Modify a Cement Mixer for Processing Clay

by **RAY BUB** AND SUSAN NYKIEL

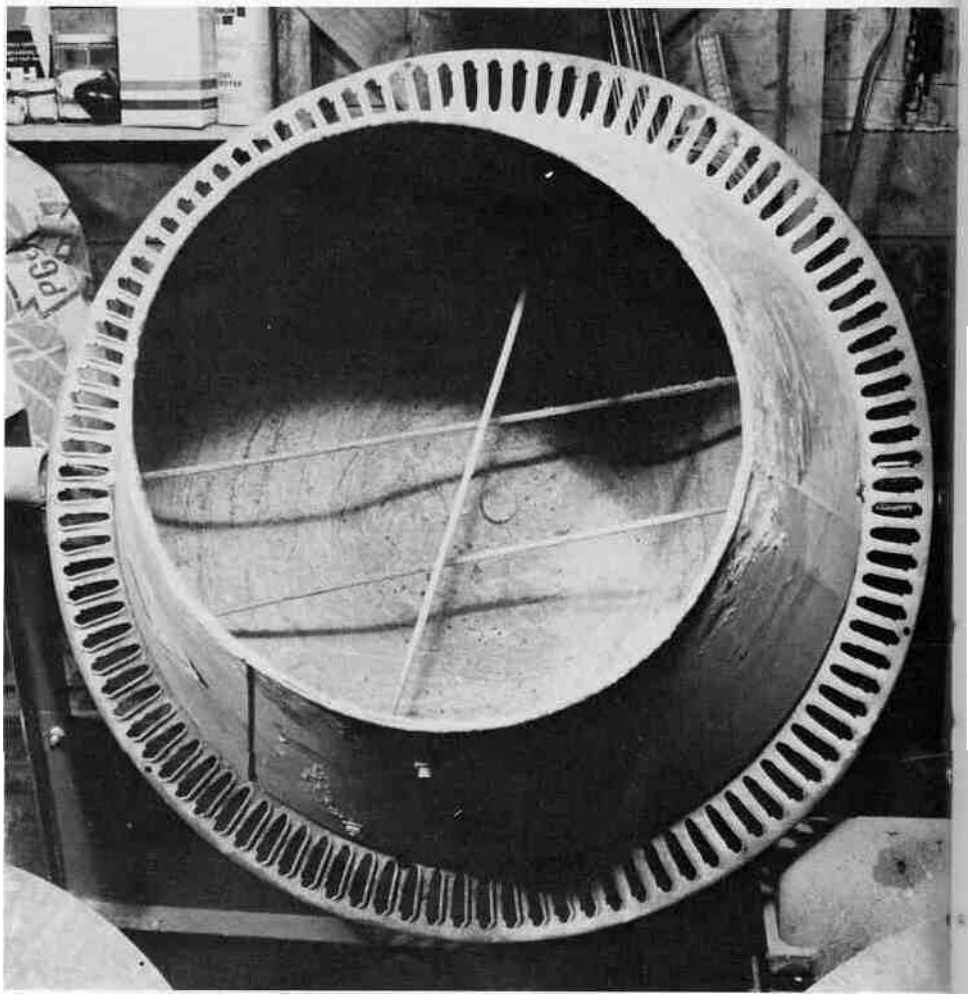
As ARTISTS we need to control the entire pottery-making process, from mixing raw materials to firing tlie kiln: as a small business, we want to minimize expenditures. Mixing clay from dry materials helps us toward both goals. In addition, we can feel secure in knowing that each batch has been formulated and measured correctly.

The best clay processing machines commercially available to the studio potter range from $1500-$2000. These blade mixers efficiently blend 250-300 pounds of dry materials with water to produce good quality clay, but the purchase price is often out of reach, and they do not eliminate the necessity of pugging or wedging to blend and de-air the clay for throwing or handbuilding. Buying premixed, pugged clay from a supplier will normally cost at least twice as much as buying the equivalent in dry materials and adding water, so some kind of clay processor makes good business sense.

A Sears backyard cement mixer, which sells for $330 (with motor), can be altered to process clay satisfactorily. It will not mix clay as fast or as thoroughly as the blade mixers, nor will it efficiently blend clay powder with slip or dried clay chunks, but it does produce good quality clay with vastly less time and effort than hand methods. Pairing this Sears mixer with a pug mill will yield good clay efficiently. (Given the choice, it is wiser to invest in a good pug mill before an expensive clay mixer.) Of course, one doesn't have to have a pug mill too—it just shortens the time and effort required.

To adapt the cement mixer for clay processing, first unbolt and remove the four mortar-mixing blades. (Clay would cake on these and not blend evenly.) Seal the two top holes with nuts, bolts, and washers—they are too close to the mouth of the drum to lielp in the mixing process. Then bolt three 4-inch, threaded rods through the other six blade-mounting holes with nuts and washers both inside and outside the wall of the drum; tighten the nuts securely so the rod can't rub on the drum and enlarge the hole. The drum will not leak, and we have had to replace only one rod in six years due to breakage. Experiment with the placement of the rods to find the best pattern for

Above *A backyard cement mixer can be altered to process clay satisfactorily. The four mortar-mixing blades are removed and the two top holes sealed with nuts, bolts and washers.*



