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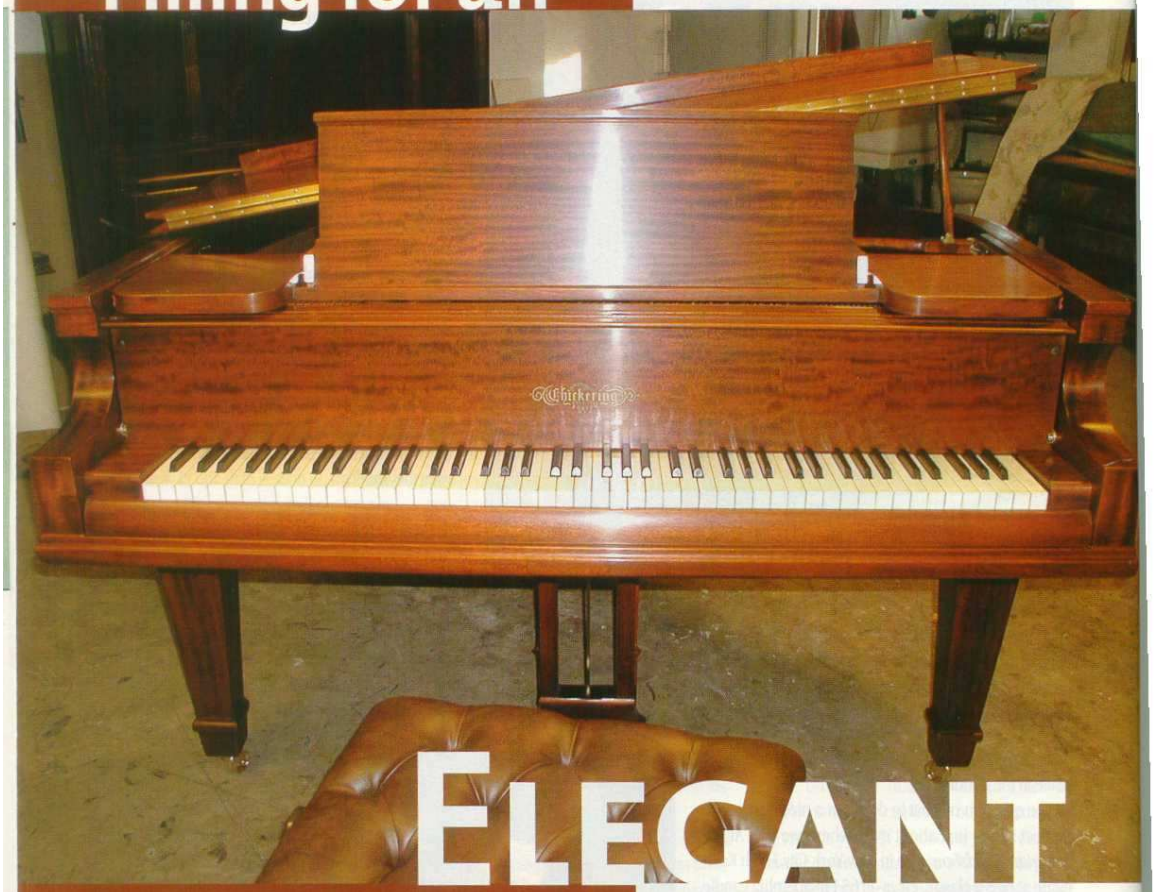
Filling for an ELEGANT Look



'It's a dirty, messy job, but it's one that ought to be done.' That's Kevin Hancock's attitude when it comes to filling the pores of open-pored woods, because he's learned from experience and observation that it makes a real difference in the way clients look at his finishes. Here, he offers a step-by-step guide to accomplishing this important job.

By Kevin Hancock

In the 26 years I've been refinishing pianos, I've often encountered clients who are unhappy with the results achieved by other refinishers. The color is right and the durability of the finish seems fine, but something is wrong – and most often these clients can't quite put their finger on it.

But I could – and you probably could, too, if you compared one of these refinished pianos with a new one. The problem is that the pores haven't been filled.

It's amazing the difference that filling the pores makes for open-pored woods such as mahogany, walnut, rosewood and tiger-stripe or quarter-sawn oak (the cut of oak used on almost all pianos and quality furniture made in the early 20th Century). With the pores open, these woods can look raw and cheap. With the pores filled to create a mirror-flat finish, these woods look elegant and much more formal.

This is true for furniture just as it is for pianos – and clients notice the difference even if they can't explain it.

Getting It Done

Filling takes extra time and requires some degree of physical labor, and this is probably the reason many refinishers avoid doing it.

