
Ron Cook Studios

147 Sacramento Avenue - Santa Cruz, CA - 95060 - (831) 425-4933 - www.roncookstudios.com - ron@roncookstudios.com



Restoration of Two Zithers:

Franz Schwarzer

G.L. Penzel & Bros.



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For Joanna Gilbert

Franz Schwarzer Zither Background

This fine zither was crafted in Washington, Missouri, at a small company founded by a German immigrant, Franz Schwarzer. Washington began as a Missouri River boat landing. The St. Johns settlement from which it grew was at the extreme western edge of the frontier when Lewis and Clark's "Corps of Discovery" camped nearby in May of 1804. By 1818, when Franklin County was formed, thousands of American settlers had already arrived. Many of these were friends, family and followers of Daniel Boone and his sons who had come to the area in 1799. Daniel Boone served as the Spanish syndic (judge) on the north side of the River. The first ferry in the area was licensed to run in 1814. It connected the settlements of La Charrette and Marthasville on the north bank to the Franklin County settlements.

An early German visitor was so taken by his trip to the area that he returned to Germany and convinced many German immigrants to settle there, making Washington the largest German community west of Pennsylvania. Franz Schwarzer arrived in Washington in 1865. By 1869 he had started a zither factory, soon turning out International Award winning instruments. Schwarzer zithers were manufactured until 1952.

The history of Washington, Missouri, of the German immigrants who settled the region, and of Franz Schwarzer, is a fascinating look at the era of westward expansion, at a new American experience for a group of people, and at one of those people who adapted old-world music, musical instruments, and craftsmanship into a business that lasted over 85 years.

Valuation

There are quite a few Schwarzer zithers tucked away in attics and closets around the world, and some occasionally show up at auction and music dealer websites. I found one 1890 Franz Schwarzer zither, with case, and the dealer was asking \$300 for it. The case was missing all the bottom padding and zither-shaped framework, and the back had a huge blemish. The finish was rubbed off one area showing the wood beneath. At least two of the ivory feet were replaced with pieces nearly twice as large as the remaining original. Prices for other Schwarzer zithers I found ran from \$50 to over a \$1000. The higher valued ones are from around 1920 or later and are harp-shaped zithers with intricate carving and inlay work.

Valuation is difficult since prices vary so much. I feel that this instrument is worth more than the 1890 zither mentioned above, especially since it's in very good condition, and, because of the style and no serial number, this is probably one of Schwarzer's earliest zithers, which could, in my mind, make it historically prized and very collectable.

G. L. Penzel & Bro. Zither Background

Established 1881 in Germany by the brothers Gustav Ludwig Penzel and Gustav Frederick Penzel. In 1882 they immigrated to New York. In 1898 they were joined by their relative E.G. Muller, and in 1899 changed name to PENZEL & MULLER.

The Penzels were primarily wind instrument manufacturers. Many examples of their flutes, clarinets, and oboes are found in museums and collections throughout the country. The G. L. Penzel and Bros. zither was probably made in Europe and sold through the Penzel storefront at 368 Bowery, in New York City. (That particular address is actually on Cooper Square these days and is now a parking lot.) The reason I believe it was made in Europe is because of the style, tuning gear design, and the rectangular-head, reverse-thread tuning pins. Because the label reads G.L. Penzel & Bros., that puts the date of this particular zither from around 1885 to 1899. (No dates were found inside.)



Franz Schwarzer Zither

Day 1: Assessment



On the first day I always do a thorough assessment of the instrument. At first glance, this beautiful old zither looked like it might only need a good cleaning after a fairly minor repair. The only obvious problem was the split bridge by the tuning pegs, which wouldn't take too long to fix. More problems arose as I began to take the strings and hardware off.

Franz Schwarzer Zither

Day 2: String and Hardware Removal



On the second day, I removed the strings and the tuning gears. The silver/nickel plate that covered the gears needed cleaning and had a little bit of corrosion on the underside. However, on closer inspection, the gear for the fifth fretted string, the C string, had several teeth missing and the rivet that held the shaft in place was broken. I then noticed the finger grip was slightly bent, which made me think that this zither was dropped once. That might also be the reason for the broken bridge. Also, two of the wood pieces (I'm holding one in the right photo) had broken off of the frame.

Another small problem was the tuning pins. This being one of the earliest Schwarzer zithers I've restored, it still used the European reverse-thread, rectangular-head pins. There's no tuning key with it, so I had to rig a hex driver to fit by squeezing the head a little in a vise then grinding the cavity into a rectangle to fit the tuning pins.

