There were a few jobs which had to be taken care of before the refinishing could begin. For this particular piano the repairs include re-securing one of the sides which had separated at the its glue joint (this type of damage sounds worse that it actually is), regluing the toes which had also loosened, along with some rib repairs. A few areas of the veneer were also loose and they were re-glued using hot hide glue.

With those jobs completed we are able to move on to stripping the old finish.

While a finish will generally deteriorate over time from exposure to light and air, the wood's character usually improves. Most woods tend to undergo changes such as the deepening rust-red color of cherry and aged reddish-brown of walnut. The warming (or mellowing) of an antique is considered a desirable quality, and this refinishing will attempt to preserve the coloration and characteristics of the aged wood.

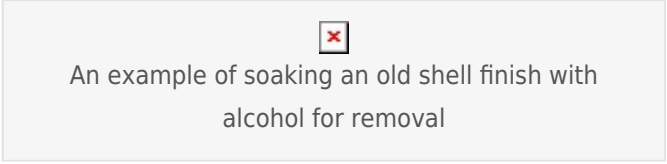
Before beginning the stripping of the finish in earnest, we began by examining the instrument for areas that have generally been protected from light (under lids are generally a good place to begin). On this instrument the exposed wood has become a pleasant reddish brown, while the underside of the lid and behind the decretive leg blocks revealed a more yellow/reddish-brown – basically this raw wood appears as a "walnut brown". It is a good idea to know, when possible, what the original color was.

In America shellac was the common finish used from about the 1820s to the 1920s. The old finish on this piano, as can then be guessed, is shellac.

Lac is a natural resin secreted by lac bugs as they feed on the soapberry and acacia trees of India, Thailand, and Burma. The lac is processed into shellac, which can be dissolved into alcohol to make a finish.

While shellac could be removed through a number of methods we prefer to use the most natural and least toxic. Since shellac is an evaporative finish (i.e. it forms into a finish simply by its solvent evaporating), it can be re-liquefied by reintroducing its solvent (alcohol). This is the method we commonly use when we need to remove shellac. After keeping the old finish

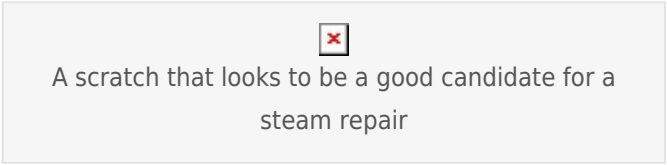
wet with alcohol until it has liquefied sufficiently, we then wipe, scrape, or scrub it from the surface of the wood. Usually the process must be repeated a few times to get to clean wood. It is a slow process, but eventually the entire instrument is cleaned of the old damaged shellac. If done gently, this process preserves the patina the wood has acquired over the years.



An example of soaking an old shell finish with alcohol for removal

Now that the old finish has been removed we can begin making the needed repairs before applying a new shellac finish. It is no uncommon for wood repairs and preparation to occupy much more time than the actual applying of a finish.

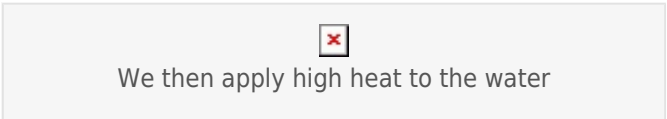
We can begin by steaming out the various dents the piano has received over the years. Dents are basically areas of crushed wood. Unless the fiber have been severely broken they can, to some degree, be repaired by causing the wood to swell.



A scratch that looks to be a good candidate for a steam repair

By applying a small amount of water to the dent and then introducing heat, we can force the moisture into the wood fibers hopefully causing the wood to swell and the dent to raise enough that it will only need a light sanding. This wont work for every dent or scratch but it is usually worth a try.

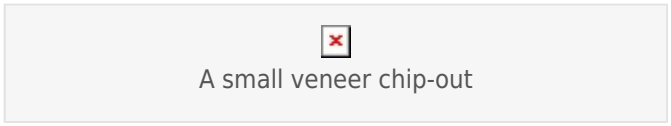
We apply just enough water to cover the scratch



We then apply high heat to the water

After a light sanding, the scratch is gone (a little paint thinner has been applied to highlight the wood – which would make any remaining damage more visible)

The above scratch was a good candidate. Without the steam treatment it may have taken a good bit more sanding to remove it. Not every dent can be completely repaired in this way – sometime it can be raised to a certain point and then other methods used to complete the job. Nor can every dent or scratch been completely hidden.

