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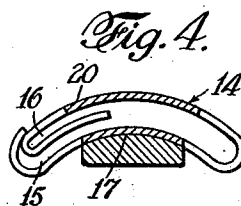
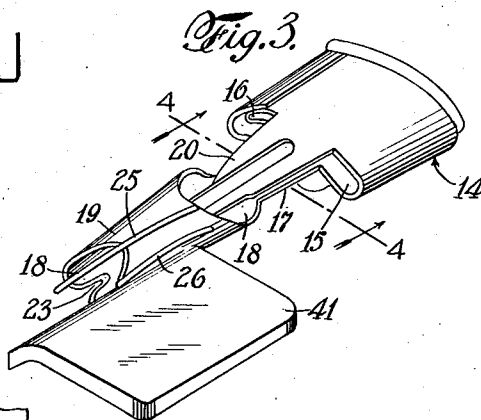
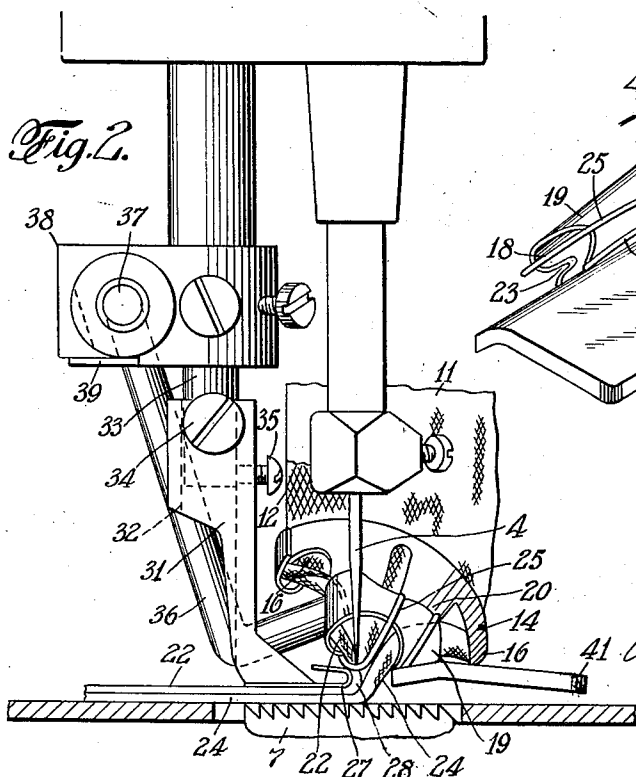
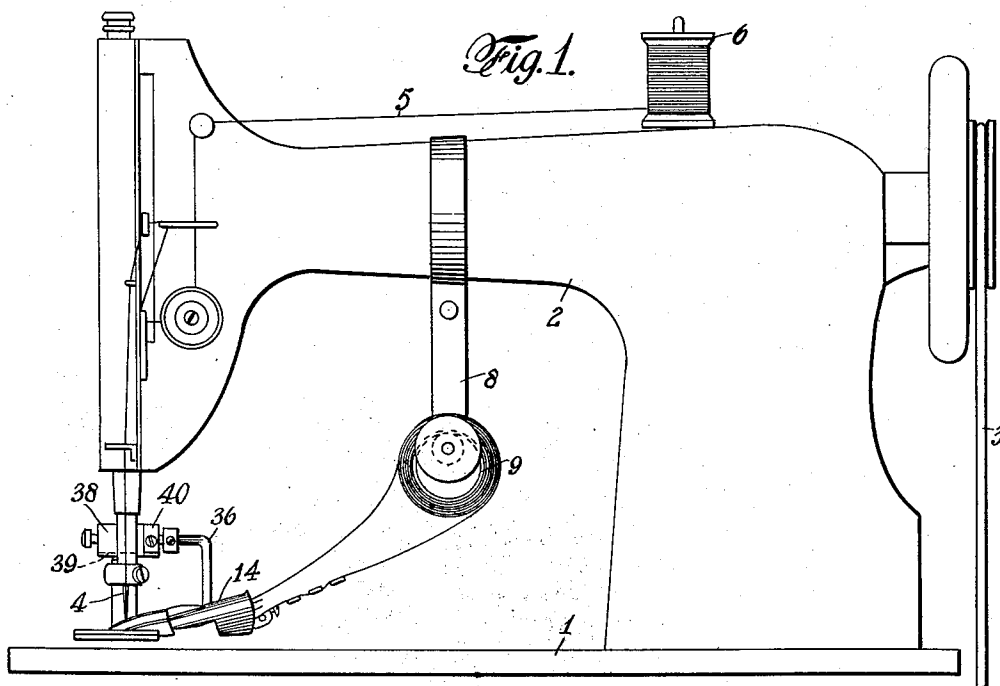
C. SEAMAN ET AL.

