Workshop Fan
by Donat Fatet

Ø 2 mm
Ø 4 mm
You will need:

- A3 size sheet material, I used 1.5mm aeroply.
- M4 nylock nut and bolt, the length depends on the thickness of your material, it needs to go through 5 layers. In my case 15mm.
- A pair of 7mm or adjustable spanners.
- 1 metre string, not too thick, it needs to fit through a 2mm hole. Parcel string works well.
- Optional, Glue gun, or super-glue.

AND
- Access to a computer controlled laser cutter or CNC router.

OR
- A4 printer, coping saw, and a drill with 2mm and 4mm drill bits.

Cut out the parts:

Your first step is to cut out the 9 pieces of ply that make up the fan.

Cut the parts with a laser cutter, a CNC router or by hand - by printing the pattern onto paper, sticking it onto the material using repositionable spray adhesive and cutting out with a coping saw then drilling the holes.

Thread the parts together:

Cut two pieces of string about 50cm in length.

Take part 1, lay it flat with the holes to the right.

Take one piece of string - your upper string - and thread it through the back of the upper hole. Tie a knot at the back to stop the whole string coming through.

Thread your second piece of string - your lower string - up through the back of the lower hole, again tie a little knot at the back.

Lay part 1 back down with the knots underneath.

Take part 2 and lay it down to the right of part 1. Take your upper string and thread it through the back of the upper left hole on part 2. Thread in and out until you’re out of the upper right hole.

Do the same with your lower string, with the lower holes on part 2.

Now you’ll have two strings coming out of the front of part 2. Make sure there’s enough string for the pieces to fan out - lay the pieces back down (with the knots in part 1 underneath) and pull part 2 across part 1, face up, until the edges are in line. The string between the parts should be taut.

Repeat these steps until your strings are threaded through the back of part 9. Tie off.

Create a hinge:

Fold your fan up and join the pieces at the bottom with a 4mm bolt and nut. It doesn’t need to be tight, the fan will work better if there is some play, if you don’t have a nylock nut, you can tighten two normal nuts against each other so it doesn’t come undone.

Glue:

If the strings are moving through the holes too feely, you can put a dab of glue on each hole to secure the string.