

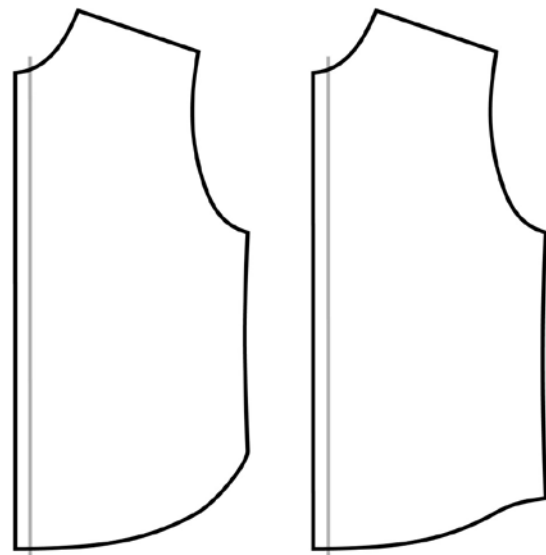
Side-Seam Gusset Construction Options



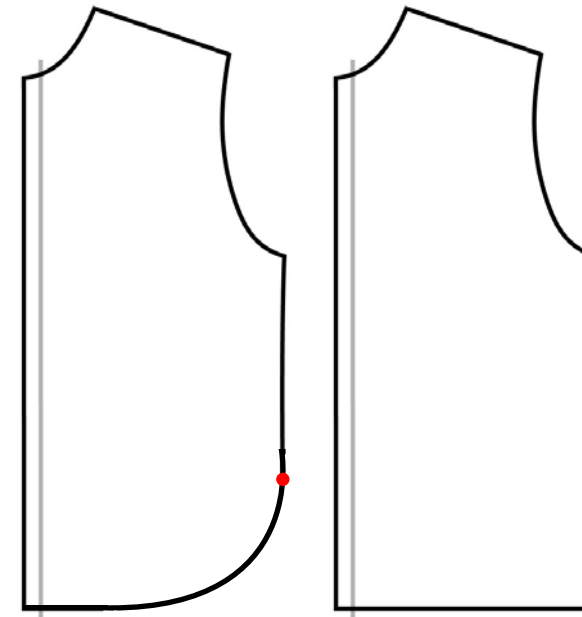
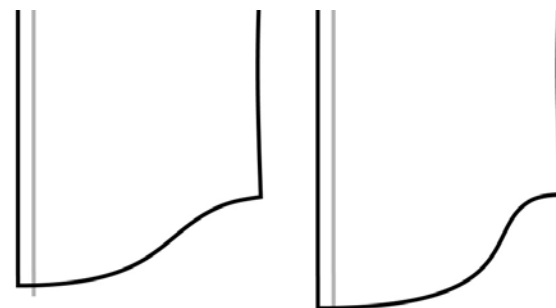
These details from the vintage Arrow evening shirt in the book (pgs 50-55) show a once common and now resurfacing technique for solving a persistent problem: How to handle the transition from side seam to hem, when you want the hems to curve like this: ...instead of like this:



The difference is more than just shape. It boils down to how the hem finish will work. To hem the right-hand shape, you simply roll right across the completed side seam, because the hemline is intentionally shaped to provide a straight line perpendicular to the side seam at that point.

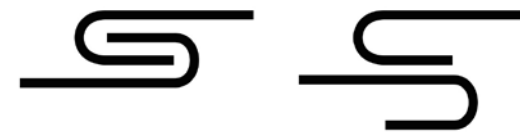


The hem curve can certainly be altered to provide more curve without giving up the horizontal line at the side seam, like this:



Still, more basic curves in this part of a shirt have an undeniable gravitational pull for both designers and wearers, as does no curve at all, which presents the same issue if you want the side seam to stop short of the hem, providing a slash-like opening part-way up the seam.

So, what exactly IS the issue? It's that the seam allowances for a one-layer shirt side seam aren't perfectly transferrable to one-layer shirt hem allowances, regardless of how the side seam is made, and this is especially so if the default flat-felled side seam is wanted. In that case, one of the seam allowances will have to be clipped to roll the other way if it's going to switch over to being a hem allowance—in other words, from this: ...to this:



It's no problem to make the clip and to make the roll happen. The issue is how to cover it up so there are no visible raw edges, AND to make sure the structure remains strong.

Shirtmakers have certainly come up with many methods that solve both concerns (more on those to come), but none that have the perfect simplicity and the quick—and virtually free—ease of avoiding the problem altogether with a different hem shape. Or at least, none that have risen so surely to the front of the line as to have become as ubiquitous as that little horizontal line of hemming cutting across the seam.

Right now, though, (in 2015) there IS one method that, in certain circles, is showing up more and more, so much so that fans of shirt design can't have failed to notice, and to wonder how to adapt it, if they happen to be home-based makers as well. I'm one of those people, of course, so herewith is the result of my own explorations of the topic.

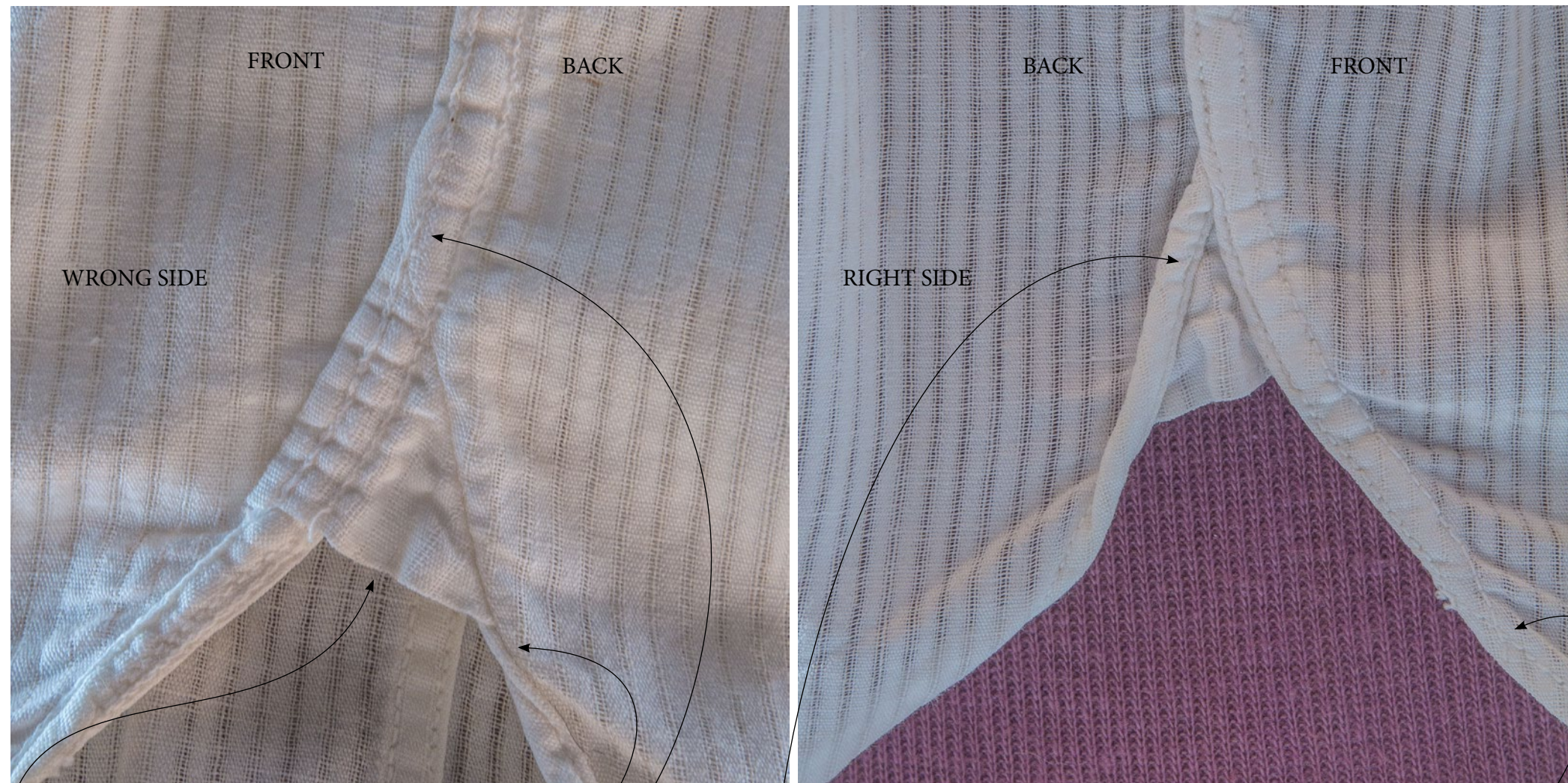
The “home-based” part of the story is important, because the method now so prevalent is entirely dependent upon industrial equipment that not one home-based sewer in a million will have easy access to. The images I started with, at far left, are the only ones I can provide here of the method I refer to, since I own no other shirts with the more current variant (for those, and more, [click here](#)), but the essentials are right there, and the industrial part is the double row of chain stitches clearly visible in the right-hand shot. The rest of the story is in how the little triangle of fabric (the “gusset”) is caught in the seams on either side.

