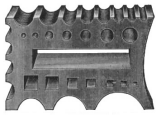
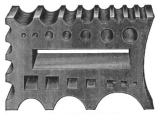
N.J.B.A. Newsletter

NJBA Volume 10, Issue 1 04/24/05

Editors Soapbox

Let us welcome the return of Spring! It's time to get out, enjoy some of the weather and come to the NJBA events. There are quite a few events planned so get your calendars out, mark the dates down and come to one soon!

Larry Brown, Editor

Upcoming events for 2005

Get you calendars out and mark these events down. Please bookmark our web site and check for meet information. Remember most of our meets have an "Iron in the Hat" drawing, so be sure to bring something.

May 15th — Hammer-in at Bruce Ringiers shop in Wantage, Northern NJ. Tim Suter demonstrating. Details this page.

June 18th—9:30—4:00 Hammer– in at the Pine Creek Railroad, Alliare State Park . Details on page 3.

July 9th, 10th — Railroad days, Historic Cold Spring Village in Cape May, NJ. Details on page.

July 27th thru 31st — Monmouth County Fair, Details on page.

August 5th thru 14th — State Fair in Sussex, NJ. We are going to sponsor a joint tent with Peters Valley. Demonstrators wanted. Contact Bruce Ringier, details on page .

August 21st—Hammer-In/ Tool Swap at the Red Mill Museum in Clinton, NJ. Rain Date August 28th. Details on page

September 17th — Peters Valley Pig Roast, A Fundraiser for the Blacksmith shop, teaching facility. Details in next newsletter.

May Meet at Bruce Ringiers Shop

On May 15th, at about 9:30 am, Tim Suter will be providing a "serendipity" demonstration on his combination air powered and manual treadle hammer. Tim will be covering the use of homemade tooling for the hammer and the techniques he uses.

For those who have not seen Tim demonstrate or discuss his work, this should not be missed and those who have seen Tim before won't want to miss this demo.

Bruce Ringier has a well equipped shop and it is a pleasure to be invited there once again.

Directions to Bruce Ringiers':

From interstate Route 80 West: Take Exit 34B to NJ Route 15 North. Going toward US Route 206 North. When you get to intersection of Rt. 15 and Rt. 206N, make a right, 6 miles ahead on the left is the Yellow Barn Farm, 1 mile past Sussex Meat Packing

NJBA Welder Raffle

NJBA will be raffling off a Thermal Arc Dragster 85 DC stick welder. This is a 115 volt inverter welder adj. from 8 to 85 amps DC output, it will weld 1/8 steel in a single pass and weighs only 12 pounds. Tickets will be $1 each and the drawing will be at the annual NJBA picnic/tool swap August 21st (rain date 28th) at the Red Mill in Clinton, NJ. Tickets will be available at all NJBA meets (winner need not be present). If you can't make a meeting, get in touch with John Chobrda and he will gladly mail some to you.

Red Mill's web site is http://www.theredmill.org/
John Chobrda contact information:
609-443-3106 609-396-9583
JChob@earthlink.net

NEW!!!
Official NJBA Address

NJBA
P.O. Box 761
Mt. Laurel NJ 08054

The old address was:
NJBA, P.O. Box 195
Howell, NJ 07731
This will still be active for a while but please note the change and start using the new address.

The NJBA Web Site!

The NJBA Web Site is up and running at:
`http://njba.abana-chapter.com/`
The Newsletter is at:
http://members.bellatlantic.net/~vze25jcc/index.htm
or the site may be linked to from the NJBA web site.

Rather than use room in the newsletter, All correspondence between ABANA and NJBA is now being posted on the NJBA web site. If you cannot access it there, contact me and I will send you copies

NJBA Board of Directors

June Hammer In

Sponsored by New Jersey Museum of Transportation (NJMT) and New Jersey Blacksmith Association (NJBA) Saturday June 18th, 2005 NJMT (Pine creek Railroad), Allaire State Park.

Please join NJBA and NJMT for a hammer in at the NJMT shop facilities at Allaire State Park on Saturday June 18th, 2005 from 9:30 AM – 4PM. There will be a complete tour of the NJMT facilities including the shops, storage facilities and an explanation of the current restoration project, the # 43 Porter Mogul steam locomotive. We are hoping to be doing some riveting on the boiler by this meeting, so this maybe a great opportunity to see how a boiler is reassembled.
The main forge in the shop will be available. Portable forges will be available outside the side. NJMT has at least two portable forges that are itching to be brought back to life. several of the NJMT blacksmiths will probably be working on tooling for the portable forges. Other possible projects include making cut bar handles and brake handles. Individual demonstrations to both organization and the public are greatly encouraged. In the summer, we often get quite a few people visiting the museum and park, so this will be a great opportunity to recruit new members to both organizations.
Participants should plan to provide their own lunch. There is a snack bar in the parking lot, and there are several delis, and restaurants within three miles of the park in Farmingdale and Howell. There are also many picnic benches in the park – just across the parking lot from the museum. Drinks will be available throughout the day.

NJMT is located in Historic Allaire State Park, Route 524, Allaire (Wall Twp) NJ, two miles west of Garden State Parkway Exit 98 and NJ Route 34, and one mile east of I-195 Exit 31

For further information please contact:
David Macauley, drmacauley@att.net, 732-206-1568 or visit the NJMT website: http://www.njmt.org/ or the NJBA website: http://njba.abana-chapter.com/

Railroad Days at Historic Cold Spring Village!

July 9th - 10 th

General demonstration to the public. We will have a general meeting over lunch. David Macauley is the contact for this event, drmacauley@att.net, 732-206-1568

Directions: Take exit 4A south from the Garden State Parkway and follow the signs to Historic Cold Spring Village 720 Rt. 9 Cape May NJ 08204 (609) 898-2300.

Monmouth County Fair

July 27th- 31st

Friday night is the official meeting, Demonstrations and hammer in on all the dates. David is not available to run this event - will be demonstrating at the 2005 Scout Jamboree. **We need volunteers!!!** They should contact David to help arrange for setup, break down and to keep an eye on things, David Macauley, 732-206-1568, 732-420-4792 drmacauley@att.com .

From Garden State Parkway: Garden State Parkway to Exit 100, Hwy. 33 west. Follow Hwy. 33 to Kozloski Rd., turn right. Follow signs to Park. State Hwy. 9 to Hwy. 33 east, south of Freehold. Follow Hwy. 33 to Halls Mill Rd. North exit. Follow Halls Mill Rd. north to intersection. Road name will change to Kozloski Rd. Follow Kozloski Rd. to Park on left. From Rt. 18; Rt. 18 to Exit 22, Rt. 537 west. Take Rt. 537 west to Kozloski Rd., turn left. Follow to Park on right. It has also been recommended that to avoid traffic approach from Rt. 537

State Fair at Sussex County

August 5th- 14th

We want to help provide scheduled demonstrators for the tent that Peter's Valley has at the fair. David has the schedule that Bruce Ringier would like to have filled out. PV will provide forges, tools, supplies. Contact Bruce Ringier or David Macauley to schedule a demo time or just come out to this event!
Directions; The entrance to the fair is on Rt. 206N after the junction of Rt. 15. Look for traffic and signs.

Red Mill Hammer In

August 21st
Hammer In / Tool Swap,
rain date, August 28th

Adam has scheduled this event is August to help avoid September conflicts. More details on this event next newsletter.
Red Mill Museum; Take exit 15 on I-78 onto old route 22 going North (routes 513 and 173), make a left onto main street before bridge. Museum straight ahead.

