

## How To Create A Stand-Alone 1570s-Style Linen Ruff



If you follow these directions, you'll create a 1570s-style stand-alone linen ruff of moderate fullness and moderate depth. This is the ideal "starter" ruff, and by making it you should develop a skill set appropriate for more elaborate endeavors. What you learn here will also prove useful in the construction of partlets with attached ruffles, as well as shirt and chemise collars with the same.

Stand-alone ruffs, partlets with ruffles, and shirt and chemise collars with attached ruffles all co-existed at the same time. It was not an either/or situation.

Other than finishing the edges, there is really very little sewing involved, so ruffs can be made completely by hand sewing. However, for speed and durability you might wish to consider applying the hem or edge finish by machine. If one is very careful and uses fine thread, a very small machine stitch, and a very narrow hem, it is difficult to determine that it was not hand sewn. It is certainly easiest to overcast the raw edges using a sewing machine or overlock.

I use the word "ruffle" to describe the part of the ruff which is ironed into setts (the figure eight pleats), and the word "neckband" to describe that part of the ruff which closes around the wearer's neck and is fastened with linen tapes, hooks and eyes, buttons and buttonholes (or loops), or a "band string" threaded through two or more worked eyelets.

I have a theory (unproven, but a pretty good hunch) that Elizabethan ruff makers used a rather fluid formula to calculate the amount of fabric required for the ruffle. I think it was based on an intuitive guess, based on experience, rather than on a mathematical formula. The preference seems to have been for strips of fabric cut across the width of the yardage and then joined selvage-to-selvage, rather than one long strip cut from the length of the fabric (as is often recommended). This is both the most efficient use of fabric and, most important, ruffs constructed from selvage-to-selvage strips behave quite differently from those constructed from a single, continuous length-of-fabric strip. The difference in how fabric behaves depending on the grain has to do with the mechanics of how fabric is woven.

Elizabethans were notoriously thrifty with their fabric and many of the extant examples of ruffs show piecing (both of the ruffle fabric and of the neckband).

Although the amount of fabric used to create the ruffle is somewhat negotiable, the neckband should definitely be custom fitted. That said, there is evidence that ruffs were part of what might be called Elizabethan ready-to-wear and were purchased ready-made. There were certainly professional third-parties who laundered and starched ruffs.

These directions create a ruff to fit a 15" neck.

## Construction

### Fabric for the Ruffle

For this exemplar ruff, you'll need a 3" wide 150"-200" strip of 2.8-ounce to 3-ounce per yard even-weave handkerchief-weight linen. "Ounce per yard" and "handkerchief-weight" are rather imprecise terms. It's always best to get a sample or talk to the vendor. You're after the finest, most tightly-woven fabric you can find. Fabrics of this quality range from \$12 - \$80 per yard. Be wary of Chinese linen (woven from very short staple fiber and prone to wrinkling). Irish, German, and Italian linens seem to be the best choices on the market today (see [Sources](#)).

It is very difficult to find linen fabric of the quality of that which was used in earlier times. Jenny Tiramani, one of the authors of *Patterns of Fashion 4*, shared with me that she had resorted to cutting up 19<sup>th</sup>-century choir boy surplices in an attempt to match the quality of Elizabethan linen.

As strange as it sounds, the finest linen and most expensive linen we can find today would probably have been considered of middling quality by an Elizabethan, so even if you're making a ruff for a lower or middle-class character, you'd be hard pressed to find linen which was too "good."

For ease of construction, the linen you choose should have a good, tightly-woven selvage with a clean-finished edge. If it's fuzzy, you'll have to fidget with it a bit to make sure it looks neat (trimming the less-than-perfect edge, etc.) However, the amount of starch required to stiffen the completed ruff tends to obscure a rough edge. If the selvage on your fabric is compromised or missing, you will need to address this issue when you join the strips together.

### Thread (Construction & Gathering)

For the construction sewing, I use 100% cotton thread. My preferred threads at the moment are Mettler embroidery cotton (Stopf. + Stickgarn) No. 60/2 and Mettler silk-finish mercerized cotton, No. 50/3. All of the linen thread I've tried is a bit problematic and snarly, but I'm told good quality linen thread is becoming more readily available. I use Mettler thread in constructing both the ruffle and neckband.

When hand sewing, I always wax my thread. When working with white fabrics, I use bleached beeswax rather than the unbleached product, which can leave a yellow residue. Seek it out at the fabric store, or purchase bleached beeswax beads at a health food store, melt them, and make your own blocks for sewing. It's easy.

For gathering the ruffles, use super-strong, non-breaking thread. I've used dental floss, carpet thread, quilting thread, Gortex, and nylon beading thread. All of these work (more or less), but my current favorite is Mettler cordonnet top-stitching polyester, No. 30.

### Lace

If you chose to edge your ruff with lace, you'll need at least 156"-206" (150" + 3" + 3" - 200" + 3" + 3") of period-looking, ungathered cotton lace. I've been unable to find decent linen lace at a good price. There is a lot of very nice, simple, period-appropriate cotton lace coming out of China. Period lace can look a bit rough to our modern eyes, so this coarse Chinese lace reads perfectly. There are some reproduction cotton and linen laces available, but they are very, very expensive. Be sure you pay attention to scale, and err on the small side. Lace is optional, but I strongly recommend it for first-time ruff makers as it is a great tool for measuring the setts when it comes time to iron the ruff.

### Neckband Fabric

For this ruff, the 15" x 2" neckband is created from a rectangle of fabric 8" wide by 16" long. If the neckband is any narrower than 1 1/2", you start to run into issues like folding and flopping. To prevent this, make the neckband wider rather than narrower as this will provide more stability and torque.

In period, it was traditional to make the neckband from slightly coarser fabric than the ruffle. You can do this, or use the ruffle fabric itself, although the neckband sees more wear and tear and might benefit from being made up in a studier fabric.

### Closures

Ruffs were held in place around the neck in a variety of ways, including buttons and button holes, hooks and eyes, linen tapes, luted, braided, or twisted band strings (both attached and passed through a worked eyelet), and pins. For ease of wear and maximum adjustability, ruffs which close by means of ties might be the best option. Buttons and hooks and eyes are less adjustable, and putting pins around your neck just seems like a bad idea.

Stand-alone ruffs were also basted or pinned into place at the collar of the outer garment or the collar of a shirt, chemise, or partlet.

### Constructing the Ruffle

Preshrink and wash all of your linen in hot water and press it.

Ruffles were almost always created from joined selvage-to-selvage strips of fabric, and this is a very subtle yet very important component of ruff construction. In spite of what you might have read, do not use a strip cut from the length of fabric and/or use the selvage as a finished edge. Strips cut from the length-wise grain tend collapse into themselves lengthwise and it will be very difficult to get a ruffle created in this manner to "spring" from the neckband properly.

When preparing to cut your fabric, pull a thread from selvage to selvage to find the true grain. I draw the thread, and then cut along this line. Pull the thread using a pin or needle to get it started.

Your goal is 150"-200" or so per ruffle, total, and as you're cutting selvage to selvage, the width of your fabric determines the number of strips you'll need to cut. Cut selvage-to-selvage strips of linen 3" wide. A 3" wide strip produces an average 1570s ruff with a finished depth of about 2 1/2".

A 200" strip gives you a lot of wiggle room, but it's at the top end of an average ruff of this width. I have also made 150" strip ruffs (three pieces of 50" linen) and they worked quite nicely. So anything between those two measurements should be fine.

The method of joining the strips together is in large part determined by the quality of the selvage.

If the selvage is tight, make an abutted join. To do this, place the two selvage edges together and whipstitch them using waxed cotton thread, a fine needle, catching the smallest amount of thread possible at the edge of each selvage. Place your whipstitches very close together. If done properly, the join is barely visible from the "right" side. There is a slight ridge on the "wrong" side. If for some reason there is no selvage or if the selvage is wonky, make a flat felled join. Make this join as small as possible.

After joining the strips, machine finish (very small overlock, zigzag, or stay stitch) the raw edges to stop them from unraveling. Try to use the least amount of thread possible as it can add bulk. Do not skip this step. It's very important and will save you a world of woe later on.

