



SOFA SOUNDS

SOFA
SOUTHERN OHIO FORGE & ANVIL

Artist-Blacksmiths Association of North America

OCTOBER/NOVEMBER 1991

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Ron Van Vickle (Secretary/Treasurer)

ACTING NEWSLETTER EDITOR:

Ken Scharabok (513-258-1389)

MARK YOUR CALENDAR: 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 to 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 provided on a break-even donation plate basis. The forges at the homestead are available before and after meetings for individual projects. PLEASE BRING AND WEAR SAFETY GLASSES.

SEPTEMBER 27-29th

1991 Quad-State Roundup. Volunteers needed for set-up on Friday morning (starting at 8 AM) and take down on Sunday evening and Monday morning. The Roundup is probably the best local opportunity to acquire tools and other equipment.

OCTOBER 5th, 1 PM

NO MEETING DUE TO QUAD-STATE. However, the forges at the homestead may be available for individual projects. If interested, RSVP to 258-1389.

NOVEMBER 2nd, 1 PM

Demonstration by Hank Steinmetz and Don Munford on making campfire accessories.

DECEMBER 7th, 1 PM

Demonstration by Ron Thompson and Ron Van Vickle on making and tempering springs.

JANUARY 4th, 1 PM

Demonstration volunteer needed.

FEBRUARY 1st, 1 PM

Demonstration volunteer needed.

VCR TAPE RETURN POLICY:

The VCR tapes which have been donated or loaned to SOFA are loaned out until the next meeting. If you are unable to attend the next meeting, mail the tapes to Ron Van Vickle, 1121 Central Avenue, Greenville, OH 45331 prior to the next meeting. We are still missing a number of these tapes. Please, pretty please, check your tape library and return any you may have. Any non-copyrighted tape may be copied.

Chapter of ABANA

MEETING NOTES:

The August 3rd meeting was a joint one with the Ohio Tool Collectors Ass'n. I understand there was quite a few nice tools available and we picked up several new SOFA members from that group.

For the demonstration, Brian Thompson made a Christopher's Cross out of a railroad spike. This required his making several jigs to perform various steps.

1. Flatten the head of the spike for it to be a flat base. He had machined out a center hole and the area around the top of the hole to match the contour of the bottom of the spike head out of a block of aluminum. The block had two side grooves to be held securely in the post-vise. (See #1 & 2).

2. The next step involved bending the spike shaft to allow cutting in the portion of the spike which will later form the top and bottom pieces of the cross. To hold the head securely without deforming it, Brian put a slide slot in the block to hold the head while the shaft was bent. (See #3, 4 & 5).

3. To make the cuts using his bandsaw, Brian made a second jig out of aluminum which had a deep groove in the center and a ledge for the head held sideways on one end. The jig also included a lock bolt to hold the spike in place. To cut from the end, the spike was held in the jig in one end and to cut from the head back it was held in the end with the ledge. The cuts overlapped each other about 3/4". (See #6, 7 & 8).

4. The next two steps involved straightening up the spike, again using the first jig to hold the head while the shaft was bent back and then folding out the arms and top of the cross. The top was lifted off the body producing the shape in #9. The side arms are then folded out with the overlapped cuts producing a four sided hole through the center of the cross. Illustration #10 was a sample cross which Brian had decorated with grooves and punches. Brian noted in order to the cross to stand upright, some adjustment had to be made to the base to put the cross more over the center of it.

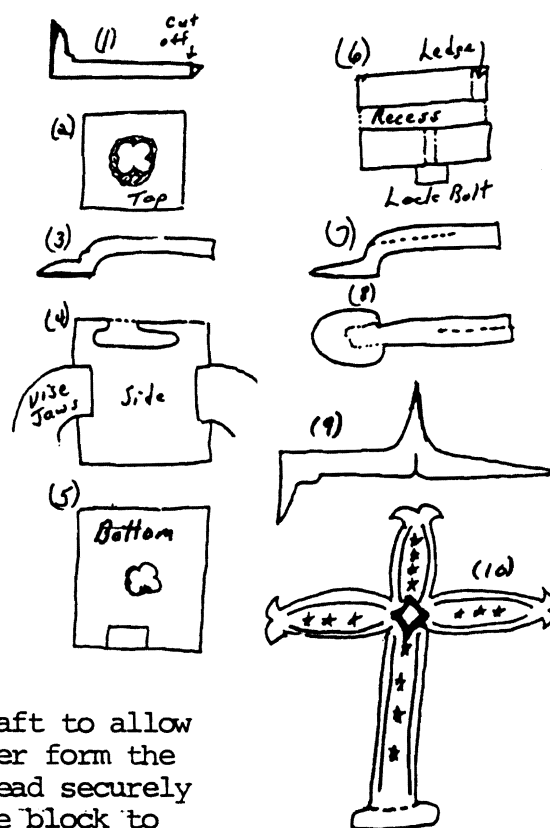
Another neat little thing to make from a railroad spike. For more detailed procedures for this cross, see the June/July 1990 issue.