Old Time Engine Show

September 16th, 17th, and 18th

NJBA will again be at the Delaware Valley Old Time Power and Equipment Association's "Days of the Past" Engine Show at Washington Crossing State Park, in Titusville, New Jersey. Come on out and bring the family, there are hay rides for the kids, a metal heads flea market, and a lot to see. We will have a couple of forges going so bring a hammer, also if you have some items for sale we will have a table out. Come on out and join the fun. For more information check out their web site http://daysofthepast.com/

Directions:
The Engine Show is located in Washington Crossing State Park off of Rt. 29 (River Rd.) South of Lambertville and North of Trenton signs are posted to show the way.

Peters Valley Pig Roast

Sept 17th

Peters Valley will be holding its Fifth Annual Pig Iron Fest. More information next newsletter. Pig Roast / Burgers /Hot Dogs / Salads / Sodas Beer & Live Band!
To be Auctioned: Artwork, Tools and More!!
To be Raffled: 260 lb. Hay-Budden Anvil
Only $30 per person kids under 12 free!
Presented by Jimmy Clark, Dick Sargent, Bruce Ringier and the Staff
All proceeds to benefit Peter's Valley Blacksmithing Department
Call for details 973-948-2393 shop
973-948-5200 office
1:00 PM Hurricane or Shine

Help Save Part of the Sorber Collection

As many of you already know, the Sorber Collection of Early American Ironwork is going to be auctioned off on May 13, 2005. Pieces from this collection can be seen in the book, "Colonial Wrought Iron" by Don Plummer, and even in the classic "Early American Wrought Iron," by Albert H.Sonn. For blacksmiths, this is bad news.

When the Sorber auction was first announced, Dave Mudge, Don Plummer, LeeAnn Mitchell, Jim Wallace, Brian Gilbert, Clare Yellin and others started passing around emails trying to figure out some way for blacksmiths to pool their resources to buy at least some of this collection. There is no way that we would be able to come up with the money to buy even a single lot,since this collection has been valued at over a million dollars. And since the auction house is going to try to do it all in a single day, they are probably going to have to put anything remotely affordable into large lots,like fifty Pennsylvania thumb latches.

So what has happened is that Jim Wallace, Director of the Metal Museum in Memphis, Tennessee has agreed to help out by setting up a special donation page and account to buy, hopefully, at least some of the Sorber Collection. If we are unsuccessful, then the money will go to the Metal Museum, so no matter what happens, donations will be used to preserve ironwork.

It is our personal hope that we can raise enough money to create a travelling exhibition, but that's a pretty tall order. Those of you who remember the Sorber exhibitions at the ABANA Conferences in La Crosse, Wisconsin and Asheville, North Carolina might understand the value of an exhibit.

If you are interested in donating to this project click http://www.metalmuseum.org/donations.htm

Act now... we've only got until May 13th to keep some prime source material available to blacksmiths around the country. Thanks in advance for your help!

Fire Hazard of Synthetic Clothing

By Bruce Freeman

I have recently learned of an incident in which a person working at a forge was badly burned. He was wearing an old, somewhat frayed, sweatshirt made of a cotton/polyester blend, over a cotton T-shirt. Apparently, his back was near the fire and the frayed edges caught fire. By the time he was aware of it, the sweatshirt was in flames.

He was unable to remove the burning sweatshirt because it had melted and fused to his pants' waist band. Diving into the slack tub, backwards, would have been a logical thing to do, but was impossible in this shop. Floors space was not available for "stop, drop and roll". He tried rolling against the door, but that gave way, probably making things worse. He finally extinguished the blaze by rolling on the ground outside. By that time he had suffered 2nd degree burns over a significant portion of his back, and possibly some 3rd degree burns as well. The cotton T-shirt under the sweat shirt may have saved him from even more severe burns.

This points up three particular dangers of synthetic fibers worn around fires. First, they may catch fire more easily than natural fibers (cotton, linen, wool, silk). Second, when they do catch fire, they may burn more fiercely than natural fibers. (Neither of these will always be true. They are likely to be true because synthetic fibers don't absorb water, while natural fibers do. Absorbed water will reduce the flammability of the fabric somewhat.)

Third, synthetic fibers melt when hot. This is particularly dangerous because the melted plastic is sticky like napalm, and when it cools it gives off the heat of melting ("latent heat of fusion"), continuing the burning of nearby flesh. By contrast, natural fibers do not melt, but only burn or char, not getting particularly sticky, and not storing heat.

I don't know about the rest of you, but I plan to weed out any synthetics that may have crept into my "blacksmithing wardrobe."

Got a call from Bob Swenson of Iron Age Antiques.

Sale at Iron Age Antiques! Bill Gichners

They are having a sale on 7-8 May 2005 to sell Bill Gichner's holdings of Book and Equipment.
It is not a auction but a sale with prices marked on everything. They will negotiate.
Bill Clemens, BGCM

Schooling opportunities

B2 Design Power Hammer School

154 Bevan Drive, Mooresville, NC 28115 704.660.1560
www.powerhammerschool.com

This school was started in 2004 to teach the finer points of 'free-hand' forging on a power hammer. Using the methods developed by Uri Hofi, students from coast to coast have discovered the magic created with a power hammer. The time saved by forging with a power hammer vs. forging by hand, will justify the cost of owning a power hammer (or two). However, the hammer will not produce excellent results without a trained operator. One could spend years 'playing around' with a power hammer and still not reap the full benefits offered by these tireless tools. While the techniques used in free-hand power hammer forging are not rocket science, instruction, practice and critique are required to become proficient and efficient with the hammer. This is all covered at the B2 Design Power Hammer School.

Center for Metal Arts

PO Box 30, Chester, NY 10918
(845) 651-7550 http://www.iceforge.com/
Contact them for upcoming events and classes, Uri Hoffi was recently teaching there.

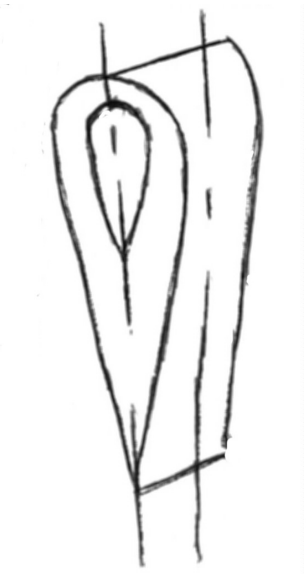
Downloadable Blacksmithingbooks:

http://www.lametalsmiths.org/news/downloadable_blacksmithing_books.htm
Copy whole line into browser

NJBA Meeting at Dick Gambino's Shop on Feb 13,05 Featuring Joseph Szilaski, Master Bladesmith in the ABS.

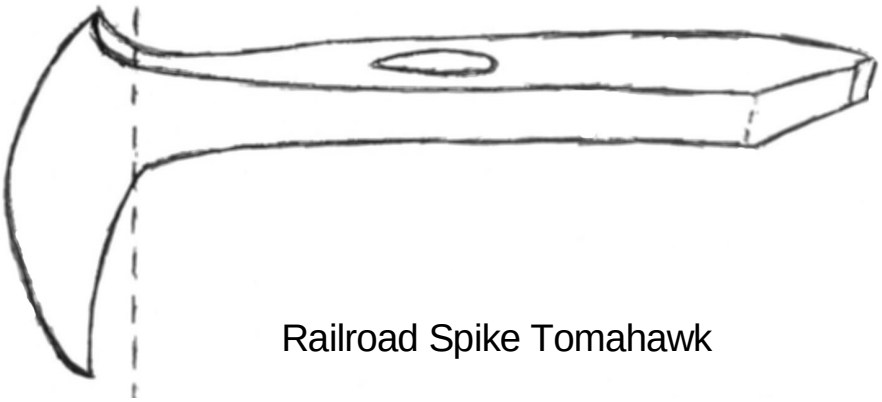
Born in Hungary in 1950, he came to the U.S. in 1970 at age 20. Joe had began blacksmithing in 1963 at age 14 with a 4th generation blacksmith as his master.

