
The Advantages of Saws with 'Tapered' or 'Canted' Blades

Posted on [January 20, 2014](#) by [Chris Schwarz](#)



During every class I teach where we pick up a saw, a student always asks the following question: Why is your sawblade narrower at the toe?

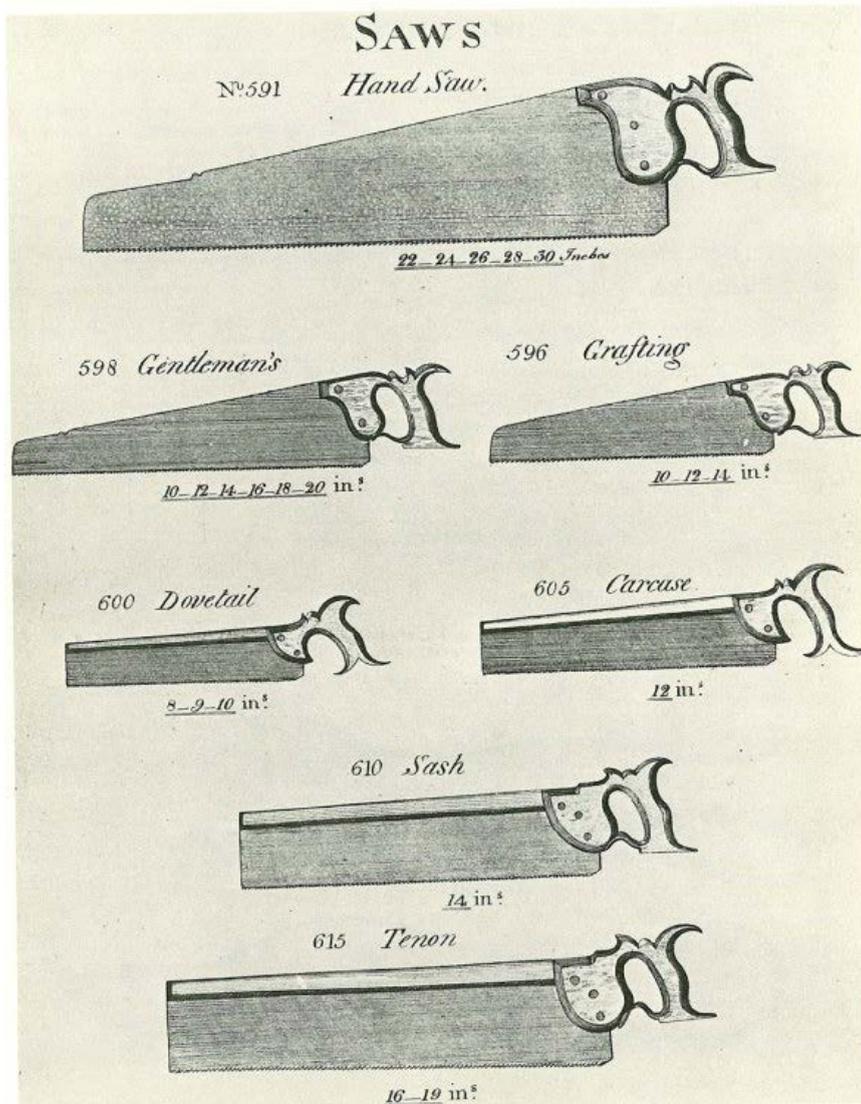
This characteristic of some backsaws is curious at first to the modern eye. Many of the backsaws from the 19th and 20th centuries have blades that are perfect rectangles. And yet many old saws have blades that are narrower at the toe than they are at the heel.

Modern sawmakers who do this have different names for this feature. Lie-Nielsen Toolworks says the blades are “tapered,” which can be confusing because sawblades can also be tapered in their thickness. Gramercy Tools says their saws are “canted,” which is confusing because I don’t exactly know what that word means at first glance.

In any case, it means the blades are narrower at the toe. Many old saws have this shape. The question, however, is why.

Some woodworkers say that vintage blades are tapered or canted because of poor sharpening or because the blade has come loose from its back and has slid down. While both of these things are quite possible, my opinion is that the feature is very desirable and was commonly known among early sawmakers.

