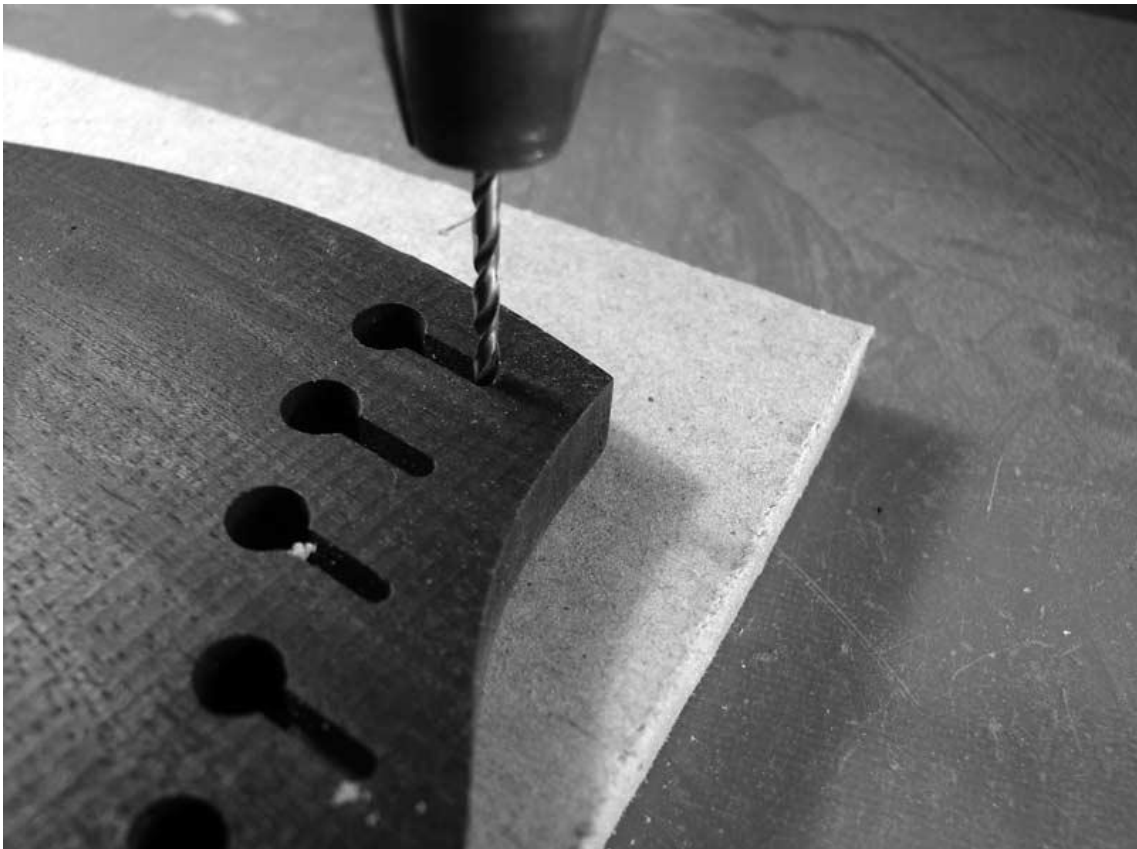


Grounding the Strings Through a Wooden Tailpiece

If your archtop guitar has a wooden tailpiece, chances are that its strings aren't grounded. Grounding is necessary for electric guitars (solid) because most times they are used with effects that increase the noise dramatically. By contrast, jazz guitars are used quite simply and many agree that they don't need to be grounded. Being realistic, the high-impedance design of conventional pickups makes them prone to noise in many common situations, such as playing close to a TV or a computer monitor, a dimmer for lights, etc. Also, there are modern amps that are incredibly quiet, and this has made some players aware of the amount of hum that their ungrounded guitar generates.

Here you'll find a method for grounding your strings with a tailpiece that has Benedetto-style string holes. Even though the anchoring is not based on a flexible loop, you may find some ideas for your particular tailpiece.

