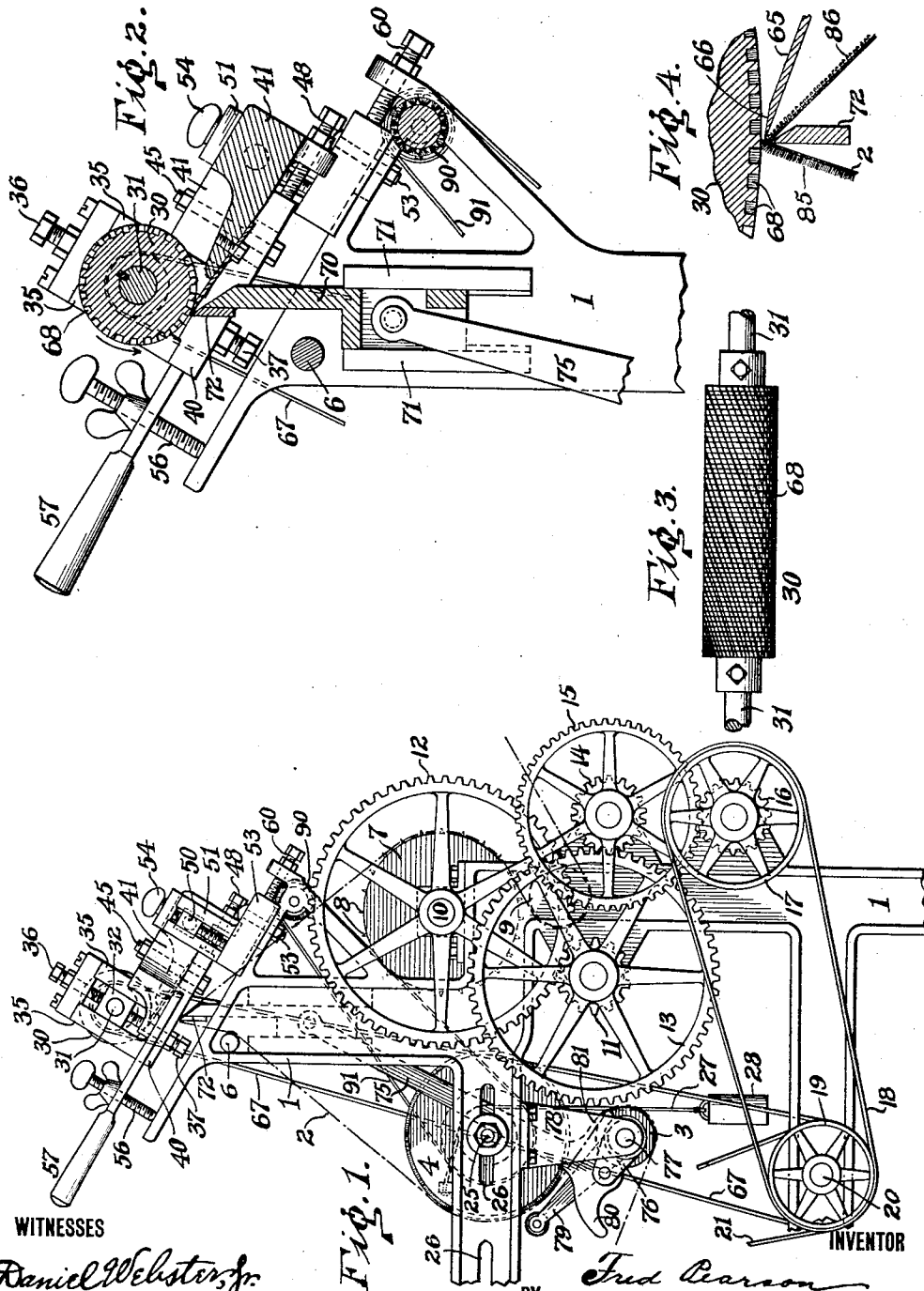


F. PEARSON.
MACHINE FOR CURLING THE PILE OF TEXTILE FABRICS.
APPLICATION FILED JAN. 13, 1909.

1,033,459.

Patented July 23, 1912.



WITNESSES

Daniel Webster, Jr.
Barrie E. Kleinfelder.

Fig. 1.

BY

Fred Pearson
Cyrus N. Anderson
his ATTORNEY

UNITED STATES PATENT OFFICE.

FRED PEARSON, OF NEAR DOWNINGTOWN, PENNSYLVANIA.

