

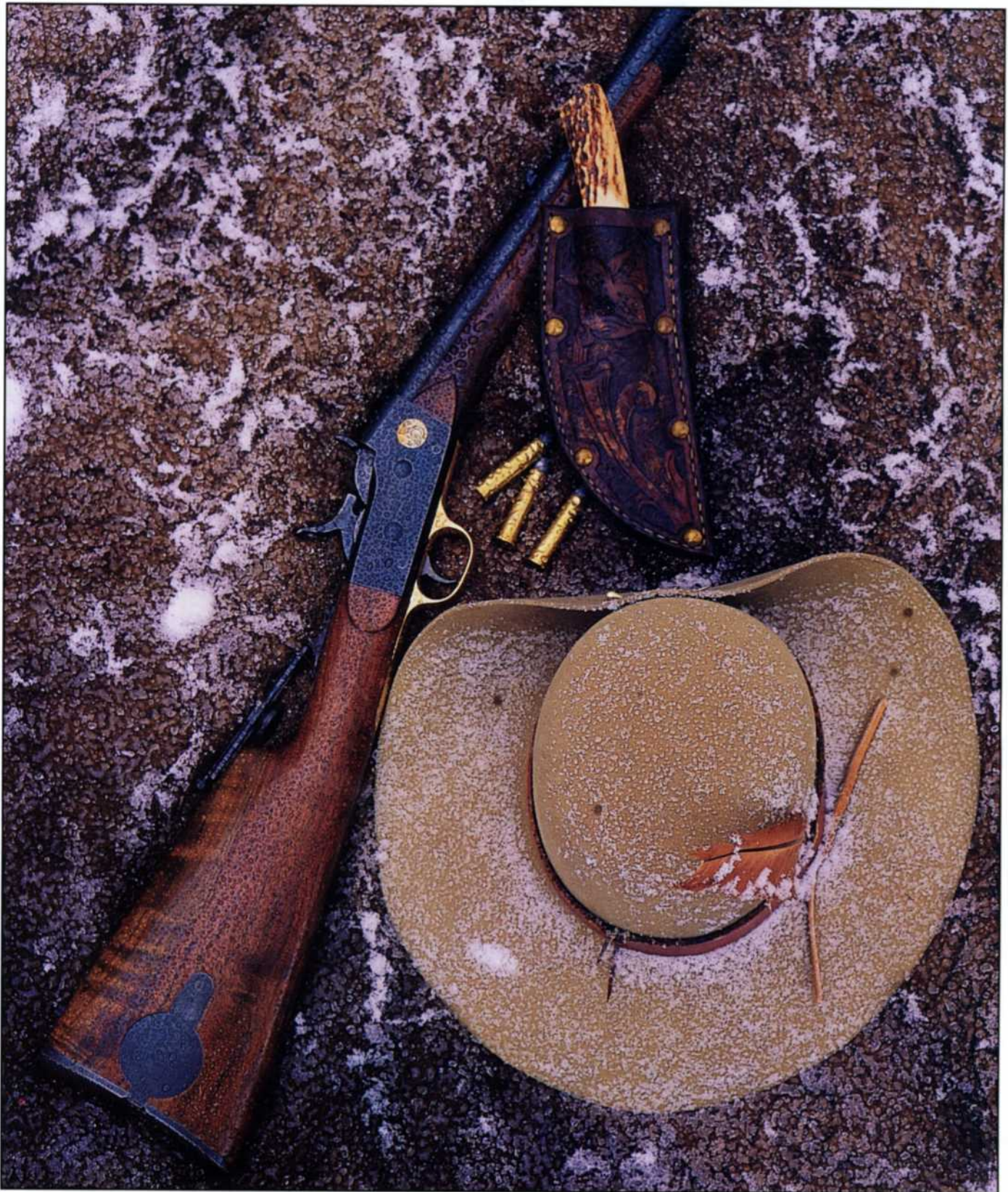
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# Making Justin's Rifle.

By Dominick Pisano

At this point in the stockmaking process, you can relate to your three basic references. The first is the centerline where the two pieces of wood were joined. The second is the steel butt plate... which it is now time to fit after double-checking for length of pull (LOP) and pitch. Once again this need not be perfectly fitted as you can fill in any voids with epoxy. The third reference is the rear of the receiver where the stock is abutted, via mortise and tenon.

