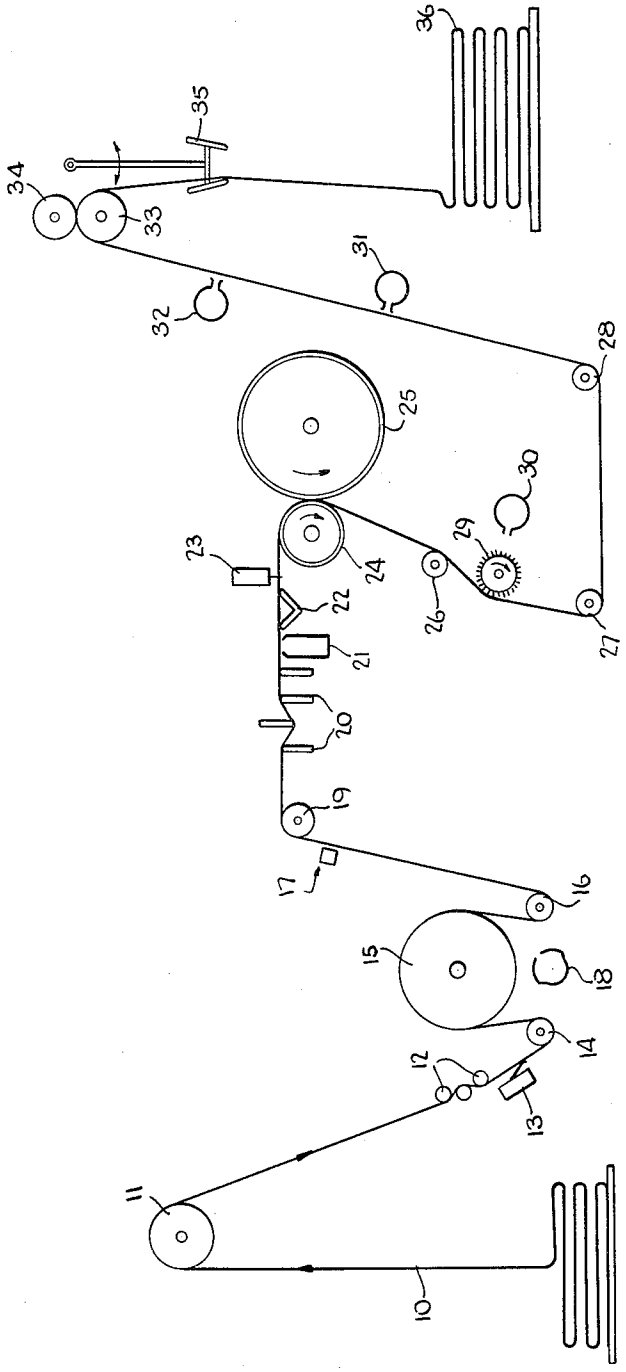
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IMPROVEMENTS IN THE SUEDING OF FABRIC

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IMPROVEMENTS IN THE SUEDING OF FABRIC

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The present invention relates to a novel apparatus and process for sueding fabrics and to the sueded fabric thereby produced.

A suede texture has heretofore been imparted to leather by effecting relative motion between the fabric and an abrasive member. When the process is employed with fabrics of textile fibers to impart thereto a similar suede texture, irregularities and non-uniform sueding result, in addition to other shortcomings.

It is accordingly an object of the present invention to provide a sueding process and apparatus which permit production of superior, uniform sueded textile fabrics.

Other objects and advantages of the invention will become apparent from the detailed description and claims which follow.

In accordance with one aspect of the present invention an elongated fabric is sueded by an abrasive roll while free of wrinkles and curled edges, and particles of the fabric which are severed therefrom by abrasion are removed to prevent uncontrolled shedding during subsequent handling or wearing. Advantageously, the fabric is steamed and vacuumed before sueding and the severed particles are removed by vacuum. Special means may be provided to maintain the fabric wrinkle-free and to permit the process to operate continuously.

The invention will now be described more fully with reference to the accompanying drawing schematically illustrating the novel process and apparatus. A plaited fabric **10** is pulled over an idler roll **11** and about tensioning bars **12**. The fabric next passes over a seam detector **13**, about an idler roll **14** and about a braked roll **15** having a non-slip surface. By means of an adjustable strap brake (not shown), the tension on the fabric is determined. Tensioning bars **12** ensure that the fabric **10** will lie uncurled and will hug tightly roll **15**.