* * * * *

For the September 7th meeting Ron Turpin, assisted by Scott Murray, gave a presentation on types of metal, their uses, tempering colors and the effects of alloying elements in steel (see charts in this issue). Following this presentation Ron and Scott went through the processes of making hooks since they have such wide application.

For those of you who haven't heard Ron's presentations, he is a better comedian those most you see on TV. He certainly has the knack for joke and story telling.

We need demonstration volunteers for 1992 meetings. As Ron amply proved, you don't need to be a highly accomplished smith to pass on tips, techniques or other information.



CARBON IN STEELS

RON TURPIN
HILLSBORO, OHIO
513-393-4815

| .030 | | .045 | |
|--|--|--|--|
| LOW CARBON/ MILD STEEL | | MEDIUM CARBON LOW ALLOY | HIGH CARBON HIGH ALLOY |
| SOFT, EASILY BENT STAMPINGS | | TOUGH, RESISTS BENDING SEMI-HARD DRAWBARS EQUIPMENT FRAMES CABLES CRANKSHAFTS DRIVESHAFTS RR S PIKES CRANE HOOKS | HARD-BRITTLE/ STAINLESS STEEL TOOLS-DIES PUNCHES DRILLS-FILES CUTTING TOOLS KNIVES |
| COMMON CONSTRUCTION STEELS HOT ROLLED COLD ROLLED AUTO SHEET METAL BARS-RODS-SHEETS ANGLE IRON | | | |
| EASILY WELDED WILL NOT HARDEN | | NOTE: 15 points carbon would equate to .015 percent carbon. | |

NOTE: STEEL WITH LESS THAN .015 CARBON WILL SHOW NO RESPONSE TO HEAT TREATMENT.

*Expanded Temperature Chart
of Temper Colors*

| Color | ° F | Use |
|-------------------------|-----|----------------------------|
| Steel grey | 660 | Light springs |
| Greenish blue | 650 | Screwdrivers |
| Light blue | 640 | Wood saws, punches |
| Dark blue | 630 | Springs |
| Blue | 620 | Picks, hot chisels |
| Dark purple | 610 | Cold chisels, light work |
| Purple | 600 | Knives |
| Light purple | 590 | Cold chisels, steel |
| Brown with purple spots | 580 | Axes, center punch |
| Dark brown | 570 | Hammers, sledges |
| Brongze | 560 | Surgical instruments |
| Dark straw | 550 | Twist drills |
| Golden straw | 540 | Rock drills |
| Straw | 530 | Wood chisels |
| Straw yellow | 520 | Drifts, leather dies |
| Yellow | 510 | Pen knives |
| Light yellow | 500 | Thread cutting tools |
| Pale yellow | 490 | Planer tools |
| | 480 | Drills for stone |
| | 470 | Paper cutters, lathe tools |
| | 460 | Rayors |
| | 450 | Burnishers |
| | 440 | Scrapers |

Carbon Content of Steel for Different Uses

| Points Carbon | Properties | Uses |
|---------------|--|---|
| 5-10 | Very soft, plastic | Stampings, rivets, nails, wire, general forging |
| 10-20 | Tough | Structural steel, general use, good for case hardening, general forging |
| 20-30 | Quite tough | Better grade for structural and machine parts, screws, general forging |
| 30-40 | Very tough | Crane hooks, machine parts, connecting rods |
| 40-50 | Great toughness with little hardness | Heat-treated machine parts, gears, axles, shafts |
| 50-60 | Great toughness with some hardness | Crowbars, garden tools, gears, shafts, machine parts |
| 60-70 | Great toughness with fair hardness | Flatters, fullers, hot swages, tools to be used on hot work, drop-forging dies |
| 70-80 | Great toughness with medium hardness | All general blacksmith's tools, hammers, rivet sets, hot sets, wood augers, gun barrels, wood chisels, screwdrivers |
| 80-90 | Very tough, better than medium hardness with slight cutting edge | Cold chisels, hammers, sledges, hammer dies, shear blades, large springs, scissors |
| 90-100 | Fair toughness, hard with medium cutting edge | Pneumatic chisels, knives, punches, mills, reamers, taps, anvil faces, wrenches, railroad springs |
| 100-110 | Little toughness, hardness with good cutting edge | Drifts, swages, springs, stone drills, pliers |
| 110-120 | Great hardness with keen cutting edge | Planing tools, axes, saws, woodworking tools, threading discs, coil springs |
| 120-130 | Very keen cutting edge; somewhat brittle | Drills, taps, lathe tools, shear knives, basic steel used for cutting-tool purposes, files |
| 130-140 | Very hard keen cutting edge; brittle | Cold-trimming discs, razors, glass cutters, ball bearings, steel engraving |
| 140-150 | Extremely hard and very brittle | Brass cutting tools with fine edge, turning hard metals, tools used to cut other partially hardened metals |

Standard Steel Specifications

Explanation of the S. A. E. Numbering System

Base numerals of the system are:

CARBON STEELS First Digit—1

Plain Carbon

Free Cutting (Screw Stock)

Free Cutting (Manganese)

