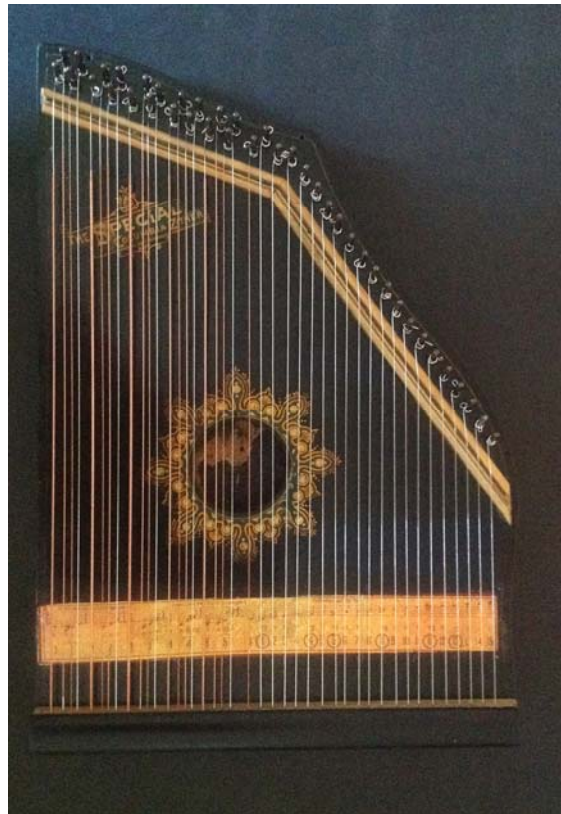


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Restoration of 1898-1905 Phonoharp Company The Special Columbia Model 3 Chord Zither



Completed by Ron Cook

September 2015

For Laurie Primavera

Background

Chord zithers, often called Guitar Zithers, were very popular from the late 1800s to mid 1900s, and hundreds of thousands were made by several companies. One of the most popular companies was Phonoharp, of Berwick, Maine, and later Boston. The Phonoharp Company began production of its namesake, an instrument called the Phonoharp in the early 1890s. Phonoharp produced chord-zithers in great numbers and offered a wide variety of different models.

The Phonoharp Company was incorporated on April 27, 1892, in Maine, where it did business both in Berwick and Portland. Within a year the company had opened offices in Boston, eventually moving all facilities there in 1897. The company produced instruments until 1926 and was dissolved in 1928. A new company, International Music Corporation, was established in 1926 and immediately sold to a group of investors including Oscar Schmidt and two executives who worked for Phonoharp. Oscar Schmidt Company is still in existence today, producing mainly autoharps. It produced chord zithers, based on the Phonoharp design, through the 1960s.

First patented May 29, 1894 by Frederich Menzenhauer (another very popular zither company), the chord-zither is one of the most playable of all fretless zithers. The term chord-zither refers to its distinctive feature, namely a section of strings that are grouped into chords for the purpose of self-accompaniment. This feature is shared by many other fretless zithers. The chord-zither was offered in many different models, the difference in them being either the number of chords and melody strings or the comparative dimensions of instruments sharing identical stringing configurations.

This Columbia Zither Special, Model 3, is a 5-chord zither with single melody strings, and was produced around 1898 through 1905. (The years approximate from existing research.). Later models had doubled melody strings. I found no serial number, or other identifying marks, to be able to determine this instrument's date of manufacture. It could be as early as 1898 or as late as 1905 (last year listed in Sears catalog). This instrument came to me in a "repaired" state, where cracks were not closed, but filled with glue. The large note decal was partially obliterated with gold paint over the cracks. The hardware was rusty. Some glue joints had failed.

Valuation

Chord zithers from several U.S. companies were made in the hundreds of thousands and were sold door-to-door from the late 1800s through the depression years and by Sears Roebuck and Montgomery Ward catalogs from the turn of the 20th century up to the 1960s. Because so many have survived, prices are relatively low compared to other stringed instruments. Occasionally, very well made and ornately decorated zithers from Germany, Austria, and other Eastern European countries come up for sale and fetch slightly higher prices. It's the more recent popularity of online auctions that has kept prices low for most of these instruments. I've seen prices range from as low as \$10 to over \$1000, depending on condition and rarity of a particular model.