In period, the raw edge of the ruffle would have been hand hemmed and then the lace would have been applied, by hand, to the hemmed edge. Alternately, in the case of needle lace and/or cutwork, the threads of the raw edge would have been worked into a type of lace. There is some visual evidence of ruffs with barely-finished or raw exterior edges, but this is not the norm. For the sake of speed (and your sanity), I offer this alternative method of applying lace to a raw edge. It's a multi-step process, but looks good and, if you crank your stitch length to very short stitches, it is difficult to see that it has been applied by machine.

If you chose not to use lace, you can hand or machine hem the raw edge. Hems of this type should be no wider than 1/8" and you will not have the advantage of a readymade measuring tape on the edge of the ruffle.

In spite of what you may have read over the years, if you're making an authentic ruff, resist the temptation to indulge in monofilament fishing line, zigzag stitching, or doubling of the fabric. Although all of these work, they're really overkill.

Fishing line introduces a host of issues, as does doubling the fabric. If you're doing a stage show or want to wash-and-wear your ruff, there's tons of information online about how to create this type of ruff. And all of it pretty much inauthentic.

Using your method of choice, finish the two short ends of the ruffle strip as well.

At this point, find the exact center of the finished, exterior edge of the strip of fabric and mark the center back (CB). I use a French knot or bit of embroidery. This mark will be very important when it is time to put the setts into your ruff. You don't want to draw attention to this mark visually, but you should be able to feel it by running the edge through your fingertips.

### Gathering/Cartridge Pleating

When constructing ruffs, probably nothing causes more concern or sparks more controversy than the method used to gather up the long strip of fabric used for the ruffle. In fact, all extant ruffs seem to have been constructed in more or less the same manner, and there is no reason to believe the ruffs were constructed in any other way.

Simply put, the long strip of fabric which comprises the ruffle is gathered into regular 1/4" cartridge pleats using a line of two to four parallel rows of gathering stitches. *Patterns of Fashion 4* shows two additional techniques, but they are really just slight variations on this theme. No accordion pleats. No stacking. No measuring. It is the height of simplicity itself.

When making the gathering stitches, I find it easiest to use a blunt needle (such as a crewel needle) which allows the tip to pass between the threads, rather than splitting them. Leave your heavy-duty cordonnet thread on the spool and thread your needle. Run your first line of gathering stitches about 1/8" from the unhemmed edge. Run successive lines of gathering threads about 1/4" away from the first line of stitches. Use two to four lines of stitching. If you keep the fabric flat throughout this process, rather than gathering as you go along, it is much easier. Leave a 10" to 12" tail on either end.

### Constructing the Neckband

Make your neckband bigger than you think you should as the ruffle is bulky. I find it helpful to gather up the ruffle and loop it around my neck. I then measure this distance (and am usually surprised by the "bull neck" resulting measurement). The bulk of the gathered ruffle can add up to 2" to your neck measurement. You don't want to make the ruff too tight, although you do want it to fit snugly.

For a 15" x 2" finished neckband, start with a rectangle 16" x 8".

Fold this rectangle in half, lengthwise, and press. Unfold, and then fold the two long edges toward the center crease line. Press. Your strip will now be 4" wide. Unfold and then fold under 1/2" on each of short ends, towards the inside. Press. Then refold the two long edges down toward the center fold line, and then bring the two long folded over edges together. Your neckband should now be 15" x 2". Press this very well, perhaps using some starch to hold the creases.

In period, neckbands do not appear to have been curved or shaped.

### Attaching the Ruffle to the Neckband

This is definitely a situation in which hand sewing is far superior to machine sewing and will yield a much better result.

Divide the ruffle into workable units. If it's constructed of three 60" panels, each unit will be one 60" panel. For a 15" neckband, mark three 5" sections on the neckband.

Gather the ruffle to 15" and manipulate the pleats to make sure they're evenly distributed. If you lay it down on a ruler, you should have seams match up to the 5" and 10" marks, with the two edges touching the 0" and 15" mark. It helps to hit the finished, gathered ruffle with a shot of steam from the steam iron. The pleats should stand straight up and down.

It's very important that this ruffle unit is rock solid as you're not really going to do much more than tack it in place to the neckband. I used to machine stitch over the gathered edge (with the idea that it would lock down the length), but found that the damned thing always grew and I'd end up with a non-adjustable wad. Do not rely on the sewing which is attaching the ruffle to the neckband to hold the gathers in place.

Match the three joins of the ruffle to the corresponding marks on the neckband, and lay the long folded edge of the neckband on top of and parallel to the most interior gathering thread. Baste the neckband in place rather than relying on pins, which I find get in the way. Working from the center of the neckband to the short ends, whipstitch the folded edge of the neckband to the pleated ruffle. You can space your stitches about 1/4" to 3/8" apart.

Make sure the end of the ruffle stops just a trifle shy of the folded under short end of the neckband. Fold up the other long edge of the neckband and repeat. At this point (and only after you've completed all of your stitching) tie a square knot or two in the gathering threads. Clip them to about 1" and tuck the tails back into the neckband.

Finish the short ends by whip stitching closed as close to the edge as you can. Consider your method of closure at this point.

Do not trim the seam allowance on the ruffle. The finished edge of the neckband enclosing the ruffle will be quite thick, as you're sandwiching up to 200" of gathered fabric into a 15" neckband. Don't panic. This is okay. The ridge you create acts a type of fabric boning around the top edge of the ruff, causing the whole thing to remain upright and giving the ruff a huge amount of spring off of the neck.

Extant ruffs often have feather or back stitching on the surface of the neckband, effectively "quilting" the neckband fabric to the ruffle in order to create a solid, unshifting unit.

The final step is to work the button holes, hooks and eyes, tapes, or eyelets.

## Washing, Starching, & Ironing

### Washing

Ruffs require washing, and an authentically-created ruff will collapse when it gets wet. For the most part, a ruff's shape is determined by how it is ironed, rather than how it was constructed.

Wash linen ruffs in hot water. If a ruff has been starched, the starch will hold the dirt and when it dissolves, the linen should clean quite easily.

Linen is relatively tough stuff, but I use non-chlorine bleach (Oxiclean).

To remove excess water, which will dilute the starch, blot the ruff dry by rolling it in a towel. Linen absorbs a huge volume of water, so you have to use a fairly large towel. Don't wring out wet linen.

I recommend hand washing and wouldn't think of putting anything hand sewn or hand finished in the washing machine.

### Starching

There are two common starching techniques, one using "cold" starch, and the other using boiled starch.

Cold starch involves dissolving raw starch in water and then applying it to the fabric. The starch is "cooked" (gelatinized) when the cloth is ironed. This produces the stiffest finish, but requires a very skilled hand in order to not scorch the fabric or end up with the cloth stuck to the iron.

When you boil raw starch, it thickens into a transparent "jelly." You can work this jelly into the damp linen, allow it to dry completely, remoisten is very slightly and then iron without fear of sticking or scorching.

Many recipes recommended adding paraffin, spermaceti, borax, or salt to boiled starch, but I don't really think any of this is necessary.

Nowadays boiled laundry starch is difficult to come by (boxed Argo was the brand of choice for years), but it's really unnecessary as cornstarch is readily available (and that's what American laundry starch is made from anyway). Unfortunately cornstarch is prone to yellowing and does not give the crispest finish. The Elizabethan starch-of-choice was wheat and, to a much lesser degree, rice starch, which provides the stiffest set. Both wheat and rice starch are available from bookbinders (see [Sources](#)) and I find rice starch works really well.

A good basic recipe is:

2 tablespoon raw starch (corn, wheat, rice)  
1 cup cold water

Mix the starch with a little cold water to form a paste, and then add the remainder of the water. Either microwave in 30-second cycles on "High" or heat the mixture on the stove, stirring constantly, until it becomes thick and transparent. This proportion will make a fairly stiff starch "jelly."

Spray starch might be useful for touchups, but it's a very expensive way to starch a ruff.

Sta-Flo (a pre-made, blued, liquid cornstarch product) is okay, although it's not quite thick enough and the bluing has caused problems for me with Procion black dye, causing it to bleed red. For this reason, if you chose Sta-Flo, buy the variety with contains no colorants.

In period, the starch was often lightly tinted blue, yellow, pink, or green.

Starch should be applied to damp, not dry, linen so that it can fully penetrate the fibers.