Here's what the solution I've come up with looks like:



Side-Seam Gusset Construction Options

Before I spell out my method, it'll be helpful to dissect the industrial method a bit. Here it is again, big and clear:



First, note how the gusset is caught in both the rolled hem ...and the chain-stitched side seam.

Also that the gusset is a double layer, with a fold at the lower edge.

Next, see how the double-stitched side seam stitching doesn't actually merge smoothly into the rolled hem? It sort of overlaps it and tapers off a little below the gusset.

Also note that in this case, the rolled hem gets twisted up when it's caught by the side seam; seems NOT required and actually a bit sloppy.

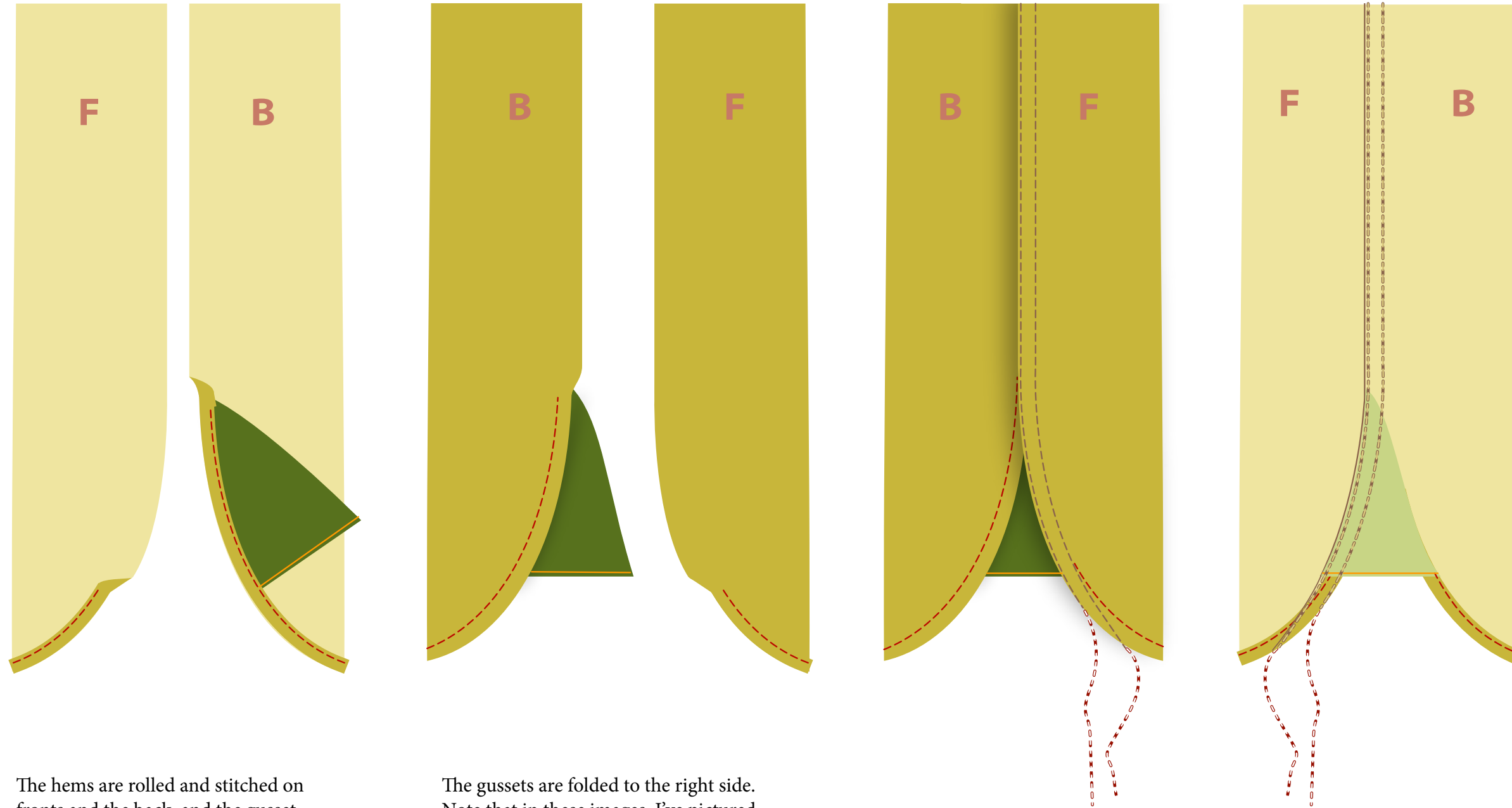
But that does call attention to the fact that the hem—in fact, both hems— MUST have been done BEFORE the side seam, quite different from the more typical, horizontal hem at side seam method.

The industrial machine that makes those twin-needle, double-tracked chain stitches also folds the side seam allowances around each other as it stitches them down, and it catches the gusset edge, too, when it gets to it, rolling that under the front. The rolling is allowed to taper off below the gusset.

The steps by which all this gets done as I imagine them (not having ever seen this happen, mind you), is maybe something like the diagrams on the next page; certainly the result will be the same, if not the exact process...

Side-Seam Gusset Construction Options

The Industrial, Chain-Stitched Gusset, Single-Layer Version



The hems are rolled and stitched on fronts and the back, and the gusset pieces are caught in the roll on both sides of the back. In front, the hem stops short of where each gusset will join as the side seams are made.

