

Setting Up a Pitch Bowl

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Tools & Supplies Needed

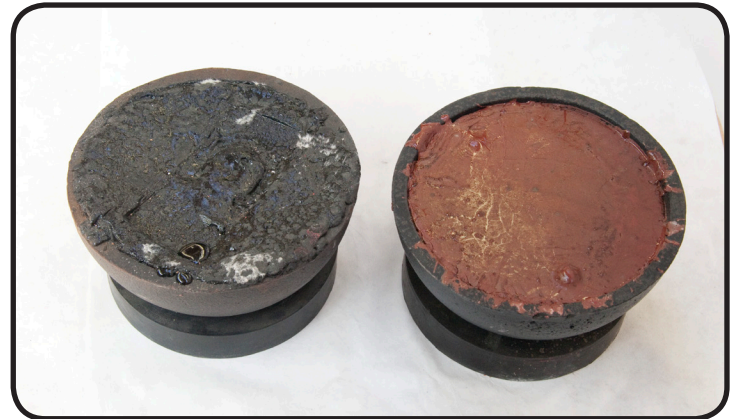
- 8" diameter hemispherical pitch bowl. (empty)
- 8" diameter rubber wheel from hardware store
- 5# of pitch, either from NorthWest Pitchworks or German red pitch
- 2 Lbs. of fast drying concrete underlayment
- Graduated cylinder and some way to weigh concrete mix.
- Hammer of some type, disposable stirring rod
- Axe or sharp faced hammer, disposable T-shirt or pillowcase.
- Hot air gun

Background

Chasing and repoussé are usually done on a pitch bowl. These are sold empty, so that the user can fill them with whatever type of pitch they prefer. Setting them up is not difficult, but there are a few tricks to it.

Pitch bowls typically come in several sizes and configurations. There are two main types: full hemispheres, and shallow dishes. The hemispheres have the advantage that you can tilt them to whatever angle and orientation you desire, while the shallow ones are much more limited in the work they can handle. The price difference is noticeable, but so too is the difference in usefulness. The full hemisphere bowls are definitely to be preferred. The next question is size. Bowls typically come in an 8" diameter (by 4" deep) hemispherical style, or a 5x2.5" hemisphere. Personally, I have a pair of the smaller 5" hemisphere bowls, and an 8" bowl, all loaded with different pitches. The smaller ones are good for small jewelry scale items, but anything larger than a mid-sized brooch will be too big for them. The 8" bowls are big enough for anything you should be trying to do until you know enough to make a bigger bowl. Get the 8" bowl. You won't outgrow it.

Next comes the selection of pitch. There are three basic types of pitch available currently. First is the old standby of "Burgundy Pitch". This is a black concoction fondly known as "Death Pitch" in the studio where I trained. It's what I learned on, and I'm quite fond of it for some specific applications, however it



A pair of 5" pitchbowls. The one on the left is burgundy pitch, the right is German red. They've both been soaking in an oven at 175 F° for an hour. The German red is as soft as brownies fresh from the oven, while the black pitch is just soft enough to be deformed slightly by a thumb driven by the full force of my arm. Note that the black pitch clearly retains the outline of the last piece removed from it. 10+ years ago. The German red has gone completely flat, and the surface is almost liquid.

has many quirks and bad habits. First and foremost, it's a very, very hard pitch, with a very high melting point. This makes it good for final planishing, but it also means that in order to get much metal motion, the pitch needs to be very hot. On the order of 150 F° or higher. It doesn't get fully liquid until about 300 F°. It's also very, very sticky. Combine these two traits, and you have a recipe for some truly horrific burns if it gets onto the skin. I cannot stress this enough: be **very, very careful** with this stuff if you get it molten. Wear long sleeved natural fiber shirts, and use safety glasses! It's a petroleum product, so it has a fairly distinctive odor when molten. Burgundy pitch is what most generalist jewelry suppliers stock. Only a few suppliers stock the other pitches.

