

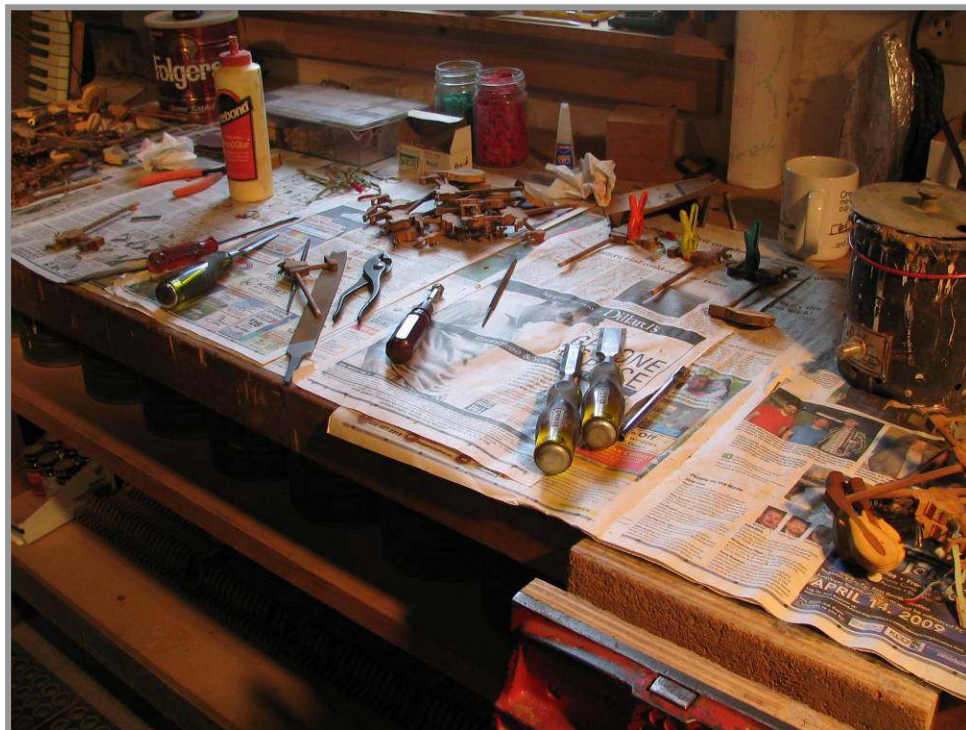
*Photo 93: The cast iron plate is "put to bed" for the time being, sandwiched in between two of my shop demo pianos. A blanket pulled over the upper portion of the plate protects the handwriting at the top.*



*Photo 94: Dave continues sanding. Although palm sanders (bottom and top of photo) are used on flat surfaces such as the kneeboard, it's only with the lighter grits. Much of the work is done by hand. Any piece with curve or detail is sanded strictly by hand*



*Photo 95: When Dave and I are working on a time-consuming or repetitive aspect of the restoration process, we find it helpful to have some type of intellectual or educational programming on the TV.*



*Photo 95: The process used to refelt and releather the hammer butts becomes more refined as I go. I'm finding this to be fascinating work. Time consuming, but a lot of fun.*

While Dave and I make progress at our shop in Boone, the great guys at Schaff Piano Supply in Lake Zurich are busy duplicating the strings and hammers for the piano. (Photos and captions courtesy of Rob Johnson, Schaff Piano.)



*Photo 96: String Department Manager, Ed Pate, and String Department Customer Service Coordinator, Danelle Gallis.*



*Photo 97: String winders (from left to right), Jose Gonzalez, Steve Schuh, Tom Smith and Jerry Hedges. Over 115 years of dedicated string winding experience. Shown behind string winders is our library of large grand piano scales. If we have ever made a set of strings for a piano, we keep them here.*



