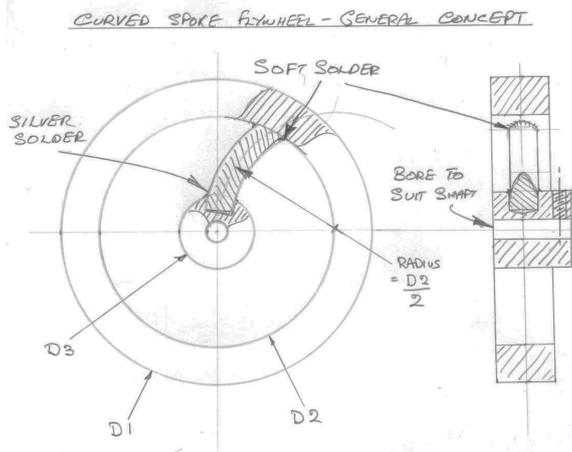
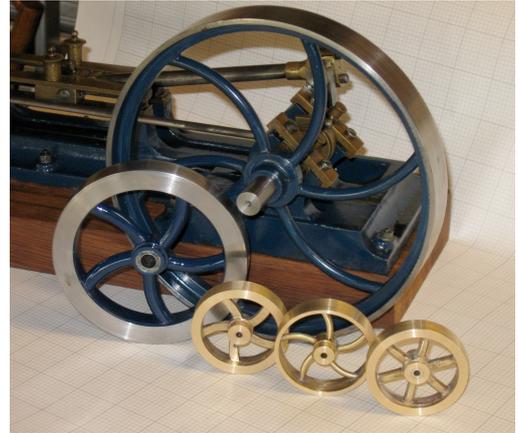


Ideas for built up spoked flywheels

It seems to me that castings for spoked flywheels are rather expensive. I also notice that the spokes always need quite a bit of work to clean them up to a reasonable finish. Having got several pieces of thick wall tube in various diameters I have had a go at building several using separate items for the rim, spokes and the hub. I like the idea of curved spokes as well as straight ones, so here is how I do it.

Photos of the method of building both types are shown. The spokes of the two 2" diameter wheels are 3/16". Also shown are a couple of larger ones. The 4" diameter one is for a hit and miss engine and has 5/16" spokes, and that of 8" diameter has 1/4" spokes and is on an old horizontal mill engine.

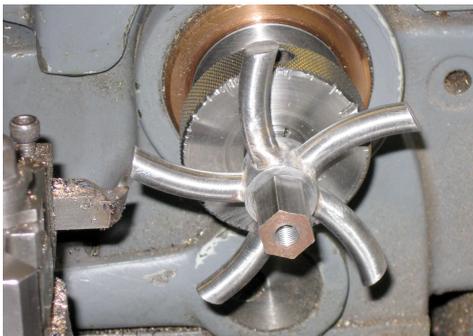


This drawing is only intended to portray the general concept. All the dimensions are left up to the builder, obviously they can be varied to adapt these designs to other size engines.. Only one spoke is shown, it's up to you how many to fit.

In all cases the spokes have a radius about the same or a bit smaller than the inside of the flywheel rim. Depending how many spokes you want, the hub diameter and the diameter if the inside of the outer rim, you will need about one full coil. Best to draw it out large to check – don't be mean on estimating the length

of spoke. The hub is drilled about a half a spoke diameter deep and the spokes assembled into it for silver soldering.

The photo shows how the spokes are kept level. In this case, the hub is left long so that it locates into the central hole in the steel support. After the silver soldering, the tips of the spokes are turned to fit the rims which are made from the solid or thick wall tube.

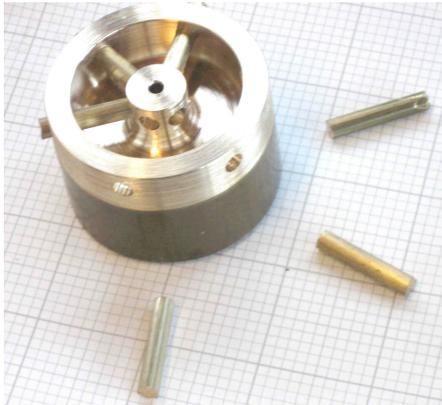


On the 2 and 4 inch flywheels, the spokes are fairly rigid and can be turned taking light cuts at the usual speed you use at that diameter. In the case of the 8" one, the spokes were so flexible that the normal turning method was useless and I had visions of trying to file them to size. Luckily I spoke to the guys in the machine shop about the problem and was told to use

maximum speed, very light cuts and stand well clear – very important that last point! It worked a treat. Finally, the spokes were soft soldered to the rim and any extra machining that was required was then done.



The light weight 2" flywheel has 1/8" spokes, and as an experiment I only soft soldered the spokes into the hub. I took very light cuts when trimming them and to my surprise they didn't fall out.



The same method can be used for the straight spoked one although the photos show that I did it in an alternative way. In this case, a recess was machined in a piece of solid 2" dia. bar, the holes for the spokes are drilled. The spokes soft soldered in place then the wheel parted off and the outside diameter cleaned up. I also find this method useful for making small handwheels. Of course, the hub and rim can be made separately and assembled in a jig to ensure concentricity.

The ships wheel shown in the photo shows the sort of thing that can be produced. In this case, the spokes were Locitied in position.



On full size flywheels, the spokes always appear to be of oval section. You will probably have noticed that on the two 2" wheels I have machined flats on each side of the spokes.

The intention was to then file them to an oval section, but so far this hasn't happened and I don't know that it ever will. Another method I intend trying is to use tubes for the spokes. I will fill the tube with lead so that the walls won't collapse when it is bent. After cutting the required lengths, the lead will be melted out and the embryo spokes silver soldered into the hub. Each spoke will then be squeezed in the vice until it looks about right. Then the tips turned to fit the rim and soft soldered into place. At the moment I see no problems, but time will tell.