First, drill a 2 mm hole at the very end of the channels for the strings:

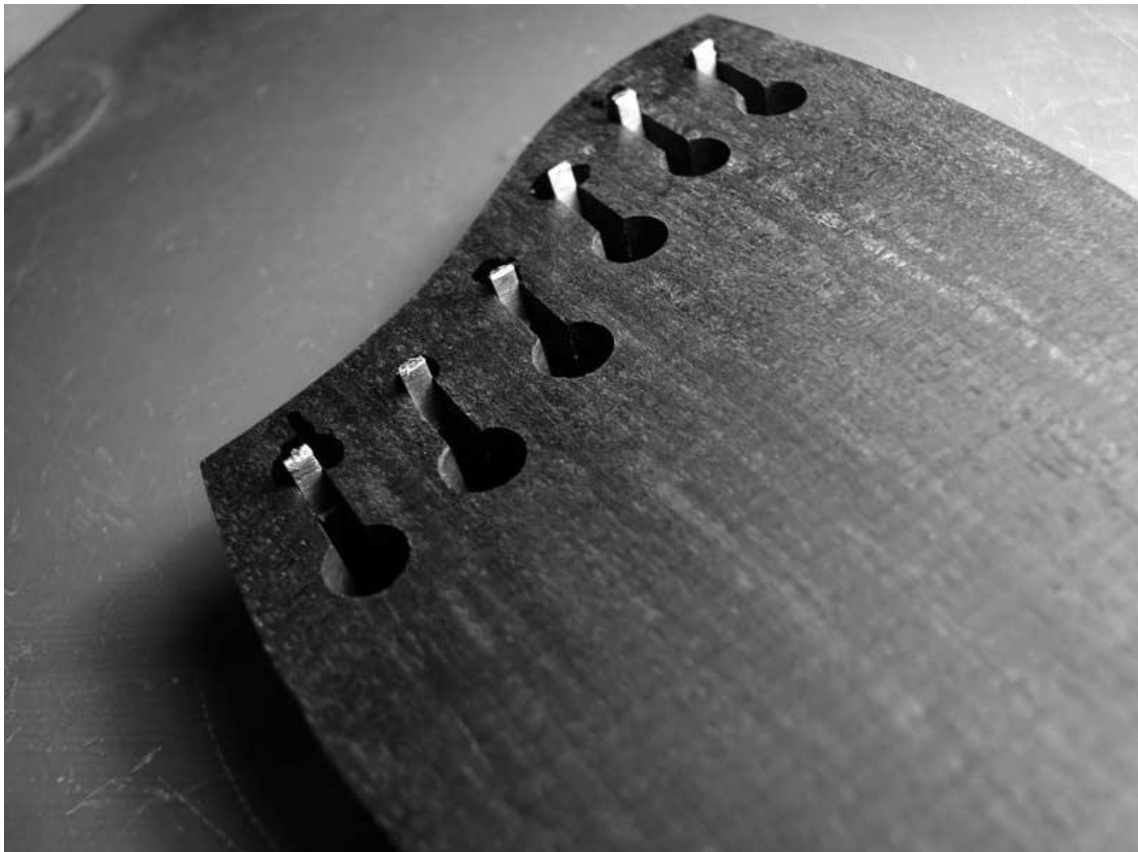


Get some 2 mm brass rod and file its end (around 3/16") so that its section is a half moon. Cut it to around 3/8":



You cannot see it, but I have filed the other side very lightly (you'll understand why in a minute)

Insert one of those for each string, like this, putting a dab of superglue at both ends:





The slight filing that you did will allow the superglue to wet the space between the brass and the ebony (use thin superglue, which has very good capillarity properties, and don't use any accelerator at least for a few minutes). Now you can file or sand the overhang at both sides:





With a small circular file, round the edge of the half moon pieces:



What remains is the connection of these pieces to the guitar ground terminal, which depends a lot on the tailpiece construction. My tailpieces have an aluminum bracket covered with wood. As aluminum can't be soldered easily, I press fit a small brass piece into one the holes in the bracket. I use a small piece made of 8mm outside diameter / 6mm inside diameter brass tube, which I file longitudinally. I also file a small lip around it:



Then I make a 7.5 mm hole in the bracket and press fit the brass ring into it. The lip makes it easier:



This is the bracket after sanding the overhang:



After attaching the bracket to the tailpiece, I make the connections like this:



I use superglue or epoxy to cover the wiring so that it can't be pulled off by accident.

At the other end of the tailpiece I usually have an endpin jack. This, combined with the aluminum bracket, completes the connection quite easily.

