June 20, 1933. A. F. McCOLLUM 1,915,235

BINDING FOR THE UNSELVAGED EDGES OF FABRICS

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Fig. 13.

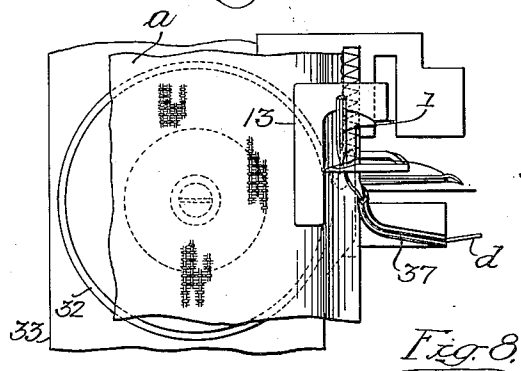


Fig. 14.

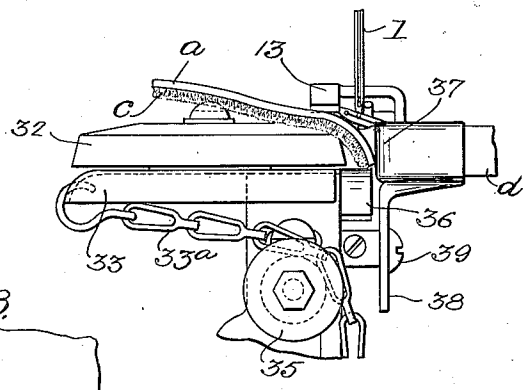


Fig. 8.

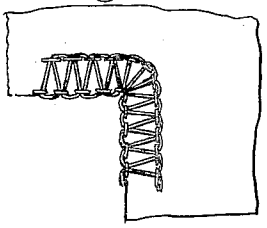


Fig. 7.

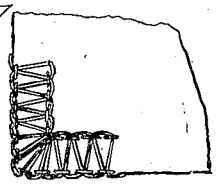


Fig. 4.

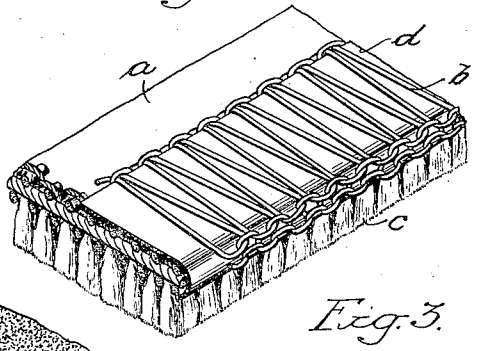


Fig. 2

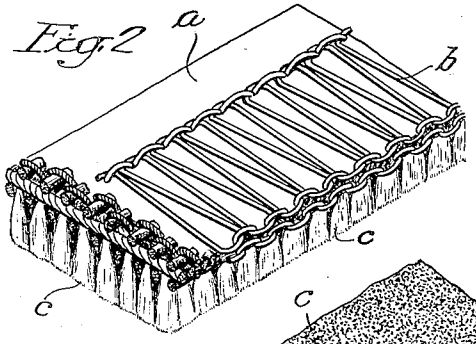


Fig. 1.

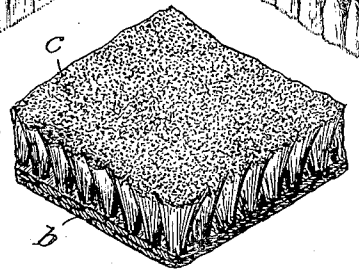


Fig. 3.

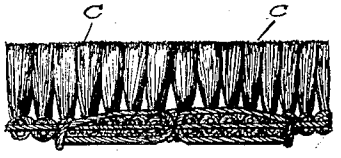
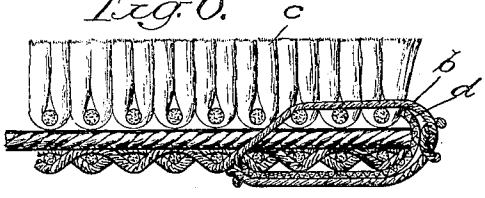
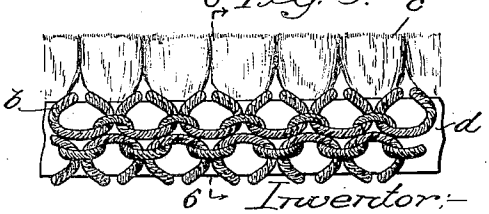


Fig. 6.