High Manganese

10XX
11XX
12XX
13XX

ALLOY STEELS

NICKEL First Digit—2

.50% Nickel

1.50% Nickel

3.50% Nickel

5.00% Nickel

20XX
21XX
22XX
23XX

NICKEL-CHROMIUM First Digit—3

1.25% Nickel, .80% Chromium

1.75% Nickel, 1.00% Chromium

3.50% Nickel, 1.50% Chromium

3.00% Nickel, .80% Chromium

Corrosion and Heat Resisting (Stainless)

31XX
32XX
33XX
34XX
35XX

MOLYBDENUM First Digit—4

Chromium-Molybdenum

Chromium-Nickel-Molybdenum

Nickel-Molybdenum

and

41XX
42XX
43XX
44XX

CHROMIUM First Digit—5

Low Chromium (up to 1.10%)

Medium Chromium

Corrosion and Heat Resisting (Stainless)

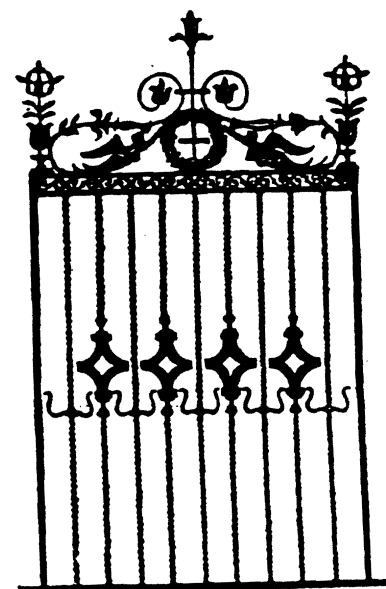
Chromium-Vanadium (.80%/1.10% Chromium)

Tungsten

and

Silico-Manganese

51XX
52XX
53XX
54XX
55XX
56XX
57XX
58XX
59XX



Effects of Alloying Elements in Steel

By T. B. JEFFERSON

Aluminum

Aluminum is extensively used as a deoxidizer in steel production. As such, it is an effective purifier. Aluminum also lessens grain growth by forming dispersed oxides or nitrides.

Carbon

Carbon is the principal hardening agent in steel. In most cases, alloy steels containing carbon up to about 0.20% are for hardening by carburization. Alloy steels containing over 0.20% carbon are generally considered heat treating steels and are heat treated by quenching and drawing to obtain increased strength. In some cases, these steels are used in their as-rolled condition. As the principal hardening element in most alloy steels, carbon has about the same effect as it does in steels which do not contain alloys.

Chromium

Chromium, as an ingredient in alloy steel, is a hardening element which also tends to increase the strength of the steel. In the higher percentages, from 12 to 30%, chromium tends to increase the corrosion resistance and oxidation resistance of the steel. This holds true at both high and low temperatures. Consequently, chromium is one of the basic ingredients used in the production of stainless steels. It is also one of the basic ingredients of steels that are to be used at high temperatures where resistance to oxidation is desired. There is little loss of strength in chrome steels at temperatures up to 900 F.

Cobalt

Cobalt is used as an alloying agent in steel where high strength or high hardness at high temperatures are desired. It imparts the quality known as "red hardness."

Manganese

Manganese is the most indispensable alloying ingredient used in steel making. When manganese appears in steels up to about 0.80%, it is generally intended for the sole purpose of combining with sulphur or phosphorus to offset embrittlement and "hot shortness." In higher percentages, 1 to 15% (with one exception), manganese increases the toughness of the metal and also increases the hardening ability of the metal involved. The exception is a content of between 3 and 4% manganese in steel, which tends to promote embrittlement.

Molybdenum

Playing an important part in alloy steels during these days of conservation, molybdenum is used to replace other strategic metals. Molybdenum tends to increase the hardness and the endurance limits of steel. It likewise contributes to deep hardening. It decreases the tendency toward high temperature creep or slow stretching of steel under stress at high temperatures. Molybdenum also increases the corrosion resistant qualities of stainless types of alloy steel and prevents temper embrittlement of

low chrome alloys. Generally it is used in comparatively small quantities, ranging from about 0.10 to 4.00%.

Nickel

Nickel is used as an alloying agent in steel for the purpose of increasing strength and toughness at low temperatures. Most general quantities are from 1 to 4%, although, in some applications, the nickel content will run as high as 36% or more. In all cases, the addition of nickel will increase the strength without decreasing the toughness of the steel; there are, however, instances where the addition of nickel promotes temper embrittlement. Steels having a nickel content of 24% are practically non-magnetic, and when the quantity is increased to 36% the coefficient of expansion due to heat (up to 900 F) is very small. In the lower range of nickel, i.e., up to about 4%, it is usually estimated that the tensile strength is increased about 6,000 psi for each additional 1% of nickel.

Phosphorus

Phosphorus is an element usually found in all steels. In high percentages it is considered an impurity. In low percentages, however, it improves the machinability of high carbon steel as well as of low carbon steel. For this purpose, the phosphorus content is usually restricted to about 0.05%, particularly so in steels in the higher carbon ranges. Phosphorus slightly improves the strength and corrosion resistance of low carbon steel.

