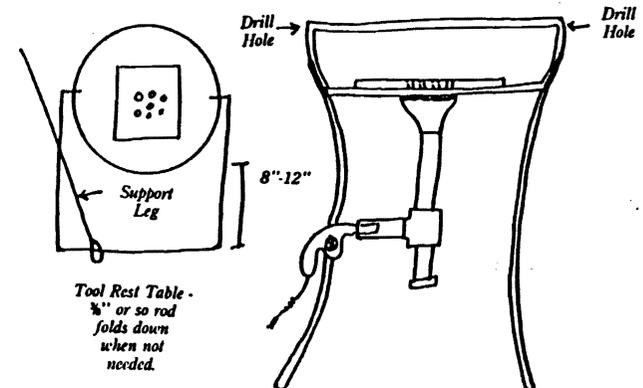
For fuel, charcoal brickettes will work but are somewhat expensive. Charcoal from a fire works nicely (and is the preferred fuel of some blacksmiths) but you need a lot of it. Metallurgist-grade coal is recommended (less soot and ash and higher heat); however, regular stoker coal can be used. Metallurgist-grade coal is about 8¢ to 12¢ per pound. Break coal up into about walnut-size chunks.

To light the fire, crumple 3-4 sheets of newspaper, light the wad, place over the airholes, quickly put fuel on top of paper and turn on the blower at a low speed. Once the fuel is going good, you are in business; however, until coal has a chance to turn into coke by burning off the impurities (thus becoming almost pure carbon) expect a lot of smoke. Set up outside your shop.

A chunk of I-beam from a scrap yard will make a dandy small anvil. For a hammer, a 2 1/2 pound or so ballpeen or machinist hammer will do — a claw hammer won't be heavy enough to do much work. Visegrip pliers can act as tongs. Used blacksmithing equipment can still be found at flea markets and junk shops.

I suspect you will be surprised as to how handy a small forge like this can be when you need a piece of metal bent or formed into another shape.

Learning to blacksmith for occasional use is pretty much a matter of doing it, keeping in mind you are working with red hot metal and an open fire. Your local library may have (or be able to borrow) books on beginning blacksmithing.



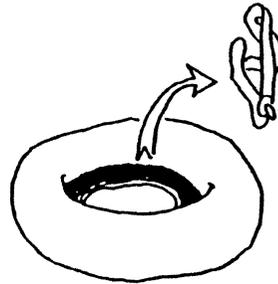
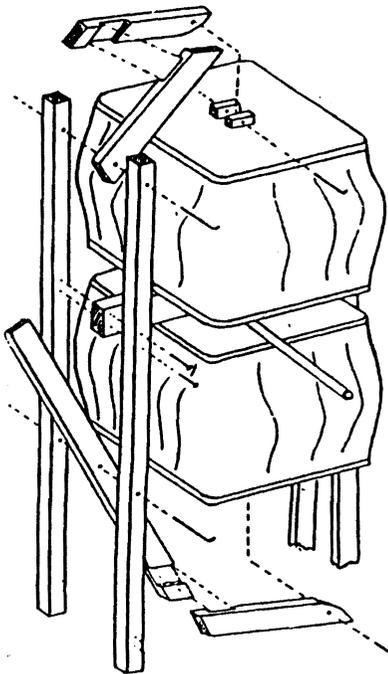
Tool Rest Table - 3/4" or so rod folds down when not needed.

BLACKSMITH'S BELLOWS

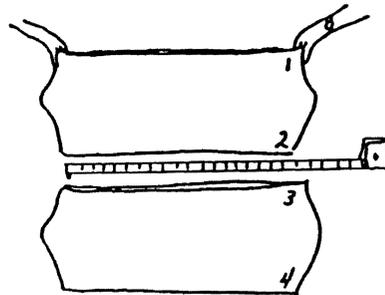
By Dennis Ogden
Based on a model developed by the South Pacific
Appropriate Technology Foundation

Materials List:

- 2 inner tubes from normal size car tires (in good condition, but bad valves are OK)
- 1 inner tube for cutting up (a truck tube is good)
- 1 pc about 4 ft. x 4 ft. of 1/2" or 3/4" plywood
- 20 ft. of 2" wide x 1" wide thick wood
- About 2 feet of 3/4" metal tubing or pipe
- 4 pcs of 1/4" metal rod about 4" long
- Banding material or metal strips about 1/2" wide (about 36 feet)

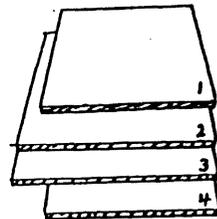


Cut a strip from the inside of two car inner tubes, removing the valves. Throw away the strips.