6 Fig. 5.



6 Inventor:-
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Fig. 9.

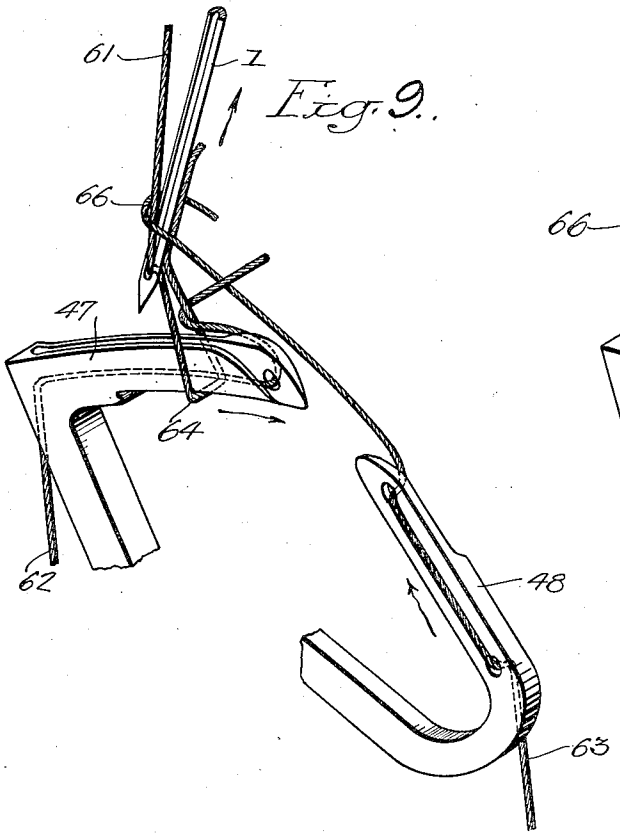


Fig. 10.

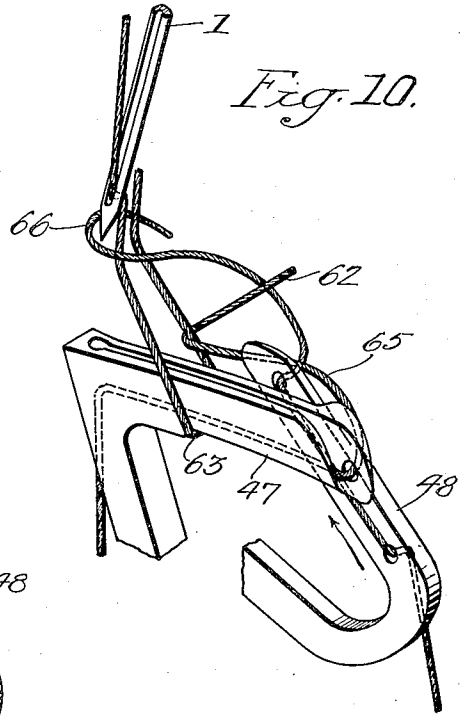


Fig. 11.

