Make your own motorised malt mill

by Mike Heydenrych

I have built myself a motorised malt mill that is easy to assemble, and works very well. If you can weld, or get someone to weld for you, give it a go!

Start at your local home appliances repair shop. My local dealer had plenty of 2nd hand washing machine motors. I bought three from him for R280, only one was in working condition. The two burnt-out motors were taken apart, and I threw away the outside shell, which contains the electrical windings. On the inside is a solid armature, which makes a great roller for your malt mill: see Figure 1.

Fig. 1: The armatures from two burnt-out washing machine motors make good rollers.

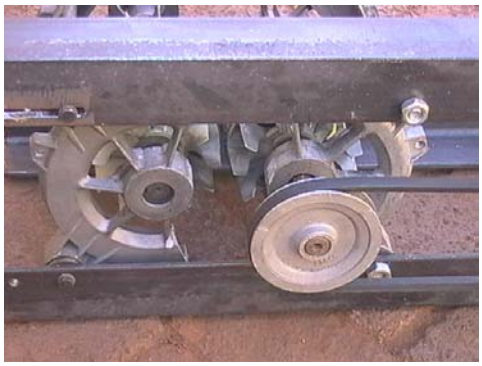

Fig. 2: Keep the bearing housings, but cut them to get the two armatures close enough to each other.

All of the washing machine motors that I got have the same mountings. This makes things quite easy. Note the mountings on Figure 2 – the left-hand roller is mounted with two 6mm bolts, with the bottom one fixed, and the top mount is in a slot for setting the gap between the rollers. The right-hand roller is not adjustable, so I used 10mm screws inserted directly in the rubber mounts that come with the motors (not shown). I used four pieces of 50mm angle iron as the mounting frame.

The working motor is mounted similarly, with a slot to allow belt tensioning. Make sure that it is wired correctly: washing machine motors can be wired for fast or slow rotation speed, and the slow rotation speed (300 rpm) is what you want. Fortunately, all motors come with pulleys; I left the pulley on the free roller, because it is sometimes useful to spin it just to get the rollers going.

Figure 3 shows the mounted motor and rollers. The frame is 500mm long. Make it shorter if you are sure you'll get a short enough belt. I kept it long, because I wanted to put a sack of malt directly on the mill.

This mounting is not secure until you weld braces in two directions. Figure 4 shows the angle iron braces welded on. The horizontal braces were also used to mount the legs (32 x 70mm pine). The vertical braces were used to hold the malt sack – only two of the four are welded in this photo. I welded the braces on while the motor and rollers were mounted, to ensure that the dimensions were right.

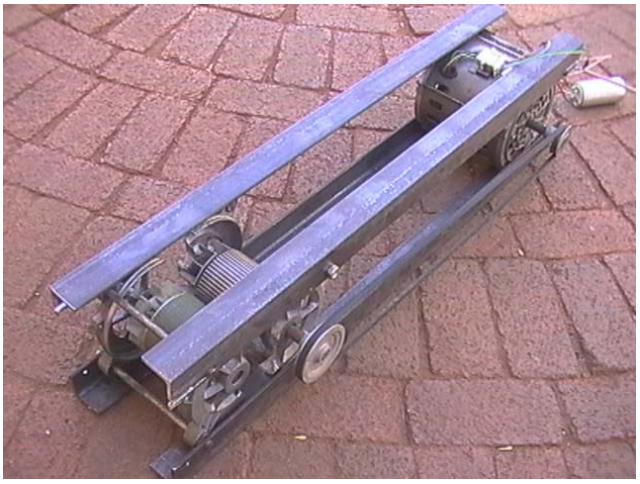

Fig. 3: The armatures from two burnt-out washing machine motors make good rollers.

Fig. 4: Braces keep the frame sturdy.

I went to the supermarket to find a funnel with the correct diameter throat – it happened to be a bubble bath container, shown in Figure 5. No matter how hard you may try to cut the funnel to the shape of the rollers, duct tape is virtually essential for a good seal. It forms a little apron on the inside, against the roller, that works very well. I used a staple gun to secure the top end of the funnel to the plywood table that supports the malt bag.

Figure 6 shows the completed mill. I added a belt guard by welding 10mm bolts on the vertical malt bag mounts, and painted the frame and varnished the wood components..

The motor hardly changes tone when milling. It effortlessly mills 10kg in about 5 minutes, and gives a good quality grind. If you want to try this project for yourself, feel free to contact me at mike@heydenrych.info.

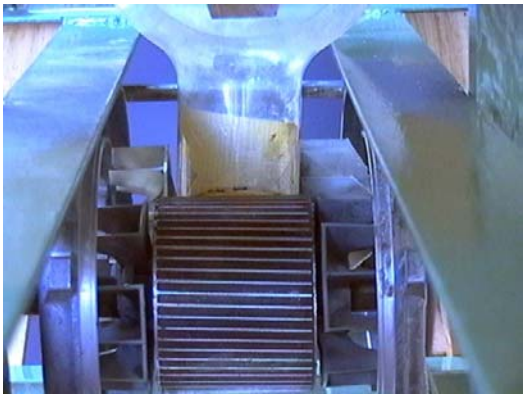

Fig. 5: The funnel is best sealed with duct tape.

Fig. 6: The completed mill.