MACHINE FOR CURLING THE PILE OF TEXTILE FABRICS.

1,033,459.

Specification of Letters Patent.

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Application filed January 13, 1909. Serial No. 472,149.

To all whom it may concern:

Be it known that I, FRED PEARSON, a citizen of the United States, residing near Downingtown, county of Chester, State of Pennsylvania, have invented a certain new and useful Machine for Curling the Pile of Textile Fabrics, of which the following is a specification.

My invention relates to a machine for curling the pile of textile fabrics, and it has for its object the production of a machine of this character having the capacity to curl pile which otherwise would be straight so as to give the same the appearance of Persian lamb or astrakhan fabrics.

A convenient embodiment of my invention is illustrated in the accompanying drawings forming a part of this specification. The novel features of this and all other embodiments which come within the scope of my invention, I have endeavored to point out with particularity in the appended claims.

In the drawings:—Figure 1 is a side elevation of a portion of a machine embodying my invention; Fig. 2 is a transverse section of a portion of the said machine showing my invention; Fig. 3 is a view of the curling roller employed in my invention; and Fig. 4 is a section of a portion of my invention showing the operation thereof to curl the pile of a fabric.

Referring to the drawings:—The frame of the machine is designated by the numeral 1. The fabric 2, the pile of which is to be curled, is fed through the machine in such relation to the curling mechanism thereof as to permit the latter to operate upon the pile to curl it.

Before taking up the description of the curling mechanism, I shall explain the mechanism for feeding the fabric through the machine. The fabric to be operated upon is suitably mounted upon a support (not shown), and passes from its support underneath a guide roll 3 and thence partially around the outside of a tension roll 4 from which it passes under a guide member 6 to the curling mechanism and from the latter it extends partially around the feeding roll 7 which is provided with spurs or teeth 8 which engage the fabric to draw it along. After leaving the feeding roll 7 the fabric passes underneath and partially around a guide roll 9 and thence to a receiving drum or roll not shown. The feeding roll 7 is mounted upon

and adapted to rotate with a shaft 10 which is driven by means of a gear 11 which engages with the gear wheel 12 upon the shaft 10. The gear 11 is driven through the medium of the gears 13 and 14 and the latter gear 14 is driven through the medium of the gears 15 and 16. The gear 16 is connected to or is rigid with the band wheel 17 and is adapted to be driven by the band 18, the latter being driven by the band wheel 19 on the shaft 20 which extends across the frame of the machine. The band wheel 19 is driven by a band 21 which extends from a band wheel (not shown) on the shaft 20 to a driving shaft (not shown).

The fabric travels slowly through the machine and the purpose of the gearing mechanism by means of which the feeding roll 7 is driven is to reduce and control the speed of the latter in order that the speed of travel of the fabric through the machine may be controlled.

The surface of the tension roll 4 consists of a large number of projecting fine wires secured to the roll in any suitable manner. The shaft 25 of the tension roll 4 is journaled and supported in horizontal slots 26 formed in a horizontal portion of the frame 1 of the machine. The pressure of the fabric against the tension roll 4 tends to occasion movement thereof to the right but such movement to the right is prevented by the tension band 27 having stationary connection at one end to the frame of the machine and being connected at its other end to a weight 28. The said band is wound around a sleeve or roll firmly connected to the shaft 25 and the rotation of the said sleeve or roll with the said shaft tends to occasion movement of the shaft together with the parts connected thereto to the left, whereby a tensioning action of the tension roll 4 is effected upon the said fabric.

30 designates a curling roller, the shaft 31 of which is supported in adjustable bearings 32. The bearings are respectively supported between the guide members 35. Adjustment of the said bearings between their supporting guide members may be occasioned by the adjusting screws 36 and 37. The supporting guides 35 are connected to and supported upon supporting blocks or bars 40 which are adjustably connected to the cross member or bar 41. The said supporting bars 40 are provided with longitudinal slots through which and also through

the cross member 41 screw bolts 45 extend for the purpose of connecting the said supporting blocks or bars 40 and the said cross member 41 together. If it is desired to adjust the supporting bars or blocks 40 and consequently the curling roller 32 longitudinally of the frame the nuts on the screw bolts 45 are loosened and the gage or adjusting screws 48 are adjusted so that their inner ends occupy positions necessary to bring the supporting blocks or bars 40 and the curling roll 32 into the position desired after which the said blocks are moved into contact with said adjusting screws or gages 48. The cross member 41 is pivotally supported upon adjustable bearings 50. The bearings are mounted in a support 51, the base portion of which is connected by means of bolts 53 to a portion of the frame of the machine. The bearings are adjustable in their supports by means of the adjusting screws 54. The cross bar or member 41 and the supports for the curling roll 30 are movable about the said pivots and are adapted to be held in adjusted position with relation to the said pivots by means of an adjusting screw 56 being in engagement with hand levers 57 which are connected to the supporting blocks or bars 40. The lower ends of the adjusting screws 56 are adapted to rest upon a portion of the frame 1 of the machine.