After washing and blotting dry, soak the ruff in undiluted starch or coat with starch "jelly," working it into all of the folds. Gently "squeegee" out the excess starch, but make sure you leave a relatively thick coating. In the Elizabethan era, starch was expensive; we can be more generous as starch is now cheap.

Lay the starched ruff out to dry, smoothing the folds, and finger pressing out any wrinkles. Finger training the ruff at this point is a good idea if you have already basted the setts.

After starching, you must let the ruff dry completely. It's a good idea to open the pleats up as the ruff is drying so that they do not stick together. Setts which are glued together with starch can lead to torn fabric when you try to pry them apart. Patched and darned ruffs were quite common, but you can avoid this if you pay attention during the drying process.

### Curling Irons & Poking Sticks

You should never have to buy a new curling iron as there are tons of orphans to be had for a few dollars at thrift stores. You will find a lot of exotica out there, but one of your search criteria should be a removable plastic tip and "bail" (the thing which holds the hair against the heated rod). A little work with a screwdriver will yield something quite useable. Buy a variety of sizes.

Unfortunately, after modification, all of the curling irons I've found will end rather abruptly, causing a "valley" at the gathered neck edge of the ruff where the tip cannot reach.

To remedy this, you can try to find a period reproduction poking sticks (they do exist, but usually have to be custom made and are quite expensive). I found great work around in the plumbing department of Home Depot. It's a round-tipped hollow copper steam fitting into which you can easily slip a wooden dowel. This can be heated on a gas or electric stove and used to poke out the small dip at the neck edge of an ironed ruff.

You should also keep your eyes peeled for objects which might work (sharpening steels, wooden muddles, glass candle holders). But you can go quite a distance with a simple curling iron.

### Basting the Setts

At some point in the laundering process, you need to determine what you'd like your setts to look like. I like to use a cold curling iron as a gauge. Once you've determined the amount of fabric required for a sett, you need to start at the center back (CB) of the ruff (the exact center should be marked), and start marking from there. You can either use the repeats in the lace, the repeats in the weave of the fabric, or a ruler and a washable marking pen. Baste the setts in place, using cotton thread. You can baste before you wash, after you wash, or after you starch.

## Ironing

You will need to use a regular steam iron to press the neckband and I recommend that you iron the neckband before you iron the ruffles.

Lightly dampen the ruffle, using a spray bottle filled with water or starch. You want the ruffle to be just slightly damp. Do not dampen the neckband. Mount the ruff on a ruff stand (some folks use a bottle filled with water) and fasten it.

The linen will iron up quite nicely even if it feels dry to the touch. Again, linen can hold a tremendous amount of water without feeling damp. The damper the ruff is, the longer it takes to iron and the more the unironed damp sections will wick water into the ironed sections, undoing all of your hard work.

Heat your curling iron to almost the hottest setting.

Starting at the CB, grasp each sett where the basting thread passes through the "waist" of the sett. Push the iron into the sett, pinching at the basting thread, and gently force the iron into the pleat. It will uncrease and become rounded. Go to the next pleat, on the same side (top or bottom) and repeat the process. Continue until all the setts are ironed. Undo the ruff and flip it over. Repeat the process.

The last two setts at left front and right front might need to be finessed as they often end up a size different from the preceding sett. You can cheat backwards a few setts in each direction to make the setts gradually smaller, but it isn't really necessary, and slight unevenness wasn't an issue if you look at the portraits. Only the Dutch achieved a surreal level of perfection, but they were the masters of this game. Other countries were much more relaxed.

As I mentioned above, one of the results of using a modern, non-tapered curling iron as a poking stick is the valley at the neckband. You can wrinkle the setts open at the neckband with a makeshift poking stick. This isn't absolutely necessary as ruffs constructed in this manner tend to hide this valley when you put them on. But for perfectionists, a little poking and finger pressing will smooth out this dip.

When I'm done, I pull the basting thread up tight to secure the ruff and hold the setts until the ruff is completely dry. This is also a good way to store a ruff. You can also reinsert the basting thread before washing if you like a particular sett, or make notes as to the repeat sequence. The basting thread is really a crutch which I find necessary to make sure the setts are all equal. It is not authentic. Someone who washed and ironed ruffs for a living could probably eyeball a sett. Practice made perfect.

When it comes to starched ruffs, moisture is your worst enemy. I like to keep the basting string in place until the last possible moment. Realize, however, that the natural "decay" which a ruff will experience over the course of a long, sweaty day is part of an authentic ruff's charm, as are unruly setts and the fussing they require. By all means incorporate these facts into what you're doing as an actor and fiddle with your ruff (or have someone fiddle with it for you). All of this was well-documented by contemporary sources.

Following the **Sources** section is step-by-step illustrated tutorial on washing and starching ruffs from my Facebook account which might be of interest.

## Sources

### Books

*Patterns of Fashion 4, The cut and construction of linen shirts, smocks, neckwear, headwear and accessories for men and women (c. 1540-1660)* by Janet Arnold, Jenny Tiramani, and Santina M. Levey, published in late 2008, is *the* one-stop-shop for ruff information. My only caveat is to be wary of the instructions in the back about baking the starched ruff. I know of one ruff which has been broiled to a crisp using this technique due, I believe, to differences between European and American ovens. It is a truly great book and no one with an interest in the Elizabethan era should be without a copy. Buy it!

One of the most oft-quoted contemporary screeds against ruffs was written by Philip Stubbes in 1583. His *Anatomie of Abuses* is online (<http://www.elizabethancostume.net/stubbes.html>). However, as with all polemic, it should be taken with a grain of salt. As should most of the "facts" about ruffs found on the internet.

Jan Hunnisett's *Period Costumes for Stage & Screen* is also of interest, as it has both authentic and more theatrically appropriate methods.

### Fabric

William Booth, Draper  
2115 Ramada Drive  
Racine, WI 53406  
wmboothdraper.com  
815/648-9048 (phone)  
262/886-9133 (fax)

Nice, reasonably-priced linen.

Burnley and Trowbridge Co.  
108 Druid Drive  
Williamsburg, VA 23185  
burnleyandtrowbridge.com  
757/253-1644 (phone)  
757/253-9120 (fax)

Talk to Angela. Great source for linen and other fabric as well.

### Lace

Dharma Trading Company  
1604 Fourth Street  
San Rafael, CA 94901  
dharmatrading.com  
800/542-4227

A very good selection of Chinese cotton lace with incredibly fast mail order in the Bay Area.

### Starch

Talas  
330 Morgan Avenue  
Brooklyn, NY 11211  
talasonline.com  
212/219-0770 (phone)  
212/219-0735 (fax)

A source for rice and wheat starch.

## Ruffs Do Require Washing....



Ruffs do require washing, and an authentically-created ruff should collapse when it gets wet. For the most part, a ruff's shape is determined more by how it is ironed, than how it was constructed. In spite of popular theories, all ruffs are pretty much the same: a strip of fabric gathered (or very tightly pleated with very tiny pleats--think smocking) into a neckband. No fancy pleating is required (or recommended) at the neckband. The work is at the exterior circumference. Wash linen ruffs in hot water. Use non-chlorine bleach. If a ruff has been starched, the starch will hold the dirt and when it dissolves, the linen should clean quite easily. Starch started as a stiffening agent, but protective quality is an ancillary benefit and it is why men's shirt collars and table linens were heavily starched. It is really a type of cheap fabric protection.



Here's the newly-clean ruff, laid out flat. Quite shapeless. The Elizabethans went to great lengths to protect their ruffs from the elements, but the sign of a properly-made ruff is that will collapse in the presence of moisture. Sic transit gloria mundi and all that.



To remove excess water, which will dilute the starch, blot the ruff dry by rolling it in a towel. If time is not an issue, you can hang it up to drip dry.



Linen absorbs a huge volume of water, so you have to use a fairly large towel. Don't wring out wet linen. Authentic ruffs are made for very light-weight fabric (less than 2.8 ounce per yard), so they should be treated gently when wet. Most extant ruffs are patched. But not many have survived into the modern era.



If you're in a hurry, undiluted bottled starch is okay. I prefer wheat or rice starch (which is available in powdered form). Hot starching is easier for an amateur to master, although cold starching is said to give a stiffer finish. I like to melt a bit of paraffin into hot starch and I also add a pinch of borax. Salt was also added, as was sugar.