Silicon

Silicon acts to promote fluidity of the molten steel bath by effecting a control over the oxygen content of the steel. It is used extensively in high percentages to produce certain magnetic characteristics in steel used for electrical and magnetic applications. Its addition tends to improve oxidation resistance and increases the hardenability of steels carrying non-graphitizing elements. Silicon also contributes to the strength of low alloy steels.

Tungsten

Tungsten is used as an alloying element in tool steel and tends to produce a fine, dense grain when used in relatively small quantities. When used in larger quantities, from 17 to 20%, and in combination with other alloys, it produces a steel that retains its hardness at high temperatures. Tungsten is also used in certain heat-resistant steels where the retention of strength at high temperatures is important. This element is usually used in combination with chromium or other alloying agents.

Vanadium

Vanadium is used in the production of steel as an agent to promote control of grain size. It tends to promote hardenability and causes marked secondary hardness, yet resists tempering. The addition of vanadium tends to produce fine grain structure during the heat treating process. Because of this, vanadium often eliminates the bad effects of overheating.



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 September 1991

Dear Friends,

The summer is coming to a close, and with it, the ballot mailing deadline for the annual ABANA Board election. I want to ask all of you to please take the time to vote for your candidates and exercise your right to select the new ABANA Board.

Over the years, I have tried to listen and learn from all of you, so that ABANA can become all that she should be while I lead. It is very frustrating to know every mind, feel how you feel, know what you think. Without your response in the elections, I and the remaining Board, are only half a team. Please do not allow the opportunity to assist in the selection of your leaders to pass by without your input. Your vote is so very vital to all of us. When Alex Bealer and the Lumpkin Men started this organization, 100% of the members voted. They all took part. As time went by, we have found that about 30% (if we are lucky) take time to vote in the elections. We don't ever have hope to represent the majority if only a minority votes. If you truly wish to have input, say it in the form of the election ballot. You should receive your ballot in your fall issue of The Anvils Ring due to come out in September.

We are making preparations for the ABANA Board meeting to be held on November 8th, 9th, and 10th in Ohio at the Studebaker Homestead. Your Board Liaison chairman and his committee will be in touch with every chapter President prior to the meeting to see if anyone has something to present to the ABANA Board. If you do not hear from them for any reason, and you would like a thought presented, my personal number is 206-273-8670. Call me and I will take it to the Board myself.

ABANA looks good as the quarter ends. We have to catch up from the over expenditures that change in editors created, but we do look good on paper. We have money that we want to invest. We have created a committee of the Treasurer Bill Callaway of Arizona, Mack Beal of New Hampshire, Joe Harris of West Virginia, and Bill Manly of Tennessee, to assist with these investments. The goals are to make money with your money, to be used for you.

Until next time, weed the clinkers out, and keep the fires hot!

Dorothy Stiegler
Dorothy Stiegler
President of ABANA

DES/jgf

WANTED: Copy of Donald Streeter's "Professional Blacksmithing". Contact Russ Afflerbach, 164 N. Main St., Alburtis, PA 18011 - 215-966-3678.

FOR SALE: "Edge of the Anvil", written and illustrated by Jack Andrews. Available from Skip-Jack Press, Box 2460-MBS, Ocean City, MD 21842 for \$18.95 postpaid.

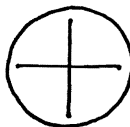
Hot Forging



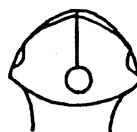
Upset 1" bar



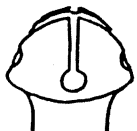
Round end



Divide into quarters with light chisel marks



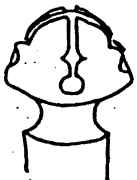
Stamp 4 circles



Stamp channels between circles



Divide each quarter into three lobes by stamping



Fuller neck below top of knob with spring fuller

Forged + Chased Knob

From the Notebooks of
Tom Latane c. 1990

GUILD OF METALSMITHS
MARCH 1994

Cold working

File a bead around knob



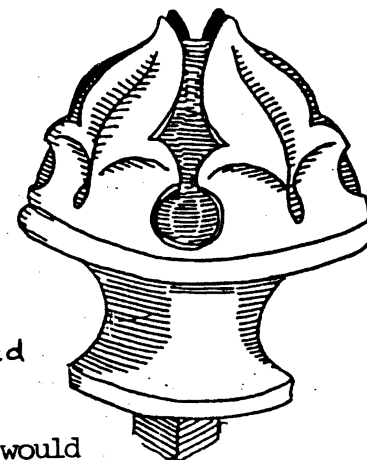
Chase crease in each leaf lobe



With slim chisel peel tbs of leaves away from body of knob



Drill + tap hole or saw a tenon for attaching knob



Editor's Note: It looks like it would help the process by moving the neck fullering process to the third step and then to make a fixture to hold the head upright in a leg vise to work on it.

FOR SALE: 1992 catalog featuring British ironwork. Available from Mac's Industries, P.O. Box 1140, Benton City, WA 99320-1140 for \$9.45 postpaid.