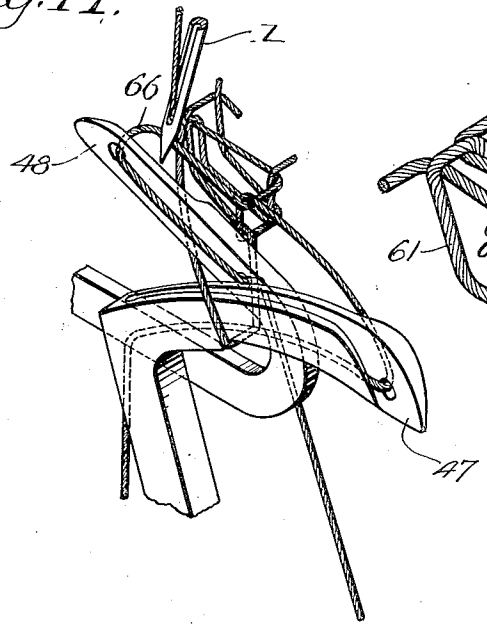
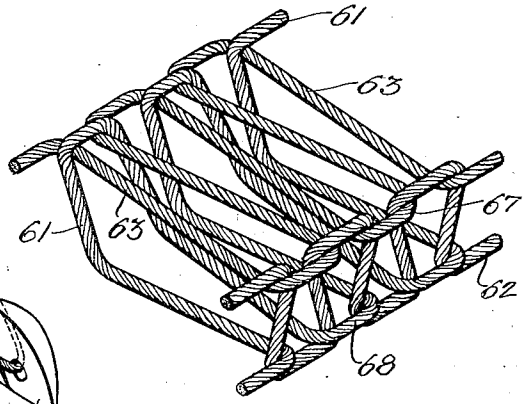


Fig. 12.



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Patented June 20, 1933 1,915,235

UNITED STATES PATENT OFFICE

ALFRED F. McCOLLUM, OF BLOOMSBURG, PENNSYLVANIA, ASSIGNOR TO THE MAGEE CARPET CO., OF BLOOMSBURG, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA

BINDING FOR THE UNSELVAGED EDGES OF FABRICS

Application filed April 7, 1927. Serial No. 181,744.

My invention relates to improvements in bindings for unselvaged edges of fabrics, and particularly the unselvaged edges of pile fabrics such as commonly used for floor coverings.

The principal object of my invention is to provide a novel and effective binding for the stated class of fabric which shall be unobtrusive in appearance and which shall leave the pile substantially unaffected and in the normal state to the extreme edge of the fabric.

Another object of the invention is to provide an improved binding for unselvaged fabric edges which shall so completely cover and bind the said edge that in all desirable respects it may be considered the full equivalent of the normal selvaged edge, the binding on the other hand having actual advantages over the normal selvage by reason of a reinforcing and strengthening effect which the binding stitches have upon the fabric.

A further object of the invention is to provide a binding for unselvaged edges of pile fabrics that will permit the piecing together of sections of fabric along the bound unselvaged edges with the same facility and equally good results as may be had in piecing fabrics together along normally selvaged edges.

In the attached drawings:

Figure 1 is a view in perspective of a fragment of carpet whose unselvaged edges are bound in accordance with the present invention;

Fig. 2 is an inverted perspective of a fragment, a portion of the unselvaged edge of which is bound in accordance with the present invention, the stitches in this illustration being somewhat exaggerated in order to make the character thereof clear;

Fig. 3 is a sectional view illustrating two pieces of carpet bound in accordance with the present invention and pieced together along their bound unselvaged edges;

Fig. 4 is a view similar to Fig. 2 showing a method of binding which includes a binding strip underlying and held in position by the binding;

Fig. 5 is an edge view of the bound fabric illustrated in Fig. 4;

Fig. 6 is a section on the line 6—6, Fig. 5;

Fig. 7 is a view of the reverse side of an outer corner of fabric bound in accordance with my invention;

Fig. 8 is a view showing the binding of an inside corner;

Figs. 9, 10 and 11, show progressive steps in the formation of the binding stitch;

Fig. 12 is a diagrammatic view illustrating the character of the finished binding stitch, and

Figs. 13 and 14 are fragmentary plan and elevational views respectively of a portion of a sewing machine mechanism adapted for the practice of my invention and illustrating the manner in which the fabric is fed to the needles.

Referring to the drawings, and particularly to Figs. 1 to 6, inclusive, and Fig. 10, *a* represents a piece of carpet whose unselvaged edges are bound in accordance with the present invention and wherein the binding is accomplished by means primarily of stitches *b* made with suitable binding yarn and so formed as to be confined entirely to the body or base of the carpet beneath the pile *x*. In other words, instead of applying the stitches to the carpet edges in such manner as to cover a portion of the pile at the edge of the fabric after the usual manner, I so form the binding stitches as in no way to affect the normal appearance of the pile, which accordingly extends uninterruptedly to the extreme edge of the fabric.

