

Water-Expressing Press

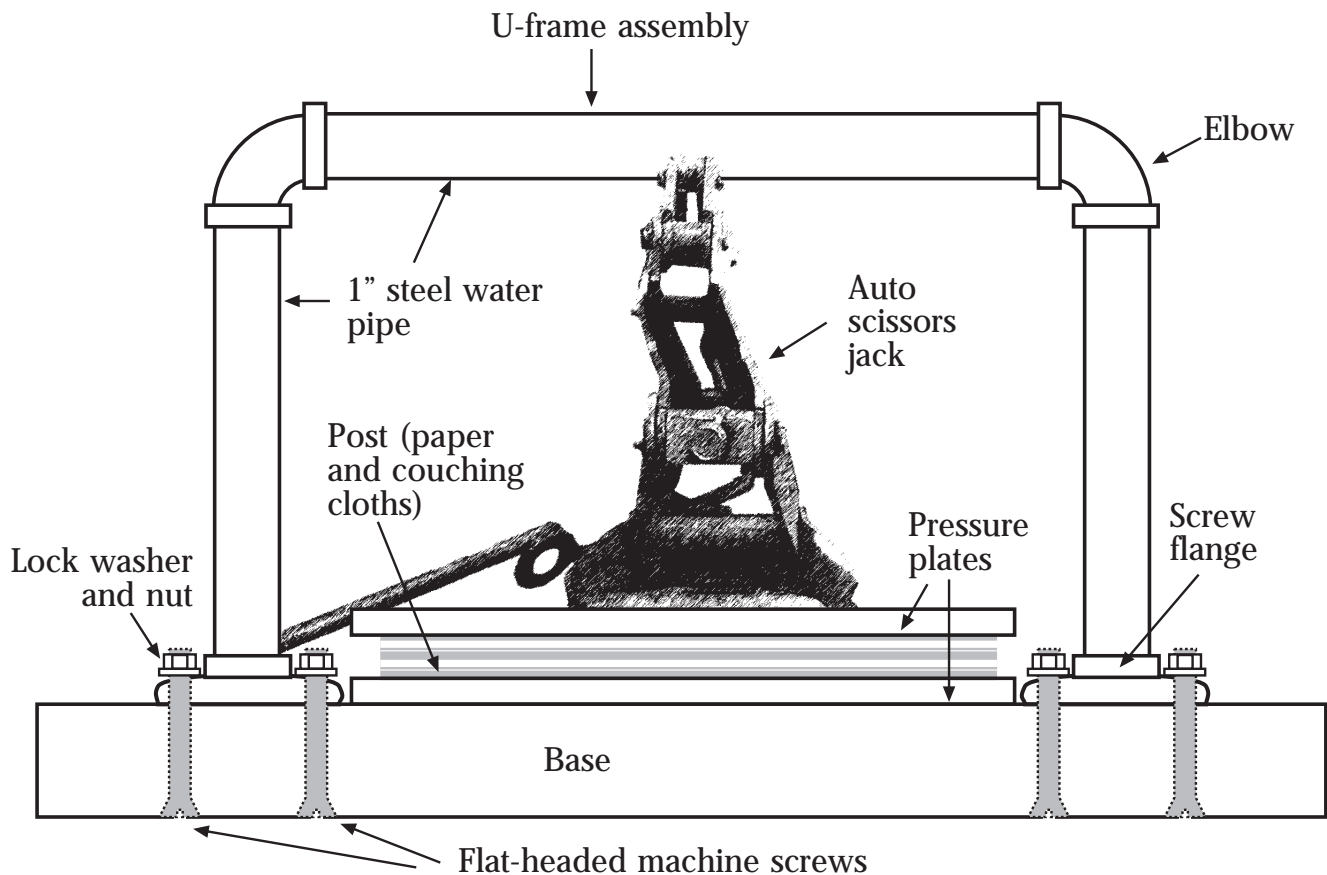
www.pulpromances.com

I am convinced that water is as essential to paper making as cellulose is. It is hard to have too much water while rehydrating a de-watered pulp – though it works best to add the water in portions and allow the pulp to rehydrate in stages. More water means the fibrils can open up farther, making more felting points available, and a smoother sheet is possible.

But once the sheet is formed, the water needs to be drained away. Sheet formation and water draining begins with the agitation of the screen and removing the frame from the water vat. More water is removed using a pressing cloth on top of the couching cloth, to transfer from the screen. But it is hard to remove enough water from the new sheets to have a reasonable drying time in newspaper blotter during Eugene's humid winters with just a pressing cloth. Without a press to de-water your paper sheets, they *never* dry. Instead, they buckle, mildew, and use up stacks of newspaper blotter. Whereas, with a water-expressing press, one change of blotters and your paper's pretty much dry.

A good bookbinder's screw press costs hundreds of dollars. This one cost about twenty bucks, half of which went to our local building supply recycler, BRING. You'll pay a little more if you buy all the parts new, but I'd still recommend a scrap yard for the primary moving part: an automotive screw jack.

Unlike the mold and deckle, where measurements are crucial, the press is a much more casual affair. There are four critical parts of the system, and you can adjust your dimensions to fit whatever you can scrounge. The parts: the base, the pressure plates, the U-frame and the jack.



The base should be sturdy, rigid if possible. Ours uses 1" plywood, and still flexes a little under full pressure. You might try gluing together two sheets of 3/4" marine plywood, or looking for an old butcher block. Waterproof it with a couple of coats of varnish.

The pressure plates should be smooth, hard, tough and rigid. I lucked into a couple of pieces of 1/2" Corian counter top scrap. I think the new hard plastic kitchen cutting boards would probably work all right. Remember, the top plate has to stay flat to distribute the pressure evenly to your post (stack of paper.)

The U-frame is made from standard plumbing parts. I recommend 1" iron or steel water pipe. Buy stock parts, pre-threaded on each end. You will need: two floor flanges, two 10" lengths, two right angle elbow joints, and one longer pipe length for the horizontal crossbar, which should be about 2-3 inches wider than your pressure plates. You will also need eight 1/4" diameter flat-headed machine screws (actually a kind of bolt), long enough to go through the base and your anchor flanges, with room for a lock washer and nut for each.

The jack is just a screw-operated automotive scissors jack. Any auto wrecking yard has hundreds of them, though I found mine at BRING. Actually, I found two at BRING. The first one had been bent off true with use, a problem that got progressively worse over time. Check that the scissors parts aren't bent, and the screw assembly turns smoothly. A little grease on the screw wouldn't hurt.

Assembly:

Screw the pipes together finger-tight to form the U-frame. Position it over the base and mark the holes in the anchor flanges. Set aside, drill through the base, then flip over and countersink the holes. This puts the screw heads flush with the bottom of the press, so it doesn't wobble. Assemble base and U-frame, tighten down nuts with a wrench. (Don't try to hold the U-frame on by attaching from the top with wood screws. A few good twists of the jack will rip them right out.)

Put your bottom pressure plate in place under the U-frame. Add your post of fresh, wet paper sheets. Put an extra couching cloth on top, followed by your second pressure plate. With the jack cranked to its lowest setting, place it on top of the pressure plate, with its lift point positioned to press against the cross bar. Turn the screw up until the lift point is tight, then keep turning. This will force the bottom of the jack down against the pressure plate, which will in turn squeeze excess water from your post.

Do not over-crank; use extra time under pressure to force more water out of stack. Release pressure, remove jack, remove flattened handmade sheets and transfer to newspaper blotters to continue drying.