



# **Restoration of Circa 1900 Menzenhauer/Oscar Schmidt Niagara Model Chord Zither**



**Completed by Ron Cook**

**March 2014**

**For Angela Bostain**

## 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 in both the United States and Europe. In the U.S., Friederich Menzenhauer and Oscar Schmidt were major manufacturers from 1897 to 1900 and called their company the U.S. Guitar-Zither Co. In 1900, Menzenhauer sold his share to Oscar Schmidt, who continued making the same chord zither models until 1904. Later, Oscar Schmidt's name became synonymous with autoharps, which are still being made by the Oscar Schmidt Company today.

Chord zithers of various types were already being made in Europe when Friederich Menzenhauer was granted his first guitar zither patent on May 29, 1894. (See below.) Menzenhauer has been called the "father" of the guitar zither in the U.S. and produced, first on his own and then with Oscar Schmidt, thousands of instruments, some using his own label and many others for private labels like Sears and Montgomery Ward.

(No Model.)

2 Sheets—Sheet 1.

F. MENZENHAUER.  
GUITAR ZITHEE.

No. 520,651.

Patented May 29, 1894.

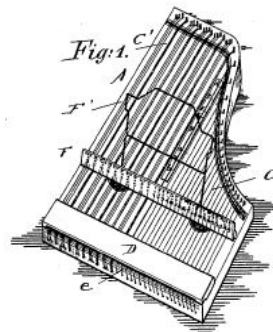


Fig. 1.

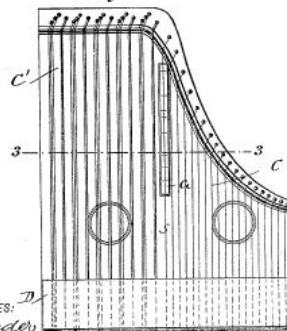
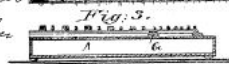


Fig. 2.

WITNESSES:  
Charles Schroeder  
Joseph [unclear]

INVENTOR  
F. Menzenhauer  
BY Joseph [unclear]  
ATTORNEYS.



THE NATIONAL STENOGRAPHIC COMPANY,  
WASHINGTON, D. C.

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The instrument I restored is called the Niagara Model. The image on the top decal is a view of Niagara Falls. The actual model number is No. 2, which was one of the most popular models from 1887 through 1904. It has four chords, C, F, G, and G7, and 17 melody strings.

Even though Oscar Schmidt bought out Menzenhauer in 1900, both names still appeared on the instrument labels through 1904. Because the label on Angela's Niagara zither has deteriorated, the following photo is an example from another "No. 2" U.S. Guitar Zither Co. instrument I restored.



## Valuation

Chord zithers from several U.S. companies were made in the hundreds of thousands and were sold door-to-door through the depression years and by Sears Roebuck and Montgomery Ward catalogs from the turn of the 20<sup>th</sup> century up to the 1950s. 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 around \$300, depending on condition and rarity of a particular model.

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

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## Day 1: Assessment



On the first day, I always look over an instrument to assess its condition, how much work is needed, and how to proceed with the restoration.

It was obvious at first glance that the glue joints had failed at the tail pin block and at several sections of the top and back. Also obvious were the large cracks on the top and back. A couple of them were due to the frame warping from the string pressure, but one was definitely a shrinkage crack. Those are the hardest to fix.

It looked as if this zither had been used quite a bit, and not handled carefully. There were several scrapes and gouges on the back, some corners had been chipped off, and the top had a few indents and rough spots.

It also looked obvious that this instrument had been stored away for a while. The strings were very corroded and rusty, as were the tuning pins and the metal bridge inserts. The whole instrument was caked with a filmy dust.

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## Day 2: Remove Strings and Hardware



On Day 2, I removed the strings, the bridge wires, and the tuning pins. The bridges have several metal wires and rods that sit in little grooves that the strings go over. Without these rods, the strings would cut through the wood bridges. (This is often the case on cheaper “children’s” zithers.) The rods, like the tuning pins, were corroded and needed cleaning.

One note about the tuning pins. In American zithers from that era, like this one, and even today, tuning pins have standard right-hand threads. You tighten clockwise, loosen counter-clockwise. European zithers from the late 1800s and the early 1900s that I’ve worked on have tuning pins with left hand threads. To loosen them you turn clockwise. To tighten, you turn counter-clockwise.

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## Day 3: Removing the Back



Because of the number of loose glue joints on the back, it made it fairly easy to remove. Recently, I obtained a heating device that accepts different tips. It is mainly for woodburning, but one of the tips is similar to a matte knife. Using this with a little water around the edge of the back, and I was able to soften the old hide glue enough to pop the back off in about an hour.

After I removed the back, I noticed several pieces of what remained of the original label. Like a jigsaw puzzle, I reattached the few pieces and was able to get a partial look at what the label looked like. Notice the bottom right-hand photo: that is what this Niagara Model's label would have looked like when new.

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## Day 4: Closing Up the Cracks



The major part of this restoration was getting all the cracks closed up. The top was the hardest, but made easier because the tail-pin block was completely loose and the two top braces were barely fastened on.

After taking the bracing out I was able to use clamps to close up the top cracks. The bottom part of the crack closed up nicely, but the top part, between the sound hole and the tuning pins, was a shrinkage crack and wouldn't close completely. To fix this, I cut a sliver of poplar (the same wood that the zither's top and back are made of), and inserted it into the crack. Once sanded and touched up with stain, the top will look normal.

The back was much easier to fix since it had only one clean crack that separated the back into two pieces. It was just a matter of gluing and clamping.