The June 1991 newsletter of the Northwest Blacksmiths Ass'n contains two articles which may be of interest to SOFA members - but are too long to put in SOFA SOUNDS. The first is on how to make the vise tool to hold Wizard Heads, etc. The second is a nine page article on a small trip hammer (kind of a motorized treadle hammer) made by Paul Hind using only a cutting torch, 3/8" electric hand drill and an arc welder. For either, send a SASE with one first class stamp to the editor.

WANTED: Information, manuals and pointers regarding the STAR 50 lb power hammer manufactured in Albert Lee, MN. Contact Dennis Anderson, 5910 Hillandale Road, Davenport, IA 52806 - 319-391-1985. (He also has a 25 lb Verrihard/Red Oak power hammer for sale for \$300.)

Omniverse Research, Inc. (P.O. Box 33243, Los Gatos, CA 95031 - 408-354-6611) sells a portable MIG welder which operates off two 12 volt batteries in series. Wire drive is a handheld drill (including a battery operated model). Ad says it will weld up 3/4" aluminum and steel and stainless up to 1/2" thick. May be just the ticket for remote site installations. Cost is \$250 plus shipping.

The Ohio Renaissance Festival runs on weekends from late August through the end of September. On St. Rt. 73 about five miles east of Waynesville, it seeks to recreate a 1533 English village fair and is expected to draw over 60,000 attendance this year with the potential to grow significantly each year. If you are interested in setting up as an 16th Century blacksmith to sell your wares, contact the fair organizers at 513-897-7000 about the 1992 fair.

The May-June 1991 issue of Bituminous Bits, excellent newsletter of the Alabama Forge Council, contains an 11 page section on making Wizard Heads. For a copy of this issue send \$3.00 to AFC, 176 Brentwood Lane, Madison, AL 35758.

The 7th Annual Birmingham Blacksmithing Festival Workshop will be held October 6-12, 1991 at the Sloss Furnaces National Historic Landmark. Workshop leader will be George Dixon, head blacksmith at the Samuel Yellin Metalworkers in Philadelphia. Workshop will survey traditional European metalworking techniques and tooling to include repousse, chasing, chiselwork and hollow-forming. Workshop fee is \$250. Contact SFNHL, P.O. Box 11781, Birmingham, AL 35202 for further information.

If you are interested in having a skin or pelt custom tanned, contact Sebring Custom Tanning, Sebring Air Terminal, Bldg 727, Sebring, FL 33870 - 813-655-1600. A deer hide would run about \$12 while a cow hide would run \$60 - \$70.

FOR SALE: 40-50 dies for 2-B Naze hammer, mainly chisel dies. \$150 each.
WANTED: Bolster for 2-B Naze hammer. Contact Glenn Horr, Highland Forge, Rt 2, Box 112-B, Berkeley Springs, WV 25411.

The "Mountaineer Times" is a magazine which features homespun articles which should appear to most blacksmiths. \$9 for three issues or send \$3 for a sample to P.O. Box 1049, Copperhill, TN 37317.

Landsay Publications publishes reprints of out-of-print books, several of which pertain to blacksmithing or metalworking. For a catalog contact them at P.O. Box 12, Bradley, IL 60915-0012.

The Society of Workers in Early American Trades (SWEAT) is an organization interested in early crafts. Dues are \$8 per year to Fred Bair, 606 Lake Lena Blvd., Alburndale, FL 33823.

"The Blacksmith's Journal" is an excellent resource for blacksmiths due to extremely well done illustrations and descriptive text. \$28 per year to Rt 1, Box 189, Lonedell, MO 63060. They also have binders and back issues available.

FOR SALE: Large Buffalo forge, 4' square, blower, exhaust hood and fan. Has a steel frame and iron firepot, \$200. 300 lb Fisher anvil, like new, \$300. 165 lb anvil, worn, \$125. 11" South Bend engine lathe, 30" between centers, \$250. Contact Kevin Blaine at 215-499-7175 (just south of Philadelphia).

According to a report in the newsletter of the Northeast Blacksmith Ass'n, Smithy, 3023 E. 2nd St., The Dalles, OR 97058 offers a combination lathe, mill and drill which looks good at a reasonable price.

If you are making flint strikers, a source of flint is Eagle Crafts, 168 West 12th St., Ogden, UT 84484 - 801-393-3991. They also carry other traditional items. Catalog on request.

BLACKSMITHING EQUIPMENT FOR SALE: The following generally have a variety of equipment, including powerhammers, for sale: Neil Brown - 219-724-7554; Russell Cashion - 615-731-3215; Benny Wilson - 615-758-7176; Fred Caylor - 317-769-6351 (he also reconditions powerhammers); and David Oliver - 615-878-4969. Locally try Joe Abele - 276-2977 or Steve Roth - 836-8520.

STEEL FOR MAKING FLOWER PEDALS, ETC.

In the August 1991 issue of the newsletter the Inland Northwest Blacksmiths Ass'n, one reader ask if the sheet steel in old appliances and automobile fenders was softer, and therefore better for making leaves, etc. than newer sheet steel. The answer was basically yes. Until the early 1970's sheet steel was produced in a rolling mill and was about 0.05 - 0.10 percent carbon and 0.25 to 0.50 percent manganese. During the energy crisis of the 1970's, there was a move towards the use of High Strength Low Alloy (HSLA) steels in automobive and other sheet steel applications. HSLA steel is produced in a continuous process, rather than ignots, and contains small amounts of niobium and other alloying elements added to increase their strength, allowing thinner guage (and therefore lighter weight) material to be used. Thus, HSLA sheet steel is not as easily formed or as workable as the sheet steel produced by the rolling mill process.

