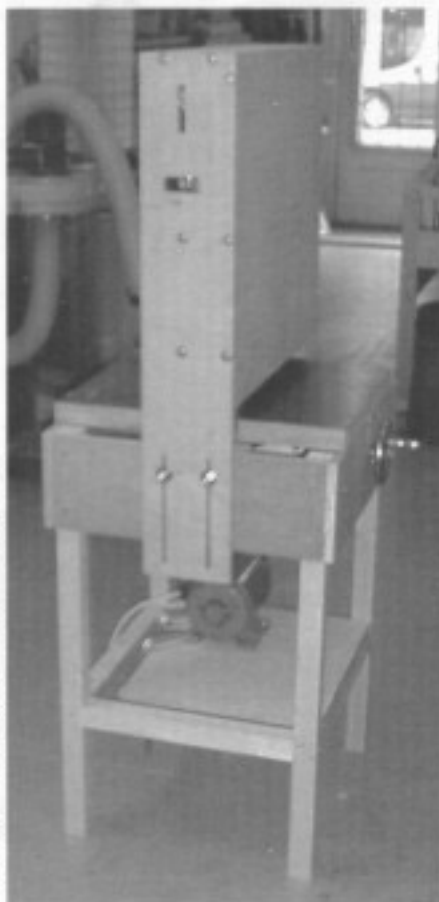# SHOP-BUILT WIDE BELT SANDER
BY RICHARD HEERES

Before I had my own thickness sander I did my sanding at a fellow luthier's, Willem Simon of Rotterdam. He has a 220 mm wide sanding drum much like the one in Art Smiths' G.A.L. article (1981). This type of sander is perfect for his small shop and relatively low output, but one wide enough for joined tops and backs would obviously be more convenient. A belt sander would be nice so the gluing-sand-paper-to-a-drum step is omitted and paper does not have to be changed so often.

After learning the price of commercially available models I decided to make my own.

Design

A couple of criteria were to be met in the design of the machine:
- ❖ It should be wide enough for joined tops and backs
- ❖ It should be easy to change belts
- ❖ It should be accurate to 0.05 mm.

To spare the wide belts, I designed it so that I could use belts of my 150 x 1220 mm Huvema for sides and other, less wide material. In the original drawing the drums were 100 mm in diameter but I came across two paper transport drums from a Xerox machine. Because I wasn't sure how the machine would turn out, I used them although they have a diameter of only 65 mm. For the same reason, I used ply-wood that I had lying around in my shop.
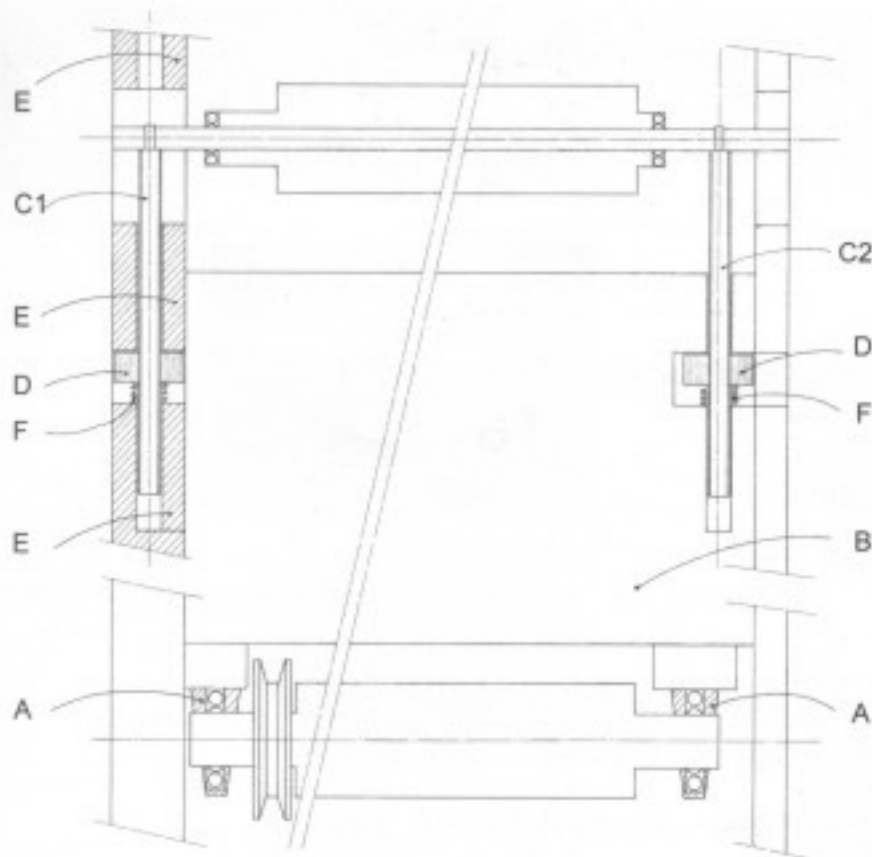
Making the machine

The lower drum runs in two ball bearings with cast iron pillow blocks that are mounted to one plate, a piece of 40 mm plywood. A 2 H.P. motor drives the 90 mm pulley on the axis of the lower drum.

The height of the upper drum is adjusted by two 40 mm nuts [D] on 12 mm thread [C1 and C2]. The last cm is brought back to a diameter of 5 mm on a lathe. This creates a stud that fits the hole in the axis of the upper drum.

C1 runs in the fixed side made of 40 mm plywood. I routed a channel and used a filler piece [E] because my drill bits aren't long enough. The hole for C2 in plate B is easily drilled.

Strong springs [F] prevent the adjust nuts from moving under the machine's vibrations. The nuts are accessed through 50 x 30 mm holes in the sides for subtle adjustment. Both sides have a 12 x 70 mm slot routed to keep the upper drums' axis in line.

Shop drawing of Richard Heeres' wide belt sander. See text for details about construction, materials.

Working the machine

Switching between rough sanding (60 grit belt) and fine sanding (100 grit belt) takes less than 5 minutes. To change sanding belts simply remove the side and lower the upper wheel. Slip the new belt on and raise it back up, aligning the belt in the process. If necessary, adjust the bolt to get the lower drum parallel to the bed. With the side back on and your dust collector in place, sand away!

Conclusion

Making this machine was definitely worth the time and effort. It took me about a week to design and build it, working on it a couple of hours a day.

The machine is very accurate and the belts seem to last forever. I can sand joined backs and tops with the rosette glued in, which is a big time saver.

The only drawbacks I can think of is that it takes some space and it's a little more expensive to make (but not if you are lucky enough to know a Xerox Repairman).

Oh yeah, it doesn't have auto feed. But I'm working on that.

❧

A bolt supports the front to keep the lower drum parallel to the bed until the removable 18 mm plywood side is fixed.

Height adjustment of the bed is done with a piano hinge and a hand wheel mounted to a jack.

Height adjustment detail

Interior of the sander