Once the back glue dried enough, after a few hours, I scraped off the crystallized old hide glue with the flat side of a wide chisel. Cleaning the glue off will allow a better gluing surface when I put the zither back together.

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## Day 5: Fixing the Frame



On Day 5, I started gluing and strengthening the frame pieces. I injected glue in all the loose areas where the frame attached to the top, and clamped them tightly to put them in the right position.

The pin bridge had also come loose. I first removed it, then scraped off the crystallized hide glue and reglued it back in place.



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## Day 6: Making New Hitch Pin Guard



All the Menzenhauer/Oscar Schmidt No. 2 zithers originally had wood covers, called pin guards, over the string loop ends and the tail pins. (The photo is of another No. 2 zither I restored showing the pin guard.)

Using my previous restoration as an example, I ripped some wood to width and length and began making a replacement pin guard for Angela's Niagara zither.

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## Day 7: Gluing the Bracing



Today I scraped off more old hide glue from the inside of the top and re-glued the top bracing.

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## Day 8: Gluing Frame Pieces and Cleats



To add a little more strength to the frame, I shaped and glued some maple to fit in the corners and between the braces.

Where the cracks had been, I always glue cleats, small pieces of hardwood, on the inside. This helps to protect the top and back so the cracks won't reappear if the wood begins to shrink a little again.

*Note: In dry climates, it is advantageous to keep a humidifier in the case. Guitar humidifiers are fine and are available at most music stores or online.*

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## Day 9: Gluing on Back



Now that the back is solid once again, and the cleats are all in place to keep the cracks from opening again, it was time to glue it back on the frame. As you can see, it took quite a few clamps (called cramps by the British) to fasten it down.

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## Day 10: Cleaning & Touch Up



On Day 10, I spent some time cleaning off all the rust and corrosion from the bridge wires and rods and the tuning pins

To clean the bridge wires and rods, I used 0000 steel wool (very fine) to rub off the corrosion and rust. For the tuning pins, I used a small electric rotary hand piece with a fine wire brush attachment to clean off the rust.

After that cleaning, I worked on cleaning the top and started the process of touching up the finish to match the rest of the instrument.

For the cleaning process I used water with a little liquid dish soap added to wipe off the dust and grime. For the touch up, I used a mahogany stain, very similar to the original, using a “touch-up” pen, and some liquid mahogany stain.

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## Days 11 through 13: Painting Back and Pin Guard



With the top and sides all matched up with the stain, I turned the zither over and, after taping the edges with painter's tape, began coating the back with a gloss black paint. This is what the back would have originally looked like. I also applied the same paint to the new pin guard.

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## Days 14 through 16: Patching the Back



After I put the first coat of black on the back, I noticed there were too many indentations where the wood had been worn through. Today, instead of adding another coat of black paint, I used a special “ebony” wood patch to fill in all the voids. This is quick drying, and I was able to sand it down that afternoon, and begin painting more coats of gloss black.

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## Days 17 through 20: Applying Varnish



Now that the back paint has cured, I spent the next several days applying coats of tung oil varnish. Because the original instrument would have had a glossy finish, I used a glossy tung oil varnish to replicate the look.

In the late 1800s and into the 1900s (well into the 1970s), a lot of the varnishes were sprayed on and were relatively toxic. Tung oil is a natural oil, and when mixed with alcohol (a drying agent), it creates a lovely, and non-toxic, finish.



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## Day 21: Polishing, Installing Feet, and Swelling



After letting the varnish cure for a few days, I began the polishing process. I start by sprinkling pumice on the surface, then wiping it with a pad soaked with mineral oil. I follow that with rottenstone, wiping it the same way. Once I clean all the pumice and rottenstone off, I then polish it with a non-abrasive paste wax.

Pumice is a light abrasive powder, and rottenstone is a very fine abrasive powder. After using rottenstone, the surface almost shines as if it were polished. A little paste wax finishes the process.

This day I also re-attached the three feet, and squeezed a special liquid into all the tuning pin holes to swell the wood. I'm using a brand called Chair-lock, which is a thick liquid usually used in chair repairs. It works great for tightening the wood where the tuning pins go.

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## Day 22: Re-installing Tuning Pins



Zithers often have a lot of strings. It always takes time to reinstall the tuning pins and prepare the instrument for the new strings.

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## Days 23 & 24: Stringing



It took two days for me to install the new strings. The first day I installed all the chord strings, and the second I installed the rest.

I have to take time to do this because my aging wrist can't turn the tuning pins for very long any more. I have to take breaks between sets of strings.

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## Day 25: Adding Pin Guard and Fixing Case Lining



On this day the zither was basically done after I installed the new pin guard.

Also on this day I opened the home-made zither case and noticed several edges of the fabric lining were loose. I thought it would be nice to re-glue the lining and clean up the case for this lovely restored zither.

Unfortunately, after fixing the lining, I tried to fit the zither in the case and realized that it was made after the pin guard was lost. It didn't fit!

So, I had to remove the pin guard to fit the zither back into the case. I will include the pin guard when I ship it back, so the owner can put it on later when playing it or putting it on display.

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## Day 26: Tuning and Completion



The last day was time to tune up the zither. I have a digital tuner that attaches to a part of the instrument with a clip, usually clipped to one of the tuning pins. When a string is plucked, the vibration is picked up through the clip, which has a contact microphone on it, and displays on the tuner's screen. With 31 strings, this took a little time.

Like many zithers from this era, the tone is unique and very beautiful. I'm happy I was able to restore an instrument that is over 100 years old to be playable again. I'm sure that with continuous playing and good care, this Menzenhauer/Oscar Schmidt Guitar Zither should last another 100 years.