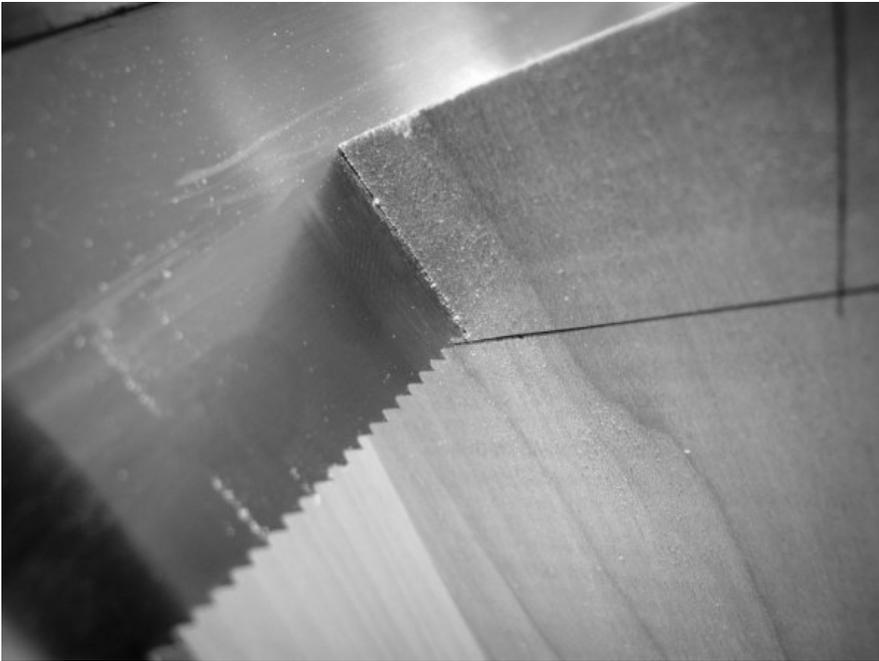
If you look at early catalog drawings of saws, the blades would have a tapered or canted shape. The most famous example is the page of saws in “Smith’s Key.” (I first wrote about the features of these saws seven years ago in [this blog entry](#).)



So why were the saws tapered or canted? My opinion: It makes for a better saw.

Saws that are narrower at the toe have the following working characteristics.

1. The saw is lighter at the toe because there is less steel there.
2. On a related note, removing that steel shifts the center of gravity of the tool back a bit, making it feel lighter.
3. When you push these saws forward, every tooth is followed by a tooth that is a little lower. The saw feels more aggressive (to me, at least).
4. Most importantly: When you are sawing dovetails or any other joint, the canted or tapered blade allows you to saw to your baseline on the front side of the work and still be shy of the baseline on the backside of the work. Then you can look over the work and finish the job.



I love canted/tapered blades. I prefer them in all instances and for all of my joinery saws. Whether you buy into the historical argument or not is immaterial. Today we have a choice when we buy saws: tapered/canted or not tapered/canted.

I think the tapered/canted blades are clearly an improvement.

— Christopher Schwarz

P.S. I'm not recommending you throw away your non-tapered/canted blades. Quite the opposite. You can easily joint the teeth of your saws so the blade is canted/tapered. Just take more jointing strokes with the file at the toe of the blade. Then file the saw normally. After a few sharpenings your blade will be tapered like an old saw. Then you can file the toothline normally during sharpenings.

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About Chris Schwarz

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12 Responses to The Advantages of Saws with 'Tapered' or 'Canted' Blades

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[Sam DeSocio](#) says:

January 20, 2014 at 10:48 am

Chris,

If the saw maker aligned the blade parallel to the handle, but not the handle, wouldn't y

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allel to the blade and then you change the angle of the blade, h less comfortable?

[tsstahl](#) says:

January 20, 2014 at 1:54 pm

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I don't claim to be an expert, but I did spend a lot of time studying hand saws last year.

The slope is very minimal; at most a 1/4" from heel to toe. The slope is more ergonomically correct because you do not saw with your arm straight out. The uncanted saw forces your wrist to bend more during the cut stroke. If you are a stickler for always sawing parallel to the deck, then I guess it doesn't make a difference.

This part is completely subjective based on my experience.

My preference is for a canted joinery saw. I'm 6' 3" and always have a pretty high angle when sawing. The sloped blade helps with over cutting the unseen line. I prefer the straight saw for cutting the walls of grooves/dadoes/whatever. The heavier blade works better for me during the long straight cuts.

I'm sure if I thought for a while I could come up with better vocabulary, but here goes... When doing precision cuts, i.e. joinery, I prefer to feel the wood through the blade. The lower mass of sloped/canted joinery saws transfers that feeling better. When hogging a lot of wood as in groove side wall cutting, I want to feel the mass of the blade dominating the wood.