Of course, when removing the pins I found out that half of them were so loose they would never be able to hold strings in tune. I would have to fix that later before putting the pins back.

Franz Schwarzer Zither

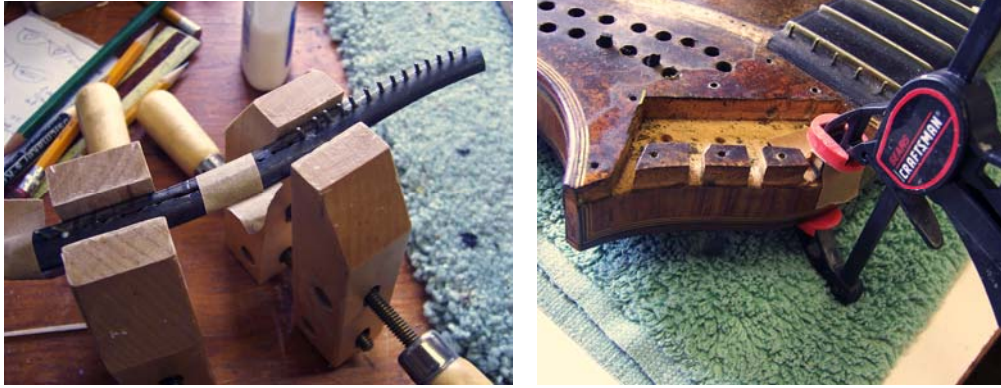
Day 3: Cleaning



Fortunately, there were no cracks in the nice burl-look top or on the back. I first cleaned the zither with some water with mild dish soap to get all the old dust and dirt off, using an old tooth brush to clean between the frets. I then applied a paste wax with 0000 steel wool, which really brought out the beauty of the wood.

Franz Schwarzer Zither

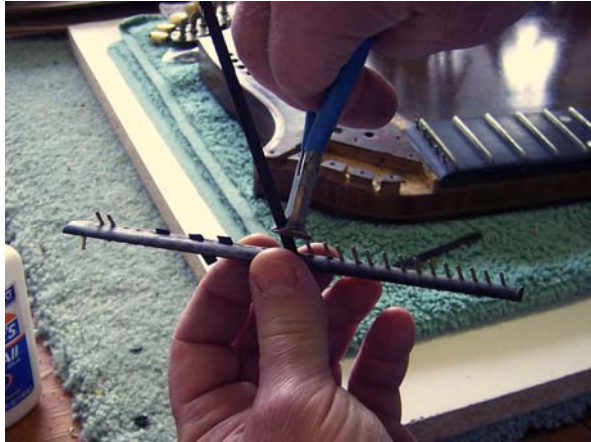
Day 4: Repairing Broken Parts



On Day 4, I glued the broken bridge back together and fixed the broken parts where the tuning machine fits.

Franz Schwarzer Zither

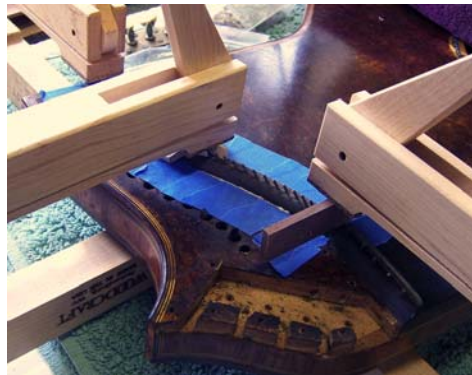
Day 5: More Bridge Work



After gluing the bridge back together, there was still a gap where the tiny string guides had pulled through. I took thin ebony veneer strips and used them to fill the gaps.

Franz Schwarzer Zither

Day 6: Even More Bridge Work



After putting the bridge back together, I still had to re-drill holes for the small string guide pins. Once done, I reinserted the guide pins and glued the bridge back onto the zither.

Franz Schwarzer Zither

Day 7: The Tuning Gears



Like I mentioned earlier, the C string tuning gear was broken. I tried fixing it with a replacement gear from an old guitar tuning gear, but the number of teeth were of the wrong configuration. Plus, there was no way I could fix the broken shaft.

I started researching how to replace the whole set and was having no luck at all. Until I just happened to be on ebay and found someone selling an “antique” zither tuning machine. I appeared in the photo to be identical to the zither’s original set, so I started bidding on it. The bid was pretty low when I started, but, unfortunately, someone wanted it as bad as I did. I waited until the last minute of the auction and place one last bid—and got it.

The tuning machine came, and it did look around as old as the original. Even the early plastic finger grips had the same aged look. However, a problem quickly arose when trying to fit the new one on to the zither. It was very slightly larger than the original and didn’t quite fit through the top plate well. Also, the finger grip shafts didn’t line up well.