Soak the blotted ruff in undiluted starch, working it into all of the fold. Damp linen absorbs starch more easily than dry linen, but I've also double starched ruffs by letting the initial starching dry, and then working in a second coat. Whichever method you use, work out the excess starch, but make sure you leave a thick coating. In the Elizabethan era, a paste of starch was worked into the ruffs. Starch was expensive to produce; we can be more generous today as starch is cheap. In the Elizabethan period part of the outcry against starched collars was the fact that edible wheat was used to produce starch, rather than being eaten.



Lay the starched ruff out to dry, smoothing the folds out and trying to finger press out any wrinkles. Ruffs should be built with the warp threads running from neckband to exterior edge. In other words, strips of fabric the width of the material are joined with an abutted seam, selvage to selvage, rather than cutting a long, continuous strip of fabric parallel to the selvage. This would have been unthinkable to the Elizabethan mind, and it also causes the ruff to wrinkle lengthwise. Trust me on this. I've made them up both ways, and the selvage-to-selvage method is the way to go.



This is a detail should the very tiny pleats used to gather the joined lengths of linen. This ruff is 3 strips of 50" wide linen, about 4" wide, gathered into a 17" neckband. Make your neckband bigger than you think you should as ruffs are bulky. Also note that the neckband fabric and the ruffle fabric are different. The neckband is a sturdier, more coarsely woven fabric. This is also authentic.



A side view of the ruff. Again, finger training the ruff at this point is an option. After starching, you must let the ruff dry completely. If you cold starch, the "cooking" process occurs while you iron the damp starch. The finished ruff is ultra crisp, but this requires a very firm hand with the iron, exact knowledge of scorching points, and iron fingers. I hot starch.



This is where it starts to get a bit tricky as authentic ruffs are constructed with no predetermined number of sets (this one could be anywhere from 18 to 30 setts, depending the depth and width of each). At some point in the life of your ruff, you need to determine and mark the exact center (CB) of your ruffled strip. You need to do this during construction, and I find it easiest to work in a little bit of embroidery (or some French knots) at the exact CB of the exterior edge of your ruffle. Using this mark as the fold, roughly determine the depth of your sett. This was about 3", but it can vary depending on the desired number of setts you'd like this particular "wash and set" to produce. This is the difference between authentic and purpose-built ruffs, which will always look exactly the same, washing to washing (which is not period at all) An Elizabethan would discuss with the laundress the sett and poking stick desired when the ruff was taken in to be laundered. Rather than using a ruler to measure, use the repeats in the lace itself.



After you'd made your initial CB fold, count the number of repeats in the lace to get to the center of the sett (the middle). If the fold produces a 3" pleat, you need to find the 1.5" mark. In this case the entire depth of one half (side) of a sett is 11 repeats. You'll be running a basting/working thread or thin cord through the dead center of each sett (in this case Repeat No. 6). Work with a long cord and go from the CB to the front edge, working one side, then the other. At the closure, you'll finish up with a pleat which may or may not be a full sett. But if you done it properly, both the LF final sett and the RF final sett will be exactly the same. However, period portraits reveal that not everyone got their sett completely symmetrical.



This is what it should look like when you're done. Note the working/basting thread running through the exact center of each sett. I find it easiest to use the repeat of the lace (rather than a measurement) to count off. So it's 1, 2, 3, 4, 5 repeats, run the cord through 6, count of 5 more repeats, make the crease, count up 5, run the cord from 5, count 5 more, crease, go down 5, etc.



Although I have quite a few authentic poking sticks, I encourage you to use a curling iron to get the hang of ironing. I buy cheap (\$15) Conairs or hunt down used curling irons at the thrift store, and then remove the tip and the clip. You end up with a tube. During this entire process, you're working with a bone dry ruff. As a word of caution, wash your hands before you start as unironed ruffs soil easily and you'll undo all your hard work if you soil the ruff by working with dirty hands. This seems like common sense, but it bears repeating. White linen is an unforgiving creature.



This shows the "tools of the trade" (modern). In period, you'd be using a poking stick and, perhaps, a damp cloth. At this point, you dampen the ruff. Spritz the ruff and let it relax a bit. You want the ruff to be very slightly damp. Do not dampen the neckband. I'll often iron the neckband before I start and then touch it up again after I've finished with the ruff. Mount the ruff on a ruff stand (some folks use a bottle filled with water) and fasten it. If necessary, spritz the ruff again, VERY LIGHTLY. Do not saturate it. The linen will iron up quite nicely even if it feels dry to the touch. Again, linen holds a tremendous amount of water without feeling damp. The damper the ruff is, the longer it takes to iron and the more the unironed damp sections will wick water into the ironed sections, undoing all of your hard work. I iron the neckband with a flat iron.



Starting at the CB, grasp each sett where the basting thread passes through the center of the sett. Push the curling iron the sett, pinching at the basting thread, and ratcheting the iron into the pleat. It will relax and become rounded. Go to the next pleat, on the same side (top or bottom) and repeat the process. Continue until all the setts are ironed. Undo the ruff, and flip it over. Repeat the process.



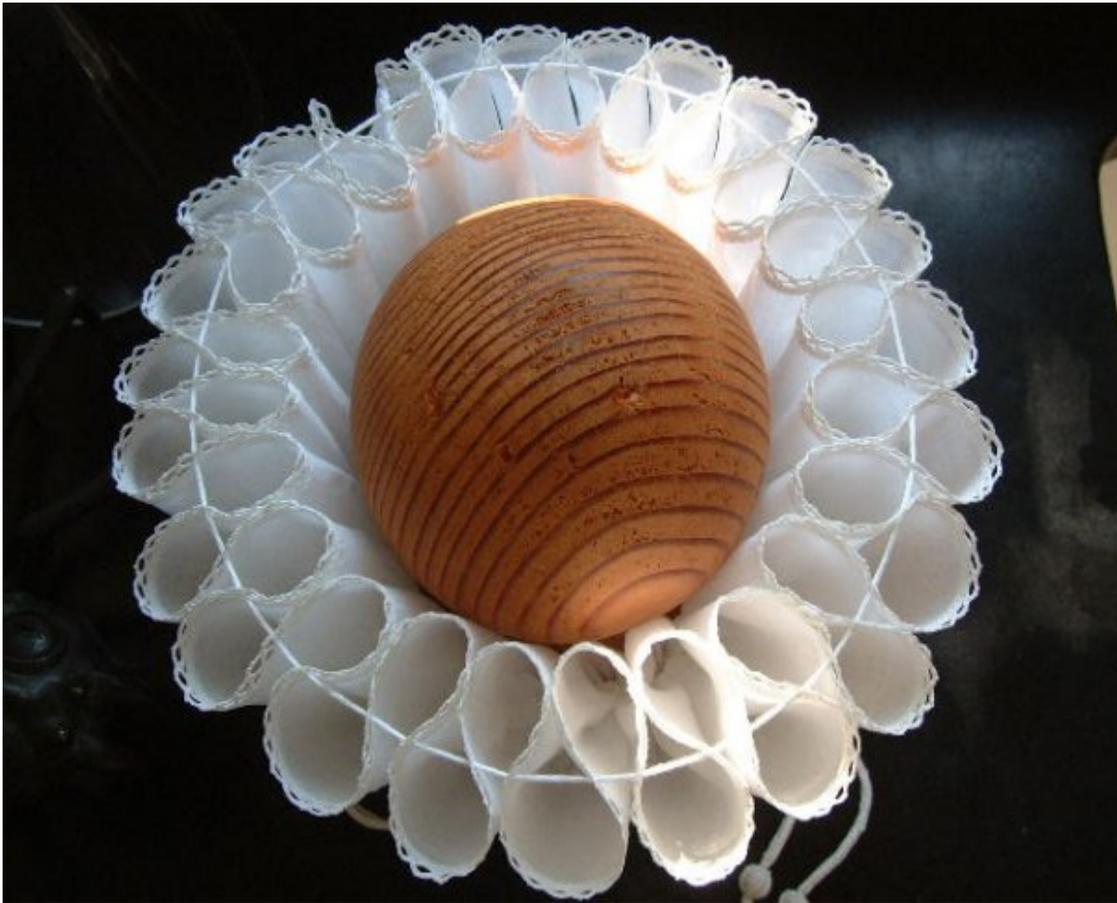
The final two setts at LF and RF are always done last. You need to finesse them somewhat, and they are often much smaller than a full repeat. You can cheat backwards a few setts in each direction to make the setts taper, but it isn't really necessary, and slight unevenness wasn't an issue if you look at the portraits. Only the Dutch seem to have achieved a surreal level of perfection, but they were the master of this game. Other countries were much more relaxed.



