

Sept. 15, 1936.

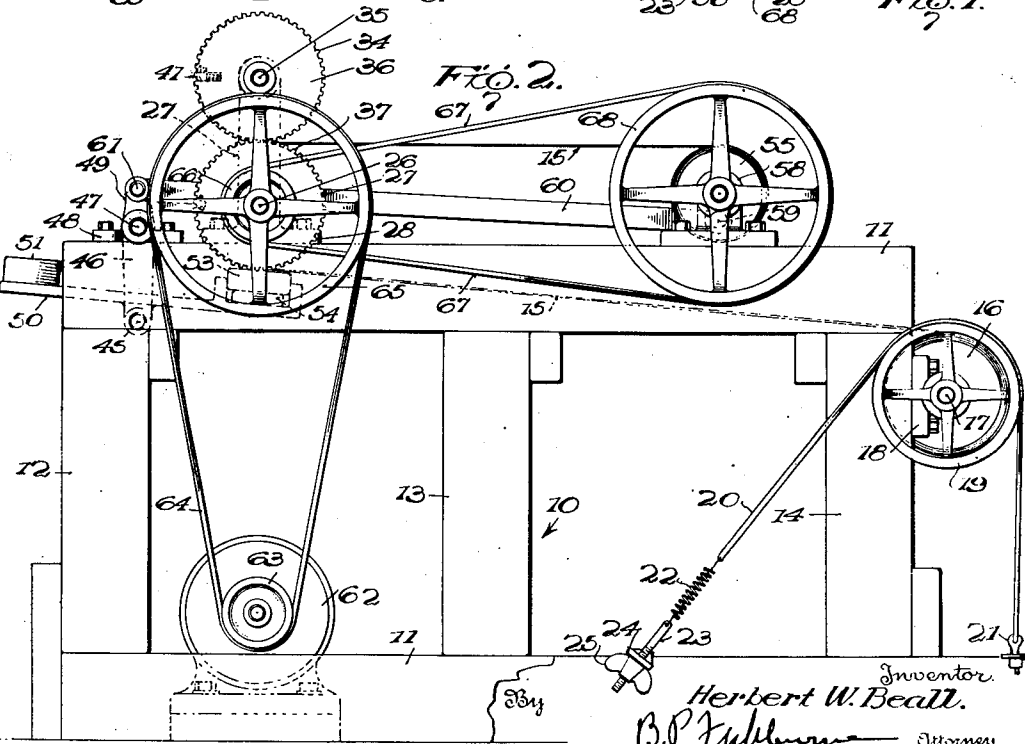
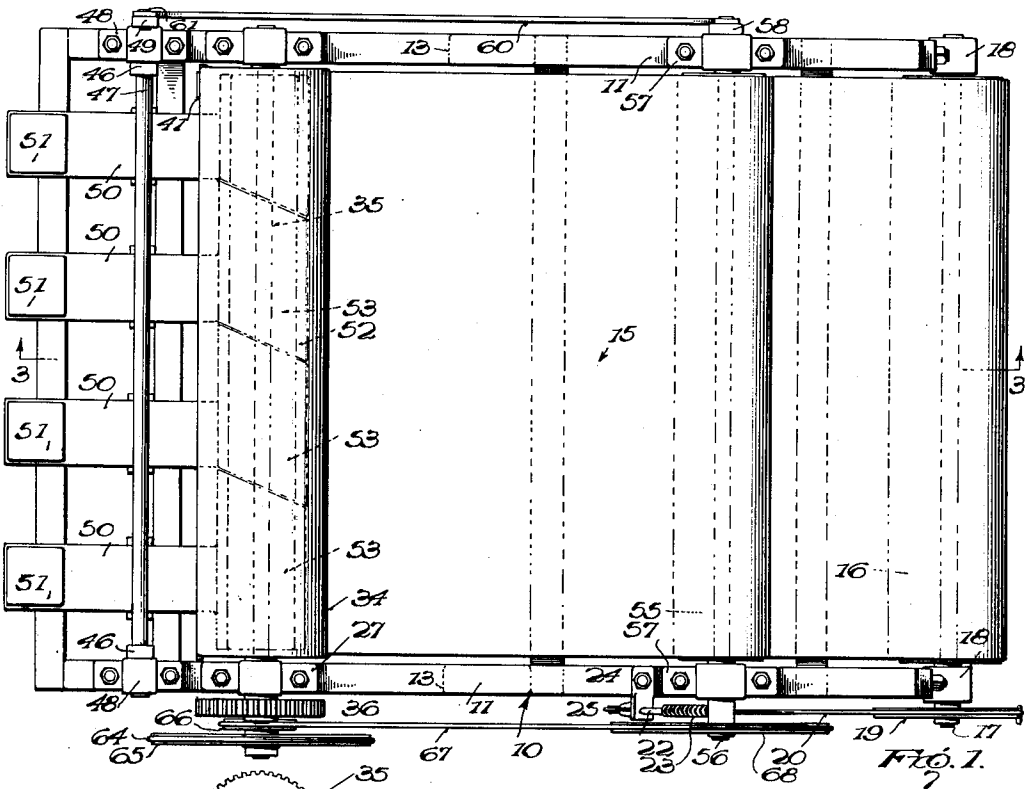
H. W. BEALL