To make it all work, I had to make the plate holes a little larger and trim a little space in the zither’s tuning gear cavity. It took some work, but it looks good and still looks like it originally did.

Franz Schwarzer Zither

Day 8: Rub Out and Polishing



To get the zither looking even better, I rubbed the back and front with a mineral oil coated rag along with pumice and rottenstone, which are very light abrasives, followed by another paste wax.

Franz Schwarzer Zither

Day 9: Cleaning and Reinstalling the Tuning Pins



As is the case with quite a few zithers I've restored, the tuning pins were corroded and had to be cleaned before reinstalling them.

Before reinstalling the pins, I poured a special wood-swelling liquid into the holes and let it soak in for a few days. Several of the holes were still too large, so I added thin shims in them. Now I was able to reinsert the tuning pins and they all had a nice tight fit.

Franz Schwarzer Zither

Day 10: Restringing



This Schwarzer zither came with most of its original strings. However, like the tuning pins, the strings were also corroded and needed cleaned. This is relatively easy to do with 0000 steel wool rubbed back and forth along the strings. I did this as I strung it up.

There were some missing strings, and a few were unraveling as I tried to install them. Because I had a couple of other zithers I was restoring that needed strings, I contacted my source to order them, but it turned out my source didn't seem to be in business any more. I had to find a new source, and was successful in contacting two German companies (Pyramid and Lenzner) as well as a German online music store that carried every zither string imaginable. I ordered strings from both Pyramid and the online music store. Unfortunately, coming from Germany it took nearly a month for both orders to finally arrive. Once here, I finished stringing the Schwarzer zither.

Franz Schwarzer Zither Day 11: Completed



Finally, after all the new strings arrived, I was able to finish stringing the zither.

This beautiful zither is, I feel, one of Franz Schwarzer's earliest, especially since there is no serial number stamped on the side of the fingerboard. It does have the original label, but there are no other markings on the inside. This is a beautiful piece that should be able to make music for another 125 years.

G. L. Penzel and Bros. Zither

Day 1: Evaluation



Unlike the good body condition of the Schwarzer zither, this one, labeled G.L. Penzel & Bro. had very large stress and/or weathering cracks on both the front and back. The glue joints were in too good a shape to attempt removing the back for the repairs. To remove the back to get at the interior might cause more problems than solutions and would be very costly.

G. L. Penzel and Bros. Zither

Day 2: Removing Strings



On the second day I removed the strings. There were a few missing, and a couple of the existing were broken and unraveling, so I would have to purchase some new strings to replace them.

Once the strings were off I got a closer look at the top, which had a slight bow to it from being strung up tightly for 100 years or so. The bow not only caused to top crack but was making the large sound hole decoration to pull away from the wood.

G. L. Penzel and Bros. Zither
Day 3: Back Crack Repair



The back also had a slight bow, which caused the wood to not line up on both sides of the crack. I cleaned the crack joint out as much as possible and did a couple of dry runs with various clamps to see the best way to join it together. Once I determined the best way, I used some white glue and pulled the crack closed.

G. L. Penzel and Bros. Zither
Day 4: Top Crack Repair



The top crack took more work and much more care. With the top wood so pretty, I didn't want to mar it with over-zealous clamping. Again, I did a few dry runs and ended up with the solution in the photo: cam clamps over blocks of wood over wax paper. This pushed the bow down and the bar clamp pulled the crack closed.

G. L. Penzel and Bros. Zither
Day 5: Additional Top Crack Repairs



Even with all the pressure from the clamps, the top wood had shrunk so much through time that there was still a little crack remaining. One thing not seen here are several wood “cleats” glued to the underside of the top over the cracks. These help prevent the crack from spreading again and also helps keep the top level on both sides of the crack.

A new thing for me with this restoration is the use of colored shellac sticks. These are normally used to fill cracks and gouges in good furniture pieces, but I was able to use it here to fill the remaining crack and make it pretty much disappear. The shellac stick is melted with a small, flat hot spatula, dripped into the crack, then the residue is rubbed off.

G. L. Penzel and Bros. Zither
Day 6: Back Refinishing



The back had quite a few scratches and a few gouges. After a little power sanding and much hand sanding, I got the majority of blemishes removed. The original finish was a standard semi-gloss enamel, so I put the same back on.

G. L. Penzel and Bros. Zither
Day 7: Rub out and Polish Back



Several days later, after the enamel on the back was thoroughly dry, I smoothed out any brush strokes and streaks and polished it up.