But, for many people, the value of an instrument is not monetary, but sentimental. To be able to have a restored piece of family history on display, to know its use, its background, and who played it, and to be able to pass it down to future generations, is priceless.

Phonoharp Columbia Special Day 1: Assessment



On the first day, I always look over an instrument to see how much work is needed to repair or restore it.

This Phonoharp Special Columbia Zither (Model 3) needed considerable work. The frame wasn't warped, as is often the case with zithers stored for years tightly strung, but several glue joints had failed. The top had several cracks that someone "repaired" by filling them with glue. The note decal had several areas where gold paint was poorly brushed on to cover the cracks. The bridge by the tail pins had pulled up, and the metal rod meant to keep the strings from digging into the wood had slipped under the bridge. The top had a very weathered "alligator" skin surface, probably caused by being in the sun or stored next to a heater (or in an attic that gets very hot in the summer). As is often the case, the tuning pins were very rusty.

Phonoharp Columbia Special Day 2: Remove Strings and Tuning Pins



The strings were in bad shape, being old, brittle, and corroded, and couldn't be salvaged. They were so stiff I had to use a wire cutter to clip them off. On Day 2, I removed all the strings and tuning pins, which were pretty rusty.

Phonoharp Columbia Special Day 3: Removing the Back and Bridges



On Day 3 I removed the back. These old zithers were constructed with hide glue. Hide glue is reversible. A little moisture and heat softens the glue so pieces can be taken apart. Glue joints on old instruments often fail when the instruments are stored in attics or basements that have dampness or high humidity. With the large number of strings tuned up to pitch, there's a lot of strain on the instrument, so as the glue softens joints will start to open up.

Several areas were open enough for me to force a little water into, and using an Xacto knife, I slipped it around the perimeter and removed the back. This took several hours of very careful work.

The glue on the bridges had also failed. They came off quite easily.

Phonoharp Columbia Special Day 4: Repairing Pin Guard & Scraping Cracks



On this day I repaired the wooden pin guard. It was pitted and scratched, so I scraped and sanded it smooth and repainted it with black enamel.

I also started work on the top cracks, first by cleaning as much of the glue from the inside of the cracks as possible.

One note about the cracks: Most often cracks are the result of the softer woods of the top and back shrinking and expanding due to changes in temperature and humidity. Some cracks are severe enough that they can never be closed up completely without taking the instrument completely apart or inserting thin pieces of the same wood into the crack. I'll start to explain how I fixed the cracks on the next page.

Phonoharp Columbia Special Day 5: Leveling Uneven Crack



One crack, extending from the sound hole to the tuning pin block, had risen, leaving an uneven surface. To close up the crack and flatten the surface, I forced glue into the crack then tightly clamped the frame from side to side while clamping down on flat blocks that crossed the crack on the top and inside of the top.

Phonoharp Columbia Special Day 6: Repairing Frame



On this day I repaired a couple of areas on the frame where glue joints had failed.

Phonoharp Columbia Special Day 7: Strengthening the Frame



I've always felt that many of the 19th and early 20th century zither frames were not engineered to last, especially those mass produced in the United States for catalog sales. On many of the zither restorations I've done, I've strengthened the frames by shaping and gluing blocks in the inside corners. I did the same with this zither. I cut these small blocks so they are low enough to not make contact with the top.

Phonoharp Columbia Special Day 8: Adding Cleats to Stabilize Cracks



Another repair technique I've used on many zither restorations is stabilizing cracks by gluing many small softwood cleats across each crack. As simple as this process appears, it often takes 6 to 8 hours to cut, shape, and glue the pieces.

Phonoharp Columbia Special Day 9: Cleaning the Hardware



On Day 9, I took time to clean all the hardware. The three metal bridge pieces were very corroded. I cleaned and shined them by rubbing with 0000 steel wool. This took about 30 minutes to do.

The rusty tuning pins, on the other hand, took several hours to clean. There are 41 of them, and I used a fine wire wheel on my flex shaft to clean them.

