PHOTOGRAPHS BY MARK HARRELL

The saw doctor will see you now

Mark Harrell examines the quality and value of hammer-setting and jointing – the foundation of proper saw sharpening

Up to now, we have deemed Grandpa's saw worth saving and we've cleaned and dressed the old boy into a fresh uniform by completely stripping the saw down, maintaining it and putting it back together. We have also repaired our battle-scarred handle, then then carefully reassembled and retensioned the plate/back assembly arrow-straight. It is now time to hone every tooth into a unified formation of razor-sharp bayonets to sever wood fibre with cold, precise efficiency.

But let's keep this in mind above all: anyone can push a saw file through a gullet and make two sharp tooth edges. Not everyone can sharpen to joint. It follows then that really, sharpening is completely secondary to proper joint and set. One must achieve proper sharpening to joint, so every tooth in that toothline is of the same height, ready to do battle. And because they have all been set properly in the crucible of a hammer and anvil, every tooth is poised, uniform and ready schuss through any errant wood fibre standing in the way, because now they operate as a unified team with no sloppy variance under your direction. Welcome to the world of cold, hard steel. Sheffield Steel, to be exact. So let's start by setting our teeth.

Hammer-set or plier-set?

We set our teeth – that is, bending the upper half of the tooth outward slightly during the sharpening process – so that the crisply-filed leading edges of each tooth will 'knife' – for crosscuts or 'chisel' – for rips – their way through wood fibre while allowing the sawplate to slip through the kerf with just enough clearance. No set or too little set invite friction within the cut and friction generates heat. With heat, metal expands and your troops will abruptly bog down in the fight. Too much set promotes a disorganised, jerky, zig-zag approach to cutting a straight kerf. Sloppy fighting at best and inaccurate cuts at worst. So the primary goal is set your teeth uniformly, with just enough set to clear the plate comfortably in the kerf and no more.

There are a multitude of plier sets available today online, through vintage tool shops and some made new these days, all of which involve squeezing a 'hammer' onto tooth against a bevelled anvil. With proper adjustment, the upper half of the tooth is bent slightly outward, thus achieving set. But imagine squeezing a plier set with the 20lbs of pressure each palm/finger/wrist-gripping act entails. One tires with repeated squeezing and then 20lbs of grip becomes 15 or even 10. Perhaps 25, when you realise you haven't been squeezing consistently. Consider the symphony of muscle, tendon and bone involved with this act – we are all, after all, articulated beings and therefore imperfect.

What exactly is it we're squeezing into set anyway? Spring steel, of course. And as Winston Churchill once observed: 'British are not made of sugar-candy'. Does Sheffield spring steel resist bending to your will like a raw recruit unused to parade ground discipline? Of course it does. Spring steel wants to bounce back, say 'no!,' stay in its comfort zone and protest.

Time to unleash the Sergeant Major of saw setting devices: the hammer-set. You will find no newly-made hammer sets these days – they're all vintage. Search out old US manufactured names, such as the Seymour Smith hammer-set, pictured here, or the Disston Star, both of which were manufactured in the mid-1870s, and which still serve useful, constant function in our saw shop today. Also seek out something of more recent manufacture, such as an Aikens set or the Foley No.281 trip-hammer set.

What they all share in common is the striking action of a hammer onto an anvil, whether delivered by spring energy activated by a treadle, or simply whacked with a light dead blow mallet. When subjecting sawteeth to a hammer-blow, you are literally rearranging molecules. Rather than bending, pleading with spring steel to conform, you actually smack it into formation with a hammer-set and the tooth abruptly pops into formation with military precision. This is the sort of dynamic leadership raw troops require to present their bayonets in deadly unison to the mission at hand. Anything less just won't hit the bullseye.

Hammer sets are simple, but as with a plier set, one must focus on seeing the teeth correctly. We take the time at the Bad Axe shop to dot every other tooth with a Sharpie pen, flip the plate around, then dot the adjacent teeth on the opposite side. This will take around 10 minutes, but pays huge dividends in speed and accuracy while setting and sharpening.

For now you'll need to dig the foxhole, check your work and prepare to march your troops to the barber to shear their unruly locks through the jointing process. *F&C*

Stanley 42X plier set


Seymour Smith hammer-sets


Foley trip-hammer set


Using a Sharpie to dot every other tooth

Next month: Mark will look at clock sharpening