His early work environment emphasized using a minimum of tools and materials, a tradition of blacksmiths that were always "on the move". Joe specializes in knives and tomahawks, today he demonstrated three basic tomahawk styles;



Head must be balanced, side to side, front to back

1). Railroad Spike Tomahawk
- Starting with a railroad spike (Wrought or low carbon used)
- Head of spike flattened into the blade



Railroad Spike Tomahawk

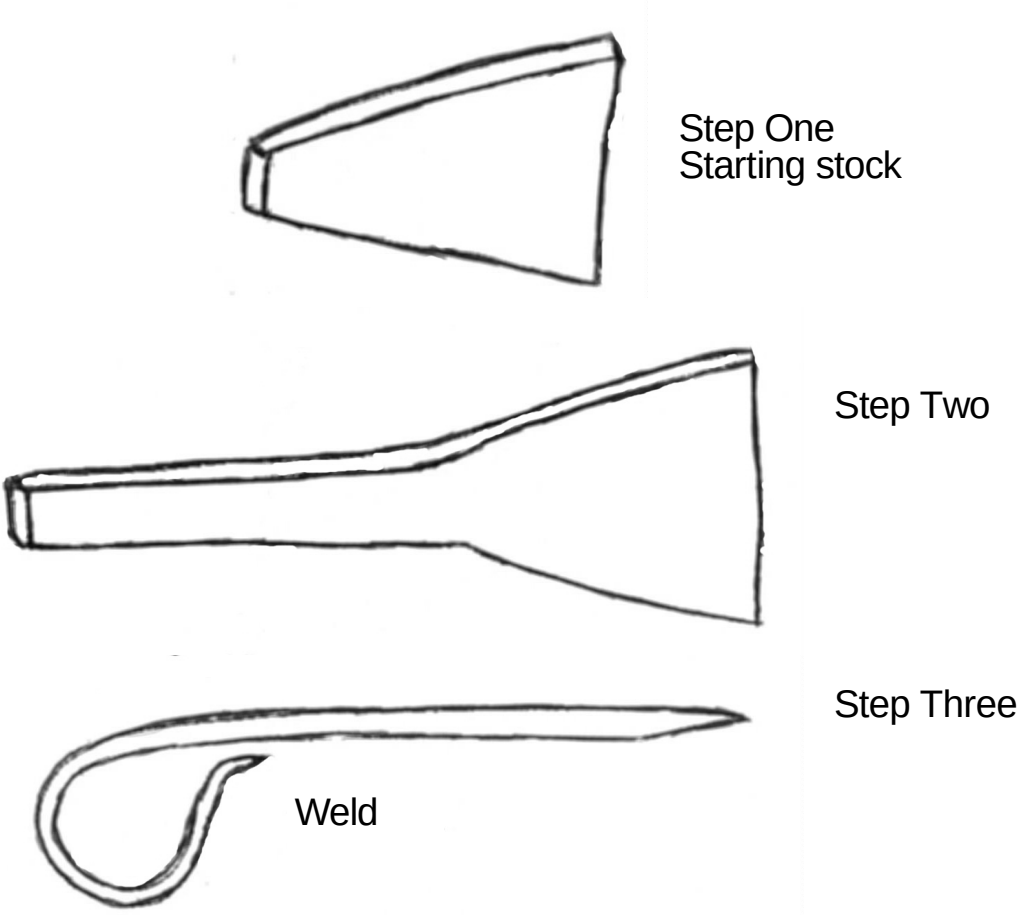
- Then he punched and drifted the haft hole

2). Pipe tomahawk
-Using a 3/4" iron pipe
- Slit and drift haft hole, using a 3/4" round bar to support pipe while slitting
- Neck down next to hole to form the base of the pipe bowl.

- Next flatten opposite (blade) end of pipe and weld.
- Finally cut bevels on end for edge.

Finished Forged Pipe Tomahawk

3). Plain flat blade



Joe says an easy way to make sure the haft hole is in line with the blade is to forge a dummy handle out of pipe. Any adjustments can be made hot, before all the final cold work is done and it's too late.
About 30 people attended, Dick ordered a nice lunch and we had an "Iron in the Hat"
Look for pictures from this event on the web site soon!!!

Report on the Tongs Workshop

By Bruce Freeman

Marshall ran the workshop with Larry Brown, Tom Majewski, David Macauley and Bruce Freeman helping out for all or parts of the two-day event. Everyone was given a handout that showed an overview of how to make tongs, and doubled as paper for taking notes.

Marshall had also prepared a board showing the steps of tongs-making. Bruce gave a demo on starting a coal fire for the benefit of a couple novices. Next we cut the 1/2" square stock to 18" - a job of a few minutes on Marshall's ironworker. Marshall then did a demonstration of the basics of making one half a pair of tongs, to match another half he'd made before the workshop. Then the participants were turned loose to try it themselves, which they did with varying degrees of success. In the afternoon, Marshall continued the demonstration

by punching the two halves and riveting them together. He showed how to work the riveted tongs and adjust the jaws and reins. Following this, the participants again worked on their own tongs.

Marshall and the helpers circulated to provide assistance where needed. Sunday, the fires were started and the participants continued from where they had left off on Saturday.

Marshall demonstrated how to make a box tongs in the morning and how to make tongs that could be a bolt, round or vee tongs in the afternoon by showing how to isolate a mass at the end of the tongs then forming the rest of the tongs.

Progress was slower than we'd expected, but the participants were a persistent lot and kept at it manfully. Probably every mistake that could be made was made, but by the end of the session, everyone had at least the two halves of the tongs, if not a completed pair.

Special thanks to Marshall Bienstock for use of shop and tools in addition to giving the workshop; to John Chobrda for use of his forge and tools; and to Tom Eden for towing John's trailer to Marshall's.

HISTORIC BETHLEHEM PARTNERSHIP
Presents a Demonstration Workshop on Historic Hardware and Tool Making
By KENNETH SCHWARZ

Journeyman/Supervisor, Colonial Williamsburg
Williamsburg, Virginia

In the newly-reconstructed 1750/1761 Smithy
Colonial Industrial Quarter
459 Old York Road, Bethlehem, PA 18018

SUNDAY, June 12, 2005 9:30 am to 4:30 pm
Registration: 9-9:30 am (Complimentary Coffee and Doughnuts)
Lunch: 12 noon-1:00 pm (Bring a brown bag or enjoy a variety of eateries in downtown Bethlehem a few steps away from our historic smithy)
FEE: $35 per person

****Workshop limited to 30 participants on a first come, first serviced basis with pre-paid registration received by June 3, 2005****
Questions? Call Educational Services at 610-691-0603, ext. 20.

ABOUT KENNETH SCHWARZ

KENNETH SCHWARZ began blacksmithing in 1977 in Westminster, Maryland, working for Randy McDaniel. He actively volunteered in the blacksmith shop of the Carroll County Farm Museum in Westminster and established his own business with a focus on historical restoration ironwork. In 1982, he was hired by Colonial Williamsburg as an apprentice blacksmith, achieving journeyman status in 1987. That same year, Schwarz took over supervisory responsibility for the blacksmith shop and has held the position of journeyman/supervisor since that time. He currently oversees a staff of five full-time blacksmiths.

In addition to producing ironwork used in the restoration of Colonial Williamsburg, Schwarz has supplied hardware for a number of historical sites including Thomas Jefferson's Monticello and George Washington's Mount Vernon and has produced items for other historic preservation institutions such as the Smithsonian and the Jefferson Exparlsion Museum at the St. Louis Arch. Schwarz was the consultant on the reconstruction of the Historic Bethlehem smithy which opened to the public in 2004. Schwarz' workshop at the Historic Bethlehem will emphasize historic blacksmithing. In the morning session he will demonstrate making a nail header, a common tool used in the nailer's operation. In the afternoon, he will demonstrate making a Moravian hinge.