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PIPING AND METHOD OF FORMING THE SAME

Filed March 26, 1927

2 Sheets-Sheet 1



Charles Seaman INVENTORS
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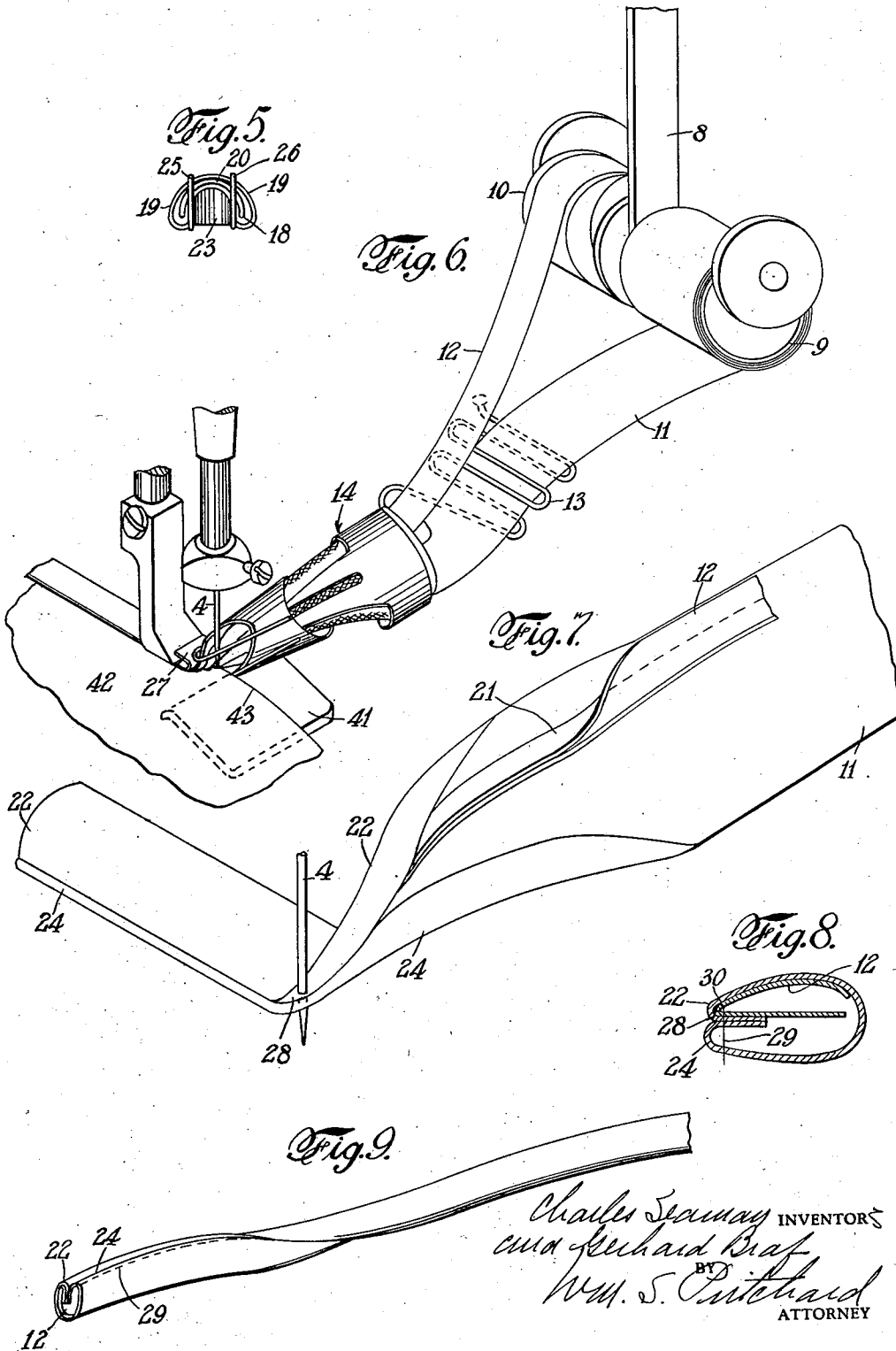
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UNITED STATES PATENT OFFICE