2,054,591

MACHINE FOR MARKING FABRIC

Filed Dec. 13, 1935

3 Sheets-Sheet 1



Sept. 15, 1936.

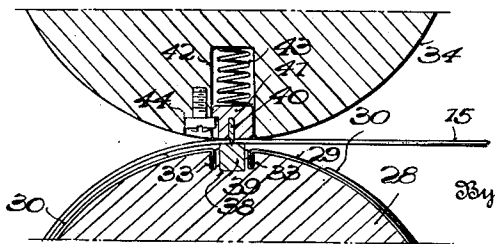
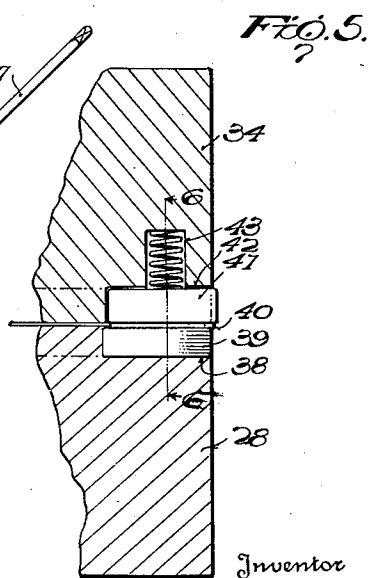
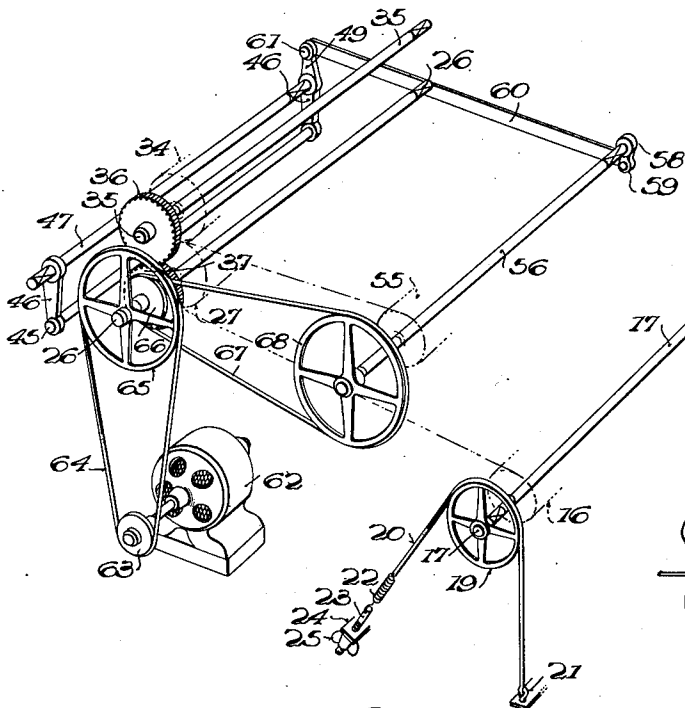
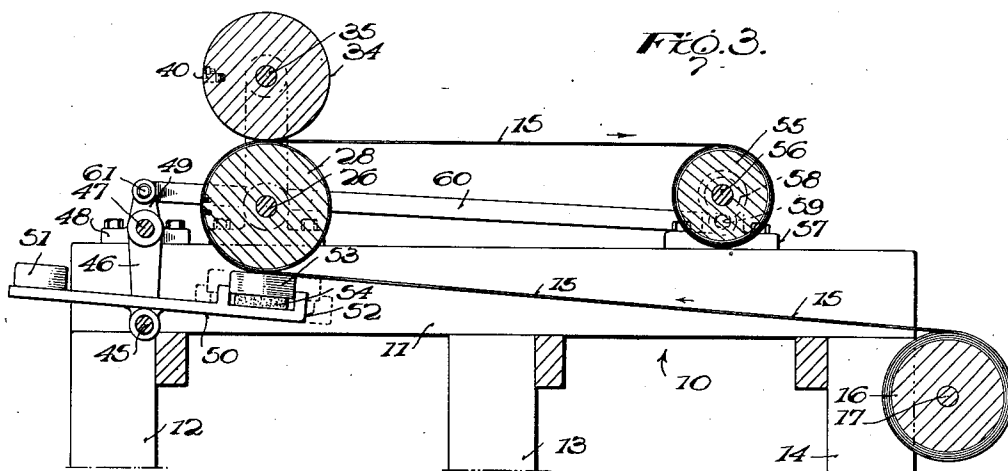
H. W. BEALL