After the butt plate is fitted comes the real work of shaping the stock. I use the original stock as a reference and check it often as I begin the process of removing excess wood. Go as fast or slow as your skill allows, as a lot of excess wood must be removed. Use heavy-duty rasps and planes to do this work. Be careful. If you have sharp tools, which you should. Still, the wood removal can go faster than you think. Don't take too much away or you may find that you have to re-build low areas with Bondo and start over. Stock making, or in this case pattern making, is labor intensive. You don't want to make mistakes if you can help it by getting in too much of a hurry. Step back and observe your progress from time to time.

When most of the excess wood is removed from the cheek piece, draw an outline of both the cheek piece and the shadow line on it. I make the outline "strong" as I can always cut it down if the cheek piece looks too large. The cheek piece is rough shaped using round and half round rasps and chisels to shape the curve of the cheek piece and to cut the shadow line. I like to work both the shadow line and the profile of the cheek piece together till I have succeeded in getting the correct shape. I usually leave the outline a little strong to allow for final shaping and sanding.

If your stock design calls for panels behind the sides of the receiver, now is the time to trace, or draw them free hand, on to the wood. Panels add a custom touch, and sometimes add strength in an area that might be weak due to internal action parts. They can be either flat or slightly flared. It's a matter of taste. Once the panels are drawn on the sides of the wrist, begin carefully cutting away excess wood. If you have not yet thinned down that part of the stock, it is probably the full thickness of the two pieces of wood that were glued and doweled together (1 1/2"). A lot of wood must be removed, but do it in stages.

First outline the panels. I use a number of different sized rat-tail files, then thin down the panel so that it is almost flush with the sidewall of the receiver. Stop, step back and look. More work is probably necessary, so repeat the above steps until one side looks the way you want it to look. Again leave the wood a bit strong so you can adjust as necessary with final shaping and sanding. Repeat this procedure on the other side. The trick here is to get both sides identical. It's easier said than done. This can separate the men from the boys, and the women from the girls. Also be certain the top and bottom of the panels flow into the rear of the receiver in gently flowing, eye-pleasing, curves.

When the panels look okay, I start to shape the wrist to form graceful flowing lines rearward to the comb and the lower line to the toe. If the wrist feels and looks too thick, it probably is. Cut the area behind the panels deeper and reshape the wrist again until all the lines blend into a unified whole. The pattern should begin to take on its final shape and you may now cut the flutes on either side of the comb nose (or not, it's your preference). I use half round rasps to do this. Again take some pains to get both sides symmetrical.

The last major shaping now moves to the rear of the pattern. I fit the butt plate to the pattern by centering it along the joint of the two pieces of poplar unless cast-off or cast-on is wanted. The centerline joint may be used to establish this as well. Pay attention to the length of pull (LOP) and pitch, then rough fit the butt plate. Shape both sides of the stock so that it flows into the butt plate using rasps and files. I sand out the stock using electric sanders and sanding blocks. When I am satisfied I set the completed pattern, attached to the barreled action, aside for a few days in a place where I can look at it. If something doesn't look right, chances are you will spot it, enabling any necessary reshaping.

Finally, it's time to remove the pattern and clean it up. Remove all the modeling clay from the receiver and clean it. Now reassemble the parts previously removed from the action, e.g., the mainspring, hammer, etc., and inlet these using spotting-in techniques. I again keep the original stock handy as a reference. I'm especially careful in this as this inletting will determine the accuracy of the machined stock. Clean up the tenons while you're at it and remove excess epoxy.

The pattern is now ready for machining.

Depending on the skill of the person doing the pantograph work, the final product will be close to a slip fit. Final fitting is a matter of carefully scraping away high spots. I take a lot of care in this final step in order to ensure the aforementioned slip fit. The butt pattern and walnut blank are now sent off to be machined.

A word about stock blank selection is in order here. I keep on hand a number of Claro-English walnut grafts (see side bar on grafting English walnut trees). These blanks are less expensive, at \$200-\$250, in comparison to quality Claro or English blanks at \$250-\$750+. By careful selection, superb wood can be found. I had a blank that had exquisite English markings on the wrist end of the blank. The blank was oversized and by careful measurement I determined that if the blank were flipped end-for-end during machining, all that beautiful English could be captured for better than three fourths of the stock. A call to Ed Shulin, at Shulin's Stock Works in Trinidad, Colorado, confirmed this. I included this information in my letter of instructions when I sent the blank off to be machined. The machined stock was returned in about two weeks and I was correct. It was a thing of beauty. The end result was a stock that would have cost four or five times as much had it been straightforward English instead of a graft.