G. L. Penzel and Bros. Zither

Day 8: Top Touch Up



The top work left the area along the crack slightly discolored. This required a little blending with various colored stains to try to give the appearance of dark walnut grain.

The fingerboard showed that this zither was used a lot. Some zithers have real ebony fingerboards, but quite a few have “ebonized” hardwood fingerboards, usually maple stained black and polished. On ebonized fingerboards that were played a lot, slight indentations occur exposing the lighter wood. I applied a water-based black stain to the entire fingerboard to return it to its original look.

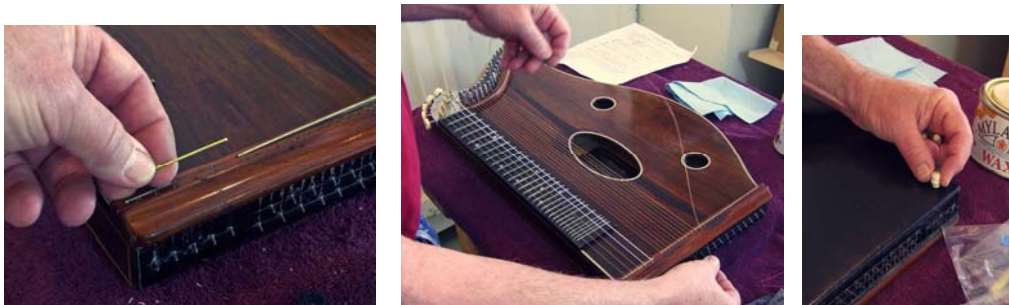
G. L. Penzel and Bros. Zither
Days 9 through 11: Top Touch Up 2



The final top touch up took several days to complete. I used extremely fine 0000 steel wool over the top then applied several coats of glossy tung oil varnish. Living next to the ocean, the humidity level can vary depending on which way the wind is blowing. During this time, it was a little damp outside, so the varnish took longer than 24 hours to cure between coats.

G. L. Penzel and Bros. Zither

Days 12 through 14: Polishing and Stringing



Polishing is done through several steps. The first steps are to wipe the surface with a mineral oil soaked cloth over pumice then rottenstone, which are very fine abrasives. After the rottenstone rubbing, the surface almost shines like it was polished. But I do polish it, with a non-abrasive paste wax.

The bridge where the five fingerboard strings pass over was missing. I found some brass wire of approximately the same thickness as the other bridge wires, cut it to length, smoothed the ends, then began stringing.

After putting on all strings except the missing ones, I put the “feet” back on.

As I mentioned in the Schwarzer section of this repair log, I had to find another source for zither strings. Because my new sources are in Germany, it took a while for the strings to arrive. When they did come, I finished the stringing.

G. L. Penzel and Bros. Zither

Day 11: Completion



The strings did finally arrive, and I was able to finish stringing.



I had no knowledge of this brand of zither when I started working on it. Since then I've discovered, through a zither enthusiast's e-mail, that one of my earlier restorations on a zither that had no makers label, was probably also a G.L. Penzel & Bro. instrument and was identical to this one.

As I do with every restoration, I learned a little more about zither history and restoration techniques. This G.L. Penzel & Bro. zither should continue to make music for another 100 years.

Concert Zither String Diagram Munich Tuning

There are two zither stringing formats in use today: Munich and Vienna. Munich is the most commonly used because it incorporates every note in the chromatic scale encompassed by the scope of the instrument. The stringing pattern on the fretboard is like the violin family, a fifth apart. The open strings are in the circle of fifths, broken between Eb and Ab and laid flat on the zither, similar to a accordion layout.

Fretboard
Munich Tuning

a-440 - tuning fork or digital tuner

Accompaniment Strings 1-12

| | | | | | | | | | | | |
|----|----|---|---|---|---|---|---|---|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| eb | bb | f | c | g | d | a | e | b | f# | c# | g# |

Bass Strings 13-24

| | | | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|----|----|
| 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| Eb | Bb | F | C | G | D | A | E | B | F# | C# | G# |

Contra Bass Strings 25-37

| | | | | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 |
| F | E | Eb | D | C# | C | B | Bb | A | G# | G | F# | FF |

In addition to the basic 29 fretboard, accompaniment and bass strings, zithers may have 2, 3, 5, 7, 9 or 13 contra bass strings - the full harp zither has 42 strings (5 fretboard and 37 open strings). In some early versions, and on perfecta zithers, the contra basses were arranged in the same circle of fifths as the accompaniment and bass strings. Munich tuning was often expressed in treble clef (violin key, or similar to guitar clef) but today is mostly written in bass clef.