The solution for the extra time and work is, of course, to charge more for the piece. Sure, it can be tough to ask for more, but it's not hard to convince clients that they should pay extra if you make up some sample panels showing filled-and-finished wood alongside unfilled-and-finished wood.

Almost invariably, those who love their furniture will choose the filled look. For those who choose the cheaper method, it's their choice, not yours, and you won't be responsible if they're not exactly happy with what they get.

There are three distinct ways to fill pores (as seen in Figure 1):

- *Build up many coats of sanding sealer and sand them back (top drawing).* This approach works for a while, but filling with sanding sealer creates a brittle foundation that's likely to shatter and leave the area white (the color of the sanding powder) when the surface is struck hard. After the finish has aged a few years, the shattering effect might manifest itself as radiating cracks.
- *Build up many coats of finish and sand them back (top drawing).* Filling with the finish is better than filling with a sealer, but it's wasteful of material and requires a considerable amount of work because the finish, which is not as easy to sand as sanding sealer, has to be sanded back a lot. Moreover, the finish creates an unstable surface that shrinks noticeably back into the pores as it cures out over a year or so.
- *Use a product called* paste wood filler *(or* grain filler*) that's specially designed for*

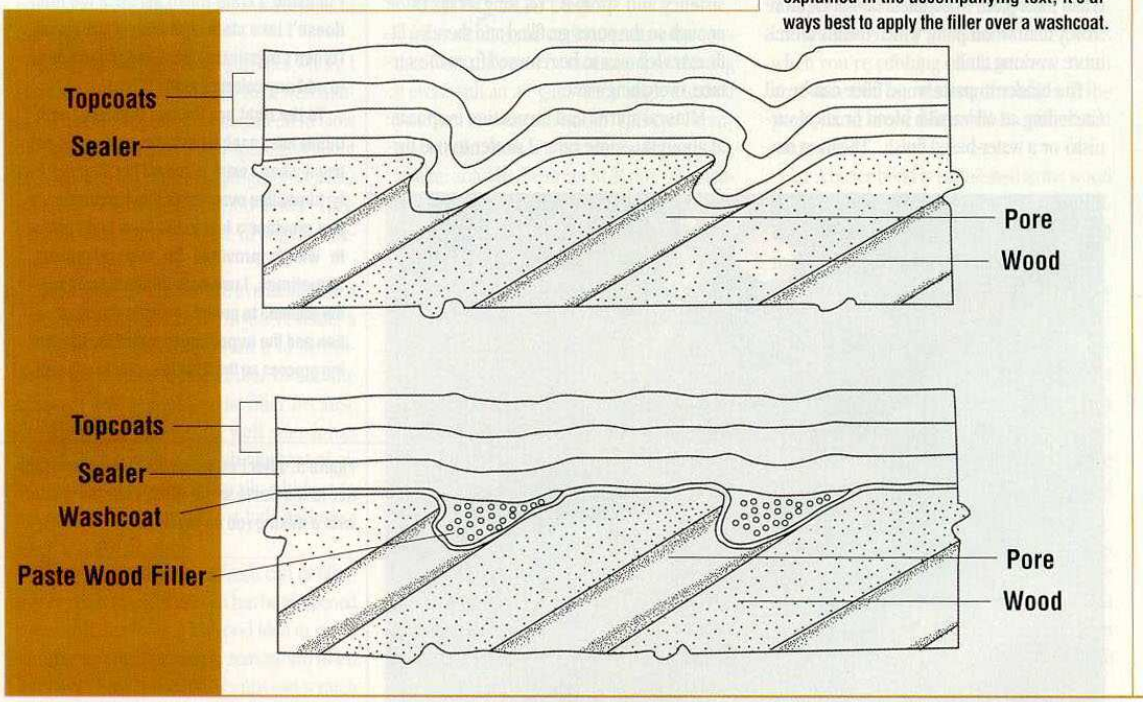


Figure 1: When you fill pores on open-pored woods such as mahogany, walnut, rosewood and quarter-sawn oak with just the sealer or finish (as in the top drawing), you have to do a lot of sanding to cut the finish back enough to make the surface flat. And because the sealer and finish continue to shrink for a year or more as they cure, the pitting above the pores will reappear after a time.

When you use paste wood filler to fill the pores (as in the bottom drawing), considerably less sanding is needed to flatten the surface, and there's also less shrinking because the filler, which contains mostly solid material, is much more stable than a finish. As explained in the accompanying text, it's always best to apply the filler over a washcoat.

this operation (bottom drawing on page 19). This is by far the best method because it requires less work, uses less material and creates a more stable surface with much less shrinking. This is the method I use – and the one I'm showing here.

Pastewood Filler

Paste wood filler is very similar to wood putty in that it's composed of a binder and an inert filler material to which colored pigment and thinner are usually added. The difference is that most paste wood fillers dry much more slowly than wood putty, which means there's more working time.