The supports 51 for the cross bar or cross member 41 and the parts connected thereto may be adjusted upon the frame of the machine by loosening the nuts on the bolts 53, after which the said supports may be moved to such positions as desired. The positions to which the said supports are to be adjusted may be indicated by adjusting or gage screws 60 having screw-threaded connection with a stationary portion of the machine.

65 is a plate which is connected to the cross bar or cross member 41 and its inner edge is beveled or sharpened as indicated clearly at 66 in the drawings. The beveled inner edge of the said plate is located adjacent to and is parallel with the curling roller 30. By adjusting or moving the supporting bars or blocks 40 as previously described, the position of the curling roller 30 with respect to the edge of the plate 65 may be changed or varied so as to bring the axis of the said roller immediately above the edge of the said plate or carry the said axis to one side or the other of a vertical plane touching and parallel with the said edge.

The curling roller is adapted to be rapidly rotated by means of a driving band 67 which passes over a band pulley or wheel on the axis 31 of the said roller and over a band wheel on the shaft 20.

The curling roller may be constructed of any material found to be suitable and in any

manner found to be desirable and practicable. I have found non-metallic substances, such as vulcanized fiber and leather to be desirable materials for use in the construction of the curling roller. I have also found that the roller is conveniently constructed of a number of disks of this material secured upon a shaft in close contact with each other, the said disks being supported upon the shaft 31 and being prevented from rotating relatively to the said shaft by means of a feather upon the shaft in engagement with slots or grooves in the disks as shown in Fig. 2. The said curling roller is provided with a series of spiral grooves 68 formed in its surface, as shown more particularly in Fig. 3 of the drawings. The arrangement of the said grooves 68 upon the roller 30 may be changed and varied to suit the convenience and will of the person constructing the same and if desired an additional set of grooves may be provided with their spirals extending in the opposite direction to what is shown in Fig. 3 of the drawings, or if desired the said grooves may be constructed so as to produce different appearing designs upon the said roller.

70 designates a bar or member which is supported at its opposite ends in guides 71 upon the opposite sides of the frame 1 of the machine. The said bar or member 70 is adapted to be moved in its guides toward and from the curling roller 30. As a matter of convenience I connect a plate 72 to the upper edge of the cross bar or member 70 and the upper edge of said plate is beveled and sharpened as shown. The fabric passes over the said bar or member and rests upon the upper edge of the said plate. It is obvious, however, that the said plate may be omitted and the cloth be permitted to rest directly on the upper edge of the member 70; also that any other suitable means for supporting the fabric in operative relation to the curling roller 30 and plate or equivalent member 65 may be substituted for the members 70 and 72. The movement of the member 70 in its guides 71 toward and from the roller 30 is effected by means of links 75, one being located at each side of the machine, which links are respectively connected to arms 76 secured to a pivoted rod 77 which supports the guide roll 3. The said rod 77 is supported in brackets 78 connected to the frame of the machine. Movement of the arms 76 is occasioned by means of the hand lever 79 located on the opposite side of the machine from that illustrated in Fig. 1 of the drawings and connected to the rod 77. The lower ends of the links 75 are provided with projections 80 and 81 extending in opposite directions from the pivotal connections between the said links and the said arms 76 which projections are

adapted to rest upon the shaft 77 or a collar thereon, so that the said links support the cross bar or member 70 in its respective positions as shown in Figs. 1 and 2. In Fig. 1 the projection 81 is shown as being supported by the shaft 77 in which position the cross bar 70 and parts connected thereto are supported in their lowermost positions. In order to raise the cross bar 70 to bring it into the position shown in Fig. 2 with the upper edge of the plate 72 located adjacent to the curling roller 30 and the inner edge of the plate 65, the hand lever 79 is thrown or carried to the right (reference being had to Fig. 1) so as to bring the projections 80 of the links 75 into position over the said shaft 77.