One of the results of using a modern, non-tapered curling iron (as opposed to an authentic, tapered poking stick) is this "valley" at the neckband. You can winkle the setts open at the neckband with a makeshift poking stick (I use a bit of copper steam fitting on a wooden dowel, heated in boiling water or over a gas flame). This isn't really necessary as ruffs constructed in this manner tend to hide this valley when you put them on. But for perfectionists, a little poking and finger pressing will smooth out this dip.



Here's a view showing some of the valleys popped out, and others waiting to be popped out.



When I'm done, I pull the basting thread up tight to secure the ruff and hold the setts until the ruff is completely dry. This is also a good way to store a ruff. You can also reinsert the basting thread before washing if you like a particular sett, or make notes as to the repeat sequence. The basting thread is really a crutch which I find necessary to make sure the setts are all equal. I used to say that it was not authentic until I noticed that one is used in one of the ruffs in *Patters of Fashion 4*. Someone who washed and ironed ruffs for a living could probably eyeball a sett. I imagine it was like decorating a cake with swags, or setting hair on rollers. Practice made perfect.



This is a side view, with some of the setts opened up to see how it looks. As you can see, some of the setts on the far side have yet to be ironed. To my eye these setts are a trifle big for the amount of fabric in the ruffle. It looks sprung, and I've since resett this ruff using a smaller sett to correct this.



This ruff is interesting because it was created from exactly the same length of linen (150"), but was mounted on a slightly smaller neckband. Also, it is much narrower (about 2"). As you can see, this allows many more (albeit smaller) setts. That's an reproduction poking stick.



This edge detail shows a treatment I came up with. I'd dyed cotton lace black, and then ran some white perle cotton through the lace repeats. The black thread is the basting thread. If you look very carefully, you can see a bit of red bleeding (from the black-dyed lace). This was a reaction of the black dye with the starch. It's fugitive, but irritating, and nobody seems to be able to tell me why it happens. The black doesn't run, it just turns the starch reddish. This macro photo also shows just how close you have to get to see the machine stitching used to secure the lace. It's almost invisible to the naked eye.



A further close-up. If you closely at the interior of the sets, they look exactly like the portraits. Another macro photo; you can see the fuzz on the thread.

## Hand Hemming & Abutted Join

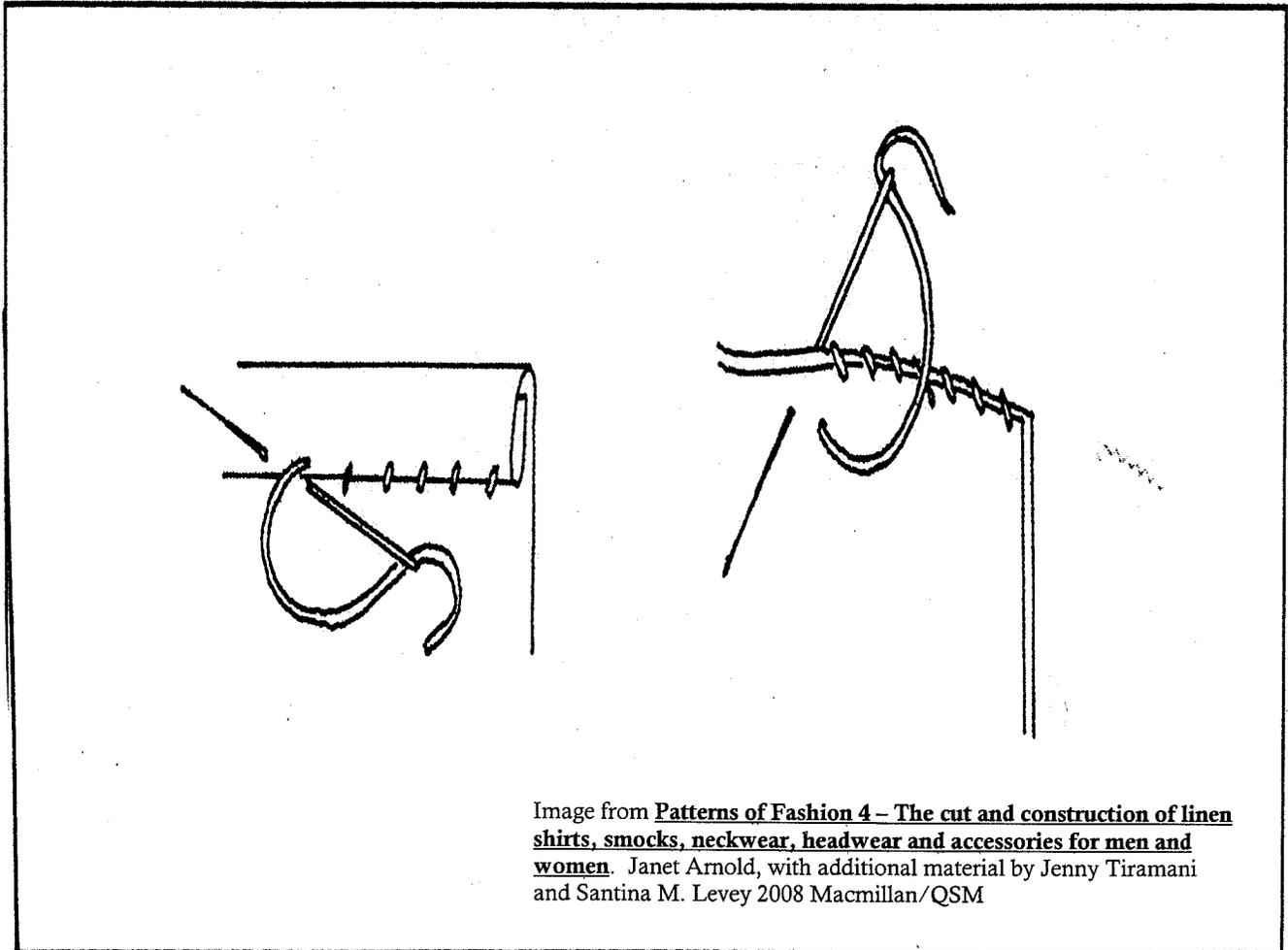


Image from Patterns of Fashion 4 – The cut and construction of linen shirts, smocks, neckwear, headwear and accessories for men and women. Janet Arnold, with additional material by Jenny Tiramani and Santina M. Levey 2008 Macmillan/QSM

**The edge of the ruffle can be finished with a hand-stitched hem. If the fabric has a tight, clean selvage, the preferred method of connecting the ruffle panels is an abutted join.**