ABOUT THE COLONIAL INDUSTRIAL QUARTER Historic Bethlehem's Colonial Industrial Quarter is a living history site dedicated to interpreting the industry of early Bethlehem. Here, along the Monocacy Creek, the religious Moravian founders of the town established the largest concentration 01: pre-industrial revolution technology in early America. Restored buildings include the 1761 Tannery and 1762 Waterworks, the first pumped municipal water system in the colonies. The restored 1869 Luckenbach Mill houses administrative offices. Our newest addition is the reconstructed 1750/1761

Smithy which contained forges for the blacksmith, nailsmith, and locksmith, as well as working space for the tinsmith and gunsmith.

We invite you to bring along your family on June 12, 2005. While you enjoy the workshop, your family can visit our other museums for a discount when they mention the event: Moravian Museum of Bethlehem and Kemerer Museum of Decorative Arts. Our 1810 Goundie House always has free admission. There is plenty of shopping on Main Street, as well as many different kinds of restaurants. Come see us!

DIRECTIONS TO COLONIAL INDUSTRIAL QUARTER
FROM Rt. 22 (FROM THE NORTH):
Exit Rt. 22 at Rt. 378 South. Go to 8th Ave. Exit. At the end of the exit ramp, turn right (this is Eighth Ave.) Travel to the first traffic light (intersection of 8th Ave. and Union Blvd.) and turn left. Continue on Union Blvd. Just on the other side of the train tracks there will be a traffic light. Turn right onto Old York Road here and follow the road until it ends in a parking lot (you will be going under the Broad Street Bridge). This is a FREE parking lot. The Luckenbach Mill is the brick building directly on the parking lot. Walk to the opposite side of the mill then walk up the road (Ohio Road) to the 1750/1761 Smithy.

Robb Gunter's "Super Quench" Revisited

This is from;
http://www.lametalsmiths.org/news/robb_gunter.htm

Robb Gunter's "Super Quench"
5 gal water
5 lb Salt
32 oz Dawn (blue) dishwashing liquid (28 oz if it says "concentrated" on the label)
8oz Shaklee Basic I* or 7oz UNSCENTED Jet-Dry or other surfactant (like Simple Green) of appropriate quantity for 5 gal mix (wetting agents) www.shaklee.net

The Jet-Dry (or whatever you use for a rinse agent) does something chemically to the surface of the steel. It allows the salt in the mix to start attacking it as soon as it hits the air - make sure you have a LOT of clear water to rinse in ready at hand. These surfacants are wetting agents. They break down the surface tension of water allowing it to make contact with a material. We've all dipped a cold piece of metal in water and seen a bubble-like "skin" form with dry metal under it. This is surface tension trapping a layer of air, it makes a fair heat shield. In a quench, steam will form a similar surface "skin" and prevent full contact with the water, insulating the steel from a proper chill. Wetting agents prevent the "skin" from forming.
Detergents do a somewhat similar job, they're emulsifiers allowing oils and water to mix. This prevents any oily residues from the fire from forming a "heat shield" surface layer. The salt in the water raises the specific heat of the water and draws the heat from the steel faster.

Stir it up to get it moving before you quench. Don't quench anything with more than 45- 50 points of carbon. Will harden mild steel to Rockwell 42-45 (in spite of common wisdom that says you can't harden mild steel). It's color coded - when you've exhausted the usefulness of the quench, it'll shift color from blue to green.

The Forgery School of Blacksmithings'
SOAP SOLUTION QUENCH
For mild and low carbon steels

Whether its on the internet group "theforge", at ABANA chapter conferences, or just general discussion between a couple of friendly smiths, when the subject of Robb Gunter's "Super Quench" comes up, most of it is fact, but some of what is passed around is erroneous. Yes, there are some errors, but generally minor. There is often a great deal of disbelief as to the efficacy of this Super Quench. Here's what he had to say about it at the Guild of Metalsmiths 1997 Fall Conference:

Before the Bessemer process made it feasible to effectively control the amount of carbon in steel, blacksmiths generally had only iron or tool steel to work with. The Bessemer process gave the steel manufacturers the ability to produce steel in a variety of carbon levels. Mild steel (1005, 1018, and the like) was touted as the all purpose steel destined to replace wrought iron. The

manufacturers claimed that it was also suitable for many tools, but that it should be quenched in a solution of sodium hydroxide.

At Sandia Labs, Robb and his cohorts experimented with this lye quench and, a bit to their surprise, they found that mild steel hardened considerably more that expected. Metallurgists and others will tell you quite readily that mild steel won't harden. It may get a little harder than if annealed, however it doesn't harden in the typical toolmaker's sense of hardening. Generally speaking, in a plain water quench you shouldn't expect to get more than Rockwell ratings in the low to mid 30's. Robb found that the sodium hydroxide quench resulted in average Rockwell ratings in the 43-45 range, with an occasional test result as high as 48.

So, Robb started using this solution at Sandia Labs, but installed a vented hood system over the quench tank. This stuff is pretty harsh and the need for a vented hood was a no-brainer.

Then OSHA arrived on the scene and insisted that the use of the sodium hydroxide solution cease. The result was that Robb and the Sandia Labs metallurgical lab crew went to work to find a replacement solution. It had to give hardness results comparable to the sodium hydroxide solution, and it should be bio-degradable if possible. The result of their experimentation was what is now generally referred to as Gunter's Super Quench. The formulation is as follows:

5 gallons of water (This a good volume to work with for quenching, and there are plenty of buckets and pails around just the right size.)

5 lbs table salt (plain or iodized, canning salt or rock salt, it makes no difference.)
32 oz Dawn Liquid Dishwashing Detergent (blue. Blue was chosen because that's what happened to be available at the moment. It was noted later on that as the solution deteriorated to the point that it should be disposed of, the color slowly changed to green. Hence, the blue detergent is recommended. Any other blue colored liquid detergent could work just as good.)
8 oz Shaklee Basic I. (The solution needs a surfactant to maximize contact between the solution and the piece being quenched. Amway Basic H will also work. Your local farmer's supply should be able to help here, as similar surfactants are used to facilitate the distribution of fertilizer in soil. In response to a question from the viewing stands, Robb said that just about any wetting agent should do, even the stuff photo film developers use. Just follow directions on amount of agent to be added to a given amount of water, then scale up or down to the 5 gallons of water used in this formulation.)
Heat your iron to 1550 degrees Fahrenheit, and quench. No tempering is needed.

So, he mixed up a batch right there in front of us and used it for his next demonstration. He took a piece of 1/2" 1018 and cut off a piece about 3" long. This piece was heated in the gas forge, and a cold chisel end was forged on to it. Robb heated the piece to 1550 (critical temp for mild steel), and quenched it in the solution. He then took his new "chisel" and proceeded to use it to cut almost through the parent bar. Then, he did it again. The cut bar and the chisel were passed around for all to take a good look at. The edge on the chisel was not deformed in any way. The top had not mushroomed, nor did it even show any evidence of having been hit with the hammer. But, so as not to mislead us, Robb said that a chisel of this type might be good for 7 or 8 cuts maximum. He recommends this quench for tools such as spring fullers and many treadle hammer tools/dies/fullers. He showed, and used, one such spring fuller that is made of mild steel and quenched in the solution. He has been using this particular fuller for several years with no ill effect. The fuller is unmarred, and the spring is still strong.

I was impressed, to say the least. I was not the only person there who was "wowed" by this little "trick". Robb said the quench is good for anything up to 50 points of carbon. Above this carbon level this quench should not be used.