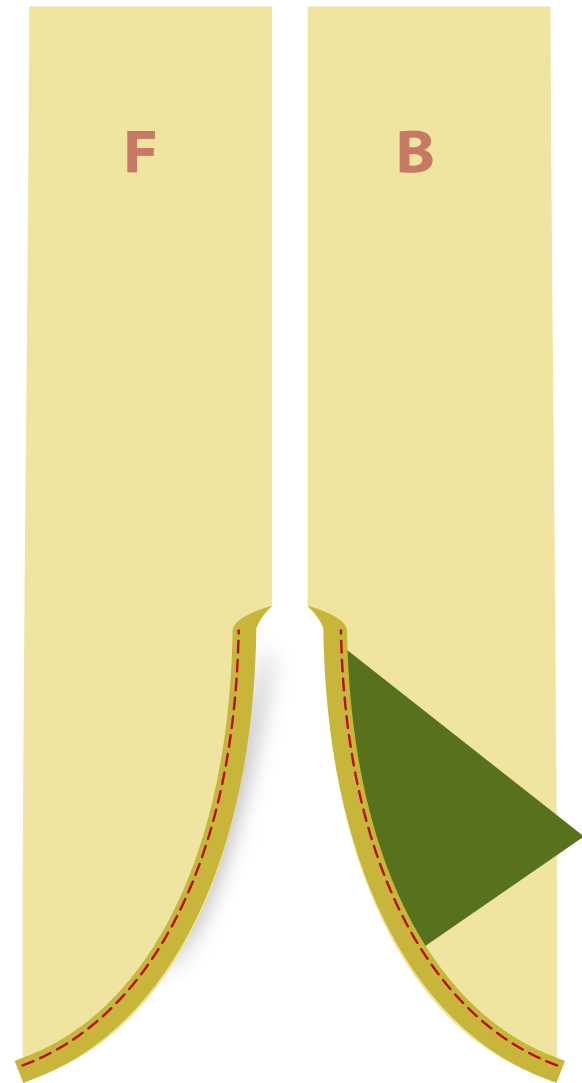
The gussets are folded to the right side. Note that in these images, I've pictured a single-layer gusset with a selvage at the bottom edge instead of a fold, since this is the most common modern method.

The side seams are made, and the edge-folding action catches the free gusset edges when it gets to them, rolling them under the front hem edge.

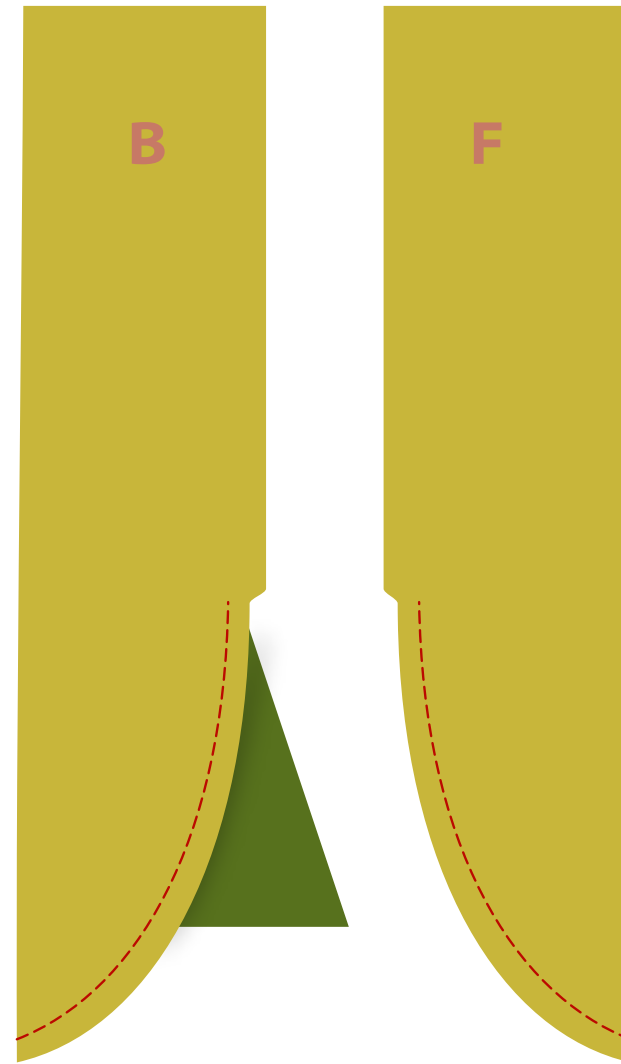
The chain-stitch thread tails I've rendered here left long and untrimmed are typically a part of the current presentation of shirts with this feature, calling attention to the use of the specialized machinery.

Side-Seam Gusset Construction Options

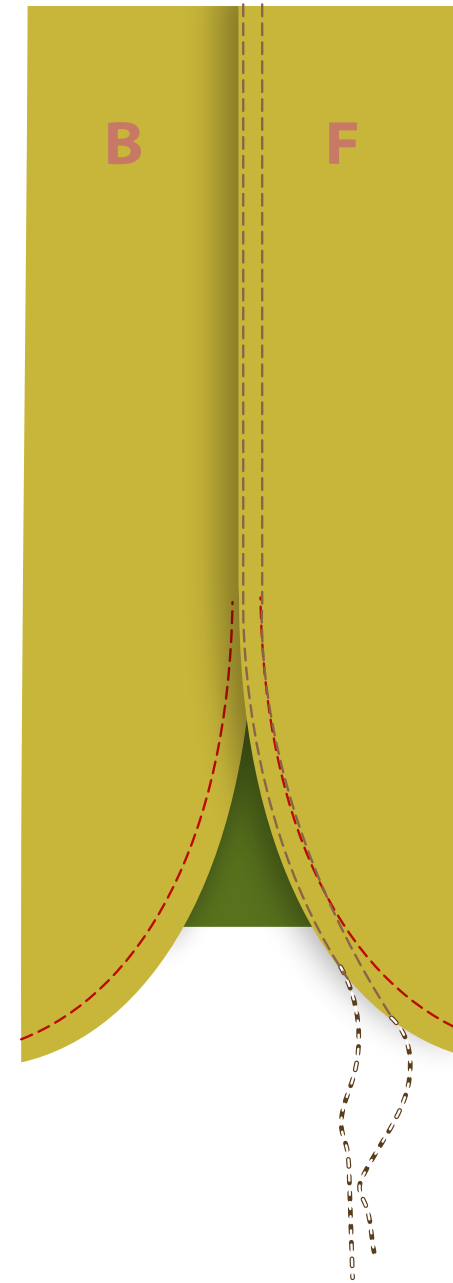
The Industrial, Chain-Stitched Gusset, Double-Layer Version



