

How to make a hyperbolic disc and a triangle crochet

I am using Red Heart yarn and a 00/3.50 mm Boye hook. The hook is solid metal (an aluminum one deformed and broke after just a bit of usage). The entire object is made by crocheting in spiraling fashion. Maintain the row of singles around the plastic and never cut the plastic until the very end. In order to get the warp make an extra single into every 8th stitch. Now this depends heavily on how firm you crochet. I crochet very firm, so every 8th or 9th works for me. You determine what will work for you. This will make the surface hyperbolic. I also gently stretch the crochet stitches regularly to create the tension along the plastic wire and smooth the surface.

a) Try something easy first: a **hyperbolic disc**.

For this particular one the basic idea is to first crochet a palm size flat disk, crocheting singles in a spiral fashion. Then you start crocheting your singles around a plastic line (plastic line for hand held lawnmowers, .065 inches in diameter). This is what gives the surface its stability and, later, warp. Do this in spiral fashion always around the disk.

When the plate part of the pan is about saucer size wide, you start the hyperbolic crochet: make 2 singles for each 8th single.

This may be each 5th for you, depending on how tightly you crochet.

When you want to do holes, make doubles or triples with a chain stitch. Don't crochet around plastic line, when you do holes, the plastic will show. At this point you have to add a second string to crochet 2 strings in parallel in spiral fashion: One to do the holes, the other one singles around the plastic line.

b) Here is a guide for a **hyperbolic triangle algae**:

Make a flat pan with tail : Make a flat disk the size of your palm.
Start a second thread of singles crochet around plastic line in parallel and continue until you have a disk the size of a saucer plate that hopefully looks a bit like a potato chip.

* Then with the thread that does not go around the plastic line:

*instead of the next double make 20 chain stitches, turn and crochet back doubles plus chain stitch on the *chain stitches and continue around the disk. Follow this for an entire row of singles with the thread that *goes around the plastic line.

*And another row of doubles with chain stitch without plastic.

*And another row of singles with plastic.

Then you repeat the process within the stars. I have attached a picture illustrating the idea.

You want the innermost part of the handle of the pan (4 rows) to be flat.

For the tail end: always make the first few rows flat, before you do the hyperbolic crochet or it will wind too tightly.

After the surface crochet was done I sowed a reinforcing "**rib**" in wave pattern on one side of it across the crochet plastic rows. You can see parts of the rib when you look closely at the image. (rib: just crochet around the plastic wire with the same color as the surface and then sew that onto the surface.) Attaching a rib to one side of a hyperbolic disc has the effect of flattening the center of the disk so the curvature is decreased at the center and increased at the boundary. This makes the disk look more like a hemisphere.



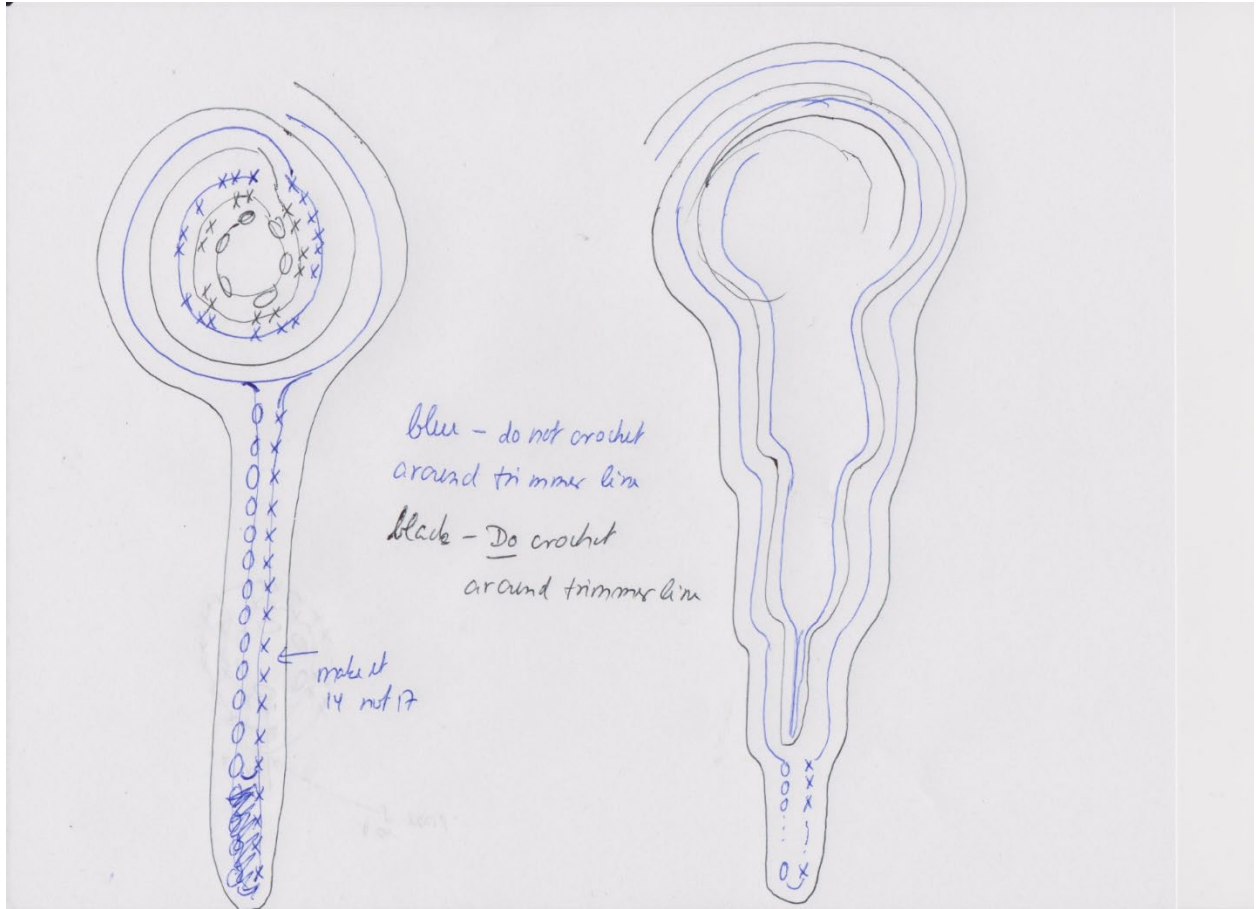
Front central detail of hyperbolic triangle



Further detail of hyperbolic triangle



Rear detail of hyperbolic triangle with rib



Schematic of hyperbolic triangle



Hyperbolic hemisphere and ring. The hemisphere is a disc with a rib in the back. The ring was crocheted around a metal ring.