# Flat Felled Seam

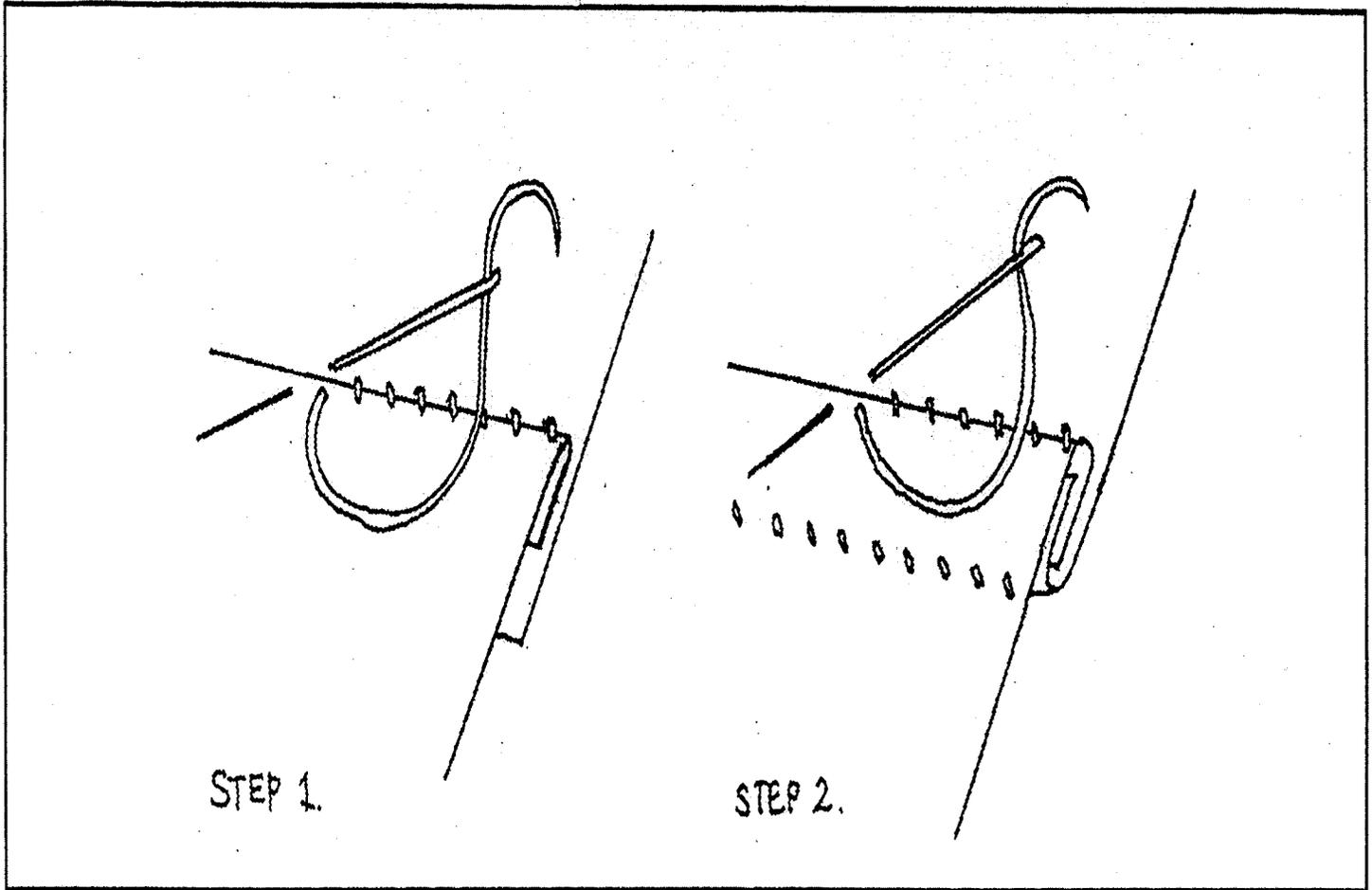


Image from Patterns of Fashion 4 – The cut and construction of linen shirts, smocks, neckwear, headwear and accessories for men and women. Janet Arnold, with additional material by Jenny Tiramani and Santina M. Levey 2008 Macmillan/QSM

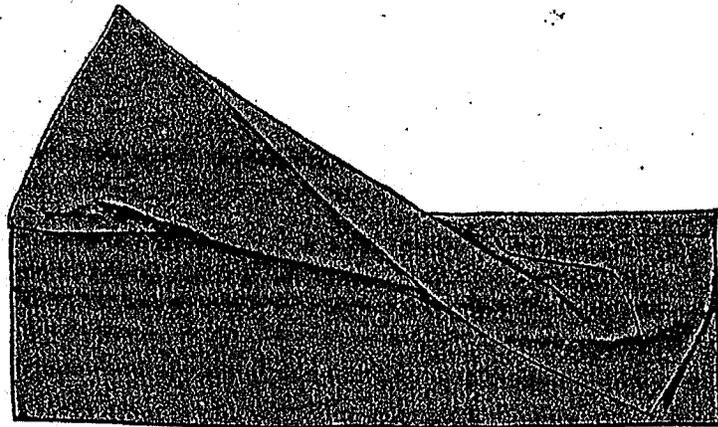
**This is one method of creating a flat felled seam. Experiment with the methods described in the other attachment. There are no hard and fast rules as to how this should be done.**

## CHAPTER 17

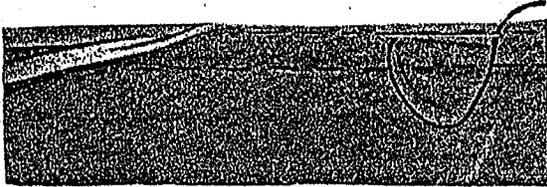
### SEAMS

French Seam—Turned-in French Seam—Fell French Seam—Flat Fell Seam—Lapped Fell Seam—Roll Seam—Plain Seams Pinked—Plain Seams Bound—Joined Seams—Ordinary Tailored Seam—Broad Seam—Cord or Tucked Seam—Welt Seam—Double-Stitched Welt Seam—Open Welt Seam—Slot Seam—Double-Stitch Slot Seam—Strap Seam—Lapped or Imitation Strap Seam—Raw Edge Lapped Seam

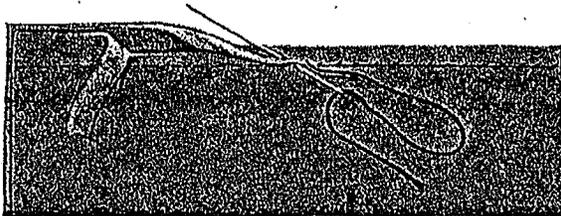
**A** FRENCH SEAM is a double seam used to encase raw seam edges. Baste the two edges evenly together on the right side of the garment, and sew close to the edge. (Ill. 147.) Trim off the ravelings and turn the wrong side of the garment toward you, creasing at the seam. Make the second sewing a sufficient depth to cover the raw edges. (Ill. 147.) This seam is used for thin materials and for dainty garments where it is not desirable



Ill. 147. French Seam



Ill. 148. Turned-in French Seam



Ill. 149. Fell French Seam

to show stitching on the right side. It should be used on edges that are easily turned.

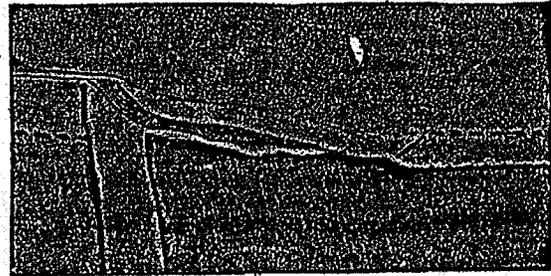
A **TURNED-IN FRENCH SEAM** is used when the lines of a garment are such that this seam is more practical than the regular French seam. It is used on edges that are very much curved, and on edges that have been basted at the finished sewing line and can be finished more easily this way. Make the usual plain seam on the wrong side of the garment. Turn in both edges of the seam toward each other, turning each side the same amount. (Ill. 148.) Baste the edges together and then stitch them or finish them by top-stitching. (Chapter 16, page 83.)

A **FELL FRENCH SEAM** is made with

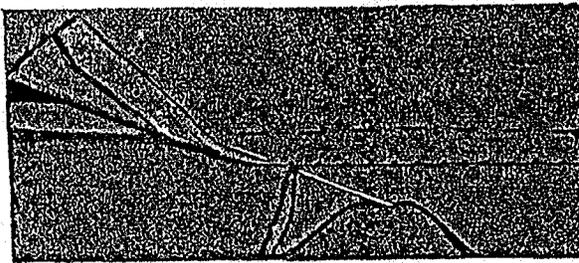
the usual plain seam on the wrong side of the garment. The edge that is toward you should be trimmed down to  $\frac{1}{8}$  of an inch width. Turn the other edge toward you  $\frac{1}{8}$  of an inch and bring it to the seam line. (Ill. 149.) Finish it with a hemming stitch, Illustration 149, or by machine, or with small running stitches.

A **FLAT FELL OR STITCHED SEAM** has one edge hemmed down covering the other raw edge. It is used principally for wash garments such as muslin underwear made in medium-weight materials, for flannels, tailored waists and working aprons.