With the rise of the internet, it's become easier to order supplies from overseas. So the good German red pitch is available here in the States now, from either Otto Frei, or Allcraft. German red is normally a medium hardness pitch that melts at a much lower temperature than burgundy pitch. Depending on how hard you need it to be, room temperature or a very little more is all the heat it requires.

You can get German pitch in hard and soft varieties, but unless you make an effort to find those, you're most likely to get medium. It's a pine pitch product, so it smells better when heated, and is easy to clean off your metal when you're done.

The other option for pitch is the selection of fine artisan made pitches from NorthWest Pitchworks out of Seattle. About 15 years ago, a chaser from Seattle got sick of battling with burgundy pitch, and set about recreating some of the historical pitch recipes she'd read about in the old books. After much experimenting, she came up with a very good medium hardness pitch, made from pine pitch. They now have 3 grades: hard, medium and soft. Medium is best for most things. The hard is good for fine line work, or planishing, and the soft is best for large volumetric forms, and large scale repoussé. The example bowl in this handout will be filled with NorthWest's medium pitch. You have to order directly from NorthWest, none of the suppliers are stocking them. (Google NorthWest Pitchworks.)

Procedure

STEP ONE:

Order supplies. Order yourself a pitchbowl and enough pitch to fill it. An 8" bowl will require about 5 Lbs. of pitch. A 5" bowl will take about 3 Lbs. Pitchbowls need a rubber or leather ring underneath to stabilize them. Sometimes the rings come with the bowl, but frequently they must be purchased separately. You can order one, but an 8" rubber wagon wheel from the hardware store will be about half the price. Knock the hub out, and you have a nice rubber ring. Choose whichever suits you. You will also need about 2 pounds of quick setting concrete, and a hot-air gun

STEP TWO:

Pound on the Ring. If you bought a base ring, skip this step. If you bought a dolly wheel, find a large hammer, and bash the hub out. Support both sides of the rubber tyre while leaving the plastic hub unsupported. Pound on one edge of the central hub until it slips out, then just keep going until it's all the way out. Don't try to shatter the hub, just drive it out. Beware of shrapnel if you do break it. Wear safety glasses.



A hardware store wagon wheel with the hub knocked out makes a fine base ring for about \$5



8" bowl with .9 kilos of cement mix leaves 1.75" of depth.

STEP THREE:

Weighty matters. The first step is to fill the bottom third of the pitchbowl with concrete. The reasons for this are several. First is weight. You'll be hammering on the object mounted on the bowl. You don't want the bowl shifting or moving under the impact. Second, pitch is expensive. There's no point in filling the bottom several inches of the bowl with pitch that you'll never reach. So we fill the bottom 1/3 of the bowl with concrete to add weight and save pitch. Traditionally, bowls are sometimes weighted with lead, but melting and pouring that much lead is more trouble than it's worth for something like this.

The concrete I picked up for the class has a mixing ratio of 1.7 liters of water per 11.3 kilos of concrete. (I'm doing this all in metric because it makes the math easier.) Yours may have a different ratio. Be sure to read the instructions. Looking at the mixing instructions, I calculated that I needed 150.4 CC's of water per kilo of concrete mix. ($11.3/1.7=.1504$) if your mix is different, take the total weight of concrete in the bag, and divide that by the water required to fully mix the whole bag. (It should tell you.) That'll give you the ratio. If it's all in metric, all you have to do is shift the decimal right 3 places, and that's your CC's per kilo of mix. It turns out that a full kilo of mix leaves only 1.5" of empty space in an 8" bowl. I wanted a little more depth, so I went with .9 kilos. That gave a depth of 1.75" Multiplying .9 by .1504 gave me a value of 135 CC's of water. For the class bowls, measure out .9 kilos of cement mix, and 135 CC's of water.

