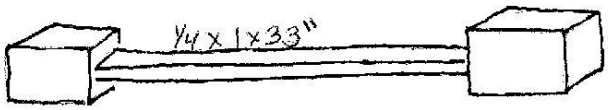
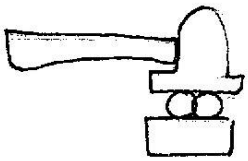
Make a Spring Rope Swedge



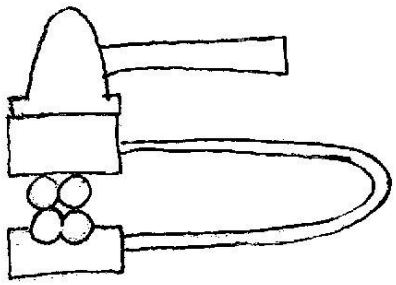
This is my way and it is by no means the only way . I use a piece of 1/4 x 1 x 33" and two pieces of 1 3/4" x 1 1/4 x 1" of 4140, mild steel would last for a long time, but I had 4140 on hand.

Weld the two blocks on the ends of the long piece. Make sure you get good penetration of the weld and use plenty of rod. This swedge is for 1/2" sq. stock.

To make the dies weld the 1/4" rod together and grind flat on the back. Heat one of the blocks to a good orange heat. If you don't have a treadle hammer or power hammer get some one to strike for you. Use a flatter so you get a good eve impression. Drive the rods flush with the top of the block. It will automatically give you the draft angle. Now weld the 4 pieces of 1/4 round to finish the other block. I use a long enough rod so I can have one on each end. Weld two sides and grind flat, leaving the crease on opposing sides. Bend the long piece so the blocks match up.

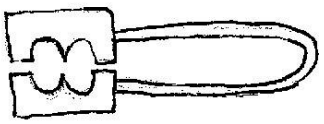


Heat the new block to orange, leaving the other black cold. Locate the 4 rods in the crease of the cold block and drive the blocks together using a flatter. Round off the edges where the rods sank into the blocks.

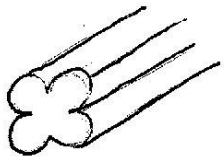


You never want the sharp edges on a tool unless it is used for cutting.

To use the swedge, heat a 1/2" square bar. Put it in the swedge and drive it down. Turn it 90 degrees as you drive it together. Don't try to drive it together without turning it several times. Your bar should look like this. When you twist it will look like a rope.



Hope You can understand this—
Ken Dettmer.



From the Indiana Blacksmiths,
The Forge Fire Newsletter, October 2005

Some details on self-closing hinges

by Jack Slack and Maria Cristalli

Sharp-eyed observers of the picture of Maria's 'Rose Garden' gate in our most recent issue may have wondered why the upper journals on the back stiles are longer than would seem necessary. For those who attended our (outstanding!) Spring Conference, Maria revealed the answer in one of her demo's - they're to accommodate the action of Self-Closing hinges.

For those who missed it, we thought we'd set out a few of the details.

Note that we're not talking here about Door (or Gate) Closers; that is, external devices such as weights, springs, motor operators, or the like, but about modifications to the hinges themselves, to make a gate close under its own power.

One common way to make a gate close by itself is to offset the hinge pins; those who have ever hung a gate or door will have discovered that for themselves! Moving the bottom pin slightly out of plumb biases the gate to swing shut, whereas moving the top pin does the opposite.

Hinges on Rose Garden Gate.

A disadvantage, though, is that this method only allows swing in one direction. There are, however, commercially available hinges that rather cleverly allow swing in both directions. They're commonly used when safety is a concern; take a look at the swimming pool gate at the next motel you stay at.

If you'd like to find out more about this 'offset pin' method, Jock Dempsey has a brief write-up at <http://www.anvilfire.com/ iForge/ tutor/jdhinge/ top_index. htm> (about halfway down the page).