The above is how I heard it from Robb Gunter at the Guild of Metalsmiths 1997 Fall Conference.
Dave Brown, Heritage 'Smithing
Heritage Hill State Historical Park
Green Bay, WI

BELT GRINDER DESIGN & CONSTRUCTION

By Otto Bluntzer- Genesee Forge

THIS ARTICLE With a keen interest in designing, building and making things work and at the request of several members of the Genesee Forge, this article describing an approach to building a "Belt Grinder," comes about. Some of you are aware that my primary interest is that of "Bladesmithing" not to lessen the rewards derived from forging articles as fashioned by our current and Ancestral Smiths. On October 15th 2001 I began a very beneficial class at the **American Bladesmith School** in Washington, Arkansas called, "Intro to Bladesmithing". At this two week class I had repeatedly made use of "**Bader Grinders**" and became very comfortable with how they functioned. Prior to this I had converted a "Craftsman" belt grinder by adding a third pulley to allow for "Slack Belt Grinding". This third wheel had a rubber boot to allow a smoother grind. The modification proved useful, but the overall machine had serious limitations. Soon thereafter an opportunity to visit "Centaur Forge" in Burlington, Wisconsin resulted in the purchase of an "**Ickler** Grinder". This machine has only a cushioned contact wheel driven by a 1/2 HP AC motor and an idler wheel which also serves as the belt tracking mechanism. A good machine, it too needed a heavier motor.

RATIONALE Several reasons for constructing my own grinder were: (1) The need to make use of many grinding techniques, (2) Cost, and (3) The need to select different sizes of contact wheels. In order to execute this project it would be necessary to have what might represent more than average shop tools. It should also be mentioned that many articles and several books written by Wayne Goddard provided ideas of importance in the initial design phase.

PREPARATION Over a period of many months, sketches, drawings and a number of CADD designs made me feel comfortable that the necessary information was in place. A collection of metal stock earmarked for the different assemblies then proceeded. Along the way I had come into possession of a metal lathe & mill which made possible the construction of pulleys and other parts.

SPECIFICATIONS The Grinder must make use of: 2" X 72" belts, A 110V. DC Motor rated at 1.5 HP minimum, A belt speed, SFM (Surface Feet per Minute capable of reaching a maximum of 3,500 SFM, Speed to be adjusted by either a touch pad or potentiometer, Contact wheels to be easily and rapidly changed, and finally it was determined that parts of the machine were assembled in a manner allowing for removal and modification if that became necessary.

MATERIALS ON HAND Cost of all materials purchased were under $50.00 due to availability of parts which came from a commercial grade Treadmill. The Baldor 1.5 HP DC Motor, the motor rectifier and control panel, and most of metal stock came from the same treadmill. All ball bearing assemblies came from similar machines. Basically the only cost was that of aluminum stock purchased from surplus and for a 5/8" high quality drill bit needed to bore holes in the pulleys. A small amount of bar stock was purchased.

WHERE TO BEGIN As sketches were being made it was realized that the project could not be completed if the necessary materials or tools to shape these materials were not in hand. An inventory of materials collected, the quantity and size of materials was made. Page 12 begins with the materials list. On page 12 is a list of tools used.

MATERIALS LIST

Item	Size/Quantity/Amount
(1) Base Plate	1/4" T X 12" W X 19" L (has a 2" lip at 90 degree angle on one end)
(2) Upright Support	Shaped with Plasma Cutter from a 1/8" X 18" X 14-1/2" Plate.
(3) Drive Pulley on Motor	Aluminum billet, 5-1/4" D X 3" W. (5/8" bored for motor shaft)
(4) Idler or Tracking Pulley	Aluminum billet, 4/I/2" D X 3" W. (5/8" bored for 6" L idler shaft)
(5) Idler Shaft	5/8" D X 6" L (Mild steel OK if ball bearings are used)
(6) Mounting Brackets	For Contact Wheel Arms - 1" X 1" Angle Iron. 3 Foot needed
(7) Contact Wheel Arms	1" X 1" Square Stock - 8 Foot required (needed for other parts also)
(8) Contact Wheels	
(A) 8" D X 2" W	Made of a Rubber Wheel taken from industrial size Cart.
(B) 3/4" D X 2-1/2"	Made from a Steel Tube, incorporates two small ball bearing assemblies)
(C) 2-1/4" X 2" W	Made of two Rubber Rollers with Bearings mounted side by side on shaft
(D) 14" X 2" W	Same as in item "D" (Neither of these last two wheels are easily balanced)
(E) Flat Platen	(Not yet built as the Ickler grinder is used in place of until completion)
(9) Belt Tensioner Lever	1/4" X 3/4" Stock, 18" L (Forged to shape as will be shown)
(10) 15", Additional Stock	Same as above 1/4" X 3/4" (Used for tracking mechanism & brace)
(11)1.5 HP. DC Motor	Baldor - Commercial application use
(12)Controller Assembly	Includes rectifier and digital touch panel (Taking from Trotter Tread Mill)
(13)Ball Bearings	Matched Pairs for Contact Wheels (Size determined by application)
(14)Valve Spring	From B & S or Tecumseh 3-1/2 HP to 6 HP (for tracking mechanism)
(15)Bolts & Nuts	2- Head Bolts from B & S or Tecumseh engine for locking mechanisms)
(16)Bolts & Nuts	Generous Assortment of 1/4 X 20. (Used for assembling parts)
(17)Round Rod	1/4" X 6" L for making three, T - handles for item above.
(18)3/8" X 1-1/2" X 6"	Stock to be drilled, tapped and welded to Contact Arm Brackets

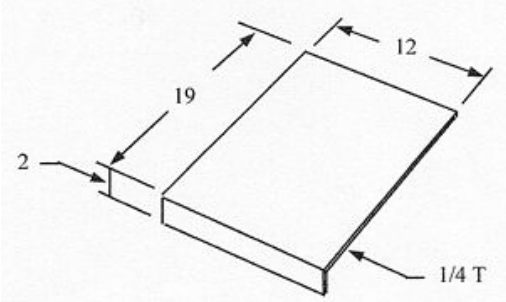
TOOLS USED

(1)Metal Lathe	Extensively used for turning and boring Idler and Drive wheels.
(2)Metal Band Saw	Extensively used for cutting stock to desired length.
(3)MIG Welder	Used for welding up brackets and small parts as needed
(4)Bench Drill Press	Used for drilling holes prior to assembly of frame.
(5)Hand Drill	Used for drilling holes after basic metal frame is completed.
(6)Bench Grinder	Used periodically for bringing parts to rough tolerance.
(7)Belt Grinder	Frequently used for creating smooth operating surfaces.
(8)Angle Grinder	Used to touch up edges of frame and parts assembled to frame.
(9)Forge, Anvil etc.	Used to shape handle used for installation & removal of belts.
(10)Bench Vise	Useful when draw filing.
(11)Tap & Die Set	Used at locations indicated on drawings.
(12)Dial Calipers	Frequently used for general as well as lathe work.
(13)General Tools	Commonly used for basic metal work.

