Minimizing “points of entry” is important when making a DIY face mask for medical use. You want the mask to fit snugly and to have as few seams as possible for this reason. If your fabrics and filter media are big enough pieces, you can eliminate the seam at the narrow end (bill end) of the mask. To do this, fold under or cut off the seam allowance. Fold the fabric and place the narrow end on the fold. Cut out an outside piece and an inside piece for the mask. On this mask, the batik fabric will become the outside of the mask.

Do the same thing for the filtering material, except, also fold or cut off the top seam allowance to make the seams around the nose and the chin less bulky when you sew them. Having the seams less bulky will help give you a tighter fit. Here I have used Zorb Original, a dense, thick, nonwoven fabric that is very absorbent. (DO NOT try the Zorb dimpled types. They shed way too much and I can see more light through them.) (Zorb Original is often used for DIY people who make diapers and menstrual products.) I am waiting for my order from Filti.com to arrive to try their product. But for now, this is what I am using.
This is what the pieces look like after you have cut them. The filter material is on the inside of the outside mask piece.

Fold right sides together for the filter/fabric combo. Trim back the filter a little around the top curved edges.
Stitch the sides of the “V.” Do the same thing for the other piece of fabric. Leave ⅛” or so of the sides unstitched at the wide end on both sides of both pieces. You will be joining them later.

You now have two “cups.” Turn the fabric that has the filter stitched to it so that the filter is inside.
Put the “cup” that will be the lining of the mask around the OUTSIDE of the outer mask. The lining “cup” will have its right side against the right side of the outer mask fabric.

Pin the raw edges together, pushing the filter out of the way.

Stitch these two layers together, leaving 4-5 inches of the “chin” side unstitched. Pull the filter back as you stitch. Sewing the turn where the side seams come together will be a bit fiddly. It may help to trim back the filter a bit more. You may want to use a “hump jumper” (that is really the name of it!) or a folded up piece of
cardboard from a cereal box under the back of your presser foot to help with the thickness of the layers of fabric.

Turn the mask right side out, pulling the fabric through the unstitched opening.
Below you can see the mask turned right side out. The chin side (the open edge) is up in this picture.

Now it is time to insert the metal nose piece. Reach inside the mask with the wire or other metal you are using and shove it up against the inside of the top side of the mask. Make sure that the lining is snug up against the top seam, too. You will be able to feel that the filter is in place as you run your fingers along the top edge.
Below is a photo of the inside of the mask and that top seam.

Below you can see the wire up against the top seam. The pattern maker used a piece of aluminum flashing, which is a great idea. What you see in the picture is a long twisty that is folded in half to be six inches long. It was originally wrapped around a bunch of lettuce. (This is not an ideal item to use, but is what was on hand when the photos were taken.) This picture is upside down because I’m not a techie!
Pin the nose wire in place through all of the layers. Mark the ends of the wire with pins.

Stitch through all of the layers to make a channel for the wire. Note that the ends are stitched vertically to make sure it doesn’t shift when the mask is washed. You may want to use a zipper foot to stitch this, although it is possible to do it with a regular presser foot if you are careful not to hit the wire.
This is what it looks like from the inside. The chin side is up in the picture.

Reach inside and pull the filter up snug against the edges of the fabric for the chin. Fold the fabric edges over it and top stitch the chin side.

Now it is time to attach the elastic. Elastic will stretch out if subjected to high temperatures so it may be better to have elastic ties instead of having shorter pieces with both ends attached to the fabric, especially if you are making the mask for others. This is some “piping” elastic I had lying around, ¼”. I cut two 24” pieces. I folded them in half and sewed them on the ends, a bit spread out so that it will be easier to get one set tied over the head and one behind the neck. (I forgot to take a picture of the finished product before I mailed it.)

In the picture below, you can also see the inside of the chin part of the mask. I realized after I had stitched it up that I hadn’t gotten the filter pulled up quite high enough so I also zig zagged it to make sure that the filter won’t slip around when the mask is washed. It is better to get the filter up snug so that you don’t have so many stitch holes as potential “points of entry.”
Now, back to “points of entry.” I am NOT an industrial hygienist, although I used to work with some so I know a little about respirators. My hunch is that not having the outside and inside side seams sewn together could help prevent air getting in along those seams. At least there would be more fabric to trap vapor. Anywhere there is top stitching, I’m wondering if adhesive tape were applied, if that would help avoid air getting in. And for an even tighter seal, you could tape the mask to your face using medical paper tape. Just be sure to remove any tape when you wash the mask. I used batik cotton fabric for the outside because it is a tighter weave than some cotton fabrics. Dr. Holme’s pattern is the best I’ve seen and I’ve tried several.

These are just the thoughts of a concerned mother-in-law whose daughter-in-law is an ER doctor at a large hospital in the metro NYC area, where they are running out of everything and they are already maxed out on ICU beds and ventilators.

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