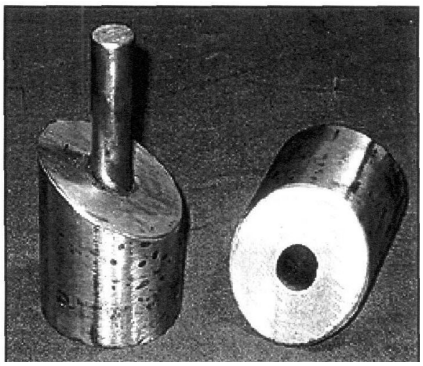
But we're Blacksmiths, so we can make our own hinges!

The simplest method of making a selfclosing hinge is to slice the hinge bearing surfaces at an angle. An example is shown (courtesy of David Lisch) in the photos on the next page showing the hinge disassembled, and showing the hinge as it would be with the gate partly open. Note that there is no requirement that the hinge halves be circular in section, only that the sliding surfaces must provide for a circular path.

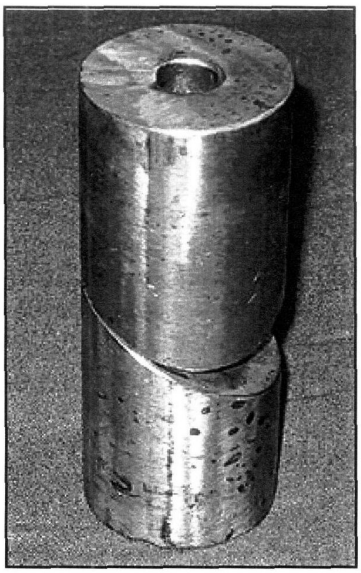
In situations where the gate is not too heavy, and where there is a lock bar for the gate to shut against, this method works fine, although there are a couple of disadvantages:

- without a lock bar the gate will waggle about a bit when closing, rather like the saloon doors in old Western movies. Also, the angle of the hinge faces is important; too steep and the gate will be hard to

Self closing hinges



A simple solution for self-closing hinges - slice hinge bearings at an angle.



open, and will slam shut (against any lock bar or stop) rather resoundingly (we'll have more to say about angles further on).

Maria's challenge was to find a system that would work on a double leaf gate without a lock bar, and still close positively, without waggling about. She researched available commercial options and asked around the group; Jack was able to provide a solution he'd used in similar situations in the past, and that's what we'll describe here.

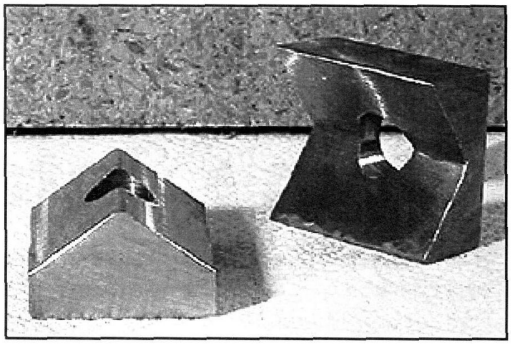
A gander at the top photo on the right reveals the secret workings; the lower element in bronze, the upper in steel. As in David's sample, the wear surface describes a circular path, so the section shape can be anything you want that will contain that path (Maria's is rectangular).

The second shot shows the hinge assembled with its pin in the closed position. Note how the hinge provides its own built-in stop.

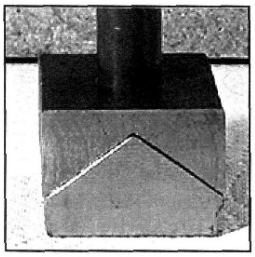
The photo that shows the hinge slightly ajar pictures it at about the point that positive 'close-to-a-stop' is taking effect.

