

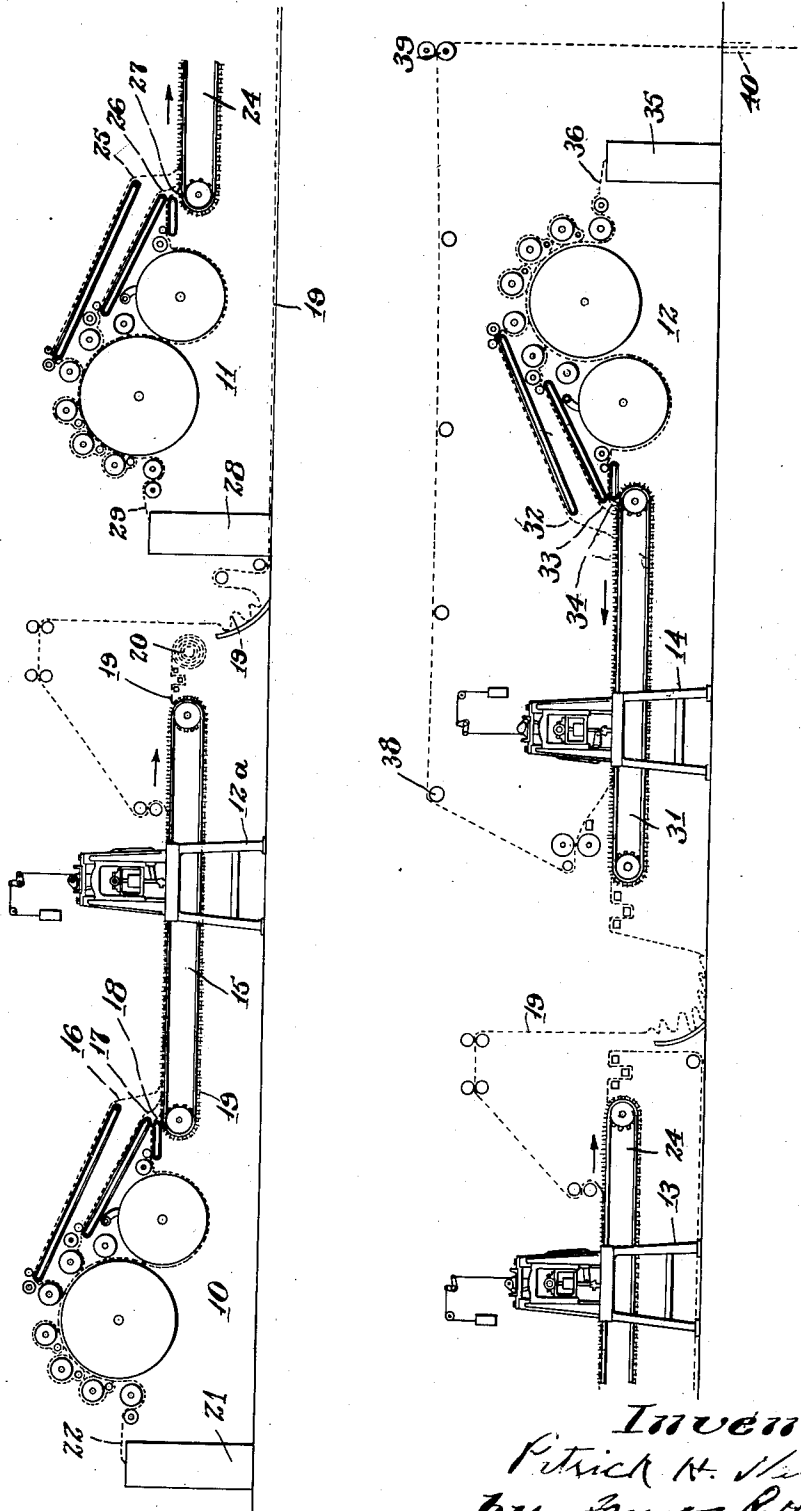
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PROCESS OF MAKING TEXTILE FABRICS

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PROCESS OF MAKING TEXTILE FABRICS

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My present invention relates to the textile art, and more particularly to an improved process or method of manufacturing textile fibres.

5 In my application, Serial No. 16,948, filed March 20, 1925, I have described and claimed an improved method of making textile fabric which consists in taking a length of textile base fabric, making the same into an endless
10 belt or loop, passing the same through a needling machine, such as described and claimed in my Patent No. 1,620,307 dated March 8, 1927, and the copending applications of Charles H. Chase, Serial Nos. 173,767 and
15 298,230, filed March 8, 1927, and August 8, 1928, respectively. The endless belt or loop of base fabric is passed through the needling machine, preferably twice in order to obtain the proper amount of needled fibres thereon,
20 after which the endless belt or loop is reversed so as to present the unworked on side to the needling machine. The resulting fabric is of good quality but the process of making the same is too slow from a commercial standpoint and requires too much manual labor
25 performed thereon. The process can be likened to a batch process rather than to a continuous process, which is preferable in the commercial exploitation of the making of a
30 textile fabric by needling.

