Homemade Sanding Tools

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My demonstration will focus on two types of homemade sanding devices, a foam ball sander that may be used for power sanding concave surfaces such as inside bowls and hollow forms and simple home made substitutes for over-price sanding platforms. The foam ball is the brainstorm of David Reed Smith after seeing the Guinevere® system marketed by King Arther's Tools. The Guinevere is a miniature pneumatic sanding tool. Smith, who had used glued and shaped craft foam for another project reasoned that the foam could replace the pneumatic pieces for interior sanding.

These sanders may be constructed with velcro® to use the hook loop sanding discs, or regular sand-paper may be mounted on the mechanical ball. In the image at right is a sanding ball with the velcro attached.
Please note the attached article from *Woodturning Design* written by David Reed Smith, but the images are my own. This is also available on Mr. Smith's website, http://www.davidreedsmith.com/Articles/FoamBallSander/FoamBallSander.htm

Materials needed

2 mm craft foam. This is available from Hobby Lobby and others. Two types are available, glued and not glued. I recommend the foam without glue.

3M Industrial spray adhesive.

¼ or 3/8 inch drill rod

¼ or 3/8 all-thread rod

If using all-thread matching nuts and fender washer will also be needed.

100 or 150 grid sandpaper

Canvass or plastic sheeting to protect your lathe

Duck tape

Velcro strips or pre-cut rounds. Available at Jo-Ann's Fabric.

When doing internet searches for Smith, remember to Google on David Reed Smith. There is another David R. Smith on the west coast who also is an active woodturner and posts articles.

Tools Need

Collet chuck with appropriate inserts or pin jaws on your 4-jaw chuck.

Any tool to cut the rods, hack saw, etc.

Grinder

Lathe

Scroll saw with used blade or scissors where the blade will be dull after use. Sacrifice is the work for the saw blade or scissors.

Process for Velcro Sanding Ball

Cut a length of drill rod that will reach into whatever workpiece depth is necessary.
Allow length to mount in drill.
Either 3/8" or quarter inch rod may be used.
For longer pieces, the larger diameter will probably be more stable.

Cut craft foam into strips.
For 1 inch balls cut these about 7/8" wide
Cut strips about 1 3/4" for 2" balls

Spray a light coat of the spray adhesive onto one surface of the craft foam.

Spray the end of the rod with the spray adhesive. The area to be glued will be about 60% to 70% of the size of the ball.

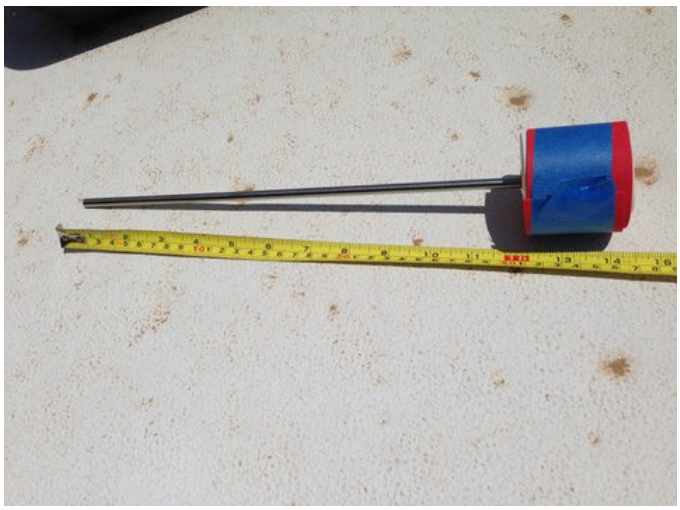
Mount the rod in a collet chuck or pen jaws on a 4-jaw chuck with glued end protruding away from the chuck. (3 and 4 could be reversed if the chuck is not mounted on the lathe during the glue spraying)

Adhere one end of the craft foam to the rod.
Place the foam with the glue side facing you, glue the top end behind the rod
Allow one side of the craft foam to extend past the end to the rod at least a quarter of an inch when making a 2 inch ball.
Hold the end of the craft foam against the rod for several minutes, allowing the glue to start to cure. This could be facilitated with a couple of close pins
Begin to roll the craft foam on the rod.
Depending upon the length of the strip of craft foam, two or three strips will be necessary to make the 1 ¾ core of the two-inch ball.
Measure to ensure there is at least enough.

Do not try to cut if the diameter exceeds the above width**.**Put masking tape on the cylinder of foam. Let it set over night or (better) twenty-four hours. This allows the glue to cure.

(One can immediately shape the ball, but the process is very messy if not allowed to cure)

Shape the ball into a half-sphere one side, leaving tape on the other side.
- Use sandpaper. David Reed Smith used a thin wood backing for the sand paper, but I used a strip held in both hands. It seems to shape better.
- Run the lathe at a slow speed, 400 to 500.
  - Minimize heat build up. Its effect on the glue may be detrimental.
  - Cover the lathe before sanding to prevent rubber adhering to ways.
- Examine the half-sphere closely. If it seems to foam will unwrap, wrap the half-sphere with tape.