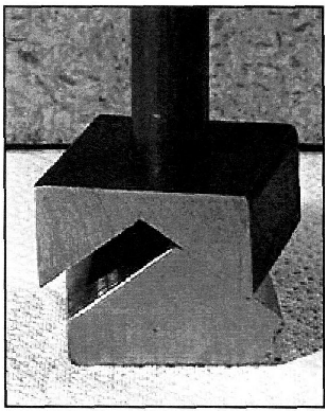
In the bottom shot you can see a perhaps unexpected bonus; when fully open (90 degrees), the gate will remain open by itself! While not strictly necessary, a small notch can be filed in each side of the upper member to provide for a small detent action in the open position.

Now that note about angles that we promised above. Too steep has already been discussed; too shallow and the gate may close too slowly (or not at all!), so some experimentation will be required. The most critical factor is the weight of the gate; a secondary consideration is the amount of lift that can be accommodated.



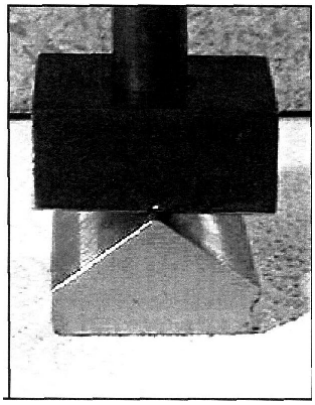
The wear surface of these hinge parts (above) describes a circular path.





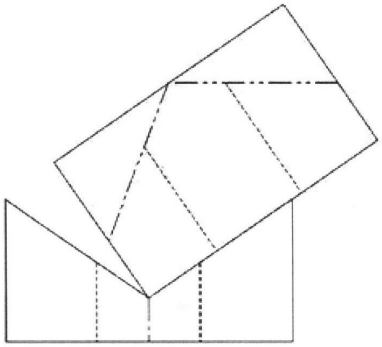
The closed hinge provides its own, built-in stops, while, when slightly ajar, there is a point that "close-to-a-stop" takes effect.

Fully open the gate remains open by itself.



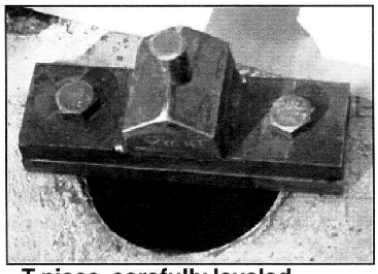
Maria made a gate mock-up and several samples at different angles to determine the optimum angle to allow easy opening and positive closing without overshoot. The final angle chosen for this situation is 33 degrees (measured from the horizontal).

For the production hinges, Maria sawed out the top half, taking care to maintain equal angles and a smooth surface. As a milling machine was available, Jack milled the bottom half; a shaper, or careful work with hacksaw and files would have worked as well. A method for using the top half as a jig to aid in finishing the bottom half is shown here.



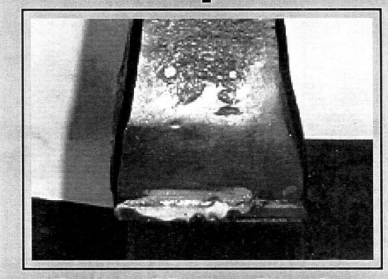
Production jig as another method for finishing the bottom half of the hinge.

Production jig as another method for finishing the bottom half of the hinge. For application to the gate, the back stile was upset to match the top half, which was then welded to the bottom of the back stile, and the stile drilled to accommodate the pin. A cross-hole in the stile intersects to allow installation of a grease fitting. The bottom half was welded to a small plate; this plate, with slotted holes to allow for adjustment, sits atop a T-piece which was carefully leveled and grouted into the foundation hole. Exceptional care taken to insure that everything was level and plumb.