While waiting for the butt stock to be machined I began work on the forestock. I make these from scratch as they are fairly straightforward. The forend on most original single shot rifles is just a splinter of a thing. Not much there. I have found a slightly more hand filling forend more comfortable, but not a god-awful thing such as a beaver tail forearm or anything of that ilk. If you know what you want, go to work. If not, look at as many photos of the original forends on the particular rifle you are stocking, and imagine what it would look like if it were just a little more hand filling and comfortable.

To begin, I square up the forend blank to 10" long X 1 3/4" wide 1 3/4" deep. To be on the safe side, measure the depth of the front of the receiver to be certain the wood is deep enough to accommodate with a bit more if you want a bit of perch belly (for an example of this, see the CPA Stevens 44 1/2 ad and note how the bottom of the forend is a tad below the lowest point of the receiver face).



**Clockwise from above: Stock blank with finished pattern. Normal layout is "reversed" here to gain best figure. Forend fitted to barrel, and fitting to action begins. The pre-turned buttstock of grafted walnut stands next to the carefully made pattern that produced it. Inletting is almost a slip fit onto the action.**



I determine which end of the forend blank will be the rear (next to the receiver), and which will be the top. This is important as a lot of wood will eventually be removed and I want to be certain to take advantage of the best figure and color configuration in the blank. I mark the blank so I don't get mixed up later.

Next, I find the centerline of the top of the blank and trace it on using a straight edge. Then I carefully measure the barrel where it joins the receiver, and divide the number in half. In other words if the barrel measures 1 inch in diameter, the half size (or radius) is 1/2 inch. Mark the rear of the blank the half diameter (radius) on each side of the centerline. Next measure the barrel 10 inches from the receiver face and repeat this step. Mark the blank carefully noting whether the

*Continued on page 55*

barrel is tapered or not. I connect the lines and now have the barrel dimensions on the blank. Using a square, I mark the front and rear of the blank so I can see the barrel width from each end. This is important as I use a router table to hog out the majority of the wood in the barrel channel and the wood is machined with the top down on the router table obstructing the lines previously drawn on the top of the blank. If you do not have access to a router, carefully chisel out the barrel channel by hand. If you are working with an octagon barrel, be careful to keep the inside barrel channel straight and square to fit the side flats of the barrel. Sharp chisels are a must for this work. It's bit more labor intensive than the router method, but you can do a creditable job if you take your time.

My RB #2 has an octagonal barrel with a slight taper. Routing the barrel channel requires a 45-degree bit, and a straight-sided bit with a flat bottom. I carefully set up the fences on the router table taking into account the barrel taper. I set the 45 degree bit in the router and line it up visually from each end to be certain that I correctly set the infeed and outfeed fences. I make no effort to cut to the line previously drawn on the top of the stock because I want to end up with a barrel channel that is 1/16 inch smaller than the barrel. That gives me 1/32 inch on each side of the barrel channel for the final fitting to be done by hand. Smaller is better. It's too easy to make a mistake and wind up with a too wide barrel channel. I have done it, I know.

Now I lower the bit to make a test cut and remove a small amount of wood to check everything out. Also, walnut is very hard and it's easy to burn the bit if you try to take too much off all at once. If I am satisfied all is well I run the wood through several times, slowly raising the bit a little for each pass, until I am about 1/16 inch above the mid line of the side flat of the barrel. I repeat this procedure for the other side of the channel. All that is left to do is to route the bottom flat in the barrel channel, and for this I use the flat-bottomed straight bit of appropriate diameter. When I'm done with the router, I have what appears to be a perfect barrel channel, except that it slightly under-sized. The excess wood will be removed during final fitting.

I do this by first removing sights, forend lugs etc. from the barrel making the barrel clean except for the dovetail cuts. I then place the routed forend on the top of the barrel well forward of the receiver and by use of marking agent begin the removal of excess wood from the barrel channel slowly sliding the forend rearwards towards the receiver. I use files and rasps as well as abrasive paper backed by a small flat block of wood and slowly work away the excess wood. The drill is try-and-fit, try-and-fit until the rear of the forend abuts the top front of the receiver. Now the forend is perfectly fitted to the barrel, but not to the receiver. •

(Part 3 in the next issue of SSRJournal.)

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