2,054,591

MACHINE FOR MARKING FABRIC

Filed Dec. 13, 1935

3 Sheets-Sheet 2



Herbert W. Beall.

B. P. Johnson

Attorney

Sept. 15, 1936.

H. W. BEALL

2,054,591

MACHINE FOR MARKING FABRIC

Filed Dec. 13, 1935

3 Sheets-Sheet 3

FIG. 7.

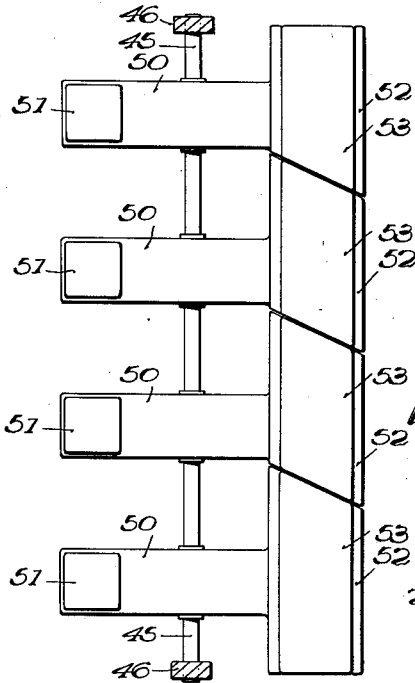


FIG. 8.

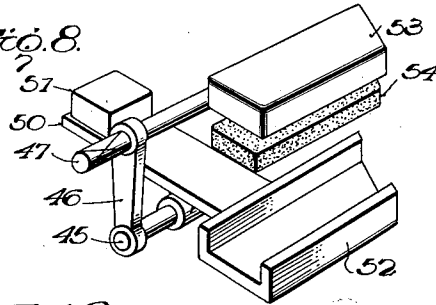


FIG. 9.

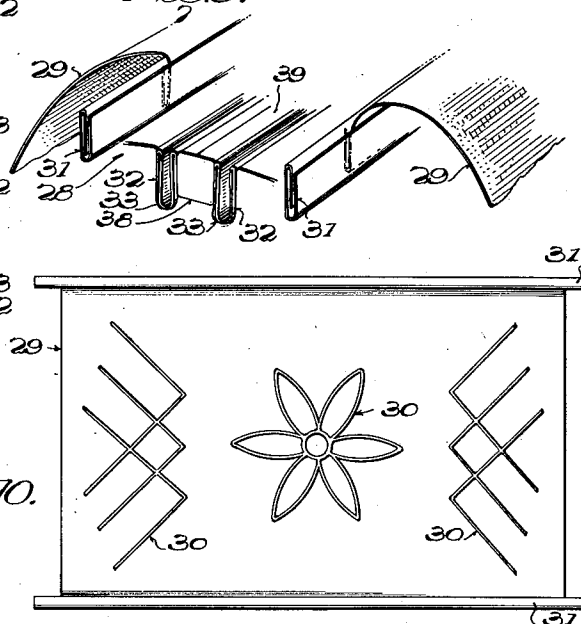


FIG. 10.

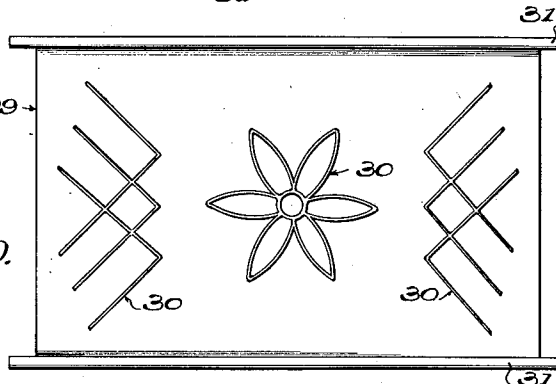


FIG. 12.