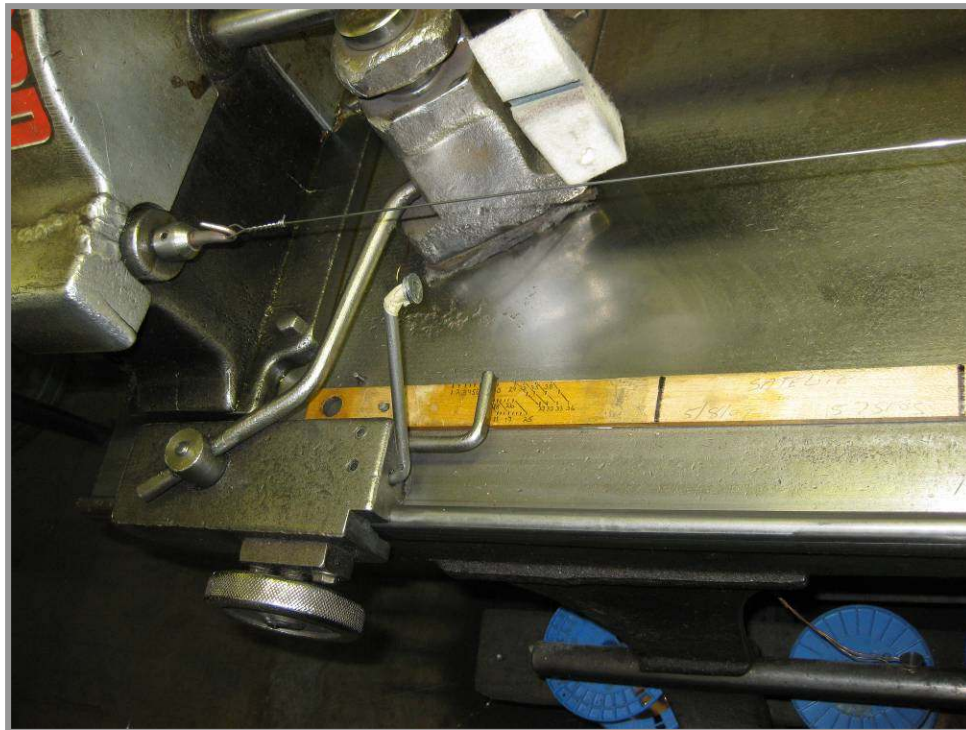
*Photo 98: Ed Pate, String Shop Manager, prepares to begin duplication process on Chuck's set of strings.*



*Photo 99: Ed is laying out a set of strings to be duplicated. They are strung on our measuring device to count strings, measure winding dimensions and diameters. He then consults with our records to determine if we have a scale. Once the scale is found, he double-checks the measurements against the stick. Now the set of bass strings is ready to be duplicated.*



*Photo 100: The scales are then hung up for duplication. The sets are made in order in which they were received. The string winders will then pull the scales and begin to make the sets of strings.*



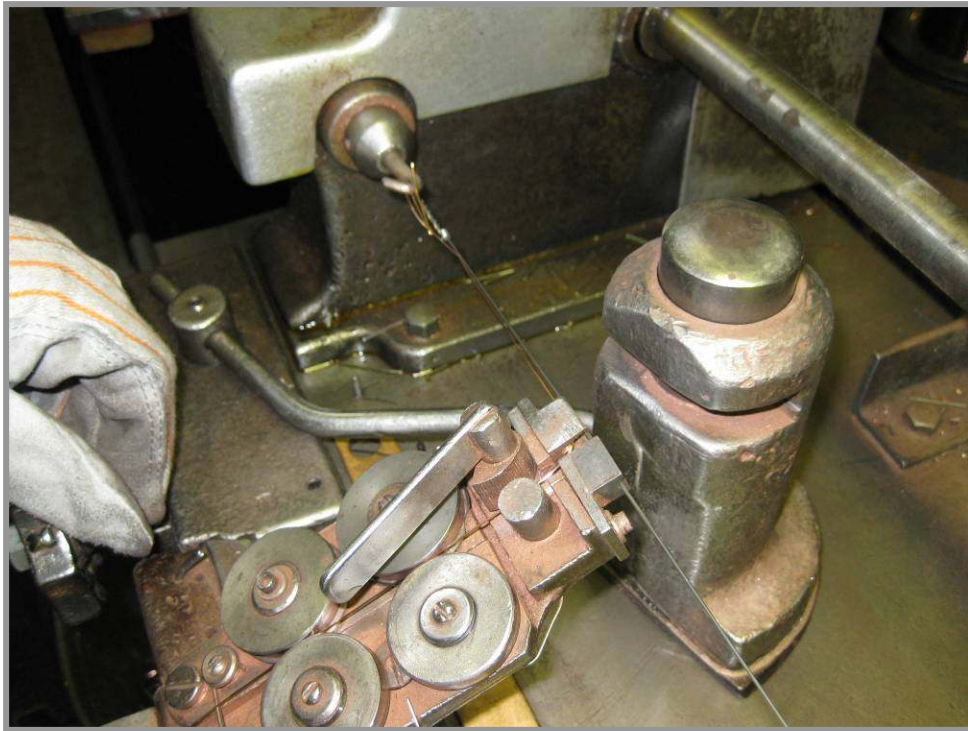
*Photo 101: The string winder lays the sticks on their tables and sets the measuring device accordingly. This is directly connected to the anvil, which marks the hammer marks. This ensures 100% accuracy when making the windings.*