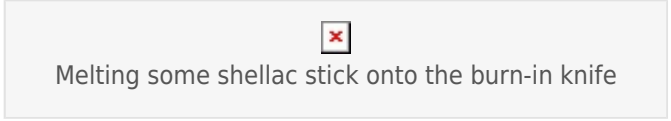


A small veneer chip-out

Veneer patching is possibly the best type of repair that can be made in wood. It fills the repaired area with real wood which is always better

There are some situations in which a veneer patch is not a good idea or justified – for example, the very small veneer chip-out above. Veneer patches generally require an enlargement of the damaged area (to get clean edges), so for very small areas other methods will sometimes result it a smaller repair.

There are a number of ways to repair such an area. We generally will use burn-in shellac sticks. While they come in a variety of colors and shades, we many times must mix our own colors or use multiple shades for a repair.



Melting some shellac stick onto the burn-in knife

For this repair we used to shades to bring the repair closer to the wood coloration around it. In the picture above a burn-in knife (i.e. a small bladed tool that can be heated enough to

melt shellac or other resins) is being used to melt some shellac stick on to the blade.

“Burning-in” the shellac

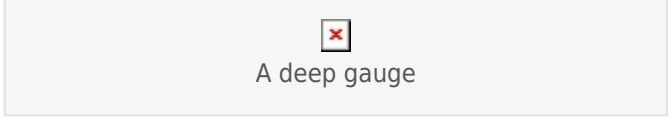
With the knife’s blade loaded with shellac, we can then “burn” it in. Actually “burn” is a rather a misnomer since the practice is to use only enough heat to actually melt the shellac – far from burning. In this instance the burn-in is directly onto the wood which makes it easier. This same practice can be used to repair items that have already been finished, but much more care must be taken so as not to damage the existing finish.

Once the shellac has hardened, the cleaned knife can then be used to level and remove most of the excess. A light sanding finishes the patching off.

The repaired damage (paint thinner to wiped on to help reveal colorations)

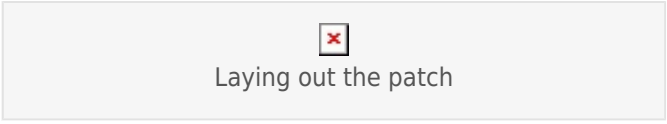
To the eye, the repair blends much better than the damage did and most of the coloration is already good. To finish the repair it will need to be “grained” (the process of using extremely fine brushes to shade and mimic the surrounding wood). We will plan to return to this repair in a later post.

The piano had a deep dent near an its right-front round-over corner. Such a damage is usually best repaired with a veneer patch. Being in such a visible area, it is important that the repair blend as well as possible.



A deep gauge

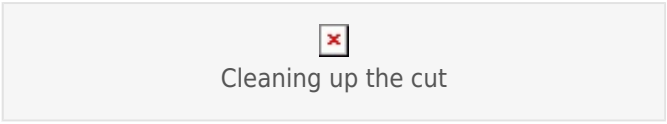
After choosing a piece of veneer with similar grain patterns we cut the shape we wish to use for the patch.


Laying out the patch

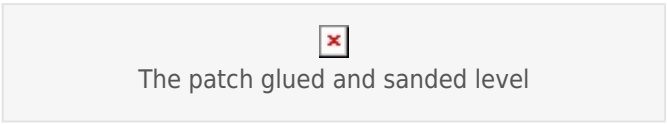
We use various methods depending on what we are trying to accomplish – but here we have fastened the patch over the damaged area with clear double-sided tape. This allows us to line the patch up for a better match. The tape is also strong enough to hold the patch during the tracing process.


Tracing the patch into the piano

We then can very carefully trace the patch's shape into the veneer behind the patch. This will produce a very close match.


Cleaning up the cut

Clean out the cut to make room for the new patch. Probably should note that patches can not usually just be glued in. Undoubtedly, as with this damage, the substrate is usually damaged and needs to be replaced as well.


The patch glued and sanded level

We glue the patch in using hot hide glue. As we have mentioned in other posts, hot hide glue is not only the traditional glue for veneer (and other) work, but has so many benefits it would be hard to think of doing this kind of work without it. For one, if we get the patch wrong (which we actually did) hot hide glue allows us to remove the patch without damaging the surrounding wood (the longer it cures though the longer it takes to re-gel). Once the patch

meets our satisfaction we sand it level.

Now, that may have looked easy – or hard. My personal opinion would be the next part is much trickier. The patch must be made to match the surround wood's color and grain. So out come the stains.

Pigment powder stains

Dye powder stains

We generally make use of two categories of stains – pigment stains (top) and dye stains (lower). The difference is important.