Turn the tubes inside out.

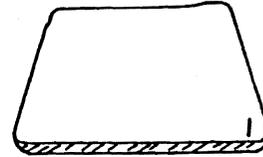
Stretch each side tightly, and measure the side. Number the opening and write down the measurement.



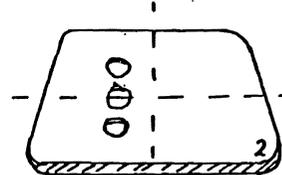
From 1/2" or 3/4" plywood, make square boards so that each side is HALF the measurement made above. Number each board to match the measured opening above.

Round off the corners of each board slightly. Don't cut off too much.

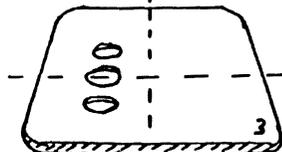
In Board Numbers 2, 3 and 4, cut 2" diameter holes as shown.



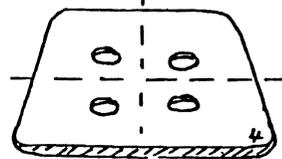
Board 1 - No Holes



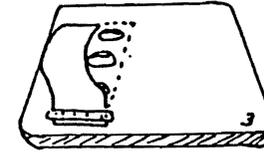
Board 2 - Three Holes



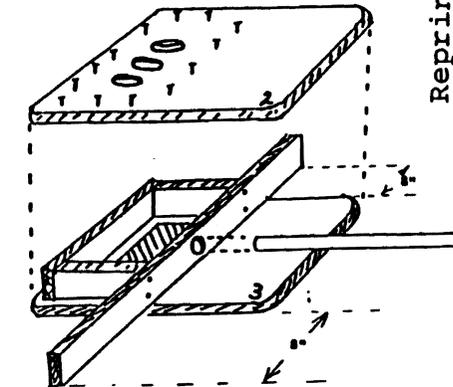
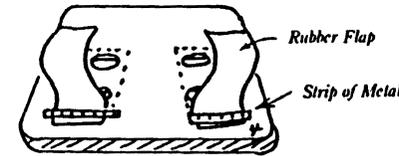
Board 3 - Three Holes



Board 4 - Four Holes



Cut three pieces of heavy rubber to make flaps. Make them big enough to cover the holes as shown. Use a strip of sheet metal or steel banding to nail the flaps over the holes in Board Number 3 and 4 ONLY.



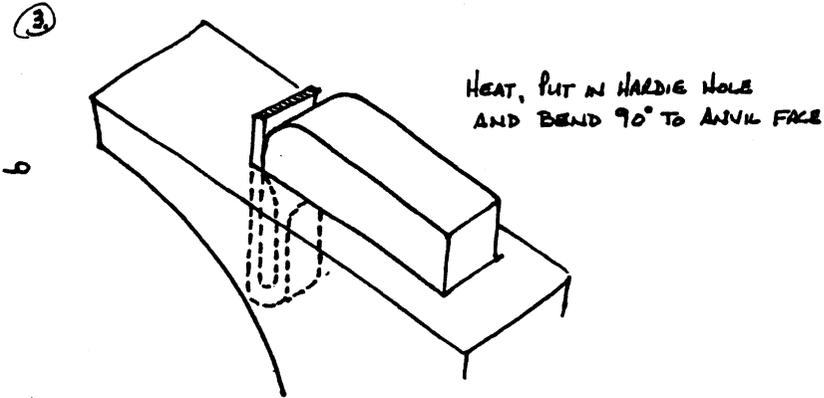
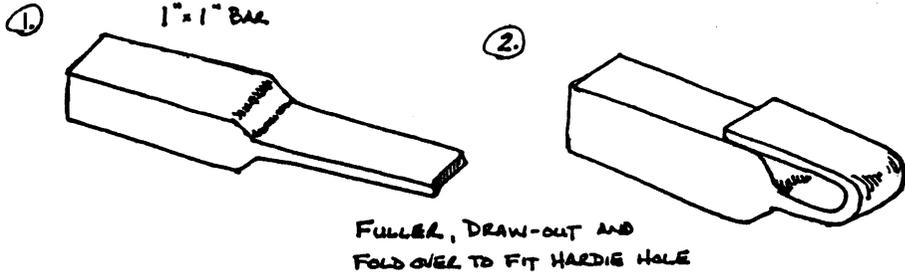
Cut four pieces of 1" x 4" wood as shown. The long piece goes down the MIDDLE of the Board Number 3.