Hearing Ron Herman talk about saws was a very eye opening experience. Ron is huge on body mechanics during tool use.



[MTManCH](#) says:

January 20, 2014 at 12:01 pm

I was with you until your post-script. If you change the blade geometry, I think you also change the transfer of energy from the tote to the blade. Yes, it might be a minimal change...

[nickbrak](#) says:

January 20, 2014 at 12:08 pm

Interesting insight into the sawing to the "back/front" baseline capability. That was one of the main reasons I chose a Japanese saw for my dovetails, because I could "hit" the front baseline before the "back" baseline. When I used the square Western-style saws, I always seem to overcut the back. I will have to give the canted/slanted/tilted Western saws a try.



[Tim Roos](#) says:

January 20, 2014 at 2:26 pm

I was introduced to the concept when I came across this video: <http://logancabinetshoppe.com/blog/2013/01/episode-47/>

[hosea66](#) says:

January 20, 2014 at 3:57 pm

So Lie Nielsen has a progressive tooth dovetail saw which you have said you like, but they don't make a progressive and tapered dovetail saw. Which of the two would you prefer? Progressive or tapered?



[David Shepard](#) says:

January 21, 2014 at 9:46 am

#3. Pit saws and water-driven sash sawmills are also tapered over their length. This allows each tooth to do its job over the stroke of the saw without having to advance the saw or the work. Most critical in the sash saw, as both the log and the saw are fixed, with only the log advancing one notch after each saw stroke.

[carpenterman](#) says:

January 21, 2014 at 12:32 pm

with this constant search for the perfect dovetail saw, I am currently averaging about \$ 20.- per actual dovetail



[Mike Siemsen](#) says:

January 21, 2014 at 1:40 pm

While I like the look of a tapered/canted backsaw I must say that changing the angle of the back of the saw does nothing to how the saw performs at the toothline, why would it? The hang of the saw would change where the saw ended up at the bottom of the cut with regards to a baseline. Two saws hung the same, one with a square plate and one with a tapered/canted plate, would saw the same. A weak argument could be made that the toe of the saw is lighter on a tapered/canted saw but with a thin sawplate and a 1/4 inch of cant the difference in weight would be virtually unnoticeable, if you want I will weight it.. Your advice Chris, in the P.S., "You can easily joint the teeth of your saws so the blade is canted/tapered. Just take more jointing strokes with the file at the toe of the blade. Then file the saw normally. After a few sharpenings your blade will be tapered like an old saw. Then you can file the toothline normally during sharpenings.", changes the hang of the saw. It would be easier to take the back off of the saw (folded back not glued on) and shear the back off and hit it with a file, then put it back together. An operation that would not change the hang of the saw. I look at the teeth of the saw when I saw not the back. The things on a saw that change how it cuts are , Hang, rake, set and fleam. None of these things are affected by the angle of the back of the saw.

Points 3 and 4 are affected by hang, the relationship of the handle to the toothline, not the back.

Nick Brak says, "When I used the square Western-style saws, I always seem to overcut the back. I will have to give the canted/slanted/tilted Western saws a try." . If you tend to overcut or under cut your baseline change the position of the wood so the toothline of your saw ends at a place where it is in line with the two baselines. If you raise the baseline (wood) in relation to your body you will cut more up hill, if you lower the baseline (wood) you will cut more down hill. If there is a good reason for an angled back it is probably material savings. Since a saw drops as it cuts the toe can be closer to the back than the heel, by cutting a steel plate at an angle a sawmaker could make two saws with a deeper depth of cut from the same material than if he cut it square across.

[azjawn](#) says:

January 22, 2014 at 5:58 pm

I agree, I do feel a difference with the canted blade esp. when using a rip saw, maybe its my imagination. It does make you saw differently though, I find that I'll lay my saw across the line if its a straight blade, but with my canted DT I'll start at the nearside and work to the farside.

For those who think canted blades don't change things, why is there a belly on full size handsaws?

In the end, canted or not, its where the toothline ends on either side of the cut. I wanted a taper on all my backsaws because that's what I like, try it or get over it.



[Jim Tolpin](#) says:

January 23, 2014 at 9:05 pm

Next up: Why is there a curved back on some handsaws (like the D-20 Disston
(<http://www.disstonianinstitute.com/d23page.html>)

[lostartpress](#) says:

January 23, 2014 at 10:05 pm

My guess: To save steel. I have never warmed up to skew-backs. Have you?