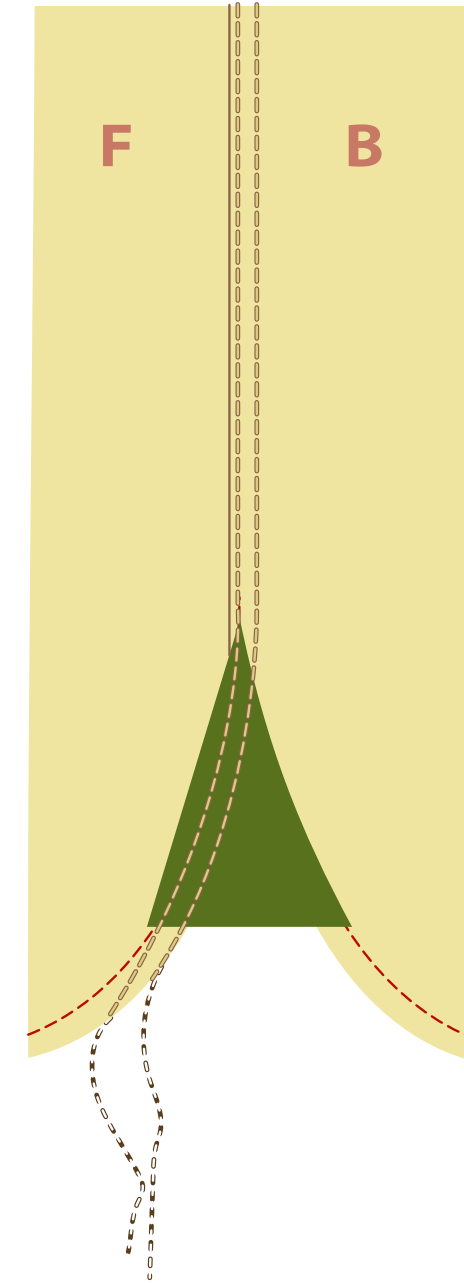
A variation I've heard of applies when the gusset is a double-layered, turned piece with a fold at the bottom and a turned seam at the free edge instead of a selvedged single layer, which would have a raw edge along the free side.



Everything else is the same, except the front hem extends up as far as the back hem roll.



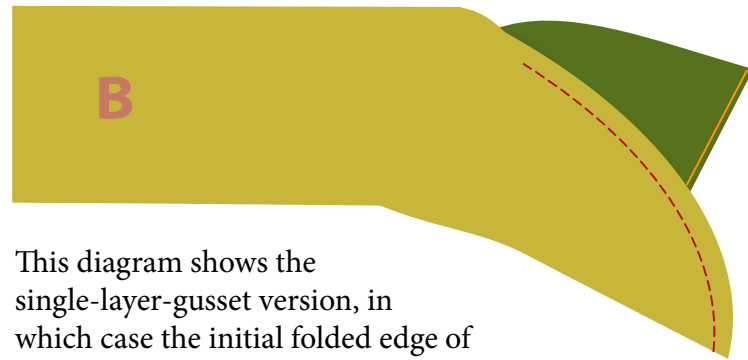
When the side-seam stitching gets to the gusset, it isn't allowed to roll the gusset edge into the front edge.



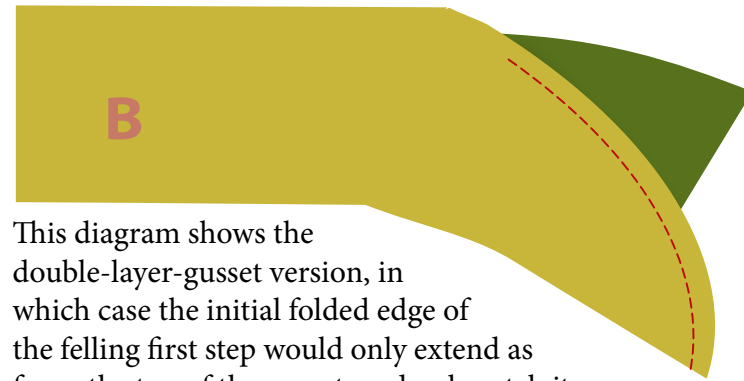
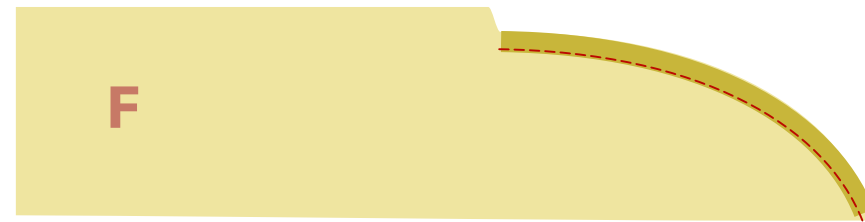
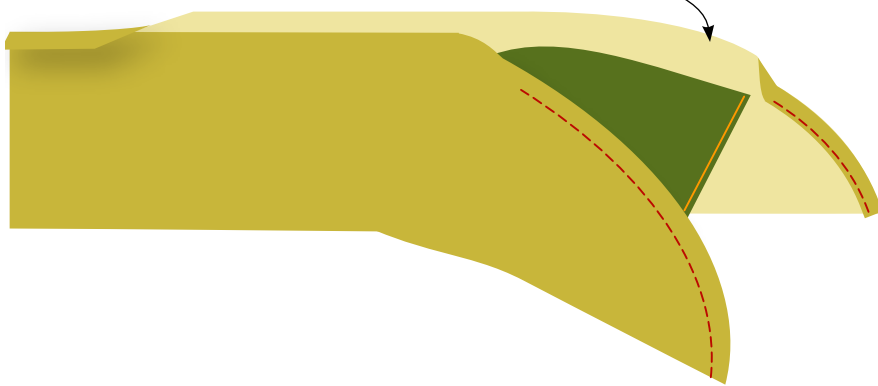
Instead, the turned gusset edge is simply caught in the stitching. This is also the approach taken by Mike Maldonado when creating this detail with a regular single-needle lock-stitch machine (and thus without the dangling thread tails).

Side-Seam Gusset Construction Options

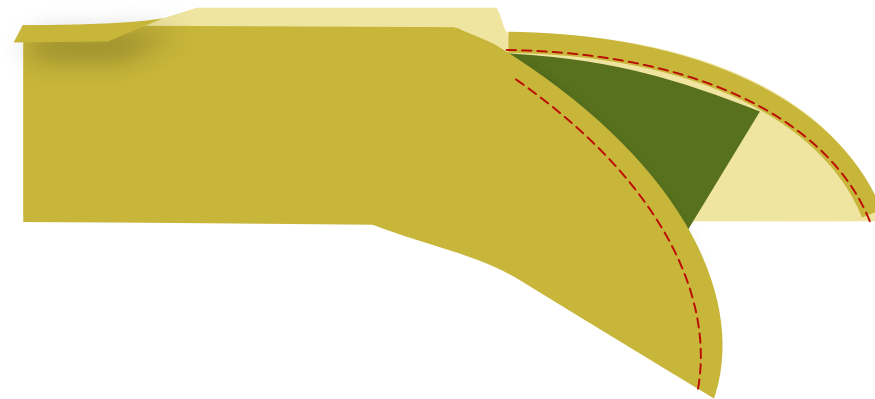
Either of these approaches can be adapted to single-needle lock-stitch machines such as we use at home. The initial set-up—fronts and backs with hems done before side seams and gussets attached in back—would be the same, but the flat-felled side seams would be done in the usual two passes, with the pieces arranged like so:



This diagram shows the single-layer-gusset version, in which case the initial folded edge of the felling first step would extend along the full edge of the gusset and catch it with the stitching from both passes.



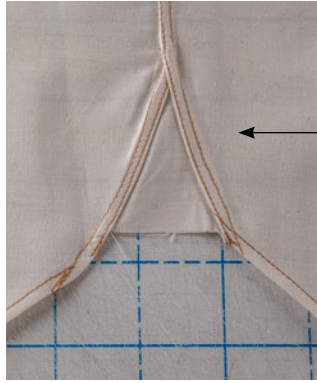
This diagram shows the double-layer-gusset version, in which case the initial folded edge of the felling first step would only extend as far as the top of the gusset, and only catch it with the stitching from the second pass, when the layers were open, not wrong sides together.