From roll **15** the fabric passes about idler roll **16** and past a gauge **17** which signals an operator if the width of the fabric varies from a predetermined value. A streamer **18** is positioned below roll **15** and directs steam against the fabric **10** to assist in removal of wrinkles to prevent imperfections from arising during the subsequent sueding. From the width gauge **17** the fabric **10** passes over roll **19** which is helically grooved or threaded in opposite directions from each end, and which is rotated in opposition to the advance of the fabric. As viewed in the drawing with the fabric moving from left to right and the roll rotating counter clockwise, that end of roll **19** which is left-handed or S-grooved faces the viewer. This spreads and stretches the fabric transversely and prevents any edge curling which is a special problem with tricot.

The spread, tensioned fabric next passes through tensioning bars **20** which prevent re-formation of curled edges, over a slot in a member **21** whose interior is evacuated to remove, by vacuum, any lint or dirt from the underside of the fabric, and over a further tensioning bar **22** to prevent edge curling. An edge guide alarm **23** informs an operator if the fabric is too far to either side of the apparatus, and if all is well the fabric continues about a rubber-surfaced non-slip roll **24** which is rotated in clockwise direction. The space from the surface of roll **24** to the surface of an abrasive roll **25**, rotated counter clockwise at a much higher peripheral speed than roll

24, may be varied to adjust the amount of sueding. Roll **25** may be cooled, internally by water, externally by air, or the like, to remove heat generated by friction; the roll can be reciprocated along its axis during its rotation to prevent formation of longitudinal streaks.

The sueded fabric next passes idler rolls **26**, **27** and **28**, being brushed to dislodge some of the particles by a brush roll **29** which rotates in clockwise direction and is cleaned by vacuum member **30**. The degree of brushing is governed by the position of roll **26** which can be moved to the left or right. The fabric next passes vacuum chambers **31** and **32** to remove any adherent particles, thereby preventing subsequent shedding, is drawn by driven roll **33** between itself and idler roll **34**, and by plaiter **35** is plaited in a pile **36**, although it can be taken up in a roll if desired.

The lengths of all the aforementioned elements are such that each of them extends over at least the entire width of the fabric.

In the event that it is desired to process more than one bolt of fabric, successive bolts are sewn to one another so it will not be necessary to thread each through the apparatus. Since the relatively long lead in of an unjoined bolt would not be sueded, by successive joinder waste on successive bolts is minimized. The sewn joinder between bolts is heavy, however, and normally would be so shredded by the abrasive roll **25** that the bolts would come apart with loss of the advantages noted. Accordingly, a seam detector **13** notes the seam and sounds an alarm to alert an operator to displace roll **24** to the left for a short time to allow the seam to pass without being sueded. If desired this can be effected automatically, by any suitable means, with a suitable time lag between the sensing of the seam and temporary displacement of roll **24** to allow for travel of the seam, the time lag being controlled by the speed of the fabric through the apparatus. The width gauge **17** and edge guide alarm **23** upon actuation can also either sound alarms or actuate correcting mechanisms.

The fabric may be sueded on both sides if desired by the addition of another set of members **24**, **25**, **26**, **29** and **30** before roll **27** although the fabric could be run through the illustrated apparatus completely on one side and then run through again to suede the other side.

While the apparatus and process are generally suited for sueding all kinds of fabrics, they are especially useful for sueding knit fabrics, particularly warp knit or tricot fabrics which are subject to wrinkling, creasing and edge curling in the absence of the instant preventive means. With such lightweight materials the abraided-off particles would not all neatly fall off the fabric as would leather, but because of their light weight they would remain behind in varying amounts in the absence of brushing and/or vacuuming, shedding during use to the annoyance and discomfort of the ultimate user. Fabrics sueded in accordance with the invention are characterized by uniformity in sueding, improved appearance and hand and freedom from lint.

It is to be understood that the foregoing detailed description is given merely by way of illustration and that many variations may be made therein without departing from the spirit of our invention.

Having described our invention what we desire to secure by Letters Patent is:

1. The process which comprises tensioning a running tricot fabric, smoothing out and stretching said fabric transversely, steaming said fabric, vacuuming said fabric, sueding said fabric, brushing said fabric, vacuuming said brushed fabric, and collecting said fabric.

2. A tricot fabric produced in accordance with the process of claim 1.

3. In a process for producing sueded textile fabric

wherein an elongated textile fabric is smoothed out and stretched transversely, a surface of the smooth, stretched fabric is abraded, and the abraded particles removed therefrom, the improvement which comprises steaming and vacuuming said fabric prior to abrading whereby said abrading produces a uniformly sueded fabric.

4. In an apparatus comprising, in combination, means for advancing and collecting a fabric, tensioning means to smooth out said fabric in its advance, means for stretching said fabric in transverse direction, means for sueding said smooth, stretched fabric, and means for removing from said fabric particles severed therefrom during sueding, the improvement comprising means for steaming and vacuuming said fabric between said means for tensioning and said sueding means.

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