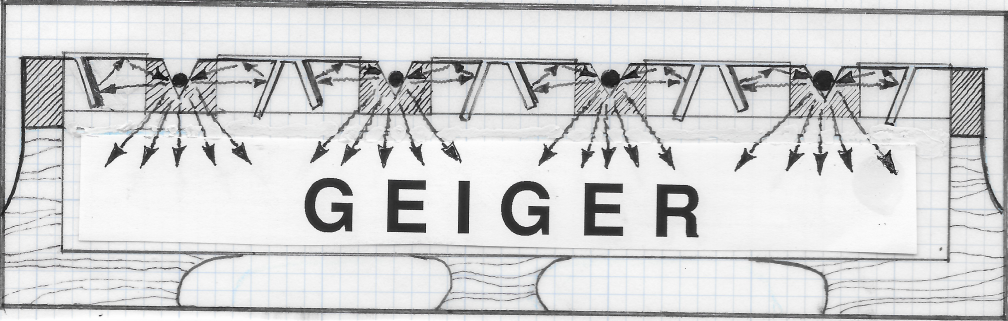


My First Experience Linking Sound Surface Waves To Excellent Sound Quality From A Banjo, by John F. Geiger, (08/20/2018)

In the late 1980's I invented and patented a new kind of banjo bridge which permitted each string to sound its best. This was accomplished during construction by making tuning cuts on each side of each string notch (on the top surface) so that sound waves would be reflected downward ideally. This was determined by ear when the bridge was on a test banjo. Razor saw cuts previously made on each side of each notch reflected some of the waves in a small loop back to the string notch which provided amplification and resonance prior to tuning.

After the bridges were sawed, cut and tuned they were quite ugly, so to improve appearance they were covered along their top half by seven rectangles (in three different sizes) of very thin gold and silver colored mylar tape. Then the bridges were tested for sound quality on my banjo. The bridges were sold by direct mail with a complete satisfaction guarantee.

Four string bridges were offered in two-legged and four legged models. Five string models were also offered. The bridges, which were named "Geiger Scientific Bridges", received excellent reviews in banjo publications in the U.S., U.K., and Germany and over 1,000 were sold in all States and 15 countries. Because the bridges were excessively labor intensive sales were eventually discontinued. Below is a copy of an advertisement for the bridges with a drawing showing the saw cuts but not the tuning cuts along the top surface.



STRINGS SING, TOO!

BENEATH THE GOLD OR SILVER MYLAR CAP ON OUR PATENTED BANJO BRIDGES ARE 8 OR 10 "AIR-WALL" SLOTS (SHOWN). THESE SLOTS INSURE THAT YOUR STRINGS "SING" TOWARD THEIR AUDIENCE, THE BANJO HEAD, NOT TOWARD EACH OTHER. AND 40 TO 60 TUNING CUTS (NOT SHOWN) INSURE THAT EACH STRING SINGS ITS BEST. YOU'LL HEAR THE AMAZING DIFFERENCE. OVER 1000 SOLD. GUARANTEED. PLEASE WRITE FOR DETAILS.

GEIGER SCIENTIFIC BRIDGES
190 Berwick Dr. NE • Atlanta, GA 30328-1205

When some customers requested bridges without the gold or silver mylar tape covers I made several until I noticed that they did not sound as good as the covered bridges and proved this in tests. I did not know why this was true at the time but slowly came to realize that the thin and stiff mylar tape was probably vibrating at harmonic frequencies and carrying these frequencies, so essential to good sound quality, down the bridge toward the strings. Also, I had learned from other experiments with my Acoustic Guitar Resonator (Pat. # US 6,861,581, B2) that thin metal rectangles of all shapes are excellent sound surface wave amplifiers. The bridges used seven overlapping mylar tape rectangles in three different sizes and were probably also amplifying the harmonics on their surfaces.

Needless to say, I felt more lucky than smart when I had these thoughts!