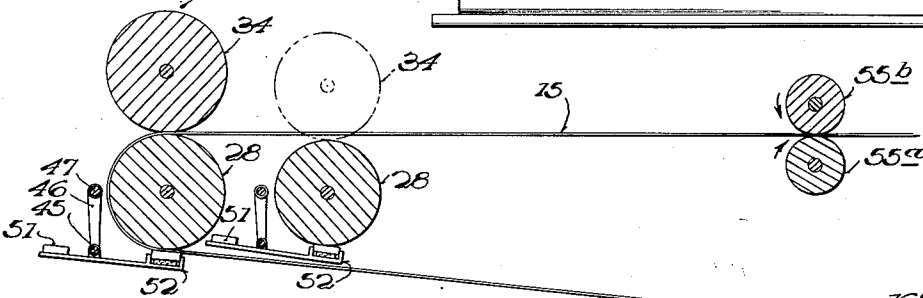
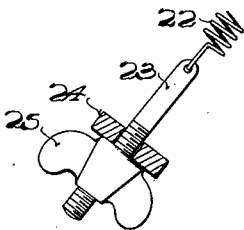


FIG. 11.



17' Inventor

Herbert W. Beall.

By

B. P. McNamee

Attorney

UNITED STATES PATENT OFFICE

2,054,591

MACHINE FOR MARKING FABRIC

Herbert W. Beall, Sumter S. C., assignor to Polly
Prentiss Inc., Sumter, S. C., a corporation of
South Carolina

Application December 13, 1935, Serial No. 54,314

17 Claims. (Cl. 101—1)

My invention relates to a machine for marking flexible material, such as fabrics, paper or the like.

5 An important object of the invention is to provide a machine of the above mentioned character for producing a design upon fabric, in the production of bath mats, bedspreads and similar articles, and which is continuous and rapid in operation.

10 A further object of the invention is to provide means for producing a wiping action between a solid marking medium, and portions of fabric held raised by a suitable pattern.

15 A further object of the invention is to provide means for yieldingly holding the marking medium or mediums in contact with the travelling fabric.

20 A further object of the invention is to provide means for shifting the marking medium with respect to the travelling fabric, to prevent the distortion of the contact surface of such medium.

A further object of the invention is to provide reliable and simple means for detachably securing the pattern to the pattern roll.

25 A further object of the invention is to provide means to cut the fabric, at a proper point between sections of the marked fabric.

30 A further object of the invention is to provide a machine of the above mentioned character which is rapid in operation and will effect a high degree of economy in time and labor, over the present manual method of marking fabric.

35 Other objects and advantages of the invention will be apparent during the course of the following description.

40 In the accompanying drawings forming a part of this application and in which like numerals are employed to designate like parts throughout the same,

Figure 1 is a plan view of a machine embodying my invention,

Figure 2 is a side elevation of the same,

45 Figure 3 is a longitudinal section taken on line 3—3 of Figure 1,

Figure 4 is a perspective view of the roll carrying shafts and associated elements, separated from the frame of the machine,

50 Figure 5 is a longitudinal section through the pattern roll and cutter roll, parts broken away,

Figure 6 is a detailed section taken on line 6—6 of Figure 5,

Figure 7 is a plan view of the means for supporting the marking blocks,

55 Figure 8 is a perspective view of one of the boxes

and associated elements for holding the marking block,

Figure 9 is a perspective view of one end of the pattern roll, sockets, and attaching rods,

Figure 10 is a plan view of the pattern,

Figure 11 is a side elevation of a spring tension device, and,

Figure 12 is a longitudinal section through a machine embodying a modified form of the invention.

10 In the drawings, wherein for the purpose of illustration is shown a preferred embodiment of my invention, the numeral 10 designates a stationary frame, comprising horizontal beams 11 and vertical beams 12, 13, and 14.