The draw-back of this approach is that there's still no easy transition from felling stitches to hemming ones. The chain-stitching seems to get away with this more easily than I've ever managed with lock stitches, as you can see below (bar-tacks would help if I persisted), but this could no doubt be finessed with practice and care...or by using a chain-stitch from a serger/overlocker or cover-stitch machine to make the flat-felled stitchings.



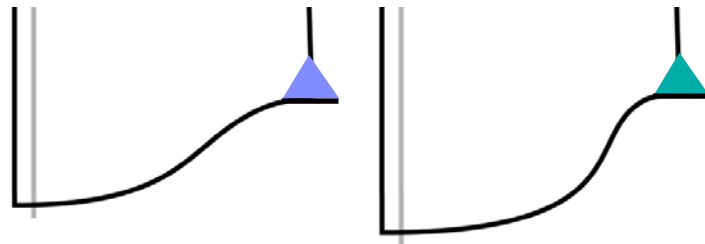
Side-Seam Gusset Construction Options



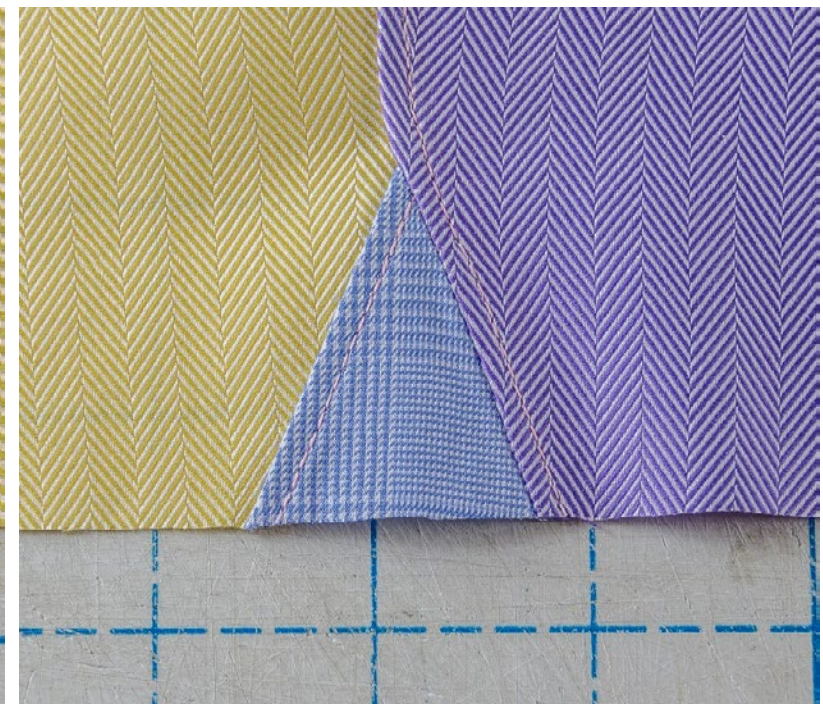
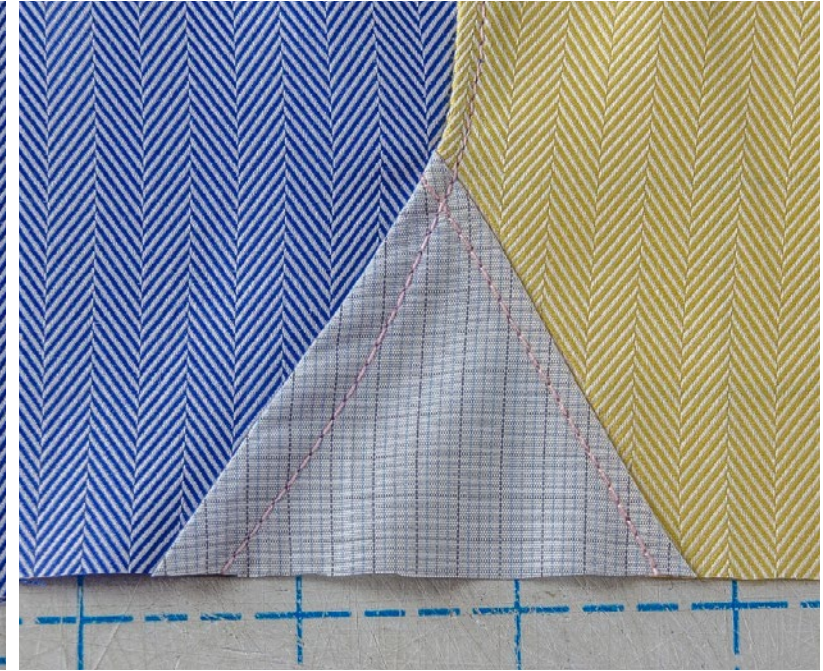
I spent rather a long time trying to get something useful out of catching the gussets with a flat-felling foot, which worked perfectly well, but with the same draw-back: No easy transition to rolled hemming.

Still, this would be a good path to pursue further if you're up for making that transition work. I chose something else, as you'll soon see in more detail.

Another use for these felled gussets would be one I've seen a few times, in which the gusset is added at the end of a normally-shaped hem and is caught in the all-at-once, last-step hemming, like this:



One last point here: Note how the top example has both felled edges facing inward, towards one another and into the gusset as you'd expect, while the lower example has the felled edges all going in the same direction? A subtle difference—and not necessarily an error (it's reversible, after all)—but quite obvious once you notice, or if you've made it yourself by mistake! So, take care which side you're felling onto which if you pursue this.