Right *Three 1/4-inch, threaded rods are bolted through the other six blade-mounting holes, with nuts and washers both inside and outside the wall of the drum. The nuts are tightened securely so the rods won't rub on the drum and enlarge the holes.*

cutting and blending clay lumps as the drum turns. The machine can easily handle a dry measure of 100 pounds when processing the following recipe:

Oak Bluffs Stoneware Clay (Cone 11)

Custer Feldspar	10	pounds
Cedar Heights Goldart Clay	56	
Georgia Kaolin (6 Tile Clay)	10	
PBX Fireclay	10	
Tennessee Ball Clay (5)	10	
Flint (200 Mesh)	2	
Grog (20 Mesh to Fine)	2	
	100	pounds

Make a dust lid for the mouth of the drum and wear a respirator to dry mix the clay. Tumble for three minutes or so, holding the drum at an angle just above that where the batch would spill. Turn off the motor. Tilt the drum upright so the clay settles in the bottom. Add 25-30 pounds of water (27.5 pounds for a softer-than-throwing consistency). The water should b6 weighed since it won't mix in easily after the initial input—mix clay a little wet to aid in the aging process.

Adding the water correctly is the key to mixing consecutive batches conveniently without having wet clay caked on the sides of the drum. Pour the water into the center of the dry clay, taking care not to wet the metal wall. Replace the dust lid, then immediately start the motor again and ease the drum to an almost horizontal position for several revolutions. After the clay has tumbled for three minutes (or until it is thoroughly wet), you can remove the dust lid to watch the mixing process. Move the (lay mass back and forth over the cutting rods by raising and lowering the handle as the drum turns. The longer tlie wet clay tumbles, the better, but ten minutes is normally sufficient for one batch. Soft throwing consistency corresponds with the formation of grapefruit-sized or larger balls of clay. If you do not have a pug mill, you will want to mix the batch more thoroughly.

Clay can be spilled a bagful at a time directly onto heavy plastic laid in front of the mixer. We spill the clay into a garden cart while the drum is turning, then wheel the cart to the pug mill. Although we immediately pug the freshly mixed clay to more completely blend the particles and water, hand wedging achieves the same result. After purging or wedging, store the clay in heavy-duty garbage bags in a warm place for at least a week, or preferably a month, to age it. The warmth will encourage bacteria to migrate throughout the clay, thus increasing plasticity.

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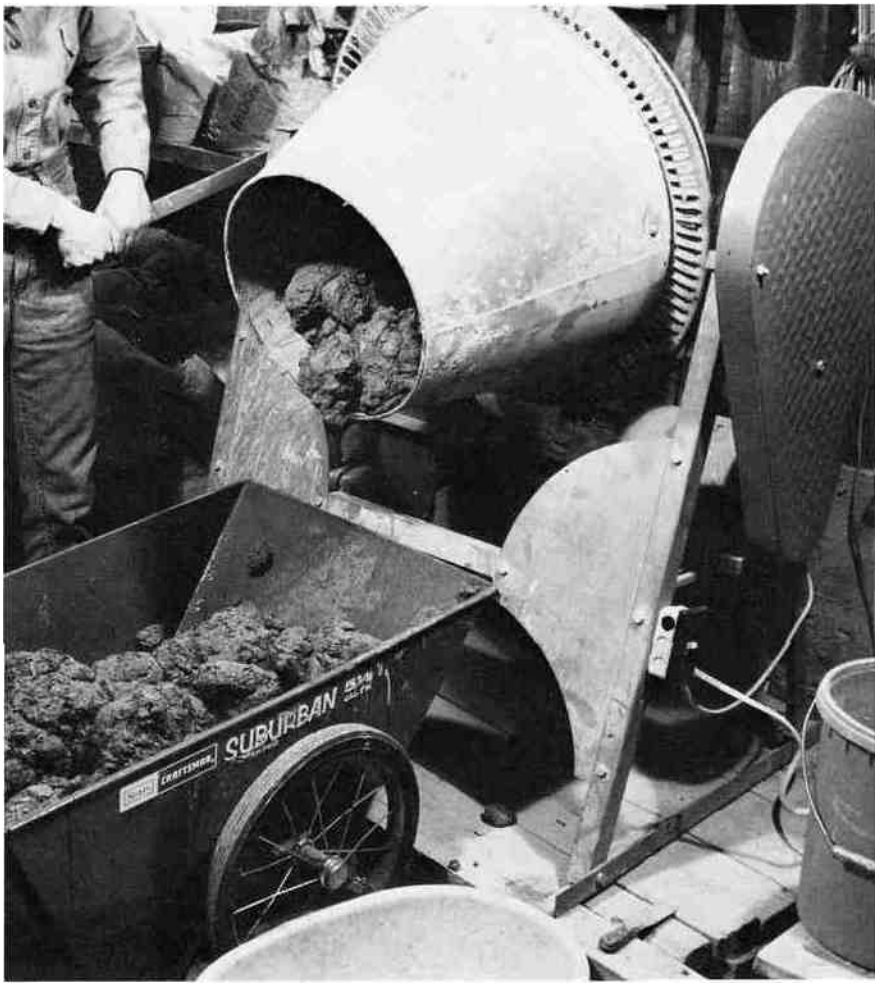
Above *The ingredients are dry mixed for about three minutes with the drum mouth slightly raised. Then the motor is turned off and the drum righted. Water is poured directly into the center of the clay, the motor turned on and the drum eased to an almost horizontal position, mixing for approximately ten minutes.*



Right *Proper consistency is achieved when the clay forms grapefruit-sized balls.*