The box that they make goes around the flap. The hole in the middle of the long piece of wood is a TIGHT fit for the piece of 3/4" x approx. 2 ft. long pipe.

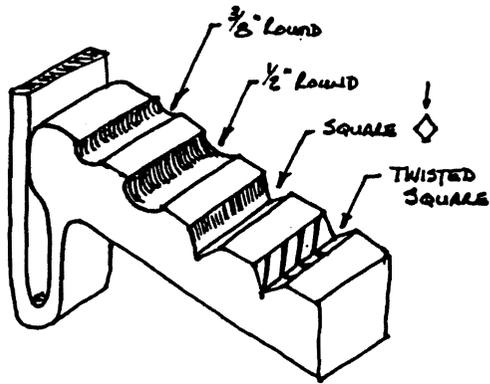
The box should be made airtight with glued joints.

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ANVIL SWEDGE BLOCK



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



Sometimes Ideas Are Your Best Tools

The anvil is secure and the hammers are hung by the forge with care. Now what do you make? So you go to your blacksmithing books and magazines and think, "I could make that, a dragon pizza cutter!" or "that's too tough," or "do I need another fork?"

Make what you are interested in. If you hunt, make gun racks. If you read, make book stands or magazine racks. If you're a gardener, make tools or tool holders. In doing so, you are pleased with the work since it is fulfilling a need. Your work is a reflection of your tradition and by using it yourself, you become more aware of what are the positive and negative points in your project. For example, is that finish scratching your guns? Or are the issues falling out of the magazine rack? Do you live with the mistake and remain in your

self-created hell or make improvements. What you pass on reflects on your audience.

A scrapbook filled with your own designs or clippings from magazines, catalogs, etc. helps "prime the pump" and get ideas going. Don't worry if your design is not all forged but all welded. What is important is you are pleased with your work and yourself. This attitude is reflected in your project. When making what you like and the way you like it, you also find out who your followers and supporters are. These people are then the biggest help in keeping the anvil secure, the hammers in hand and the forge lit.

Mark Smith



From The Pennsylvania Striker, Pennsylvania Artist-Blacksmith Association, Spring 1989.

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

Drawing by Larry Carrigan
M.I. ARTIST Blacksmith Assoc.

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1990 ABANA CONFERENCE
JUNE 27 - JULY 1**

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AND A SELF ADDRESSED STAMPED ENVELOPE TO:**