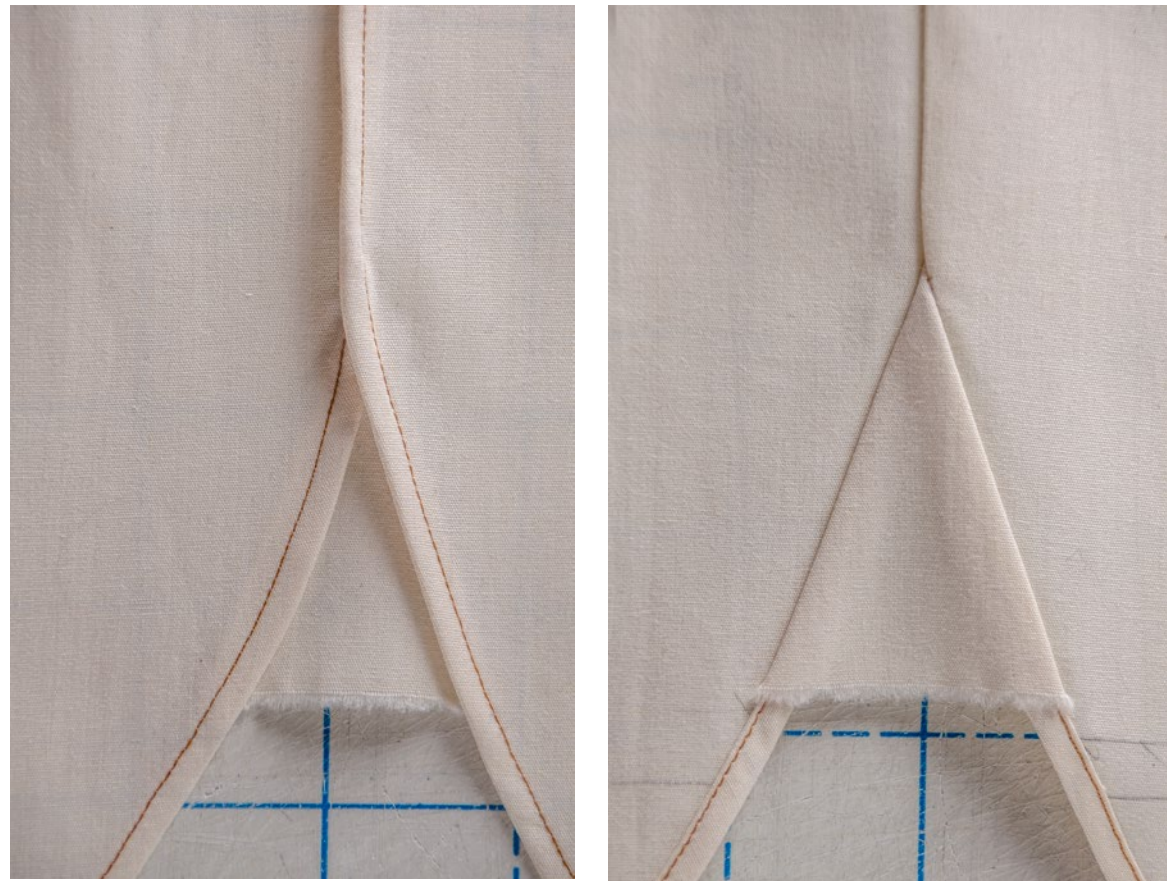


Side-Seam Gusset Construction Options

My Process

I FINALLY started to make progress once I gave up on the felling foot altogether and tackled the idea that I could maybe use the rolled hemmer for BOTH the hems and the seam, which would mean there'd be no need to finesse a transition when changing feet.

There wouldn't BE a transition, **because the foot would never change**...at least not during the critical first flat-felled side-seam pass which would simply continue on to become a hem-rolling process. Here's how that looks in process:



This works because the rolled-hemming foot can do exactly what a flat-felling foot does if you just feed into it the narrower raw edge you'd use when felling, so it simply folds it once rather than twice, into the roll we expect it to be making. Add another fabric layer on top of the folding layer, and it's not "just like felling", it IS felling, first-pass, at least. The only difference is that there's an extra piece of metal on the foot you're using, and while felling, it's not doing anything. It's just waiting for you to feed it when you transition to rolling under a wider raw edge.

The initial set-up is exactly like those already described. Let's walk through the whole process, start to finish.



1. Position the gussets as marked along the start and end of the back hem curve. There's a pattern for these, including a marked hem curve, [here](#).

CLICK FOR PATTERNS

Side-Seam Gusset Construction Options

My Process



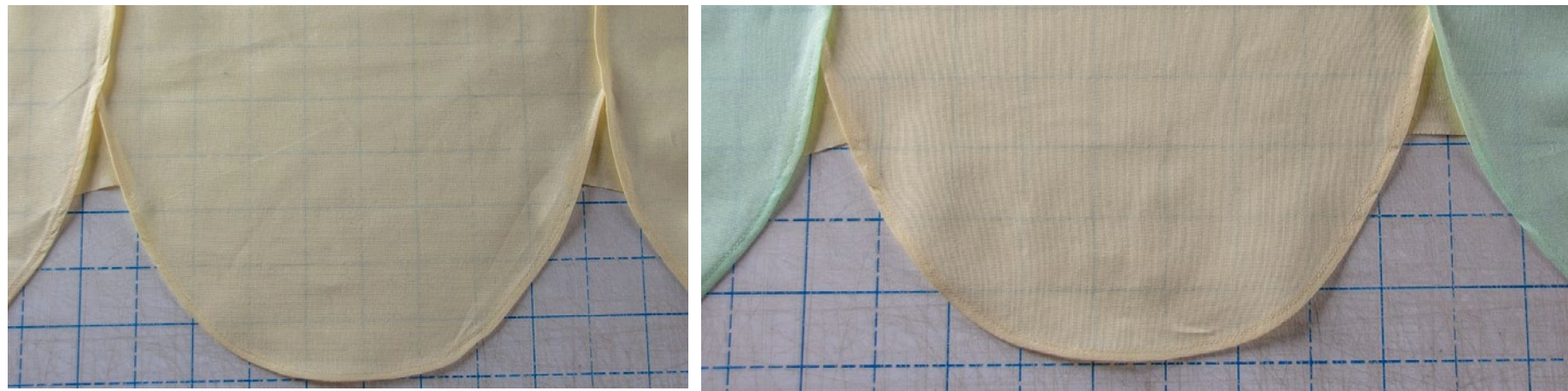
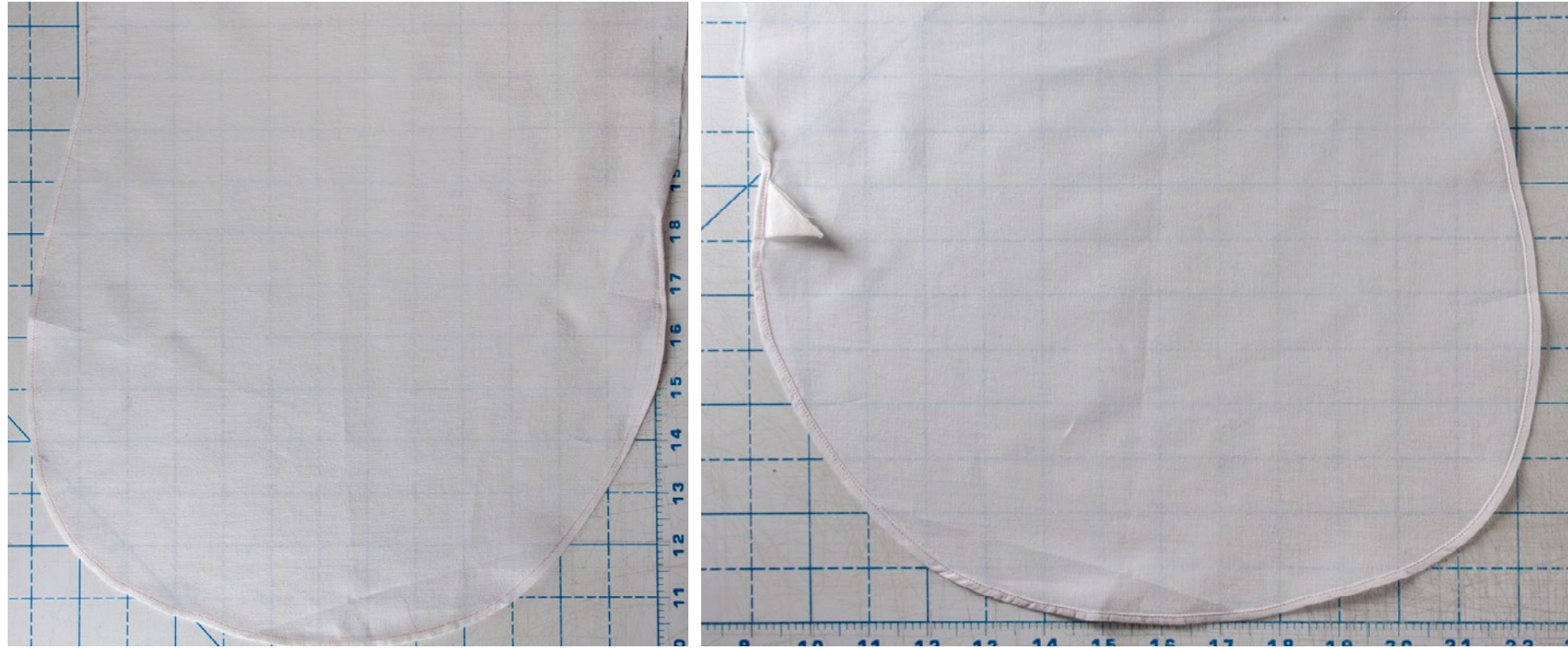
2. Starting at the left hem edge, wrong side up, hand-form a rolled edge that blends from no roll at the very start of the gusset tip to a double roll that wraps over the gusset within about 0.5 inches/1cm. Use a little glue stick to hold the roll as formed while you position it under the foot, if you like.