15 Means under suitable tension is provided to feed or pay out the fabric or cloth 15, to be marked, comprising a roll 16 upon which the fabric is wound. This roll 16 is preferably arranged adjacent to the vertical beams or uprights 14 and is rigidly mounted upon a horizontal shaft 17, journaled in bearings 18, in turn mounted upon the vertical beams 14. A grooved tension wheel or pulley 19 is rigidly mounted upon the shaft 17, and slidably engages a brake strap 20, having one end attached to a stationary hook 21, or the like, while its opposite end is secured to a retractile coil spring 22. This spring is connected with a bolt 23, extending through an opening formed in a stationary member 24, and carrying 20 a winged nut 25, whereby the tension of the spring 22 may be adjusted or varied, as may be found advantageous. It might be stated at this point that the fabric may be wound upon the roll 16, when this roll is in place upon the machine, or the fabric may be wound upon the roll 16 and the roll then positioned upon the machine. Further, the invention is in no sense restricted to the use of a roll and tension means for opposing its rotation, as any other suitable form of means 40 may be employed, which will permit of the feeding movement of the fabric and applying suitable tension to the same.

45 Preferably disposed at the top of the machine and near the vertical beams 12 is a transverse horizontal shaft 26, journaled in bearings 27, rigidly mounted upon the horizontal beams 11. Rigidly mounted upon the shaft 26 is a pattern roll 28. This pattern roll is adapted to carry upon its periphery, a pattern 29, preferably 50 formed of a woven fabric or cloth. A raised pattern 30 is formed upon the woven fabric 29 and may be embroidered or tufted thereon. The design is raised in a sense that it extends radially outwardly beyond the fabric 29 for a con-

5

10

15

20

25

30

35

40

45

50

55

siderable distance, such as $\frac{1}{2}$ of an inch, more or less. The design may be varied in appearance, as desired. Attached to the ends of the fabric 29 are metal rods 31, which are adapted to be inserted within longitudinally extending metal sockets 32, which are anchored within grooves 33 formed in the periphery of the pattern roll 28. The sockets 32 are preferably slightly counter-sunk with respect to the periphery of the pattern roll and the rods 31 are flush with the periphery of the pattern roll, or do not project radially outwardly beyond the same when held within the metal sockets 32. The rods 31 are preferably retained within the sockets 32 by frictional engagement, and their ends project slightly beyond the sockets 32 and pattern roll, so that the rods may be conveniently removed, when desired. It is thus seen that means are provided whereby the flexible pattern may be quickly and easily applied to and removed from the pattern roll. It might be stated at this point that the pattern roll has its circumference slightly longer than the pattern, but the circumference of the pattern roll is substantially identical in length with the article to be marked. The circumference of the pattern roll must vary with the length of the article to be marked. The drawings show a pattern roll having its circumference of a suitable length for marking bath mats or the like, while if the machine were employed to mark bedspreads, the pattern roll would have a much larger circumference.

Cooperating with the pattern roll 28, and preferably arranged above the same, is a cutter-roll 34, rigidly mounted upon a horizontal transverse shaft 35, journaled in openings formed in the upper portion of the bearings 27. The shaft 35 is driven at one end by a gear 36, rigidly secured thereto, in permanent mesh with a gear 37 of the same diameter, and rigidly mounted upon the shaft 26. It is thus seen that the pattern roll 28 and the cutter-roll 34 turn in opposite directions in unison. The pattern roll 28 is provided upon its periphery and adjacent to the cutter-roll 34, and between the metal sockets 32, with a recess 38, for receiving a cutting block 39, preferably formed of hard wood, although any other suitable material may be employed, such as fiber, metal or the like. This block has its outer surface flush with the periphery of the pattern roll. The block is held in place by a frictional engagement or by any suitable means which will permit of its removal when desired. Coacting with this cutting block is a blade 40, which is rigidly secured to a block 41, slidable within a radial groove or opening 42, formed in the cutter-roll 34. The block 41 is urged outwardly by a compressible coil spring 43, and the outward movement of the block is limited by a bolt 44, which may be removed, to permit of the removal of the block 41 and its blade. It might be stated at this point that after the pattern roll 28 has made a complete revolution and completed the marking of the design, the blade 40 and cutting block 39 are now brought in close relation and the blade will notch or cut the fabric, at the rear end of the completed marked section, for a short distance. Instead of cutting the fabric for a short distance, as explained, the blade may extend throughout the entire length of the pattern roll and may be employed to cut the fabric throughout its entire width. This blade may also be of any desired shape.