STEP FOUR:

Into the Mix. Pour your concrete into the bowl, and then add the measured amount of water. Use a piece of scrap wood (like a dowel) to mix the concrete. Mix it thoroughly, until the mix is even. Set the bowl on your ring, making sure it's level in both axes. Leave it alone to set. Come back in about 30 minutes

STEP FIVE:

Make your mark. About half an hour after mixing, the concrete should be hard enough to take a mark. Push your fingers down into the cement surface to make a series of little holes. The goal is to give the pitch something to grip onto within the bowl. The sides of the bowl being smooth, it's just possible you might manage to knock the whole mass of pitch loose from the inside of the bowl. I've never seen or heard of it happening, but it's possible, and easy to prevent. Dig your fingers into the concrete. If the marks collapse, come back in 5 minutes and try it again. Keep going until the finger marks stay.

Once the cement is actually dry, and the layer of water on the surface gets absorbed, take a sponge with a little bit of water, and clean the excess concrete off the sides of the bowl. You don't want random concrete grit getting into your pitch. In a perfect world, it would be nice to let the concrete set overnight, but it's OK to start putting pitch onto it after that last bit of water absorbs into the surface. Give it as much time as you can though. 45-60 minutes after mixing, as a minimum.



*Bowl filled with concrete.
Fingers making holes to grip pitch.*



NorthWest Pitchworks pitch partially unwrapped from milk carton. Make sure all the paper is removed before you melt it.

STEP SIX:

Therapeutic mayhem. While you're waiting for the concrete to dry, get out your aggressions by beating up on the pitch. You need to break it up into little chunks to make it easier to melt into the bowl. Seattle pitch comes in paper milk cartons, while the German pitch comes in aluminum pans. Either way, peel the container away from the pitch. If it's paper, make sure all the paper comes away. Don't leave little scraps to get mixed up into the pitch. Clean it under running water with a brass brush if you have to. Make sure it's dry afterwards if you do. Then wrap it up in a scrap T-shirt or old pillowcase. You are about to chop it up with an axe or other sharp bladed hammer. The shirt/pillowcase is to contain at least some of the fragments, so make sure it's wrapped tightly around the whole mass of pitch. Place it on a wooden chopping block or stump, and then chop into it with either an axe or the sharpest, heaviest cross-peen hammer you have. Make sure to miss your fingers, and wear safety glasses. Your goal is golf ball sized chunks. You'll probably have to unwind the shirt and remove the chunks several times. Keep going until it's all been reduced to gravel. Do your best to contain or clean up the flying shrapnel. It sticks to the floor like chewing gum, and is a right pain to get off once it's been stepped on.

STEP SEVEN:

It's all hot air. Once you have your chips of pitch, and the concrete's dry, it's time to combine them.

Make sure the bowl is set level on the ring, and the whole unit is on a solid surface. Place some of the smaller chunks of pitch into the bowl, especially down in the finger holes. It's important to make sure those fill. Use a hot-air gun set on high to melt the chunks of pitch. Keep it back several inches, and don't overheat any one spot. If you see the pitch starting to get white spots, or bubble, move to a new spot. Boiling or burning the pitch causes ash that makes that little bit of pitch harder than the rest, so avoid burning it. Keep the gun moving, and feed in new chunks as necessary. This will take a while. Be patient, and keep feeding in new chunks. They'll melt. Eventually. It's important to make sure there are no air bubbles trapped in the pitch as you melt the chunks. The smaller your chunks, the more quickly they'll melt, and the more even the mix will be.



The pitch chopped to gravel in an old shirt.



Melting the pitch with a hot-air gun, and finishing a bowl with a tape collar.



As you get near the top, you may end up with slightly more pitch than the bowl will hold. This is OK. Keep melting chunks in the middle of the bowl, and surround the edge with a ring of 2" masking tape, that'll contain the pitch until it hardens.

Once you're out of pitch, you're done. Now it's just waiting for the bowl to cool down. Leave it alone for as long as you can. Overnight by preference. Otherwise, leave it alone until the surface is solid enough that a wet(!) finger will only dent it, and then dunk the whole bowl into a container of cold water. This will cool it down quickly, but even that will take about 20 minutes. The drawback to quenching the bowl after you first make it is that if there are any air bubbles trapped in there, they won't have had time to escape. Leaving it hot longer gives them more time to come to the surface.