Some guitars that I make have very low bridges, and they use tailpieces where the strings go out from below the tailpiece, like this:



In that case, I use fretwire as shown:



Other guitars have tailpieces where the strings go out from the center, like this:



In this case I use 6mm OD/5mm ID brass tube cut in half.

Francisco Mercader, from Valldoreix, Spain, alerted me about the galvanic corrosion that will surely happen where the brass ring and aluminum bracket are in contact, due to their different anodic indexes. To avoid this potential problem, now I cover the area with epoxy as shown here:



If you doubt that this can be a problem, take a look at an aluminum bracket with its brass ring attached that was left in a 50% humidity environment for a few months:

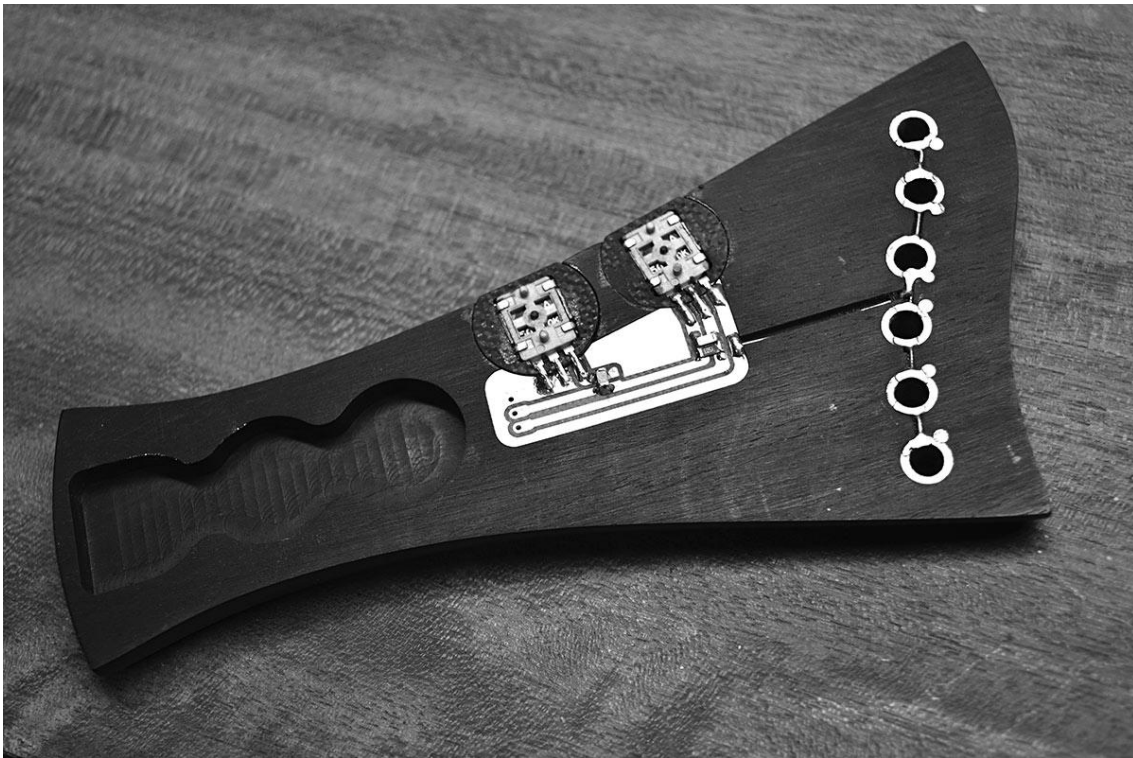


That's mild corrosion, but it can be much worse in humid places.

Thanks, Francisco!

Additional Note: Tailpieces from 2019

I wrote the descriptions above in 2014. Now, in 2020, I must mention another grounding method that is superior to the alternatives shown. It is based on brass tube pieces that enclose the string holes completely before being routed. This is a tailpiece made that way, both sides:



You can see that there are six brass tubes that reach from the bottom of the tailpiece to almost its top. They stop short of the top surface so that they are not visible (except if you look inside, as shown). Notice that the surface of the tailpiece is curved, so each tube has a different length.

The main advantage is the robustness of the system. The tubes are part of the tailpiece structure, glued with a special epoxy and complemented with brass pins that don't let them rotate (see first photo). All the wiring is buried in channels.

To date, this is my best design. I can't think off a better way to ground the strings at the tailpiece, but who knows...