With a view to overcoming the difficulties and objections above enumerated and as a step toward making the improved process a continuous process in which the needling of the
35 fibres to the base fabric could go on simultaneously from both sides, I have devised the subject matter of the present invention, and in carrying out my present invention, I have provided a plurality of needling machines of
40 the types above referred to arranged in series and have associated with each needling machine and in advance thereof a carding machine, such as disclosed and claimed in my Patent No. 1,683,812 dated September 11, 1928,
45 and which delivers to the base fabric, prior to its engagement with the bank of needles of the needling machine, a web of fleece comprising a plurality of layers. Also associated with each needling machine is an automatic tenter-
50 ing frame which automatically places in po-

sition with respect to the delivery end of the carding machine and with the needling machine the base fabric which may be located at any convenient point, and is arranged preferably on a roll. The speed of
55 the needling machine is gauged to correspond to the speed of travel of the tentering frame and the plurality of webs of fleece are delivered to the tentering frame at the same speed as the travel of such tentering frame. After
60 passing through enough of the needling machines to insure a sufficient thickness of fibre on one face of the base fabric, means is arranged for reversing the direction of travel of the base fabric in such a way as to bring
65 the still uncoated face thereof into position to have placed thereon fibrous material, which is then needled to the base fabric by a needling machine similar to the needling machines above referred to. The base fabric with the
70 fibrous material on each face thereof is now led to any convenient portion of the mill, where the other various processes, through which cloth would naturally go, are applied thereto.
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The object of my invention, therefore, is an improved process of making textile fabrics.

In the accompanying drawings is illustrated schematically a layout of machines capable of practicing my improved process.
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Referring to the drawings, 10, 11 and 12 illustrate a battery of three carding machines, and between the carding machines 10 and 11 is arranged a needling machine 12^a, while
85 between the carding machines 11 and 12, are arranged two needling machines 13 and 14. The needling machines 12^a, 13 and 14 may, and preferably are, identical in construction and are merely given reference characters different from each other for the sake of clear-
90 ness in description. Associated with the needling machine 12^a is an automatic tentering frame 15, the receiving end of which is located adjacent to the delivery end of the carding machine 10 and which carding ma-
95 chine delivers a plurality of layers of fibre 16, 17 and 18 onto one face of the base fabric 19, which is automatically applied to the tentering frame 15 from a roll 20. Associated with the intake end of the carding machine 10
100

is the usual cylinder 21 containing the fibrous material 22 in the form of roving. In passing through the needling machine 12^a the plurality of layers of fibre 16, 17 and 18 are needled to the upper face of the base fabric 19 and at the delivery end of the tentering frame 15 the base fabric 19, with the layers 16, 17 and 18 thereon, are fed onto the floor of the mill or into a trough, as may be desired, and is then led under a roll 23 and onto a second tentering frame 24, that is associated with the needling machine 13 and with the delivery end of the second carding machine 11 which delivers a plurality of layers of fibre 25, 26 and 27 onto the upper surface of the base fabric 19, which of course is automatically applied to the tentering frame 24 in the usual manner. Associated with the carding machine 11 is a cylinder 28 from which is fed the uncarded fibrous material 29, afterwards formed into the plurality of layers 25, 26 and 27.

After passing through the needling machine 13, where the layers 25, 26 and 27 are needled not only to the base fabric 19, but also to the layers 16, 17 and 18 of fibrous material, the tentering frame 24 automatically delivers the same onto the floor of the mill or into a trough, as may be desired, where it is led under a roll 30 and automatically delivered to a tentering frame 31 associated with the needling machine 14. It will be noted from an inspection of the drawing that the lower face or uncoated face of the base fabric 19 is now uppermost with regard to the tentering frame 31 and there is delivered thereto from the carding machine 12 a plurality of layers 32, 33 and 34 of fibrous material which, as it passes through the needling machine 14, is needled to the former under side of the base material 19. Associated with the carding machine 12 is a cylinder 35, which supplies uncarded fibrous material 36 to the machine, which uncarded material is delivered to the tentering frame 31 as the layers 32, 33 and 34 and is needled to such base fabric by the needling machine 14. At the delivery end of the tentering frame 31 is located a roll 37 which leads the coated base fabric 19 upward and over the pair of rolls 38 and 39 and thence downwardly through an opening 40 in the floor of the mill where the coated fabric is taken and put through the various finishing processes as is usual in finished fabric.

By the use of my process it is evident that I am no longer limited to the use of a closed belt or loop of base fabric 19 but that I may utilize a roll 20 of base fabric of unlimited length and pass the same through as many coating or covering operations for either or both sides as may be necessary, and that the coating process for both sides, therefore, becomes a continuous process.

I have shown the mechanism for practicing

my improved process as consisting of two devices for applying fibre to one face and one device for applying fibre to the opposite face, but it is to be understood that I am not limited to this particular showing and that I may vary the number of layers for either or both sides at will.

Having thus described my invention, what I claim as new is:

That improvement in the art of making textile fabric which consists in moving the base fabric in a straight line at a predetermined speed, applying thereto a plurality of layers of fibrous material at a plurality of points and needling each plurality of layers to the base fabric in succession, reversing the direction of movement of the base fabric, and applying and needling to the reverse side of such base fabric a plurality of layers of fibrous material.

In testimony whereof, I have signed my name to this specification.

PATRICK H. WALSH.