



Repair of 1890-1910 Bauer Company Guitar

Performed by Ron Cook

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For Cuong Nguyen of Santa Cruz, California

Background

George Bauer was a Philadelphia luthier who made guitars and mandolins in the period around 1890-1910. He was a contemporary of S.S. Stewart, banjo maker, and he formed a partnership with Stewart's sons after Stewart's death in 1898. It is likely that the guitars and mandolins advertised by Stewart in the mid-1890's were actually made by Bauer. Sears, Roebuck and Company sold Stewart banjos under the Acme label around 1900, and sold Bauer guitars and mandolins under the Acme Professional label.

There is very little information on Bauer guitars. This is probably due to the short life of the company. The Stewart brand is still known today in the banjo world, but the name has changed owners several times. The Bauer name disappeared after George Bauer passed away and the Bauer & Stewart Company was sold after 1910.

During the twenty years the Bauer & Stewart Company existed, guitars were sold under both the Bauer and the Bauer & Stewart labels. This guitar owned by Cuong Nguyen is a Bauer Company instrument as shown by the interior label and the stamped serial number (35978) on the peg head. Missing is the "Bauer Company, Philadelphia" stamp on the back of the peghead. This seems due to the added lamination on the back of the peghead. Laminating the peg head's back is not typical of any manufacturer.



Early 1900 Bauer Catalog Ad

The head and neck inlays I thought were added later, but research showed that Bauer guitars were being inlaid by Stewart workers who used the same inlay patterns and mother of pearl material used on their banjos. The inlay on this guitar look very much like banjo-style inlay.

The sides and back of this guitar I thought were a nicely figured black walnut, due to the brownish coloration. However, my research, and the discovery of a very similar guitar on the internet, shows the wood to be a faded Brazilian Rosewood. I have found Bauer guitars made with rosewood and oak, but other woods might have been used. Rosewood was extremely popular around 1900 on many instruments, including piano cases. The top wood is spruce, and the neck is mahogany with an ebony fingerboard.

Cuong Nguyen contacted me because his Bauer guitar had several cracks and was not playable in its present condition. He contacted me to repair the cracks and replace the bridge and nut. This guitar was originally used with nylon strings, so Cuong asked that the old replaced, bolted-on bridge be changed to a classical-style. As I discovered on Day 1, there were other repairs needed. I also discovered that there were many repairs and changes to the instrument over the years, which I'll cover in the following sections.



Bauer Guitar of the same period as that owned by Cuong Nguyen
(Note oversized replacement bridge.)

Valuation

With so few Bauer guitars around, it would seem that they would be worth more than they are. The only Bauer I came across that was for sale was a Bauer made Acme Professional from Sears. It was a top of the line instrument with a lot of very fancy abalone purfling and inlay and was listed for \$1995. (It originally sold for around \$10 to \$20.) However, it looked to be in original condition and with no visible repairs or alterations. I would not consider the guitar owned by Cuong Nguyen to be an entry-level or budget Bauer guitar, which I believe their oak guitars were, but perhaps a “step-up” to a more serious instrument, especially because of the rosewood and the number and style of head inlay pieces.

It’s always difficult to give a value to an instrument that has been repaired and altered several times in the past, even though it was made with imported woods and built around 1900. Due to the changes, which I’ll cover in the following sections, I would put a market value in the range of \$300 to \$400. Unfortunately, because of the changes, it is nearly impossible to restore this particular instrument to it’s original state. To do so would cost more than the resulting value of the instrument.

Even in its present condition, this Bauer guitar is a beautiful instrument with a rich tone and easy playability. It is an integral piece of American musical instrument history by a short-lived company that has not received enough credit for its influence and contribution to the art of luthery and the turn-of-the-century marketplace.

Day 1: Assessment



On Day 1, I conducted a more extensive assessment of needed repairs and came up with some interesting findings. I noticed that the back cracks were caused from loose back braces, so there was not much support for the thin rosewood back. I would have to fix the braces before I could repair the cracks.

