

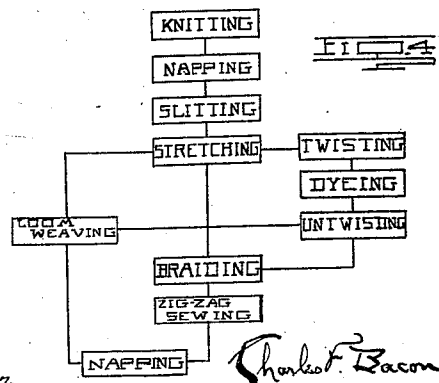
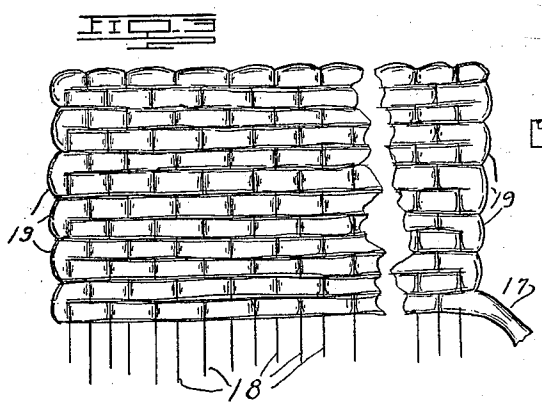
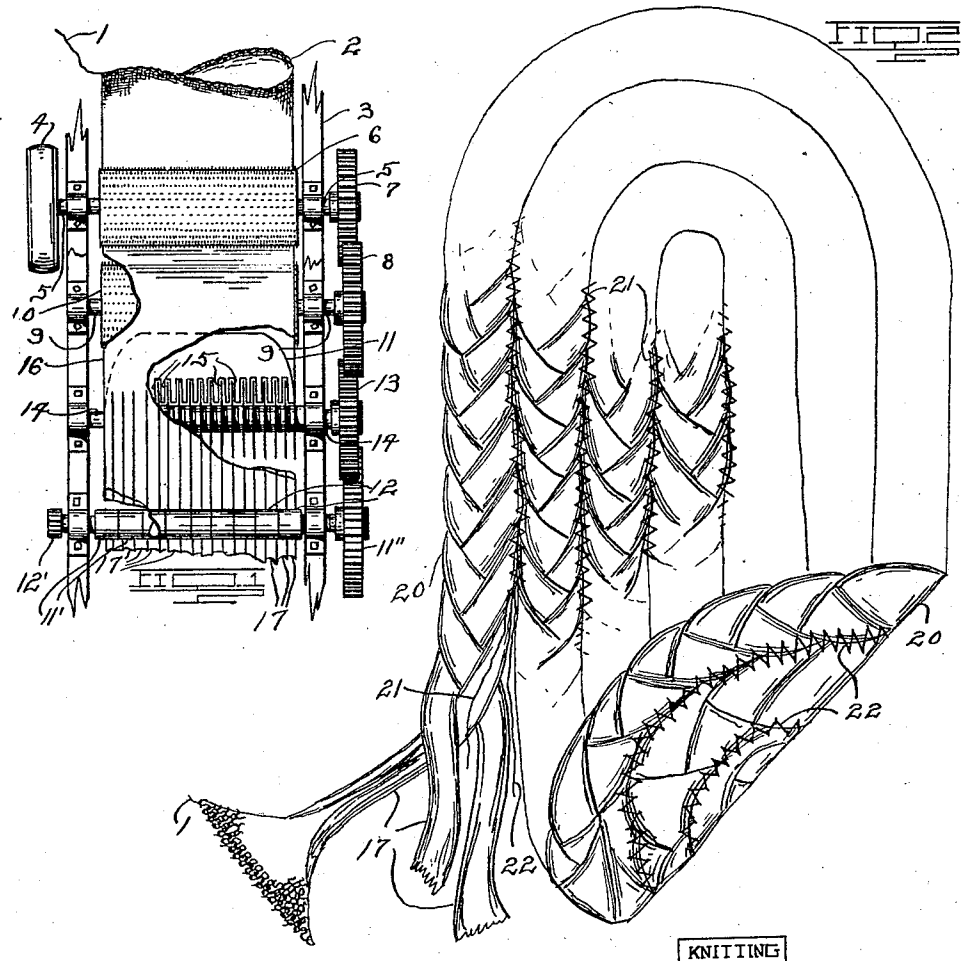
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C. F. BACON

RUG MANUFACTURE

Filed March 13, 1922



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UNITED STATES PATENT OFFICE.