Phonoharp Columbia Special Day 10: Gluing on the Back



Now that all the internal repairs were complete it was time to glue on the back. I often use hide glue on other stringed instrument restorations, like violins and ukuleles, but on zithers I use regular yellow “carpenter’s” glue (aliphatic resin emulsion). This makes a permanent, strong bond that helps keep the frame stable when strung up tightly with the 41 strings. On some small cracks or joints I’ll force white glue (PVA) into them.

Phonoharp Columbia Special Day 11: Sanding Back and Sides



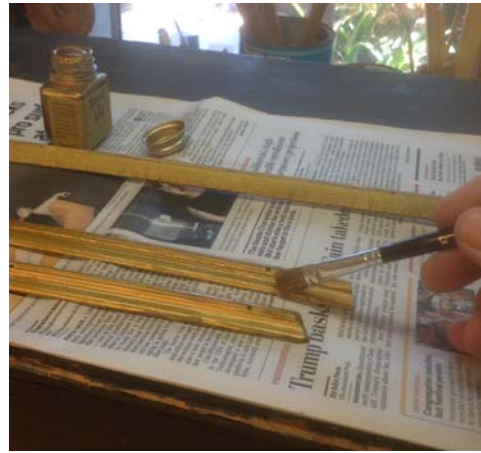
The back and sides were well worn, scratched, and pitted. I decided that instead of just touching them up, I would sand off the old paint, sand the sides and back to 400 grit, and repaint it with a black enamel.

Phonoharp Columbia Special Days 12 to 15: Painting the Back and Sides



For the next four days, I applied several coats of semi-gloss black enamel. I didn't want to use high-gloss enamel because I feel the finish wouldn't look natural for an instrument this old. The semi-gloss shined up nicely when done without being too glary.

Phonoharp Columbia Special Day 16: Paint Touchups on Bridges and Top



The wooden bridges showed a lot of wear and looked dull and scratched. I used a gilding paint approximately the same color as the bridges were originally. The bottoms of the bridges were covered with crystallized hide glue, so I had to first sand the glue off of the bottoms before painting.

The top still needed some touching up where I had scraped and sanded over the cracks. I first used compressed air to blow all the dust and old glue residue off the surface, then rubbed the top with a tack cloth. Then I used a liquid semi-gloss black enamel to touch it up.

Phonoharp Columbia Special Day 17: Pumice and Rottenstone



After all the painting and touch up work, I rubbed the entire zither with pumice and rottenstone. These are both very fine abrasives. Pumice is extra fine, rottenstone is super fine. I use a wadded up piece of cheesecloth, soak it with mineral oil, pour a sprinkling of first pumice on the surface, then rub in circular movements, then back and forth along the grain. I then use a paper towel to wipe the oil and pumice residue off, then start again with the rottenstone.

I finish off with paste wax on the back and sides.

Phonoharp Columbia Special Day 18: Black Shoe Polish



The front needed a different approach. A couple of places where the cracks had been still showed a little of the repair work. So, I used good old black shoe polish to go over the top surface, avoiding getting any on the decals, especially since I still needed to do a little more work on them.

Phonoharp Columbia Special Days 19 through 21: Restoring the Note Decal



Several years ago, I had another restoration project where I needed to make a decal to replace one that was missing. After much research, I found a dealer that sold decal paper used in inkjet printers. My first attempt at making a decal was not successful. After several attempts, and using different methods to apply it, I had a fairly successful result.

For this Phonoharp Columbia Special zither, I had great success. To make the decal, I used photos I made of the old decal before I started working on the zither. Several months later, when I was ready to start on the decal, I brought the decal photos into Photoshop, copied and moved a few numbers and letters around, printed a paper copy, then cut it out place it on the zither to see if it was sized right. It was. I then printed it on the decal paper. After printing, I sprayed the decal with four or five coats of clear acrylic finish. In the meantime, I painted over the old decal with white paint, so the old decal and its defects wouldn't show through. So, after several days of spraying, then letting it dry for 24 hours, I was able to soak the paper in warm water for 30 seconds and slip it in place. I was very pleased with the results.

Phonoharp Columbia Special Day 22: Gluing Bridges



On this day it was time to glue the bridges back on. This took quite a few clamps.

