

# Use of the Butted Seam by Textile Manufacturers<sup>1</sup>

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**Increasing use is being made of the butted seam by textile manufacturers, and this paper defines and illustrates the butted seam, describes many of its inherent properties, and outlines some of the advantages to be gained by its use in the finishing of woolens and worsteds, cottons, silks, and rayons.**

In the processing of piece goods, it is usually desirable to join one or more "cuts" or pieces in endwise relation. Comparatively recently, the overedge stitch or seam has been adapted to this work, and because of the fact that this stitch permits of end-to-end relations between the pieces of goods, at the seam, it has been termed the "butted seam." Either a one- or two-thread type of overedge stitch may be employed for making these seams, and the appearance of each side of the two types of seams is shown in the accompanying illustrations.

Fig. 1 shows the covering or looper thread side of a seam of the two-thread type. The reverse or needle thread side of this seam is shown in Fig. 2, and the goods are usually seamed so that these threads are showing on the face of the goods. The appearance of the two sides of the one-thread stitch is shown in Figs. 3 and 4. The side shown in Fig. 3 corresponds to that shown in Fig. 1 for the two-thread type of stitch. It will be noticed that the appearance on one side of each stitch, Figs. 2 and 4, is identical.

In making the butted seam the ends of piece goods are usually placed face to face and fed through a machine which trims and feeds the goods simultaneously with the stitching operation. The stitching is applied loosely to the edges of goods so that subsequent processing opens the seam and the goods lie end to end with the overedge threads uniting the pieces, thus producing a flat seam, wherein the cut ends of the goods are confined under the uniting threads.

A processing seam of this type has many inherent properties, among which are:

1. The seam is very little thicker than the goods, particularly when fine threads may be used or when the processing and fabric are such as to make the threads embed themselves in the goods.

2. The uniting threads lie in the direction of the warp threads of the goods, and if shrinkage of the

thread occurs, it does not reduce the width of the piece goods at the seam.

3. The formation of the stitch is such that the seam is elastic and may be stretched laterally with the goods without fear of breaking.

4. The seam will thoroughly dry with and in the same drying time as the goods.

5. The practical strength of the seam under longitudinal tension is dependent upon the resistance of the filling threads to pulling from the warp threads of the goods, for a reasonable width of seam. Various widths of seams are available that will hold the great majority of goods through common processes.

6. The one-thread seam may be readily unraveled.

7. The width of the seam is comparatively small, and little goods are wasted.

Inasmuch as the quality of the butted seam is such that it approaches the character of the goods, it may readily be realized that its use for process seaming offers many advantages, but like all developments, its practical advantages and limitations have to be determined by experiment. To gain its full use, it has frequently been found practical to combine processes or slightly revise equipment and method of handling the goods to the end of reducing labor and saving material.

A number of processes in various textile fields, where the butted seam has been found to save labor, material, to speed up the process, or to give a superior result, are hereinafter enumerated and certain advantages given in each case.

## Woolens and Worsteds

In the process seaming of woolens and worsteds, the butted seam has been used to advantage for speck dyeing. With the end-to-end relation permitted by the seam, this process may be made continuous, without difficulty in the drying. The seam may be dried in the same time and under the same conditions as the body of the goods, which obviates any shading in color near the seam. For speck dyeing in vat, a number of

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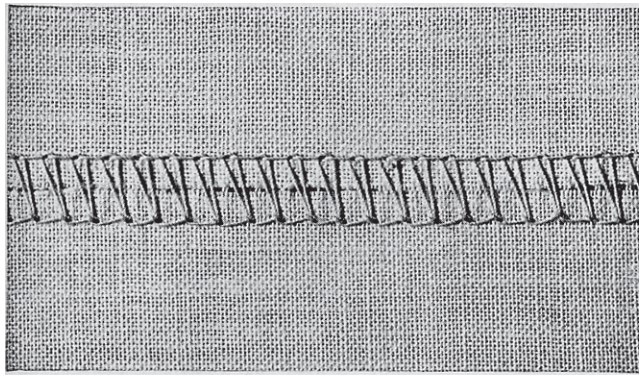


Fig. 1

cuts may be joined, dyed and subsequently dried as one piece.