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RUG MANUFACTURE.

Application filed March 13, 1922. Serial No. 543,194.

To all whom it may concern:

Be it known that I, CHARLES F. BACON, a citizen of the United States of America, residing at Toledo, Lucas County, Ohio, have invented new and useful Rug Manufacture, of which the following is a specification.

This invention relates to the production of flat fabrics.

This invention has utility in the conversion of thread stock into heavy materials as hangings, rugs, mats, etc.

Referring to the drawings:—

Fig. 1 is a fragmentary view of an embodiment of an apparatus which may be used in carrying out certain features of the invention herein;

Fig. 2 is a fragmentary view of a heavy flat product hereunder which may be used as a mat, rug, or table covering;

Fig. 3 is a fragmentary view of a warp assembly of the material hereunder; and

Fig. 4 is a diagram of the series of steps in connection with the invention herein.

From a single light thread 1, which may be of single ply, a substantial heavy stock material may be produced hereunder. This thread is preferably knitted into a fabric of a warpless character by the looping of the thread backward and forward in the production of open or mesh material. This is most economically produced in a knitting machine for producing tubular stock 2 which may be of considerable diameter. This tubular stock 2 may be delivered to a machine 3, herein shown as driven by pulley 4 on shaft 5 carrying a picker or napping roll 6 for fluffing or fleecing one side of flat tubular stock 2 when passing therethrough. This shaft 5 is shown as carrying gear 7 in mesh with gear 8 on shaft 9 for driving follower or picker roll 10 effective for fluffing or napping the opposite side of this tubular stock 2 from that napped by the roll 6. Accordingly this tubular stock 2 in passing through the picker rolls is napped on the outer side only.

The gear 8 is effective to drive gear 13 on shaft 14 carrying rotary knives or slitters 15 operating in opposing relation to the

roll 12 thereby effective to cut the napped tubular stock 16 into strips 17. This tubular stock as distended by plate 11 therein, carried from the shaft 14, is drawn over the top of the cutter 15 by lower set of friction rolls 11' driven by gear 11'' from the gear 13. Upper friction rolls 12 are driven at the same rate of speed as the rolls 11' through the gearing 12'.

These more or less narrow strips upon being drawn or stretched longitudinally have a tendency to compact or curl. Furthermore this pulling automatically brings about a frictional holding of the loops upon each other so there is a positive and effective holding of the strip stock against fraying. Accordingly by this pulling there is produced a roll whose margins are not exposed for weakening of this roll or strip fabric.

This strip may at one be used in the production of a heavy fabric in the uncolored thread as used originally in forming of the tube 2. Furthermore the thread 1 may have been dyed before being incorporated in the tube 2. When desired the napping step may be omitted. However when the napping step is incorporated there is an added tendency for the rolling up of the outside thereby more effectively bringing the margin into the central position of the roll or strip 17 of single ply from the cut pairs from the tube 2.

In instances where a mottled or part-colored effect is desired, the strip material 17 may be twisted into a hank and such dyed and then when untwisted the stock 17 is colored only in such places as were exposed on the outer side of the hank in the dyeing operation.

The stock 17, whether or not dyed by twisting, may be incorporated as a continuous strip of wool in the warp 18, say as produced by loom which may be of the type of Newcomb Patent 663,357 of Dec. 4, 1900. The continuous character of the stock 17 allows the continued travel of the shuttle from side to side to carry the wool 17 about bends 19. There is thus produced a smooth, flat, knotless stock or finished product of rug or mat type.

In the building up of these strips 17 from the tubular stock 2, successive tubes may be sewed together and such sewed places disappear in the strip material as treated to avoid any knotting appearance whatsoever and such sewing as a matter of fact is not a knotting.