When the machine is in operation, the upper edge of the cross bar or member 70 or 72, as the case may be, is in the position indicated in Figs. 2 and 4 of the drawing adjacent to the curling roller 30, and also adjacent to the inner edge of the plate 65. The fabric is drawn over the edge of the said cross bar or member 70 or 72, as the case may be, or other equivalent member, and between the same and the said curling roller and the inner edge of the said plate 65. The pile, indicated at 85 in Fig. 4 of the drawings, enters the grooves 67 of the curling roller 30. The said roller is in rapid rotation in the direction indicated by the arrow in Fig. 2 of the drawings, in consequence of which the pile which enters the said grooves is bent or carried over the edge of the plate 65. The fabric being drawn or fed forward over the cross bar or member 70 or 72, as the case may be, or other equivalent member, draws the pile over the edge of the said plate 65, with the result that it is curled in the manner indicated at 86 in Fig. 4. The edge of the plate 65 is somewhat sharp, as indicated, but not sharp enough to sever the pile. It should be understood that the part 65 need not necessarily be a plate, but may be any other suitable equivalent device against which the pile of the fabric is adapted to be pressed by the operation of the roller 30.

It is found desirable to run a brush over the surface of the fabric after it has been curled, and I accomplish this result by means of a revoluble brush 90, preferably of fiber, supported in the frame of the machine, and in such position as to contact with the fabric after it has been curled and after it is fed past the curling mechanism. Revolution of the said brush is occasioned by a band 91 extending over a band wheel on the shaft of the said brush and a band wheel upon the shaft 25.

By the use of my curling machine, a fabric in which the pile is normally straight and which normally presents to the eye a smooth appearance, may be made to pre-

sent an appearance resembling that of Persian lamb or astrakhan, due to the curling of the normally straight pile as set forth.

Having thus described my invention, I claim:—

1. Mechanism for curling the pile of a fabric comprising means having a non-cutting edge over and in contact with which the pile of the said fabric is drawn, means for bending the said pile over the first-named means, and means for causing the travel of the fabric past the said means.

2. In a machine for curling the pile of a fabric, the combination of a revoluble roller having grooves formed therein, a relatively stationary member having a non-cutting edge parallel to and in proximity to the said roller, means for causing the travel of the said fabric past the said roller and the said stationary member, means for supporting the said fabric in proximity to the said roller whereby the pile of the said fabric enters the said grooves and is pressed by the said roller against the edge of said member and is drawn across said edge as the fabric travels past the said roller and said member.

3. In a machine for curling the pile of a fabric, a revoluble member having spiral grooves formed in its surface, a member supported adjacent to the said revoluble member and having a non-cutting edge parallel therewith, and means for supporting said fabric adjacent to the said roller to cause the pile of the said fabric to enter the said grooves whereby the said pile is bent over and pressed against the edge of said member, and means to cause the travel of the said fabric past the said roller and the said member to draw the said pile across the edge of said member.

4. In a machine for curling the pile of a fabric, the combination of a revoluble member, a relatively stationary member having a non-cutting edge in proximity to the said revoluble member, the said revoluble member being provided with means for causing pressure of the said pile against the said relatively stationary member, means for supporting the said fabric in proximity to the said revoluble member to permit the means provided upon the said revoluble member to cause pressure of the pile of the said fabric against the said relatively stationary member, and means for causing the travel of the fabric past the said revoluble member and the said relatively stationary member to draw the pile of said fabric across the edge of the said relatively stationary member.

5. Mechanism for curling the pile of a fabric comprising a non-metallic revoluble roller, means having a non-cutting edge situated in operative relation to the said roller, the pile of the said fabric being bent over

the said edge by the said roller, means for supporting said fabric in operative relation to said roller, and means for causing the travel of the fabric past the said roller and
5 the said first mentioned means whereby the said pile is drawn across the said non-cutting edge and the curling of the same thereby effected.

6. Mechanism for curling the pile of a
10 fabric comprising a revoluble roller, means having a non-cutting edge adapted to cooperate with said roller, means for relatively adjusting the said roller and the said means
15 lation with respect to each other so that the

said roller may carry the pile of the said fabric over the said non-cutting edge, means for supporting said fabric in operative relation to said roller, and means for causing the travel of the fabric past the said roller
20 whereby the pile of the said fabric is drawn across and in contact with the said non-cutting edge.

In testimony that I claim the foregoing as my invention, I have hereunto signed my
25 name this 12th day of January, A. D. 1909.

FRED PEARSON.

In the presence of—

S. SALOME BROOKE,

CARRIE E. KLEINFELDER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