In fulling or scouring, joining the ends of the piece goods with a butted seam is not of any particular advantage to the material itself. However, advantage lies in the action of the butted seam on the fulling mill. The elimination of extra bulk avoids the pounding of the rolls as a seam passes through them, thus increasing the life of the rolls and their bearings. If two or more cuts are fulled in the same mill for piece dyeing, this elimination of the pounding of the rolls has a decided advantage in preventing the possibility of wrinkles being pounded into the cloth as the seam of an adjacent cut passes through the rolls.

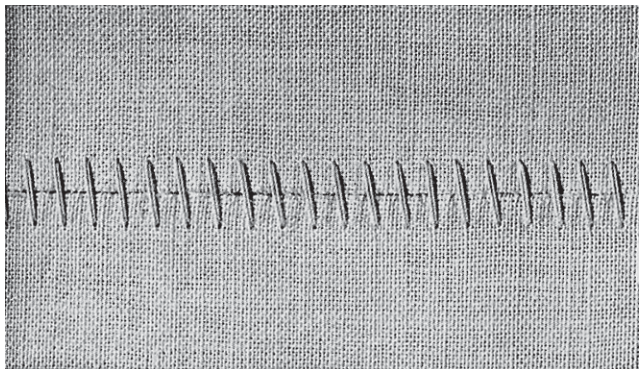


FIG. 2

Use of the flat butted seam through the various extractors permits the liquid to be drawn out at the seam as well as the body of the fabric, which makes it of particular importance in the subsequent drying process. Its use through the crab extractor does not present any particular advantage other than the fact that there are no loose ends to throw liquid as the seam passes through process.

Certain advantages to the material, as the butted seam goes through the drier, have been enumerated. In addition, the seam is elastic and will give filling-

wise with the goods, and, therefore, will not shrink or break as it goes over the tenter frame of the drier. This non-shrinking property helps to keep the selvage edges of the goods in line, relieving the tenter-frame operator for other work.

The greatest monetary saving of the butted seam is found in seaming for the process of shearing. The great majority of goods seamed with this seam may be processed directly through the shears without raising the revolvers, making it practical to shear the goods to and over the seam, eliminating all waste of material due to incomplete shearing. On certain classes of lightweight, very closely sheared worsted serges, it is

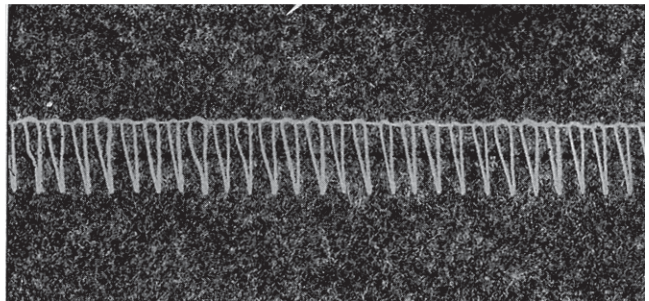


Fig. 3

necessary to slightly tap the shears when shearing on the back of the goods. In such cases a block of rubber may be inserted between the shear-raising device so that the normal action of raising the shears will only raise them a small fraction of an inch, permitting the shears to go quickly back to place.

Certain manufacturers have found it practical to place four two-blade shears in series, the first shear shearing the back of the goods, a turning cradle being located between the first and second shears, and the remainder of the shears operating on the face of the goods. This entire unit is handled by one shear operator, and the shearing of the goods is completed as the fabric leaves the last shear.

As a rough example of the material saving of a mill shearing 20 cuts per day by the use of the butted



Fig. 4



seam as compared with a seam which requires raising of the shear blades, it is not unlikely that with this latter seam, at least 9 in. of goods are wasted at each seam due to incomplete shearing. The 20 cuts, requiring 20 seams, would waste 180 in. of goods per day, which, if made at a cost of \$2 per yard, would represent a waste of \$10 per day. This waste would be eliminated, to which could be added a substantial labor saving.

The elimination, by the use of the butted seam, of the necessity of reducing the weights or raising the cylinder of the press as a seam passes through, permits even pressing throughout the cut, the ends of the piece goods being pressed equally as well as the center.

If the goods are to be decatized, two cuts may be joined and rolled without the use of a leader. A well-butted seam with the proper thread will not "mark off."