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PIPING AND METHOD OF FORMING THE SAME

Application filed March 26, 1927. Serial No. 178,531.

This invention relates to a novel form of piping particularly adapted for application to the edge of a piece of material such as dress goods. In the past it has been common to apply a piping by stitching, the stitching extending completely through both folds of piping as well as the material and being visible on both sides of the material. It is one of the primary objects of our invention to so construct the piping that the stitching will be invisible from one side thereof.

Another important object of our invention is to provide a novel method by means of which the piping may be stitched at one operation. The details of this method will be better understood from the following specification.

In the accompanying drawings in which we have shown a selected embodiment of an apparatus for practising our invention:

Figure 1 is a front view of a sewing machine having applied thereto an attachment for the practice of our invention.

Figure 2 is an end view of a portion of the machine shown in Figure 1, as viewed from the left of that figure.

Figure 3 is a perspective view of a portion of the attachment shown in Figure 1.

Figure 4 is a section on the line 4-4 of Figure 3.

Figure 5 is a view of the left end of the attachment as viewed in Figure 3.

Figure 6 is a perspective view of so much of the entire apparatus as is necessary for an understanding of the invention.

Figure 7 is a diagrammatic view illustrating the folding of the binding and filler to form the piping.

Figure 8 is a cross-sectional view through a finished piping, unattached to other material.

Figure 9 is a perspective view of a section of piping constructed according to our invention.

Referring now to the drawings the numeral 1 designates a suitable base upon which is secured the head 2 of a sewing machine. The exact type of sewing machine is immaterial as our invention is adapted to be employed with any of the usual types. For the purpose

of illustration we have shown a well-known form of machine operated by the belt 3 which reciprocates a needle 4 in a vertical path.

The thread 5 is contained on the usual spool 6 and is threaded through the usual guides and other devices to the needle. Any usual and suitable feeding mechanism 7 is disposed beneath the needle to feed the cloth or other material which is being sewed.

Mounted on the head 2 is a suitable bracket 8, on the end of which is supported a pair of spools 9 and 10, these spools being loosely mounted for free rotation on bearings on the bracket. The spool 9 is designed to carry the binding 11 from which the piping is formed and the other spool is intended to carry the filler 12 which is disposed inside of the binding to form the puff finish that is often desired, and for another purpose which will be explained presently. By the term "binding" it is to be understood that we refer to any strip of suitable material which may be used to form a piping even though it may not be used as a binding on a piece of particular material.

The binding is supported by a gate 13 which may be conveniently formed of a wire folded back and forth upon itself in the manner shown. The binding is threaded through the gate which is supported upon an attachment 14. This attachment is adapted to receive the binding and the filler and fold them into correct formation for stitching.

The construction of the attachment may be best understood from an inspection of Figures 2, 3, 4 and 5, and, referring thereto, it will be seen that the attachment comprises three guides. The binding and the filler enter the attachment at the right hand end as viewed in Figures 1, 3 and 5 and at this end there are provided the two guides 15 and 16. The entire attachment may conveniently be made of sheet metal and the guides may be formed in the manner indicated in Figure 4 by folding the metal upon itself. The guide 15 is adapted to receive a binding 11 and the guide 16 the filler 12.