The binder in paste wood filler can be oil (including an oil/varnish blend or alkyd varnish) or a water-based finish. The inert material in oil-based fillers (the type I like to use) is usually ground quartz, and the appropriate thinners are mineral spirits, turpentine or naphtha (Figure 2).

It's usually best to thin the filler as it comes in the can to make it easier to work with, and this can be done with any of the three thinners with your choice depending on the desired flash (evaporation) time. I like to use the filler when it's fairly thick, so I don't thin it a lot, but there are no hard-and-fast rules. Some finishers I know thin the filler to a watery consistency and spray it. As long as it's thick enough so the pores get filled and there's a little extra left over to be removed from the surface, everything's fine.

Mineral spirits and turpentine evaporate at about the same rate. I prefer to use tur-

Figure 2: Here are the materials I typically use to fill wood pores. Starting from the left, there are two colorants (a universal tinting colorant and a Japan colorant) that I mixed together for the piano I'm finishing here to get the color I wanted. There's no problem using either of these types of colorant with oil-based paste wood filler – or with mixing them together.

Next is a mixing can, followed by the paste wood filler I commonly use. This filler is "neutral," so I have to add colorant when I'm using a clear finish because the filler doesn't take stain well after it has cured. (When I'm painting the wood, I don't need to add any colorant to the filler.)

To the right are the two thinners I commonly use: naphtha evaporates rapidly, so I use it when I want to rub off the filler quickly; turpentine evaporates much more slowly and provides a feel to the filler that I prefer to what's provided by mineral spirits. Sometimes, I use both thinners together – the naphtha to provide a fast initial evaporation and the turpentine to retard the hardening process so the filler is easier to wipe off.

Figure 3: After I've added the colorant and thinner to the paste wood filler, I stir the mixture with a mixing rod on my drill.

Figure 4: To be sure there aren't any dried lumps in the filler that could scratch the wood in the removal process, I strain the filler through a screen.

pentine because I like the better flow it seems to give to the filler, but I will use naphtha when I want the filler to flash more quickly. And many times, in fact, I use a little of each thinner.

On hot days or on large surfaces where I can't slow the evaporation enough with thinner, I'll add a little boiled linseed oil to slow the drying. I add the oil only sparingly (about half ounce to an ounce in a half-gallon of filler) so as not to slow the drying too much. Then I check what this does to the drying time before I add more.

Some brands of filler are available with a colorant already added. If you're using a "neutral" filler and you want it to be colored, you'll have to remember to add the colorant before applying the filler because the filler won't take stain well after it has cured. You can do this with any type of oil or universal colorant; I usually add four to six ounces of colorant to a half-gallon of filler (Figure 3).

If you're starting with a fresh can of filler, you're ready to go. If the can has been opened previously, however, it's a good idea to strain the filler through a screen to remove any dried lumps of filler. Those solid lumps can scratch wood when you remove them from the surface later on (Figure 4).

Getting Started

After sanding the surface, remove the sawdust from the pores by vacuuming or blowing it away with an air gun. Then apply a stain if you want to color the wood. This can be any type of stain, including a common wiping stain, a water-soluble dye or an NGR dye. (I usually spray NGR dyes, because they dry quickly and are fairly fade-resistant.)

Following the staining (if you do this step) or directly on the wood (if you don't), apply a washcoat made up of a thinned coat of sealer or finish. I almost always use nitrocellulose lacquer for my topcoats, so my washcoat is usually a vinyl-modified lacquer sealer thinned at a three-to-one ratio with lacquer thinner.

There are a number of reasons why you should apply a washcoat rather than a full sealer coat (or the filler itself) directly on the wood:

❑ The washcoat creates a barrier so the filler, which is applied next, doesn't color the wood and instead affects just the pores. This gives you more control of the coloring, makes it easier to remove the excess filler from the surface and provides a cushion for sanding or abrading with Scotch-Brite so no stain will be removed.

❑ Being very thin, the washcoat breaks sharply over the edges of the pores, which causes more filler to remain in the pores when you're rubbing off the excess. A full coat of sealer rounds over the edges of the pores, and more filler will be pulled out more easily.

❑ A better bond is established to the wood when topcoats can attach themselves to a washcoat that's bonded well to the wood. The oil in the filler can weaken the bond of subsequent coats when the filler is applied directly to the wood.

When the washcoat is dry, it's time to apply the filler. The steps for doing this are quite straightforward, particularly if you keep in mind that all you're trying to accomplish is to pack the pores with the filler and then remove the excess without taking the filler back out of the pores.