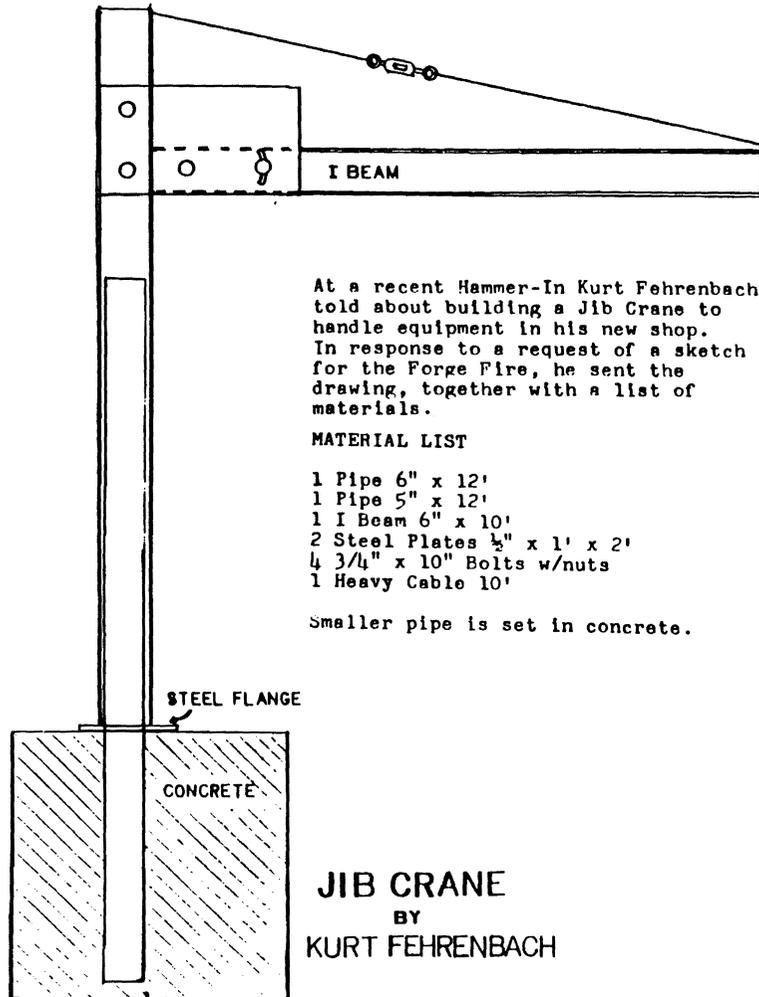
**RON PORTER
R.R.#1, BOX 64
BUNKER HILL, INDIANA 46914**

**MAKE CHECK PAYABLE TO:
THE INDIANA BLACKSMITH ASSOCIATION**

FOR SALE: Phase converters, all size HP, new and used units. For more details call (219)-255-3198 (Northern Indiana).

****NOTE**** Many auto restoration tools have applications in the blacksmith shop. For example sandblasters, shears, profile gauges and welding equipment. For free catalog, write to the Eastwood Co., P.O. Box 296, Malvern, PA. 19355.

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At a recent Hammer-In Kurt Fehrenbach told about building a Jib Crane to handle equipment in his new shop. In response to a request of a sketch for the Forge Fire, he sent the drawing, together with a list of materials.

MATERIAL LIST

- 1 Pipe 6" x 12'
- 1 Pipe 5" x 12'
- 1 I Beam 6" x 10'
- 2 Steel Plates 1/2" x 1' x 2'
- 4 3/4" x 10" Bolts w/nuts
- 1 Heavy Cable 10'

Smaller pipe is set in concrete.

**JIB CRANE
BY
KURT FEHRENBACH**

From The Forge Fire, Indiana Blacksmithing Association, January 1989.

ABANA

Artist-Blacksmiths' Association of North America



P.O. Box 1181, Nashville, Indiana 47448
Executive Secretary, Janelle Gilbert

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

PRESIDENT'S MESSAGE January 1990

Dear Friends,

1989 has really been a financially sound year for ABANA. Watch the Anvil's Ring for the year-end statement and budget information.

The new Board has delegated the current and upcoming work load and we feel that we can work as a team in a cost efficient way to bring more benefits to you - the individual member. In this chapter mailing, you will find that several committee chairmen have outlined their programs for you. Please take advantage of their efforts if they can be applied to your chapter. I also urge you to be thinking about your board member nominees for the 1990 election. Contact the ABANA Office for details.

If you are waiting for a new ABANA membership or renewal membership packet, the office has been swamped with a few complications and year end procedures. The boxes of current Anvil's Rings for new member packets were waylaid in the Christmas mail and the computer was down for repairs for two weeks. Janelle is processing the work as quickly as she can and thanks you for your patience.

I hope you have all had a safe and happy holiday to carry us into this new and exciting decade!

Warm regards,

Dorothy Stiegler
Dorothy Stiegler
ABANA President

DES/jrg

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* JOB OPENING NOTICE *

VALERIUS BLACKSMITHING is looking for an ornamental blacksmith or person interested in advancing their skills. Valerius Blacksmithing handcrafts interior and exterior ornamental architectural products in bronze, steel, stainless, and other metals. If you are interested in relocating to gain this opportunity, contact William Valerius, 605 Jefferson, St., Bensenville, IL 60106 (312) 860-2741.

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PRESIDENT'S MESSAGE February 1990

Dear Friends,

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

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

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

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

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

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

Warm regards,

Dorothy Stiegler
Dorothy Stiegler

DES/jrg

