

power sieve

by Lawrence Weathers

Anyone who is interested in ash glazes knows how tedious it can be to prepare the ash. What if you could build a super-powered sieve to do the work for you?

The power sieve is constructed with two identical buckets stacked together. The plastic bottom of the top bucket is replaced with a screen and a paddle stirs the ash to sift it through the screen into the bottom bucket.

The contraption is secured by a Giffin Grip, which holds onto the bottom of the lower plastic pail, set on top of your wheel head. As the bucket rotates, a paddle on a fixed/stationary arm agitates the ash in the top bucket to work it through the sieve into the bottom bucket. You can sift a 2-gallon pail of ash through a 120-mesh screen in less than an hour.

The power sieve is also good for sifting large quantities of glaze. The way it is designed, you can insert a disk into the top bucket that covers and seals the sieve. Then you can mix your glaze in the sifting bucket with a drill mixer without damaging the sieve screen. When you're ready to sift, you do not need to pour the glaze into another container; simply reach into the bucket of glaze to grip the tab on the edge of the seal disk to pull it out. This leaves the glaze in contact with the filtering screen, ready to be filtered.

Sieve Bucket

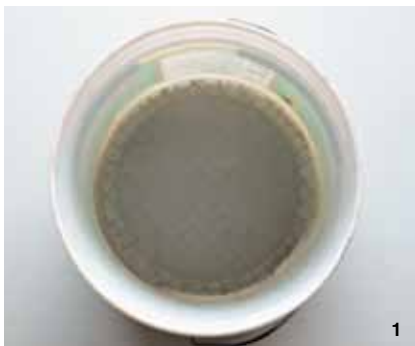
To construct the top sieving bucket, cut the bottom out, leaving about a 1-inch band of the bottom around the perimeter. Turn the bucket upside down and lay your section of ½-inch-square screen over the bottom and cut it about ½ inch bigger in diameter than the outside of the bucket. Take pliers and break the solder joints in the outer 1 inch of the screen to create individual wires for fastening. Lay the screen over the bottom of the bucket and drill a zillion tiny holes through the bottom of the bucket all the way around the remaining 1-inch band. Make sure the holes will line up with the screen wires. Next insert the screen into the top of the bucket and push it to the bottom and line up the wires. Push the screen wires through the holes in the bottom of the bucket. Break some of the solder joints in the screen so that you will have enough play in the wires to push



Materials for the power sieve: A—bottom bucket; B—top bucket with ½-inch-square screen (view from the bottom); C—agitator arm; D—stainless-steel sieving screen and sieve screen gasket; E—glaze sealing disk.

MATERIALS LIST:

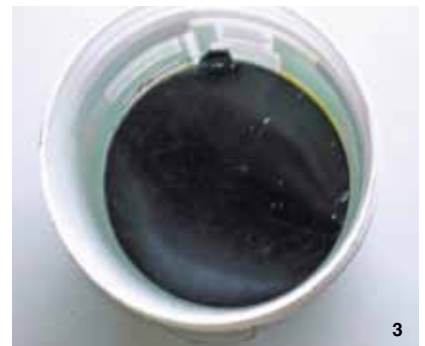
- Two identical 2-gallon hard plastic pails
- 3 square feet of flat plastic similar to the plastic that 5-gallon buckets are made of.
- 1-foot-diameter section of stainless steel sieving screen or filtering mesh (this can be purchased on eBay for less than \$15. Some vendors will cut it to your specified diameter.)
- 1 square foot of half-inch square screen
- 4 feet of ½ inch round mild-steel bar
- 2 foot of 1½ x ⅛ inch flat metal strip
- 3½ feet of soft, self-sticking weather strip
- A few sheet-metal screws
- Duct tape
- A base mount for a desk swinging arm lamp
- A friend who welds



1 Top bucket with stainless steel sieving screen (view from the top).



2 Top bucket with sieve screen gasket (view from the top).



3 Top bucket with glaze sealing disk (view from the top).

them through the holes. Use a pair of pliers to pull them through tightly to the outside and bend them over to hold the screen in place (1). The hardest part is now done.

Note: Without this half-inch square screen covering the bottom, the filtering mesh will quickly become fatigued and need to be replaced rather quickly. This approach also allows replacement of the screen if you want to use a different-size mesh.

Gasket and Seal

To make the sieve screen gasket and the glaze sealing disk, start by cutting two circles out of your semi-flexible flat plastic. They should just barely be able to slip inside your bucket and spin around at the bottom. One of them should have a little tab on the outside about 1 inch wide and 2 inches long to form a handle that you can grip to remove it. Apply a strip of the self-sticking weather stripping around the outside rim of the disk so that it hangs $\frac{1}{4}$ inch over the edge. Make sure that the cut ends press against each other firmly to form a seal. The seal will keep a glaze from draining through the screen when you are mixing it (rather than sieving) with your drill mixer (3 and 5).

Take the other disk and make it into a donut by cutting a hole inside that leaves about a 1½-inch band around the outside.

Checking/Finishing the Assembly

It's important to make sure that the two buckets when placed inside of one another do not become permanently jammed together. Place the bucket with the screen in the bottom inside the unmodified bucket. Use a felt marker to mark how far it slides in. Take some quality duct tape and make several twisted strips of it. Attach these in three or four places around the outside of the inside bucket about an inch below your marks. This will keep the inside bucket from sliding too far into the bottom bucket. If you don't do this, it can be a real nightmare pulling these buckets apart.

While you have the duct tape out, make three more similar twisted tape pieces and space them evenly around the bottom of the unmodified bucket. These will provide something for the Giffin Grip fingers to hang onto.

To finish the top bucket assembly, put your sieve screen in the bottom over the half-inch square screen you already have fastened to the bottom through the drilled holes. Then put the plastic donut-shaped piece on top of the sieve screen (2).

Before you construct the agitation arm, you will have to adjust its design depending how your wheel is situated. To make the agitator, I happen to have steel shelves on three sides of where my wheel is positioned in my studio, so I used the base clamp from a swing arm desk lamp, which is basically a C-clamp to tether one end of the agitation arm. For the other end of the arm, cut a section of your semi-flexible plastic so that it fits inside your bucket and has an outward curving edge on the part that will be at the bottom (4). The mild-steel rod can be bent in a large vice with a few whacks of a large hammer. I welded two strips of metal onto the bucket end of the arm so that I could screw the plastic stirring paddle onto them. If you're not a welder, or don't have a friend who is, then you could bend the paddle end of the arm in some Z-type shape that would allow you to support and fasten the paddle without welding (4).

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Finished power sieve assembled on the wheel and secured with the Giffin Grip.



Power sieve (shown from the side) with the drill and the glaze mixing attachment.