*Photo 102: The right measuring device is then set according to the spot where the winding ends*



*Photo 103: Jerry Hedges at work.*



*Photo 104: Jerry starts the first bass string. The loop is made on one end of the steel core wire and tied off on the other end. He makes a hammer mark (flattens a portion of the wire) to give the copper a positive tight grip. He then activates the lathe and begins wrapping copper wire over the core.*



*Photo105: Behind the string winders are all of the different gauges of heavy copper. Each scale lists which core diameter and copper size to use.*



*Photo 106: Tom Smith is hand winding a double wound string. This takes years of skill to master. It takes just the right amount of tension to make a great sounding/looking string.*



*Photo 107: After the string is made the overall diameter is double-checked. Once he determines that it is correct, he continues with the rest of the set.*



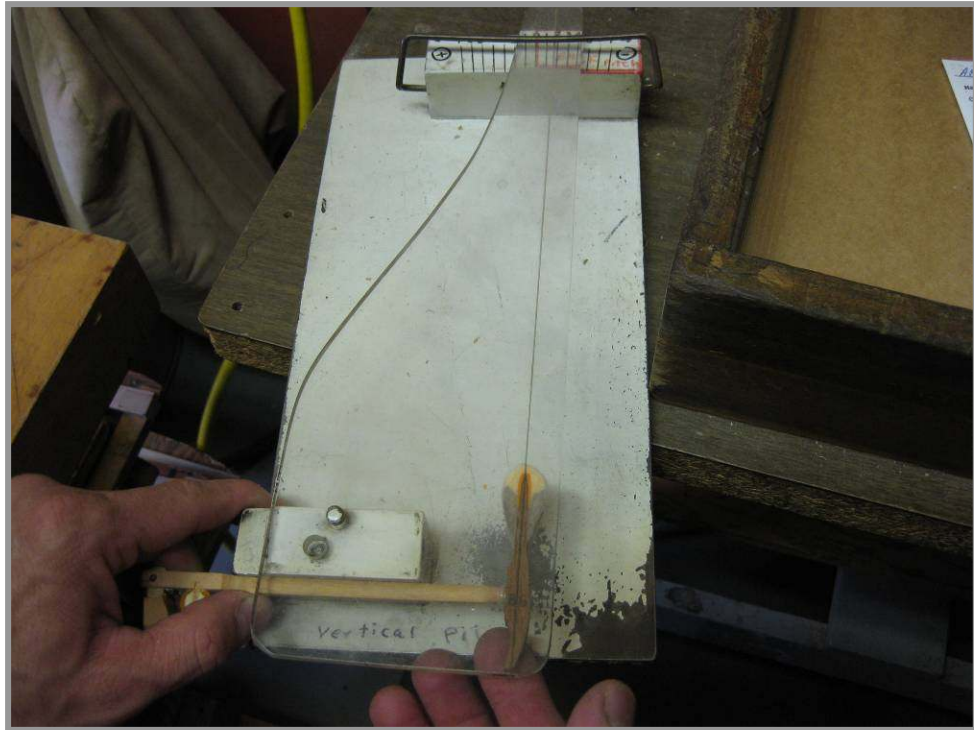


*Photo 108: Once the set is complete, the string winder gives the set back to Ed to double check the dimensions with the scale. Once approved, he applies a copper tarnishing preventative and wraps up the set for shipping.*