Means are provided for holding solid marking medium or mediums in contact with the fabric

travelling with or about the pattern roll. This means comprises a horizontal transverse shaft 45 rigidly mounted within depending arms or links 46, in turn rigidly mounted upon a rock shaft 47, journaled in bearings 48. The rock shaft 47 is turned by means of an upstanding crank 49, rigidly secured thereto. Individually pivotally mounted upon the shaft 45 are generally horizontal self-adjusting supporting arms 50, adapted to swing in a vertical plane. A separate weight 51 is carried by the outer end of each supporting arm. The inner end of each supporting arm is provided with a head or box 52, for receiving the solid marking mediums 53. These solid marking mediums are preferably in the form of solid blocks or cakes of colored wax, or other solid composition adapted to produce a mark upon a wiping action. As more clearly shown in Figure 7, the inner adjacent ends of the boxes 52 and the blocks 53 are preferably diagonally cut, whereby the blocks overlap with respect to the direction of travel of the fabric. Arranged beneath each block 53 and within the box 52 is a resilient cushion 54, preferably formed of sponge rubber or the like. It is thus seen that each box 52 is individually vertically yieldable or adjustable and each block is also vertically yieldable with respect to its box, by virtue of the elastic pad beneath the block. This provides for the maximum flexibility of the several cakes or blocks 53, held beneath and in contact with the fabric travelling over or about the pattern roll 28. The rock shaft 47 is turned in opposite directions by means to be described, to shift the boxes 52 and blocks 53 longitudinally in opposite directions, for a distance substantially equal to the width of the block, thereby bringing the entire surface of the block in frictional engagement with the travelling fabric, so that the contact surface of the block will wear down for producing a substantially flat surface, or one having a radius of a considerably greater length than the radius of the pattern roll. This provides for a single line contact between the marking blocks 53 and the raised portions of the pattern.

The woven fabric 15, after passing over the pattern roll 28, extends to and is wound upon a take-up roll 55, preferably arranged near and above the beams 11, and rigidly mounted upon a horizontal transverse shaft 56, journaled in bearings 57, in turn mounted upon the horizontal beams 11. Rigidly secured to one end of the shaft 56 is a radial arm or crank 58, having pivotal connection at 59, with a rigid connecting link 60, which is pivotally connected at 61, with the upstanding arm 49. The rotary movement of the arm 58 oscillates the arm 49, for turning the rock shaft 47, and reciprocating the supporting arms 50.

The numeral 62 designates a motor, preferably arranged near the lower portion or bottom of the frame or support 10, and driving groove pulley 63, in turn driving a belt 64, extending upwardly for driving a grooved pulley 65, having a larger diameter than the pulley 63. A grooved pulley 66 having a smaller diameter than the pulley 65, is rotatable as a unit with the pulley 65, and pulleys 65 and 66 are rotatable upon the shaft 26. A belt 67 engages the small pulley 66 and also a larger pulley 68, in turn rigidly mounted upon the shaft 56, to drive the same.

The operation of the machine is as follows:

The fabric to be marked is first rolled upon the roll 16 and then passed about the pattern roll 28

and between it and the cutter roll 34, and then attached to the take-up roll 55. This take-up roll is driven in the direction of its arrow, whereby the fabric 15 is advanced in the direction of its arrow. When passing beneath the pattern roll 28 and between it and the solid blocks or cakes 53 of marking material, the raised portions of the fabric 15 produced by the raised design has a wiping action with the marking blocks, whereby the design is formed or marked upon the outer surface of the fabric. The fabric travelling beneath the cutter-roll 34 and the pattern roll 28 is subjected to the cutting action of the blade 40, which cuts a short slit or notch at the edge thereof, between two of the connected fabric sections. The pattern roll 28 has its circumference equal in length to the complete length of the article being marked, such as a bedspread, and the knife 40 will accurately cut or notch the fabric at each end of the marked article. The fabric thus marked and notched is now wound upon the take-up roll 55, and after all of the fabric is removed from the tension roll 16 and transferred to the take-up roll 55, the fabric is now unwound from the take-up roll 55 and is torn transversely in sections, at the slits or notches. In order that the take-up roll will be free to turn, the belt 60 may be removed from the pulleys.

In Figure 12 I have shown a slight modification of the invention wherein coacting feed rolls 55a and 55b are substituted for the take-up roll 55. These rolls operate in close relation and the fabric is fed between them and they serve to advance the fabric longitudinally. The advantage of this construction is that the fabric does not accumulate upon a take-up roll and may be torn into sections after it passes the feed rolls. I also contemplate employing two or more pattern rolls 28, varying in diameter or having different patterns. These pattern rolls cooperate with the same boxes 52 and associated elements for holding the marking blocks 53 in contact with the raised portions in the fabric. The same cutter-roll 34 is associated with each pattern roll, but the cutter-roll 34 associated with one pattern roll, is removed, while the other pattern roll is being used, with its companion roll. I also contemplate using a slightly different form of tension means to oppose the longitudinal travel of the fabric. Instead of using the tension roll 16, I may pass the fabric about stationary tension rods 16', the fabric being fed from a folded pile 17'.