SHOP TIPS AND TECHNIQUES: The following were, for the most part, paraphrased from other ABANA Chapter newsletters. While the information presented herein, and elsewhere in this newsletter, is believed to be accurate, neither SOFA nor ABANA assume any responsibility for the accuracy, fitness, proper design, safety or safe use of any information, technique, material, tool design, use, etc. USE IS SOLELY AT THE USER'S OWN RISK!

- RUST PROOFING TOOLS: Sandblast the rust off tools and spray the metal with cold, zinc-rich galvanizing compound available from auto body stores. This material fuses to bare metal by galvanic action to prevent rust. (From an item in Successful Farming magazine).

- RUST PREVENTITIVE: A good rust preventative is Phophoric Acid Wash available from Sherwin-Williams. Apply thinly over clean, bare metal. When dry, finish with a quality automotive acylic enamel. (From the newsletter of the Blacksmith Guild of the Potomac).

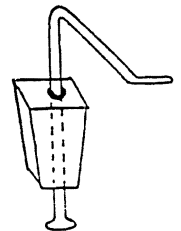
- RUST PROTECTOR: The paint conditioner "Penetrol" does a great job of protecting tools and anvils from rust. It is available at most contractors paint supply sources, such as Duron, Masterwork or Sherwin Williams. (From the newsletter of the Pittsburgh Area Artist Blacksmith Ass'n).

- TOOL RUST STOPPER: To help keep rust off infrequently used tools, paint or dip them in a mixture of 1/2 kerosene and 1/2 new or used crankcase oil. Wipe off excess. Repeat when rust appears again. (By Gerald Hawkins).

- UNIFORM TWISTING: To get more uniform twists keep a can of water near the vise - a pump type oil can works great for small stock - the water can be used to cool hot spots which twist too tight - use a small amount of water to cool the offending area (often towards the center of the area being twisted) and watch what is happening. It is usually necessary to reheat and re-cool several times to get a uniform twist over a distance. Twists of an inch or two can usually be done well in a single heat. The key is to watch the twist as it is happening and make the necessary corrections as needed. To match twists on several articles (e.g., utensils, fireplace tools, etc.), twists of more than one turn give you more control and correction than a single turn. (By Don Dunbar from the newsletter of the Northwest Ohio Blacksmiths).

- GRINDER TIP: If you use a grinder powered, wire wheel to clean up small pieces, S hooks, etc., use tongs, vise-grips etc. to hold the piece. DO NOT HOLD IN YOUR HANDS. If the machine grabs and jerks a pointed S hook through one of your fingers, like I did to mine a couple of days ago, you'll understand. It is very difficult to do much work at the anvil when the index finger of your hammer hand has a large and ugly hole through it! (By Don Dunbar from the newsletter of the Northwest Ohio Blacksmiths).

- HOLDFAST FOR ANVIL WITHOUT PRITCHEL HOLE: Forge solid piece of mild steel to fit hardy hole. Drill hole into forge piece larger than the stock to be used for the holdfast. Forge holdfast out of round stock of your choice. Put hold fast through piece forged to fit hardy hole and upset bottom end of holdfast. (By Lewis Riggelman from the newsletter of the Florida Blacksmiths Ass'n).



- WAX FINISH: Joe Pehoski's wax finish for black iron is: 1 lb Johnson floor wax, 1/4 cup boiled linseed oil, 1 cup turpentine and 1 tablespoon Japan drier (available at craft stores - ed). Mix and apply with a rag when metal is approximately 250°F. Either quench or air dry. (From the newsletter of the North Texas Blacksmiths Ass'n).

- BANDSAW ALIGNMENT: To double check if your bandsaw is truly cutting at 90°, put a stop in back and lightly cut all four sides of square stock or tubing. If aligned properly, all four cuts will match up. - ed.

- IMPROVISED SHEARS: Did you ever wish you had a Beverly shears but just couldn't justify the price? Steve Joslyn uses a pair of off-set aviation snips with a short piece of metal stock, round or square, welded to the bottom handle just back of the pivot point. This is placed in the vise and a short length of pipe can then be put on the upper handle to give more leverage. This works great and will handle light gauge metal such as the tops of metal drums which Steve uses for pizza cutter wheels. (From the newsletter of the New York State Designer-Blacksmiths Ass'n).

- HORIZONALLY HELD SPLITTING CHISEL: A great replacement for the more risky method of driving a splitting chisel straight down. The risk being yet another third degree burn if the chisel slips. Also, the sharpened cut near the top works as a sheet metal cutter - real convenient for getting barrel tops and car trunks open. (From the newsletter of the Northwest Blacksmiths Ass'n).



Making your touchmark

Robb Gunter gave this demonstration on Friday, May 17 at the 1991 Southeastern Regional Blacksmiths Conference, Madison, GA. I took a lot of notes and I hope this article will give a complete sequence of Robb's touchmark making.