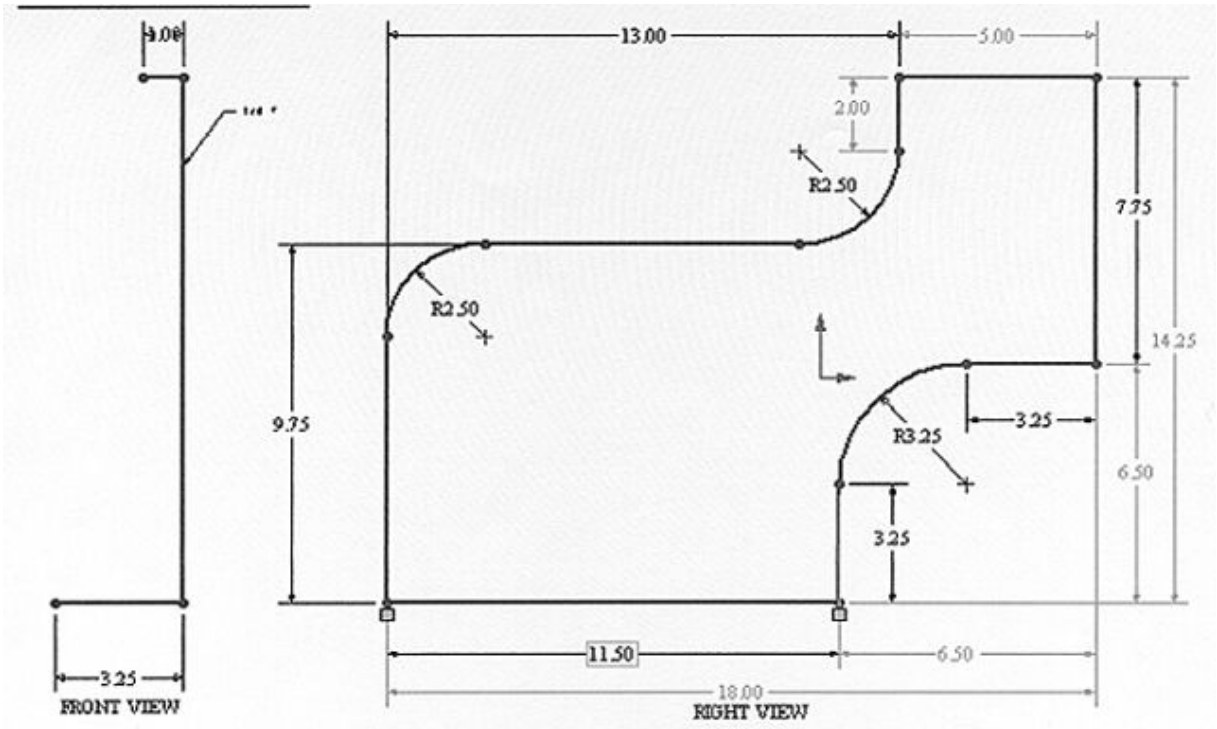
ASSEMBLY SEQUENCE & ILLUSTRATIONS

1) BASE PLATE

NOTE: All dimensions given are in inches unless otherwise noted. As per most parts, the exact dimension of the Base Plate is only incidental! It's what I had in stock!



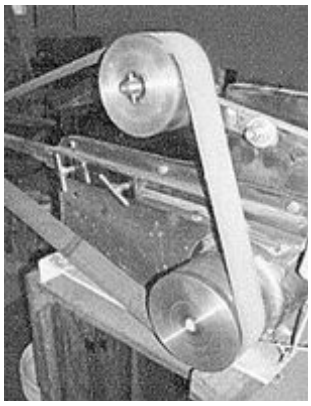
(2) UPRIGHT SUPPORT



This "Upright Support" is made from 1/8" plate. By itself, it is much too weak to support the idler and contact wheels. It is recommended that a thicker plate be used. The scrap from which this plate is made has a 3-1/4" bend at the bottom which extends as shown in the front view. This was used to bolt the "Upright Support" to the base. There was also a right angle, 1" bend at the top.

(3) MOTOR MOUNTING

The motor is bolted to the rear of the "Base Plate". The motor shaft is located at the focus point of the 3.25" radius of the "Upright Support as shown in # 2 above. The drive wheel will extend over the edge of the " Base Plate".

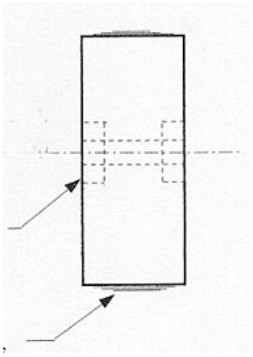


(4) DRIVE PULLEY (Lower right comer of picture)

Make the "Drive Pulley" approximately 6" D X 3" wide. The maximum RPM of the motor along with the diameter of this drive pulley determines the maximum SFM of the belt. This arrangement produced 3,400 SFM. The motor shaft is 5/8" D. The pulley was turned on a shaft for precision balance. A keyway was cut into the pulley to match the keyway on the motor shaft.

(4a) IDLER or TRACKING PULLEY

This pulley can be the same diameter and width as the drive pulley described in step # 4. Ball bearing assemblies are included for free rotation on a fixed shaft. The face of the "Idler Pulley" must have a slight crown such as a typical balloon tire, but not as pronounced. The crown is 1/6", although 1/8" might be better

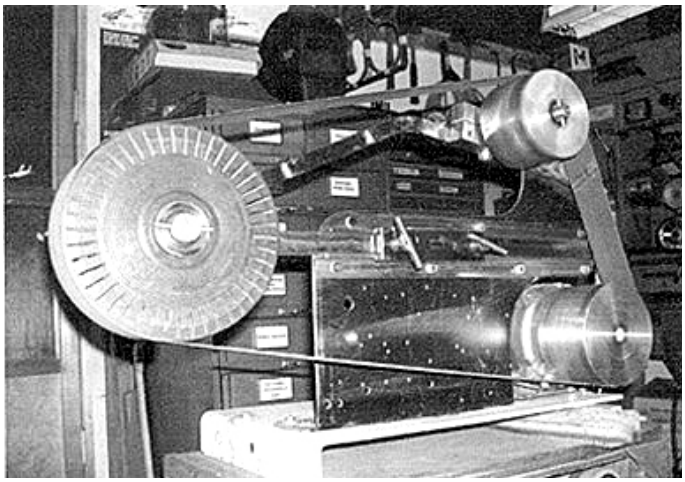


(5) IDLER SHAFT

This shaft was chosen to be 5/8" D X 5" long. It will be secured at one end of a 6" length of 1" square stock.

(6) CONTACT WHEELS

At present there are four contact wheels in use. An 8" wheel with a 2" width is most often used. This wheel was taken from a typical industrial cart. New recesses were turned into the rubber wheel to retrofit the original. The wheel face was trued on a lathe.
Next, a 3/4" diameter wheel is used for finishing radii less than a couple inches. This is made of a metal tube with bearings inserted. Because of its size, no provision was made for a rubber boot over the metal surface. A rubber sleeve to fit over this contact wheel is anticipated.
Then a 2-1/4" D wheel is used for curves larger than 2".. This wheel has a rubber boot.
Finally there is a 14" D wheel. Because of its size it is difficult to balance. It is generally used for creating "Hollow Grinds" on knife blades. The surface is made of a plastic composite. It should have a rubber boot on it. Later drawings will show mounting details of the above "Contact Wheels". (The 8" "Contact Wheel" is pictured at lower right)
Not yet made is a "Platen Grinding Attachment". The Ickler Grinder currently in use has a good platen grinding arrangement. The 1/2 HP motor it driving that grinder is grossly inadequate.

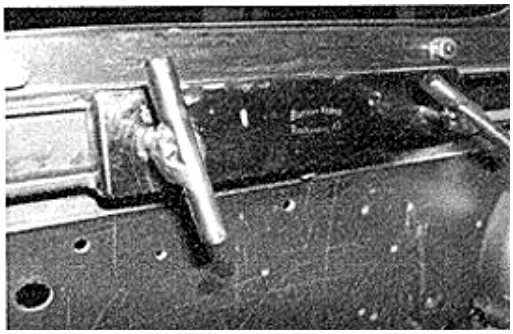


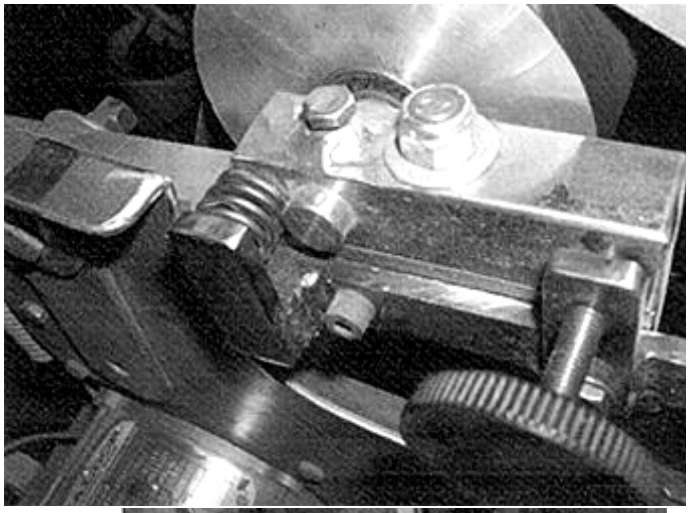
(7) MOUNTING BRACKETS

Two pieces of angle iron, 1 X 1 X 18" are bolted to the "Upright Support" to allow insertion and removal of the "Contact Wheel Arms". These arms are made of 1" X 1" Square Stock. The brackets may be welded, however, bolts allow for adjustment should that become necessary.