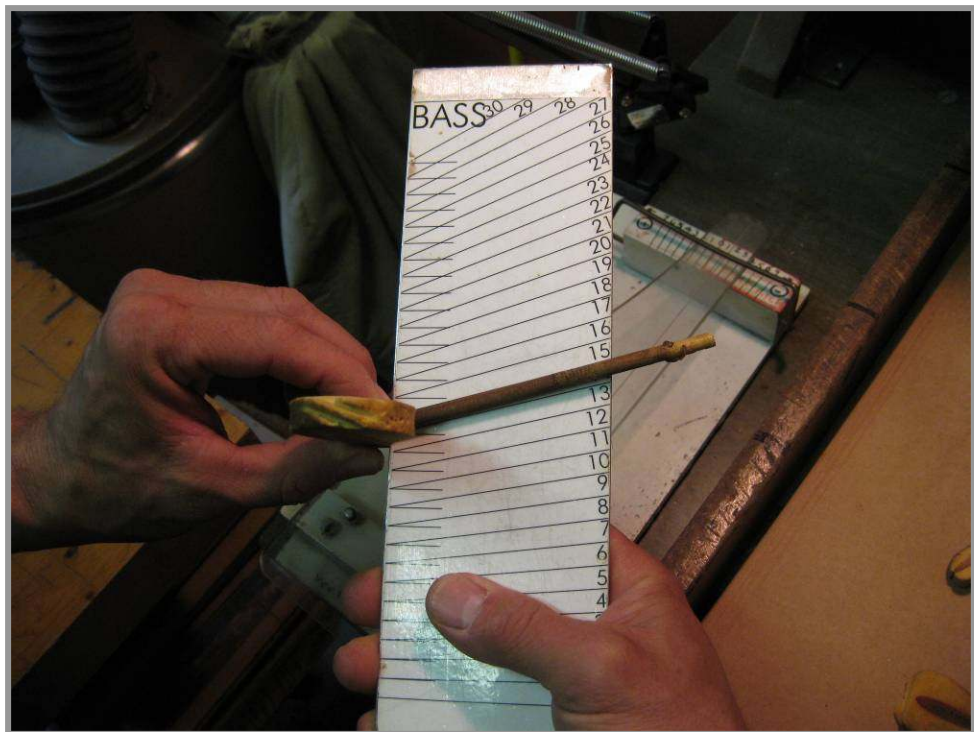
Meanwhile, in another part of the building:



*Photo109: Our hammer department receives the first and last hammers in each section. Each sample is numbered as they lie in the scale. We strongly recommend that all shanks are left in so that we can get the most accurate dimensions.*



*Photo 110: Joe Ruiz first checks a few of the samples to determine if there is any vertical pitch or rake.*



*Photo 111: He then starts with the bass hammers to determine the angles. He records this information on a spec sheet. The same is then done with the treble hammers.*



*Photo 112: he takes off one of the shanks to determine the bore diameter. Chuck has decided to use new upright shanks so we can use a standard 7/32" drill bit.*



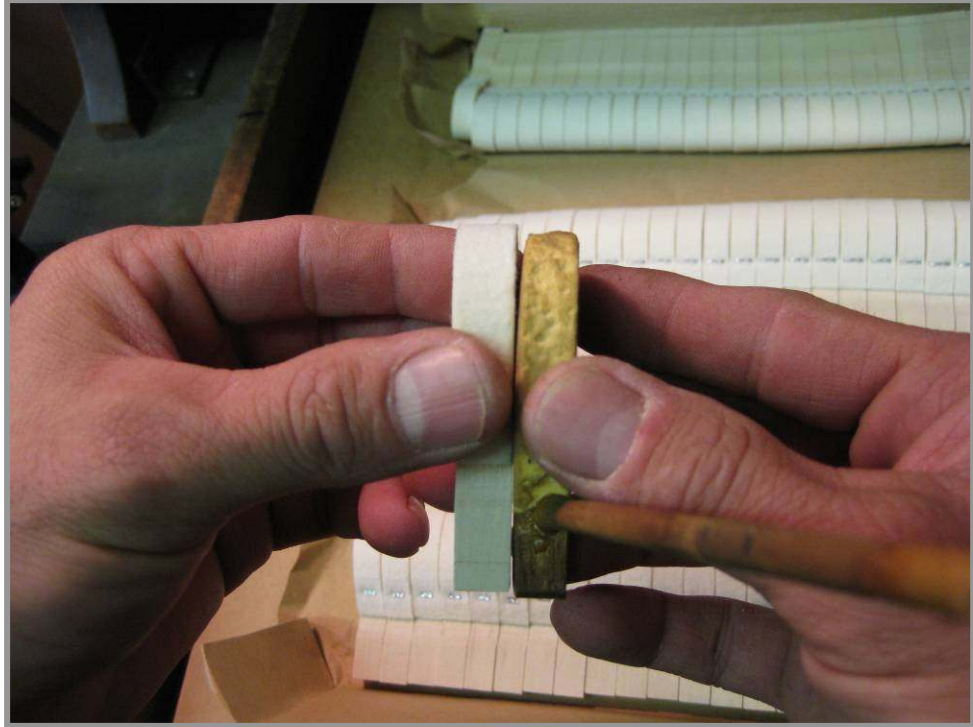
*Photo 113: Joe uses a hole gauge to determine the shank diameter. If someone requests a snug or loose fit, he will make the appropriate changes in the drill size.*