Of the other known repairs, the biggest would be removal of the old bridge. This bridge is an obvious replacement to the original, which would have been ebony. It was not only glued, but bolted through the top and interior bridge plate.

Note: The most common reason for bridge failure in old parlor guitars was the use of steel strings. These older guitars were not structured for the higher tension of steel strings, and many tops bowed, necks warped, and bridges failed.

I also noticed that the binding was not original to the guitar. Plastic binding was not commonly used until much later in the 20th century for instruments. The original binding would have been a light wood, like maple. I assume that this guitar was completely disassembled at one time and the plastic binding installed because the wood binding probably split. Perhaps glue joints had failed around the edges, and the back and/or top had been removed. I noticed that the side crack had been stabilized with an wooden cleat glued to the inside. This was probably done at the same time as the top removal. I feel that this guitar was dropped at one time, probably over 50 years ago, that created the side crack and might have broken the binding and loosened the top and/or back joints. The fingerboard was also removed at some point, and broken from the body at the 12th fret. It is also cracked lengthwise showing it was not removed very carefully. Notice the two “pins” in the fingerboard. These were probably where a steaming “needle” was inserted to soften the glue for removal. Note that the 12th fret was replaced with a larger piece of fret wire to help cover the joint crack.

Day 2: Continued Assessment & Start of Repairs



The next day, Day 2, I took my inspection mirror to see how the bridge was bolted on. What I noticed was the bridge plate had been partially cut and removed, further weakening the top. I assume the partial removal was to help the top vibrate more for a “better” sound and was done when the top and/or back was removed. It couldn’t have been done any other way. After inspecting, I then proceeded to remove the old bridge.

Old parlor guitars almost all had ladder-style bracing on their tops. Ladder bracing is nothing more than a few pieces of wood glued side to side, usually one above the sound hole and three below, plus a flat 1/8” by 3/4” or 1” bridge plate that also goes side to side. Only a few makers, like Martin, used stronger fan-style bracing, where several braces “fanned out” from the soundhole. Because of the nature of ladder bracing, only gut or nylon strings were used. Steel strings on these guitars often caused problems, like I mentioned earlier.

Another thing I noticed was the thin piece of lamination on the back of the head. It is rosewood, like the body, but much darker. It might have been added later to cover possible damage to the back of the head. It probably covers the Bauer Company, Philadelphia, stamp that Bauer guitars had just below the serial number.

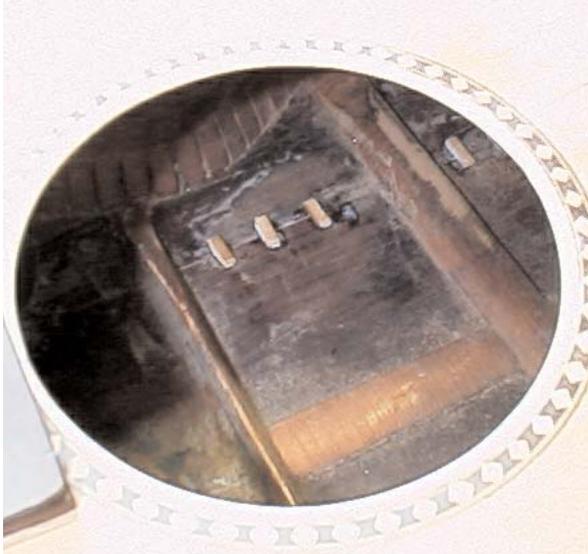
Day 3: Bridge & Bridge Plate



On Day 3, I started on the bridge work. These pictures show the 1/8" thick maple piece I cut to strengthen the bridge plate, the peg holes that I'll patch later, and a new carved ebony classical style bridge.

When I took off the old bridge, which came off rather easily, there was a very thick coating of glue that was underneath it. As you can see from the pictures, I had to sand through the finish to get the surface smooth and flat enough for the new bridge. This lighter wood proved to be a problem when trying to match the finish later.