(8) CONTACT WHEEL ARM LOCK

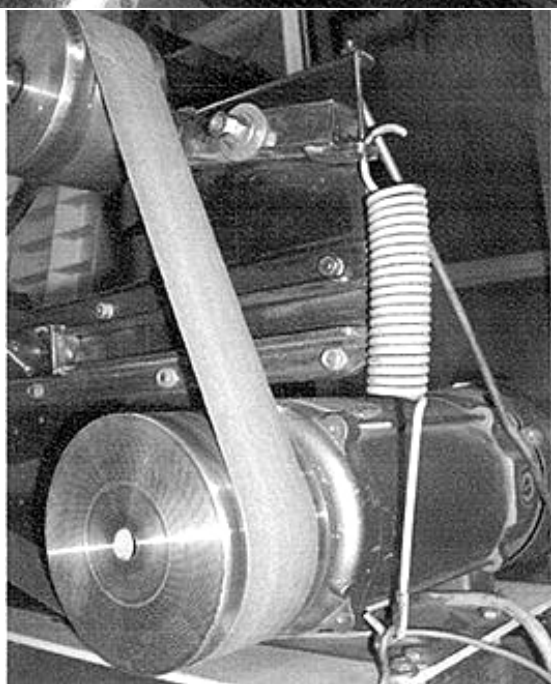
This is made of a 1/4" thick plate measuring 1-1/2" X 6", welded to the two "Mounting Brackets". As shown at right, there are two bolts used to secure the "Contact Arm". Bolts used are taken from a B&S small engine. Rods measuring 2-1/2" long X 1/4" D are welded to the heads of the bolts to serve as handles. The bolts were cut off to a length of one inch. "Really pleased with how well this mechanism functions!"





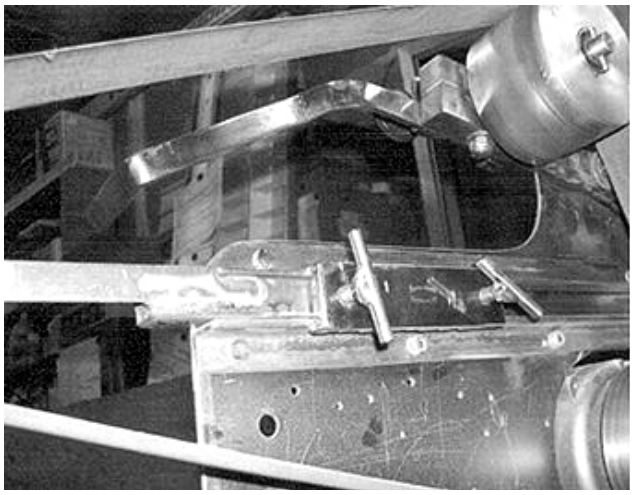
(9) IDLER WHEEL TRACKING MECHANISM

The "Idler Wheel" or "Tracking Wheel" is adjustable. Its position can be slightly rotated on an horizontal plane which causes the belt to ride properly on the contact wheel. The large thumb screw seen in the picture to the right is rotated in order to properly position the "Idler Wheel". To the left of the mechanism is a Briggs & Stratton valve spring which counteracts the pressure of the large thumb screw. The "Idler Wheel Shaft" appears immediately



(10) SPRING TENSIONER FOR BELT

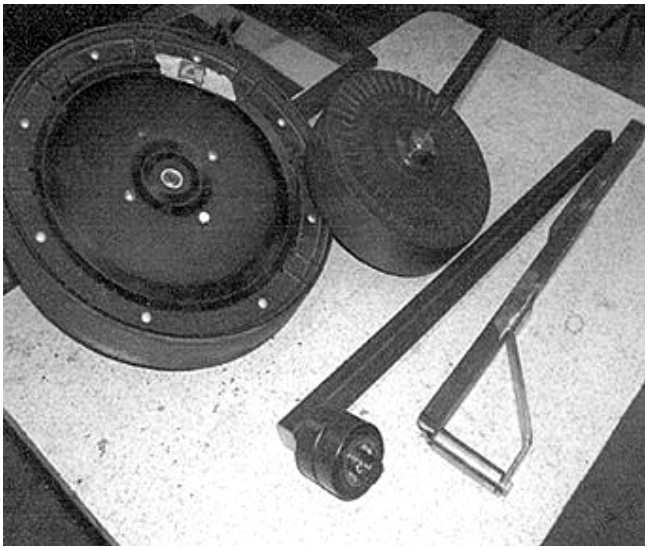
Pictured at right is the spring which applies pressure to the sanding belt. With this arrangement there is no tendency for anything to fly off or away from the winder in the event that a belt breaks. Belt tension is adjusted by how much of the "Contact Arm" is allowed to extend from the "Contact Arm Guides". The "Drive Wheel" is at the bottom of this picture. Mounted behind the drive wheel (not visible in any view) is a speed sensor which causes the DC motor to maintain the RPM to which the control panel has been adjusted. The smaller of the two wires at the lower right comer of this view is the cable which returns to the control circuitry providing the necessary feedback. Consider this feature the same as "Cruise Control" on an automobile. Under heaviest of loads I have not been able to slow the motor. This is true from the lowest RPM to full 3,400 SFM.



(11) TENSIONER ARM

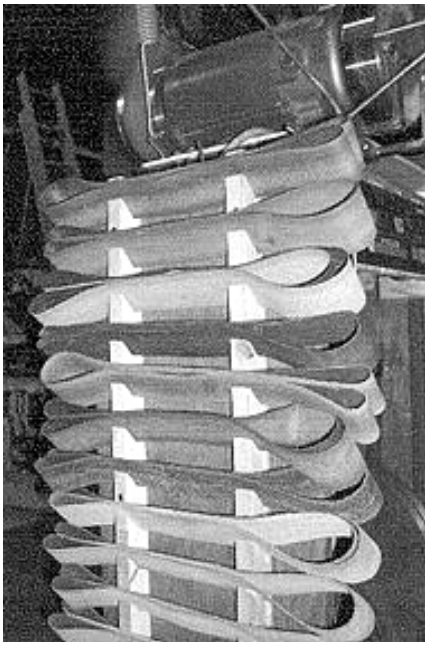
In order to remove or install belts on the grinder, the "Tensioner Arm" is depressed. Then the belt may be easily slipped on or off. This arm is attached to and pivoted at the "Upper Support" at the rear. In order to prevent the belt from wandering off the contact wheel, as heavy pressure is applied, the entire mechanism should be stoutly designed. This picture also shows a view of the two "Contact Arm Guides" along with the "Arm Locking Mechanism". Bolts are used to secure the angle iron guides to the "Upright".