Phonoharp Columbia Special Day 23: Swelling the Wood



Often in zithers this old the tuning pins can get loose from shrinking and expanding wood and from a lot of tuning. Also, when removing the pins for restoration, the tuning pins slip much more if put back in without treating the wood first.

To make the wood expand, so the tuning pins fit tighter, I use a special liquid call Swelloc or Chair-loc. This is commonly used in furniture repairs to put in chair rung holes to make the chair rungs fit tighter. I find this is also effective in the tuning pin holes. I fill the holes with the liquid and let it set overnight. I then use cotton swabs to clean the residue out of the holes.

Phonoharp Columbia Special Day 24: Reinstalling the Tuning Pins



After cleaning out the tuning pin holes, it was time to reinstall the tuning pins. With 41 to reinstall, this took a couple of hours. I did have to take a break after every 8 or 10 pins. The repetitive motion is hard on the wrist.

Phonoharp Columbia Special

Day 25: Touch up Soundhole Decal & Reinstalling Feet



Before installing the new strings, I needed to finish a couple more things.

I wasn't able to duplicate the entire sound hole decal because the colors didn't match well and it printed slightly smaller than the original. Instead, I used some acrylic paints of matching colors to do the minor touch ups.

After the paint dried, I turned the zither over and reinstalled the three metal feet. I had cleaned the brass feet with the same fine wire wheel I used to clean the tuning pins so they looked like new.

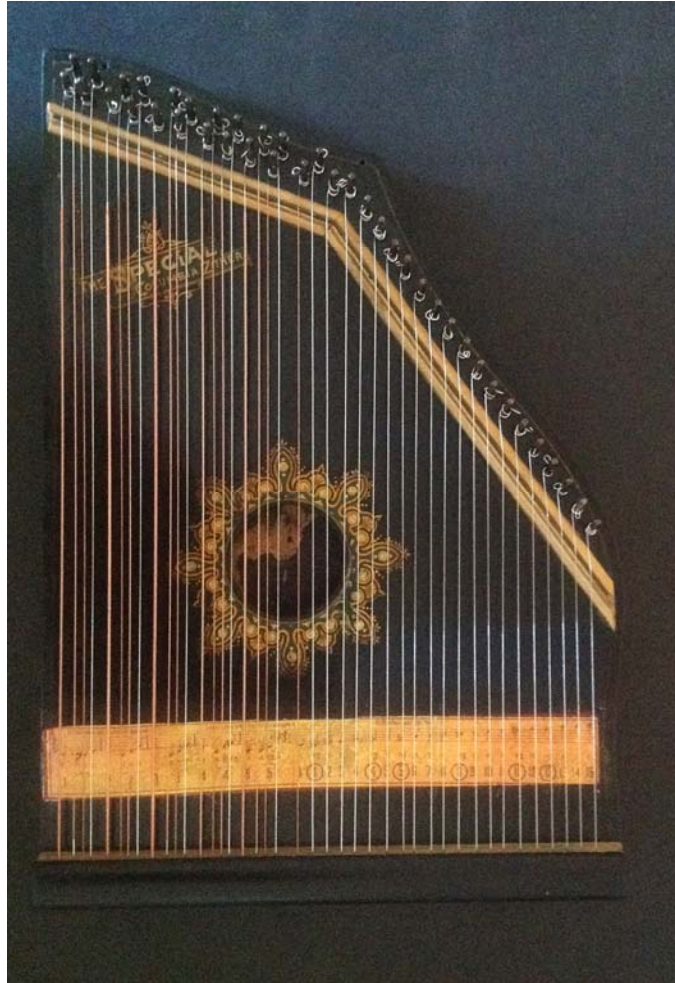
Phonoharp Columbia Special Days 26 - 28: Stringing



For the next three days I strung up the zither. Again, with so many strings, I had to stop after every 8 or 10 to rest my hands. But after day 28, it was done.

The new strings will be stretching out for a little while, so I didn't tune the zither up to pitch. I only tightened them enough to acclimatize for a week. I'll tune it up after that.

Phonoharp Columbia Special Day 29: Completion



For being a mass produced zither over 100 years old, this 5-chord Phonoharp Columbia Special has a beautiful tone. I'm happy I was able to restore an instrument this old to be played and enjoyed again.