*Photo 114: Store room with stock of unbored hammers.*



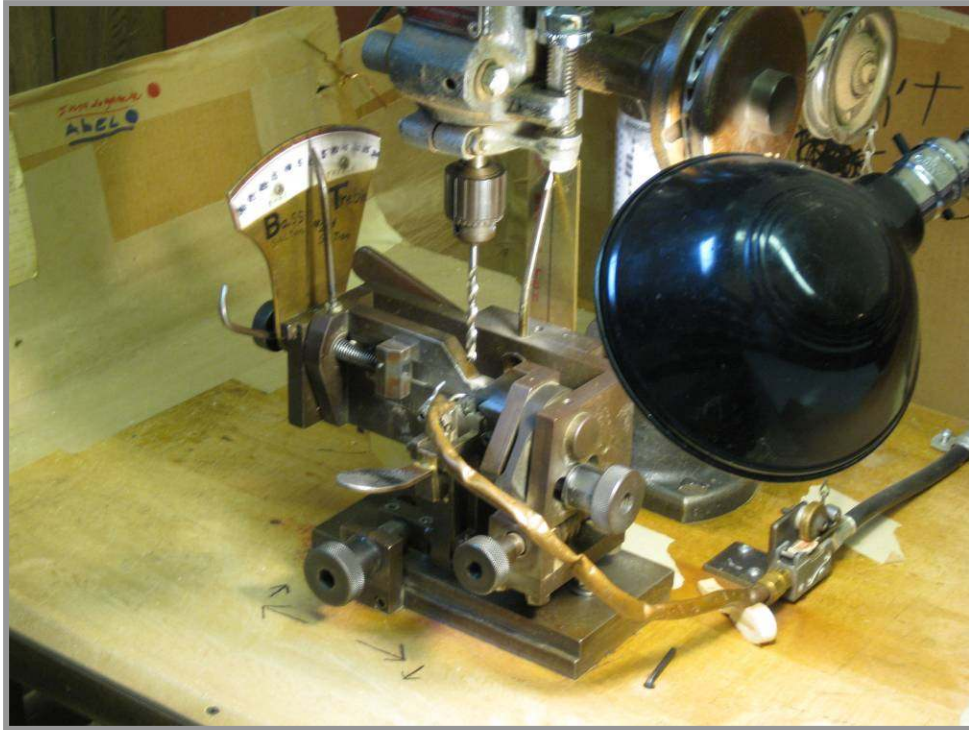
*Photo 115: The overall length of #1 and #88 are measured. He opens the best matching hammers based on hammer manufacturer, weight and overall length.*



*Photo 116: He compares the samples with newly selected hammers to ensure a perfect match.*



*Photo 117: The new set of hammers are laid out and are now ready to be drilled.*



*Photo 118: He takes the spec sheet along with the hammers to the boring fixture and begins drilling the hammers starting with #1. The fixture is adjusted as the set tapers out to #88. The completed set is checked against the samples and wrapped up for shipment.*

Then, it's back to the post office:



*Photo 119: A day or two later, in Boone, the new hammers and strings arrive and are ready to be installed.*



*Photo 120: There's work still to be done, however, before we can start installing new parts. Dave is finishing up the sanding of the parts and the case.*



*Photo 121: At my bench, my project seems to have taken on a life of its own. Soon, however, things will start to go back together. They always do.*