An important novel characteristic of the present invention resides in the peculiar character of the stitch employed for the purpose which is such as to afford a bound edge which in all essential and desirable respects is the full equivalent of a normal selvaged edge. By my invention, not only is the unselvaged edge of the fabric closely and firmly bound so that no loose ends project or are visible, but the binding stitches may be made so compact and tight at the edges of the fabric that while covering and closely confining the said loose ends they are practically invisible to the casual observer and give the general appearance of a normal selvaged edge. Furthermore, the character of the

binding stitches is such that a fabric having edges bound in accordance with my invention may be treated in all respects as a fabric whose edges are normally selvaged. As shown in Fig. 3 for example, pieces of fabric having unselvaged edges bound after the manner of my invention may be pieced together along these bound unselvaged edges in exactly the same manner and with the same general effect as though the edges were normally selvaged.

With reference to the aforesaid Figure 3, it will be noticed that by reason of the character of the binding, as previously stated and as well shown in Fig. 1, the pile extends uninterruptedly to the extreme edges of the fabric and even projects at the top as at a normally selvaged edge beyond the edge of the base fabric. When, therefore, the sections are joined together, the pile meets above the joint and effectively hides the latter so that the seam is as nearly invisible as a seam between normally selvaged fabrics.

The stitch lends itself readily to certain modified forms of binding, such for example as shown in Figs. 4, 5 and 6, in which the binding stitches *b* are utilized not only to bind the unselvaged edges but to hold around the edge without piercing a binding strip *d* which completely embraces and encloses the unselvaged edge, as clearly illustrated.

In order to more clearly describe the character of the stitch and the manner in which it is applied to the fabric, I have illustrated in Figs. 9 to 11, inclusive, the stitch-forming elements of a machine adapted to apply the stitches at the unselvaged edges of the fabric in accordance with the present invention; and in Figs. 13 and 14 sufficient of the machine to illustrate the manner in which the fabric passes to the stitch-forming elements. This machine is of the general type known in the trade as a "serger" and utilizes a needle 1 and a pair of loopers 47 and 48 which cooperate with the needle to form the stitch. The needle 1 is reciprocated in the usual manner and the fabric is advanced under the needle with the usual intermittent movement through the medium, in the present instance, of an oscillating presser foot 13. The needle operates in a guide slot, one side of which is formed by a horizontal rotary disk 32 mounted upon a table extension 33, this table being pivotally secured to the frame and being retained in a normal operative position by means of a chain 33*a* passing over a grooved pulley 35. The bottom of the said guide slot is formed by an element 36 and the side opposite the member 32 by a vertical guide element 37, this element being mounted on a bracket 38 held to the fixed frame by means of a set screw 39. The mechanism of which the aforedescribed elements are a part forms the subject of a co-pending divisional application, Serial Number 274,065, and is therein described in detail.

As shown in Figs. 13 and 14, the fabric is fed to the needle in an inverted position or with the pile down. Also the edge of the fabric which is presented to the needle is turned downwardly between the guide elements 32 and 37 so that it extends at only a slight angle to the plane in which the needle operates. Under these circumstances, the needle after passing through the fabric travels on the piled side substantially parallel to the base and along the bottom of the pile so that the thread while embracing the edge of the base fabric does not extend over the tops of the pile, all as clearly illustrated in Figs. 1 to 6, inclusive.

The relative movements of the needle 1 and of loopers 47 and 48 and the character of the resulting stitch are best illustrated in Figs. 9 to 12, inclusive. It will be noted that three independent yarns are involved in the production of the stitch; a needle yarn 61 carried by the needle 1, a looper yarn 62 carried by the looper 47, and a second looper yarn 63 carried by the looper 48. In Fig. 9, it may be assumed that the needle 1 is moving upwardly from its low position. At the low position, the looper 47 which operates underneath the fabric moves forward to take a loop 64 from the needle, and in Fig. 9, this loop is clearly shown. In Fig. 10, the looper 47 has moved still further forward, while the needle 1 is at or closely approaches the top of its stroke, and it will be noted that in this position the looper 48 has moved forward and has taken a loop 65 from the looper 47, which operates above the fabric. Also in this position, a loop 66 which was previously taken from the looper 48 by the needle 1 is being cast by the needle.