Instead of incorporating this material with a warp stock, a braiding may occur say of three strands to produce braid 20 and such braided stock incorporated with additional assembling means as threads 21, 22, providing a zig-zag stitch instead of the additional assembling means as shown as warp 18.

Whether or not napping has occurred in the preparation of the strip stock 17, 18, warp assembled wool 17 or braid assembled material 20 may be napped on one or both sides in the finished product.

There is tensile strength in the simple cord as herein knit assembled in the production of heavy stock and such stock is of a smoothness and substantial character in the finished product as materially to contribute to the life thereof. Changes in the steps as indicated make possible wide ranges in the production of the stock for various utilities.

What is claimed and it is desired to secure by Letters Patent is:—

1. In the production of a flat textile material of heavy body, the knitting of a strip, multiplying the strip into a plurality of longitudinal sections by slitting, extending by stretching a continuous section thereof to effect a closing in of the fabric to determine its body and automatically minimize marginal fraying, and assembling into a flat product.

2. In the production of flat textile material of heavy body, the knitting of a strip, multiplying the strip into a plurality of longitudinal sections by slitting, a closing in of the fabric to determine its body and automatically minimize marginal fraying, and incorporating binding thread means for assembling into a flat product.

3. In the production of flat textile material of heavy body, the knitting of a strip, multiplying the strip into a plurality of longitudinal sections by slitting, napping one side of the material, extending by stretching a continuous section thereof to effect a rolling of the napped side out to bring the edges therein to minimize marginal fraying, and assembling into a flat fabric.

4. In the production of flat textile material of heavy body, the knitting of a strip, multiplying the strip into a plurality of longitudinal sections by slitting, twisting into a hank, dipping the hank into a dye, and untwisting.

5. In the production of flat textile mate-

rial of heavy body, the knitting of a strip, multiplying the strip into a plurality of longitudinal sections by slitting, extending by stretching a continuous section thereof to effect a closing in of the fabric to determine its body and automatically minimize marginal fraying, braiding, and assembling into a flat fabric.

6. In the production of flat textile material of heavy body, the knitting of a strip, multiplying the strip into a plurality of longitudinal sections by slitting, extending by stretching a continuous section thereof to effect a closing in of the fabric to determine its body and automatically minimize marginal fraying, braiding, and assembling the braided material into a flat fabric by zig-zag sewing.

7. A heavy body fabric of light thread embodying stretched knitted continuous strips with the opposite edges of the strips rolled inward and thread means for assembling the strips.

8. A napped knitted thread assembled rug embodying strips having the longitudinal edges thereof rolled toward each other.

9. A rug of continuous strip drawn to a closed body and with the strip margins rolled thereinto to render the strips frayless.

10. A rug of continuous strips drawn to a closed body with the strip margins rolled thereinto to conceal parallel fray edges and zig-zag thread means for assembling strips.

11. A rug of braided continuous strips of napped one-side knitted stock longitudinally rolled into edge concealing contour.

12. A rug of braided continuous edge concealed strips of napped one-side knitted stock and zig-zag thread means for assembling the strips against fray edge exposure.

13. In the production of strip material from tubular fabric, the transverse distension of said material, the longitudinal cutting of said transversely distended material, and the longitudinal distension of said strips for curling the edges thereof.

14. In the production of flat textile material of heavy body, the first knitting of a strip, second transversely distending said material, third napping one side of the material, fourth multiplying the strip into a plurality of longitudinal sections by slitting, fifth, extending by stretching a continuous section thereof to effect a rolling of the napped side out to bring the edges therein to minimize marginal fraying, and sixth assembling into a flat fabric.

15. A strip material forming machine comprising a napping device, a spreading device, a slitting device to which the spreading device delivers, and draw rolls for pulling the material as to the devices.

16. A strip material forming machine comprising a spreading device, a slitting device to which the spreading device delivers, and draw rolls for pulling the material as 5 to the devices. into tubular material, a plurality of rotary slitters, for the material from the device, and draw rolls for the slitted material for 10 drawing the material over the spreader and through the slitter.

17. A strip material forming machine comprising a spreading device for insertion

In witness whereof I affix my signature.

CHAS. F. BACON.