It is to be understood that the forms of my invention herewith shown and described are to be taken as preferred examples of the same and that various changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of my invention or scope of the subjoined claims.

Having thus described my invention, I claim:

1. A machine for marking a long section of cloth for producing relatively large articles, such as bedspreads, bath mats or the like, comprising a support, a pattern roll mounted upon the support, a raised pattern mounted upon the pattern roll, a pivoted support arranged near the pattern roll and having an element for receiving a marking block of solid marking material, resilient means arranged between the marking block and a portion of the element, and yielding means to swing the pivoted support in one direction.

2. A machine for marking a long section of cloth for producing relatively large articles, such as bedspreads, bath mats or the like, comprising a

support, a pattern roll mounted upon the support and carrying a raised pattern with the section of cloth passing about the raised pattern for producing raised portions in the cloth, a box mounted upon the support and arranged near the pattern roll, resilient means mounted within the box, a marking block mounted within the box above the resilient means and engaging the raised portions of the cloth, and means to effect a continuous longitudinal movement of the section of cloth during the marking action.

3. In a machine for marking fabric or the like, a support, a pattern roll mounted upon the support, a plurality of independently pivoted supporting arms arranged near the pattern roll, a corresponding number of separate boxes mounted upon the supporting arms and adapted to receive and hold marking blocks, the combined length of the marking blocks extending throughout the major portion of the length of the pattern roll, and means to advance the fabric passed about the pattern roll.

4. In a machine for marking fabric or the like, a support, a pattern roll mounted upon the support to receive the fabric thereon, a plurality of independently pivoted supporting arms arranged near the pattern roll, a corresponding number of separate boxes mounted upon the supporting arms and adapted to receive and hold marking blocks having their adjacent ends diagonally cut, the combined length of the marking blocks extending throughout the major portion of the length of the pattern roll and the adjacent ends of the boxes being diagonally cut, and means to advance the fabric.

5. In a machine for marking fabric or the like, a support, a pattern roll mounted upon the support to receive the fabric thereon, a supporting structure arranged near the pattern roll and shiftable generally in a horizontal direction, means to shift the supporting structure, a plurality of supporting arms pivotally mounted upon the supporting structure and having devices for holding blocks of marking material, and means to advance the fabric.

6. In a machine for marking fabric or the like, a support, a pattern roll mounted upon the support to receive the fabric thereon, a supporting structure arranged near the pattern roll and shiftable with relation thereto, means to shift the supporting structure, a plurality of supporting devices pivotally mounted upon the supporting structure and having elements for holding marking material, and means to advance the fabric.

7. In a machine for marking a long section of cloth for producing relatively large articles, such as bedspreads, bath mats or the like, a travelling device having a raised pattern for supporting the cloth for producing raised portions in the cloth, means for supporting solid marking material in contact with the raised portions in the cloth, means for effecting a relative movement between the cloth and solid marking material supporting means for producing a wiping action, and means to cut the cloth through its longitudinal edge so that the section of cloth may be easily torn for separating out the articles.

8. In a machine for marking fabric or the like, a support, a pattern roll provided with a raised pattern and adapted to receive the fabric thereon, a cutter-roll arranged adjacent to the pattern roll with the fabric passing between them, a blade carried by the cutter-roll, means to cause the pattern roll and cutter-roll to rotate in unison

in opposite directions, means for supporting marking material in contact with the fabric, and means for advancing the fabric.

9. In a machine for marking fabric or the like, a support, a pattern roll provided with a raised pattern and adapted to receive the fabric thereon, said roll having a recess, a block mounted within the recess, a cutter-roll arranged adjacent to the pattern roll, a blade carried by the cutter-roll and coacting with the block to cut the fabric, means to cause the pattern roll and cutter-roll to rotate in unison in opposite directions, means for supporting marking material in contact with the fabric to produce a wiping action, and means to advance the fabric.

10. A machine for marking a long section of cloth for producing relatively large articles, such as bedspreads, bath mats or the like, comprising a support, a pattern roll mounted upon the support and having longitudinally extending sockets, a flexible cloth pattern element having a raised pattern, rods secured to the ends of the cloth pattern element and adapted for insertion within the sockets for detachably securing the cloth pattern element to the pattern roll, the cloth pattern element being wound upon its rod or rods when separated from the pattern roll, the fabric being passed about the pattern element carried by the pattern roll, means to hold marking material in contact with the fabric for producing a wiping action, and means to advance the fabric.