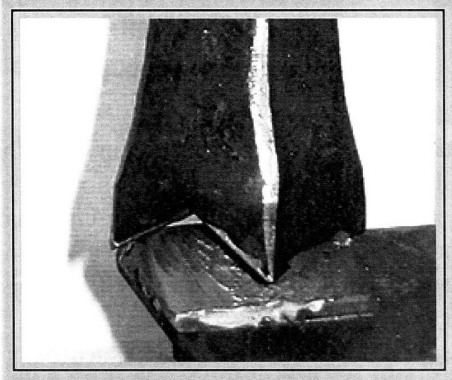


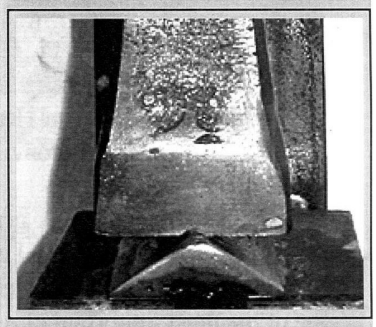
T-piece, carefully leveled in foundatin hole.

Test Bed samples

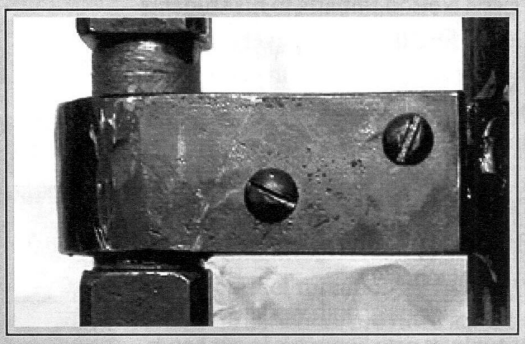


Bottom hinges closed, open, and (left) ajar. Note that bottom is well greased.

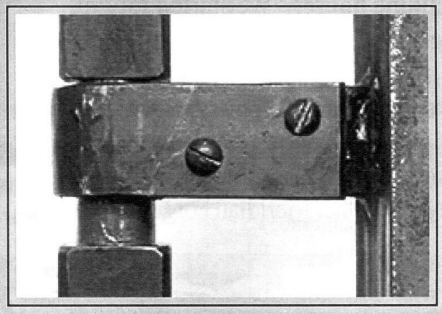




With the system in the fully open position one of the 'detent' notches can be seen on the top half. Also visible is a slight rounding at the apex of the bottom half, just to break the shart edges.



Over enthusiastic applicatin of the file is counterproductive, as the apex points form part of the principle wear path, and they'll soon bed in by themselves.



Nuggets

By Charlie Orlando

Rules To Forge By

- Keep it straight as long as you can, for as long as you can.
- Keep a handle on it as long as you can.
- Use the lightest hammer for the job.
- Do the hardest things first.