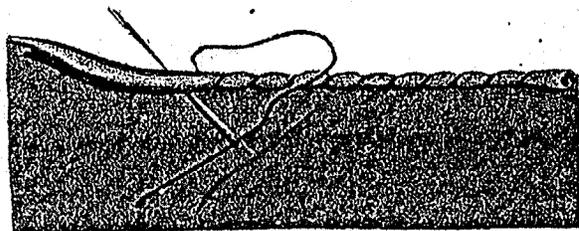
Baste the seam edges together on the



Ill. 150. Flat Fell or Flat Stitched Seam



Ill. 151. Lapped Fell or Stitched Seam



Ill. 152. Rolled Seam

wrong side of the garment and sew the seam with combination stitch. If the edges are bias, sew from the broad part of the piece to the narrow part to prevent the material from raveling and stretching.

Remove the bastings and trim the edge toward you close to the sewing line. (Ill. 150.) Turn the other edge flatly over it, pressing hard with the thumb nail. Make a narrow turn, baste and hem. (Ill. 150.) This seam can be stitched by machine if preferred.

A **LAPPED FELL OR STITCHED SEAM** is used on flannels, tailored waists or where there is no right or wrong side. Lap one edge of the seam over the other with the seam lines exactly over each other and baste through the seam lines.

Trim off the ravelings from the edges

and turn the edges under so that they meet. (Ill. 151.) The edge on each side may be sewed with a hemming stitch or by machine. (Ill. 151.)

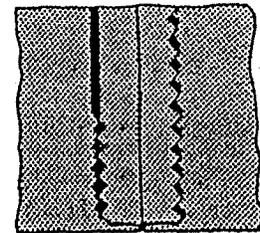
A **ROLLED SEAM** is used in sheer materials where an unusually narrow joining is required, and the material is likely to ravel or fray. Hold the seam edges together and trim off all the ravelings. Begin at the right end and roll the edges tightly between the thumb and forefinger of the left hand keeping the edges rolled for about  $1\frac{1}{2}$  inch ahead of the sewing. Whip the roll very close together making the stitches come under the roll and not through it. Draw the thread tight. (Ill. 152.) This seam will form a small roll.

## TAILORED SEAMS

**IN TAILORED** garments keep the cloth smooth at the seams and make the stitching as even as possible and press carefully.

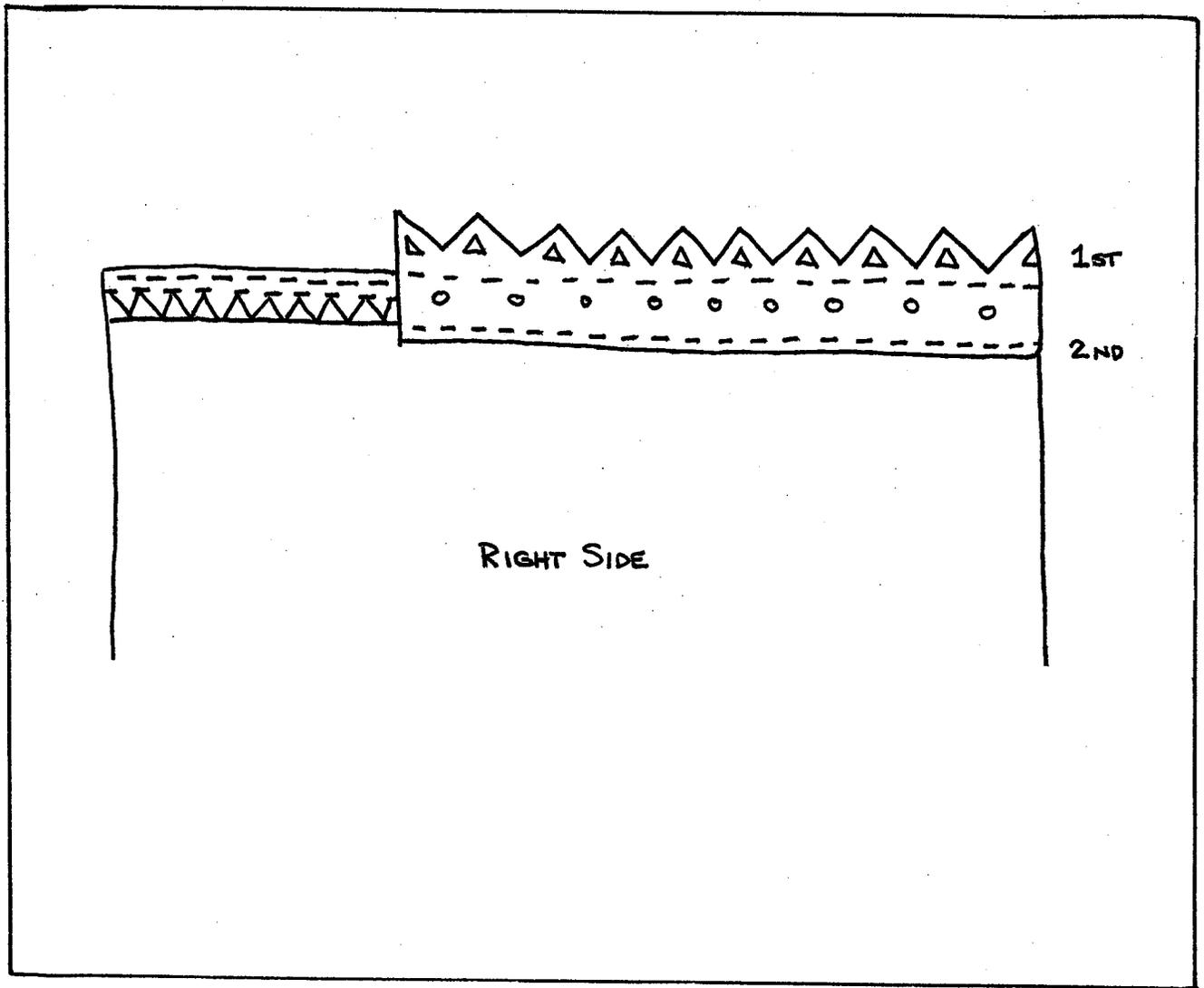
**PLAIN SEAMS PINKED**—In plain seams of very closely woven material that does not fray or ravel, the edges of the seams may be simply notched or pinked, and pressed open. (Ill. 153.)

**PLAIN SEAMS BOUND**—Plain seams of jackets, cloaks and other garments made of heavy material that will fray should be bound with satin, silk or farmers' satin. This is cut in bias



Ill. 153. Edge of Plain Seam Pinked

## Attaching Lace to Ruffle Edge



The first line of stitching is made with the lace on the wrong side of the fabric, points of the lace facing downward, and the finished edge of the lace slightly proud of the edge of the fabric. The fabric is then flipped and pressed, and the second line of stitching is made directly on top of the finished edge of the lace on the right side of the fabric.

# Gathering / Cartridge Pleating

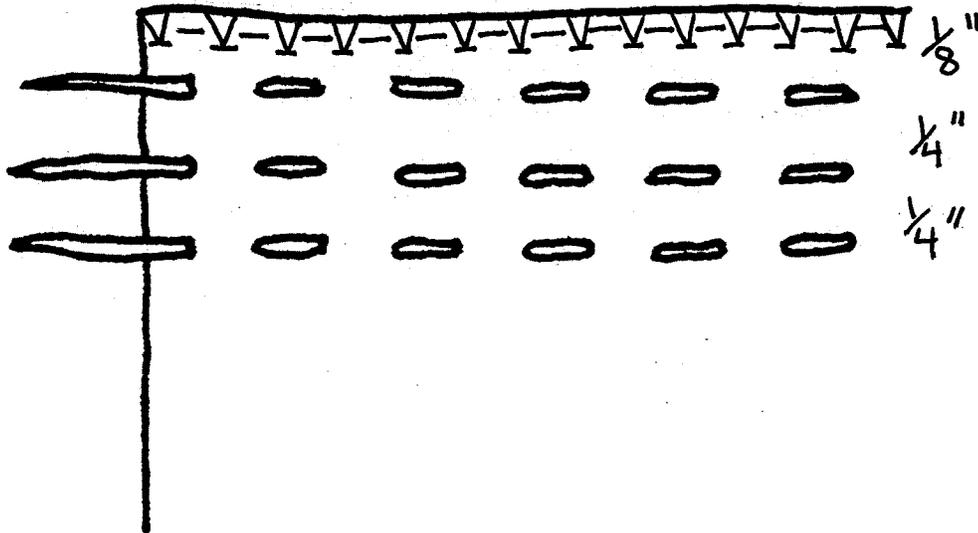


Image from Patterns of Fashion 4 – The cut and construction of linen shirts, smocks, neckwear, headwear and accessories for men and women. Janet Arnold, with additional material by Jenny Tiramani and Santana M. Levey 2008 Macmillan/QSM

Two to four lines of gathering thread are stitched about  $\frac{1}{8}$ " from the edge of the fabric. Subsequent rows of stitches are placed parallel to and about  $\frac{1}{4}$ " from the first line of stitching.