So on non-flat surfaces such as moldings, turnings and carvings, you can just rub some of the filler into the pores with a cloth and then wipe the excess off right away. On large flat surfaces, however, I'd recommend using the quicker method shown here:

I start by applying the paste wood filler to the wood using a stiff bristle brush. Any old paintbrush will do, and there's no reason to be careful in the application: Just get the filler spread over the surface as quickly as you can. (For the piano I'm finishing here, I began by spraying on a brown-mahogany NGR dye stain and then a washcoat of vinyl-modified lacquer sealer thinned 3:1 with lacquer thinner.)

Using a 4-inch putty knife with the sharp corners filed dull to avoid scratching the wood, I now press the filler into the pores – and simultaneously remove most of the excess.

Using another large putty knife, I remove the excess from the first knife and put it back in the mixing can for later use. Used this way, a can of filler goes a long way.

When the filler starts to dull, I begin wiping off the remainder by scrubbing across the grain using a fresh piece of burlap. If you can't find old burlap bags, you can buy burlap at fabric or garden-supply stores. (Either way, be sure the burlap is clean so you don't scratch the wood.) But be careful: It's important not to scrub off the filler before most of the thinner has evaporated or there will be so much shrinkage back into the pores that you'll have to fill a second time (after the first filling has cured overnight).

With about 95% of the filler removed using the burlap, I take off the remaining scum by rubbing lightly in the direction of the grain with maroon Scotch-Brite.

To pick filler out of grooves and cracks that the burlap and Scotch-Brite can't reach, I use a "pick stick" made by sharpening a 3/8-inch dowel rod.

After two days of drying, I go over the filler with a final pass of maroon Scotch-Brite to make sure the wood is clean: Any streaks of filler that remain could show through the finish!

When I'm satisfied that no filler remains on the surface (even in areas that might not show, such as where hinges are attached), I begin spraying. The first coat is the same vinyl sealer I used for the washcoat, but this time thinned only 25% with lacquer thinner.

Next, after sanding the sealer smooth, I build coats of nitrocellulose lacquer. I usually spray six to ten coats, the goal being to build a thick enough lacquer coat so I can be confident I won't rub through it, especially near the edges, when I sand the surface perfectly level with 320-grit sandpaper. Next, I apply two final coats of lacquer and let it cure for at least a week (and longer if possible) before I begin the final rubbing.

I used to rub by hand, but that's too much work for an object as large as a piano, so I now use a pneumatic rubbing machine (see "Achieving a 'Piano Finish,' " *Professional Refinishing*, August 2001, page 28.)

Here's the finished piano (A) and a close-up of the filled-pore finish (B).

Kevin Hancock owns and operates Hancock Restorations, a small piano-restoration shop in Monrovia, Md.

Troubleshooting

Lots of things can go wrong in filling wood, but none of them is uncorrectable. Here are the most common problems you're likely to encounter and ways to get around them.

PROBLEM: The filler hardens too much for removal with the burlap or Scotch-Brite.
CAUSE: You applied the filler on too large an area.
SOLUTION: Wipe with naphtha or turpentine to soften and remove the filler. If that doesn't work (it should unless the filler has had a day or more to cure), you'll have to strip the surface and start over. Either way, refill the wood, but add a little boiled linseed oil to the filler to extend its working time – or work in smaller areas so you can get all the filler wiped off before it gets too hard. As long as you've applied a washcoat underneath, you won't get lap marks because you're removing all the filler from the surface.

PROBLEM: The grain turns gray after you apply the topcoats.
CAUSE: There's not enough colorant in the filler.
SOLUTION: If the topcoats have already been applied, you'll have to strip and start over, adding more colorant to the filler. To avoid having to do this, check the filler by spraying a coat of sealer or finish onto an inconspicuous area (or a sample panel you're also finishing) and seeing if the pores look OK after the finish dries. If the pores are gray, try wiping over the surface of the unsealed wood with a wiping stain. This will add color and make the wood darker, but it may also add enough color to the pores so you don't have to start over.

PROBLEM: The color bleeds out of the pores and makes the finish muddy right around each pore.
CAUSE: The filler hasn't dried long enough, and the thinner is lifting the color up into the finish.
SOLUTION: Strip and start over, and let the filler dry longer before coating again.

PROBLEM: Pinholes open up in the finish over some of the pores after spraying your first or second coat of finish.
CAUSE: The thinner in the finish breaks through the filler and releases air trapped deep in the pores. This problem is sometimes made worse by the wood being considerably colder than the finish. (It also happens less often on filled wood than unfilled wood, and less often on previously finished wood than new wood.)
SOLUTION: Sand the finish back and spray mist coats to build a base before spraying wet coats. If you have a lot of problems with pinholes, make it a practice to spray lighter mist coats to begin with.

– K.H.