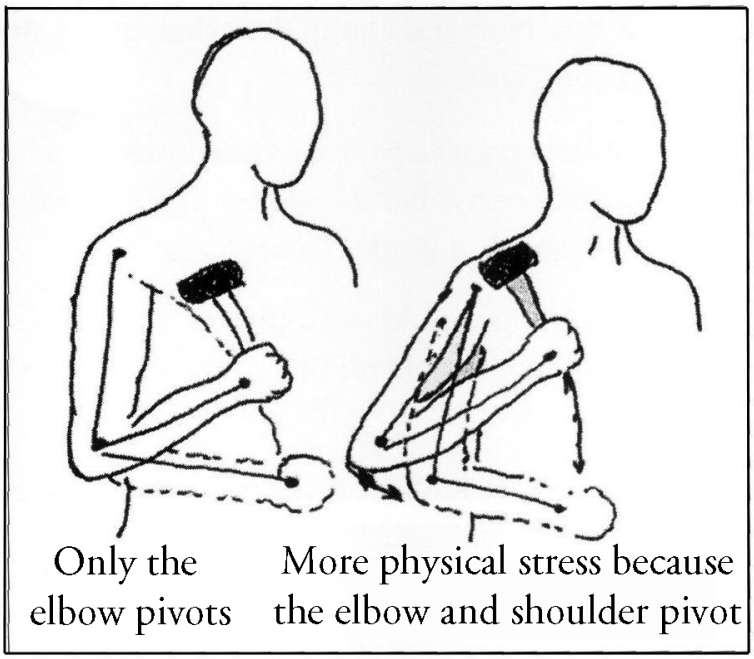
Economy of Motion

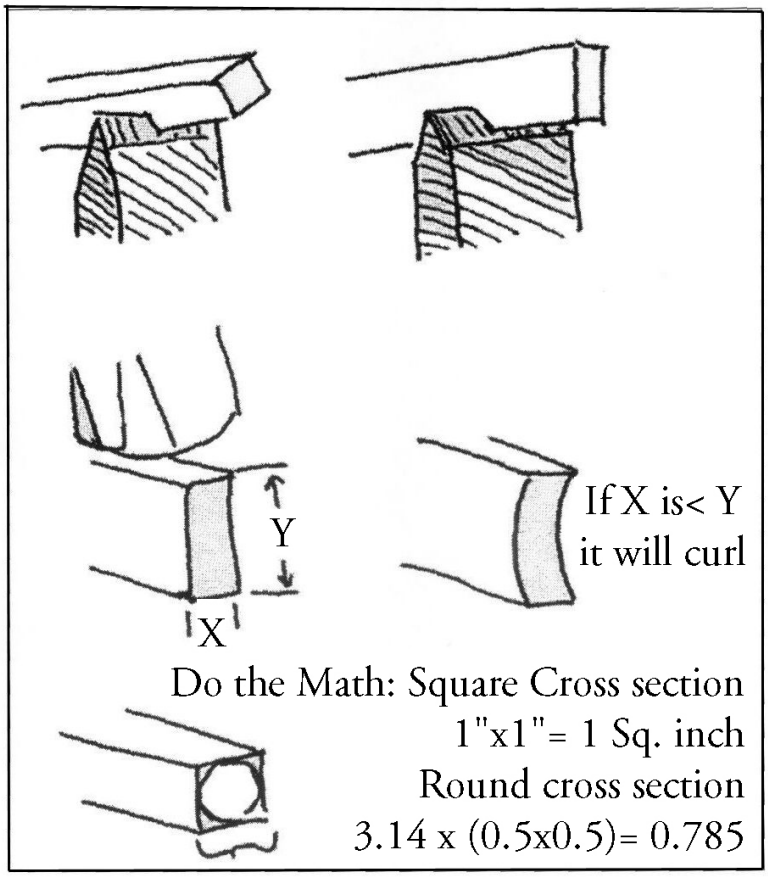
- Hit the hardest when it's the hottest
- Aim for the center of the anvil.
- Use only the muscles you need to accomplish the task. (for example, keep the elbow tucked in close to the body and pivot the arm at the shoulder for heavy blows and at the elbow for the lighter ones. That results in pivoting only one hinge rather than two for the same blow.
- Use the lightest hammer needed.
- Grip a hammer loosely when hammering. Throw it at the anvil, tightening you grip at the last moment.

Tips

- Always cut on smaller dimension before cutting on the flat.
- When drawing out, start at the end and progress inwards. It's easier to move the metal and to adjust the taper.
- Three– to– one rule: A rectangular bar whose thickness is less than one-third the width will curl when hit.
- Use Plasticine (available at art stores) to practice forging.
- A square bar will contain almost 25% more metal than the same size round bar.

Reprinted from The Hammers Arc, 7-9/ 03





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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;
Tim Neu, Ashokan Field Campus,
447 Beaverkill Rd.
Olivebridge, N.Y. 12461 [914]657-8333
For more information check out the web site; <http://nba.abana-chapter.com/>

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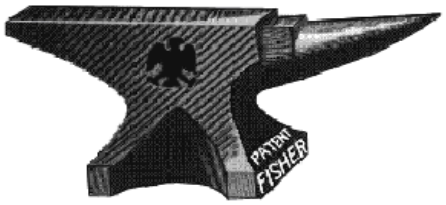
New Jersey Blacksmiths Association



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Volume 10, #3
10/01/05

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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.

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