The touchmark is made from a 1/2 inch Allen wrench. The bent leg can be straightened or cut off, depending on the length you want.

A jig for the touchmark transfer is made up of a base plate, a bolster block, a 1/2 inch Allen screw, and two 3/16 inch or so Allen screws.

The purpose of the jig is to hold the Allen wrench stock firmly and consistently in place for the multiple heatings and strikings required to produce a quality stamp.

1/2" ALLEN SCREW

The Allen Screw used is modified to act as a guide for the Allen wrench touchmark. The screw is cut off with a hacksaw so that the part of the head that the Allen wrench goes into is separated from the balance of the screw (Fig. 1). What you want to have is the upper part of the screw with an opening on top and bottom. The Allen wrench can pass through it.

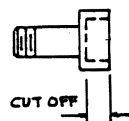


FIGURE 1

BOLSTER BLOCK

Drill two holes in opposite corners of the bolster block for the 3/16" Allen screws. The bolster block can be 1/4" or 3/8" mild steel 2" by 3" (Fig. 2).

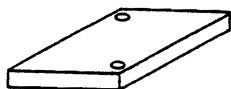
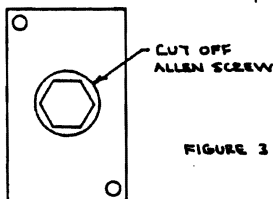


FIGURE 2

Drill a hole in the center of the bolster block of a size for the cut off Allen screw head to fit in. Weld the screw head in place. The bottom of the screw should not extend beyond the bottom of the bolster block (Fig. 3).



BASE PLATE

Robb said he likes to use CRS. I would use 3/8" by 2" by 3". Drill and tap a hole in two opposite corners of the base plate for the 3/16" Allen screws (Fig. 2). Use a transfer punch to assure an accurate lineup with the bolster block holes.

Assemble the bolster block and base plate with the two 3/16" Allen screws (Fig. 4). Mark the base plate to outline the area for your touchmark. You can do this with a scribe or spray paint through the Allen screw head.

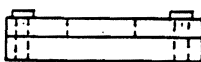


FIGURE 4

TOUCHMARK DESIGN

Take the jig apart and start making the design in the marked area (Fig. 5). If you are using letter stamps, start with the middle letter. This is done cold. Carefully go over the punch several times. If the punching operation raises the steel, flatten the surface with a belt sander or a small sandpaper grinder.

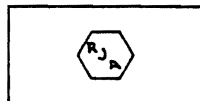


FIGURE 5

To make designs - an anvil, for example - use an engraving tool. You can make one with W1 steel forged and filed into a diamond shape.

You can see how deep the design is by pressing lead against it in a vise. Be sure to get any scale or steel shavings out of the letters or design.

Anneal the base plate.

TOUCHMARK

The touchmark is made from the 1/2" Allen wrench that you straightened or cut off. Remove some of the stock on the end. Be careful not to remove so much that the touchmark is sloppy in the bolster (Fig. 6).

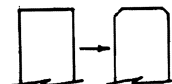


FIGURE 6

Heat the stamp steel with a torch. This is done because you want the shortest possible heat. Use a fully normal flame and get a yellow heat. You want a short heat so that you don't upset the stamp in the bolster. Even so, the stamp may upset some and you'll have to take the jig apart to remove the stamp (Fig. 7).

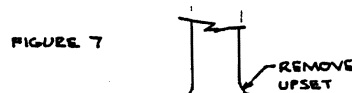


FIGURE 7

The care that was taken in making the jig will allow a perfect line-up when the jig is re-assembled. Take several heats. Use a belt sander to remove any upset on the sides of the stamp. A belt sander can be used to finish the shape of the touchmark.

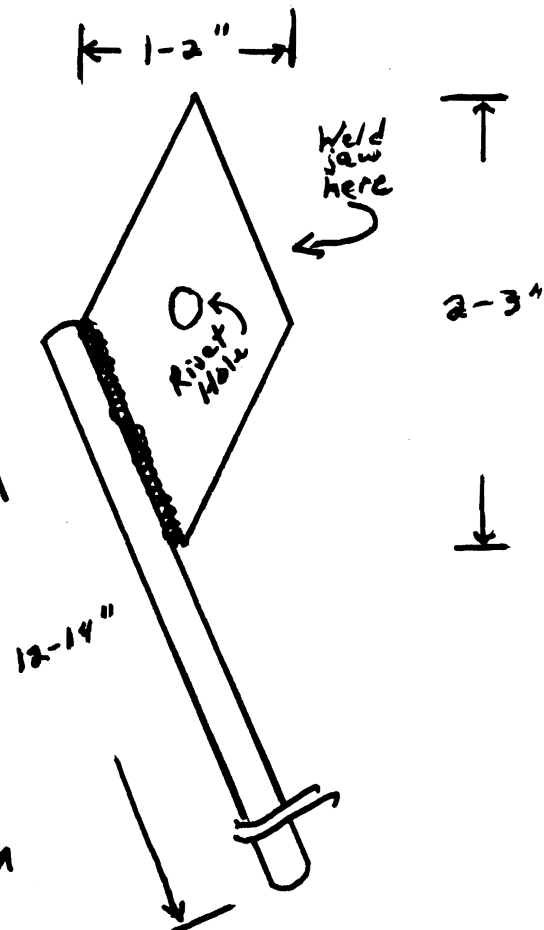
Robb says to ALWAYS anneal the stamp when finished. Everyone he made and did not anneal has failed. It should be placed in lime over night. He uses his gas forge to bring the annealed stamp to 1500°F. When the temperature drops to 1475°, he quenches the entire stamp in oil and holds it there until cool. This produces a Rockwell of 54-55. He uses a scrap hammer with the stamp since the entire stamp has been hardened.