### Cotton Finishing

On cotton finishing in general, although there is a distinct saving of material effected by the use of the butted seam itself, this saving does not assume the importance that it does in the processing of more expensive piece goods, such as woollens and worsteds. However, the improvement it brings to the handling of the goods through the various processes saves much material by the reduction of damaged work, and in such cases as the elimination of the pasted seam, a considerable saving in labor is effected.

The fact that the cut ends of material are enclosed within the formation of the stitches is of practical value in singeing operations. This enclosure of the cut ends prevents them from catching fire and "sparking back" on the goods as they are processed over a flame or red-hot rolls.

In bleaching, the butted seam has proved its value due to the fact that the uniting threads lie with the warp threads of the fabric, which prevents reduction in the width of the goods at the seam and at the same time provides an elastic seam, which may be stretched laterally, without fear of breaking during the tentering process. This non-shrinking, elastic seam is of further value in reducing "wrinkle backs" at the selvages of the material as it goes through this latter process. These same properties are of similar value to the processes of mercerizing, dyeing, and drying, where also the butted-seam property of uniform drying is a distinct asset.

The butted seam is processed directly through printing operations with uniform printing to and over the seam, and the fact that the seam has not shrunk during process and that it is elastic permits printed goods of

square or diamond design to be uniform throughout the length of the piece. This seam may be processed without leaving an imprint on the "back gray" material, which might subsequently "mark off" on the printed cloth. The butted seam is also used in the seaming of the "back gray or bump cloth" material itself, making it practical to cut out damaged or heavily inked sections of this material and reseam into a continuous piece.

In the general process of calendering, including such subdivisions as friction, embossing, chase, and shreiner calendering, the inherent properties of the butted seam are of distinct value. For certain calender work, particularly of a drastic nature, it has become usual practice to break the process seams as they come to this operation and replace them with a pasted seam, consuming about 8 in. of cloth, and is of necessity a comparatively slow operation. In some cases, dependent upon the character of the goods, the butted seam is calendered directly as it comes from previous processes, without breaking the seam. In other cases it has been found necessary to reseam for calendering, making a careful butted seam with fine thread. This latter operation is a speedy one and much labor is saved in comparison with the pasted seam.

The butted seam has been found of value to the process of cotton-goods napping, when it is desired to nap both sides of the material. The uniting threads of this seam lie in the direction of the warp threads of the piece goods and do not disturb the wires of the napping brush as the material passes over them, thus increasing their useful life.

When the process of shearing for slubs and loose thread ends is involved on cotton goods, the butted seam is processed directly through such shears without raising the shear blades, thereby shearing all the goods to and over the seam.

This seam is also of particular advantage in the processing of cotton velours, mohairs, and other plush goods, especially for drying operations following dyeing, bleaching, or washing. On these goods the shearing process is rather similar to that employed in worsted shearing, with the addition of the various pile-raising processes between shearing operations, and the advantages of the butted seam for this work are similar to those gained on worsted materials.

### Silk Finishing

In the processing of silks for finishing, the butted seam is used to advantage. Such properties of the seam as its flatness and lack of bulk, permit proper "steaming out" of the gum from the silk inasmuch

as the goods at the seam will respond to this process in a similar manner to the body of the goods. This thorough "steaming out" at the seams materially aids in the subsequent washing and drying processes. This drying process is also benefited by the fact that the seam will dry in the same time and under the same conditions as the goods themselves, making it unnecessary to keep that portion of the goods including the seam at a higher temperature or in the heat a longer time than the rest of the material.

Advantages accrue to the printing of silks similar to those that have been described in the printing of cotton. Shearing for slubs and the loose thread ends is, like similar cotton shearing, carried out without the necessity of raising the revolvers as the seam passes through proc-

ess, thus shearing the material to and over the seam.

Silk velvets and other pile materials are processed to advantage by the use of the butted seam because of its inherent properties, as has been described. Its use for the shearing of such goods makes a worthwhile saving in labor and material.

### Rayon Finishing

The uniform drying qualities and the elasticity of the butted seam are of particular value to the processing of rayon materials through the drying and tentering operations. The butted seam is used for the processes of printing and such light calendering as rayon goods receive, gaining substantially the same advantages as have been enumerated under cotton finishing.

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