The lower part 17 of the guide 15 extends toward the needle and forms the lower part of a third guide 18, the upper portion of which

is formed by means of wings 19 turned up from the portion 17 and secured to the top of the back 20, this back forming an extension of the upper portion of the guides 15 and 16.

It is to be understood that the binding is threaded through the guides 15 and 18, while the filler 12 is threaded through the guides 16 and 18. When the binding passes through the guide 15 it is in the form of an inverted U which is turned into a W by the fact that the guide 18 will turn up the edges of the binding. The filler, as best shown in Figure 7, is folded on itself as indicated at 21 and then is received beneath the fold 22 of the binding. The points indicated at 21 and 22 in Figure 7 are actually closely adjacent each other but the filler has been shown as separated from the binding for purposes of illustrating the invention.

As the binding with the filler folded therein leaves the guide 18 it is received between the walls of the recess 23, which causes the edge folds 22 and 24 of the binding to double inwardly as indicated in Figures 2 and 7. The attachment is provided with a pair of guide members 25 and 26 which are in substantial alignment with the walls of the recess 23. These members serve to keep the binding from pushing outwardly from the recess 23, particularly when there is a seam in the binding.

After leaving the attachment at the recess 23 the binding is passed beneath the foot 27 which is preferably formed of a spring plate disposed beneath the guide member 25 as best shown in Figure 2. The edge of the foot is disposed in position to guide the fold 22 beneath the point of the needle 4 as shown at the point designated at 28 in Figure 2. It will be remembered that this fold 22 contains the filler 12 which is also folded. At this stage it will be noted that the two edge folds are disposed facing one another and extending in a vertical direction, the fold 22 is bent backwardly over the foot 27, the bend extending transversely of the length of the binding and substantially at right angles to that length, so that at this point the portion of the fold 22 above the foot is substantially parallel to the portion below the foot. The object of the filler is two-fold: It forms the puff effect desirable in piping and shown in Figure 8, and it also provides sufficient body for the fold at this point so that the needle 4 may pass through and stitch through the fold 22 at 28. The stitching goes through the folded under layer of the fold 22, through the filler, and completely through the fold 24, and then as the folds pass beneath the foot the stitching at 28 is concealed. The action will be best understood from Figure 7 wherein the binding and filler are shown removed from the machine. It will be seen that the needle 4 passes through the under layer of the

fold 22, catching the portion of the fold which is positioned under the needle by the foot 27. The under layers of the two folds 22 and 24 are then brought into engagement with each other as they are fed beneath the foot 27 by the mechanism 7, thus concealing the stitching on the fold 22 which then will occupy the position shown approximately in Figure 7. The stitching will pass through the lower fold 24, through the under layer of the upper fold 22 and through the filler 21 and then will be folded down on itself in a direction substantially parallel to the length of the binding. The thread 29 in Figure 7 is shown folded at 30 and this fold is shown extending transversely of the binding to a slight extent for the purposes of illustration. It is to be understood, however, that this folding of the thread takes place substantially in the direction of the line of stitching, so that the penetrations formed by the needle as it enters and leaves the under layer of the fold 22 are substantially parallel to the length of the binding and form a substantial straight line. The portion or strand of thread which is referred to above as being folded lengthwise of the binding forms a connection between the portions of the stitches which penetrate the material, and it will be noted that these strands will be disposed beneath the lower layer of the fold 22, but above the lower fold 24. Other strands will of course be located within the filler at 30.

The foot 27 must be adjusted exactly to position so that the needle will have enough material on which to catch a stitch. In actual practice the foot is placed so that it will be slightly bent on each actuation of the needle by the edge thereof. It is necessary to provide means for an accurate adjustment of the foot and for that purpose we mount the foot on a suitable leg 31 which is provided on its back face with a groove 32 which receives the vertical rod 33, the leg being secured in position by a set screw 34. The front of the leg is provided with a set screw 35 contacting with the rod 33 whereby the foot may be accurately adjusted in respect to the needle.