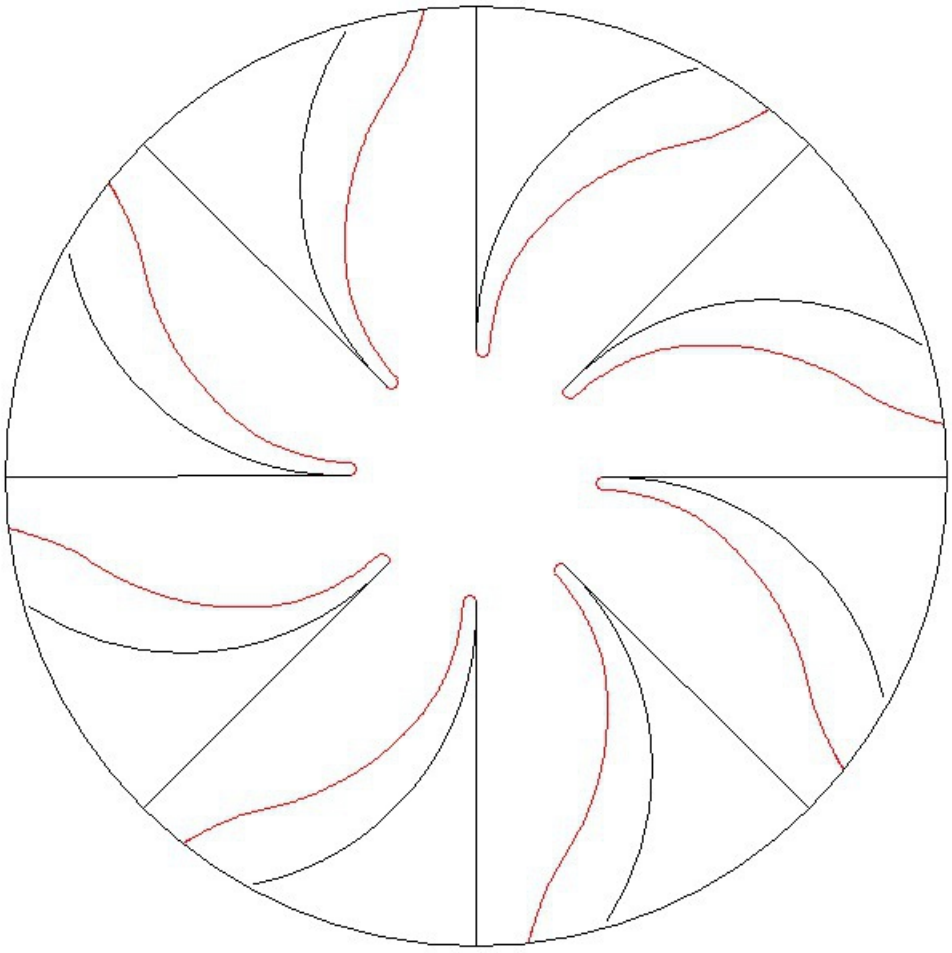
Shape the other side of the sphere in the same manner as # 7 above.

Tape
- Place a narrow strip of duck tape (about the width of the rod) running from 3/4” from the ball to and around the ball and back up the rod 3/4”.
- Run tape around the two ends of tape on the rod
- Cover the surface of the foam with duck tape. Keep the tape application neat and unwrinkled.

Fasten the velcro circles to surface of the ball. **Be sure to use the correct side of the velco.** Test on a piece of sandpaper.

Cutting sand paper
- Below is pattern for cutting paper for 2” ball.
- Put this atop a small stack of hook and loop sanding discs. Attached pattern to the hook and loop side, cutting with the abrasive side down on the scroll saw.
- To cut for overlapping, cut along the longer curved line and the longer straight line. Otherwise cut the shorter curve and the straight line to where the short curved line intersects.

If your lathe is reversible, it does not matter how you glue on the foam. Just be sure the lathe turns the direction of the wrap when shaping to avoid spinning the foam off the rod.



This Smith's pattern for cutting the round sanding discs. Make is smaller or larger depending upon the size of your ball by using the reduce or enlarge functions on your printer.

For preparing the round sanding devices, I used some salvaged white oak that I had previously rounded, cutting to approximately 2 inch lengths. I cut a tenon and put the oak in the chuck before drilling with #7 bit and tapping for ¼ 20 . With the ¼ rod mounted in all a collet chuck, one may shape the white oak in any shape desired.

Then foam may be glued to the shape. Velcro may then be attached as for the foam ball above. I use non-black floor pads available at Hobby Lobby for the base of flat round sanders.