Slip the formed roll under the hemming foot (I'm using a 4mm foot in these photos, so that's the size of roll I initially formed by hand) and drop the needle into it where the full roll starts, as shown above. Lower the foot, but don't insert the hem edge into the foot until you stitch straight for about another 0.5in./1cm, or a little more. Then stop needle down, lift the foot, and work the hem edge into the roller on the foot, then proceed to stitch and roll around the hem curve.

The gusset itself shouldn't get rolled, just caught in the roll, which is why the gusset and hem edges aren't aligned in Step 1, but if a little of the gusset edge does get wrapped, don't worry about it. Finish the hem at the other end by catching and tapering off the gusset in the same way as described, and shown above.

Side-Seam Gusset Construction Options

My Process



Rolling a hem around a curve definitely takes practice, so just do some! An hour or so will work wonders, you don't need to put in months or years. I do that much before pretty much every shirt project. Cut a few curves exactly like your garment hem (that's my test front for this project on top) and a few that are even tighter and smaller (like these yellow ones below; might as well practice the gusset part, at the same time), and start slow, but go steadily...

It does help to stop with needle down and slightly lift the foot, letting the finished hem slip out of the groove in the bottom of the foot so it can curve more easily when you start stitching again. The more curved the edge the more often you should do this. And even if it doesn't feel like it, a narrower edge is easier to roll than a wider one (less width to compress), so don't go bigger hoping it'll be easier.

The real key is to always feed the same width of raw edge into the roller despite how the curve is shaped right where you're stitching, and in the short space you're about to stitch. There are [several excellent video and photo demos online](#), they're a big help!

3. With the back hem rolled and the gussets seated, we're ready for the fronts, whenever they're ready. Here's the right front, face down with the back on top, side-seam edges offset for felling...with my rolled-hemmer. I'll continue around the front hem curve when I get beyond the gusset.

And on the left side, I'll have to work the other way 'round: From front hem edge, around the curve, and up to catch the gusset, then on to close the side seam.

So, notice that not only has the order of construction dramatically changed with regard to hems and side seams...and in this case, even with respect to the center-front overlap finishing, since this shirt's hem continues part way up the front opening, as you can see on my muslin hem test at left, above. But I'm also closing the side seam BEFORE attaching the sleeves, which I would not normally do, but I don't want to add the sleeve's underarm seam to this already very long and uninterrupted seam. So, the impact of this "minor" change to the hem curve turns out not to be minor at all. It's affecting the construction of all the major pieces on the garment. But let's look more closely at the gusset area before we start sewing.



Side-Seam Gusset Construction Options

My Process



4. So, here's the reason for all these big changes, and where the roller foot will show its true power. This is where we're going to make the transition from felling (a single fold) to rolling (a double fold), and nobody will ever know it happened. The dotted white lines show the area where the transition needs to occur, which it does simply because of how wide the edge is of the fabric we'll be feeding into the foot.

Before we actually do that, notice in the lower version of this image, how I've arranged the back and hem so the side-seam edge and the gusset edge blend smoothly into one another. If necessary, I've even trimmed the garment a little to make the edges even more smoothly continuous. I've also aligned the gusset edge to be parallel to the front hem edge and pinned to hold it there. Glue stick would also be a suitable choice for this task.

5. OK, we did it: Completed both side seams and front hems! Now we're ready to close up the felled seam edge, making the second pass, with layers apart and pressed open, that double-stitches the edge and also locks the hem edges in place over the gussets. I've pressed the layers open and flat, then felt across the the gusset tip to see if all's as flat as can be...and if not, I'll cautiously trim away anything that will be covered after this second pass (circled at right), and stuck it down.



Side-Seam Gusset Construction Options

My Process



6. For this step, my foot of choice is an edge-stitching foot, because I have one. If I didn't, I'd use whatever else let me easily guide my needle very closely along a raised edge and see what I'm doing as I go, such as another of my favorites, the ¼-in. quilting foot, which has just enough of an opening to do exactly that. You can even keep it on for tiny bar-tacks; a great tool.



Note that when I got to the start of the gusset opening, I let my edge stitches veer off the felled edge and into the start of the hem stitching on that side, just to keep the whole perfectly-smooth seamlines thing going. Then I finished off with one of those tiny bar-tacks I mentioned, because I like flat things to stay flat.

You may also have noticed that I've stitched across the selvedge on my gussets. That's because this fabric has fluffy edges, not smooth, hard-finished ones, so I had to fold it up and tried to keep the stitching hidden, except from you, for whom I'll reveal all.

A Gallery of Other Solutions

Here's a collection of other ideas for going from side seams to hem edges without just hemming across the seam. As I hope you can tell, this remains an area of open innovation on shirts, and I encourage you to join the fun with designs and structures of your own devising.

First up: A couple of my own experiments, based on some play with graph-paper folding as discussed in the [Online Article on Sleeve Plackets on a Seam](#).