11. A machine for marking a long section of cloth for producing marked sections, comprising a supporting structure, a pattern roll mounted upon the supporting structure and having a periphery substantially equal to one dimension of the section, a flexible pattern detachably mounted upon the roll and having a raised pattern with the cloth passed about the raised pattern so that the raised pattern produces raised portions in the cloth, means for holding solid marking material in engagement with the raised portions in the cloth, means to continuously move the cloth longitudinally during the marking action for effecting a wiping action and thereby marking the pattern upon the cloth, a blade, and means actuated during each revolution of the roll to cause the blade to cut through the edge of the cloth and thus define one dimension of the article and to permit of the ready separation of the article by the tearing action of the cloth.

12. A machine for marking a long section of cloth for producing relative large articles such as bedspreads, bath mats or the like, comprising a supporting structure, a pattern roll mounted upon the supporting structure, a cloth pattern detachably mounted upon the pattern roll and having a raised pattern with the section of cloth passed about the raised pattern so that the raised pattern produces raised portions in the section of cloth, means for holding solid marking material in engagement with the raised portions in the section of cloth, means to continuously move the cloth during the marking action for effecting a wiping action between such raised portions and the solid marking material, a blade, and means actuated during each revolution of the pattern roll to cause the blade to cut transversely through the edge of the fabric.

13. A machine for marking a long section of cloth for producing marked sections, comprising a frame, a pattern roll mounted upon the frame and having a periphery substantially equal to one dimension of the section, a flexible pattern passed

about the periphery of the pattern roll and having a raised pattern with the section of cloth passed about the raised pattern for producing raised portions in the section of cloth, means for removably mounting the flexible pattern upon the pattern roll to rotate therewith and to be separated therefrom, means for yieldingly holding solid marking material in engagement with the raised portions of the section of cloth, and means to continuously move the section of cloth longitudinally during the marking action for effecting a wiping action between such raised portions and the solid marking material.

14. A machine for marking a long section of cloth for producing relatively large articles, such as bedspreads, bath mats or the like, comprising a supporting structure, a pattern roll mounted upon the supporting structure, a cloth pattern passed about the periphery of the pattern roll and having a raised pattern formed by thread or yarn with the section of cloth passed about the raised pattern for producing raised portions in the section of cloth, means for detachably securing the cloth pattern to the pattern roll to rotate therewith and to be separated therefrom, a pivoted support having means for holding solid marking material and yieldingly pressing the same into engagement with the said raised pattern, and means to continuously move the section of cloth longitudinally during the marking action for effecting wiping action between such raised portions and the solid marking material.

15. A machine for marking a long section of cloth for producing relatively large articles, such as bedspreads, bath mats or the like, comprising a supporting structure, a pattern roll mounted upon the supporting structure, a cloth pattern mounted upon the periphery of the roll and having a raised pattern with the section of cloth passed about the raised pattern for producing raised portions in the section of cloth, a pivoted support arranged near the pattern roll, a box carried by the pivoted support for receiving solid marking material, means acting upon the pivoted support to cause the same to yieldingly press the solid marking material into engagement with the raised portions of the cloth section, and means to continuously move the section of cloth longitudinally during the marking action for effecting wiping action between such raised portions and the solid marking material.

16. A machine for marking a long section of cloth for producing marked sections, comprising a supporting structure, a pattern roll mounted upon the supporting structure, a flexible pattern removably mounted upon the pattern roll and having a raised pattern, said pattern roll having the cloth passing about one side thereof, the cloth conforming to the curvature of the periphery of the pattern roll and extending throughout a considerable portion of such periphery, the cloth engaging the raised pattern which produces raised portions in the cloth, means for holding solid marking material in engagement with the raised portions of the cloth, and means to maintain the cloth under tension so that the raised pattern produces the raised portions in the cloth and to continuously move the cloth longitudinally during the marking action for effecting a wiping action between such raised portions and the solid marking material.

17. A machine for marking a long section of cloth for producing marked sections, comprising a supporting structure, a pattern roll mounted

upon the supporting structure, a flexible pattern removably mounted upon the periphery of the pattern roll and having a raised pattern with the cloth passed about the raised pattern for producing raised portions in the section of cloth, a pivoted support having means for holding solid marking material and yieldingly pressing the

same into engagement with the raised pattern, and means to continuously move the section of cloth longitudinally during the marking action for effecting a wiping action between such raised portions and the solid marking material.

HERBERT W. BEALL.