The attachment 14 may be supported in any suitable manner exemplified by a bracket 36 pivoted at 37 on a block 38. This arrangement admits raising and lowering of the attachment about the pivot 37 and the attachment may be held in either its upper or lower position by a customary jack-knife spring arrangement, the spring being indicated at 39 and contacting with a flat bottom recess on the bottom of a collar 40 secured on the bracket 36.

For the sake of simplicity we have illustrated a method of making a piping by itself but it is to be understood that one of the principal uses to which this invention may be placed is the sewing of a piping upon a piece of material. It will be seen that the piping

as it leaves the needle is directed rearwardly on the machine. When it is desired to attach the piping to a piece of material this may be done by guiding the edge of the material over the shoe 41 which is rigidly connected to the attachment. A fragmentary view of a piece of material is shown at 42 in Figure 6 and it will be seen that the edge 43 thereof is guided between the two folds of the binding to form the piping upon the edge of the material. The material has been omitted from the other views to simplify the disclosure and to aid in the understanding of the invention.

From the above it will be seen that we have provided a novel form of piping together with a method and means of making the same. The attachment may be cheaply made and readily secured to a standard sewing machine. The gist of the invention resides in turning under one edge of a binding so as to form a fold, the under layer of which is brought into position facing the other edge of the binding, and in this position stitching through the under layer of the fold so as to secure it to the portion of the binding which it faces. The filler aids materially in doing this for reasons pointed out above. It will be seen that the fold is bent transversely of its length and brought into line with the feed of the material or with the length of the piping. The stitching is then performed as described above. In the claims we refer to the stitching of the under layer of the fold to the binding adjacent its other edge. It is to be understood that the stitching takes place at a distance from this other edge, this distance being variable to meet individual requirements of particular pieces of work. The word "adjacent" is used to define a location in respect to the upper fold and by "adjacent" is meant relatively near to the other edge of the binding as compared with the upper fold.

The gate 13 forms a convenient means for applying suitable tension to the binding. It will be seen that the gate comprises a plurality of loops between which the binding may be threaded and the tension may be increased by threading the binding through more loops so as to form more bends therein. The additional thickness for the stitching and also for the puff effect has been shown as being formed by a separate piece of material forming a filler but it will be obvious to those skilled in the art that this additional thickness may be formed by means of additional material in the binding itself. For example, the binding may be made considerably wider than shown and one edge turned under sufficiently to form the filler and also to supply the puff effect.

We are aware that various other changes in detail of construction and operation will be apparent to those skilled in the art and therefore we do not intend to limit ourselves except by the appended claims.

We claim:

1. A piping formed of a binding having folded edges, a filler in one of said folds, and stitching entering the inner layer of the fold in which the filler is disposed from its outer face, passing through said filler, said inner layer, and completely through the other fold.

2. The method of forming a piping which consists in folding under one edge of a binding, guiding a filler into said fold, folding the binding to bring the under layer of said fold into position facing the rest of said binding adjacent its other edge and stitching through the outer surface of the under layer of said fold, the filler therein and the binding adjacent said other edge, without stitching through the upper layer of said fold.

3. The method of forming a piping which consists in folding under the two edges of a binding to form two folds, guiding a filler into one of said folds, bringing the under sides of said folds into position facing each other and stitching through the outer surface of the under layer of the fold containing the filler, the filler and completely through the other fold.

4. The method of forming a piping which consists in folding under the two edges of a binding to form two folds, guiding a filler into one of said folds, bringing the under sides of said folds into position facing each other and guiding the edge of a piece of material between said folds and stitching through the outer surface of the under layer of the fold containing the filler, the filler, the material and completely through the other fold.

5. The method of forming a piping which includes turning under one edge of a binding to form a fold with upper and lower layers, inserting a filler within said fold, bringing said fold into position in alignment with the feed of body material to which the piping is to be attached and stitching first through said lower layer from the under side thereof to secure said filler, lower layer, body material and other piping edges together.

6. The method of forming a piping which includes turning under one edge of a binding to form a fold with upper and lower layers, inserting a filler within said fold, bringing said fold into position in alignment with the feed of body material to which the piping is to be attached and stitching first through said lower layer with a needle entering and leaving said under side of the lower layer, and then penetrating said body material and the other edge portion of the binding.