Pigment stains are very fine ground particles. In the "olden days" pigments were made from various colored dirt obtained from different locations around the world. These days most pigments are actually very – very finely ground synthetic particles.

Most people are actually very familiar with pigments, they just do not realize it. All household paints contain pigments – it's what gives the paint its color. Without a pigment the paint would be basically clear. If you've ever stirred a can of paint you have seen pigments – it's what makes up the bulk of the "gloop" at the bottom of the can. The fact that the pigments settle to the bottom of the can and then have to be mixed back in reveals that pigments do not dissolve. They just float about in that in that liquid slowly settling to the bottom again. That liquid that you're stirring the pigments into is what we call a binder – which is what glues those pigments down to whatever surface is painted. The binder can be any kind of finish – the pigments don't care, their just along for the ride. One great thing about pigments is – they are very light fast, meaning they really do not fade much when exposed to strong sunlight.

Dyes are a type of stain that dissolves into a liquid. This liquid can be anything from water, to a solvent, to a finish. Since dyes actually dissolve (and will never settle out) that means the liquid can transport the dye into the actual wood fibers – rather than just lay on top of them like pigments do. This brings us to dyes' good point – they are transparent. Unlike a pigment who's job us usually to cover up what is underneath, a dye can color a surface while still being transparent. On the other hand, dyes generally have a bad point as well – they are not as light fast (i.e. fade resistant to light) as pigments.

There are some who seem to classify dye as a stain and pigment as a, well – pigment. But "stain" is the correct term for all dyes, pigments, and even chemicals that are used to change the color of wood.

The photo of the dyes above is of aniline powdered dyes which are pretty weak when it comes to fade resistance. So one solution to this is what is known as metallized dyes. These dyes are like the normal aniline dye – except they incorporate metal ions which make them much, much more resistant to fading. These type of dyes will resist fading in a normal environment for years.

Parks & Sons Piano makes use of both pigment and metallized dyes for our finishing work. This will ensure the final colors resist fading under normal environments for a very long time.

The photo below is an example of a piano's cheek block that was dyed with standard aniline dye and then top coated with lacquer. The upper segment was covered to protect it, while the lower area was left exposed to daylight. After just 4 hours the red hues have just about faded from the exposed dye leaving the green hues which are more resistant to fade. This is one reason why people would keep drapes closed in rooms that were not in use and cover their furniture with sheets before going on vacation.

After just 4 hours of exposure to sunlight the lower section of this dyed and coated piano part had faded to its green hues.

Back to our main topic…

Since the patch tends to darken more around its cut outline we may need to pre-seal these. This prevents too much of the stain from soaking into end grain and highlighting the edges.

Staining repairs can be a very time consuming process. Different kinds of light will react very differently with colors. We start with light coats and build to the shade and color needed. We may start going a bit to red or brown and need to adjust by using a complementary color to shift us back. This is not a situation in which one stain fits all purposes. One needs a good understanding of basic color mixing to achieve nice results… the more experience the better, and faster, the results obtained.

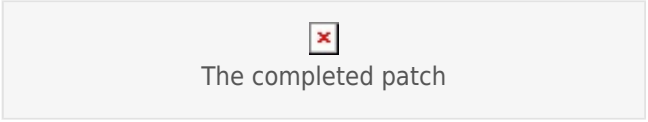
The patch after staining

So we come to the point in which the patch is just about right (above). The edges are still pretty visible though so we need to touch those areas up. Also “graining” (i.e. the process of painting in fine lines to mimic grain) will help break the edging which will cause the eye to naturally skip over the borders of the patch.

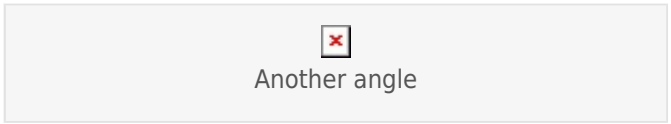
I tend to use a shellac or lacquer binder with my pigments, one trick I use is to wet the area with paint thinner. This causes the wood to look very close to what it will when finished. We can lay a piece of cling type wrap over the area to give us a place to test out different approaches without chancing any damage to our work.

Protecting the new patch so we can test the best approach to graining.

Generally pigments are used for graining since grain tends to be a solid color. Afraid we didn't get a picture of the graining process for this patch (can show that step in another patch later).



The completed patch



Another angle

The patch isn't perfect (very rarely will a patch be completely invisible), but it looks pretty good. You know it is working well when you have to pause in the work to re-locate the patch.

If it needs adjustments, they can be made after the first few coats of finish are applied.

No time to rest though – more patching awaits.