In Fig. 11, the needle 1 is at the top of the stroke, while the loopers 47 and 48 have advanced to the extreme forward positions of their individual strokes, and it will be noted that in this position the needle 1 is about to move downwardly to take a loop, corresponding to the loop 66 previously taken, from the looper 48. In their retracted movements, the loopers 47 and 48 cast their respective loops in a manner that will be apparent, and the resulting stitch is illustrated in Fig. 12. In this stitch, the yarn 63 is laid upon the bottom face of the fabric to form a series of loops the closed ends 67 of which lie at the edge of the fabric, while the yarn 61 forms a corresponding series of loops 68 at the piled face of the fabric, it being kept in mind that the fabric passes through the machine in the inverted position. The needle yarn 61, however, in addition to forming the loop 68 passes through the fabric in a series of loops which bind down the yarn 63 at the inner ends of the aforesaid loops 67. The yarn 62, on the other

hand, is intertwined with the loops 67 and 68, as clearly illustrated at the edge of the fabric in such manner as to complete the stitch by binding these free loops together. It will be noted that the three yarns are united along a line directly over the unselvaged edge of the bound fabric and in such manner as to entirely cover and bind in the said edges and the loose ends thereof, as shown for example in Fig. 1 and 2. By adjusting the tension of the various yarns, the loops 67 and 68 may be more or less closely drawn together. Where a binding strip such as that designated *d* in Figs. 4, 5 and 6 is used, it is not essential that the loops 67 and 68 be so tightly drawn together, and it is sometimes desirable to leave them comparatively loose. Without the binding strip 4, it is generally desirable to bind the edges closely and firmly with the yarn, and with the proper tension the loops 67 and 68 may be so closely bound together that the yarn 62 and the stitches at the bound edge of the fabric are so compact as to be practically invisible to the casual observer. The tight binding is particularly desirable where pieces of fabric are to be joined along the unselvaged bound edges, as shown in Fig. 3. In any event, it will be understood that the yarn 61 on the piled face of the fabric extends along the body of the yarn at the bottom of the pile, as shown in Figs. 3, 5 and 6, and is not only not visible at the top of the fabric but actually leaves the pile unaffected and in normal state completely to the edge of the fabric.

I claim:

1. As a new article of manufacture, a pile fabric having an unselvaged edge bound by means of a series of stitches extending around the edge and against the body of the fabric at the base of the pile, said stitches leaving the pile substantially unaffected and being constituted by at least three independent strands of yarn, two of said strands lying against the opposite faces of the body and being joined together by a third strand extending along the unselvaged edge.

2. As a new article of manufacture, a pile fabric having an unselvaged edge bound by means of a series of stitches embracing said edge and comprising free portions anchored to the fabric and extending toward the edge on both faces of the fabric, said free portions on the pile face lying close against the body fabric at the base of the pile and leaving the pile substantially unaffected, and a strand interlaced with said free portions along the unselvaged edge to closely confine the loose ends of the fabric and to protect said edge.

3. As a new article of manufacture, a pile fabric having an unselvaged edge bound by means of a series of stitches embracing said edge and comprising free loops anchored to the fabric and extending toward the edge on both faces of the fabric, said loops on the pile face lying close against the body fabric at the base of the pile whereby the pile is left substantially unaffected, and a strand interlaced with said loops and binding the latter together along the unselvaged edge and forming with the ends of said loops a substantially closed border closely confining the loose ends of the fabric and protecting said unselvaged edge.

4. As a new article of manufacture, a composite pile fabric consisting of a plurality of separate sections of fabric joined together along unselvaged edges; each of said edges being bound by a series of stitches embracing the said edge and including free portions anchored to the fabric and extending toward the edge on both faces of the fabric, said free portions on the pile face lying close against the body fabric at the base of the pile whereby the pile is left substantially unaffected to extend uninterruptedly substantially to the edge of the body fabric, and a strand interlaced with said free portions along the unselvaged edge to closely confine the loose ends of the fabric; and stitches uniting said bound edges, said stitches being confined to the body of the fabric at the base of the pile and in conjunction with said binding stitches producing a strong seam substantially invisible from the pile face of the fabric.

ALFRED F. McCOLLUM.