Russ Afflerbach 1991

PEARLS FROM HANS PEOT
Skeeter Prather

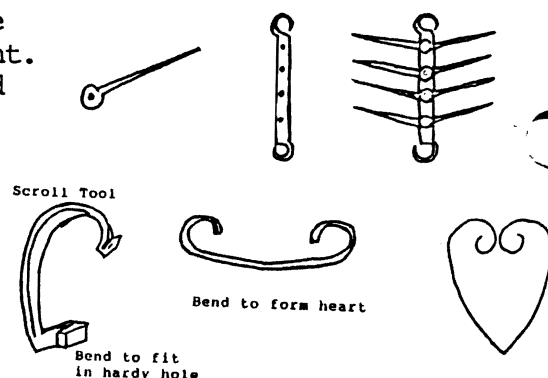
During his demonstrations at the recent Southeastern Regional Blacksmith Conference in Madison, Hans Peot offered the following tips.

1. Make punches and drifts smooth.
2. Powder some coal and keep it in can near anvil for lubricating punches and drifts.
3. Automotive torsion bars are super tool steel.
4. For patching holes and nicks in anvil face, use "Hobar, Tough and Hard 250" welding rods. Preheat anvil face to about 250° F. on electric hot plate.
5. Truck axles—4140 steel—make good hammer heads.
6. Truck springs (different steel from axles!) make good edged (cutting) tools.
7. Springs, axles, and torsion bars from the local auto repair garage usually have a crack(s) somewhere. In springs, the cracks are commonly near the middle.
8. Quenching fluid: transmission fluid (often available free from a friendly neighborhood truck garage).
9. "Weldmold 800"—a stainless steel welding rod—is forgiving under pressure (tends to bend and give before cracking), and, therefore, is useful in the welding of, say, a hardy insert to the business end.
10. To swage tendons, use swages of progressively smaller size: start large, go to medium size, and then to final size.
11. Spot mill faces are excellent for squaring up tendon shoulders (broken and worn out ones are frequently cheaply available from machine shops).
12. A Butcher's Block brush to which a handle has been added is an ideal "steel brush!"
13. Remove sharp corners from swages.
14. Vermiculite is an excellent annealing medium.
15. V-belt pulleys make fine jigs for bending angle iron.
16. For working around hot iron, Kevlar gloves can't be beat (available from industrial safety suppliers).
17. A hack saw can be used for sawing hot metal--simply cool in slack tub frequently.
18. Steel banding strips (the blued kind) make fine springs for selected applications.
19. Fabricate blank tongs in advance of need, utilizing diamond-shaped 1/4"x3/8" plate to which 3/8" rod reins have been electro-welded, and the two handles properly riveted. Forge the needed jaws and weld (arc or gas or forge) onto the prepared handles. Bingo—a set of tongs! See drawing.



- **CORN DRIER AND SIMPLE HEART TRIVET:** Here are a couple of good ideas for some production items from Nick Vincent. Nick advised "My most popular items are Corn Driers, and my variation - apple driers. Historically, corn driers were used in farming communities to dry seed corn for planting. Now they are great decorating items for country interiors, especially the autumn season".

Nick's corn driers are "heavy duty", with center rod made out of 1/4"x3/4" with 1/4" square spikes riveted on. Nick continues: "I have used yellow field corn on the drier, but Indian corn looks best. If the corn is already dried, I drill a pilot hole in the base of the corn cob to impale it on the drier. As an alternative to the corn, I have used wooden apples. The "apple driers" are very decorative and sell very well". In yet another attempt at a simply designed but functional article, Nick has been producing this heart-shaped trivet. It is small in size (about 7"x8"), and forged out of a single piece of 1/4"x1/2"x24" strap. The ends are tapered, keeping the 1/2" width, then bent to form the top of the heart, with the middle of the bar bent to bring the two halves together. Nick suggests the forming be done with a scrolling tool to form the ends of the bar and then clamp the center in the vice to bring the two halves together. the scrolling tool is made out of 3/8"x3/4", long enough to make half of the heart with enough material left to fit in the hardy hole of the anvil. The trivet has many uses (e.g., hang on the wall with a hand wrought nail, put on top of the wood stove to put a tea kettle on, put on the window sill to put a flower pot on, etc.) Nick says they aren't selling as quick as he'd hoped but they make great gifts. (From the newsletter of the Mid-Atlantic Smith's Ass'n).



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