I'd add a bar tack

...wide enough to cover this



Right Side

Wrong Side

Side-Seam Gusset Construction Options

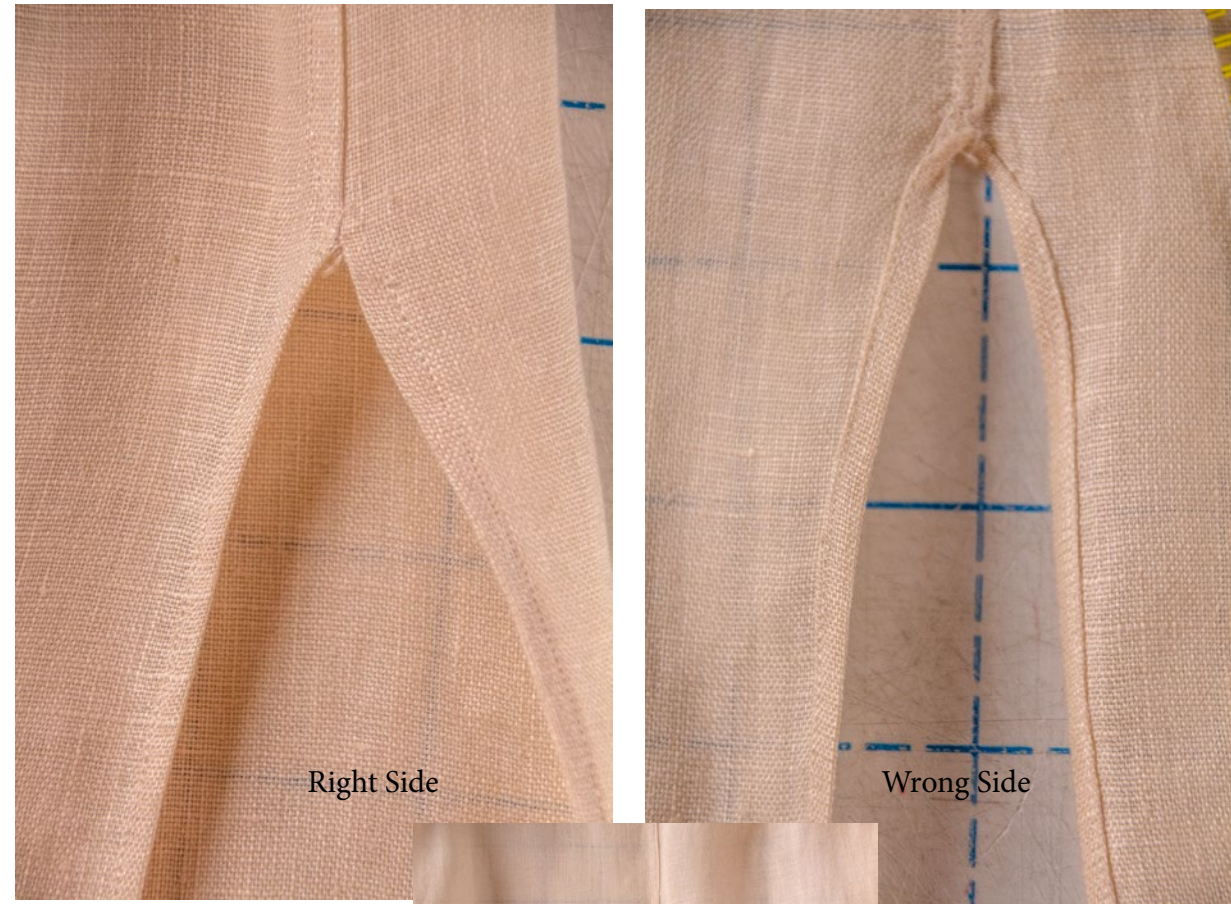
A Gallery of Other Solutions



Right Side

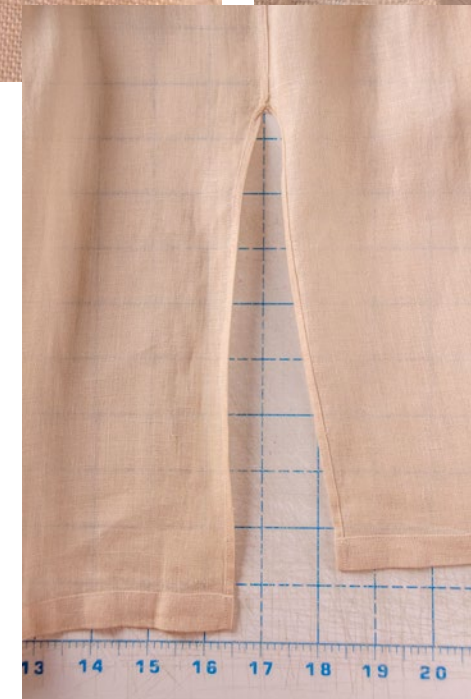
Wrong Side

Needs a wider bar tack.



Right Side

Wrong Side



Should have had a bar tack, but doesn't seem to have suffered from not getting it.

Side-Seam Gusset Construction Options

A Gallery of Other Solutions



from Crea Concepts



from Lanvin

Side-Seam Gusset Construction Options

A Gallery of Other Solutions



from Charvet



from Smith & Hawken

Side-Seam Gusset Construction Options

A Gallery of Other Solutions



Right Side

from Anna Gorbatenko



Wrong Side



from Cubavera

Right Side

Side-Seam Gusset Construction Options

A Gallery of Other Solutions

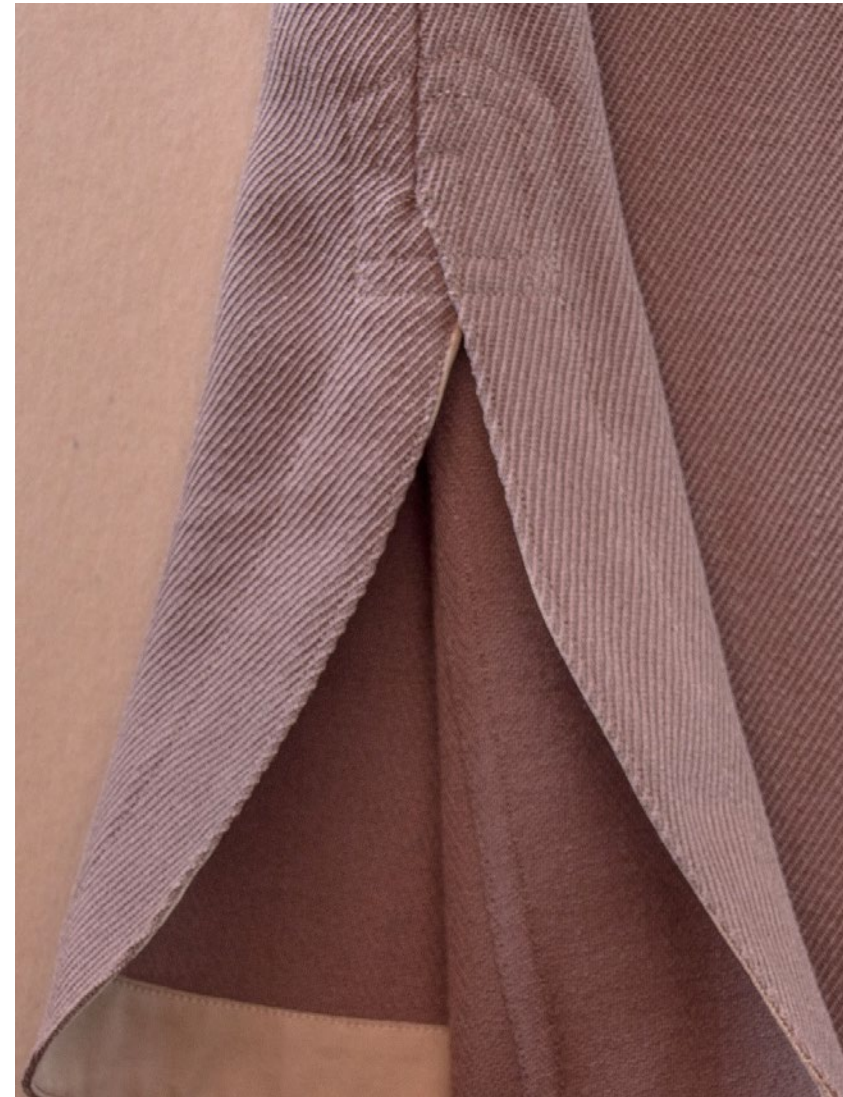


Right Side



Wrong Side

from Swandri



Right Side



Wrong Side



from THE SHIRTMAKING WORKBOOK ONLINE