7. The method of forming a machine piping which includes turning under one edge of a binding to form a fold with upper and lower layers, bending said fold transversely of its length and stitching through the lower layer of said fold at said bend from the under side of said layer.

8. The method of forming a machine piping which includes turning under one edge of a binding to form a fold with upper and lower layers, bending said fold transversely of its length while the same is being progressively fed, and stitching through the lower layer of said fold at said bend from the under side of said layer, each stitch of said stitching first entering and leaving the same face of the lower layer, and then penetrating the other edge of the piping.

9. The method of forming a piping which includes turning under one edge of a binding to form a fold with upper and lower layers, bending said fold transversely to the feed of a body material, bringing said fold at said bend into alignment with the feed of material, and stitching through said lower layer, by the needle first entering the outer face of said lower layer, then leaving the same face of said layer, and then penetrating said body material and the opposite edge portion of the binding.

10. A piping formed of a binding having folded edges, a folded filler in one of said folds and stitching entering the inner layer of the fold in which the filler is disposed from its outer face, passing through said filler, said inner layer and completely through the outer fold.

11. A piping formed of a binding having a folded edge, a filler in said fold and stitching entering the inner layer of the fold in which the filler is disposed from its outer face, passing through said filler, said inner layer and completely through the material adjacent the opposite edge.

12. A piping formed of a binding having a longitudinal fold extending substantially through the center thereof and a folded edge, a filler disposed between the two inner surfaces of said folded edge, said filler being folded and having its opposing surfaces spaced apart.

13. A piping formed of a material having a longitudinal fold extending substantially through the center thereof and folded edges, a filler disposed between the two inner surfaces of one of said folded edges, said filler being folded and having its opposing surfaces spaced apart.

14. A piping formed of a binding having a longitudinal fold extending substantially through the center thereof and a folded edge, a filler disposed between the two inner surfaces of said folded edge, said filler being folded and having its opposing surfaces spaced apart, and stitching entering and emerging from the inner layer of said fold from its under surface, passing through said filler and adjacent the opposite edge of said binding.

15. A piping formed of a material having a longitudinal fold extending substantially through the center thereof and folded edges, a

filler disposed between the two inner surfaces of one of said folded edges, said filler being folded and having its opposing surfaces spaced apart, and stitching entering and emerging from the inner layer of said fold from its under surface passing through said filler and completely through the other fold.

16. The method of forming a piping which includes turning under one edge of a binding to form a fold with upper and lower layers, guiding a filler into said fold, bending said fold transversely thereof, and stitching through the lower layer of said fold at the bend from the under side of said layer, each stitch entering and emerging from said under side of the lower layer.

17. The method of forming a piping which includes turning under an edge of a binding to form a fold with upper and lower layers, folding a filler longitudinally thereof and guiding it into said fold, bending said fold transversely thereof, and stitching through the lower layer of said fold at the bend from the under side of said layer, each stitch entering and emerging from said under side of said lower layer.

18. The method of forming a piping which includes turning under the edges of a binding to form folds having upper and lower layers, guiding a filler into one of said folds, bending said fold transversely thereof, and stitching through the lower layer of said fold at the bend from the under side of said layer, each stitch entering and emerging from said under side of said lower layer.

19. The method of forming a piping which includes turning under the edges of a binding to form folds having upper and lower layers, folding a filler longitudinally thereof and guiding it into one of said folds, bending the fold containing the filler transversely thereof, and stitching through the lower layer of the fold containing the filler at the bend from the under side thereof, each stitch entering and emerging from said under side of the lower layer.

20. The method of forming a piping which includes turning under one edge of a binding to form a fold with upper and lower layers, bending the folded material transversely thereof and stitching in a vertical direction through the lower layer of the fold at the bend from the under side thereof, each stitch entering and emerging from said under side of said lower layer.

In testimony whereof, we have affixed our signatures to this specification.

CHARLES SEAMAN.
GERHARD BRAF.