Day 4: Crack & Back Braces



On day 4, I worked on stabilizing the largest back crack and the back braces. I applied several wood cleats over the crack so it couldn't get any worse. The wood has shrunk too much over time to be able to close it up fully, but the cleats will protect it.

I found all but one back brace with loose ends. The glue was holding most of them on, but the ends of the braces, from around one to one-and-a-half inches, had come loose. These loose ends were right where the back cracks existed and are probably what caused the cracks in the first place. The wood glues I normally use need a good clean surface to adhere properly. Where the back braces touched the back, it was dirty and crusted with old glue. I could barely get a fine knife blade in to clean it, and I knew regular wood glue would not hold, so I injected a type of "super" glue that cures in less than a minute. This worked quite well.

Day 5: Plugging Drilled Peg Holes



Before gluing on the new bridge, I wanted to make sure there was a good, solid surface to glue it to. I chiseled out the area where the old peg holes were and glued in a small piece of pine. After sanding it down, the top was ready to have the bridge attached.

Day 6: Sanding Surfaces



Now that all the interior work was done and the cracks repaired and/or stabilized, it was time to begin preparing the surface for finishing. This is best done before the bridge is attached so it is easier to go over the whole surface.

Day 7: Surface Preparation & Fret Filing



On day 7, I continued surface preparation, working through 600 grit sand paper and 0000 steel wool.

One thing I noticed while working on the instrument was that the fret edges were sharp. This was probably caused by years of wear and tear on the fingerboard and even some wood shrinkage. I took a little time to smooth and round off the edges with fine fret files. This will make it much more comfortable to play.

Day 8: Bridge & Nut Installation



On day 8, it was time to glue on the new bone nut and the bridge.

I carved the bone nut and bridge saddle out of a piece of bone I got from a carving supply catalog. Bone blanks like the ones I got are normally used by scrimshaw carvers, but they're the perfect size for cutting into nuts and bridge saddles.

I have a special tool for positioning the bridge. I use it to measure from the 12th fret to the nut, then reverse it to measure to the bridge saddle. Once laid out, I tape around where the bridge goes, then I glue and clamp for 24 hours.

Day 9: Applying Finish



On Day 9, I started the finish process. I used a slightly colored tung oil on the top and uncolored tung oil on the sides and back. To protect the fingerboard and neck where it attaches to the body, so as not to get any additional varnish on it, I taped the area with a painter's masking tape.

As you can see in the left photo, the colored tung oil was not the right pigment to completely blend the sanded bridge area with the rest of the wood.

Days 10 to 13: Matching Colors



It took several hours over a four-day period to finally get the top blended right. Each time it failed, I had to sand off the previous varnish and try again.

On day 13, I was successful. I was able to get the proper combination of colors to blend the sanded and unsanded sections. I let it rest and cure for a few days before the final rub out and polish.

Day 14: Completion



On the last day, after the last coat of tung oil varnish cured for 48 hours, I began the laborious process of rubbing out brush marks and polishing the instrument. To rub out brush marks, I use pumice and rottenstone applied with a mineral oil soaked cotton cloth. Pumice is a fine abrasive, and rottenstone is a very, very fine abrasive. After cleaning off the abrasives, I use a couple of coats of paste wax. The first coat helps clean remaining abrasive, and the second adds to the shine and helps protect the wood. I then applied a generous coat of a special oil on to the fretboard. After around 15 minutes, I wipe the remaining oil off and polish the surface.

Finally, it was time to string it up and adjust the nut and saddle. Once that was done, I tuned it up and gave it a good test. It sounded beautiful!

The current strings on the instrument are a medium tension, nylon, tie-on classical set. Because of the size, type, and age of the instrument, I would not use a high-tension set of strings as it might bow the top too much. It is best to use a low to medium tension set.

It has been a rewarding experience for me to research and repair this beautiful, over 100 year old instrument. Hopefully it will be enjoyed for another 100 years.