(12) CONTACT WHEEL CONSTRUCTION



Four "Contact Wheels" were described earlier. At the lower right is the smallest, a 3/4" X 2-1/2" wide wheel. Note the angled bracket on that is included to provide rigidity. All four wheels have mounting arms as earlier described, made of 1" X 1" stock. It should be noted that a high quality set of bearings which are designed for high RPMs should be used for the very small contact wheels. Their RPM is very high even at moderate motor speeds. Pressures applied to these smaller wheels are much less than the larger contact wheels. It should be noted that the axel shafts for these rollers must maintain true right angles referenced to the mounting arms to avoid belt tracking problems.

(13) SANDING BELT and CONTACT WHEEL STORAGE



A slotted rack was built to store the 2" X 72" belts. At the rear of the stand. The stand is open on both left and right sides allowing for mounting of the "Rectifier Circuit" and "Control Panel". Racks for storage of the four contact wheels are included.

(14) ADDITIONAL COMMENTS

(A) The "Upright Support" should be made of heavier plate than what is used here. Note that a reinforcement bar has been added from the top of the "Upright Plate", angling down to a point behind the motor where it is attached to the "Base Plate". The 14" Contact Wheel may require additional bracing as the wheel has some vibration at medium RPM. A gusset plate may be welded to the "Upright Support" at the front to provide additional rigidity.

(B) The addition of a "Disc Grinder" attachment was included as the Baldor Motor came with a heavy flywheel which was precision balanced. By gluing on a sanding disc and constructing an adjustable table, the need for a separate disc sander no longer exists.

(C) DC Motor controllers are now available which are not nearly expensive as those in the past. A "Variac" along with a "Full Wave Rectifier" (high current rating) with the use of a couple of spike protection capacitors will also provide an excellent means of DC motor speed control.

(D) A considerable quantity of articles and illustrations are on file relating to belt sanders. For further information: hezzy@eznet.net

This article is reprinted from and courtesy of the NYSOB Newsletter

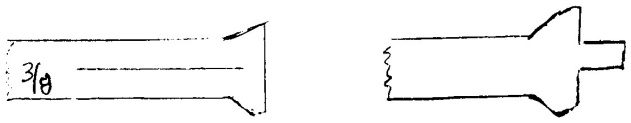
A Colonial Chandelier

By Kit Wattenbarger

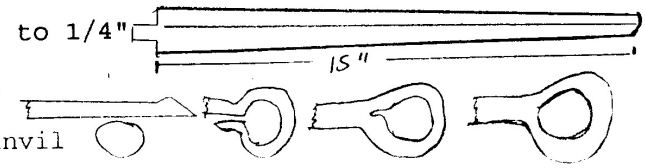
Four Light Williamsburg Chandelier

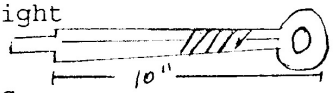
as done by Jerry Darnell

Upright
Material: 3/8" square x 12"



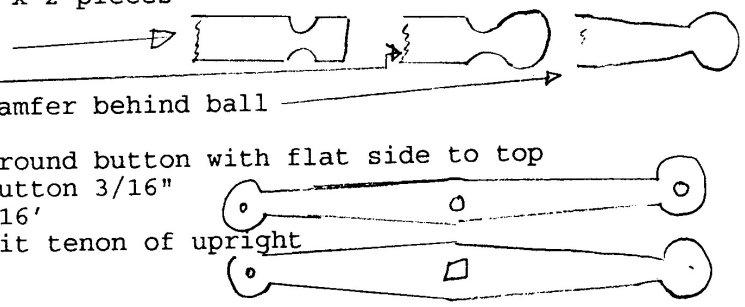
Upset base
form square tenon
Draw long taper on upright to 1/4"
Cut to 14-15" long
Weld eye in top of upright
Scarf end
Roll around horn of anvil
Flux & weld eye
Round up eye
Twist approximately 1/3 down upright





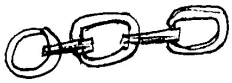
Arms
Material: 3/4 x 3/16 x 8" x 2 pieces

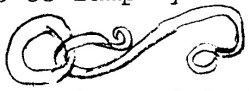
Fuller 3/4" from end
Form ball on end
Draw taper and chamfer behind ball
Duplicate on other end
Hammer ends out to 1" round button with flat side to top
Drill center of button 3/16"
Drill Center of arm 3/16'
Drift square to fit tenon of upright



Chain
Material: 3/16 round 4" x 5

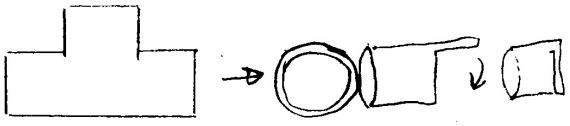
Form 4 links and connect to lamp eye with ring
or
Ring with extender(s)



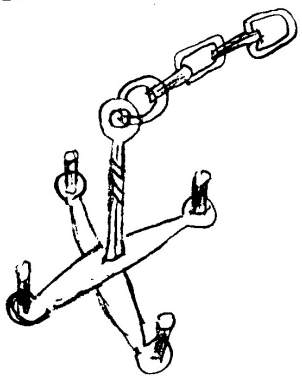


*Chain making will be discussed in article by Marlin Arnold

Candle Cups
16 guage sheet metal
heat and roll around mandrell
close over end
drill center of cup 3/16"



Assembly
Forge weld ring and chain or extenders to upright
Rivet candle cups (4) to cross arms with 3/16 rivet
Rivet upright to cross arms
Finish with wax or paint as desired



Good Luck. Kit Wattenbarger

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Wanted: Donations for the NJBA Trailer
We need hand tools, files,
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Look around and see what you have to donate.
Contact; Dave Macauley, Directors list, Page 2

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Please show them our support

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609-443-3106 JChob@earthlink.net
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908 642-6420 ericuper@msn.com
Bruce Hay, Jr.
50 Pine St., Lincroft, NJ 07738
Jayesh Shah Architectural Iron Design
950 S. 2nd St., Plainfield, NJ 07063
jay@archirondesign.com

Open Forges

We are looking for members who are interested in opening their forges up to members as a open forge. This does not have to be a weekly forge as is Marshall's the others can meet once or twice a month. Please contact, Larry Brown, Editor.

We want to encourage all to join us at:

Monday Night Open Forge in N.J.

Marshall Bienstock is hosting an open forge in his shop at 7 pm almost every Monday night (Please call ahead on holidays to make sure , (732)780-0871)

Open Forge in Long Island

Sunday from 10:00 am to 6pm.
Starting the 1st Sunday in November until the end of April. Please call ahead to confirm and get directions.
Ron Grabowski, 110 Burlington Blvd. Smithtown, NY
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Northeast Blacksmiths Association

Northeast Blacksmiths holds its meets twice a year at the Ashokan Field Campus in New York State.

The Ashokan campus is located in Olivebridge, N.Y., several miles west of Kingston, N.Y. The meets are held the first weekend in May and in the first weekend in October every year. The main demonstration is in the blacksmith shop and there is a "Hands On" workshop for beginners. A main demonstrator is brought in for each meet, food and bunk-house style lodging are provided as part of the cost of the weekend long meet.

Contact : Tim Neu
to register for hammer-ins
or subscribe to the newsletter;
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For more information check out the web site; <http://nba.abana-chapter.com/>

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Suggestions for PABA demonstrations _____

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Attn: Larry Brown, Editor

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Please mail checks to:
NJBA, P.O. Box 761, Mt. Laurel, NJ 08054

Please include payment with the information listed below. You will receive a postcard confirmation of your membership, and will receive a newsletter within a month. NJBA's "year" runs from June to June. If you join mid-year, the postcard will offer a prorated dues option which will then allow you to extend your membership till the following June. The following information will be listed in a roster available to other members.

Name _____ Home Phone_____
Address _____ Day Phone _____
City _____
State _____ Zip _____
E-Mail _____ Skill Level (optional)_____
Comments _____