**Double gathering and shirring are related.**

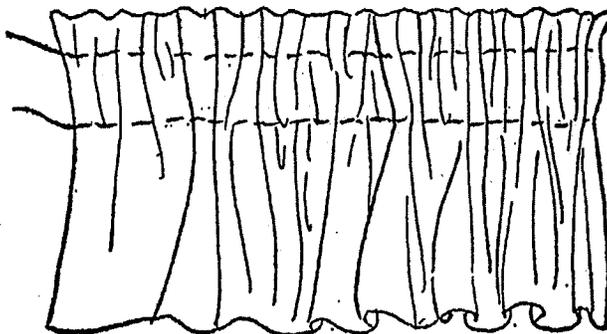
When we use two rows of gathering in dressmaking, and we often do, gathers will hang straight and we do not need to stroke them. Where a full skirt is joined to a band or a sleeve is joined to a straight cuff, two rows will keep the gathers in their proper place and make the seam very flat. The second row of gathers is made in a parallel line,  $\frac{1}{4}$ " below the first row.

Shirring is made of a number of parallel rows of gathers. To be attractive, it must be evenly spaced, not too far apart ( $\frac{1}{4}$ " is ample), and the rows must be absolutely parallel. Mark shirring lines by basting thread while the material is still flat. These basting lines are later to be removed. Shirring is decorative and is considered a trimming. (Ill. 130.)

**Gauging or French gathers.**

Gauging or French gathers are used when a large quantity of fabric must be drawn up tightly to fit a small space. Like shirring, this is a very decorative addition to your frock. (Ill. 131.)

Make your stitches long on the right side and short on the wrong side of the material. Make each row of gathers with the spaces and the stitches exactly under each other. The rows may be  $\frac{3}{8}$ " apart. The gathering threads are then all drawn up tightly and evenly and fastened at the ends, securely.

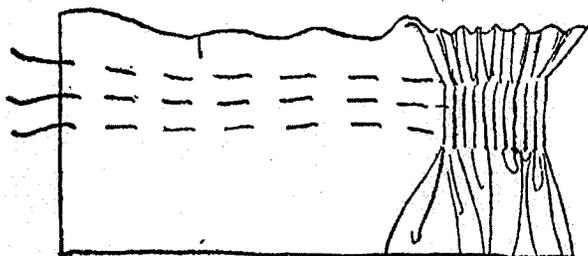


**130. Shirring or double gathering.**

**Two quick ways to gather.**

Fine ruffles for lingerie or children's clothes can be whipped and gathered at the same time. Roll the edge of the ruffle and overhand quite closely as far as it is rolled taking care to take the stitch below the roll but not through it. Draw up the ruffle as you go along to the desired fullness. (Illustration 132.)

To gauge the fullness exactly, divide the ruffle in quarters and mark the points with colored thread. Make corresponding marks on the edge to which the ruffle is to be attached. Test the length of your ruffle occasionally as you draw it up. To at-

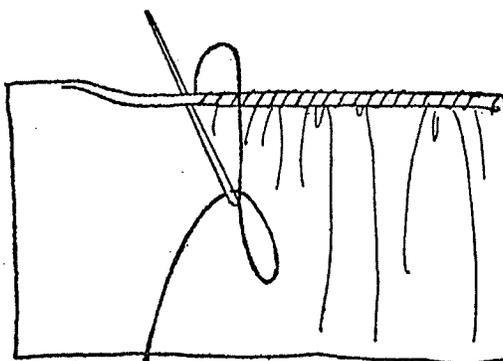


**131. Gauging or French gathers.**

attach this whipped and gathered ruffle to the garment, roll the edge of the garment and overhand the ruffle to it, taking a stitch in each whipped stitch of the ruffle.

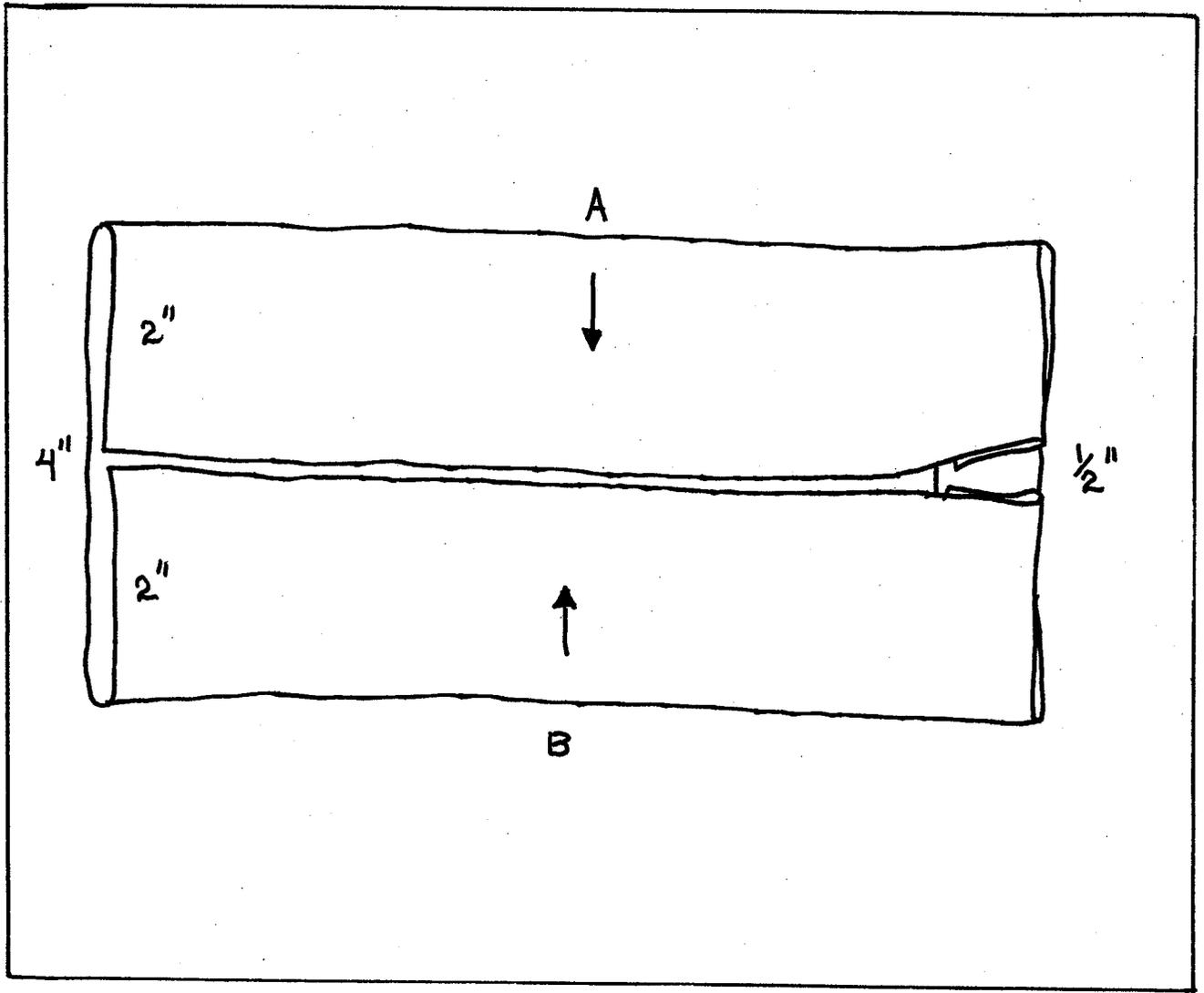
**Machine shirring.**

Where you have dozens of rows of shirring to make, do it on the sewing machine using the gathering attachment. You will need to baste the first line for the stitching but subsequent lines can be spaced by the use of the gauge on your machine.



**132. To make a gathered ruffle.**

# Neckband Construction



When all of the folding and pressing is complete, Edge A is folded down to meet Edge B.